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# Introduction

This document provides RRPP 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 RRPP.

## General restrictions and guidelines

When you configure RRPP, follow these restrictions and guidelines:

- Do not configure the default VLAN of a port accessing an RRPP ring as the control VLAN.
- On switches that support QinQ and VLAN mapping, do not enable QinQ or VLAN mapping on control VLANs. If you do, RRPPDUs cannot be correctly forwarded.
- On switches that support Layer 3 Ethernet interfaces, the primary and secondary control VLAN IDs must be different from the Layer 3 Ethernet subinterface IDs of the master ring and subrings.
- To prevent temporary broadcast storms, do not enable the OAM remote loopback feature on an RRPP port.

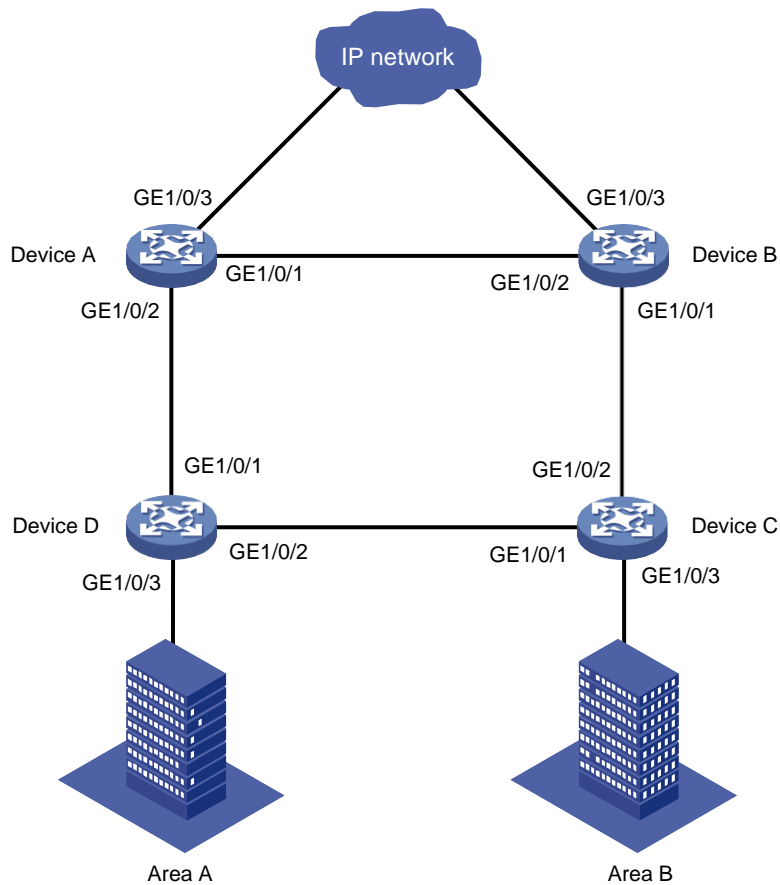
## Example: Configuring a single ring

### Network configuration

As shown in [Figure 1](#), area A and area B are connected to a ring-shaped distribution layer network. Configure RRPP to implement the following requirements in the network:

- Eliminate loops and implement link recovery in the Layer 2 network.
- Implement link load balancing by forwarding voice traffic in VLAN 100 through VLAN 150 and video traffic in VLAN 151 through VLAN 200.
- Improve RRPP topology convergence speed by setting the physical state change suppression interval to 0 seconds for all Ethernet interfaces on the RRPP ring.

**Figure 1 Network diagram**



## Analysis

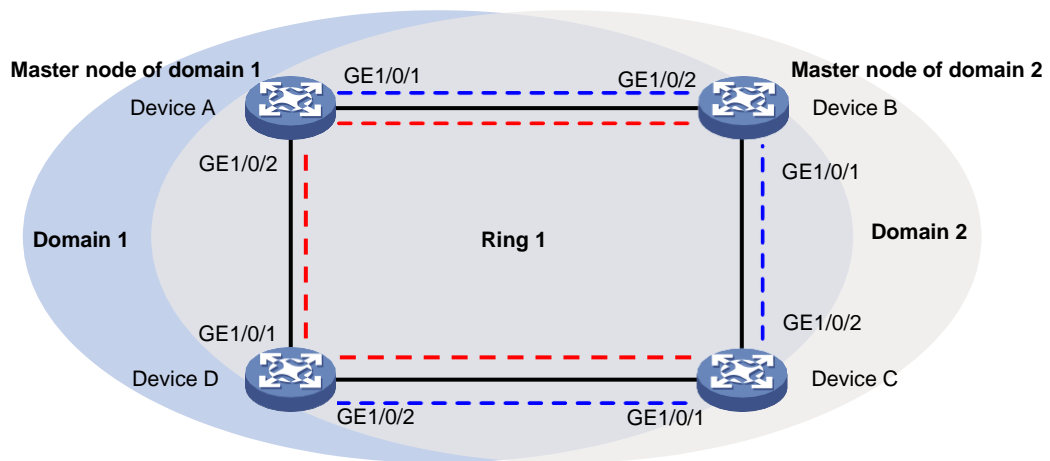
For voice and video traffic to be forwarded in different topologies, create two RRPP domains.

- In RRPP domain 1, specify VLAN 100 through VLAN 150 as protected VLANs, and specify Device A as the master node.
- In RRPP domain 2, specify VLAN 151 through VLAN 200 as protected VLANs, and specify Device B as the master node.

To implement load balancing for voice and video traffic, perform the following tasks:

- On Device A, specify GigabitEthernet 1/0/1 as the primary port, and GigabitEthernet 1/0/2 as the secondary port.
- On Device B, specify GigabitEthernet 1/0/2 as the primary port, and GigabitEthernet 1/0/1 as the secondary port.

**Figure 2 Topologies for voice and video traffic**



— Topology for voice traffic  
— Topology for video traffic

## 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 a single RRPP ring, follow these restrictions and guidelines:

- After you configure RRPP rings for an RRPP domain, you cannot delete or modify the primary control VLAN of the domain. You can only use the **undo control-vlan** command to delete a primary control VLAN.
- When you configure load balancing, you must configure different protected VLANs for different RRPP domains.
- When you configure RRPP port roles, disable the spanning tree feature on the ports, and make sure the ports are not member ports of any smart link groups.

## Procedures

### Configuring Device A

# Create VLANs 100 through 200.

```
<DeviceA> system-view  
[DeviceA] vlan 100 to 200
```

# Map VLANs 100 through 150 to MSTI 1, and VLANs 151 through 200 to MSTI 2.

```
[DeviceA] stp region-configuration  
[DeviceA-mst-region] instance 1 vlan 100 to 150  
[DeviceA-mst-region] instance 2 vlan 151 to 200
```

# Activate the MST region configuration.

```
[DeviceA-mst-region] active region-configuration  
[DeviceA-mst-region] quit
```

# Configure GigabitEthernet 1/0/1 as a trunk port.

```
[DeviceA] interface gigabitethernet 1/0/1
```

```
[DeviceA-GigabitEthernet1/0/1] undo shutdown
[DeviceA-GigabitEthernet1/0/1] port link-type trunk
# Assign the port to VLANs 100 through 200, and remove it from VLAN 1.
[DeviceA-GigabitEthernet1/0/1] port trunk permit vlan 100 to 200
[DeviceA-GigabitEthernet1/0/1] undo port trunk permit vlan 1
```

**# Set the physical state change suppression interval to 0 seconds on the port.**

```
[DeviceA-GigabitEthernet1/0/1] link-delay up 0
[DeviceA-GigabitEthernet1/0/1] link-delay down 0
```

**# Disable the spanning tree feature on the port.**

```
[DeviceA-GigabitEthernet1/0/1] undo stp enable
[DeviceA-GigabitEthernet1/0/1] quit
```

**# Configure GigabitEthernet 1/0/2 in the same way GigabitEthernet 1/0/1 is configured.**

```
[DeviceA] interface gigabitethernet 1/0/2
[DeviceA-GigabitEthernet1/0/2] undo shutdown
[DeviceA-GigabitEthernet1/0/2] port link-type trunk
[DeviceA-GigabitEthernet1/0/2] port trunk permit vlan 100 to 200
[DeviceA-GigabitEthernet1/0/2] undo port trunk permit vlan 1
[DeviceA-GigabitEthernet1/0/2] link-delay up 0
[DeviceA-GigabitEthernet1/0/2] link-delay down 0
[DeviceA-GigabitEthernet1/0/2] undo stp enable
[DeviceA-GigabitEthernet1/0/2] quit
```

**# Create RRPP domain 1.**

```
[DeviceA] rrpp domain 1
```

**# Configure VLAN 1000 as the primary control VLAN of RRPP domain 1.**

```
[DeviceA-rrpp-domain1] control-vlan 1000
```

**# Configure the VLANs mapped to MSTI 1 as the protected VLANs of RRPP domain 1.**

```
[DeviceA-rrpp-domain1] protected-vlan reference-instance 1
```

**# Configure Device A as the master node of primary ring 1, with GigabitEthernet 1/0/1 as the primary port and GigabitEthernet 1/0/2 as the secondary port. Enable ring 1.**

```
[DeviceA-rrpp-domain1] ring 1 node-mode master primary-port gigabitethernet 1/0/1
secondary-port gigabitethernet 1/0/2 level 0
[DeviceA-rrpp-domain1] ring 1 enable
[DeviceA-rrpp-domain1] quit
```

**# Create RRPP domain 2.**

```
[DeviceA] rrpp domain 2
```

**# Configure VLAN 2000 as the primary control VLAN of RRPP domain 2.**

```
[DeviceA-rrpp-domain2] control-vlan 2000
```

**# Configure the VLANs mapped to MSTI 2 as the protected VLANs of RRPP domain 2.**

```
[DeviceA-rrpp-domain2] protected-vlan reference-instance 2
```

**# Configure Device A as the transit node of primary ring 1, with GigabitEthernet 1/0/1 as the primary port and GigabitEthernet 1/0/2 as the secondary port. Enable ring 1.**

```
[DeviceA-rrpp-domain2] ring 1 node-mode transit primary-port gigabitethernet 1/0/1
secondary-port gigabitethernet 1/0/2 level 0
[DeviceA-rrpp-domain2] ring 1 enable
[DeviceA-rrpp-domain2] quit
```

**# Enable RRPP.**

```
[DeviceA] rrpp enable
```

## Configuring Device B

**# Create VLANs 100 through 200.**

```

<DeviceB> system-view
[DeviceB] vlan 100 to 200

# Map VLANs 100 through 150 to MSTI 1, and VLANs 151 through 200 to MSTI 2.
[DeviceB] stp region-configuration
[DeviceB-mst-region] instance 1 vlan 100 to 150
[DeviceB-mst-region] instance 2 vlan 151 to 200

# Activate the MST region configuration.
[DeviceB-mst-region] active region-configuration
[DeviceB-mst-region] quit

# Configure GigabitEthernet 1/0/1 as a trunk port.
[DeviceB] interface gigabitethernet 1/0/1
[DeviceB-GigabitEthernet1/0/1] undo shutdown
[DeviceB-GigabitEthernet1/0/1] port link-type trunk

# Assign the port to VLANs 100 through 200, and remove it from VLAN 1.
[DeviceB-GigabitEthernet1/0/1] port trunk permit vlan 100 to 200
[DeviceB-GigabitEthernet1/0/1] undo port trunk permit vlan 1

# Set the physical state change suppression interval to 0 seconds on the port.
[DeviceB-GigabitEthernet1/0/1] link-delay up 0
[DeviceB-GigabitEthernet1/0/1] link-delay down 0

# Disable the spanning tree feature on the port.
[DeviceB-GigabitEthernet1/0/1] undo stp enable
[DeviceB-GigabitEthernet1/0/1] quit

# Configure GigabitEthernet 1/0/2 in the same way GigabitEthernet 1/0/1 is configured.
[DeviceB] interface gigabitethernet 1/0/2
[DeviceB-GigabitEthernet1/0/2] undo shutdown
[DeviceB-GigabitEthernet1/0/2] port link-type trunk
[DeviceB-GigabitEthernet1/0/2] port trunk permit vlan 100 to 200
[DeviceB-GigabitEthernet1/0/2] undo port trunk permit vlan 1
[DeviceB-GigabitEthernet1/0/2] link-delay up 0
[DeviceB-GigabitEthernet1/0/2] link-delay down 0
[DeviceB-GigabitEthernet1/0/2] undo stp enable
[DeviceB-GigabitEthernet1/0/2] quit

# Create RRPP domain 1.
[DeviceB] rrpp domain 1

# Configure VLAN 1000 as the primary control VLAN of RRPP domain 1.
[DeviceB-rrpp-domain1] control-vlan 1000

# Configure the VLANs mapped to MSTI 1 as the protected VLANs of RRPP domain 1.
[DeviceB-rrpp-domain1] protected-vlan reference-instance 1

# Configure Device B as the transit node of primary ring 1, with GigabitEthernet 1/0/2 as the primary port and GigabitEthernet 1/0/1 as the secondary port. Enable ring 1.
[DeviceB-rrpp-domain1] ring 1 node-mode transit primary-port gigabitethernet 1/0/2
secondary-port gigabitethernet 1/0/1 level 0
[DeviceB-rrpp-domain1] ring 1 enable
[DeviceB-rrpp-domain1] quit

# Create RRPP domain 2.
[DeviceB] rrpp domain 2

```



**# Configure VLAN 2000 as the primary control VLAN of RRPP domain 2.**

```
[DeviceB-rrpp-domain2] control-vlan 2000
```

**# Configure the VLANs mapped to MSTI 2 as the protected VLANs of RRPP domain 2.**

```
[DeviceB-rrpp-domain2] protected-vlan reference-instance 2
```

**# Configure Device B as the master node of primary ring 1, with GigabitEthernet 1/0/2 as the primary port and GigabitEthernet 1/0/1 as the secondary port. Enable ring 1.**

```
[DeviceB-rrpp-domain2] ring 1 node-mode master primary-port gigabitethernet 1/0/2  
secondary-port gigabitethernet 1/0/1 level 0
```

```
[DeviceB-rrpp-domain2] ring 1 enable
```

```
[DeviceB-rrpp-domain2] quit
```

**# Enable RRPP.**

```
[DeviceB] rrpp enable
```

## Configuring Device C

**# Create VLANs 100 through 200.**

```
<DeviceC> system-view
```

```
[DeviceC] vlan 100 to 200
```

**# Map VLANs 100 through 150 to MSTI 1, and VLANs 151 through 200 to MSTI 2.**

```
[DeviceC] stp region-configuration
```

```
[DeviceC-mst-region] instance 1 vlan 100 to 150
```

```
[DeviceC-mst-region] instance 2 vlan 151 to 200
```

**# Activate the MST region configuration.**

```
[DeviceC-mst-region] active region-configuration
```

```
[DeviceC-mst-region] quit
```

**# Configure GigabitEthernet 1/0/1 as a trunk port.**

```
[DeviceC] interface gigabitethernet 1/0/1
```

```
[DeviceC-GigabitEthernet1/0/1] undo shutdown
```

```
[DeviceC-GigabitEthernet1/0/1] port link-type trunk
```

**# Assign the port to VLANs 100 through 200, and remove it from VLAN 1.**

```
[DeviceC-GigabitEthernet1/0/1] port trunk permit vlan 100 to 200
```

```
[DeviceC-GigabitEthernet1/0/1] undo port trunk permit vlan 1
```

**# Set the physical state change suppression interval to 0 seconds on the port.**

```
[DeviceC-GigabitEthernet1/0/1] link-delay up 0
```

```
[DeviceC-GigabitEthernet1/0/1] link-delay down 0
```

**# Disable the spanning tree feature on the port.**

```
[DeviceC-GigabitEthernet1/0/1] undo stp enable
```

```
[DeviceC-GigabitEthernet1/0/1] quit
```

**# Configure GigabitEthernet 1/0/2 in the same way GigabitEthernet 1/0/1 is configured.**

```
[DeviceC] interface gigabitethernet 1/0/2
```

```
[DeviceC-GigabitEthernet1/0/2] undo shutdown
```

```
[DeviceC-GigabitEthernet1/0/2] port link-type trunk
```

```
[DeviceC-GigabitEthernet1/0/2] port trunk permit vlan 100 to 200
```

```
[DeviceC-GigabitEthernet1/0/2] undo port trunk permit vlan 1
```

```
[DeviceC-GigabitEthernet1/0/2] link-delay up 0
```

```
[DeviceC-GigabitEthernet1/0/2] link-delay down 0
```

```

[DeviceC-GigabitEthernet1/0/2] undo stp enable
[DeviceC-GigabitEthernet1/0/2] quit

# Create RRPP domain 1.
[DeviceC] rrpp domain 1

# Configure VLAN 1000 as the primary control VLAN of RRPP domain 1.
[DeviceC-rrpp-domain1] control-vlan 1000

# Configure the VLANs mapped to MSTI 1 as the protected VLANs of RRPP domain 1.
[DeviceC-rrpp-domain1] protected-vlan reference-instance 1

# Configure Device C as the transit node of primary ring 1, with GigabitEthernet 1/0/1 as the primary port and GigabitEthernet 1/0/2 as the secondary port. Enable ring 1.
[DeviceC-rrpp-domain1] ring 1 node-mode transit primary-port gigabitethernet 1/0/1
secondary-port gigabitethernet 1/0/2 level 0
[DeviceC-rrpp-domain1] ring 1 enable
[DeviceC-rrpp-domain1] quit

# Create RRPP domain 2.
[DeviceC] rrpp domain 2

# Configure VLAN 2000 as the primary control VLAN of RRPP domain 2.
[DeviceC-rrpp-domain2] control-vlan 2000

# Configure the VLANs mapped to MSTI 2 as the protected VLANs of RRPP domain 2.
[DeviceC-rrpp-domain2] protected-vlan reference-instance 2

# Configure Device C as the transit node of primary ring 1, with GigabitEthernet 1/0/1 as the primary port and GigabitEthernet 1/0/2 as the secondary port. Enable ring 1.
[DeviceC-rrpp-domain2] ring 1 node-mode transit primary-port gigabitethernet 1/0/1
secondary-port gigabitethernet 1/0/2 level 0
[DeviceC-rrpp-domain2] ring 1 enable
[DeviceC-rrpp-domain2] quit

# Enable RRPP.
[DeviceC] rrpp enable

```

## Configuring Device D

```

# Create VLANs 100 through 200.
<DeviceD> system-view
[DeviceD] vlan 100 to 200

# Map VLANs 100 through 150 to MSTI 1, and VLANs 151 through 200 to MSTI 2.
[DeviceD] stp region-configuration
[DeviceD-mst-region] instance 1 vlan 100 to 150
[DeviceD-mst-region] instance 2 vlan 151 to 200

# Activate the MST region configuration.
[DeviceD-mst-region] active region-configuration
[DeviceD-mst-region] quit

# Configure GigabitEthernet 1/0/1 as a trunk port.
[DeviceD] interface gigabitethernet 1/0/1
[DeviceD-GigabitEthernet1/0/1] undo shutdown
[DeviceD-GigabitEthernet1/0/1] port link-type trunk

# Assign the port to VLANs 100 through 200, and remove it from VLAN 1.

```

```

[DeviceD-GigabitEthernet1/0/1] port trunk permit vlan 100 to 200
[DeviceD-GigabitEthernet1/0/1] undo port trunk permit vlan 1

# Set the physical state change suppression interval to 0 seconds on the port.
[DeviceD-GigabitEthernet1/0/1] link-delay up 0
[DeviceD-GigabitEthernet1/0/1] link-delay down 0

# Disable the spanning tree feature on the port.
[DeviceD-GigabitEthernet1/0/1] undo stp enable
[DeviceD-GigabitEthernet1/0/1] quit

# Configure GigabitEthernet 1/0/2 in the same way GigabitEthernet 1/0/1 is configured.
[DeviceD] interface gigabitethernet 1/0/2
[DeviceD-GigabitEthernet1/0/2] undo shutdown
[DeviceD-GigabitEthernet1/0/2] port link-type trunk
[DeviceD-GigabitEthernet1/0/2] port trunk permit vlan 100 to 200
[DeviceD-GigabitEthernet1/0/2] undo port trunk permit vlan 1
[DeviceD-GigabitEthernet1/0/2] link-delay up 0
[DeviceD-GigabitEthernet1/0/2] link-delay down 0
[DeviceD-GigabitEthernet1/0/2] undo stp enable
[DeviceD-GigabitEthernet1/0/2] quit

# Create RRPP domain 1.
[DeviceD] rrpp domain 1

# Configure VLAN 1000 as the primary control VLAN of RRPP domain 1.
[DeviceD-rrpp-domain1] control-vlan 1000

# Configure the VLANs mapped to MSTI 1 as the protected VLANs of RRPP domain 1.
[DeviceD-rrpp-domain1] protected-vlan reference-instance 1

# Configure Device D as the transit node of primary ring 1, with GigabitEthernet 1/0/1 as the primary
port and GigabitEthernet 1/0/2 as the secondary port. Enable ring 1.
[DeviceD-rrpp-domain1] ring 1 node-mode transit primary-port gigabitethernet 1/0/1
secondary-port gigabitethernet 1/0/2 level 0
[DeviceD-rrpp-domain1] ring 1 enable
[DeviceD-rrpp-domain1] quit

# Create RRPP domain 2.
[DeviceD] rrpp domain 2

# Configure VLAN 2000 as the primary control VLAN of RRPP domain 2.
[DeviceD-rrpp-domain2] control-vlan 2000

# Configure the VLANs mapped to MSTI 2 as the protected VLANs of RRPP domain 2.
[DeviceD-rrpp-domain2] protected-vlan reference-instance 2

# Configure Device D as the transit node of primary ring 1, with GigabitEthernet 1/0/1 as the primary
port and GigabitEthernet 1/0/2 as the secondary port. Enable ring 1.
[DeviceD-rrpp-domain2] ring 1 node-mode transit primary-port gigabitethernet 1/0/1
secondary-port gigabitethernet 1/0/2 level 0
[DeviceD-rrpp-domain2] ring 1 enable
[DeviceD-rrpp-domain2] quit

# Enable RRPP.
[DeviceD] rrpp enable

```

# Verifying the configuration

# View detailed information about RRPP domain 1 on Device A.

```
[DeviceA] display rrpp verbose domain 1
Domain ID      : 1
Control VLAN   : Primary 1000, Secondary 1001
Protected VLAN: Reference instance 1
Hello timer    : 1 seconds, Fail timer: 3 seconds
Fast detection status: Disabled
Fast-Hello timer: 20 ms, Fast-Fail timer: 60 ms
Fast-Edge-Hello timer: 10 ms, Fast-Edge-Fail timer: 30 ms

Ring ID        : 1
Ring Level     : 0
Node Mode      : Master
Ring State     : Completed
Enable Status  : Yes    Active Status: Yes
Primary port   : GE1/0/1    Port status: UP
Secondary port : GE1/0/2    Port status: BLOCKED
```

The output shows the following information:

- Device A is the master node in RRPP domain 1.
- The primary ring state of RRPP domain 1 is completed.
- The primary port is up, and the secondary port is blocked.

# View detailed information about RRPP domain 2 on Device A.

```
[DeviceA] display rrpp verbose domain 2
Domain ID      : 2
Control VLAN   : Primary 2000, Secondary 2001
Protected VLAN: Reference instance 2
Hello timer    : 1 seconds, Fail timer: 3 seconds
Fast detection status: Disabled
Fast-Hello timer: 20 ms, Fast-Fail timer: 60 ms
Fast-Edge-Hello timer: 10 ms, Fast-Edge-Fail timer: 30 ms

Ring ID        : 1
Ring Level     : 0
Node Mode      : Transit
Ring State     : -
Enable Status  : Yes    Active Status: Yes
Primary port   : GE1/0/1    Port status: UP
Secondary port : GE1/0/2    Port status: UP
```

The output shows the following information:

- Device A is the transit node in RRPP domain 2.
- The primary and secondary ports are up.

# View detailed information about RRPP domain 1 on Device B.

```
[DeviceB] display rrpp verbose domain 1
Domain ID      : 1
```

```

Control VLAN : Primary 1000, Secondary 1001
Protected VLAN: Reference instance 1
Hello timer : 1 seconds, Fail timer: 3 seconds
Fast detection status: Disabled
Fast-Hello timer: 20 ms, Fast-Fail timer: 60 ms
Fast-Edge-Hello timer: 10 ms, Fast-Edge-Fail timer: 30 ms

Ring ID : 1
Ring Level : 0
Node Mode : Transit
Ring State : -
Enable Status : Yes Active Status: Yes
Primary port : GE1/0/2 Port status: UP
Secondary port: GE1/0/1 Port status: UP

```

The output shows the following information:

- Device B is the transit node in RRPP domain 1.
- The primary and secondary ports are up.

# View detailed information about RRPP domain 2 on Device B.

```

[DeviceB] display rrpp verbose domain 2
Domain ID : 2
Control VLAN : Primary 2000, Secondary 2001
Protected VLAN: Reference instance 2
Hello timer : 1 seconds, Fail timer: 3 seconds
Fast detection status: Disabled
Fast-Hello timer: 20 ms, Fast-Fail timer: 60 ms
Fast-Edge-Hello timer: 10 ms, Fast-Edge-Fail timer: 30 ms

Ring ID : 1
Ring Level : 0
Node Mode : Master
Ring State : Completed
Enable Status : Yes Active Status: Yes
Primary port : GE1/0/2 Port status: UP
Secondary port: GE1/0/1 Port status: BLOCKED

```

The output shows the following information:

- Device B is the master node in RRPP domain 2.
- The primary ring state of RRPP domain 2 is completed.
- The primary port is up, and the secondary port is blocked.

# View detailed information about RRPP domain 1 on Device C.

```

[DeviceC] display rrpp verbose domain 1
Domain ID : 1
Control VLAN : Primary 1000, Secondary 1001
Protected VLAN: Reference instance 1
Hello timer : 1 seconds, Fail timer: 3 seconds
Fast detection status: Disabled
Fast-Hello timer: 20 ms, Fast-Fail timer: 60 ms
Fast-Edge-Hello timer: 10 ms, Fast-Edge-Fail timer: 30 ms

```

```

Ring ID      : 1
Ring Level   : 0
Node Mode    : Transit
Ring State   : -
Enable Status : Yes    Active Status: Yes
Primary port  : GE1/0/1      Port status: UP
Secondary port: GE1/0/2      Port status: UP

```

The output shows the following information:

- Device C is the transit node in RRPP domain 1.
- The primary and secondary ports are up.

# View detailed information about RRPP domain 2 on Device C.

```

[DeviceC] display rrpp verbose domain 2
Domain ID      : 2
Control VLAN   : Primary 2000, Secondary 2001
Protected VLAN : Reference instance 2
Hello timer    : 1 seconds, Fail timer: 3 seconds
Fast detection status: Disabled
Fast-Hello timer: 20 ms, Fast-Fail timer: 60 ms
Fast-Edge-Hello timer: 10 ms, Fast-Edge-Fail timer: 30 ms

```

```

Ring ID      : 1
Ring Level   : 0
Node Mode    : Transit
Ring State   : -
Enable Status : Yes    Active Status: Yes
Primary port  : GE1/0/1      Port status: UP
Secondary port: GE1/0/2      Port status: UP

```

The output shows the following information:

- Device C is the transit node in RRPP domain 2.
- The primary and secondary ports are up.

# View detailed RRPP domain information on Device D. (Details not shown.)

## Configuration files

---

### NOTE:

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

---

- Device A:
 

```

#
sysname DeviceA
#
vlan 1
#
vlan 100 to 200
#

```

```

stp region-configuration
instance 1 vlan 100 to 150
instance 2 vlan 151 to 200
active region-configuration
#
interface GigabitEthernet1/0/1
port link-mode bridge
port link-type trunk
undo port trunk permit vlan 1
port trunk permit vlan 100 to 200
link-delay up 0
link-delay down 0
undo stp enable
#
interface GigabitEthernet1/0/2
port link-mode bridge
port link-type trunk
undo port trunk permit vlan 1
port trunk permit vlan 100 to 200
link-delay up 0
link-delay down 0
undo stp enable
#
rrpp domain 1
control-vlan 1000
protected-vlan reference-instance 1
ring 1 node-mode master primary-port GigabitEthernet1/0/1 secondary-port
GigabitEthernet1/0/2 level 0
ring 1 enable
#
rrpp domain 2
control-vlan 2000
protected-vlan reference-instance 2
ring 1 node-mode transit primary-port GigabitEthernet1/0/1 secondary-port
GigabitEthernet1/0/2 level 0
ring 1 enable
#
rrpp enable
#

```

- **Device B:**

```

#
sysname DeviceB
#
vlan 1
#
vlan 100 to 200
#
stp region-configuration
instance 1 vlan 100 to 150

```

```

instance 2 vlan 151 to 200
active region-configuration
#
interface GigabitEthernet1/0/1
port link-mode bridge
port link-type trunk
undo port trunk permit vlan 1
port trunk permit vlan 100 to 200
link-delay up 0
link-delay down 0
undo stp enable
#
interface GigabitEthernet1/0/2
port link-mode bridge
port link-type trunk
undo port trunk permit vlan 1
port trunk permit vlan 100 to 200
link-delay up 0
link-delay down 0
undo stp enable
#
rrpp domain 1
control-vlan 1000
protected-vlan reference-instance 1
ring 1 node-mode transit primary-port GigabitEthernet1/0/2 secondary-port
GigabitEthernet1/0/1 level 0
ring 1 enable
#
rrpp domain 2
control-vlan 2000
protected-vlan reference-instance 2
ring 1 node-mode master primary-port GigabitEthernet1/0/2 secondary-port
GigabitEthernet1/0/1 level 0
ring 1 enable
#
rrpp enable
#

```

- **Device C:**

```

#
sysname DeviceC
#
vlan 1
#
vlan 100 to 200
#
stp region-configuration
instance 1 vlan 100 to 150
instance 2 vlan 151 to 200
active region-configuration

```



```

#
interface GigabitEthernet1/0/1
 port link-mode bridge
 port link-type trunk
 undo port trunk permit vlan 1
 port trunk permit vlan 100 to 200
 link-delay up 0
 link-delay down 0
 undo stp enable
#
interface GigabitEthernet1/0/2
 port link-mode bridge
 port link-type trunk
 undo port trunk permit vlan 1
 port trunk permit vlan 100 to 200
 link-delay up 0
 link-delay down 0
 undo stp enable
#
rrpp domain 1
 control-vlan 1000
 protected-vlan reference-instance 1
 ring 1 node-mode transit primary-port GigabitEthernet1/0/1 secondary-port
GigabitEthernet1/0/2 level 0
 ring 1 enable
#
rrpp domain 2
 control-vlan 2000
 protected-vlan reference-instance 2
 ring 1 node-mode transit primary-port GigabitEthernet1/0/1 secondary-port
GigabitEthernet1/0/2 level 0
 ring 1 enable
#
rrpp enable
#

```

- **Device D:**

```

#
 sysname DeviceD
#
vlan 1
#
vlan 100 to 200
#
stp region-configuration
 instance 1 vlan 100 to 150
 instance 2 vlan 151 to 200
 active region-configuration
#
interface GigabitEthernet1/0/1

```

```

port link-mode bridge
port link-type trunk
undo port trunk permit vlan 1
port trunk permit vlan 100 to 200
link-delay up 0
link-delay down 0
undo stp enable
#
interface GigabitEthernet1/0/2
port link-mode bridge
port link-type trunk
undo port trunk permit vlan 1
port trunk permit vlan 100 to 200
link-delay up 0
link-delay down 0
undo stp enable
#
rrpp domain 1
control-vlan 1000
protected-vlan reference-instance 1
ring 1 node-mode transit primary-port GigabitEthernet1/0/1 secondary-port
GigabitEthernet1/0/2 level 0
ring 1 enable
#
rrpp domain 2
control-vlan 2000
protected-vlan reference-instance 2
ring 1 node-mode transit primary-port GigabitEthernet1/0/1 secondary-port
GigabitEthernet1/0/2 level 0
ring 1 enable
#
rrpp enable
#

```

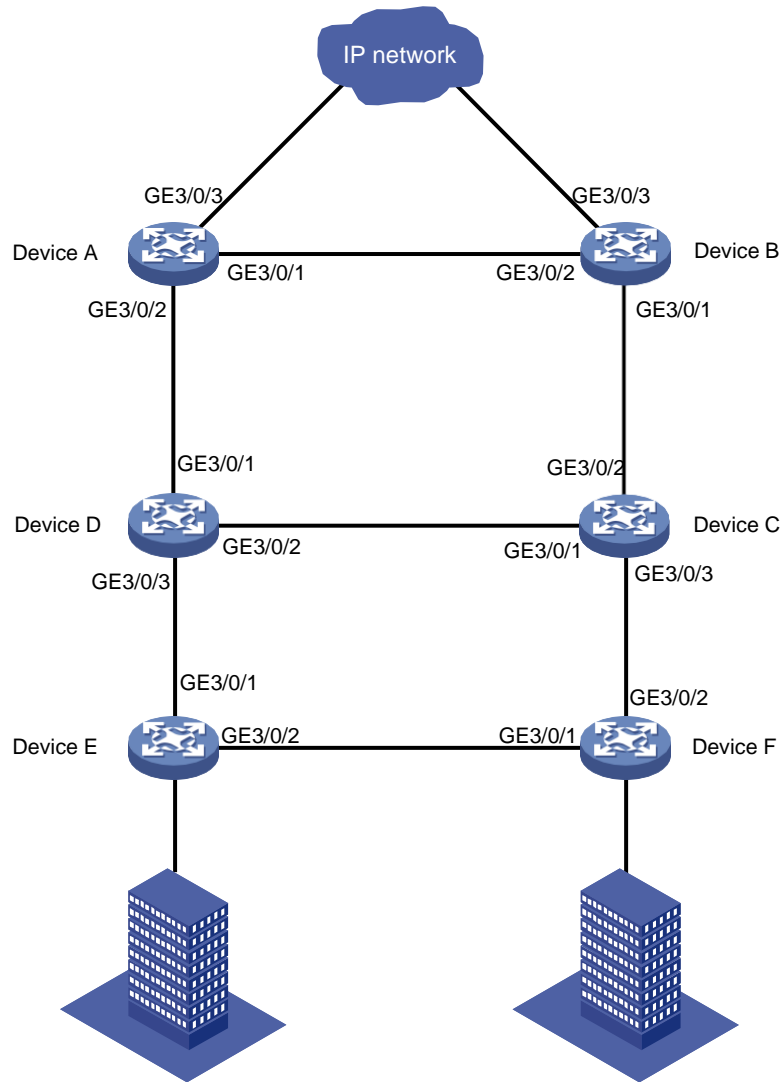
## Example: Configuring intersecting rings

### Network configuration

As shown in [Figure 3](#), a ring-shaped access layer network is connected to a ring-shaped distribution layer network. Configure RRPP to implement the following requirements in the network:

- Eliminate loops and implement link recovery in the Layer 2 network.
- Implement link load balancing by forwarding voice traffic in VLAN 100 through VLAN 150 and video traffic in VLAN 151 through VLAN 200.
- Improve RRPP topology convergence speed by setting the physical state change suppression interval to 0 seconds for all Ethernet interfaces on the RRPP ring.

**Figure 3 Network diagram**



## Analysis

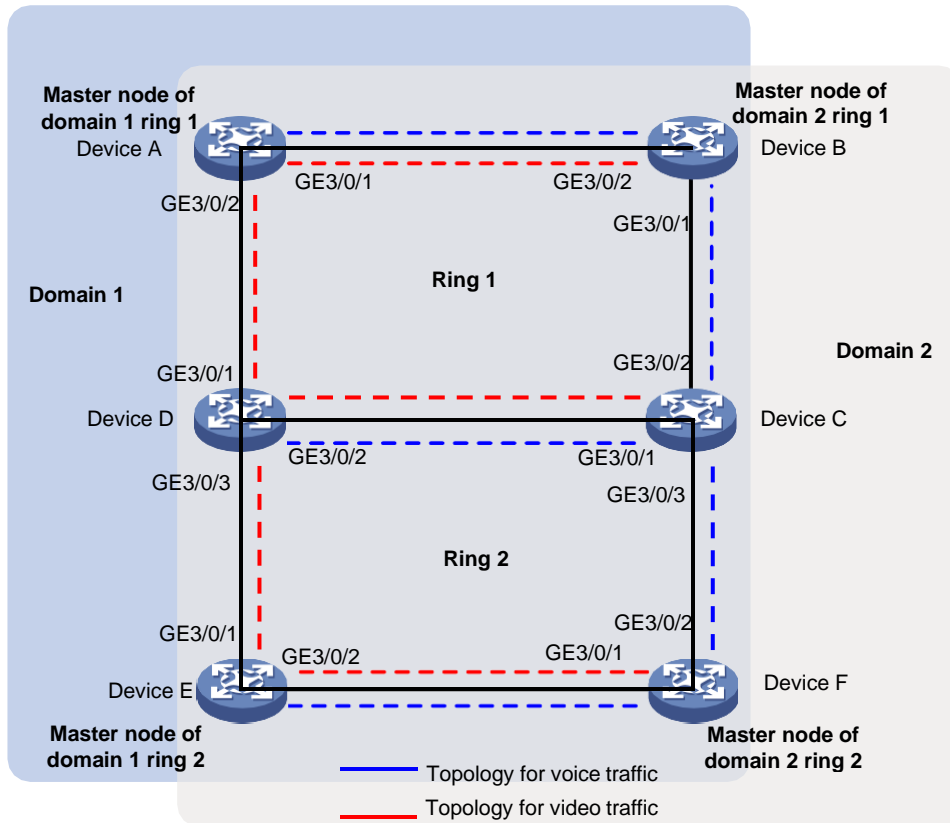
For voice and video traffic to be forwarded in different topologies, create two RRPP domains.

- In RRPP domain 1, specify VLAN 100 through VLAN 150 as protected VLANs. Specify Device A as the master node of primary ring 1, and Device E as the master node of subring 2.
- In RRPP domain 2, specify VLAN 151 through VLAN 200 as protected VLANs. Specify Device B as the master node of primary ring 1, and Device F as the master node of subring 2.

To implement load balancing for voice and video traffic, perform the following tasks:

- On Device A, specify GigabitEthernet 1/0/1 as the primary port, and GigabitEthernet 1/0/2 as the secondary port.
- On Device B, specify GigabitEthernet 1/0/2 as the primary port, and GigabitEthernet 1/0/1 as the secondary port.
- On Device E, specify GigabitEthernet 1/0/2 as the primary port, and GigabitEthernet 1/0/1 as the secondary port.
- On Device F, specify GigabitEthernet 1/0/1 as the primary port, and GigabitEthernet 1/0/2 as the secondary port.

**Figure 4 Topologies for voice and video traffic**



## 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 intersecting rings, follow these restrictions and guidelines:

- When you configure an edge node or assistant edge node, you must configure the primary ring before configuring the subrings.
- After you configure RRPP rings for an RRPP domain, you cannot delete or modify the primary control VLAN of the domain. You can only use the **undo control-vlan** command to delete a primary control VLAN.
- When you configure load balancing, you must configure different protected VLANs for different RRPP domains.

- Before you enable subrings on a device, you must enable the primary ring. Before you disable the primary ring on the device, you must disable all subrings.
- If a device carries multiple RRPP rings in an RRPP domain, it can only be an edge node or an assistant edge node on a subring.
- To prevent Hello packets of subrings from being looped on the primary ring, first enable the primary ring on its master node. Then enable the subrings on their respective master nodes.

## Procedures

### Configuring Device A

# Create VLANs 100 through 200.

```
<DeviceA> system-view
```

```
[DeviceA] vlan 100 to 200
```

# Map VLANs 100 through 150 to MSTI 1, and VLANs 151 through 200 to MSTI 2.

```
[DeviceA] stp region-configuration
```

```

[DeviceA-mst-region] instance 1 vlan 100 to 150
[DeviceA-mst-region] instance 2 vlan 151 to 200

# Activate the MST region configuration.
[DeviceA-mst-region] active region-configuration
[DeviceA-mst-region] quit

# Configure GigabitEthernet 1/0/1 as a trunk port.
[DeviceA] interface gigabitethernet 1/0/1
[DeviceA-GigabitEthernet1/0/1] undo shutdown
[DeviceA-GigabitEthernet1/0/1] port link-type trunk

# Assign the port to VLANs 100 through 200, and remove it from VLAN 1.
[DeviceA-GigabitEthernet1/0/1] port trunk permit vlan 100 to 200
[DeviceA-GigabitEthernet1/0/1] undo port trunk permit vlan 1

# Set the physical state change suppression interval to 0 seconds on the port.
[DeviceA-GigabitEthernet1/0/1] link-delay up 0
[DeviceA-GigabitEthernet1/0/1] link-delay down 0

# Disable the spanning tree feature on the port.
[DeviceA-GigabitEthernet1/0/1] undo stp enable
[DeviceA-GigabitEthernet1/0/1] quit

# Configure GigabitEthernet 1/0/2 in the same way GigabitEthernet 1/0/1 is configured.
[DeviceA] interface gigabitethernet 1/0/2
[DeviceA-GigabitEthernet1/0/2] undo shutdown
[DeviceA-GigabitEthernet1/0/2] port link-type trunk
[DeviceA-GigabitEthernet1/0/2] port trunk permit vlan 100 to 200
[DeviceA-GigabitEthernet1/0/2] undo port trunk permit vlan 1
[DeviceA-GigabitEthernet1/0/2] link-delay up 0
[DeviceA-GigabitEthernet1/0/2] link-delay down 0
[DeviceA-GigabitEthernet1/0/2] undo stp enable
[DeviceA-GigabitEthernet1/0/2] quit

# Create RRPP domain 1.
[DeviceA] rrpp domain 1

# Configure VLAN 1000 as the primary control VLAN of RRPP domain 1.
[DeviceA-rrpp-domain1] control-vlan 1000

# Configure the VLANs mapped to MSTI 1 as the protected VLANs of RRPP domain 1.
[DeviceA-rrpp-domain1] protected-vlan reference-instance 1

# Configure Device A as the master node of primary ring 1, with GigabitEthernet 1/0/1 as the primary port and GigabitEthernet 1/0/2 as the secondary port. Enable ring 1.
[DeviceA-rrpp-domain1] ring 1 node-mode master primary-port gigabitethernet 1/0/1
secondary-port gigabitethernet 1/0/2 level 0
[DeviceA-rrpp-domain1] ring 1 enable
[DeviceA-rrpp-domain1] quit

# Create RRPP domain 2.
[DeviceA] rrpp domain 2

# Configure VLAN 2000 as the primary control VLAN of RRPP domain 2.
[DeviceA-rrpp-domain2] control-vlan 2000

# Configure the VLANs mapped to MSTI 2 as the protected VLANs of RRPP domain 2.
[DeviceA-rrpp-domain2] protected-vlan reference-instance 2

```

**# Configure Device A as the transit node of primary ring 1, with GigabitEthernet 1/0/1 as the primary port and GigabitEthernet 1/0/2 as the secondary port. Enable ring 1.**

```
[DeviceA-rrpp-domain2] ring 1 node-mode transit primary-port gigabitethernet 1/0/1  
secondary-port gigabitethernet 1/0/2 level 0  
[DeviceA-rrpp-domain2] ring 1 enable  
[DeviceA-rrpp-domain2] quit
```

**# Enable RRPP.**

```
[DeviceA] rrpp enable
```

## Configuring Device B

**# Create VLANs 100 through 200.**

```
<DeviceB> system-view  
[DeviceB] vlan 100 to 200
```

**# Map VLANs 100 through 150 to MSTI 1, and VLANs 151 through 200 to MSTI 2.**

```
[DeviceB] stp region-configuration  
[DeviceB-mst-region] instance 1 vlan 100 to 150  
[DeviceB-mst-region] instance 2 vlan 151 to 200
```

**# Activate the MST region configuration.**

```
[DeviceB-mst-region] active region-configuration  
[DeviceB-mst-region] quit
```

**# Configure GigabitEthernet 1/0/1 as a trunk port.**

```
[DeviceB] interface gigabitethernet 1/0/1  
[DeviceB-GigabitEthernet1/0/1] undo shutdown  
[DeviceB-GigabitEthernet1/0/1] port link-type trunk
```

**# Assign the port to VLANs 100 through 200, and remove it from VLAN 1.**

```
[DeviceB-GigabitEthernet1/0/1] port trunk permit vlan 100 to 200  
[DeviceB-GigabitEthernet1/0/1] undo port trunk permit vlan 1
```

**# Set the physical state change suppression interval to 0 seconds on the port.**

```
[DeviceB-GigabitEthernet1/0/1] link-delay up 0  
[DeviceB-GigabitEthernet1/0/1] link-delay down 0
```

**# Disable the spanning tree feature on the port.**

```
[DeviceB-GigabitEthernet1/0/1] undo stp enable  
[DeviceB-GigabitEthernet1/0/1] quit
```

**# Configure GigabitEthernet 1/0/2 in the same way GigabitEthernet 1/0/1 is configured.**

```
[DeviceB] interface gigabitethernet 1/0/2  
[DeviceB-GigabitEthernet1/0/2] undo shutdown  
[DeviceB-GigabitEthernet1/0/2] port link-type trunk  
[DeviceB-GigabitEthernet1/0/2] port trunk permit vlan 100 to 200  
[DeviceB-GigabitEthernet1/0/2] undo port trunk permit vlan 1  
[DeviceB-GigabitEthernet1/0/2] link-delay up 0  
[DeviceB-GigabitEthernet1/0/2] link-delay down 0  
[DeviceB-GigabitEthernet1/0/2] undo stp enable  
[DeviceB-GigabitEthernet1/0/2] quit
```

**# Create RRPP domain 1.**

```
[DeviceB] rrpp domain 1
```

**# Configure VLAN 1000 as the primary control VLAN of RRPP domain 1.**

```
[DeviceB-rrpp-domain1] control-vlan 1000
```

**# Configure the VLANs mapped to MSTI 1 as the protected VLANs of RRPP domain 1.**

```
[DeviceB-rrpp-domain1] protected-vlan reference-instance 1
```

**# Configure Device B as the transit node of primary ring 1, with GigabitEthernet 1/0/2 as the primary port and GigabitEthernet 1/0/1 as the secondary port. Enable ring 1.**

```
[DeviceB-rrpp-domain1] ring 1 node-mode transit primary-port gigabitethernet 1/0/2  
secondary-port gigabitethernet 1/0/1 level 0
```

```
[DeviceB-rrpp-domain1] ring 1 enable
```

```
[DeviceB-rrpp-domain1] quit
```

**# Create RRPP domain 2.**

```
[DeviceB] rrpp domain 2
```

**# Configure VLAN 2000 as the primary control VLAN of RRPP domain 2.**

```
[DeviceB-rrpp-domain2] control-vlan 2000
```

**# Configure the VLANs mapped to MSTI 2 as the protected VLANs of RRPP domain 2.**

```
[DeviceB-rrpp-domain2] protected-vlan reference-instance 2
```

**# Configure Device B as the master node of primary ring 1, with GigabitEthernet 1/0/2 as the primary port and GigabitEthernet 1/0/1 as the secondary port. Enable ring 1.**

```
[DeviceB-rrpp-domain2] ring 1 node-mode master primary-port gigabitethernet 1/0/2  
secondary-port gigabitethernet 1/0/1 level 0
```

```
[DeviceB-rrpp-domain2] ring 1 enable
```

```
[DeviceB-rrpp-domain2] quit
```

**# Enable RRPP.**

```
[DeviceB] rrpp enable
```

## Configuring Device C

**# Create VLANs 100 through 200.**

```
<DeviceC> system-view
```

```
[DeviceC] vlan 100 to 200
```

**# Map VLANs 100 through 150 to MSTI 1, and VLANs 151 through 200 to MSTI 2.**

```
[DeviceC] stp region-configuration
```

```
[DeviceC-mst-region] instance 1 vlan 100 to 150
```

```
[DeviceC-mst-region] instance 2 vlan 151 to 200
```

**# Activate the MST region configuration.**

```
[DeviceC-mst-region] active region-configuration
```

```
[DeviceC-mst-region] quit
```

**# Configure GigabitEthernet 1/0/1 as a trunk port.**

```
[DeviceC] interface gigabitethernet 1/0/1
```

```
[DeviceC-GigabitEthernet1/0/1] undo shutdown
```

```
[DeviceC-GigabitEthernet1/0/1] port link-type trunk
```

**# Assign the port to VLANs 100 through 200, and remove it from VLAN 1.**

```
[DeviceC-GigabitEthernet1/0/1] port trunk permit vlan 100 to 200
```

```
[DeviceC-GigabitEthernet1/0/1] undo port trunk permit vlan 1
```

**# Set the physical state change suppression interval to 0 seconds on the port.**

```
[DeviceC-GigabitEthernet1/0/1] link-delay up 0
```



```
[DeviceC-GigabitEthernet1/0/1] link-delay down 0
```

**# Disable the spanning tree feature on the port.**

```
[DeviceC-GigabitEthernet1/0/1] undo stp enable
```

```
[DeviceC-GigabitEthernet1/0/1] quit
```

**# Configure GigabitEthernet 1/0/2 in the same way GigabitEthernet 1/0/1 is configured.**

```
[DeviceC] interface gigabitethernet 1/0/2
```

```
[DeviceC-GigabitEthernet1/0/2] undo shutdown
```

```
[DeviceC-GigabitEthernet1/0/2] port link-type trunk
```

```
[DeviceC-GigabitEthernet1/0/2] port trunk permit vlan 100 to 200
```

```
[DeviceC-GigabitEthernet1/0/2] undo port trunk permit vlan 1
```

```
[DeviceC-GigabitEthernet1/0/2] link-delay up 0
```

```
[DeviceC-GigabitEthernet1/0/2] link-delay down 0
```

```
[DeviceC-GigabitEthernet1/0/2] undo stp enable
```

```
[DeviceC-GigabitEthernet1/0/2] quit
```

**# Configure GigabitEthernet 1/0/3 in the same way GigabitEthernet 1/0/1 is configured.**

```
[DeviceC] interface gigabitethernet 1/0/3
```

```
[DeviceC-GigabitEthernet1/0/3] undo shutdown
```

```
[DeviceC-GigabitEthernet1/0/3] port link-type trunk
```

```
[DeviceC-GigabitEthernet1/0/3] port trunk permit vlan 100 to 200
```

```
[DeviceC-GigabitEthernet1/0/3] undo port trunk permit vlan 1
```

```
[DeviceC-GigabitEthernet1/0/3] link-delay up 0
```

```
[DeviceC-GigabitEthernet1/0/3] link-delay down 0
```

```
[DeviceC-GigabitEthernet1/0/3] undo stp enable
```

```
[DeviceC-GigabitEthernet1/0/3] quit
```

**# Create RRPP domain 1.**

```
[DeviceC] rrpp domain 1
```

**# Configure VLAN 1000 as the primary control VLAN of RRPP domain 1.**

```
[DeviceC-rrpp-domain1] control-vlan 1000
```

**# Configure the VLANs mapped to MSTI 1 as the protected VLANs of RRPP domain 1.**

```
[DeviceC-rrpp-domain1] protected-vlan reference-instance 1
```

**# Configure Device C as the transit node of primary ring 1, with GigabitEthernet 1/0/1 as the primary port and GigabitEthernet 1/0/2 as the secondary port. Enable ring 1.**

```
[DeviceC-rrpp-domain1] ring 1 node-mode transit primary-port gigabitethernet 1/0/1  
secondary-port gigabitethernet 1/0/2 level 0
```

```
[DeviceC-rrpp-domain1] ring 1 enable
```

**# Configure Device C as the edge node of subring 2, with GigabitEthernet 1/0/3 as the edge port. Enable ring 2.**

```
[DeviceC-rrpp-domain1] ring 2 node-mode edge edge-port gigabitethernet 1/0/3
```

```
[DeviceC-rrpp-domain1] ring 2 enable
```

```
[DeviceC-rrpp-domain1] quit
```

**# Create RRPP domain 2.**

```
[DeviceC] rrpp domain 2
```

**# Configure VLAN 2000 as the primary control VLAN of RRPP domain 2.**

```
[DeviceC-rrpp-domain2] control-vlan 2000
```

**# Configure the VLANs mapped to MSTI 2 as the protected VLANs of RRPP domain 2.**

```
[DeviceC-rrpp-domain2] protected-vlan reference-instance 2
```

**# Configure Device C as the transit node of primary ring 1, with GigabitEthernet 1/0/1 as the primary port and GigabitEthernet 1/0/2 as the secondary port. Enable ring 1.**

```
[DeviceC-rrpp-domain2] ring 1 node-mode transit primary-port gigabitethernet 1/0/1
secondary-port gigabitethernet 1/0/2 level 0
[DeviceC-rrpp-domain2] ring 1 enable
```

**# Configure Device C as the edge node of subring 2, with GigabitEthernet 1/0/3 as the edge port. Enable ring 2.**

```
[DeviceC-rrpp-domain2] ring 2 node-mode edge edge-port gigabitethernet 1/0/3
[DeviceC-rrpp-domain2] ring 2 enable
[DeviceC-rrpp-domain2] quit
```

**# Enable RRPP.**

```
[DeviceC] rrpp enable
```

## Configuring Device D

**# Create VLANs 100 through 200.**

```
<DeviceD> system-view
[DeviceD] vlan 100 to 200
```

**# Map VLANs 100 through 150 to MSTI 1, and VLANs 151 through 200 to MSTI 2.**

```
[DeviceD] stp region-configuration
[DeviceD-mst-region] instance 1 vlan 100 to 150
[DeviceD-mst-region] instance 2 vlan 151 to 200
```

**# Activate the MST region configuration.**

```
[DeviceD-mst-region] active region-configuration
[DeviceD-mst-region] quit
```

**# Configure GigabitEthernet 1/0/1 as a trunk port.**

```
[DeviceD] interface gigabitethernet 1/0/1
[DeviceD-GigabitEthernet1/0/1] undo shutdown
[DeviceD-GigabitEthernet1/0/1] port link-type trunk
```

**# Assign the port to VLANs 100 through 200, and remove it from VLAN 1.**

```
[DeviceD-GigabitEthernet1/0/1] port trunk permit vlan 100 to 200
[DeviceD-GigabitEthernet1/0/1] undo port trunk permit vlan 1
```

**# Set the physical state change suppression interval to 0 seconds on the port.**

```
[DeviceD-GigabitEthernet1/0/1] link-delay up 0
[DeviceD-GigabitEthernet1/0/1] link-delay down 0
```

**# Disable the spanning tree feature on the port.**

```
[DeviceD-GigabitEthernet1/0/1] undo stp enable
[DeviceD-GigabitEthernet1/0/1] quit
```

**# Configure GigabitEthernet 1/0/2 in the same way GigabitEthernet 1/0/1 is configured.**

```
[DeviceD] interface gigabitethernet 1/0/2
[DeviceD-GigabitEthernet1/0/2] undo shutdown
[DeviceD-GigabitEthernet1/0/2] port link-type trunk
[DeviceD-GigabitEthernet1/0/2] port trunk permit vlan 100 to 200
[DeviceD-GigabitEthernet1/0/2] undo port trunk permit vlan 1
[DeviceD-GigabitEthernet1/0/2] link-delay up 0
[DeviceD-GigabitEthernet1/0/2] link-delay down 0
[DeviceD-GigabitEthernet1/0/2] undo stp enable
```

```
[DeviceD-GigabitEthernet1/0/2] quit
```

**# Configure GigabitEthernet 1/0/3 in the same way GigabitEthernet 1/0/1 is configured.**

```
[DeviceD] interface gigabitethernet 1/0/3
[DeviceD-GigabitEthernet1/0/3] undo shutdown
[DeviceD-GigabitEthernet1/0/3] port link-type trunk
[DeviceD-GigabitEthernet1/0/3] port trunk permit vlan 100 to 200
[DeviceD-GigabitEthernet1/0/3] undo port trunk permit vlan 1
[DeviceD-GigabitEthernet1/0/3] link-delay up 0
[DeviceD-GigabitEthernet1/0/3] link-delay down 0
[DeviceD-GigabitEthernet1/0/3] undo stp enable
[DeviceD-GigabitEthernet1/0/3] quit
```

**# Create RRPP domain 1.**

```
[DeviceD] rrpp domain 1
```

**# Configure VLAN 1000 as the primary control VLAN of RRPP domain 1.**

```
[DeviceD-rrpp-domain1] control-vlan 1000
```

**# Configure the VLANs mapped to MSTI 1 as the protected VLANs of RRPP domain 1.**

```
[DeviceD-rrpp-domain1] protected-vlan reference-instance 1
```

**# Configure Device D as the transit node of primary ring 1, with GigabitEthernet 1/0/1 as the primary port and GigabitEthernet 1/0/2 as the secondary port. Enable ring 1.**

```
[DeviceD-rrpp-domain1] ring 1 node-mode transit primary-port gigabitethernet 1/0/1
secondary-port gigabitethernet 1/0/2 level 0
[DeviceD-rrpp-domain1] ring 1 enable
```

**# Configure Device D as the assistant edge node of subring 2, with GigabitEthernet 1/0/3 as the edge port. Enable ring 2.**

```
[DeviceD-rrpp-domain1] ring 2 node-mode assistant-edge edge-port gigabitethernet 1/0/3
[DeviceD-rrpp-domain1] ring 2 enable
[DeviceD-rrpp-domain1] quit
```

**# Create RRPP domain 2.**

```
[DeviceD] rrpp domain 2
```

**# Configure VLAN 2000 as the primary control VLAN of RRPP domain 2.**

```
[DeviceD-rrpp-domain2] control-vlan 2000
```

**# Configure the VLANs mapped to MSTI 2 as the protected VLANs of RRPP domain 2.**

```
[DeviceD-rrpp-domain2] protected-vlan reference-instance 2
```

**# Configure Device D as the transit node of primary ring 1, with GigabitEthernet 1/0/1 as the primary port and GigabitEthernet 1/0/2 as the secondary port. Enable ring 1.**

```
[DeviceD-rrpp-domain2] ring 1 node-mode transit primary-port gigabitethernet 1/0/1
secondary-port gigabitethernet 1/0/2 level 0
[DeviceD-rrpp-domain2] ring 1 enable
```

**# Configure Device D as the assistant edge node of subring 2, with GigabitEthernet 1/0/3 as the edge port. Enable ring 2.**

```
[DeviceD-rrpp-domain2] ring 2 node-mode assistant-edge edge-port gigabitethernet 1/0/3
[DeviceD-rrpp-domain2] ring 2 enable
[DeviceD-rrpp-domain2] quit
```

**# Enable RRPP.**

```
[DeviceD] rrpp enable
```

# Configuring Device E

**# Create VLANs 100 through 200.**

```
<DeviceE> system-view
[DeviceE] vlan 100 to 200
```

**# Map VLANs 100 through 150 to MSTI 1, and VLANs 151 through 200 to MSTI 2.**

```
[DeviceE] stp region-configuration
[DeviceE-mst-region] instance 1 vlan 100 to 150
[DeviceE-mst-region] instance 2 vlan 151 to 200
```

**# Activate the MST region configuration.**

```
[DeviceE-mst-region] active region-configuration
[DeviceE-mst-region] quit
```

**# Configure GigabitEthernet 1/0/1 as a trunk port.**

```
[DeviceE] interface gigabitethernet 1/0/1
[DeviceE-GigabitEthernet1/0/1] undo shutdown
[DeviceE-GigabitEthernet1/0/1] port link-type trunk
```

**# Assign the port to VLANs 100 through 200, and remove it from VLAN 1.**

```
[DeviceE-GigabitEthernet1/0/1] port trunk permit vlan 100 to 200
[DeviceE-GigabitEthernet1/0/1] undo port trunk permit vlan 1
```

**# Set the physical state change suppression interval to 0 seconds on the port.**

```
[DeviceE-GigabitEthernet1/0/1] link-delay up 0
[DeviceE-GigabitEthernet1/0/1] link-delay down 0
```

**# Disable the spanning tree feature on the port.**

```
[DeviceE-GigabitEthernet1/0/1] undo stp enable
[DeviceE-GigabitEthernet1/0/1] quit
```

**# Configure GigabitEthernet 1/0/2 in the same way GigabitEthernet 1/0/1 is configured.**

```
[DeviceE] interface gigabitethernet 1/0/2
[DeviceE-GigabitEthernet1/0/2] undo shutdown
[DeviceE-GigabitEthernet1/0/2] port link-type trunk
[DeviceE-GigabitEthernet1/0/2] port trunk permit vlan 100 to 200
[DeviceE-GigabitEthernet1/0/2] undo port trunk permit vlan 1
[DeviceE-GigabitEthernet1/0/2] link-delay up 0
[DeviceE-GigabitEthernet1/0/2] link-delay down 0
[DeviceE-GigabitEthernet1/0/2] undo stp enable
[DeviceE-GigabitEthernet1/0/2] quit
```

**# Create RRPP domain 1.**

```
[DeviceE] rrpp domain 1
```

**# Configure VLAN 1000 as the primary control VLAN of RRPP domain 1.**

```
[DeviceE-rrpp-domain1] control-vlan 1000
```

**# Configure the VLANs mapped to MSTI 1 as the protected VLANs of RRPP domain 1.**

```
[DeviceE-rrpp-domain1] protected-vlan reference-instance 1
```

**# Configure Device E as the master node of subring 2, with GigabitEthernet 1/0/2 as the primary port and GigabitEthernet 1/0/1 as the secondary port. Enable ring 2.**

```
[DeviceE-rrpp-domain1] ring 2 node-mode master primary-port gigabitethernet 1/0/2
secondary-port gigabitethernet 1/0/1 level 1
[DeviceE-rrpp-domain1] ring 2 enable
```

```
[DeviceE-rrpp-domain1] quit
# Create RRPP domain 2.
[DeviceE] rrpp domain 2
# Configure VLAN 2000 as the primary control VLAN of RRPP domain 2.
[DeviceE-rrpp-domain2] control-vlan 2000
# Configure the VLANs mapped to MSTI 2 as the protected VLANs of RRPP domain 2.
[DeviceE-rrpp-domain2] protected-vlan reference-instance 2
# Configure Device E as the transit node of subring 2, with GigabitEthernet 1/0/2 as the primary port
and GigabitEthernet 1/0/1 as the secondary port. Enable ring 2.
[DeviceE-rrpp-domain2] ring 2 node-mode transit primary-port gigabitethernet 1/0/2
secondary-port gigabitethernet 1/0/1 level 1
[DeviceE-rrpp-domain2] ring 2 enable
[DeviceE-rrpp-domain2] quit
# Enable RRPP.
[DeviceE] rrpp enable
```

## Configuring Device F

```
# Create VLANs 100 through 200.
<DeviceF> system-view
[DeviceF] vlan 100 to 200
# Map VLANs 100 through 150 to MSTI 1, and VLANs 151 through 200 to MSTI 2.
[DeviceF] stp region-configuration
[DeviceF-mst-region] instance 1 vlan 100 to 150
[DeviceF-mst-region] instance 2 vlan 151 to 200
# Activate the MST region configuration.
[DeviceF-mst-region] active region-configuration
[DeviceF-mst-region] quit
# Configure GigabitEthernet 1/0/1 as a trunk port.
[DeviceF] interface gigabitethernet 1/0/1
[DeviceF-GigabitEthernet1/0/1] undo shutdown
[DeviceF-GigabitEthernet1/0/1] port link-type trunk
# Assign the port to VLANs 100 through 200, and remove it from VLAN 1.
[DeviceF-GigabitEthernet1/0/1] port trunk permit vlan 100 to 200
[DeviceF-GigabitEthernet1/0/1] undo port trunk permit vlan 1
# Set the physical state change suppression interval to 0 seconds on the port.
[DeviceF-GigabitEthernet1/0/1] link-delay up 0
[DeviceF-GigabitEthernet1/0/1] link-delay down 0
# Disable the spanning tree feature on the port.
[DeviceF-GigabitEthernet1/0/1] undo stp enable
[DeviceF-GigabitEthernet1/0/1] quit
# Configure GigabitEthernet 1/0/2 in the same way GigabitEthernet 1/0/1 is configured.
[DeviceF] interface gigabitethernet 1/0/2
[DeviceF-GigabitEthernet1/0/2] undo shutdown
[DeviceF-GigabitEthernet1/0/2] port link-type trunk
[DeviceF-GigabitEthernet1/0/2] port trunk permit vlan 100 to 200
```

```

[DeviceF-GigabitEthernet1/0/2] undo port trunk permit vlan 1
[DeviceF-GigabitEthernet1/0/2] link-delay up 0
[DeviceF-GigabitEthernet1/0/2] link-delay down 0
[DeviceF-GigabitEthernet1/0/2] undo stp enable
[DeviceF-GigabitEthernet1/0/2] quit

# Create RRPP domain 1.
[DeviceF] rrpp domain 1

# Configure VLAN 1000 as the primary control VLAN of RRPP domain 1.
[DeviceF-rrpp-domain1] control-vlan 1000

# Configure the VLANs mapped to MSTI 1 as the protected VLANs of RRPP domain 1.
[DeviceF-rrpp-domain1] protected-vlan reference-instance 1

# Configure Device F as the transit node of subring 2, with GigabitEthernet 1/0/1 as the primary port
and GigabitEthernet 1/0/2 as the secondary port. Enable ring 2.
[DeviceF-rrpp-domain1] ring 2 node-mode transit primary-port gigabitethernet 1/0/1
secondary-port gigabitethernet 1/0/2 level 1
[DeviceF-rrpp-domain1] ring 2 enable
[DeviceF-rrpp-domain1] quit

# Create RRPP domain 2.
[DeviceF] rrpp domain 2

# Configure VLAN 2000 as the primary control VLAN of RRPP domain 2.
[DeviceF-rrpp-domain2] control-vlan 2000

# Configure the VLANs mapped to MSTI 2 as the protected VLANs of RRPP domain 2.
[DeviceF-rrpp-domain2] protected-vlan reference-instance 2

# Configure Device F as the master node of subring 2, with GigabitEthernet 1/0/1 as the primary port
and GigabitEthernet 1/0/2 as the secondary port. Enable ring 2.
[DeviceF-rrpp-domain2] ring 2 node-mode master primary-port gigabitethernet 1/0/1
secondary-port gigabitethernet 1/0/2 level 1
[DeviceF-rrpp-domain2] ring 2 enable
[DeviceF-rrpp-domain2] quit

# Enable RRPP.
[DeviceF] rrpp enable

```

## Verifying the configuration

```

# View detailed information about RRPP domain 1 on Device A.
[DeviceA] display rrpp verbose domain 1

Domain ID      : 1
Control VLAN   : Primary 1000, Secondary 1001
Protected VLAN: Reference instance 1
Hello timer    : 1 seconds, Fail timer: 3 seconds
Fast detection status: Disabled
Fast-Hello timer: 20 ms, Fast-Fail timer: 60 ms
Fast-Edge-Hello timer: 10 ms, Fast-Edge-Fail timer: 30 ms


Ring ID       : 1
Ring Level    : 0
Node Mode     : Master

```

```
Ring State      : Completed
Enable Status  : Yes    Active Status: Yes
Primary port   : GE1/0/1      Port status: UP
Secondary port : GE1/0/2      Port status: BLOCKED
```

The output shows the following information:

- Device A is the master node of primary ring 1 in RRPP domain 1.
- The primary ring state of RRPP domain 1 is completed.
- The primary port is up, and the secondary port is blocked.

# View detailed information about RRPP domain 2 on Device A.

```
[DeviceA] display rrpp verbose domain 2
Domain ID      : 2
Control VLAN   : Primary 2000, Secondary 2001
Protected VLAN : Reference instance 2
Hello timer    : 1 seconds, Fail timer: 3 seconds
Fast detection status: Disabled
Fast-Hello timer: 20 ms, Fast-Fail timer: 60 ms
Fast-Edge-Hello timer: 10 ms, Fast-Edge-Fail timer: 30 ms
```

```
Ring ID       : 1
Ring Level    : 0
Node Mode     : Transit
Ring State    : -
Enable Status : Yes    Active Status: Yes
Primary port  : GE1/0/1      Port status: UP
Secondary port: GE1/0/2      Port status: UP
```

The output shows the following information:

- Device A is the transit node of primary ring 1 in RRPP domain 2.
- The primary and secondary ports are up.

# View detailed information about RRPP domain 1 on Device B.

```
[DeviceB] display rrpp verbose domain 1
Domain ID      : 1
Control VLAN   : Primary 1000, Secondary 1001
Protected VLAN : Reference instance 1
Hello timer    : 1 seconds, Fail timer: 3 seconds
Fast detection status: Disabled
Fast-Hello timer: 20 ms, Fast-Fail timer: 60 ms
Fast-Edge-Hello timer: 10 ms, Fast-Edge-Fail timer: 30 ms
```

```
Ring ID       : 1
Ring Level    : 0
Node Mode     : Transit
Ring State    : -
Enable Status : Yes    Active Status: Yes
Primary port  : GE1/0/2      Port status: UP
Secondary port: GE1/0/1      Port status: UP
```

The output shows the following information:

- Device B is the transit node of primary ring 1 in RRPP domain 1.
- The primary and secondary ports are up.

# View detailed information about RRPP domain 2 on Device B.

```
[DeviceB] display rrpp verbose domain 2
Domain ID      : 2
Control VLAN   : Primary 2000, Secondary 2001
Protected VLAN : Reference instance 2
Hello timer    : 1 seconds, Fail timer: 3 seconds
Fast detection status: Disabled
Fast-Hello timer: 20 ms, Fast-Fail timer: 60 ms
Fast-Edge-Hello timer: 10 ms, Fast-Edge-Fail timer: 30 ms

Ring ID       : 1
Ring Level    : 0
Node Mode     : Master
Ring State    : Completed
Enable Status : Yes      Active Status: Yes
Primary port  : GE1/0/2      Port status: UP
Secondary port: GE1/0/1      Port status: BLOCKED
```

The output shows the following information:

- Device B is the master node of primary ring 1 in RRPP domain 2.
- The primary ring state of RRPP domain 2 is completed.
- The primary port is up, and the secondary port is blocked.

# View detailed information about RRPP domain 1 on Device C.

```
[DeviceC] display rrpp verbose domain 1
Domain ID      : 1
Control VLAN   : Primary 1000, Secondary 1001
Protected VLAN : Reference instance 1
Hello timer    : 1 seconds, Fail timer: 3 seconds
Fast detection status: Disabled
Fast-Hello timer: 20 ms, Fast-Fail timer: 60 ms
Fast-Edge-Hello timer: 10 ms, Fast-Edge-Fail timer: 30 ms

Ring ID       : 1
Ring Level    : 0
Node Mode     : Transit
Ring State    : -
Enable Status : Yes      Active Status: Yes
Primary port  : GE1/0/1      Port status: UP
Secondary port: GE1/0/2      Port status: UP

Ring ID       : 2
Ring Level    : 1
Node Mode     : Edge
Ring State    : -
Enable Status : Yes      Active Status: Yes
Common port   : GE1/0/1      Port status: UP
```



```

GE1/0/2                                Port status: UP
Edge port      : GE1/0/3                Port status: UP

```

The output shows the following information:

- Device C is the transit node of primary ring 1 and edge node of subring 2 in RRPP domain 1.
- The primary and secondary ports are up.

# View detailed information about RRPP domain 2 on Device C.

```

[DeviceC] display rrpp verbose domain 2
Domain ID      : 2
Control VLAN   : Primary 2000, Secondary 2001
Protected VLAN : Reference instance 2
Hello timer    : 1 seconds, Fail timer: 3 seconds
Fast detection status: Disabled
Fast-Hello timer: 20 ms, Fast-Fail timer: 60 ms
Fast-Edge-Hello timer: 10 ms, Fast-Edge-Fail timer: 30 ms

```

```

Ring ID       : 1
Ring Level    : 0
Node Mode     : Transit
Ring State    : -
Enable Status : Yes    Active Status: Yes
Primary port  : GE1/0/1          Port status: UP
Secondary port: GE1/0/2          Port status: UP

```

```

Ring ID       : 2
Ring Level    : 1
Node Mode     : Edge
Ring State    : -
Enable Status : Yes    Active Status: Yes
Common port   : GE1/0/1          Port status: UP
               GE1/0/2          Port status: UP
Edge port     : GE1/0/3          Port status: UP

```

The output shows the following information:

- Device C is the transit node of primary ring 1 and edge node of subring 2 in RRPP domain 2.
- The primary and secondary ports are up.

# View detailed information about RRPP domain 1 on Device D.

```

[DeviceD] display rrpp verbose domain 1
Domain ID      : 1
Control VLAN   : Primary 1000, Secondary 1001
Protected VLAN : Reference instance 1
Hello timer    : 1 seconds, Fail timer: 3 seconds
Fast detection status: Disabled
Fast-Hello timer: 20 ms, Fast-Fail timer: 60 ms
Fast-Edge-Hello timer: 10 ms, Fast-Edge-Fail timer: 30 ms

```

```

Ring ID       : 1
Ring Level    : 0
Node Mode     : Transit

```

```

Ring State      : -
Enable Status   : Yes    Active Status: Yes
Primary port    : GE1/0/1      Port status: UP
Secondary port  : GE1/0/2      Port status: UP

```

```

Ring ID         : 2
Ring Level      : 1
Node Mode       : Assistant-edge
Ring State      : -
Enable Status   : Yes    Active Status: Yes
Common port     : GE1/0/1      Port status: UP
                  GE1/0/2      Port status: UP
Edge port       : GE1/0/3      Port status: UP

```

The output shows the following information:

- Device D is the transit node of primary ring 1 and assistant edge node of subring 2 in RRPP domain 1.
- The primary and secondary ports are up.

# View detailed information about RRPP domain 2 on Device D.

```

[DeviceD] display rrpp verbose domain 2
Domain ID       : 2
Control VLAN    : Primary 2000, Secondary 2001
Protected VLAN  : Reference instance 2
Hello timer     : 1 seconds, Fail timer: 3 seconds
Fast detection status: Disabled
Fast-Hello timer: 20 ms, Fast-Fail timer: 60 ms
Fast-Edge-Hello timer: 10 ms, Fast-Edge-Fail timer: 30 ms

```

```

Ring ID         : 1
Ring Level      : 0
Node Mode       : Transit
Ring State      : -
Enable Status   : Yes    Active Status: Yes
Primary port    : GE1/0/1      Port status: UP
Secondary port  : GE1/0/2      Port status: UP

```

```

Ring ID         : 2
Ring Level      : 1
Node Mode       : Assistant-edge
Ring State      : -
Enable Status   : Yes    Active Status: Yes
Common port     : GE1/0/1      Port status: UP
                  GE1/0/2      Port status: UP
Edge port       : GE1/0/3      Port status: UP

```

The output shows the following information:

- Device D is the transit node of primary ring 1 and assistant edge node of subring 2 in RRPP domain 2.
- The primary and secondary ports are up.

#### # View detailed information about RRPP domain 1 on Device E.

```
[DeviceE] display rrpp verbose domain 1
Domain ID      : 1
Control VLAN   : Primary 1000, Secondary 1001
Protected VLAN : Reference instance 1
Hello timer    : 1 seconds, Fail timer: 3 seconds
Fast detection status: Disabled
Fast-Hello timer: 20 ms, Fast-Fail timer: 60 ms
Fast-Edge-Hello timer: 10 ms, Fast-Edge-Fail timer: 30 ms

Ring ID        : 2
Ring Level     : 1
Node Mode      : Master
Ring State     : Completed
Enable Status  : Yes    Active Status: Yes
Primary port   : GE1/0/2    Port status: UP
Secondary port : GE1/0/1    Port status: BLOCKED
```

The output shows the following information:

- Device E is the master node of subring 2 in RRPP domain 1.
- The subring state of RRPP domain 1 is completed.
- The primary port is up, and the secondary port is blocked.

#### # View detailed information about RRPP domain 2 on Device E.

```
[DeviceE] display rrpp verbose domain 2
Domain ID      : 2
Control VLAN   : Primary 2000, Secondary 2001
Protected VLAN : Reference instance 2
Hello timer    : 1 seconds, Fail timer: 3 seconds
Fast detection status: Disabled
Fast-Hello timer: 20 ms, Fast-Fail timer: 60 ms
Fast-Edge-Hello timer: 10 ms, Fast-Edge-Fail timer: 30 ms

Ring ID        : 2
Ring Level     : 1
Node Mode      : Transit
Ring State     : -
Enable Status  : Yes    Active Status: Yes
Primary port   : GE1/0/2    Port status: UP
Secondary port : GE1/0/1    Port status: UP
```

The output shows the following information:

- Device E is the transit node of subring 2 in RRPP domain 2.
- The primary and secondary ports are up.

#### # View detailed information about RRPP domain 1 on Device F.

```
[DeviceF] display rrpp verbose domain 1
Domain ID      : 1
Control VLAN   : Primary 1000, Secondary 1001
Protected VLAN : Reference instance 1
Hello timer    : 1 seconds, Fail timer: 3 seconds
```

```
Fast detection status: Disabled
Fast-Hello timer: 20 ms, Fast-Fail timer: 60 ms
Fast-Edge-Hello timer: 10 ms, Fast-Edge-Fail timer: 30 ms
```

```
Ring ID      : 2
Ring Level   : 1
Node Mode    : Transit
Ring State   : -
Enable Status : Yes    Active Status: Yes
Primary port  : GE1/0/1    Port status: UP
Secondary port: GE1/0/2    Port status: UP
```

The output shows the following information:

- Device F is the transit node of subring 2 in RRPP domain 1.
- The primary and secondary ports are up.

# View detailed information about RRPP domain 2 on Device F.

```
[DeviceF] display rrpp verbose domain 2
Domain ID      : 2
Control VLAN   : Primary 2000, Secondary 2001
Protected VLAN : Reference instance 2
Hello timer    : 1 seconds, Fail timer: 3 seconds
Fast detection status: Disabled
Fast-Hello timer: 20 ms, Fast-Fail timer: 60 ms
Fast-Edge-Hello timer: 10 ms, Fast-Edge-Fail timer: 30 ms
```

```
Ring ID      : 2
Ring Level   : 1
Node Mode    : Master
Ring State   : Completed
Enable Status : Yes    Active Status: Yes
Primary port  : GE1/0/1    Port status: UP
Secondary port: GE1/0/2    Port status: BLOCKED
```

The output shows the following information:

- Device F is the master node of subring 2 in RRPP domain 2.
- The subring state of RRPP domain 2 is completed.
- The primary port is up, and the secondary port is blocked.

## Configuration files

---

### NOTE:

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

---

- Device A:

```
#
sysname DeviceA
#
vlan 1
```

```

#
vlan 100 to 200
#
stp region-configuration
    instance 1 vlan 100 to 150
    instance 2 vlan 151 to 200
    active region-configuration
#
interface GigabitEthernet1/0/1
    port link-mode bridge
    port link-type trunk
    undo port trunk permit vlan 1
    port trunk permit vlan 100 to 200
    link-delay up 0
    link-delay down 0
    undo stp enable
#
interface GigabitEthernet1/0/2
    port link-mode bridge
    port link-type trunk
    undo port trunk permit vlan 1
    port trunk permit vlan 100 to 200
    link-delay up 0
    link-delay down 0
    undo stp enable
#
rrpp domain 1
    control-vlan 1000
    protected-vlan reference-instance 1
    ring 1 node-mode master primary-port GigabitEthernet1/0/1 secondary-port
GigabitEthernet1/0/2 level 0
    ring 1 enable
#
rrpp domain 2
    control-vlan 2000
    protected-vlan reference-instance 2
    ring 1 node-mode transit primary-port GigabitEthernet1/0/1 secondary-port
GigabitEthernet1/0/2 level 0
    ring 1 enable
#
rrpp enable
#

```

- **Device B:**

```

#
sysname DeviceB
#
vlan 1
#
vlan 100 to 200

```

```

#
stp region-configuration
  instance 1 vlan 100 to 150
  instance 2 vlan 151 to 200
  active region-configuration
#
interface GigabitEthernet1/0/1
  port link-mode bridge
  port link-type trunk
  undo port trunk permit vlan 1
  port trunk permit vlan 100 to 200
  link-delay up 0
  link-delay down 0
  undo stp enable
#
interface GigabitEthernet1/0/2
  port link-mode bridge
  port link-type trunk
  undo port trunk permit vlan 1
  port trunk permit vlan 100 to 200
  link-delay up 0
  link-delay down 0
  undo stp enable
#
rrpp domain 1
  control-vlan 1000
  protected-vlan reference-instance 1
  ring 1 node-mode transit primary-port GigabitEthernet1/0/2 secondary-port
  GigabitEthernet1/0/1 level 0
  ring 1 enable
#
rrpp domain 2
  control-vlan 2000
  protected-vlan reference-instance 2
  ring 1 node-mode master primary-port GigabitEthernet1/0/2 secondary-port
  GigabitEthernet1/0/1 level 0
  ring 1 enable
#
rrpp enable
#

```

- **Device C:**

```

#
sysname DeviceC
#
vlan 1
#
vlan 100 to 200
#
stp region-configuration

```

```

instance 1 vlan 100 to 150
instance 2 vlan 151 to 200
active region-configuration
#
interface GigabitEthernet1/0/1
port link-mode bridge
port link-type trunk
undo port trunk permit vlan 1
port trunk permit vlan 100 to 200
link-delay up 0
link-delay down 0
undo stp enable
#
interface GigabitEthernet1/0/2
port link-mode bridge
port link-type trunk
undo port trunk permit vlan 1
port trunk permit vlan 100 to 200
link-delay up 0
link-delay down 0
undo stp enable
#
interface GigabitEthernet1/0/3
port link-mode bridge
port link-type trunk
undo port trunk permit vlan 1
port trunk permit vlan 100 to 200
link-delay up 0
link-delay down 0
undo stp enable
#
rrpp domain 1
control-vlan 1000
protected-vlan reference-instance 1
ring 1 node-mode transit primary-port GigabitEthernet1/0/1 secondary-port
GigabitEthernet1/0/2 level 0
ring 1 enable
ring 2 node-mode edge edge-port GigabitEthernet1/0/3
ring 2 enable
#
rrpp domain 2
control-vlan 2000
protected-vlan reference-instance 2
ring 1 node-mode transit primary-port GigabitEthernet1/0/1 secondary-port
GigabitEthernet1/0/2 level 0
ring 1 enable
ring 2 node-mode edge edge-port GigabitEthernet1/0/3
ring 2 enable
#

```

```

rrpp enable
#
• Device D:
#
  sysname DeviceD
#
  vlan 1
#
  vlan 100 to 200
#
  stp region-configuration
    instance 1 vlan 100 to 150
    instance 2 vlan 151 to 200
    active region-configuration
#
  interface GigabitEthernet1/0/1
    port link-mode bridge
    port link-type trunk
    undo port trunk permit vlan 1
    port trunk permit vlan 100 to 200
    link-delay up 0
    link-delay down 0
    undo stp enable
#
  interface GigabitEthernet1/0/2
    port link-mode bridge
    port link-type trunk
    undo port trunk permit vlan 1
    port trunk permit vlan 100 to 200
    link-delay up 0
    link-delay down 0
    undo stp enable
#
  interface GigabitEthernet1/0/3
    port link-mode bridge
    port link-type trunk
    undo port trunk permit vlan 1
    port trunk permit vlan 100 to 200
    link-delay up 0
    link-delay down 0
    undo stp enable
#
  rrpp domain 1
    control-vlan 1000
    protected-vlan reference-instance 1
    ring 1 node-mode transit primary-port GigabitEthernet1/0/1 secondary-port
    GigabitEthernet1/0/2 level 0
    ring 1 enable

```



```

ring 2 node-mode assistant-edge edge-port GigabitEthernet1/0/3
ring 2 enable
#
rrpp domain 2
control-vlan 2000
protected-vlan reference-instance 2
ring 1 node-mode transit primary-port GigabitEthernet1/0/1 secondary-port
GigabitEthernet1/0/2 level 0
ring 1 enable
ring 2 node-mode assistant-edge edge-port GigabitEthernet1/0/3
ring 2 enable
#
rrpp enable
#

```

- **Device E:**

```

#
sysname DeviceE
#
vlan 1
#
vlan 100 to 200
#
stp region-configuration
instance 1 vlan 100 to 150
instance 2 vlan 151 to 200
active region-configuration
#
interface GigabitEthernet1/0/1
port link-mode bridge
port link-type trunk
undo port trunk permit vlan 1
port trunk permit vlan 100 to 200
link-delay up 0
link-delay down 0
undo stp enable
#
interface GigabitEthernet1/0/2
port link-mode bridge
port link-type trunk
undo port trunk permit vlan 1
port trunk permit vlan 100 to 200
link-delay up 0
link-delay down 0
undo stp enable
#
rrpp domain 1
control-vlan 1000
protected-vlan reference-instance 1

```

```

    ring 2 node-mode master primary-port GigabitEthernet1/0/2 secondary-port
GigabitEthernet1/0/1 level 1
    ring 2 enable
#
rrpp domain 2
    control-vlan 2000
    protected-vlan reference-instance 2
    ring 2 node-mode transit primary-port GigabitEthernet1/0/2 secondary-port
GigabitEthernet1/0/1 level 1
    ring 2 enable
#
rrpp enable
#

```

- **Device F:**

```

#
sysname DeviceF
#
vlan 1
#
vlan 100 to 200
#
stp region-configuration
    instance 1 vlan 100 to 150
    instance 2 vlan 151 to 200
    active region-configuration
#
interface GigabitEthernet1/0/1
    port link-mode bridge
    port link-type trunk
    undo port trunk permit vlan 1
    port trunk permit vlan 100 to 200
    link-delay up 0
    link-delay down 0
    undo stp enable
#
interface GigabitEthernet1/0/2
    port link-mode bridge
    port link-type trunk
    undo port trunk permit vlan 1
    port trunk permit vlan 100 to 200
    link-delay up 0
    link-delay down 0
    undo stp enable
#
rrpp domain 1
    control-vlan 1000
    protected-vlan reference-instance 1
    ring 2 node-mode transit primary-port GigabitEthernet1/0/1 secondary-port
GigabitEthernet1/0/2 level 1

```

```
ring 2 enable
#
rrpp domain 2
control-vlan 2000
protected-vlan reference-instance 2
ring 2 node-mode master primary-port GigabitEthernet1/0/1 secondary-port
GigabitEthernet1/0/2 level 1
ring 2 enable
#
rrpp enable
#
```

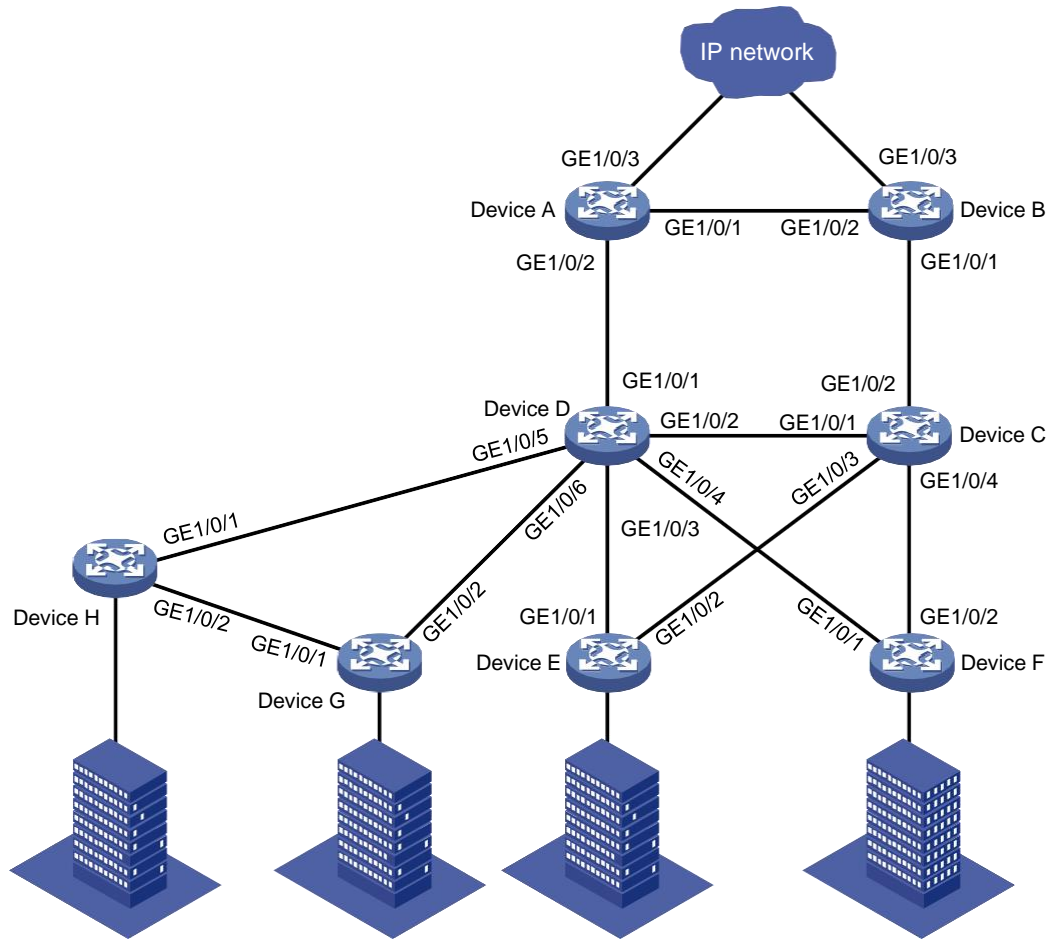
## Example: Configuring dual-homed intersecting rings

### Network configuration

As shown in [Figure 5](#), a ring-shaped campus network is connected to a ring-shaped distribution layer network through an access layer device. Configure RRPP to implement the following requirements in the network:

- Eliminate loops and implement link recovery in the Layer 2 network.
- Implement link load balancing by forwarding voice traffic in VLAN 100 through VLAN 150 and video traffic in VLAN 151 through VLAN 200.
- Improve RRPP topology convergence speed by setting the physical state change suppression interval to 0 seconds for all Ethernet interfaces on the RRPP ring.
- Reduce the number of Edge-Hello packets.

**Figure 5 Network diagram**



## Analysis

For voice and video traffic to be forwarded in different topologies, create four RRPP domains.

- In RRPP domain 1 and domain 4, specify VLAN 100 through VLAN 150 as protected VLANs, and configure the node roles as follows:
  - Specify Device A as the master node of primary ring 1.
  - Specify Device E as the master node of subring 2.
  - Specify Device F as the master node of subring 3.
  - Specify Device H as the master node of subring 4.
- In RRPP domain 2 and domain 3, specify VLAN 151 through VLAN 200 as protected VLANs, and configure the node roles as follows:
  - Specify Device B as the master node of primary ring 1.
  - Specify Device E as the master node of subring 2.
  - Specify Device F as the master node of subring 3.
  - Specify Device H as the master node of subring 4.

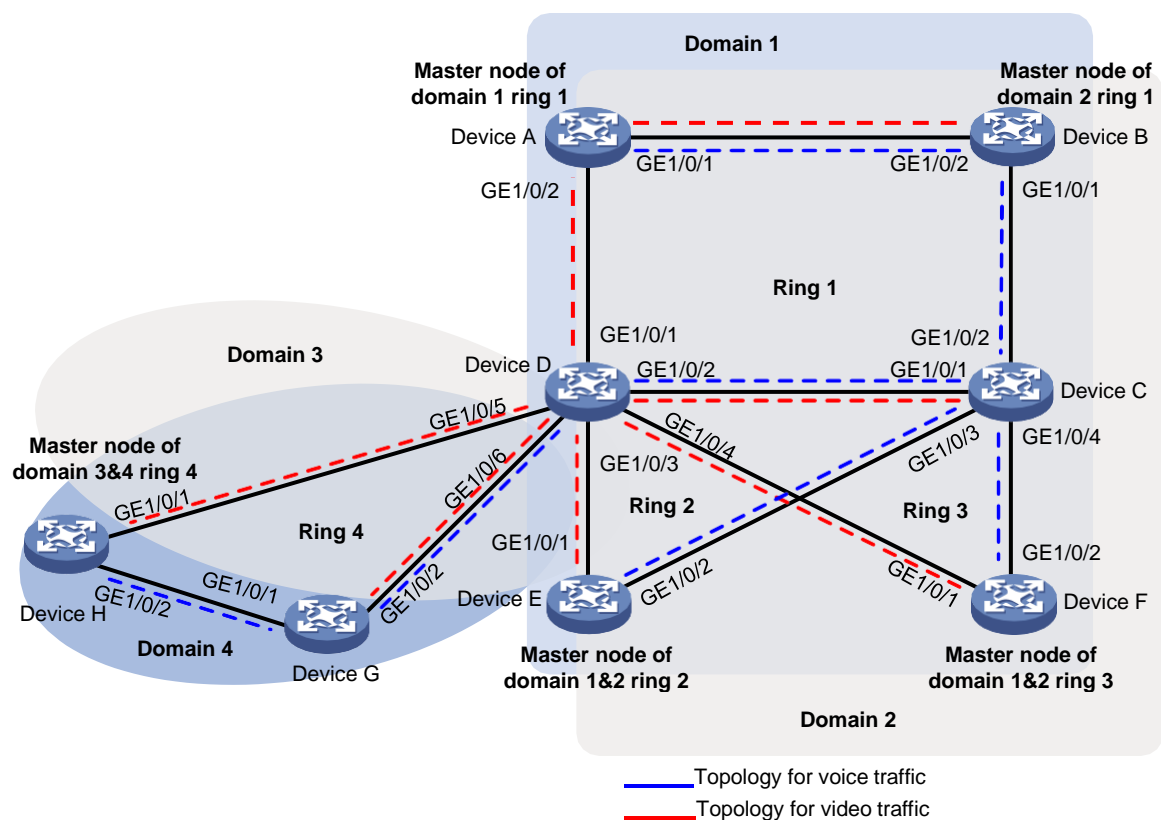
To implement load balancing for voice and video traffic, perform the following tasks:

- On Device A, specify GigabitEthernet 1/0/1 as the primary port, and GigabitEthernet 1/0/2 as the secondary port.

- On Device B, specify GigabitEthernet 1/0/2 as the primary port, and GigabitEthernet 1/0/1 as the secondary port.
- On Device E, specify GigabitEthernet 1/0/1 as the secondary port in RRPP domain 1 and primary port in RRPP domain 2. Specify GigabitEthernet 1/0/2 as the primary port in RRPP domain 1 and secondary port in RRPP domain 2.
- On Device F, specify GigabitEthernet 1/0/1 as the secondary port in RRPP domain 1 and primary port in RRPP domain 2. Specify GigabitEthernet 1/0/2 as the primary port in RRPP domain 1 and secondary port in RRPP domain 2.
- On Device H, specify GigabitEthernet 1/0/1 as the primary port in RRPP domain 3 and secondary port in RRPP domain 4. Specify GigabitEthernet 1/0/2 as the secondary port in RRPP domain 3 and primary port in RRPP domain 4.

To reduce the number of Edge-Hello packets, add ring 2 and ring 3 in RRPP domain 1 and 2 to a ring group.

**Figure 6 Topologies for voice and video traffic**



## 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 dual-homed intersecting rings, follow these restrictions and guidelines:

- To avoid temporary loops when the primary ring fails, make sure the difference between the Fail timer values on the master node of the subring and primary ring is greater than twice the Hello timer value on the master node of the subring.
- When you configure an edge node or assistant edge node, you must configure the primary ring before configuring the subrings.
- After you configure RRPP rings for an RRPP domain, you cannot delete or modify the primary control VLAN of the domain. You can only use the **undo control-vlan** command to delete a primary control VLAN.
- When you configure load balancing, you must configure different protected VLANs for different RRPP domains.
- Before you enable subrings on a device, you must enable the primary ring. Before you disable the primary ring on the device, you must disable all subrings.

- If a device carries multiple RRPP rings in an RRPP domain, it can only be an edge node or an assistant edge node on a subring.
- To prevent Hello packets of subrings from being looped on the primary ring, first enable the primary ring on its master node. Then enable the subrings on their respective master nodes.
- Make sure all subrings in an RRPP ring group have the same SRPTs. You can assign a subring to only one RRPP ring group. For the RRPP ring group to operate correctly, the RRPP ring groups configured on the edge node and the assistant edge node must contain the same subrings.
- Make sure the RRPP ring groups on the edge node and the assistant edge node have the same configurations and activation status.

## Procedures

### Configuring Device A

**# Create VLANs 100 through 200.**

```
<DeviceA> system-view
[DeviceA] vlan 100 to 200
```

**# Map VLANs 100 through 150 to MSTI 1, and VLANs 151 through 200 to MSTI 2.**

```
[DeviceA] stp region-configuration
[DeviceA-mst-region] instance 1 vlan 100 to 150
[DeviceA-mst-region] instance 2 vlan 151 to 200
```

**# Activate the MST region configuration.**

```
[DeviceA-mst-region] active region-configuration
[DeviceA-mst-region] quit
```

**# Configure GigabitEthernet 1/0/1 as a trunk port.**

```
[DeviceA] interface gigabitethernet 1/0/1
[DeviceA-GigabitEthernet1/0/1] undo shutdown
[DeviceA-GigabitEthernet1/0/1] port link-type trunk
```

**# Assign the port to VLANs 100 through 200, and remove it from VLAN 1.**

```
[DeviceA-GigabitEthernet1/0/1] port trunk permit vlan 100 to 200
[DeviceA-GigabitEthernet1/0/1] undo port trunk permit vlan 1
```

**# Set the physical state change suppression interval to 0 seconds on the port.**

```
[DeviceA-GigabitEthernet1/0/1] link-delay up 0
[DeviceA-GigabitEthernet1/0/1] link-delay down 0
```

**# Disable the spanning tree feature on the port.**

```
[DeviceA-GigabitEthernet1/0/1] undo stp enable
[DeviceA-GigabitEthernet1/0/1] quit
```

**# Configure GigabitEthernet 1/0/2 in the same way GigabitEthernet 1/0/1 is configured.**

```
[DeviceA] interface gigabitethernet 1/0/2
[DeviceA-GigabitEthernet1/0/2] undo shutdown
[DeviceA-GigabitEthernet1/0/2] port link-type trunk
[DeviceA-GigabitEthernet1/0/2] port trunk permit vlan 100 to 200
[DeviceA-GigabitEthernet1/0/2] undo port trunk permit vlan 1
[DeviceA-GigabitEthernet1/0/2] link-delay up 0
[DeviceA-GigabitEthernet1/0/2] link-delay down 0
[DeviceA-GigabitEthernet1/0/2] undo stp enable
```

```
[DeviceA-GigabitEthernet1/0/2] quit
```

**# Create RRPP domain 1.**

```
[DeviceA] rrpp domain 1
```

**# Configure VLAN 1000 as the primary control VLAN of RRPP domain 1.**

```
[DeviceA-rrpp-domain1] control-vlan 1000
```

**# Configure the VLANs mapped to MSTI 1 as the protected VLANs of RRPP domain 1.**

```
[DeviceA-rrpp-domain1] protected-vlan reference-instance 1
```

**# Configure Device A as the master node of primary ring 1, with GigabitEthernet 1/0/1 as the primary port and GigabitEthernet 1/0/2 as the secondary port. Enable ring 1.**

```
[DeviceA-rrpp-domain1] ring 1 node-mode master primary-port gigabitethernet 1/0/1
secondary-port gigabitethernet 1/0/2 level 0
[DeviceA-rrpp-domain1] ring 1 enable
[DeviceA-rrpp-domain1] quit
```

**# Create RRPP domain 2.**

```
[DeviceA] rrpp domain 2
```

**# Configure VLAN 2000 as the primary control VLAN of RRPP domain 2.**

```
[DeviceA-rrpp-domain2] control-vlan 2000
```

**# Configure the VLANs mapped to MSTI 2 as the protected VLANs of RRPP domain 2.**

```
[DeviceA-rrpp-domain2] protected-vlan reference-instance 2
```

**# Configure Device A as the transit node of primary ring 1, with GigabitEthernet 1/0/1 as the primary port and GigabitEthernet 1/0/2 as the secondary port. Enable ring 1.**

```
[DeviceA-rrpp-domain2] ring 1 node-mode transit primary-port gigabitethernet 1/0/1
secondary-port gigabitethernet 1/0/2 level 0
[DeviceA-rrpp-domain2] ring 1 enable
[DeviceA-rrpp-domain2] quit
```

**# Enable RRPP.**

```
[DeviceA] rrpp enable
```

## Configuring Device B

**# Create VLANs 100 through 200.**

```
<DeviceB> system-view
[DeviceB] vlan 100 to 200
```

**# Map VLANs 100 through 150 to MSTI 1, and VLANs 151 through 200 to MSTI 2.**

```
[DeviceB] stp region-configuration
[DeviceB-mst-region] instance 1 vlan 100 to 150
[DeviceB-mst-region] instance 2 vlan 151 to 200
```

**# Activate the MST region configuration.**

```
[DeviceB-mst-region] active region-configuration
[DeviceB-mst-region] quit
```

**# Configure GigabitEthernet 1/0/1 as a trunk port.**

```
[DeviceB] interface gigabitethernet 1/0/1
[DeviceB-GigabitEthernet1/0/1] undo shutdown
[DeviceB-GigabitEthernet1/0/1] port link-type trunk
```

**# Assign the port to VLANs 100 through 200, and remove it from VLAN 1.**

```
[DeviceB-GigabitEthernet1/0/1] port trunk permit vlan 100 to 200
```



```

[DeviceB-GigabitEthernet1/0/1] undo port trunk permit vlan 1
# Set the physical state change suppression interval to 0 seconds on the port.
[DeviceB-GigabitEthernet1/0/1] link-delay up 0
[DeviceB-GigabitEthernet1/0/1] link-delay down 0
# Disable the spanning tree feature on the port.
[DeviceB-GigabitEthernet1/0/1] undo stp enable
[DeviceB-GigabitEthernet1/0/1] quit
# Configure GigabitEthernet 1/0/2 in the same way GigabitEthernet 1/0/1 is configured.
[DeviceB] interface gigabitethernet 1/0/2
[DeviceB-GigabitEthernet1/0/2] undo shutdown
[DeviceB-GigabitEthernet1/0/2] port link-type trunk
[DeviceB-GigabitEthernet1/0/2] port trunk permit vlan 100 to 200
[DeviceB-GigabitEthernet1/0/2] undo port trunk permit vlan 1
[DeviceB-GigabitEthernet1/0/2] link-delay up 0
[DeviceB-GigabitEthernet1/0/2] link-delay down 0
[DeviceB-GigabitEthernet1/0/2] undo stp enable
[DeviceB-GigabitEthernet1/0/2] quit
# Create RRPP domain 1.
[DeviceB] rrpp domain 1
# Configure VLAN 1000 as the primary control VLAN of RRPP domain 1.
[DeviceB-rrpp-domain1] control-vlan 1000
# Configure the VLANs mapped to MSTI 1 as the protected VLANs of RRPP domain 1.
[DeviceB-rrpp-domain1] protected-vlan reference-instance 1
# Configure Device B as the transit node of primary ring 1, with GigabitEthernet 1/0/2 as the primary port and GigabitEthernet 1/0/1 as the secondary port. Enable ring 1.
[DeviceB-rrpp-domain1] ring 1 node-mode transit primary-port gigabitethernet 1/0/2
secondary-port gigabitethernet 1/0/1 level 0
[DeviceB-rrpp-domain1] ring 1 enable
[DeviceB-rrpp-domain1] quit
# Create RRPP domain 2.
[DeviceB] rrpp domain 2
# Configure VLAN 2000 as the primary control VLAN of RRPP domain 2.
[DeviceB-rrpp-domain2] control-vlan 2000
# Configure the VLANs mapped to MSTI 2 as the protected VLANs of RRPP domain 2.
[DeviceB-rrpp-domain2] protected-vlan reference-instance 2
# Configure Device B as the master node of primary ring 1, with GigabitEthernet 1/0/2 as the primary port and GigabitEthernet 1/0/1 as the secondary port. Enable ring 1.
[DeviceB-rrpp-domain2] ring 1 node-mode master primary-port gigabitethernet 1/0/2
secondary-port gigabitethernet 1/0/1 level 0
[DeviceB-rrpp-domain2] ring 1 enable
[DeviceB-rrpp-domain2] quit
# Enable RRPP.
[DeviceB] rrpp enable

```

# Configuring Device C

**# Create VLANs 100 through 200.**

```
<DeviceC> system-view
[DeviceC] vlan 100 to 200
```

**# Map VLANs 100 through 150 to MSTI 1, and VLANs 151 through 200 to MSTI 2.**

```
[DeviceC] stp region-configuration
[DeviceC-mst-region] instance 1 vlan 100 to 150
[DeviceC-mst-region] instance 2 vlan 151 to 200
```

**# Activate the MST region configuration.**

```
[DeviceC-mst-region] active region-configuration
[DeviceC-mst-region] quit
```

**# Configure GigabitEthernet 1/0/1 through GigabitEthernet 1/0/4 as trunk ports.**

```
[DeviceC] interface range gigabitethernet 1/0/1 to gigabitethernet 1/0/4
[DeviceC-if-range] undo shutdown
[DeviceC-if-range] port link-type trunk
```

**# Assign the ports to VLANs 100 through 200, and remove them from VLAN 1.**

```
[DeviceC-if-range] port trunk permit vlan 100 to 200
[DeviceC-if-range] undo port trunk permit vlan 1
```

**# Set the physical state change suppression interval to 0 seconds on the ports.**

```
[DeviceC-if-range] link-delay up 0
[DeviceC-if-range] link-delay down 0
```

**# Disable the spanning tree feature on the ports.**

```
[DeviceC-if-range] undo stp enable
[DeviceC-if-range] quit
```

**# Create RRPP domain 1.**

```
[DeviceC] rrpp domain 1
```

**# Configure VLAN 1000 as the primary control VLAN of RRPP domain 1.**

```
[DeviceC-rrpp-domain1] control-vlan 1000
```

**# Configure the VLANs mapped to MSTI 1 as the protected VLANs of RRPP domain 1.**

```
[DeviceC-rrpp-domain1] protected-vlan reference-instance 1
```

**# Configure Device C as the transit node of primary ring 1, with GigabitEthernet 1/0/1 as the primary port and GigabitEthernet 1/0/2 as the secondary port. Enable ring 1.**

```
[DeviceC-rrpp-domain1] ring 1 node-mode transit primary-port gigabitethernet 1/0/1
secondary-port gigabitethernet 1/0/2 level 0
[DeviceC-rrpp-domain1] ring 1 enable
```

**# Configure Device C as the edge node of subring 2, with GigabitEthernet 1/0/3 as the edge port. Enable ring 2.**

```
[DeviceC-rrpp-domain1] ring 2 node-mode edge edge-port gigabitethernet 1/0/3
[DeviceC-rrpp-domain1] ring 2 enable
```

**# Configure Device C as the edge node of subring 3, with GigabitEthernet 1/0/4 as the edge port. Enable ring 3.**

```
[DeviceC-rrpp-domain1] ring 3 node-mode edge edge-port gigabitethernet 1/0/4
[DeviceC-rrpp-domain1] ring 3 enable
[DeviceC-rrpp-domain1] quit
```

**# Create RRPP domain 2.**

```

[DeviceC] rrpp domain 2
# Configure VLAN 2000 as the primary control VLAN of RRPP domain 2.
[DeviceC-rrpp-domain2] control-vlan 2000
# Configure the VLANs mapped to MSTI 2 as the protected VLANs of RRPP domain 2.
[DeviceC-rrpp-domain2] protected-vlan reference-instance 2
# Configure Device C as the transit node of primary ring 1, with GigabitEthernet 1/0/1 as the primary
port and GigabitEthernet 1/0/2 as the secondary port. Enable ring 1.
[DeviceC-rrpp-domain2] ring 1 node-mode transit primary-port gigabitethernet 1/0/1
secondary-port gigabitethernet 1/0/2 level 0
[DeviceC-rrpp-domain2] ring 1 enable
# Configure Device C as the edge node of subring 2, with GigabitEthernet 1/0/3 as the edge port.
Enable ring 2.
[DeviceC-rrpp-domain2] ring 2 node-mode edge edge-port gigabitethernet 1/0/3
[DeviceC-rrpp-domain2] ring 2 enable
# Configure Device C as the edge node of subring 3, with GigabitEthernet 1/0/4 as the edge port.
Enable ring 3.
[DeviceC-rrpp-domain2] ring 3 node-mode edge edge-port gigabitethernet 1/0/4
[DeviceC-rrpp-domain2] ring 3 enable
[DeviceC-rrpp-domain2] quit
# Create RRPP ring group 1, and add subrings 2 and 3 in RRPP domains 1 and 2 to the RRPP ring
group.
[DeviceC] rrpp ring-group 1
[DeviceC-ring-group1] domain 1 ring 2 3
[DeviceC-ring-group1] domain 2 ring 2 3
[DeviceC-ring-group1] quit
# Enable RRPP.
[DeviceC] rrpp enable

```

## Configuring Device D

```

# Create VLANs 100 through 200.
<DeviceD> system-view
[DeviceD] vlan 100 to 200
# Map VLANs 100 through 150 to MSTI 1, and VLANs 151 through 200 to MSTI 2.
[DeviceD] stp region-configuration
[DeviceD-mst-region] instance 1 vlan 100 to 150
[DeviceD-mst-region] instance 2 vlan 151 to 200
# Activate the MST region configuration.
[DeviceD-mst-region] active region-configuration
[DeviceD-mst-region] quit
# Configure GigabitEthernet 1/0/1 through GigabitEthernet 1/0/6 as trunk ports.
[DeviceD] interface range gigabitethernet 1/0/1 to gigabitethernet 1/0/6
[DeviceD-if-range] undo shutdown
[DeviceD-if-range] port link-type trunk
# Assign the ports to VLANs 100 through 200, and remove them from VLAN 1.
[DeviceD-if-range] port trunk permit vlan 100 to 200
[DeviceD-if-range] undo port trunk permit vlan 1

```

**# Set the physical state change suppression interval to 0 seconds on the ports.**

```
[DeviceD-if-range] link-delay up 0
[DeviceD-if-range] link-delay down 0
```

**# Disable the spanning tree feature on the ports.**

```
[DeviceD-if-range] undo stp enable
[DeviceD-if-range] quit
```

**# Create RRPP domain 1.**

```
[DeviceD] rrpp domain 1
```

**# Configure VLAN 1000 as the primary control VLAN of RRPP domain 1.**

```
[DeviceD-rrpp-domain1] control-vlan 1000
```

**# Configure the VLANs mapped to MSTI 1 as the protected VLANs of RRPP domain 1.**

```
[DeviceD-rrpp-domain1] protected-vlan reference-instance 1
```

**# Configure Device D as the transit node of primary ring 1, with GigabitEthernet 1/0/1 as the primary port and GigabitEthernet 1/0/2 as the secondary port. Enable ring 1.**

```
[DeviceD-rrpp-domain1] ring 1 node-mode transit primary-port gigabitethernet 1/0/1
secondary-port gigabitethernet 1/0/2 level 0
[DeviceD-rrpp-domain1] ring 1 enable
```

**# Configure Device D as the assistant edge node of subring 2, with GigabitEthernet 1/0/3 as the edge port. Enable ring 2.**

```
[DeviceD-rrpp-domain1] ring 2 node-mode assistant-edge edge-port gigabitethernet 1/0/3
[DeviceD-rrpp-domain1] ring 2 enable
```

**# Configure Device D as the assistant edge node of subring 3, with GigabitEthernet 1/0/4 as the edge port. Enable ring 3.**

```
[DeviceD-rrpp-domain1] ring 3 node-mode assistant-edge edge-port gigabitethernet 1/0/4
[DeviceD-rrpp-domain1] ring 3 enable
[DeviceD-rrpp-domain1] quit
```

**# Create RRPP domain 2.**

```
[DeviceD] rrpp domain 2
```

**# Configure VLAN 2000 as the primary control VLAN of RRPP domain 2.**

```
[DeviceD-rrpp-domain2] control-vlan 2000
```

**# Configure the VLANs mapped to MSTI 2 as the protected VLANs of RRPP domain 2.**

```
[DeviceD-rrpp-domain2] protected-vlan reference-instance 2
```

**# Configure Device D as the transit node of primary ring 1, with GigabitEthernet 1/0/1 as the primary port and GigabitEthernet 1/0/2 as the secondary port. Enable ring 1.**

```
[DeviceD-rrpp-domain2] ring 1 node-mode transit primary-port gigabitethernet 1/0/1
secondary-port gigabitethernet 1/0/2 level 0
[DeviceD-rrpp-domain2] ring 1 enable
```

**# Configure Device D as the assistant edge node of subring 2, with GigabitEthernet 1/0/3 as the edge port. Enable ring 2.**

```
[DeviceD-rrpp-domain2] ring 2 node-mode assistant-edge edge-port gigabitethernet 1/0/3
[DeviceD-rrpp-domain2] ring 2 enable
```

**# Configure Device D as the assistant edge node of subring 3, with GigabitEthernet 1/0/4 as the edge port. Enable ring 3.**

```
[DeviceD-rrpp-domain2] ring 3 node-mode assistant-edge edge-port gigabitethernet 1/0/4
[DeviceD-rrpp-domain2] ring 3 enable
[DeviceD-rrpp-domain2] quit
```

**# Create RRPP domain 3.**

```
[DeviceD] rrpp domain 3
```

**# Configure VLAN 3000 as the primary control VLAN of RRPP domain 3.**

```
[DeviceD-rrpp-domain3] control-vlan 3000
```

**# Configure the VLANs mapped to MSTI 1 as the protected VLANs of RRPP domain 3.**

```
[DeviceD-rrpp-domain3] protected-vlan reference-instance 1
```

**# Configure Device D as the transit node of primary ring 4, with GigabitEthernet 1/0/5 as the primary port and GigabitEthernet 1/0/6 as the secondary port. Enable ring 4.**

```
[DeviceD-rrpp-domain3] ring 4 node-mode transit primary-port gigabitethernet 1/0/5  
secondary-port gigabitethernet 1/0/6 level 0
```

```
[DeviceD-rrpp-domain3] ring 4 enable
```

```
[DeviceD-rrpp-domain3] quit
```

**# Create RRPP domain 4.**

```
[DeviceD] rrpp domain 4
```

**# Configure VLAN 4000 as the primary control VLAN of RRPP domain 4.**

```
[DeviceD-rrpp-domain4] control-vlan 4000
```

**# Configure the VLANs mapped to MSTI 2 as the protected VLANs of RRPP domain 4.**

```
[DeviceD-rrpp-domain4] protected-vlan reference-instance 2
```

**# Configure Device D as the transit node of primary ring 4, with GigabitEthernet 1/0/5 as the primary port and GigabitEthernet 1/0/6 as the secondary port. Enable ring 4.**

```
[DeviceD-rrpp-domain4] ring 4 node-mode transit primary-port gigabitethernet 1/0/5  
secondary-port gigabitethernet 1/0/6 level 0
```

```
[DeviceD-rrpp-domain4] ring 4 enable
```

```
[DeviceD-rrpp-domain4] quit
```

**# Create RRPP ring group 1, and add subrings 2 and 3 in RRPP domains 1 and 2 to the RRPP ring group.**

```
[DeviceD] rrpp ring 1
```

```
[DeviceD-ring-group1] domain 1 ring 2 3
```

```
[DeviceD-ring-group1] domain 2 ring 2 3
```

```
[DeviceD-ring-group1] quit
```

**# Enable RRPP.**

```
[DeviceD] rrpp enable
```

## Configuring Device E

**# Create VLANs 100 through 200.**

```
<DeviceE> system-view
```

```
[DeviceE] vlan 100 to 200
```

**# Map VLANs 100 through 150 to MSTI 1, and VLANs 151 through 200 to MSTI 2.**

```
[DeviceE] stp region-configuration
```

```
[DeviceE-mst-region] instance 1 vlan 100 to 150
```

```
[DeviceE-mst-region] instance 2 vlan 151 to 200
```

**# Activate the MST region configuration.**

```
[DeviceE-mst-region] active region-configuration
```

```
[DeviceE-mst-region] quit
```

**# Configure GigabitEthernet 1/0/1 as a trunk port.**

```

[DeviceE] interface gigabitethernet 1/0/1
[DeviceE-GigabitEthernet1/0/1] undo shutdown
[DeviceE-GigabitEthernet1/0/1] port link-type trunk

# Assign the port to VLANs 100 through 200, and remove it from VLAN 1.
[DeviceE-GigabitEthernet1/0/1] port trunk permit vlan 100 to 200
[DeviceE-GigabitEthernet1/0/1] undo port trunk permit vlan 1

# Set the physical state change suppression interval to 0 seconds on the port.
[DeviceE-GigabitEthernet1/0/1] link-delay up 0
[DeviceE-GigabitEthernet1/0/1] link-delay down 0

# Disable the spanning tree feature on the port.
[DeviceE-GigabitEthernet1/0/1] undo stp enable
[DeviceE-GigabitEthernet1/0/1] quit

# Configure GigabitEthernet 1/0/2 in the same way GigabitEthernet 1/0/1 is configured.
[DeviceE] interface gigabitethernet 1/0/2
[DeviceE-GigabitEthernet1/0/2] undo shutdown
[DeviceE-GigabitEthernet1/0/2] port link-type trunk
[DeviceE-GigabitEthernet1/0/2] port trunk permit vlan 100 to 200
[DeviceE-GigabitEthernet1/0/2] undo port trunk permit vlan 1
[DeviceE-GigabitEthernet1/0/2] link-delay up 0
[DeviceE-GigabitEthernet1/0/2] link-delay down 0
[DeviceE-GigabitEthernet1/0/2] undo stp enable
[DeviceE-GigabitEthernet1/0/2] quit

# Create RRPP domain 1.
[DeviceE] rrpp domain 1

# Configure VLAN 1000 as the primary control VLAN of RRPP domain 1.
[DeviceE-rrpp-domain1] control-vlan 1000

# Configure the VLANs mapped to MSTI 1 as the protected VLANs of RRPP domain 1.
[DeviceE-rrpp-domain1] protected-vlan reference-instance 1

# Configure Device E as the master node of subring 2, with GigabitEthernet 1/0/2 as the primary port and GigabitEthernet 1/0/1 as the secondary port. Enable ring 2.
[DeviceE-rrpp-domain1] ring 2 node-mode master primary-port gigabitethernet 1/0/2
secondary-port gigabitethernet 1/0/1 level 1
[DeviceE-rrpp-domain1] ring 2 enable
[DeviceE-rrpp-domain1] quit

# Create RRPP domain 2.
[DeviceE] rrpp domain 2

# Configure VLAN 2000 as the primary control VLAN of RRPP domain 2.
[DeviceE-rrpp-domain2] control-vlan 2000

# Configure the VLANs mapped to MSTI 2 as the protected VLANs of RRPP domain 2.
[DeviceE-rrpp-domain2] protected-vlan reference-instance 2

# Configure Device E as the master node of subring 2, with GigabitEthernet 1/0/1 as the primary port and GigabitEthernet 1/0/2 as the secondary port. Enable ring 2.
[DeviceE-rrpp-domain2] ring 2 node-mode master primary-port gigabitethernet 1/0/1
secondary-port gigabitethernet 1/0/2 level 1
[DeviceE-rrpp-domain2] ring 2 enable
[DeviceE-rrpp-domain2] quit

```

**# Enable RRPP.**

```
[DeviceE] rrpp enable
```

## Configuring Device F

**# Create VLANs 100 through 200.**

```
<DeviceF> system-view
```

```
[DeviceF] vlan 100 to 200
```

**# Map VLANs 100 through 150 to MSTI 1, and VLANs 151 through 200 to MSTI 2.**

```
[DeviceF] stp region-configuration
```

```
[DeviceF-mst-region] instance 1 vlan 100 to 150
```

```
[DeviceF-mst-region] instance 2 vlan 151 to 200
```

**# Activate the MST region configuration.**

```
[DeviceF-mst-region] active region-configuration
```

```
[DeviceF-mst-region] quit
```

**# Configure GigabitEthernet 1/0/1 as a trunk port.**

```
[DeviceF] interface gigabitethernet 1/0/1
```

```
[DeviceF-GigabitEthernet1/0/1] undo shutdown
```

```
[DeviceF-GigabitEthernet1/0/1] port link-type trunk
```

**# Assign the port to VLANs 100 through 200, and remove it from VLAN 1.**

```
[DeviceF-GigabitEthernet1/0/1] port trunk permit vlan 100 to 200
```

```
[DeviceF-GigabitEthernet1/0/1] undo port trunk permit vlan 1
```

**# Set the physical state change suppression interval to 0 seconds on the port.**

```
[DeviceF-GigabitEthernet1/0/1] link-delay up 0
```

```
[DeviceF-GigabitEthernet1/0/1] link-delay down 0
```

**# Disable the spanning tree feature on the port.**

```
[DeviceF-GigabitEthernet1/0/1] undo stp enable
```

```
[DeviceF-GigabitEthernet1/0/1] quit
```

**# Configure GigabitEthernet 1/0/2 in the same way GigabitEthernet 1/0/1 is configured.**

```
[DeviceF] interface gigabitethernet 1/0/2
```

```
[DeviceF-GigabitEthernet1/0/2] undo shutdown
```

```
[DeviceF-GigabitEthernet1/0/2] port link-type trunk
```

```
[DeviceF-GigabitEthernet1/0/2] port trunk permit vlan 100 to 200
```

```
[DeviceF-GigabitEthernet1/0/2] undo port trunk permit vlan 1
```

```
[DeviceF-GigabitEthernet1/0/2] link-delay up 0
```

```
[DeviceF-GigabitEthernet1/0/2] link-delay down 0
```

```
[DeviceF-GigabitEthernet1/0/2] undo stp enable
```

```
[DeviceF-GigabitEthernet1/0/2] quit
```

**# Create RRPP domain 1.**

```
[DeviceF] rrpp domain 1
```

**# Configure VLAN 1000 as the primary control VLAN of RRPP domain 1.**

```
[DeviceF-rrpp-domain1] control-vlan 1000
```

**# Configure the VLANs mapped to MSTI 1 as the protected VLANs of RRPP domain 1.**

```
[DeviceF-rrpp-domain1] protected-vlan reference-instance 1
```

**# Configure Device F as the master node of subring 3, with GigabitEthernet 1/0/2 as the primary port and GigabitEthernet 1/0/1 as the secondary port. Enable ring 3.**

```
[DeviceF-rrpp-domain1] ring 3 node-mode master primary-port gigabitethernet 1/0/2
secondary-port gigabitethernet 1/0/1 level 1
[DeviceF-rrpp-domain1] ring 3 enable
[DeviceF-rrpp-domain1] quit

# Create RRPP domain 2.
[DeviceF] rrpp domain 2

# Configure VLAN 2000 as the primary control VLAN of RRPP domain 2.
[DeviceF-rrpp-domain2] control-vlan 2000

# Configure the VLANs mapped to MSTI 2 as the protected VLANs of RRPP domain 2.
[DeviceF-rrpp-domain2] protected-vlan reference-instance 2

# Configure Device F as the master node of subring 3, with GigabitEthernet 1/0/1 as the primary port
and GigabitEthernet 1/0/2 as the secondary port. Enable ring 3.
[DeviceF-rrpp-domain2] ring 3 node-mode master primary-port gigabitethernet 1/0/1
secondary-port gigabitethernet 1/0/2 level 1
[DeviceF-rrpp-domain2] ring 3 enable
[DeviceF-rrpp-domain2] quit

# Enable RRPP.
[DeviceF] rrpp enable
```

## Configuring Device G

```
# Create VLANs 100 through 200.
<DeviceG> system-view
[DeviceG] vlan 100 to 200

# Map VLANs 100 through 150 to MSTI 1, and VLANs 151 through 200 to MSTI 2.
[DeviceG] stp region-configuration
[DeviceG-mst-region] instance 1 vlan 100 to 150
[DeviceG-mst-region] instance 2 vlan 151 to 200

# Activate the MST region configuration.
[DeviceG-mst-region] active region-configuration
[DeviceG-mst-region] quit

# Configure GigabitEthernet 1/0/1 as a trunk port.
[DeviceG] interface gigabitethernet 1/0/1
[DeviceG-GigabitEthernet1/0/1] undo shutdown
[DeviceG-GigabitEthernet1/0/1] port link-type trunk

# Assign the port to VLANs 100 through 200, and remove it from VLAN 1.
[DeviceG-GigabitEthernet1/0/1] port trunk permit vlan 100 to 200
[DeviceG-GigabitEthernet1/0/1] undo port trunk permit vlan 1

# Set the physical state change suppression interval to 0 seconds on the port.
[DeviceG-GigabitEthernet1/0/1] link-delay up 0
[DeviceG-GigabitEthernet1/0/1] link-delay down 0

# Disable the spanning tree feature on the port.
[DeviceG-GigabitEthernet1/0/1] undo stp enable
[DeviceG-GigabitEthernet1/0/1] quit

# Configure GigabitEthernet 1/0/2 in the same way GigabitEthernet 1/0/1 is configured.
[DeviceG] interface gigabitethernet 1/0/2
```



```

[DeviceG-GigabitEthernet1/0/2] undo shutdown
[DeviceG-GigabitEthernet1/0/2] port link-type trunk
[DeviceG-GigabitEthernet1/0/2] port trunk permit vlan 100 to 200
[DeviceG-GigabitEthernet1/0/2] undo port trunk permit vlan 1
[DeviceG-GigabitEthernet1/0/2] link-delay up 0
[DeviceG-GigabitEthernet1/0/2] link-delay down 0
[DeviceG-GigabitEthernet1/0/2] undo stp enable
[DeviceG-GigabitEthernet1/0/2] quit

# Create RRPP domain 3.
[DeviceG] rrpp domain 3

# Configure VLAN 3000 as the primary control VLAN of RRPP domain 3.
[DeviceG-rrpp-domain3] control-vlan 3000

# Configure the VLANs mapped to MSTI 1 as the protected VLANs of RRPP domain 3.
[DeviceG-rrpp-domain3] protected-vlan reference-instance 1

# Configure Device G as the transit node of primary ring 4, with GigabitEthernet 1/0/2 as the primary port and GigabitEthernet 1/0/1 as the secondary port. Enable ring 4.
[DeviceG-rrpp-domain1] ring 4 node-mode transit primary-port gigabitethernet 1/0/2
secondary-port gigabitethernet 1/0/1 level 0
[DeviceG-rrpp-domain1] ring 4 enable
[DeviceG-rrpp-domain1] quit

# Create RRPP domain 4.
[DeviceG] rrpp domain 4

# Configure VLAN 4000 as the primary control VLAN of RRPP domain 4.
[DeviceG-rrpp-domain4] control-vlan 4000

# Configure the VLANs mapped to MSTI 2 as the protected VLANs of RRPP domain 4.
[DeviceG-rrpp-domain4] protected-vlan reference-instance 2

# Configure Device G as the transit node of primary ring 4, with GigabitEthernet 1/0/2 as the primary port and GigabitEthernet 1/0/1 as the secondary port. Enable ring 4.
[DeviceG-rrpp-domain4] ring 4 node-mode transit primary-port gigabitethernet 1/0/2
secondary-port gigabitethernet 1/0/1 level 0
[DeviceG-rrpp-domain4] ring 4 enable
[DeviceG-rrpp-domain4] quit

# Enable RRPP.
[DeviceG] rrpp enable

```

## Configuring Device H

```

# Create VLANs 100 through 200.
<DeviceH> system-view
[DeviceH] vlan 100 to 200

# Map VLANs 100 through 150 to MSTI 1, and VLANs 151 through 200 to MSTI 2.
[DeviceH] stp region-configuration
[DeviceH-mst-region] instance 1 vlan 100 to 150
[DeviceH-mst-region] instance 2 vlan 151 to 200

# Activate the MST region configuration.
[DeviceH-mst-region] active region-configuration

```

```
[DeviceH-mst-region] quit
```

**# Configure GigabitEthernet 1/0/1 as a trunk port.**

```
[DeviceH] interface gigabitethernet 1/0/1
[DeviceH-GigabitEthernet1/0/1] undo shutdown
[DeviceH-GigabitEthernet1/0/1] port link-type trunk
```

**# Assign the port to VLANs 100 through 200, and remove it from VLAN 1.**

```
[DeviceH-GigabitEthernet1/0/1] port trunk permit vlan 100 to 200
[DeviceH-GigabitEthernet1/0/1] undo port trunk permit vlan 1
```

**# Set the physical state change suppression interval to 0 seconds on the port.**

```
[DeviceH-GigabitEthernet1/0/1] link-delay up 0
[DeviceH-GigabitEthernet1/0/1] link-delay down 0
```

**# Disable the spanning tree feature on the port.**

```
[DeviceH-GigabitEthernet1/0/1] undo stp enable
[DeviceH-GigabitEthernet1/0/1] quit
```

**# Configure GigabitEthernet 1/0/2 in the same way GigabitEthernet 1/0/1 is configured.**

```
[DeviceH] interface gigabitethernet 1/0/2
[DeviceH-GigabitEthernet1/0/2] undo shutdown
[DeviceH-GigabitEthernet1/0/2] port link-type trunk
[DeviceH-GigabitEthernet1/0/2] port trunk permit vlan 100 to 200
[DeviceH-GigabitEthernet1/0/2] undo port trunk permit vlan 1
[DeviceH-GigabitEthernet1/0/2] link-delay up 0
[DeviceH-GigabitEthernet1/0/2] link-delay down 0
[DeviceH-GigabitEthernet1/0/2] undo stp enable
[DeviceH-GigabitEthernet1/0/2] quit
```

**# Create RRPP domain 3.**

```
[DeviceH] rrpp domain 3
```

**# Configure VLAN 3000 as the primary control VLAN of RRPP domain 3.**

```
[DeviceH-rrpp-domain3] control-vlan 3000
```

**# Configure the VLANs mapped to MSTI 1 as the protected VLANs of RRPP domain 3.**

```
[DeviceH-rrpp-domain3] protected-vlan reference-instance 1
```

**# Configure Device H as the master node of primary ring 4, with GigabitEthernet 1/0/1 as the primary port and GigabitEthernet 1/0/2 as the secondary port. Enable ring 4.**

```
[DeviceH-rrpp-domain3] ring 4 node-mode master primary-port gigabitethernet 1/0/1
secondary-port gigabitethernet 1/0/2 level 0
[DeviceH-rrpp-domain3] ring 4 enable
[DeviceH-rrpp-domain3] quit
```

**# Create RRPP domain 4.**

```
[DeviceH] rrpp domain 4
```

**# Configure VLAN 4000 as the primary control VLAN of RRPP domain 4.**

```
[DeviceH-rrpp-domain4] control-vlan 4000
```

**# Configure the VLANs mapped to MSTI 2 as the protected VLANs of RRPP domain 4.**

```
[DeviceH-rrpp-domain4] protected-vlan reference-instance 2
```

**# Configure Device H as the master node of primary ring 4, with GigabitEthernet 1/0/2 as the primary port and GigabitEthernet 1/0/1 as the secondary port. Enable ring 4.**

```
[DeviceH-rrpp-domain4] ring 4 node-mode master primary-port gigabitethernet 1/0/2
secondary-port gigabitethernet 1/0/1 level 0
```

```
[DeviceH-rrpp-domain4] ring 4 enable
[DeviceH-rrpp-domain4] quit
```

#### # Enable RRPP.

```
[DeviceH] rrpp enable
```

## Verifying the configuration

#### # View detailed information about RRPP domain 1 on Device A.

```
[DeviceA] display rrpp verbose domain 1
Domain ID      : 1
Control VLAN   : Primary 1000, Secondary 1001
Protected VLAN : Reference instance 1
Hello timer    : 1 seconds, Fail timer: 3 seconds
Fast detection status: Disabled
Fast-Hello timer: 20 ms, Fast-Fail timer: 60 ms
Fast-Edge-Hello timer: 10 ms, Fast-Edge-Fail timer: 30 ms

Ring ID       : 1
Ring Level    : 0
Node Mode     : Master
Ring State    : Completed
Enable Status : Yes    Active Status: Yes
Primary port  : GE1/0/1      Port status: UP
Secondary port: GE1/0/2      Port status: BLOCKED
```

The output shows the following information:

- Device A is the master node of primary ring 1 in RRPP domain 1.
- The primary ring state of RRPP domain 1 is completed.
- The primary port is up, and the secondary port is blocked.

#### # View detailed information about RRPP domain 2 on Device A.

```
[DeviceA] display rrpp verbose domain 2
Domain ID      : 2
Control VLAN   : Primary 2000, Secondary 2001
Protected VLAN : Reference instance 2
Hello timer    : 1 seconds, Fail timer: 3 seconds
Fast detection status: Disabled
Fast-Hello timer: 20 ms, Fast-Fail timer: 60 ms
Fast-Edge-Hello timer: 10 ms, Fast-Edge-Fail timer: 30 ms

Ring ID       : 1
Ring Level    : 0
Node Mode     : Transit
Ring State    : -
Enable Status : Yes    Active Status: Yes
Primary port  : GE1/0/1      Port status: UP
Secondary port: GE1/0/2      Port status: UP
```

The output shows the following information:

- Device A is the transit node of primary ring 1 in RRPP domain 2.
- The primary and secondary ports are up.

# View detailed information about RRPP domain 1 on Device B.

```
[DeviceB] display rrpp verbose domain 1
Domain ID      : 1
Control VLAN   : Primary 1000, Secondary 1001
Protected VLAN : Reference instance 1
Hello timer    : 1 seconds, Fail timer: 3 seconds
Fast detection status: Disabled
Fast-Hello timer: 20 ms, Fast-Fail timer: 60 ms
Fast-Edge-Hello timer: 10 ms, Fast-Edge-Fail timer: 30 ms

Ring ID       : 1
Ring Level    : 0
Node Mode     : Transit
Ring State    : -
Enable Status : Yes    Active Status: Yes
Primary port   : GE1/0/2          Port status: UP
Secondary port : GE1/0/1          Port status: UP
```

The output shows the following information:

- Device B is the transit node of primary ring 1 in RRPP domain 1.
- The primary and secondary ports are up.

# View detailed information about RRPP domain 2 on Device B.

```
[DeviceB] display rrpp verbose domain 2
Domain ID      : 2
Control VLAN   : Primary 2000, Secondary 2001
Protected VLAN : Reference instance 2
Hello timer    : 1 seconds, Fail timer: 3 seconds
Fast detection status: Disabled
Fast-Hello timer: 20 ms, Fast-Fail timer: 60 ms
Fast-Edge-Hello timer: 10 ms, Fast-Edge-Fail timer: 30 ms

Ring ID       : 1
Ring Level    : 0
Node Mode     : Master
Ring State    : Completed
Enable Status : Yes    Active Status: Yes
Primary port   : GE1/0/2          Port status: UP
Secondary port : GE1/0/1          Port status: BLOCKED
```

The output shows the following information:

- Device B is the master node of primary ring 1 in RRPP domain 2.
- The primary ring state of RRPP domain 2 is completed.
- The primary port is up, and the secondary port is blocked.

# View detailed information about RRPP domain 1 on Device C.

```
[DeviceC] display rrpp verbose domain 1
Domain ID      : 1
```

```
Control VLAN : Primary 1000, Secondary 1001
Protected VLAN: Reference instance 1
Hello timer : 1 seconds, Fail timer: 3 seconds
Fast detection status: Disabled
Fast-Hello timer: 20 ms, Fast-Fail timer: 60 ms
Fast-Edge-Hello timer: 10 ms, Fast-Edge-Fail timer: 30 ms
```

```
Ring ID : 1
Ring Level : 0
Node Mode : Transit
Ring State : -
Enable Status : Yes Active Status: Yes
Primary port : GE1/0/1 Port status: UP
Secondary port: GE1/0/2 Port status: UP
```

```
Ring ID : 2
Ring Level : 1
Node Mode : Edge
Ring State : -
Enable Status : Yes Active Status: Yes
Common port : GE1/0/1 Port status: UP
               GE1/0/2 Port status: UP
Edge port : GE1/0/3 Port status: UP
```

```
Ring ID : 3
Ring Level : 1
Node Mode : Edge
Ring State : -
Enable Status : Yes Active Status: Yes
Common port : GE1/0/1 Port status: UP
               GE1/0/2 Port status: UP
Edge port : GE1/0/4 Port status: UP
```

The output shows the following information:

- Device C is the transit node of primary ring 1 and edge node of subrings 2 and 3 in RRPP domain 1.
- The primary and secondary ports are up.

# View detailed information about RRPP domain 2 on Device C.

```
[DeviceC] display rrpp verbose domain 2
Domain ID : 2
Control VLAN : Primary 2000, Secondary 2001
Protected VLAN: Reference instance 2
Hello timer : 1 seconds, Fail timer: 3 seconds
Fast detection status: Disabled
Fast-Hello timer: 20 ms, Fast-Fail timer: 60 ms
Fast-Edge-Hello timer: 10 ms, Fast-Edge-Fail timer: 30 ms
```

```
Ring ID : 1
Ring Level : 0
```

```

Node Mode      : Transit
Ring State     : -
Enable Status  : Yes    Active Status: Yes
Primary port   : GE1/0/1    Port status: UP
Secondary port : GE1/0/2    Port status: UP

```

```

Ring ID        : 2
Ring Level     : 1
Node Mode      : Edge
Ring State     : -
Enable Status  : Yes    Active Status: Yes
Common port    : GE1/0/1    Port status: UP
                GE1/0/2    Port status: UP
Edge port      : GE1/0/3    Port status: UP

```

```

Ring ID        : 3
Ring Level     : 1
Node Mode      : Edge
Ring State     : -
Enable Status  : Yes    Active Status: Yes
Common port    : GE1/0/1    Port status: UP
                GE1/0/2    Port status: UP
Edge port      : GE1/0/4    Port status: UP

```

The output shows the following information:

- Device C is the transit node of primary ring 1 and edge node of subrings 2 and 3 in RRPP domain 2.
- The primary and secondary ports are up.

# View RRPP ring group information for the edge node and assistant edge node on Device C.

```
[DeviceC] display rrpp ring-group 1
```

```
Ring Group 1:
```

```
Domain 1 Ring 2 to 3
```

```
Domain 2 Ring 2 to 3
```

# View detailed information about RRPP domain 1 on Device D.

```
[DeviceD] display rrpp verbose domain 1
```

```

Domain ID      : 1
Control VLAN   : Primary 1000, Secondary 1001
Protected VLAN : Reference instance 1
Hello timer    : 1 seconds, Fail timer: 3 seconds
Fast detection status: Disabled
Fast-Hello timer: 20 ms, Fast-Fail timer: 60 ms
Fast-Edge-Hello timer: 10 ms, Fast-Edge-Fail timer: 30 ms

```

```

Ring ID        : 1
Ring Level     : 0
Node Mode      : Transit
Ring State     : -
Enable Status  : Yes    Active Status: Yes
Primary port   : GE1/0/1    Port status: UP

```

Secondary port: GE1/0/2                      Port status: UP

Ring ID            : 2  
Ring Level        : 1  
Node Mode         : Assistant-edge  
Ring State        : -  
Enable Status : Yes      Active Status: Yes  
Common port      : GE1/0/1                      Port status: UP  
                    GE1/0/2                      Port status: UP  
Edge port         : GE1/0/3                      Port status: UP

Ring ID            : 3  
Ring Level        : 1  
Node Mode         : Assistant-edge  
Ring State        : -  
Enable Status : Yes      Active Status: Yes  
Common port      : GE1/0/1                      Port status: UP  
                    GE1/0/2                      Port status: UP  
Edge port         : GE1/0/4                      Port status: UP

The output shows the following information:

- Device D is the transit node of primary ring 1 and assistant edge node of subrings 2 and 3 in RRPP domain 1.
- The primary and secondary ports are up.

# View detailed information about RRPP domain 2 on Device D.

```
[DeviceD] display rrpp verbose domain 2
Domain ID        : 2
Control VLAN     : Primary 2000, Secondary 2001
Protected VLAN: Reference instance 2
Hello timer      : 1 seconds, Fail timer: 3 seconds
Fast detection status: Disabled
Fast-Hello timer: 20 ms, Fast-Fail timer: 60 ms
Fast-Edge-Hello timer: 10 ms, Fast-Edge-Fail timer: 30 ms
```

Ring ID            : 1  
Ring Level        : 0  
Node Mode         : Transit  
Ring State        : -  
Enable Status : Yes      Active Status: Yes  
Primary port      : GE1/0/1                      Port status: UP  
Secondary port: GE1/0/2                      Port status: UP

Ring ID            : 2  
Ring Level        : 1  
Node Mode         : Assistant-edge  
Ring State        : -  
Enable Status : Yes      Active Status: Yes  
Common port      : GE1/0/1                      Port status: UP  
                    GE1/0/2                      Port status: UP

```

Edge port      : GE1/0/3                      Port status: UP

Ring ID        : 3
Ring Level     : 1
Node Mode      : Assistant-edge
Ring State     : -
Enable Status  : Yes      Active Status: Yes
Common port    : GE1/0/1                      Port status: UP
                  GE1/0/2                      Port status: UP
Edge port      : GE1/0/4                      Port status: UP

```

The output shows the following information:

- Device D is the transit node of primary ring 1 and assistant edge node of subrings 2 and 3 in RRPP domain 2.
- The primary and secondary ports are up.

# View detailed information about RRPP domain 3 on Device D.

```

[DeviceD] display rrpp verbose domain 3
Domain ID      : 3
Control VLAN   : Primary 3000, Secondary 3001
Protected VLAN : Reference instance 1
Hello timer    : 1 seconds, Fail timer: 3 seconds
Fast detection status: Disabled
Fast-Hello timer: 20 ms, Fast-Fail timer: 60 ms
Fast-Edge-Hello timer: 10 ms, Fast-Edge-Fail timer: 30 ms

Ring ID        : 4
Ring Level     : 0
Node Mode      : Transit
Ring State     : -
Enable Status  : Yes      Active Status: Yes
Primary port    : GE1/0/5                      Port status: UP
Secondary port  : GE1/0/6                      Port status: UP

```

The output shows the following information:

- Device D is the transit node of primary ring 4 in RRPP domain 3.
- The primary and secondary ports are up.

# View detailed information about RRPP domain 4 on Device D.

```

[DeviceD] display rrpp verbose domain 4
Domain ID      : 4
Control VLAN   : Primary 4000, Secondary 4001
Protected VLAN : Reference instance 2
Hello timer    : 1 seconds, Fail timer: 3 seconds
Fast detection status: Disabled
Fast-Hello timer: 20 ms, Fast-Fail timer: 60 ms
Fast-Edge-Hello timer: 10 ms, Fast-Edge-Fail timer: 30 ms

Ring ID        : 4
Ring Level     : 0
Node Mode      : Transit

```



```
Ring State      : -
Enable Status   : Yes      Active Status: Yes
Primary port    : GE1/0/5      Port status: UP
Secondary port  : GE1/0/6      Port status: UP
```

The output shows the following information:

- Device D is the transit node of primary ring 4 in RRPP domain 4.
- The primary and secondary ports are up.

# View RRPP ring group information for the edge node and assistant edge node on Device D.

```
[DeviceD] display rrpp ring-group 1
Ring Group 1:
Domain 1 Ring 2 to 3
Domain 2 Ring 2 to 3
```

# View detailed information about RRPP domain 1 on Device E.

```
[DeviceE] display rrpp verbose domain 1
Domain ID      : 1
Control VLAN   : Primary 1000, Secondary 1001
Protected VLAN: Reference instance 1
Hello timer    : 1 seconds, Fail timer: 3 seconds
Fast detection status: Disabled
Fast-Hello timer: 20 ms, Fast-Fail timer: 60 ms
Fast-Edge-Hello timer: 10 ms, Fast-Edge-Fail timer: 30 ms
```

```
Ring ID       : 2
Ring Level    : 1
Node Mode     : Master
Ring State    : Completed
Enable Status : Yes      Active Status: Yes
Primary port   : GE1/0/2      Port status: UP
Secondary port : GE1/0/1      Port status: BLOCKED
```

The output shows the following information:

- Device E is the master node of subring 2 in RRPP domain 1.
- The subring state of RRPP domain 1 is completed.
- The primary port is up, and the secondary port is blocked.

# View detailed information about RRPP domain 2 on Device E.

```
[DeviceE] display rrpp verbose domain 2
Domain ID      : 2
Control VLAN   : Primary 2000, Secondary 2001
Protected VLAN: Reference instance 2
Hello timer    : 1 seconds, Fail timer: 3 seconds
Fast detection status: Disabled
Fast-Hello timer: 20 ms, Fast-Fail timer: 60 ms
Fast-Edge-Hello timer: 10 ms, Fast-Edge-Fail timer: 30 ms
```

```
Ring ID       : 2
Ring Level    : 1
Node Mode     : Master
```

```
Ring State      : Completed
Enable Status  : Yes    Active Status: Yes
Primary port   : GE1/0/1    Port status: UP
Secondary port : GE1/0/2    Port status: BLOCKED
```

The output shows the following information:

- Device E is the master node of subring 2 in RRPP domain 2.
- The subring state of RRPP domain 2 is completed.
- The primary port is up, and the secondary port is blocked.

# View detailed information about RRPP domain 1 on Device F.

```
[DeviceF] display rrpp verbose domain 1
Domain ID      : 1
Control VLAN   : Primary 1000, Secondary 1001
Protected VLAN : Reference instance 1
Hello timer    : 1 seconds, Fail timer: 3 seconds
Fast detection status: Disabled
Fast-Hello timer: 20 ms, Fast-Fail timer: 60 ms
Fast-Edge-Hello timer: 10 ms, Fast-Edge-Fail timer: 30 ms
```

```
Ring ID        : 3
Ring Level     : 1
Node Mode      : Master
Ring State     : Completed
Enable Status  : Yes    Active Status: Yes
Primary port   : GE1/0/2    Port status: UP
Secondary port : GE1/0/1    Port status: BLOCKED
```

The output shows the following information:

- Device F is the master node of subring 3 in RRPP domain 1.
- The subring state of RRPP domain 1 is completed.
- The primary port is up, and the secondary port is blocked.

# View detailed information about RRPP domain 2 on Device F.

```
[DeviceF] display rrpp verbose domain 2
Domain ID      : 2
Control VLAN   : Primary 2000, Secondary 2001
Protected VLAN : Reference instance 2
Hello timer    : 1 seconds, Fail timer: 3 seconds
Fast detection status: Disabled
Fast-Hello timer: 20 ms, Fast-Fail timer: 60 ms
Fast-Edge-Hello timer: 10 ms, Fast-Edge-Fail timer: 30 ms
```

```
Ring ID        : 3
Ring Level     : 1
Node Mode      : Master
Ring State     : Completed
Enable Status  : Yes    Active Status: Yes
Primary port   : GE1/0/1    Port status: UP
Secondary port : GE1/0/2    Port status: BLOCKED
```

The output shows the following information:

- Device F is the master node of subring 3 in RRPP domain 2.
- The subring state of RRPP domain 2 is completed.
- The primary port is up, and the secondary port is blocked.

# View detailed information about RRPP domain 3 on Device H.

```
[DeviceH] display rrpp verbose domain 3

Domain ID      : 3
Control VLAN   : Primary 3000, Secondary 3001
Protected VLAN : Reference instance 1
Hello timer    : 1 seconds, Fail timer: 3 seconds
Fast detection status: Disabled
Fast-Hello timer: 20 ms, Fast-Fail timer: 60 ms
Fast-Edge-Hello timer: 10 ms, Fast-Edge-Fail timer: 30 ms

Ring ID        : 4
Ring Level     : 0
Node Mode      : Master
Ring State     : Completed
Enable Status  : Yes    Active Status: Yes
Primary port   : GE1/0/1      Port status: UP
Secondary port : GE1/0/2      Port status: BLOCKED
```

The output shows the following information:

- Device H is the master node of primary ring 4 in RRPP domain 3.
- The primary ring state of RRPP domain 3 is completed.
- The primary port is up, and the secondary port is blocked.

# View detailed information about RRPP domain 4 on Device H.

```
[DeviceH] display rrpp verbose domain 4

Domain ID      : 4
Control VLAN   : Primary 4000, Secondary 4001
Protected VLAN : Reference instance 2
Hello timer    : 1 seconds, Fail timer: 3 seconds
Fast detection status: Disabled
Fast-Hello timer: 20 ms, Fast-Fail timer: 60 ms
Fast-Edge-Hello timer: 10 ms, Fast-Edge-Fail timer: 30 ms

Ring ID        : 4
Ring Level     : 0
Node Mode      : Master
Ring State     : Completed
Enable Status  : Yes    Active Status: Yes
Primary port   : GE1/0/2      Port status: UP
Secondary port : GE1/0/1      Port status: BLOCKED
```

The output shows the following information:

- Device H is the master node of primary ring 4 in RRPP domain 4.
- The primary ring state of RRPP domain 4 is completed.
- The primary port is up, and the secondary port is blocked.

### # View detailed information about RRPP domain 3 on Device G.

```
[DeviceG] display rrpp verbose domain 3
Domain ID      : 3
Control VLAN   : Primary 3000, Secondary 3001
Protected VLAN : Reference instance 1
Hello timer    : 1 seconds, Fail timer: 3 seconds
Fast detection status: Disabled
Fast-Hello timer: 20 ms, Fast-Fail timer: 60 ms
Fast-Edge-Hello timer: 10 ms, Fast-Edge-Fail timer: 30 ms

Ring ID       : 4
Ring Level    : 0
Node Mode     : Transit
Ring State    : -
Enable Status : Yes    Active Status: Yes
Primary port   : GE1/0/2      Port status: UP
Secondary port : GE1/0/1      Port status: UP
```

The output shows the following information:

- Device G is the transit node of primary ring 4 in RRPP domain 3.
- The primary and secondary ports are up.

### # View detailed information about RRPP domain 4 on Device G.

```
[DeviceG] display rrpp verbose domain 4
Domain ID      : 4
Control VLAN   : Primary 4000, Secondary 4001
Protected VLAN : Reference instance 2
Hello timer    : 1 seconds, Fail timer: 3 seconds
Fast detection status: Disabled
Fast-Hello timer: 20 ms, Fast-Fail timer: 60 ms
Fast-Edge-Hello timer: 10 ms, Fast-Edge-Fail timer: 30 ms

Ring ID       : 4
Ring Level    : 0
Node Mode     : Transit
Ring State    : -
Enable Status : Yes    Active Status: Yes
Primary port   : GE1/0/2      Port status: UP
Secondary port : GE1/0/1      Port status: UP
```

The output shows the following information:

- Device G is the transit node of primary ring 4 in RRPP domain 4.
- The primary and secondary ports are up.

## Configuration files

---

### NOTE:

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

---

- Device A:

```

#
 sysname DeviceA
#
vlan 1
#
vlan 100 to 200
#
stp region-configuration
 instance 1 vlan 100 to 150
 instance 2 vlan 151 to 200
 active region-configuration
#
interface GigabitEthernet1/0/1
 port link-mode bridge
 port link-type trunk
 undo port trunk permit vlan 1
 port trunk permit vlan 100 to 200
 link-delay up 0
 link-delay down 0
 undo stp enable
#
interface GigabitEthernet1/0/2
 port link-mode bridge
 port link-type trunk
 undo port trunk permit vlan 1
 port trunk permit vlan 100 to 200
 link-delay up 0
 link-delay down 0
 undo stp enable
#
rrpp domain 1
 control-vlan 1000
 protected-vlan reference-instance 1
 ring 1 node-mode master primary-port GigabitEthernet1/0/1 secondary-port
GigabitEthernet1/0/2 level 0
 ring 1 enable
#
rrpp domain 2
 control-vlan 2000
 protected-vlan reference-instance 2
 ring 1 node-mode transit primary-port GigabitEthernet1/0/1 secondary-port
GigabitEthernet1/0/2 level 0
 ring 1 enable
#
rrpp enable
#

```

- **Device B:**

```

#
 sysname DeviceB

```

```

#
vlan 1
#
vlan 100 to 200
#
stp region-configuration
    instance 1 vlan 100 to 150
    instance 2 vlan 151 to 200
    active region-configuration
#
interface GigabitEthernet1/0/1
    port link-mode bridge
    port link-type trunk
    undo port trunk permit vlan 1
    port trunk permit vlan 100 to 200
    link-delay up 0
    link-delay down 0
    undo stp enable
#
interface GigabitEthernet1/0/2
    port link-mode bridge
    port link-type trunk
    undo port trunk permit vlan 1
    port trunk permit vlan 100 to 200
    link-delay up 0
    link-delay down 0
    undo stp enable
#
rrpp domain 1
    control-vlan 1000
    protected-vlan reference-instance 1
    ring 1 node-mode transit primary-port GigabitEthernet1/0/2 secondary-port
GigabitEthernet1/0/1 level 0
    ring 1 enable
#
rrpp domain 2
    control-vlan 2000
    protected-vlan reference-instance 2
    ring 1 node-mode master primary-port GigabitEthernet1/0/2 secondary-port
GigabitEthernet1/0/1 level 0
    ring 1 enable
#
rrpp enable
#

```

- **Device C:**

```

#
sysname DeviceC
#
vlan 1

```

```

#
vlan 100 to 200
#
stp region-configuration
    instance 1 vlan 100 to 150
    instance 2 vlan 151 to 200
    active region-configuration
#
interface GigabitEthernet1/0/1
    port link-mode bridge
    port link-type trunk
    undo port trunk permit vlan 1
    port trunk permit vlan 100 to 200
    link-delay up 0
    link-delay down 0
    undo stp enable
#
interface GigabitEthernet1/0/2
    port link-mode bridge
    port link-type trunk
    undo port trunk permit vlan 1
    port trunk permit vlan 100 to 200
    link-delay up 0
    link-delay down 0
    undo stp enable
#
interface GigabitEthernet1/0/3
    port link-mode bridge
    port link-type trunk
    undo port trunk permit vlan 1
    port trunk permit vlan 100 to 200
    link-delay up 0
    link-delay down 0
    undo stp enable
#
interface GigabitEthernet1/0/4
    port link-mode bridge
    port link-type trunk
    undo port trunk permit vlan 1
    port trunk permit vlan 100 to 200
    link-delay up 0
    link-delay down 0
    undo stp enable
#
rrpp domain 1
    control-vlan 1000
    protected-vlan reference-instance 1
    ring 1 node-mode transit primary-port GigabitEthernet1/0/1 secondary-port
    GigabitEthernet1/0/2 level 0

```

```

ring 1 enable
ring 2 node-mode edge edge-port GigabitEthernet1/0/3
ring 2 enable
ring 3 node-mode edge edge-port GigabitEthernet1/0/4
ring 3 enable
#
rrpp domain 2
control-vlan 2000
protected-vlan reference-instance 2
ring 1 node-mode transit primary-port GigabitEthernet1/0/1 secondary-port
GigabitEthernet1/0/2 level 0
ring 1 enable
ring 2 node-mode edge edge-port GigabitEthernet1/0/3
ring 2 enable
ring 3 node-mode edge edge-port GigabitEthernet1/0/4
ring 3 enable
#
rrpp ring-group 1
domain 1 ring 2 to 3
domain 2 ring 2 to 3
#
rrpp enable
#

```

- **Device D:**

```

#
sysname DeviceD
#
vlan 1
#
vlan 100 to 200
#
stp region-configuration
instance 1 vlan 100 to 150
instance 2 vlan 151 to 200
active region-configuration
#
interface GigabitEthernet1/0/1
port link-mode bridge
port link-type trunk
undo port trunk permit vlan 1
port trunk permit vlan 100 to 200
link-delay up 0
link-delay down 0
undo stp enable
#
interface GigabitEthernet1/0/2
port link-mode bridge
port link-type trunk

```



```

undo port trunk permit vlan 1
port trunk permit vlan 100 to 200
link-delay up 0
link-delay down 0
undo stp enable
#
interface GigabitEthernet1/0/3
port link-mode bridge
port link-type trunk
undo port trunk permit vlan 1
port trunk permit vlan 100 to 200
link-delay up 0
link-delay down 0
undo stp enable
#
interface GigabitEthernet1/0/4
port link-mode bridge
port link-type trunk
undo port trunk permit vlan 1
port trunk permit vlan 100 to 200
link-delay up 0
link-delay down 0
undo stp enable
#
interface GigabitEthernet1/0/5
port link-mode bridge
port link-type trunk
undo port trunk permit vlan 1
port trunk permit vlan 100 to 200
link-delay up 0
link-delay down 0
undo stp enable
#
interface GigabitEthernet1/0/6
port link-mode bridge
port link-type trunk
undo port trunk permit vlan 1
port trunk permit vlan 100 to 200
link-delay up 0
link-delay down 0
undo stp enable
#
rrpp domain 1
control-vlan 1000
protected-vlan reference-instance 1
ring 1 node-mode transit primary-port GigabitEthernet1/0/1 secondary-port
GigabitEthernet1/0/2 level 0
ring 1 enable
ring 2 node-mode assistant-edge edge-port GigabitEthernet1/0/3

```

```

ring 2 enable
ring 3 node-mode assistant-edge edge-port GigabitEthernet1/0/4
ring 3 enable
#
rrpp domain 2
control-vlan 2000
protected-vlan reference-instance 2
ring 1 node-mode transit primary-port GigabitEthernet1/0/1 secondary-port
GigabitEthernet1/0/2 level 0
ring 1 enable
ring 2 node-mode assistant-edge edge-port GigabitEthernet1/0/3
ring 2 enable
ring 3 node-mode assistant-edge edge-port GigabitEthernet1/0/4
ring 3 enable
#
rrpp domain 3
control-vlan 3000
protected-vlan reference-instance 1
ring 4 node-mode transit primary-port GigabitEthernet1/0/5 secondary-port
GigabitEthernet1/0/6 level 0
ring 4 enable
#
rrpp domain 4
control-vlan 4000
protected-vlan reference-instance 2
ring 4 node-mode transit primary-port GigabitEthernet1/0/5 secondary-port
GigabitEthernet1/0/6 level 0
ring 4 enable
#
rrpp ring-group 1
domain 1 ring 2 to 3
domain 2 ring 2 to 3
#
rrpp enable
#

```

- **Device E:**

```

#
sysname DeviceE
#
vlan 1
#
vlan 100 to 200
#
stp region-configuration
instance 1 vlan 100 to 150
instance 2 vlan 151 to 200
active region-configuration
#
interface GigabitEthernet1/0/1

```

```

port link-mode bridge
port link-type trunk
undo port trunk permit vlan 1
port trunk permit vlan 100 to 200
link-delay up 0
link-delay down 0
undo stp enable
#
interface GigabitEthernet1/0/2
port link-mode bridge
port link-type trunk
undo port trunk permit vlan 1
port trunk permit vlan 100 to 200
link-delay up 0
link-delay down 0
undo stp enable
#
rrpp domain 1
control-vlan 1000
protected-vlan reference-instance 1
ring 2 node-mode master primary-port GigabitEthernet1/0/2 secondary-port
GigabitEthernet1/0/1 level 1
ring 2 enable
#
rrpp domain 2
control-vlan 2000
protected-vlan reference-instance 2
ring 2 node-mode master primary-port GigabitEthernet1/0/1 secondary-port
GigabitEthernet1/0/2 level 1
ring 2 enable
#
rrpp enable
#

```

- **Device F:**

```

#
sysname DeviceF
#
vlan 1
#
vlan 100 to 200
#
stp region-configuration
instance 1 vlan 100 to 150
instance 2 vlan 151 to 200
active region-configuration
#
interface GigabitEthernet1/0/1
port link-mode bridge
port link-type trunk

```

```

undo port trunk permit vlan 1
port trunk permit vlan 100 to 200
link-delay up 0
link-delay down 0
undo stp enable
#
interface GigabitEthernet1/0/2
port link-mode bridge
port link-type trunk
undo port trunk permit vlan 1
port trunk permit vlan 100 to 200
link-delay up 0
link-delay down 0
undo stp enable
#
rrpp domain 1
control-vlan 1000
protected-vlan reference-instance 1
ring 3 node-mode master primary-port GigabitEthernet1/0/2 secondary-port
GigabitEthernet1/0/1 level 1
ring 3 enable
#
rrpp domain 2
control-vlan 2000
protected-vlan reference-instance 2
ring 3 node-mode master primary-port GigabitEthernet1/0/1 secondary-port
GigabitEthernet1/0/2 level 1
ring 3 enable
#
rrpp enable
#

```

- **Device G:**

```

#
sysname DeviceG
#
vlan 1
#
vlan 100 to 200
#
stp region-configuration
instance 1 vlan 100 to 150
instance 2 vlan 151 to 200
active region-configuration
#
interface GigabitEthernet1/0/1
port link-mode bridge
port link-type trunk
undo port trunk permit vlan 1
port trunk permit vlan 100 to 200

```

```

link-delay up 0
link-delay down 0
undo stp enable
#
interface GigabitEthernet1/0/2
port link-mode bridge
port link-type trunk
undo port trunk permit vlan 1
port trunk permit vlan 100 to 200
link-delay up 0
link-delay down 0
undo stp enable
#
rrpp domain 3
control-vlan 3000
protected-vlan reference-instance 1
ring 4 node-mode transit primary-port GigabitEthernet1/0/2 secondary-port
GigabitEthernet1/0/1 level 0
ring 4 enable
#
rrpp domain 4
control-vlan 4000
protected-vlan reference-instance 2
ring 4 node-mode master primary-port GigabitEthernet1/0/2 secondary-port
GigabitEthernet1/0/1 level 0
ring 4 enable
#
rrpp enable
#

```

- **Device H:**

```

#
sysname DeviceH
#
vlan 1
#
vlan 100 to 200
#
stp region-configuration
instance 1 vlan 100 to 150
instance 2 vlan 151 to 200
active region-configuration
#
interface GigabitEthernet1/0/1
port link-mode bridge
port link-type trunk
undo port trunk permit vlan 1
port trunk permit vlan 100 to 200
link-delay up 0
link-delay down 0

```

```

undo stp enable
#
interface GigabitEthernet1/0/2
port link-mode bridge
port link-type trunk
undo port trunk permit vlan 1
port trunk permit vlan 100 to 200
link-delay up 0
link-delay down 0
undo stp enable
#
rrpp domain 3
control-vlan 3000
protected-vlan reference-instance 1
ring 4 node-mode master primary-port GigabitEthernet1/0/1 secondary-port
GigabitEthernet1/0/2 level 0
ring 4 enable
#
rrpp domain 4
control-vlan 4000
protected-vlan reference-instance 2
ring 4 node-mode master primary-port GigabitEthernet1/0/2 secondary-port
GigabitEthernet1/0/1 level 0
ring 4 enable
#
rrpp enable
#

```