IS-IS Client for BFD C-Bit Support

The Bidirectional Forwarding Detection (BFD) protocol provides short-duration detection of failures in the path between adjacent forwarding engines while maintaining low networking overheads. The BFD IS-IS Client Support feature enables Intermediate System-to-Intermediate System (IS-IS) to use Bidirectional Forwarding Detection (BFD) support, which improves IS-IS convergence as BFD detection and failure times are faster than IS-IS convergence times in most network topologies. The IS-IS Client for BFD C-Bit Support feature enables the network to identify whether a BFD session failure is genuine or is the result of a control plane failure due to a router restart. When planning a router restart, you should configure this feature on all neighboring routers.

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 at the end of this module.

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.

Prerequisites for IS-IS Client for BFD C-Bit Support

- IS-IS must be running on all participating devices.

- The baseline parameters for BFD sessions must be configured on the interfaces that run BFD sessions to BFD neighbors.

Information About IS-IS Client for BFD C-Bit Support

IS-IS Restarts and BFD Sessions

The IS-IS Client for BFD C-Bit Support feature provides BFD with a way to signal to its peers whether the BFD implementation shares the same status as the control plane. When a neighboring router's control plane restarts, a BFD session failure may occur, which does not actually represent a true forwarding failure. If this happens, you do not want the neighbors of the restarting router to react to the BFD session failure.

IS-IS does not have protocol extensions that allow it to signal in advance that it will be restarting. This means that the system cannot distinguish between a real forwarding failure and a restart. The IS-IS Client for BFD C-Bit Support feature allows you to configure the device to ignore control-plane related BFD session failures. We recommend that you configure this feature on the neighbors of a restarting device just prior to the planned restart of that device and that you remove the configuration after the restart has been completed.

The table below shows how the control plane independent failure status received from BFD on a session down event impacts IS-IS handling of that event.

Table 1: Control Plane Failure and Session Down Events

IS-IS Check Control Plane Failure	BFD Control Plane Independent Failure Status	IS-IS Action on BFD session 'DOWN' Event
Enabled	True	Accept session DOWN
Enabled	False	Ignore session DOWN
Disabled	True	Accept session DOWN
Disabled	False	Accept session DOWN

How to Configure IS-IS Client for BFD C-Bit Support

Configuring IS-IS Client for BFD C-Bit Support

Perfrom this task to enable control plane failure checking.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **router isis**
4. **bfd check-control-plane-failure**
5. **end**

DETAILED STEPS

	Command or Action	Purpose
Step 1	**enable** **Example:** `Device> enable`	Enables privileged EXEC mode. • Enter your password if prompted.
Step 2	**configure terminal** **Example:** `Device# configure terminal`	Enters global configuration mode.
Step 3	**router isis** **Example:** `Device(config)# router isis`	Enables the IS-IS routing protocol and enters router configuration mode.

Step 4	**bfd check-control-plane-failure**
	
	Example:
	
	`Device(config-router)# bfd`
	`check-control-plane-failure`
		Enables BFD control plane failure checking for the IS-IS routing protocol.

Step 5	**end** **Example:** `Device(config-router)# end`	Exits router configuration mode and returns to privileged EXEC mode.

Configuration Examples for IS-IS Client for BFD C-Bit Support

Example: Configuring IS-IS Client for BFD C-Bit Support

The following example configures control plane failure detection on a router running the IS-IS protocol.

```
Device> enable
Device# configure terminal
Device(config)# router isis
Device(config-router)# bfd check-ctrl-plane-failure
Device(config-router)# end
```

Additional References

Related Documents

Related Topic	Document Title
Cisco IOS commands	*Cisco IOS Master Command List, All Releases*
BFD commands: complete command syntax, command mode, command history, defaults, usage guidelines, and examples	*Cisco IOS IP Routing: Protocol-Independent Command Reference*
Configuring and monitoring IS-IS	"Configuring Integrated IS-IS" module of the *Cisco IOS IP Routing Protocols Configuration Guide*
Cisco IOS IPv6 features	*Cisco IOS IPv6 Feature Mapping*

Standards and RFCs

Standard/RFC	Title
RFC 5882	*Generic Application of Bidirectional Forwarding Detection (BFD)*

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 IS-IS Client for BFD C-Bit Support

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 2: Feature Information for IS-IS Client for BFD C-Bit Support

Feature Name	Releases	Feature Information
IS-IS Client for BFD C-Bit Support	15.1(1)SY 15.3(1)T	The IS-IS Client for BFD C-Bit Support feature enables the network to identify whether a BFD session failure is genuine or is the result of a control plane failure due to a router restart. The following command was introduced: **bfd check-ctrl-plane-failure**.