



OSPFv3 for BFD

The Bidirectional Forwarding Detection protocol supports OSPFv3.

- [Finding Feature Information, on page 1](#)
- [Information About OSPFv3 for BFD, on page 1](#)
- [How to Configure OSPFv3 for BFD, on page 1](#)
- [Configuration Examples for OSPFv3 for BFD, on page 6](#)
- [Additional References, on page 7](#)
- [Feature Information for OSPFv3 for BFD, on page 8](#)

Finding Feature Information

Your software release may not support all the features documented in this module. For the latest caveats and feature information, see [Bug Search Tool](#) and the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the feature information table.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to www.cisco.com/go/cfn. An account on Cisco.com is not required.

Information About OSPFv3 for BFD

The Bidirectional Forwarding Detection (BFD) protocol supports Open Shortest Path First version 3 (OSPFv3).

How to Configure OSPFv3 for BFD

Configuring BFD Support for OSPFv3

This section describes the procedures for configuring BFD support for OSPFv3, so that OSPFv3 is a registered protocol with BFD and will receive forwarding path detection failure messages from BFD. You can either configure BFD support for OSPFv3 globally on all interfaces or configure it selectively on one or more interfaces.

There are two methods for enabling BFD support for OSPFv3:

- You can enable BFD for all of the interfaces for which OSPFv3 is routing by using the **bfd all-interfaces** command in router configuration mode. You can disable BFD support on individual interfaces using the **ipv6 ospf bfd disable** command in interface configuration mode.
- You can enable BFD for a subset of the interfaces for which OSPFv3 is routing by using the **ipv6 ospf bfd** command in interface configuration mode.



Note OSPF will only initiate BFD sessions for OSPF neighbors that are in the FULL state.

Configuring Baseline BFD Session Parameters on the Interface

Repeat this task for each interface over which you want to run BFD sessions to BFD neighbors.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **interface** *type number*
4. **bfd interval** *milliseconds min_rx milliseconds multiplier interval-multiplier*

DETAILED STEPS

Procedure

| | Command or Action | Purpose |
|---------------|--|--|
| Step 1 | enable Example: Device> enable | Enables privileged EXEC mode. <ul style="list-style-type: none"> • Enter your password if prompted. |
| Step 2 | configure terminal Example: Device# configure terminal | Enters global configuration mode. |
| Step 3 | interface <i>type number</i> Example: Device(config)# interface GigabitEthernet 0/0/0 | Specifies an interface type and number, and places the device in interface configuration mode. |
| Step 4 | bfd interval <i>milliseconds min_rx milliseconds multiplier interval-multiplier</i> Example: Device(config-if)# bfd interval 50 min_rx 50 multiplier 5 | Enables BFD on the interface. |

Configuring BFD Support for OSPFv3 for All Interfaces

Before you begin

OSPFv3 must be running on all participating devices. The baseline parameters for BFD sessions on the interfaces over which you want to run BFD sessions to BFD neighbors must be configured.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **ipv6 router ospf** *process-id* [**vrf** *vpn-name*]
4. **bfd all-interfaces** [**strict-mode**]
5. **exit**
6. **show bfd neighbors** [**vrf** *vrf-name*] [**client** {**bgp** | **eigrp** | **isis** | **ospf** | **rsvp** | **te-frr**}] [*ip-address* | **ipv6** *ipv6-address*] [**details**]
7. **show ipv6 ospf** [*process-id*] [*area-id*] [**rate-limit**]

DETAILED STEPS

Procedure

| | Command or Action | Purpose |
|--------|---|--|
| Step 1 | enable Example: Device> enable | Enables privileged EXEC mode. <ul style="list-style-type: none"> • Enter your password if prompted. |
| Step 2 | configure terminal Example: Device# configure terminal | Enters global configuration mode. |
| Step 3 | ipv6 router ospf <i>process-id</i> [vrf <i>vpn-name</i>] Example: Device(config)# ipv6 router ospf 2 | Configures an OSPFv3 routing process. |
| Step 4 | bfd all-interfaces [strict-mode] Example: Device(config-router)# bfd all-interfaces | Enables BFD for all interfaces participating in the routing process. [strict-mode] - BFD session is established in the strict-mode. In the strict-mode, the OSPF session is not established till the BFD session is established. |
| Step 5 | exit Example: Device(config-router)# exit | Enter this command twice to go to privileged EXEC mode. |

| | Command or Action | Purpose |
|---------------|---|--|
| Step 6 | show bfd neighbors [<i>vrf vrf-name</i>] [<i>client {bgp eigrp isis ospf rsvp te-frr}</i>] [<i>ip-address</i> <i>ipv6 ipv6-address</i>] [<i>details</i>] Example: Device# show bfd neighbors detail | (Optional) Displays a line-by-line listing of existing BFD adjacencies. |
| Step 7 | show ipv6 ospf [<i>process-id</i>] [<i>area-id</i>] [<i>rate-limit</i>] Example: Device# show ipv6 ospf | (Optional) Displays general information about OSPFv3 routing processes. If BFD is enabled in strict-mode, the command output displays <i>BFD is enabled in strict mode</i> . |

Configuring BFDv6 Support for OSPFv3 on One or More OSPFv3 Interfaces

Before you begin

OSPFv3 must be running on all participating devices. The baseline parameters for BFD sessions on the interfaces over which you want to run BFD sessions to BFD neighbors must be configured.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **interface** *type number*
4. **ipv6 ospf bfd** [*disable*] [*strict-mode*]
5. **exit**
6. **show bfd neighbors** [*vrf vrf-name*] [*client {bgp | eigrp | isis | ospf | rsvp | te-frr}*] [*ip-address* | *ipv6 ipv6-address*] [*details*]
7. **show ipv6 ospf** [*process-id*] [*area-id*] [*rate-limit*]

DETAILED STEPS

Procedure

| | Command or Action | Purpose |
|---------------|--|--|
| Step 1 | enable Example: Device> enable | Enables privileged EXEC mode. <ul style="list-style-type: none"> • Enter your password if prompted. |
| Step 2 | configure terminal Example: Device# configure terminal | Enters global configuration mode. |

| | Command or Action | Purpose |
|--------|--|---|
| Step 3 | interface <i>type number</i> Example: Device(config)# interface GigabitEthernet 0/0/0 | Specifies an interface type and number, and places the device in interface configuration mode. |
| Step 4 | ipv6 ospf bfd [disable] [strict-mode] Example: Device(config-if)# ipv6 ospf bfd | Enables BFD on a per-interface basis for one or more interfaces associated with the OSPFv3 routing process. [strict-mode] - BFD session is established in the strict-mode. In the strict-mode, the OSPF session is not established till the BFD session is established. |
| Step 5 | exit Example: Device(config-router)# exit | Enter this command twice to go to privileged EXEC mode. |
| Step 6 | show bfd neighbors [vrf <i>vrf-name</i>] [client { bgp eigrp isis ospf rsrp te-frr }] [ip-address ipv6 <i>ipv6-address</i>] [details] Example: Device# show bfd neighbors detail | (Optional) Displays a line-by-line listing of existing BFD adjacencies. |
| Step 7 | show ipv6 ospf [<i>process-id</i>] [<i>area-id</i>] [rate-limit] Example: Device# show ipv6 ospf | (Optional) Displays general information about OSPFv3 routing processes. If BFD is enabled in strict-mode, the command output displays BFD is enabled in strict mode. |

Retrieving BFDv6 Information for Monitoring and Troubleshooting

SUMMARY STEPS

1. **enable**
2. **monitor event ipv6 static** [**enable** | **disable**]
3. **show ipv6 static** [*ipv6-address* | *ipv6-prefix/prefix-length*] [**interface** *type number* | **recursive**] [**vrf** *vrf-name*] [**bfd**] [**detail**]
4. **show ipv6 static** [*ipv6-address* | *ipv6-prefix/prefix-length*] [**interface** *type number* | **recursive**] [**vrf** *vrf-name*] [**bfd**] [**detail**]
5. **debug ipv6 static**

DETAILED STEPS

Procedure

| | Command or Action | Purpose |
|---------------|---|--|
| Step 1 | enable Example: Device> enable | Enables privileged EXEC mode. <ul style="list-style-type: none"> • Enter your password if prompted. |
| Step 2 | monitor event ipv6 static [enable disable] Example: Device# monitor event ipv6 static enable | Enables the use of event trace to monitor the operation of the IPv6 static and IPv6 static BFDv6 neighbors. |
| Step 3 | show ipv6 static [ipv6-address ipv6-prefix/prefix-length] [interface type number recursive] [vrf vrf-name] [bfd] [detail] Example: Device# show ipv6 static vrf vrf1 detail | Displays the BFDv6 status for a static route associated with a static BFDv6 neighbor. |
| Step 4 | show ipv6 static [ipv6-address ipv6-prefix/prefix-length] [interface type number recursive] [vrf vrf-name] [bfd] [detail] Example: Device# show ipv6 static vrf vrf1 bfd | Displays static BFDv6 neighbors and associated static routes. |
| Step 5 | debug ipv6 static Example: Device# debug ipv6 static | Enables BFDv6 debugging. |

Configuration Examples for OSPFv3 for BFD

Example: Displaying OSPF Interface Information about BFD

The following display shows that the OSPF interface is enabled for BFD:

```
Device# show ipv6 ospf interface
```

```
Serial10/0 is up, line protocol is up
  Link Local Address FE80::A8BB:CCFF:FE00:6500, Interface ID 42
  Area 1, Process ID 1, Instance ID 0, Router ID 10.0.0.1
  Network Type POINT_TO_POINT, Cost: 64
  Transmit Delay is 1 sec, State POINT_TO_POINT, BFD enabled
```

```

Timer intervals configured, Hello 10, Dead 40, Wait 40, Retransmit 5
  Hello due in 00:00:07
Index 1/1/1, flood queue length 0
Next 0x0(0)/0x0(0)/0x0(0)
Last flood scan length is 1, maximum is 1
Last flood scan time is 0 msec, maximum is 0 msec
Neighbor Count is 1, Adjacent neighbor count is 1
  Adjacent with neighbor 10.1.0.1
Suppress hello for 0 neighbor(s)

```

Additional References

Related Documents

| Related Topic | Document Title |
|----------------------------------|--|
| IPv6 addressing and connectivity | <i>IPv6 Configuration Guide</i> |
| Cisco IOS commands | Cisco IOS Master Commands List, All Releases |
| IPv6 commands | Cisco IOS IPv6 Command Reference |
| Cisco IOS IPv6 features | <i>Cisco IOS IPv6 Feature Mapping</i> |
| OSPFv3 for BFD | “ <i>Bidirectional Forwarding Detection</i> ” module |

Standards and RFCs

| Standard/RFC | Title |
|---------------|-----------|
| RFCs for IPv6 | IPv6 RFCs |

MIBs

| MIB | MIBs Link |
|-----|--|
| | To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL: http://www.cisco.com/go/mibs |

Technical Assistance

| Description | Link |
|---|---|
| The Cisco Support and Documentation website provides online resources to download documentation, software, and tools. Use these resources to install and configure the software and to troubleshoot and resolve technical issues with Cisco products and technologies. Access to most tools on the Cisco Support and Documentation website requires a Cisco.com user ID and password. | http://www.cisco.com/cisco/web/support/index.html |

Feature Information for OSPFv3 for BFD

The following table provides release information about the feature or features described in this module. This table lists only the software release that introduced support for a given feature in a given software release train. Unless noted otherwise, subsequent releases of that software release train also support that feature.

Use Cisco Feature Navigator to find information about platform support and Cisco software image support. To access Cisco Feature Navigator, go to www.cisco.com/go/cfn. An account on Cisco.com is not required.

Table 1: Feature Information for OSPFv3 for BFD

| Feature Name | Releases | Feature Information |
|----------------|--------------------------|--|
| OSPFv3 for BFD | Cisco IOS XE Release 2.1 | BFD supports the dynamic routing protocol OSPFv3. The following commands were introduced or modified: bfd , bfd all-interfaces , debug bfd , ipv6 router ospf , show bfd neighbors , show ipv6 ospf , show ipv6 ospf interface , show ospfv3 , show ospfv3 interface . |