IPv6 NSF and Graceful Restart for MP-BGP IPv6 Address Family

- Finding Feature Information, page 1
- Information About IPv6 NSF and Graceful Restart for MP-BGP IPv6 Address Family, page 1
- How to Configure IPv6 NSF and Graceful Restart for MP-BGP IPv6 Address Family, page 2
- Configuration Examples for IPv6 NSF and Graceful Restart for MP-BGP IPv6 Address Family, page 3
- Additional References, page 3
- Feature Information for IPv6: NSF and Graceful Restart for MP-BGP IPv6 Address Family, page 4

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.

Information About IPv6 NSF and Graceful Restart for MP-BGP IPv6 Address Family

Nonstop Forwarding and Graceful Restart for MP-BGP IPv6 Address Family

The graceful restart capability is supported for IPv6 BGP unicast, multicast, and VPNv6 address families, enabling Cisco nonstop forwarding (NSF) functionality for BGP IPv6. The BGP graceful restart capability allows the BGP routing table to be recovered from peers without keeping the TCP state.
NSF continues forwarding packets while routing protocols converge, therefore avoiding a route flap on switchover. Forwarding is maintained by synchronizing the FIB between the active and standby RP. On switchover, forwarding is maintained using the FIB. The RIB is not kept synchronized; therefore, the RIB is empty on switchover. The RIB is repopulated by the routing protocols and subsequently informs FIB about RIB convergence by using the NSF_RIB_CONVERGED registry call. The FIB tables are updated from the RIB, removing any stale entries. The RIB starts a failsafe timer during RP switchover, in case the routing protocols fail to notify the RIB of convergence.

The Cisco BGP address family identifier (AFI) model is designed to be modular and scalable, and to support multiple AFI and subsequent address family identifier (SAFI) configurations.

How to Configure IPv6 NSF and Graceful Restart for MP-BGP IPv6 Address Family

Configuring the IPv6 BGP Graceful Restart Capability

SUMMARY STEPS

1. enable
2. configure terminal
3. router bgp as-number
4. address-family ipv6 [vrf vrf-name] [unicast | multicast | vpnv6]
5. bgp graceful-restart [restart-time seconds | stalepath-time seconds] [all]

DETAILED STEPS

<table>
<thead>
<tr>
<th>Step</th>
<th>Command or Action</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1</td>
<td>enable</td>
<td>Enables privileged EXEC mode.</td>
</tr>
<tr>
<td>Example:</td>
<td>Device&gt; enable</td>
<td>• Enter your password if prompted.</td>
</tr>
<tr>
<td>Step 2</td>
<td>configure terminal</td>
<td>Enters global configuration mode.</td>
</tr>
<tr>
<td>Example:</td>
<td>Device# configure terminal</td>
<td></td>
</tr>
<tr>
<td>Step 3</td>
<td>router bgp as-number</td>
<td>Enters router configuration mode for the specified routing process.</td>
</tr>
<tr>
<td>Example:</td>
<td>Device(config)# router bgp 65000</td>
<td></td>
</tr>
<tr>
<td>Step 4</td>
<td>address-family ipv6 [vrf vrf-name] [unicast</td>
<td>multicast</td>
</tr>
</tbody>
</table>
### Purpose

**Command or Action**

**Example:**

Device(config-router)# address-family ipv6

**Step 5**

```
bgp graceful-restart [restart-time seconds | stalepath-time seconds] [all]
```

**Example:**

Device(config-router-af)# bgp graceful-restart

<table>
<thead>
<tr>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Enables the BGP graceful restart capability.</td>
</tr>
</tbody>
</table>

### Configuration Examples for IPv6 NSF and Graceful Restart for MP-BGP IPv6 Address Family

#### Example: Configuring the IPv6 BGP Graceful Restart Capability

In the following example, the BGP graceful restart capability is enabled:

Device# configure terminal
Device(config)# router bgp 65000
Device(config-router)# address-family ipv6
Device(config-router-af)# bgp graceful-restart

In the following example, the restart timer is set to 130 seconds:

Device# configure terminal
Device(config)# router bgp 65000
Device(config-router)# address-family ipv6
Device(config-router-af)# bgp graceful-restart restart-time 130

In the following example, the stalepath timer is set to 350 seconds:

Device# configure terminal
Device(config)# router bgp 65000
Device(config-router)# address-family ipv6
Device(config-router-af)# bgp graceful-restart stalepath-time 350

### Additional References

#### Related Documents

<table>
<thead>
<tr>
<th>Related Topic</th>
<th>Document Title</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPv6 addressing and connectivity</td>
<td>IPv6 Configuration Guide</td>
</tr>
<tr>
<td>Cisco IOS commands</td>
<td>Cisco IOS Master Command List, All Releases</td>
</tr>
</tbody>
</table>
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 . An account on Cisco.com is not required.

**Table 1: Feature Information for IPv6: NSF and Graceful Restart for MP-BGP IPv6 Address Family**

<table>
<thead>
<tr>
<th>Feature Name</th>
<th>Releases</th>
<th>Feature Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPv6: NSF and Graceful Restart for MP-BGP IPv6 Address Family</td>
<td>12.2(33)SRE 15.0(1)SY 15.0(1)S 15.2(2)S</td>
<td>The graceful restart capability is supported for IPv6 BGP unicast, multicast, and VPNv6 address families, enabling Cisco NSF functionality for BGP IPv6. The BGP graceful restart capability allows the BGP routing table to be recovered from peers without keeping the TCP state. No commands were introduced or modified.</td>
</tr>
</tbody>
</table>
Feature Information for IPv6: NSF and Graceful Restart for MP-BGP IPv6 Address Family