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# Configuring static routing

Static routes are manually configured. If a network's topology is simple, you only need to configure static routes for the network to work correctly.

Static routes cannot adapt to network topology changes. If a fault or a topological change occurs in the network, the network administrator must modify the static routes manually.

## Configuring a static route

Before you configure a static route, complete the following tasks:

- Configure the physical parameters for related interfaces.
- Configure the link-layer attributes for related interfaces.
- Configure the IP addresses for related interfaces.

You can associate Track with a static route to monitor the reachability of the next hops. For more information about Track, see *High Availability Configuration Guide*.

To configure a static route:

Step	Command	Remarks
1. Enter system view.	<b>system-view</b>	N/A
2. Configure a static route.	<ul style="list-style-type: none"> <li>• Method 1: <b>ip route-static</b> <i>dest-address</i> { <i>mask-length</i>   <i>mask</i> } { <i>interface-type</i> <i>interface-number</i> [ <i>next-hop-address</i> ]   <i>next-hop-address</i> [ <b>track</b> <i>track-entry-number</i> ]   <b>vpn-instance</b> <i>d-vpn-instance-name</i> <i>next-hop-address</i> [ <b>track</b> <i>track-entry-number</i> ] } [ <b>permanent</b> ] [ <b>preference</b> <i>preference-value</i> ] [ <b>tag</b> <i>tag-value</i> ] [ <b>description</b> <i>description-text</i> ]</li> <li>• Method 2: <b>ip route-static vpn-instance</b> <i>s-vpn-instance-name</i> <i>dest-address</i> { <i>mask-length</i>   <i>mask</i> } { <i>interface-type</i> <i>interface-number</i> [ <i>next-hop-address</i> ]   <i>next-hop-address</i> [ <b>public</b> ] [ <b>track</b> <i>track-entry-number</i> ]   <b>vpn-instance</b> <i>d-vpn-instance-name</i> <i>next-hop-address</i> [ <b>track</b> <i>track-entry-number</i> ] } [ <b>permanent</b> ] [ <b>preference</b> <i>preference-value</i> ] [ <b>tag</b> <i>tag-value</i> ] [ <b>description</b> <i>description-text</i> ]</li> </ul>	Use either method. By default, no static route is configured.
3. (Optional.) Configure the default preference for static routes.	<b>ip route-static default-preference</b> <i>default-preference-value</i>	The default setting is 60.
4. (Optional.) Delete all static routes, including the default route.	<b>delete</b> [ <b>vpn-instance</b> <i>vpn-instance-name</i> ] <b>static-routes all</b>	To delete one static route, use the <b>undo ip route-static</b> command.

# Configuring BFD for static routes

## ⚠ IMPORTANT:

Enabling BFD for a flapping route could worsen the situation.

BFD provides a general-purpose, standard, medium-, and protocol-independent fast failure detection mechanism. It can uniformly and quickly detect the failures of the bidirectional forwarding paths between two routers for protocols, such as routing protocols.

For more information about BFD, see *High Availability Configuration Guide*.

## Bidirectional control mode

To use BFD bidirectional control detection between two devices, enable BFD control mode for each device's static route destined to the peer.

To configure a static route and enable BFD control mode for it, specify an output interface and a direct next hop, or specify an indirect next hop and a specific BFD packet source address for the static route.

To configure BFD control mode for a static route (direct next hop):

Step	Command	Remarks
1. Enter system view.	<b>system-view</b>	N/A
2. Configure BFD control mode for a static route.	<ul style="list-style-type: none"><li>Method 1: <b>ip route-static</b> <i>dest-address</i> { <i>mask-length</i>   <i>mask</i> } <i>interface-type interface-number next-hop-address</i> <b>bfd control-packet</b> [ <b>preference</b> <i>preference-value</i> ] [ <b>tag</b> <i>tag-value</i> ] [ <b>description</b> <i>description-text</i> ]</li><li>Method 2: <b>ip route-static vpn-instance</b> <i>s-vpn-instance-name dest-address</i> { <i>mask-length</i>   <i>mask</i> } <i>interface-type interface-number next-hop-address</i> <b>bfd control-packet</b> [ <b>preference</b> <i>preference-value</i> ] [ <b>tag</b> <i>tag-value</i> ] [ <b>description</b> <i>description-text</i> ]</li></ul>	Use either method. By default, BFD control mode for a static route is not configured.

To configure BFD control mode for a static route (indirect next hop):

Step	Command	Remarks
1. Enter system view.	<b>system-view</b>	N/A
2. Configure BFD control mode for a static route.	<ul style="list-style-type: none"><li>Method 1: <b>ip route-static</b> <i>dest-address</i> { <i>mask-length</i>   <i>mask</i> } { <i>next-hop-address</i> <b>bfd control-packet</b> <b>bfd-source</b> <i>ip-address</i>   <b>vpn-instance</b> <i>d-vpn-instance-name next-hop-address</i> <b>bfd control-packet bfd-source</b> <i>ip-address</i> } [ <b>preference</b> <i>preference-value</i> ] [ <b>tag</b> <i>tag-value</i> ] [ <b>description</b> <i>description-text</i> ]</li><li>Method 2: <b>ip route-static vpn-instance</b> <i>s-vpn-instance-name dest-address</i> { <i>mask-length</i>   <i>mask</i> } { <i>next-hop-address</i> <b>bfd control-packet</b> <b>bfd-source</b> <i>ip-address</i>   <b>vpn-instance</b> <i>d-vpn-instance-name next-hop-address</i> <b>bfd control-packet</b></li></ul>	Use either method. By default, BFD control mode for a static route is not configured.

Step	Command	Remarks
	<b>bfd-source</b> <i>ip-address</i> } [ <b>preference</b> <i>preference-value</i> ] [ <b>tag</b> <i>tag-value</i> ] [ <b>description</b> <i>description-text</i> ]	

## Single-hop echo mode

With BFD echo mode enabled for a static route, the output interface sends BFD echo packets to the destination device, which loops the packets back to test the link reachability.

### ⓘ IMPORTANT:

Do not use BFD for a static route with the output interface in spoofing state.

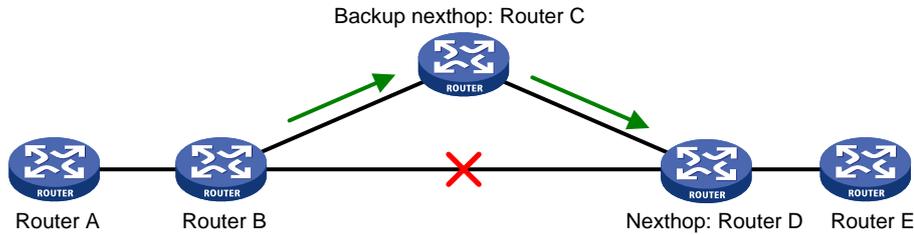
To configure BFD echo mode for a static route:

Step	Command	Remarks
1. Enter system view.	<b>system-view</b>	N/A
2. Configure the source address of echo packets.	<b>bfd echo-source-ip</b> <i>ip-address</i>	By default, the source address of echo packets is not configured. For more information about this command, see <i>High Availability Command Reference</i> .
3. Configure BFD echo mode for a static route.	<ul style="list-style-type: none"> <li>Method 1: <b>ip route-static</b> <i>dest-address</i> { <i>mask-length</i>   <i>mask</i> } <i>interface-type</i> <i>interface-number</i> <i>next-hop-address</i> <b>bfd echo-packet</b> [ <b>preference</b> <i>preference-value</i> ] [ <b>tag</b> <i>tag-value</i> ] [ <b>description</b> <i>description-text</i> ]</li> <li>Method 2: <b>ip route-static vpn-instance</b> <i>s-vpn-instance-name</i> <i>dest-address</i> { <i>mask-length</i>   <i>mask</i> } <i>interface-type</i> <i>interface-number</i> <i>next-hop-address</i> <b>bfd echo-packet</b> [ <b>preference</b> <i>preference-value</i> ] [ <b>tag</b> <i>tag-value</i> ] [ <b>description</b> <i>description-text</i> ]</li> </ul>	Use either method. By default, BFD echo mode for a static route is not configured.

## Configuring static route FRR

A link or router failure on a path can cause packet loss and even routing loop. Static route fast reroute (FRR) uses BFD to detect failures and enables fast rerouting to minimize the impact of link or node failures.

**Figure 1 Network diagram**



As shown in [Figure 1](#), upon a link failure, FRR specifies a backup next hop by using a routing policy for routes matching the specified criteria. Packets are directed to the backup next hop to avoid traffic interruption.

## Configuration guidelines

- Do not use static route FRR and BFD (for a static route) at the same time.
- Static route does not take effect when the backup output interface is unavailable.
- Equal-cost routes do not support static route FRR.
- The backup output interface and next hop cannot be modified, and cannot be the same as the primary output interface and next hop.
- Static route FRR is available only when the state of primary link (with Layer 3 interfaces staying up) changes from bidirectional to unidirectional or down.

## Configuration procedure

### Configuring static route FRR

Step	Command	Remarks
1. Enter system view.	<b>system-view</b>	N/A
2. Configure the source address of BFD echo packets.	<b>bfd echo-source-ip</b> <i>ip-address</i>	By default, the source address of BFD echo packets is not configured. For more information about this command, see <i>High Availability Command Reference</i> .
3. Configure static route FRR.	<ul style="list-style-type: none"> <li>• Method 1: <b>ip route-static</b> <i>dest-address</i> { <i>mask-length</i>   <i>mask</i> } <i>interface-type interface-number</i> [ <i>next-hop-address</i> [ <b>backup-interface</b> <i>interface-type interface-number</i> [ <b>backup-nexthop backup-nexthop-address ] ] ] [ <b>permanent</b> ]</b></li> <li>• Method 2: <b>ip route-static vpn-instance</b> <i>s-vpn-instance-name dest-address</i> { <i>mask-length</i>   <i>mask</i> } <i>interface-type interface-number</i> [ <i>next-hop-address</i> [ <b>backup-interface</b> <i>interface-type interface-number</i> [ <b>backup-nexthop backup-nexthop-address ] ] ] [ <b>permanent</b> ]</b></li> </ul>	Use either method. By default, static route FRR is not configured.

## Enabling BFD echo packet mode for static route FRR

By default, static route FRR does not use BFD to detect primary link failures. Perform this task to enable static route FRR to use BFD echo packet mode for fast failure detection on the primary link.

To enable BFD echo packet mode for static route FRR:

Step	Command	Remarks
1. Enter system view.	<b>system-view</b>	N/A
2. Configure the source IP address of BFD echo packets.	<b>bfd echo-source-ip <i>ip-address</i></b>	By default, the source IP address of BFD echo packets is not configured.
3. Enable BFD echo packet mode for static route FRR.	<b>ip route-static primary-path-detect bfd echo</b>	By default, BFD echo mode for static route FRR is disabled.

## Displaying and maintaining static routes

Execute **display** commands in any view.

Task	Command
Display static route information.	<b>display ip routing-table protocol static [ inactive   verbose ]</b>
Display static route next hop information.	<b>display route-static nib [ nib-id ] [ verbose ]</b>
Display static routing table information.	<b>display route-static routing-table [ vpn-instance vpn-instance-name ] [ ip-address { mask-length   mask } ]</b>

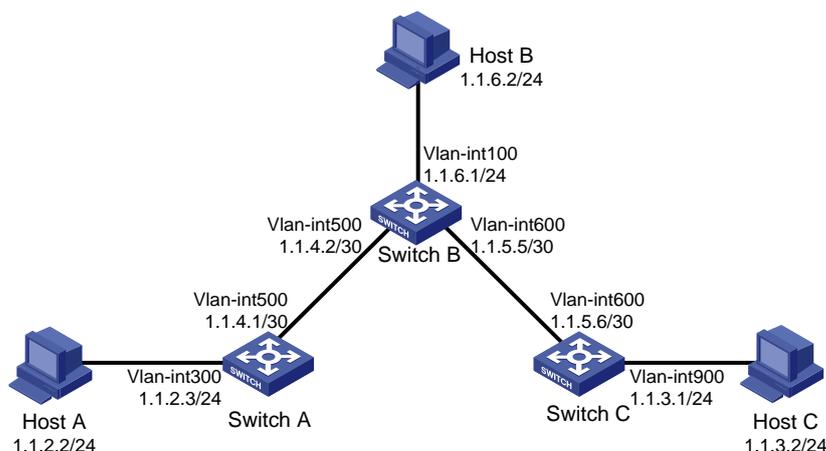
## Static route configuration examples

### Basic static route configuration example

#### Network requirements

Configure static routes on the switches in [Figure 2](#) for interconnections between any two hosts.

**Figure 2 Network diagram**



## Configuration procedure

1. Configure IP addresses for interfaces. (Details not shown.)
2. Configure static routes:
  - # Configure a default route on Switch A.  
<SwitchA> system-view  
[SwitchA] ip route-static 0.0.0.0 0.0.0.0 1.1.4.2
  - # Configure two static routes on Switch B.  
<SwitchB> system-view  
[SwitchB] ip route-static 1.1.2.0 255.255.255.0 1.1.4.1  
[SwitchB] ip route-static 1.1.3.0 255.255.255.0 1.1.5.6
  - # Configure a default route on Switch C.  
<SwitchC> system-view  
[SwitchC] ip route-static 0.0.0.0 0.0.0.0 1.1.5.5
3. Configure the default gateways of Host A, Host B, and Host C as 1.1.2.3, 1.1.6.1, and 1.1.3.1. (Details not shown.)

## Verifying the configuration

# Display static routes on Switch A.

```
[SwitchA] display ip routing-table protocol static
```

```
Summary Count : 1
```

```
Static Routing table Status : <Active>
```

```
Summary Count : 1
```

Destination/Mask	Proto	Pre	Cost	NextHop	Interface
0.0.0.0/0	Static	60	0	1.1.4.2	Vlan500

```
Static Routing table Status : <Inactive>
```

```
Summary Count : 0
```

# Display static routes on Switch B.

```
[SwitchB] display ip routing-table protocol static
```

```
Summary Count : 2
```

```
Static Routing table Status : <Active>
```

```
Summary Count : 2
```

Destination/Mask	Proto	Pre	Cost	NextHop	Interface
1.1.2.0/24	Static	60	0	1.1.4.1	Vlan500

```
Static Routing table Status : <Inactive>
```

```
Summary Count : 0
```

# Use the **ping** command on Host B to test the reachability of Host A (Windows XP runs on the two hosts).

```
C:\Documents and Settings\Administrator>ping 1.1.2.2
```

```
Pinging 1.1.2.2 with 32 bytes of data:
```

```

Reply from 1.1.2.2: bytes=32 time=1ms TTL=126

```

Ping statistics for 1.1.2.2:

```

Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
Approximate round trip times in milli-seconds:
Minimum = 1ms, Maximum = 1ms, Average = 1ms

```

# Use the **tracert** command on Host B to test the reachability of Host A.

```
C:\Documents and Settings\Administrator>tracert 1.1.2.2
```

Tracing route to 1.1.2.2 over a maximum of 30 hops

```

  0  <1 ms    <1 ms    <1 ms    1.1.6.1
  1  <1 ms    <1 ms    <1 ms    1.1.4.1
  2   1 ms    <1 ms    <1 ms    1.1.2.2

```

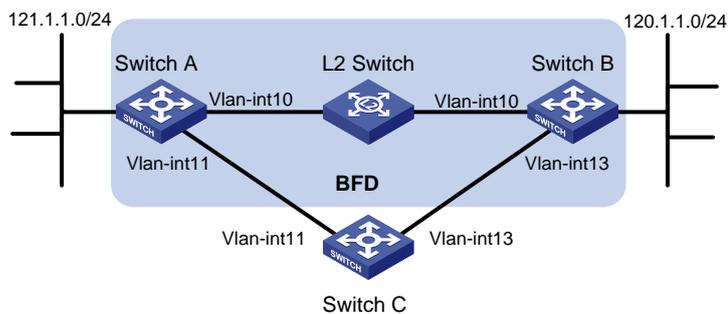
Trace complete.

## BFD for static routes configuration example (direct next hop)

### Network requirements

In [Figure 3](#), configure a static route to subnet 120.1.1.0/24 on Switch A, and configure a static route to subnet 121.1.1.0/24 on Switch B. Enable BFD for both routes. Configure a static route to subnet 120.1.1.0/24 and a static route to subnet 121.1.1.0/24 on Switch C. When the link between Switch A and Switch B through the Layer 2 switch fails, BFD can detect the failure immediately and inform Switch A and Switch B to communicate through Switch C.

**Figure 3 Network diagram**



**Table 1 Interface and IP address assignment**

Device	Interface	IP address
Switch A	VLAN-interface 10	12.1.1.1/24
Switch A	VLAN-interface 11	10.1.1.102/24
Switch B	VLAN-interface 10	12.1.1.2/24
Switch B	VLAN-interface 13	13.1.1.1/24

Device	Interface	IP address
Switch C	VLAN-interface 11	10.1.1.100/24
Switch C	VLAN-interface 13	13.1.1.2/24

## Configuration procedure

1. Configure IP addresses for the interfaces. (Details not shown.)
2. Configure static routes and BFD:

# Configure static routes on Switch A and enable BFD control mode for the static route that traverses the Layer 2 switch.

```
<SwitchA> system-view
[SwitchA] interface vlan-interface 10
[SwitchA-vlan-interface10] bfd min-transmit-interval 500
[SwitchA-vlan-interface10] bfd min-receive-interval 500
[SwitchA-vlan-interface10] bfd detect-multiplier 9
[SwitchA-vlan-interface10] quit
[SwitchA] ip route-static 120.1.1.0 24 vlan-interface 10 12.1.1.2 bfd control-packet
[SwitchA] ip route-static 120.1.1.0 24 vlan-interface 11 10.1.1.100 preference 65
[SwitchA] quit
```

# Configure static routes on Switch B and enable BFD control mode for the static route that traverses the Layer 2 switch.

```
<SwitchB> system-view
[SwitchB] interface vlan-interface 10
[SwitchB-vlan-interface10] bfd min-transmit-interval 500
[SwitchB-vlan-interface10] bfd min-receive-interval 500
[SwitchB-vlan-interface10] bfd detect-multiplier 9
[SwitchB-vlan-interface10] quit
[SwitchB] ip route-static 121.1.1.0 24 vlan-interface 10 12.1.1.1 bfd control-packet
[SwitchB] ip route-static 121.1.1.0 24 vlan-interface 13 13.1.1.2 preference 65
[SwitchB] quit
```

# Configure static routes on Switch C.

```
<SwitchC> system-view
[SwitchC] ip route-static 120.1.1.0 24 13.1.1.1
[SwitchC] ip route-static 121.1.1.0 24 10.1.1.102
```

## Verifying the configuration

# Display BFD sessions on Switch A.

```
<SwitchA> display bfd session
```

```
Total Session Num: 1      Up Session Num: 1      Init Mode: Active
```

```
IPv4 Session Working Under Ctrl Mode:
```

LD/RD	SourceAddr	DestAddr	State	Holdtime	Interface
4/7	12.1.1.1	12.1.1.2	Up	2000ms	Vlan10

The output shows that the BFD session has been created.

# Display the static routes on Switch A.

```
<SwitchA> display ip routing-table protocol static
```

Summary Count : 1

Static Routing table Status : <Active>

Summary Count : 1

Destination/Mask	Proto	Pre	Cost	NextHop	Interface
120.1.1.0/24	Static	60	0	12.1.1.2	Vlan10

Static Routing table Status : <Inactive>

Summary Count : 0

The output shows that Switch A communicates with Switch B through VLAN-interface 10. Then the link over VLAN-interface 10 fails.

# Display static routes on Switch A.

```
<SwitchA> display ip routing-table protocol static
```

Summary Count : 1

Static Routing table Status : <Active>

Summary Count : 1

Destination/Mask	Proto	Pre	Cost	NextHop	Interface
120.1.1.0/24	Static	65	0	10.1.1.100	Vlan11

Static Routing table Status : <Inactive>

Summary Count : 0

The output shows that Switch A communicates with Switch B through VLAN-interface 11.

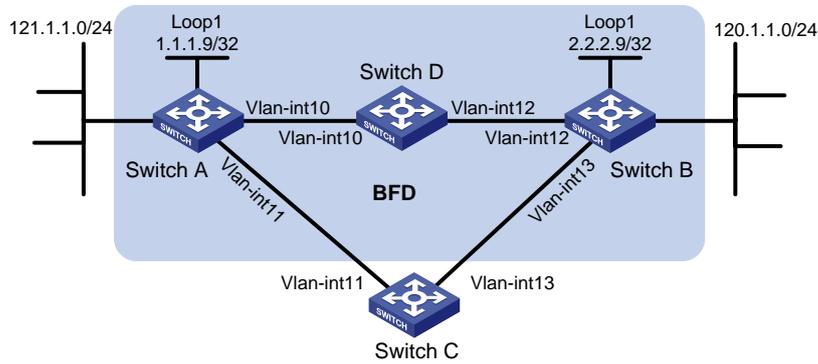
## BFD for static routes configuration example (indirect next hop)

### Network requirements

In [Figure 4](#), Switch A has a route to interface Loopback 1 (2.2.2.9/32) on Switch B, with the output interface VLAN-interface 10. Switch B has a route to interface Loopback 1 (1.1.1.9/32) on Switch A, with the output interface VLAN-interface 12. Switch D has a route to 1.1.1.9/32, with the output interface VLAN-interface 10, and a route to 2.2.2.9/32, with the output interface VLAN-interface 12.

Configure a static route to subnet 120.1.1.0/24 on Switch A, and configure a static route to subnet 121.1.1.0/24 on Switch B. Enable BFD for both routes. Configure a static route to subnet 120.1.1.0/24 and a static route to subnet 121.1.1.0/24 on both Switch C and Switch D. When the link between Switch A and Switch B through Switch D fails, BFD can detect the failure immediately and inform Switch A and Switch B to communicate through Switch C.

**Figure 4 Network diagram**



**Table 2 Interface and IP address assignment**

Device	Interface	IP address
Switch A	VLAN-interface 10	12.1.1.1/24
Switch A	VLAN-interface 11	10.1.1.102/24
Switch A	Loopback 1	1.1.1.9/32
Switch B	VLAN-interface 12	11.1.1.1/24
Switch B	VLAN-interface 13	13.1.1.1/24
Switch B	Loopback 1	2.2.2.9/32
Switch C	VLAN-interface 11	10.1.1.100/24
Switch C	VLAN-interface 13	13.1.1.2/24
Switch D	VLAN-interface 10	12.1.1.2/24
Switch D	VLAN-interface 12	11.1.1.2/24

### Configuration procedure

1. Configure IP addresses for interfaces. (Details not shown.)
2. Configure static routes and BFD:

# Configure static routes on Switch A and enable BFD control mode for the static route that traverses Switch D.

```
<SwitchA> system-view
[SwitchA] bfd multi-hop min-transmit-interval 500
[SwitchA] bfd multi-hop min-receive-interval 500
[SwitchA] bfd multi-hop detect-multiplier 9
[SwitchA] ip route-static 120.1.1.0 24 2.2.2.9 bfd control-packet bfd-source 1.1.1.9
[SwitchA] ip route-static 120.1.1.0 24 vlan-interface 11 10.1.1.100 preference 65
[SwitchA] quit
```

# Configure static routes on Switch B and enable BFD control mode for the static route that traverses Switch D.

```
<SwitchB> system-view
[SwitchB] bfd multi-hop min-transmit-interval 500
[SwitchB] bfd multi-hop min-receive-interval 500
[SwitchB] bfd multi-hop detect-multiplier 9
[SwitchB] ip route-static 121.1.1.0 24 1.1.1.9 bfd control-packet bfd-source 2.2.2.9
[SwitchB] ip route-static 121.1.1.0 24 vlan-interface 13 13.1.1.2 preference 65
```

```
[SwitchB] quit
# Configure static routes on Switch C.
<SwitchC> system-view
[SwitchC] ip route-static 120.1.1.0 24 13.1.1.1
[SwitchC] ip route-static 121.1.1.0 24 10.1.1.102
# Configure static routes on Switch D.
<SwitchD> system-view
[SwitchD] ip route-static 120.1.1.0 24 11.1.1.1
[SwitchD] ip route-static 121.1.1.0 24 12.1.1.1
```

## Verifying the configuration

# Display BFD sessions on Switch A.

```
<SwitchA> display bfd session
```

```
Total Session Num: 1      Up Session Num: 1      Init Mode: Active
```

```
IPv4 Session Working Under Ctrl Mode:
```

LD/RD	SourceAddr	DestAddr	State	Holdtime	Interface
4/7	1.1.1.9	2.2.2.9	Up	2000ms	N/A

The output shows that the BFD session has been created.

# Display the static routes on Switch A.

```
<SwitchA> display ip routing-table protocol static
```

```
Summary Count : 1
```

```
Static Routing table Status : <Active>
```

```
Summary Count : 1
```

Destination/Mask	Proto	Pre	Cost	NextHop	Interface
120.1.1.0/24	Static	60	0	12.1.1.2	Vlan10

```
Static Routing table Status : <Inactive>
```

```
Summary Count : 0
```

The output shows that Switch A communicates with Switch B through VLAN-interface 10. Then the link over VLAN-interface 10 fails.

# Display static routes on Switch A.

```
<SwitchA> display ip routing-table protocol static
```

```
Summary Count : 1
```

```
Static Routing table Status : <Active>
```

```
Summary Count : 1
```

Destination/Mask	Proto	Pre	Cost	NextHop	Interface
120.1.1.0/24	Static	65	0	10.1.1.100	Vlan11

```
Static Routing table Status : <Inactive>
```

Summary Count : 0

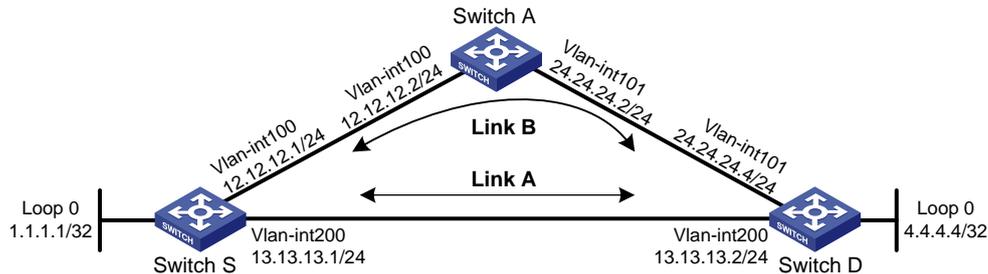
The output shows that Switch A communicates with Switch B through VLAN-interface 11.

## Static route FRR configuration example

### Network requirements

As shown in [Figure 5](#), configure static routes on Switch S, Switch A, and Switch D, and configure static route FRR so when Link A becomes unidirectional, traffic can be switched to Link B immediately.

**Figure 5 Network diagram**



### Configuration procedure

1. Configure IP addresses for interfaces. (Details not shown.)
2. Configure static routes FRR on link A:

# Configure a static route on Switch S, and specify VLAN-interface 100 as the backup output interface and 12.12.12.2 as the backup next hop.

```
<SwitchS> system-view
```

```
[SwitchS] bfd echo-source-ip 2.2.2.2
```

```
[SwitchS] ip route-static 4.4.4.4 32 vlan-interface 200 13.13.13.2 backup-interface  
vlan-interface 100 backup-nexthop 12.12.12.2
```

# Configure a static route on Switch D, and specify VLAN-interface 101 as the backup output interface and 24.24.24.2 as the backup next hop.

```
<SwitchD> system-view
```

```
[SwitchD] bfd echo-source-ip 3.3.3.3
```

```
[SwitchD] ip route-static 1.1.1.1 32 vlan-interface 200 13.13.13.1 backup-interface  
vlan-interface 101 backup-nexthop 24.24.24.2
```

3. Configure static routes on Switch A.

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

```
[SwitchA] ip route-static 4.4.4.4 32 vlan-interface 101 24.24.24.4
```

```
[SwitchA] ip route-static 1.1.1.1 32 vlan-interface 100 12.12.12.1
```

### Verifying the configuration

# Display route 4.4.4.4/32 on Switch S to view the backup next hop information.

```
[SwitchS] display ip routing-table 4.4.4.4 verbose
```

Summary Count : 1

Destination: 4.4.4.4/32

Protocol: Static

Process ID: 0

SubProtID: 0x0

Age: 04h20m37s

```

        Cost: 0                Preference: 60
        Tag: 0                  State: Active Adv
    OrigTblID: 0x0              OrigVrf: default-vrf
    TableID: 0x2                OrigAs: 0
        NBRID: 0x26000002       LastAs: 0
    AttrID: 0xffffffff          Neighbor: 0.0.0.0
        Flags: 0x1008c           OrigNextHop: 13.13.13.2
    Label: NULL                  RealNextHop: 13.13.13.2
    BkLabel: NULL                BkNextHop: 12.12.12.2
    Tunnel ID: Invalid           Interface: Vlan-interface200
    BkTunnel ID: Invalid         BkInterface: Vlan-interface100

```

# Display route 1.1.1.1/32 on Switch D to view the backup next hop information.

```
[SwitchD] display ip routing-table 1.1.1.1 verbose
```

```
Summary Count : 1
```

```

Destination: 1.1.1.1/32
    Protocol: Static            Process ID: 0
    SubProtID: 0x0              Age: 04h20m37s
        Cost: 0                  Preference: 60
        Tag: 0                    State: Active Adv
    OrigTblID: 0x0              OrigVrf: default-vrf
    TableID: 0x2                OrigAs: 0
        NBRID: 0x26000002       LastAs: 0
    AttrID: 0xffffffff          Neighbor: 0.0.0.0
        Flags: 0x1008c           OrigNextHop: 13.13.13.1
    Label: NULL                  RealNextHop: 13.13.13.1
    BkLabel: NULL                BkNextHop: 24.24.24.2
    Tunnel ID: Invalid           Interface: Vlan-interface200
    BkTunnel ID: Invalid         BkInterface: Vlan-interface101

```

# Configuring a default route

A default route is used to forward packets that do not match any specific route entry in the routing table. Without a default route, packets that do not match any route entries are discarded.

A default route can be configured in either of the following ways:

- The network administrator can configure a default route with both destination and mask being 0.0.0.0. For more information, see "[Configuring a static route](#)."
- Some dynamic routing protocols, such as OSPF, RIP, and IS-IS, can generate a default route. For example, an upstream router running OSPF can generate a default route and advertise it to other routers, which install the default route with the next hop being the upstream router. For more information, see the respective chapters on these routing protocols in this configuration guide.