



OSPFv3 Graceful Restart

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Feature History for OSPFv3 Graceful Restart

This table provides release and platform support information for the features explained in this module.

These features are available in all the releases subsequent to the one they were introduced in, unless noted otherwise.

Release	Feature Name and Description	Supported Platform
Cisco IOS XE 17.18.1	OSPFv3 Graceful Restart: The OSPFv3 Graceful Restart feature is an enhancement feature that allows devices to continue forwarding data traffic using previously known routes, even while the OSPFv3 process is restarting.	Cisco C9610 Series Smart Switches

OSPFv3 Graceful Restart

The OSPFv3 Graceful Restart feature is an enhancement feature that allows devices to continue forwarding data traffic using previously known routes, even while the OSPFv3 process is restarting.

How does OSPFv3 Graceful Restart work

For OSPFv3 graceful restart to work, the following conditions must be met:

- a device capable of graceful restart must be configured with high availability and stateful switchover (SSO).

- the neighboring devices be graceful-restart aware

A device will perform the graceful restart function when the following failures occur:

- A route processor (RP) failure that results in switchover to standby RP.
- A planned RP switchover to standby RP.

The restarting device notifies its OSPFv3 neighbors that it is undergoing a graceful restart. Neighbors maintain their adjacencies and OSPFv3 state with the restarting device, avoiding unnecessary route recalculation.

How to configure OSPFv3 Graceful Restart

This section shows how to configure OSPFv3 graceful restart.

Enable OSPFv3 Graceful Restart on a graceful restart-capable device

Perform this task to enable OSPFv3 graceful restart on a graceful restart-capable device. You can perform this task on both IPv4 and IPv6 networks.

Procedure

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 ospf *process-id* [**vrf** *vrf-name*]

Example:

```
Device(config)# router ospf 15
```

Enables OSPF routing and enters router configuration mode.

- *process-id*: The process ID is an internally used identification parameter that is locally assigned. Each OSPF process has a unique process ID.
Process ID can be a positive integer from 1 to 65535.
- **vrf**: Indicates that the OSPF process is being configured for a specific VRF.
- *vrf-name*: Specifies the name of the VRF for which this OSPF process is being created.

Step 4 **graceful-restart** [**restart-interval** *interval*]**Example:**

```
Device(config-router)# graceful-restart
```

Enables the OSPFv3 graceful restart feature on a graceful-restart-capable device.

restart-interval *interval*: (Optional) Sets the maximum time (in seconds) that the router will attempt to maintain OSPF state during the restart.

Enable OSPFv3 Graceful Restart on a graceful restart-aware device

Perform this task to enable OSPFv3 graceful restart on a graceful restart-aware device.

Procedure

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 ospf** *process-id* [**vrf** *vrf-name*]**Example:**

```
Device(config)# router ospf 15
```

Enables OSPF routing and enters router configuration mode.

- **process-id**: The process ID is an internally used identification parameter that is locally assigned. Each OSPF process has a unique process ID.
Process ID can be a positive integer from 1 to 65535.
- **vrf**: Indicates that the OSPF process is being configured for a specific VRF.
- **vrf-name**: Specifies the name of the VRF for which this OSPF process is being created.

Step 4 **graceful-restart helper** {**disable** | **strict-lsa-checking**}**Example:**

```
Device(config-router)# graceful-restart helper strict-lsa-checking
```

Enables the OSPFv3 graceful restart feature on a graceful-restart-aware device.

- **disable:** Disables the helper mode. If the device detects a neighbor restarting, it will treat it as a failure and bring down the adjacency.
- **strict-lsa-checking:** Enables strict LSA checking during the helper mode. The helper device will terminate the helper process and bring down the adjacency if it detects any change in the LSAs that would impact network topology or routing (such as a new LSA or a changed LSA relevant to the restarting neighbor). This ensures that routing consistency is maintained during the restart.

Configuration example for OSPFv3 Graceful Restart

The following example shows how to enable OSPFv3 graceful restart.

```
Device# show ipv6 ospf graceful-restart
Routing Process "ospf 1"
  Graceful Restart enabled
    restart-interval limit: 120 sec, last restart 00:00:15 ago (took 36 secs)
  Graceful Restart helper support enabled
  Router status : Active
  Router is running in SSO mode
  OSPF restart state : NO_RESTART
  Router ID 10.1.1.1, checkpoint Router ID 10.0.0.0
```

The following example shows OSPFv3 information with graceful-restart helper support enabled on a graceful-restart-aware device.

```
Device# show ospfv3
Routing Process "ospfv3 1" with ID 10.0.0.1
Supports IPv6 Address Family
Event-log enabled, Maximum number of events: 1000, Mode: cyclic
Initial SPF schedule delay 5000 msec
Minimum hold time between two consecutive SPF's 10000 msec
Maximum wait time between two consecutive SPF's 10000 msec
Minimum LSA interval 5 sec
Minimum LSA arrival 1000 msec
LSA group pacing timer 240 sec
Interface flood pacing timer 33 msec
Retransmission pacing timer 66 msec
Number of external LSA 0. Checksum Sum 0x000000
Number of areas in this router is 0. 0 normal 0 stub 0 nssa
Graceful restart helper support enabled
Reference bandwidth unit is 100 mbps
Relay willingness value is 128
Pushback timer value is 2000 msec
Relay acknowledgement timer value is 1000 msec
LSA cache Disabled : current count 0, maximum 1000
ACK cache Disabled : current count 0, maximum 1000
Selective Peering is not enabled
Hello requests and responses will be sent multicast
```