



OSPF Support for Fast Hello Packets

The OSPF Support for Fast Hello Packets feature provides a way to configure the sending of hello packets in intervals less than 1 second. Such a configuration results in faster convergence in an Open Shortest Path First (OSPF) network.



Note It is recommended to use Bidirectional Forwarding Detection (BFD) instead of Fast Hello Packets.

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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.

Prerequisites for OSPF Support for Fast Hello Packets

OSPF must be already configured in the network or must be configured at the same time as the OSPF Support for Fast Hello Packets feature.

Information About OSPF Support for Fast Hello Packets

OSPF Hello Interval and Dead Interval

OSPF hello packets are packets that an OSPF process sends to its OSPF neighbors to maintain connectivity with those neighbors. The hello packets are sent at a configurable interval (in seconds). The defaults are 10 seconds for an Ethernet link and 30 seconds for a non broadcast link. Hello packets include a list of all neighbors for which a hello packet has been received within the dead interval. The dead interval is also a configurable interval (in seconds), and defaults to four times the value of the hello interval. The value of all hello intervals must be the same within a network. Likewise, the value of all dead intervals must be the same within a network.

These two intervals work together to maintain connectivity by indicating that the link is operational. If a router does not receive a hello packet from a neighbor within the dead interval, it will declare that neighbor to be down.

OSPF Fast Hello Packets

OSPF fast hello packets refer to hello packets being sent at intervals of less than 1 second. To understand fast hello packets, you should already understand the relationship between OSPF hello packets and the dead interval. See the section [OSPF Hello Interval and Dead Interval, on page 2](#).

OSPF fast hello packets are achieved by using the **ip ospf dead-interval** command. The dead interval is set to 1 second, and the hello-multiplier value is set to the number of hello packets you want to send during that 1 second, thus providing subsecond or "fast" hello packets.

When fast hello packets are configured on the interface, the hello interval advertised in the hello packets that are sent out this interface is set to 0. The hello interval in the hello packets received over this interface is ignored.

The dead interval must be consistent on a segment, whether it is set to 1 second (for fast hello packets) or set to any other value. The hello multiplier need not be the same for the entire segment as long as at least one hello packet is sent within the dead interval.

Benefits of OSPF Fast Hello Packets

The benefit of the OSPF Support for Fast Hello Packets feature is that your OSPF network will experience faster convergence time than it would without fast hello packets. This feature allows you to detect lost neighbors within 1 second. It is especially useful in LAN segments, where neighbor loss might not be detected by the Open System Interconnection (OSI) physical layer and data-link layer.

How to Configure OSPF Fast Hello Packets

Configuring OSPF Fast Hello Packets

SUMMARY STEPS

1. `enable`
2. `configure terminal`
3. `interface type number`
4. `ip ospf dead-interval minimal hello-multiplier multiplier`
5. `end`
6. `show ip ospf interface [interface-type interface-number]`

DETAILED STEPS

| | Command or Action | Purpose |
|--------|---|--|
| Step 1 | enable Example: <pre>Router> enable</pre> | Enables higher privilege levels, such as privileged EXEC mode. Enter your password if prompted. |
| Step 2 | configure terminal Example: <pre>Router# configure terminal</pre> | Enters global configuration mode. |
| Step 3 | interface type number Example: <pre>Router(config)# interface gigabitethernet 0/0/1</pre> | Configures an interface type and enters interface configuration mode. |
| Step 4 | ip ospf dead-interval minimal hello-multiplier multiplier Example: <pre>Router(config-if)# ip ospf dead-interval minimal hello-multiplier 5</pre> | Sets the interval during which at least one hello packet must be received, or else the neighbor is considered down. <ul style="list-style-type: none"> • In the example, OSPF Support for Fast Hello Packets is enabled by specifying the minimal keyword and the hello-multiplier keyword and value. Because the multiplier is set to 5, five hello packets will be sent every second. |
| Step 5 | end Example: <pre>Router(config-if)# end</pre> | (Optional) Saves configuration commands to the running configuration file, exits configuration mode, and returns to privileged EXEC mode. <ul style="list-style-type: none"> • Use this command when you are ready to exit configuration mode and save the configuration to the running configuration file. |

| | Command or Action | Purpose |
|---------------|--|--|
| Step 6 | show ip ospf interface [<i>interface-type interface-number</i>] Example: <pre>Router# show ip ospf interface gigabitethernet 0/0/1</pre> | (Optional) Displays OSPF-related interface information. <ul style="list-style-type: none"> The relevant fields that verify OSPF fast hello packets are indicated in the sample output following this table. |

Examples

The following sample output verifies that OSPF Support for Fast Hello Packets is configured. In the line that begins with "Timer intervals configured," the hello interval is 200 milliseconds, the dead interval is 1 second, and the next hello packet is due in 76 milliseconds.

```
Router# show ip ospf interface gigabitethernet 0/0/1
GigabitEthernet0/0/1 is up, line protocol is up
  Internet Address 172.16.1.2/24, Area 0
  Process ID 1, Router ID 172.17.0.2, Network Type BROADCAST, Cost:1
  Transmit Delay is 1 sec, State DR, Priority 1
  Designated Router (ID) 172.17.0.2, Interface address 172.16.1.2
  Backup Designated router (ID) 172.16.0.1, Interface address 172.16.1.1
  Timer intervals configured, Hello 200 msec, Dead 1, Wait 1, Retransmit 5
  Hello due in 76 msec
Index 2/2, flood queue length 0
Next 0x0(0)/0x0(0)
Last flood scan length is 2, maximum is 3
Last flood scan time is 0 msec, maximum is 0 msec
Neighbor Count is 1, Adjacent neighbor count is 1
  Adjacent with neighbor 172.16.0.1 (Backup Designated Router)
Suppress hello for 0 neighbor(s)
```

Configuration Examples for OSPF Support for Fast Hello Packets

Example OSPF Fast Hello Packets

The following example configures OSPF fast hello packets; the dead interval is 1 second and 5 hello packets are sent every second:

```
interface gigabitethernet 0/0/1
 ip ospf dead-interval minimal hello-multiplier 5
```

Additional References

Related Documents

| Related Topic | Document Title |
|----------------------------------|---------------------------------|
| IPv6 addressing and connectivity | <i>IPv6 Configuration Guide</i> |

| Related Topic | Document Title |
|--|--|
| Cisco IOS commands | Cisco IOS Master Commands List, All Releases |
| IPv6 commands | Cisco IOS IPv6 Command Reference |
| Cisco IOS IPv6 features | Cisco IOS IPv6 Feature Mapping |
| OSPFv3 External Path Preference Option | “Configuring OSPF” 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 OSPF Support for Fast Hello Packets

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 OSPF Support for Fast Hello Packets

| Feature Name | Releases | Feature Information |
|-------------------------------------|--------------------------|---|
| OSPF Support for Fast Hello Packets | Cisco IOS XE Release 2.1 | The OSPF Support for Fast Hello Packets feature provides a way to configure the sending of hello packets in intervals less than 1 second. Such a configuration results in faster convergence in an Open Shortest Path First (OSPF) network. |