BFD on BDI Interfaces

The Cisco BFD on BDI Interfaces feature alleviates limitations on the maximum number of interfaces per system that switched virtual interfaces (SVI) impose. This document describes how to configure the Bidirectional Forwarding Detection (BFD) protocol on bridge domain interfaces (BDIs).

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 BFD on Bridge Domain Interfaces

BFD on Bridge Domain Interfaces

Each BDI is associated with a bridge domain on which traffic is mapped using criteria defined and configured on the associated Ethernet flow points (EFPs). You can associate either single or multiple EFPs with a given bridge domain. Thus you can establish a BFD single-hop session over BDI interfaces that are defined in either a global table or a VPN routing and forwarding (VRF) table, and all existing single-hop BFD clients will be supported for BFD over BDI.

The Cisco BFD on BDI feature does not affect BFD stateful switchover (SSO) on platforms that are SSO capable.

How to Configure BFD on BDI Interfaces

Enabling BFD on a Bridge Domain Interface

Perform these steps to enable single hop BFD on an individual BDI interface.

Note Multihop BFD is not interface specific so you do not need BDI interface-level configuration to establish multihop BFD sessions.

Before you begin

Two or more nodes must be connected.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **interface** *type number*
4. **ip address** *ip-address mask*
5. **exit**

DETAILED STEPS

Step 1 **enable**

Example:

```
Router> enable
```

Enables privileged EXEC mode.

- Enter your password if prompted.

Step 2 **configure terminal**

Example:

```
Router# configure terminal
```

Enters global configuration mode.

Step 3 **interface** *type number*

Example:

```
Router(config)# interface bdi 100
```

Configures a bridge domain interface and enters interface configuration mode.

Step 4 **ip address** *ip-address mask*

Example:

```
Router(config-if)# ip address 10.201.201.1 255.255.255.0
```

Configures an IP address for the interface.

Step 5 **exit**

Example:

```
Router(config-if)# exit
```

Exits interface configuration mode and returns to global configuration mode.

Associating an Ethernet Flow Point with a Bridge Domain

Before you begin

BFD must be enabled on both nodes.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **interface** *type slot/subslot/port*
4. **no ip address**
5. **negotiation auto**
6. **cdp enable**
7. **service instance** *id service-type*
8. **encapsulation dot1q** *vlan-id*
9. **rewrite ingress tag pop 1 symmetric**
10. **exit**
11. **exit**
12. **bridge-domain** *vlan-id*

DETAILED STEPS

Step 1 **enable**

Example:

```
Router> enable
```

Enables privileged EXEC mode.

- Enter your password if prompted.

Step 2 **configure terminal**

Example:

```
Router# configure terminal
```

Enters global configuration mode.

Step 3 **interface** *type slot/subslot/port*

Example:

```
Router(config)# interface GigabitEthernet0/0/3
```

Configures an interface type and enters interface configuration mode.

Step 4 **no ip address**

Example:

```
Router(config-if)# no ip address
```

Disables IP processing.

Step 5 **negotiation auto**

Example:

```
Router(config-if)# negotiation auto
```

Enables the autonegotiation protocol to configure the speed, duplex, and automatic flow control of the interface.

Step 6 **cdp enable**

Example:

```
Router(config-if)# cdp enable
```

Enables Cisco Discovery Protocol on the interface.

Step 7 **service instance** *id service-type*

Example:

```
Router(config-if)# service instance 2 ethernet
```

Configures an Ethernet service instance and enters service instance configuration mode.

Step 8 **encapsulation dot1q** *vlan-id*

Example:

```
Router(config-if-srv)# encapsulation dot1q 2
```

Enables IEEE 802.1Q encapsulation of traffic on the subinterface.

Step 9 **rewrite ingress tag pop 1 symmetric**

Example:

```
Router(config-if-srv)# rewrite ingress tag pop 1 symmetric
```

Specifies removal of the outermost tag from the frame ingressing the service instance and the addition of a tag in the egress direction.

Step 10 **exit**

Example:

```
Router(config-if)# exit
```

Exits service instance configuration mode and returns to interface configuration mode.

Step 11 **exit**

Example:

```
Router(config-if)# exit
```

Exits interface configuration mode and returns to global configuration mode.

Step 12 **bridge-domain** *vlan-id*

Example:

```
Router(config)# bridge-domain 2
```

Associates the bridge domain with the Ethernet flow point.

Example:

What to do next

Configuration Examples for BFD on BDI Interfaces

Examples for BFD on BDI Interfaces

The following example shows how to configure BFD on a BDI.

```
Router#show bfd neighbors

IPv4 Sessions
NeighAddr                              LD/RD         RH/RS     State     Int
10.1.1.2                              2049/1         Up        Up        BD2
Router#
Router#show running interface gi0/0/3
Building configuration...

Current configuration : 230 bytes
!
interface GigabitEthernet0/0/3
no ip address
ip pim passive
ip igmp version 3
negotiation auto
cdp enable
service instance 2 ethernet
  encapsulation dot1q 2
```

```
  rewrite ingress tag pop 1 symmetric
  bridge-domain 2
!
end

Router#show running interface bdi2

Building configuration...

Current configuration : 127 bytes
!
interface BDI2
ip address 10.1.1.3 255.255.255.0
bfd interval 100 min_rx 100 multiplier 3
bfd neighbor ipv4 10.1.1.2
end
```

And similarly for the other node:

```
Router2#show running interface bdi2

Building configuration...

Current configuration : 127 bytes
!
interface BDI2
ip address 10.1.1.2 255.255.255.0
bfd interval 100 min_rx 100 multiplier 3
bfd neighbor ipv4 10.1.1.3
end

ED3#show run int gig0/0/3
Building configuration...

Current configuration : 195 bytes
!
interface GigabitEthernet0/0/3
no ip address
negotiation auto
cdp enable
service instance 2 ethernet
  encapsulation dot1q 2
  rewrite ingress tag pop 1 symmetric
  bridge-domain 2
!
end

Router2#show bfd neighbors

IPv4 Sessions
NeighAddr                              LD/RD         RH/RS     State     Int
10.1.1.3                                1/2049       Up        Up        BD2
ED3#
```

Additional References

Related Documents

Related Topic	Document Title
Cisco IOS commands	*Cisco IOS Master Commands List, All Releases*
Configuring and monitoring BGP	"Cisco BGP Overview" module of the *Cisco IOS IP Routing Protocols Configuration Guide*
Configuring and monitoring EIGRP	"Configuring EIGRP" module of the *Cisco IOS IP Routing Protocols Configuration Guide*
Configuring and monitoring HSRP	"Configuring HSRP" module of the *Cisco IOS IP Application Services Configuration Guide*
Configuring and monitoring IS-IS	"Configuring Integrated IS-IS" module of the *Cisco IOS IP Routing Protocols Configuration Guide*
Configuring and monitoring OSPF	"Configuring OSPF" module of the *Cisco IOS IP Routing Protocols Configuration Guide*
BFD commands: complete command syntax, command mode, command history, defaults, usage guidelines, and examples	*Cisco IOS IP Routing: Protocol-Independent Command Reference*
BGP commands: complete command syntax, command mode, command history, defaults, usage guidelines, and examples	*Cisco IOS IP Routing: Protocol-Independent Command Reference*
EIGRP commands: complete command syntax, command mode, command history, defaults, usage guidelines, and examples	*Cisco IOS IP Routing: Protocol-Independent Command Reference*
HSRP commands: complete command syntax, command mode, command history, defaults, usage guidelines, and examples	*Cisco IOS IP Application Services Command Reference*
IS-IS commands: complete command syntax, command mode, command history, defaults, usage guidelines, and examples	*Cisco IOS IP Routing: Protocol-Independent Command Reference*
OSPF commands: complete command syntax, command mode, command history, defaults, usage guidelines, and examples	*Cisco IOS IP Routing: Protocol-Independent Command Reference*
BFD IPv6 Encapsulation Support	"*BFD IPv6 Encapsulation Support*" module
OSPFv3 for BFD	"*OSPFv3 for BFD*" module
Static Route Support for BFD over IPv6	"*Static Route Support for BFD over IPv6*" module

Standards and RFCs

Standard/RFC	Title
IETF Draft	*Bidirectional Forwarding Detection*, February 2009 (http://tools.ietf.org/html/draft-ietf-bfd-base-09)
IETF Draft	*BFD for IPv4 and IPv6 (Single Hop)*, February 2009 (http://tools.ietf.org/html/draft-ietf-bfd-v4v6-1hop-09

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 BFD on Bridge Domain Interfaces

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.

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Table 1: Feature Information for BFD on Bridge Domain Interfaces

Feature Name	Releases	Feature Information
BFD on Bridge Domain Interfaces	Cisco IOS XE Release 3.5S	This feature supports BFD on Bridge Domain Interfaces.