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Introduction

This document introduces BIDIR-PIM 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 BIDIR-PIM.

Example: Configuring BIDIR-PIM

Network configuration

As shown in [Figure 1](#):

- Switch A, Switch B, and Switch C run OSPF.
- Source 1 and Source 2 send multicast data to multicast group 225.1.1.1.
- Host A and Host B are member hosts of multicast group 225.1.1.1.

Configure BIDIR-PIM on the switches to implement multicast forwarding.□

Figure 1 Network diagram

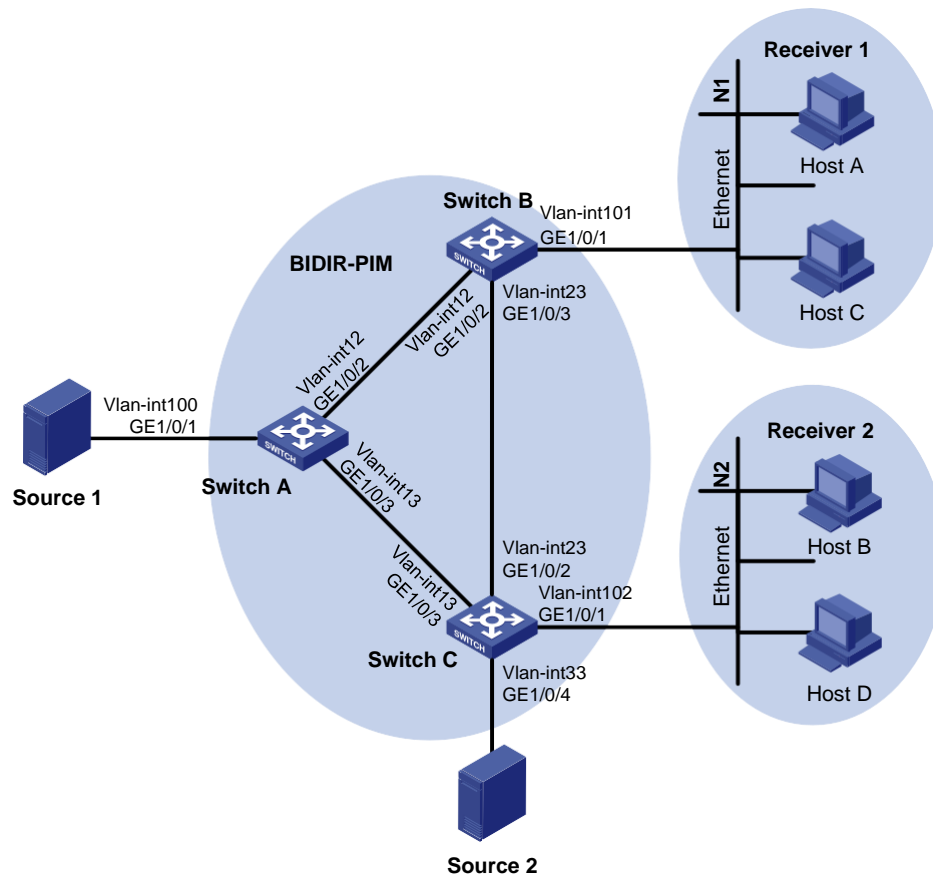


Table 1 Interface and IP address assignment

Device	Interface	IP address	Device	Interface	IP address
Switch A	Vlan-int100	10.10.1.1/24	Switch C	Vlan-int102	10.102.1.1/24
Switch A	Vlan-int12	10.12.1.1/24	Switch C	Vlan-int13	10.13.1.3/24
Switch A	Vlan-int13	10.13.1.1/24	Switch C	Vlan-int23	10.23.1.3/24
Switch B	Vlan-int101	10.101.1.1/24	Switch C	Vlan-int33	10.33.1.3/24
Switch B	Vlan-int12	10.12.1.2/24	Source 1	—	10.10.1.2/24
Switch B	Vlan-int23	10.23.1.2/24	Source 2	—	10.33.1.4/24

Analysis

To meet the network requirements, perform the following tasks:

- To establish the bidirectional RPT, configure VLAN-interface 12 on Switch A as a C-RP.
- To use the BSR mechanism to dynamically elect the RP, configure VLAN-interface 12 on Switch A as a C-BSR.
- To avoid multicast forwarding interruption when the RP fails, specify the unused IP address 10.13.1.4/24 as the static RP. In this way, the link on the subnet 10.13.1.0/24 becomes the RPL. Switch A and Switch C on the link function as the RPs.

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	Not supported
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	Not supported
SC 3130 switch series	Not supported

Restrictions and guidelines

When you configure BIDIR-PIM, follow these restrictions and guidelines:

- Enable the same PIM mode on the interfaces that belong to the same VPN instance on each switch.
- Configure the same static RP on all the switches in the BIDIR-PIM domain.
- Enable PIM-SM for all interfaces on the switches in the BIDIR-PIM domain.

- Enable IGMP for the interfaces that connect to the stub networks on all the switches in the BIDIR-PIM domain.

Procedures

Configure Switch A

1. Enable IP multicast routing.

```
<SwitchA> system-view
System View: return to User View with Ctrl+Z.
[SwitchA] multicast routing
[SwitchA-mrib] quit
```

2. Configure each interface and enable PIM-SM.

Create VLAN 100, and assign GigabitEthernet 1/0/1 to this VLAN.

```
[SwitchA] vlan 100
[SwitchA-vlan100] port gigabitethernet 1/0/1
[SwitchA-vlan100] quit
```

Assign an IP address to VLAN-interface 100, and enable PIM-SM on the interface.

```
[SwitchA] interface vlan-interface 100
[SwitchA-Vlan-interface100] ip address 10.10.1.1 24
[SwitchA-Vlan-interface100] pim sm
[SwitchA-Vlan-interface100] quit
```

Create VLAN 12, and assign GigabitEthernet 1/0/2 to the VLAN.

```
[SwitchA] vlan 12
[SwitchA-vlan12] port gigabitethernet 1/0/2
[SwitchA-vlan12] quit
```

Assign an IP address to VLAN-interface 12, enable PIM-SM on the interface.

```
[SwitchA-vlan12] interface vlan-interface 12
[SwitchA-Vlan-interface12] ip address 10.12.1.1 24
[SwitchA-Vlan-interface12] pim sm
[SwitchA-Vlan-interface12] quit
```

Create VLAN 13, and assign GigabitEthernet 1/0/3 to the VLAN.

```
[SwitchA] vlan 13
[SwitchA-vlan13] port gigabitethernet 1/0/3
[SwitchA-vlan13] quit
```

Assign an IP address to VLAN-interface 13, enable PIM-SM on the interface.

```
[SwitchA] interface vlan-interface 13
[SwitchA-Vlan-interface13] ip address 10.13.1.1 24
[SwitchA-Vlan-interface13] pim sm
[SwitchA-Vlan-interface13] quit
```

3. Configure a C-RP, a C-BSR, and the static RP.

Configure VLAN-interface 12 as a C-BSR and a C-RP.

```
[SwitchA] pim
[SwitchA-pim] c-bsr 10.12.1.1
[SwitchA-pim] c-rp 10.12.1.1 bidir
```

Specify the unused IP address 10.13.1.4 as a static RP.

```
[SwitchA-pim] static-rp 10.13.1.4 bidir
```

4. Enable BIDIR-PIM.

```
[SwitchA-pim] bidir-pim enable
[SwitchA-pim] quit
```

5. Configure OSPF.

```
[SwitchA] ospf 1
[SwitchA-ospf-1] import-route direct
[SwitchA-ospf-1] area 0
[SwitchA-ospf-1-area-0.0.0.0] network 10.0.0.0 0.255.255.255
[SwitchA-ospf-1-area-0.0.0.0] quit
[SwitchA-ospf-1] quit
```

Configure Switch B

1. Enable IP multicast routing.

```
<SwitchB> system-view
System View: return to User View with Ctrl+Z.
[SwitchB] multicast routing
[SwitchB-mrib] quit
```

2. Configure each interface and enable PIM-SM.

Create VLAN 12, and assign GigabitEthernet 1/0/2 to this VLAN.

```
[SwitchB] vlan 12
[SwitchB-vlan12] port gigabitethernet 1/0/2
[SwitchB-vlan12] quit
```

Assign an IP address to VLAN-interface 12, enable PIM-SM on the interface.

```
[SwitchB] interface vlan-interface 12
[SwitchB-Vlan-interface12] ip address 10.12.1.2 24
[SwitchB-Vlan-interface12] pim sm
[SwitchB-Vlan-interface12] quit
```

Create VLAN 23, and assign GigabitEthernet 1/0/3 to this VLAN.

```
[SwitchB] vlan 23
[SwitchB-vlan23] port gigabitethernet 1/0/3
[SwitchB-vlan23] quit
```

Assign an IP address to VLAN-interface 23, enable PIM-SM on the interface.

```
[SwitchB] interface vlan-interface 23
[SwitchB-Vlan-interface23] ip address 10.23.1.2 24
[SwitchB-Vlan-interface23] pim sm
[SwitchB-Vlan-interface23] quit
```

Create VLAN 101, and assign GigabitEthernet 1/0/1 to this VLAN.

```
[SwitchB] vlan 101
[SwitchB-vlan101] port gigabitethernet 1/0/1
[SwitchB-vlan101] quit
```

Assign an IP address to VLAN-interface 101, enable PIM-SM and IGMP on the interface.

```
[SwitchB] interface vlan-interface 101
[SwitchB-Vlan-interface101] ip address 10.101.1.1 24
[SwitchB-Vlan-interface101] igmp enable
[SwitchB-Vlan-interface101] quit
```

3. Specify the unused IP address 10.13.1.4 as a static RP.

```
[SwitchB] pim
[SwitchB-pim] static-rp 10.13.1.4 bidir
```

4. Enable BIDIR-PIM.

```
[SwitchB-pim] bidir-pim enable
[SwitchB-pim] quit
```

5. Configure OSPF.

```
[SwitchB] ospf 1
[SwitchB-ospf-1] import-route direct
[SwitchB-ospf-1] area 0
[SwitchB-ospf-1-area-0.0.0.0] network 10.0.0.0 0.255.255.255
[SwitchB-ospf-1-area-0.0.0.0] quit
[SwitchB-ospf-1] quit
```

Configure Switch C

1. Enable IP multicast routing.

```
<SwitchC> system-view
System View: return to User View with Ctrl+Z.
[SwitchC] multicast routing
[SwitchC-mrib] quit
```

2. Configure each interface and enable PIM-SM.

Create VLAN 33, and assign GigabitEthernet 1/0/4 to this VLAN.

```
[SwitchC] vlan 33
[SwitchC-vlan33] port gigabitethernet 1/0/4
[SwitchC-vlan33] quit
```

Assign an IP address to VLAN-interface 33, enable PIM-SM on the interface.

```
[SwitchC] interface vlan-interface 33
[SwitchC-Vlan-interface33] ip address 10.33.1.3 24
[SwitchC-Vlan-interface33] pim sm
[SwitchC-Vlan-interface33] quit
```

Create VLAN 13, and assign GigabitEthernet 1/0/3 to this VLAN.

```
[SwitchC] vlan 13
[SwitchC-vlan13] port gigabitethernet 1/0/3
[SwitchC-vlan13] quit
```

Assign an IP address to VLAN-interface 13, enable PIM-SM on the interface.

```
[SwitchC] interface vlan-interface 13
[SwitchC-Vlan-interface13] ip address 10.13.1.3 24
[SwitchC-Vlan-interface13] pim sm
[SwitchC-Vlan-interface13] quit
```

Create VLAN 23, and assign GigabitEthernet 1/0/2 to this VLAN.

```
[SwitchC] vlan 23
[SwitchC-vlan23] port gigabitethernet 1/0/2
[SwitchC-vlan23] quit
```

Assign an IP address to VLAN-interface 23, enable PIM-SM on the interface.

```
[SwitchC] interface vlan-interface 23
[SwitchC-Vlan-interface23] ip address 10.23.1.3 24
[SwitchC-Vlan-interface23] pim sm
```

```
[SwitchC-Vlan-interface23] quit
# Create VLAN 102, and assign GigabitEthernet 1/0/1 to this VLAN.
[SwitchC] vlan 102
[SwitchC-vlan102] port gigabitethernet 1/0/1
[SwitchC-vlan102] quit
# Assign an IP address to VLAN-interface 102, enable PIM-SM and IGMP on the interface.
[SwitchC] interface vlan-interface 102
[SwitchC-Vlan-interface102] ip address 10.102.1.1 24
[SwitchC-Vlan-interface102] igmp enable
[SwitchC-Vlan-interface102] quit
3. Specify the unused IP address 10.13.1.4 as a static RP.
[SwitchC] pim
[SwitchC-pim] static-rp 10.13.1.4 bidir
4. Enable BIDIR-PIM
[SwitchC-pim] bidir-pim enable
[SwitchC-pim] quit
5. Configure OSPF.
[SwitchC] ospf 1
[SwitchC-ospf-1] import-route direct
[SwitchC-ospf-1] area 0
[SwitchC-ospf-1-area-0.0.0.0] network 10.0.0.0 0.255.255.255
[SwitchC-ospf-1-area-0.0.0.0] quit
[SwitchC-ospf-1] quit
```

Verifying the configuration

1. Verify that Switch A, Switch B, and Switch C have established PIM neighbor relationships.

Display PIM neighbor information on Switch A.

```
[SwitchA] display pim neighbor
Total Number of Neighbors = 2
```

Neighbor	Interface	Uptime	Expires	DR-Priority	Mode
10.12.1.2	Vlan12	00:02:27	00:01:45	1	B
10.13.1.3	Vlan13	00:02:27	00:01:19	1	B

Display PIM neighbor information on Switch B.

```
[SwitchB] display pim neighbor
Total Number of Neighbors = 2
```

Neighbor	Interface	Uptime	Expires	DR-Priority	Mode
10.12.1.1	Vlan12	00:03:05	00:01:44	1	B
10.23.1.3	Vlan23	00:13:49	00:01:29	1	B

Display PIM neighbor information on Switch C.

```
[SwitchC] display pim neighbor
Total Number of Neighbors = 2
```

Neighbor	Interface	Uptime	Expires	DR-Priority	Mode
10.13.1.1	Vlan13	00:03:28	00:01:39	1	B

10.23.1.2 Vlan23 00:14:05 00:01:36 1 B

2. Verify that VLAN-interface 12 on Switch A has been elected as the BSR on each switch.

Display BSR information on Switch A.

```
[SwitchA] display pim bsr-info
Scope: non-scoped
  State: Elected
  Bootstrap timer: 00:01:18
  Elected BSR address: 10.12.1.1
  Priority: 64
  Hash mask length: 30
  Uptime: 00:04:01
  Candidate BSR address: 10.12.1.1
  Priority: 64
  Hash mask length: 30
```

Display BSR information on Switch B.

```
[SwitchB] display pim bsr-info
Scope: non-scoped
  State: Accept Preferred
  Bootstrap timer: 00:00:26
  Elected BSR address: 10.12.1.1
  Priority: 64
  Hash mask length: 30
  Uptime: 00:10:41
```

Display BSR information on Switch C.

```
[SwitchC] display pim bsr-info
Scope: non-scoped
  State: Accept Preferred
  Bootstrap timer: 00:02:08
  Elected BSR address: 10.12.1.1
  Priority: 64
  Hash mask length: 30
  Uptime: 00:15:41
```

3. Verify that VLAN-interface 12 on Switch A has been elected as the RP, and verify that the IP address of the static RP is 10.13.1.4 on each switch.

Display RP information on Switch A.

```
[SwitchA] display pim rp-info
BSR RP information:
  Scope: non-scoped
  Group/MaskLen: 224.0.0.0/4 [B]
  RP address      Priority HoldTime Uptime   Expires
  10.12.1.1 (local) 192      150      00:06:01 00:02:58

Static RP information:
  RP address      ACL   Mode   Preferred
  10.13.1.4      ----  bidir  No
```

Display RP information on Switch B.

```
[SwatchB] display pim rp-info
BSR RP information:
```

```

Scope: non-scoped
Group/MaskLen: 224.0.0.0/4 [B]
  RP address      Priority HoldTime Uptime   Expires
  10.12.1.1       192      150      00:06:33 00:02:26

```

```

Static RP information:
  RP address      ACL   Mode   Preferred
  10.13.1.4       ----  bidir  No

```

Display RP information on Switch C.

```

[SwitchC] display pim rp-info
BSR RP information:
Scope: non-scoped
Group/MaskLen: 224.0.0.0/4 [B]
  RP address      Priority HoldTime Uptime   Expires
  10.12.1.1       192      150      00:06:51 00:02:05

```

```

Static RP information:
  RP address      ACL   Mode   Preferred
  10.13.1.4       ----  bidir  No

```

4. Verify that the DFs have been elected for BIDIR-PIM on each switch.

Display information about DFs for BIDIR-PIM on Switch A.

```

[SwitchA] display pim df-info
RP address: 10.12.1.1
Interface: Vlan-interface100
  State      : Win      DF preference: 0
  DF metric : 0          DF uptime   : 00:01:09
  DF address: 10.10.1.1 (local)
Interface: Vlan-interface12
  State      : -          DF preference: -
  DF metric : -          DF uptime   : -
  DF address: -
Interface: Vlan-interface13
  State      : Win      DF preference: 0
  DF metric : 0          DF uptime   : 00:01:10
  DF address: 10.13.1.1 (local)

```

```

RP address: 10.13.1.4
Interface: Vlan-interface100
  State      : Win      DF preference: 0
  DF metric : 0          DF uptime   : 00:00:07
  DF address: 10.10.1.1 (local)
Interface: Vlan-interface12
  State      : Win      DF preference: 0
  DF metric : 0          DF uptime   : 00:00:07
  DF address: 10.12.1.1 (local)
Interface: Vlan-interface13
  State      : -          DF preference: -
  DF metric : -          DF uptime   : -

```

DF address: -
Display information about DFs for BIDIR-PIM on Switch B.

[SwitchB] display pim df-info

RP address: 10.12.1.1

Interface: Vlan-interface12

State : - DF preference: -
DF metric : - DF uptime : -
DF address: -

Interface: Vlan-interface23

State : Win DF preference: 0
DF metric : 0 DF uptime : 00:01:46
DF address: 10.23.1.2 (local)

Interface: Vlan-interface101

State : Win DF preference: 0
DF metric : 0 DF uptime : 00:01:45
DF address: 10.101.1.1 (local)

RP address: 10.13.1.4

Interface: Vlan-interface12

State : Lose DF preference: 0
DF metric : 0 DF uptime : 00:00:44
DF address: 10.12.1.1

Interface: Vlan-interface23

State : Lose DF preference: 0
DF metric : 0 DF uptime : 00:00:53
DF address: 10.23.1.3

Interface: Vlan-interface101

State : Win DF preference: 10
DF metric : 2 DF uptime : 00:00:53
DF address: 10.101.1.1 (local)

Display information about DFs for BIDIR-PIM on Switch C.

[SwitchC] display pim df-info

RP address: 10.12.1.1

Interface: Vlan-interface102

State : Win DF preference: 10
DF metric : 2 DF uptime : 00:02:07
DF address: 10.102.1.1 (local)

Interface: Vlan-interface33

State : Win DF preference: 10
DF metric : 2 DF uptime : 00:02:06
DF address: 10.33.1.3 (local)

Interface: Vlan-interface13

State : Lose DF preference: 0
DF metric : 0 DF uptime : 00:02:07
DF address: 10.13.1.1

Interface: Vlan-interface23

State : Lose DF preference: 0
DF metric : 0 DF uptime : 00:02:07

DF address: 10.23.1.2

RP address: 10.13.1.4

Interface: Vlan-interface102

State : Win DF preference: 0
DF metric : 0 DF uptime : 00:01:24
DF address: 10.102.1.1 (local)

Interface: Vlan-interface33

State : Win DF preference: 0
DF metric : 0 DF uptime : 00:01:23
DF address: 10.33.1.3 (local)

Interface: Vlan-interface13

State : - DF preference: -
DF metric : - DF uptime : -
DF address: -

Interface: Vlan-interface23

State : Win DF preference: 0
DF metric : 0 DF uptime : 00:01:24

- 5. Verify that DFs for multicast forwarding are correct on each switch.**
Display information about DFs for multicast forwarding on Switch A.

[SwitchA] display multicast forwarding df-info

Total 2 RPs, 2 matched

00001. RP address: 10.12.1.1

Flags: 0x0
Uptime: 00:02:42
RPF interface: Vlan-interface12
List of 2 DF interfaces:
1: Vlan-interface100
2: Vlan-interface13

00002. RP address: 10.13.1.4

Flags: 0x0
Uptime: 00:01:41
RPF interface: Vlan-interface13
List of 2 DF interfaces:
1: Vlan-interface100
2: Vlan-interface12

- # Display information about DFs for multicast forwarding on Switch B.**

[SwitchB] display multicast forwarding df-info

Total 2 RPs, 2 matched

00001. RP address: 10.12.1.1

Flags: 0x0
Uptime: 00:03:18
RPF interface: Vlan-interface12
List of 2 DF interfaces:
1: Vlan-interface23

2: Vlan-interface101

00002. RP address: 10.13.1.4

Flags: 0x0

Uptime: 00:02:24

RPF interface: Vlan-interface23

List of 1 DF interfaces:

1: Vlan-interface101

Display information about DFs for multicast forwarding on Switch C.

[SwitchC] display multicast forwarding df-info

Total 2 RPs, 2 matched

00001. RP address: 10.12.1.1

Flags: 0x0

Uptime: 00:03:38

RPF interface: Vlan-interface23

List of 2 DF interfaces:

1: Vlan-interface102

2: Vlan-interface33

00002. RP address: 10.13.1.4

Flags: 0x0

Uptime: 00:02:41

RPF interface: Vlan-interface13

List of 3 DF interfaces:

1: Vlan-interface33

2: Vlan-interface23

3: Vlan-interface102

6. Send IGMP reports from Host A and Host B to join multicast group 225.1.1.1, and send multicast data from Source 1 and Source 2 to the group. (Details not shown.)
7. Verify that PIM forwarding entries have been correctly established on each switch.

Display information about PIM routing entries on Switch A.

[SwitchA] display pim routing-table

Total 1 (*, G) entries; 0 (S, G) entries

(*, 225.1.1.1)

RP: 10.12.1.1 (local)

Protocol: pim-bidir, Flag: WC LOC ACT

UpTime: 00:21:59

Upstream interface: Vlan-interface12

Upstream neighbor: NULL

RPF prime neighbor: NULL

Downstream interface(s) information:

Total number of downstreams: 1

1: Vlan-interfacel2

Protocol: pim-bidir, UpTime: 00:21:59, Expires: -

2: Vlan-interfacel3

Protocol: pim-bidir, UpTime: 00:03:26, Expires: -

Display information about PIM routing entries on Switch B.

```
[SwitchB] display pim routing-table
Total 1 (*, G) entries; 0 (S, G) entries

(*, 225.1.1.1)
  RP: 10.12.1.1
  Protocol: pim-bidir, Flag: WC LOC ACT
  UpTime: 00:23:47
  Upstream interface: Vlan-interface12
    Upstream neighbor: NULL
    RPF prime neighbor: NULL
  Downstream interface(s) information:
  Total number of downstreams: 3
    1: Vlan-interface12
      Protocol: pim-bidir, UpTime: 00:23:47, Expires: -
    2: Vlan-interface23
      Protocol: pim-bidir, UpTime: 00:21:56, Expires: -
    3: Vlan-interface101
      Protocol: igmp, UpTime: 00:23:47, Expires: -
```

Display information about PIM routing entries on Switch C.

```
[SwitchC] display pim routing-table
Total 1 (*, G) entries; 0 (S, G) entries

(*, 225.1.1.1)
  RP: 10.12.1.1
  Protocol: pim-bidir, Flag: WC ACT
  UpTime: 00:01:45
  Upstream interface: Vlan-interface23
    Upstream neighbor: 10.23.1.2
    RPF prime neighbor: 10.23.1.2
  Downstream interface(s) information:
  Total number of downstreams: 2
    1: Vlan-interface102
      Protocol: igmp, UpTime: 00:01:05, Expires: -
    2: Vlan-interface23
      Protocol: pim-bidir, UpTime: 00:00:53, Expires: -
```

Configuration files



IMPORTANT:

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

- Switch A:

```
#
ospf 1
 area 0.0.0.0
  network 10.0.0.0 0.255.255.255
```

```

#
vlan 12 to 13
#
vlan 100
#
interface Vlan-interface12
 ip address 10.12.1.1 255.255.255.0
 pim sm
#
interface Vlan-interface13
 ip address 10.13.1.1 255.255.255.0
 pim sm
#
interface Vlan-interface100
 ip address 10.10.1.1 255.255.255.0
 pim sm
#
interface GigabitEthernet1/0/1
 port link-mode bridge
 port access vlan 100
#
interface GigabitEthernet1/0/2
 port link-mode bridge
 port access vlan 12
#
interface GigabitEthernet1/0/3
 port link-mode bridge
 port access vlan 13
#
multicast routing
#
pim
 bidir-pim enable
 c-bsr 10.12.1.1
 c-rp 10.12.1.1 bidir
 static-rp 10.13.1.4 bidir
#
• Switch B:
#
ospf 1
 area 0.0.0.0
  network 10.0.0.0 0.255.255.255
#
vlan 12
#
Vlan 23
#
vlan 101

```

```

#
interface Vlan-interface12
 ip address 10.12.1.2 255.255.255.0
 pim sm
#
interface Vlan-interface23
 ip address 10.23.1.2 255.255.255.0
 pim sm
#
interface Vlan-interface101
 ip address 10.101.1.1 255.255.255.0
 igmp enable
#
interface GigabitEthernet1/0/1
 port link-mode bridge
 port access vlan 101
#
interface GigabitEthernet1/0/2
 port link-mode bridge
 port access vlan 12
#
interface GigabitEthernet1/0/3
 port link-mode bridge
 port access vlan 23
#
multicast routing
#
pim
 bidir-pim enable
 static-rp 10.13.1.4 bidir
#

```

- **Switch C:**

```

#
ospf 1
 area 0.0.0.0
  network 10.0.0.0 0.255.255.255
#
vlan 13
#
vlan 23
#
vlan 33
#
vlan 102
#
interface Vlan-interface13
 ip address 10.13.1.3 255.255.255.0
 pim sm

```



```

#
interface Vlan-interface23
 ip address 10.23.1.3 255.255.255.0
 pim sm
#
interface Vlan-interface33
 ip address 10.33.1.3 255.255.255.0
 pim sm
#
interface Vlan-interface102
 ip address 10.102.1.1 255.255.255.0
 igmp enable
#
interface GigabitEthernet1/0/1
 port link-mode bridge
 port access vlan 102
#
interface GigabitEthernet1/0/2
 port link-mode bridge
 port access vlan 23
#
interface GigabitEthernet1/0/3
 port link-mode bridge
 port access vlan 13
#
interface GigabitEthernet1/0/4
 port link-mode bridge
 port access vlan 33
#
multicast routing
#
pim
 bidir-pim enable
 static-rp 10.13.1.4 bidir
#

```