# OSPFv3 MIB

The OSPFv3 MIB feature enables remote monitoring and troubleshooting of Open Shortest Path First version 3 (OSPFv3) processes using standard Simple Network Management Protocol (SNMP) management workstations. The protocol information collected by the OSPFv3 MIB objects and trap objects can be used to derive statistics that helps monitor and improve overall network performance.



## Prerequisites for OSPFv3 MIB

- Ensure that Open Shortest Path First version 3 (OSPFv3) is configured on the device.
- Ensure that Simple Network Management Protocol (SNMP) is enabled on the device before notifications (traps) can be configured or before SNMP GET operations can be performed.

## Restrictions for OSPFv3 MIB Support

- To monitor multiple Open Shortest Path First version 3 (OSPFv3) processes, each process must be associated with a Simple Network Management Protocol (SNMP) context.
- To monitor multiple VRFs, each VRF must be associated with an SNMP context.

# Information About OSPFv3 MIB

## OSPFv3 MIB

Open Shortest Path First version 3 (OSPFv3) is the IPv6 implementation of OSPF. The OSPFv3 MIB is documented in RFC 5643 and defines a MIB for managing OSPFv3 processes through Simple Network Management Protocol (SNMP).

Users can constantly monitor the changing state of an OSPF network by using MIB objects. The MIB objects gather information relating to protocol parameters and trap notification objects that can signal the occurrence of significant network events such as transition state changes.

## OSPFv3 TRAP MIB

The ospfv3Notifications MIB object contains the OSPFv3 trap MIB objects that enable and disable OSPF traps in the Cisco IOS CLI. These OSPFv3 trap MIB objects are provided by the RFC 5643 standard OSPFv3 MIB.

# How to Configure OSPFv3 MIB

## Enabling Specific OSPFv3 Traps

**Note** On a Cisco Catalyst 6880-X switch, you can configure the **snmp-server enable traps ospfv3** command only with an Advanced Enterprise Services license. A Cisco Catalyst 6880-X switch operating with an IP Services license does not support the **snmp-server enable traps ospfv3** command.

### SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **snmp-serverhost** {*hostname* | *ip-address*} [**vrf** *vrf-name*] [**traps** | **informs**] [**version** {**1** | **2c** | **3** [**auth** | **noauth** | **priv**]}] *community-string* [**udp-port** *port*] [*notification-type*]
4. **snmp-server enable traps ospfv3 errors** [**bad-packet**] [**config-error**] [**virt-bad-packet**] [**virt-config-error**]
5. **snmp-server enable traps ospfv3 rate-limit** *seconds trap-number*
6. **snmp-server enable traps ospfv3 state-change** [**if-state-change**] [**neighbor-restart-helper-status-change**] [**neighbor-state-change**] [**nssa-translator-status-change**] [**restart-status-change**] [**virtif-state-change**] [**virtneighbor-restart-helper-status-change**] [**virtneighbor-state-change**]
7. **end**

## DETAILED STEPS

| | Command or Action | Purpose |
|---|---|---|
| **Step 1** | **enable**<br>**Example:**<br>`Device> enable` | Enables privileged EXEC mode.<br>• Enter your password if prompted. |
| **Step 2** | **configure terminal**<br>**Example:**<br>`Device# configure terminal` | Enters global configuration mode. |
| **Step 3** | **snmp-serverhost** {*hostname* \| *ip-address*} [**vrf** *vrf-name*] [**traps** \| **informs**] [**version** {**1** \| **2c** \| **3** [**auth** \| **noauth** \| **priv**]}] *community-string* [**udp-port** *port*] [*notification-type*]<br>**Example:**<br>`Device(config)# snmp-server host 172.20.2.162 version 2c public ospfv3` | Specifies a recipient (target host) for Simple Network Management Protocol (SNMP) notification operations.<br>• If the *notification-type* is not specified, all enabled notifications (traps or informs) are sent to the specified host.<br>• If you want to send only the Open Shortest Path First version 3 (OSPFv3) notifications to the specified host, you can use the optional **ospfv3** keyword as the *notification-types* . Entering the **ospfv3** keyword enables the ospfv3Notifications MIB object. |
| **Step 4** | **snmp-server enable traps ospfv3 errors** [**bad-packet**] [**config-error**] [**virt-bad-packet**] [**virt-config-error**]<br>**Example:**<br>`Device(config)# snmp-server enable traps ospfv3 errors` | Enables SNMP notifications for OSPFv3 errors. |
| **Step 5** | **snmp-server enable traps ospfv3 rate-limit** *seconds trap-number*<br>**Example:**<br>`Device(config)# snmp-server enable traps ospfv3 rate-limit 20 20` | Sets the rate limit for the number of SNMP OSPFv3 notifications that are sent in each OSPFv3 SNMP notification rate-limit window. |
| **Step 6** | **snmp-server enable traps ospfv3 state-change** [**if-state-change**] [**neighbor-restart-helper-status-change**] [**neighbor-state-change**] [**nssa-translator-status-change**] [**restart-status-change**] [**virtif-state-change**] [**virtneighbor-restart-helper-status-change**] [**virtneighbor-state-change**]<br>**Example:**<br>`Device(config)# snmp-server enable traps ospfv3 state-change` | Enables SNMP OSPFv3 notifications for OSPFv3 transition state changes. |

| | Command or Action | Purpose |
|---|---|---|
| **Step 7** | **end**<br>**Example:**<br>`Device(config)# end` | Exits global configuration mode and enters privileged EXEC mode. |

# Verifying OSPFv3 MIB Traps on the Device

**SUMMARY STEPS**

1. **enable**
2. **show running-config** [*options*]

**DETAILED STEPS**

**Step 1** **enable**

**Example:**

```
Device> enable
```

Enables privileged EXEC mode.

- Enter your password if prompted.

**Step 2** **show running-config** [*options*]

**Example:**

```
Device# show running-config | include traps
```

Displays the contents of the currently running configuration file and includes information about enabled traps.

- Verifies which traps are enabled.

# Configuration Examples for OSPFv3 MIB

## Example: Enabling and Verifying OSPFv3 MIB Traps

The following example shows how to enable all OSPFv3 error traps:

```
Device> enable
Device# configure terminal
Device(config)# snmp-server enable traps ospfv3 errors
Device(config)# end
```

The following example shows how to verify that the traps are enabled:

```
Device> enable
Device# show running-config | include traps

snmp-server enable traps ospfv3 errors
```

# Additional References for OSPFv3 MIB

### Related Documents

| Related Topic | Document Title |
|---|---|
| Cisco IOS commands | Cisco IOS Master Command List, All Releases |
| OSPF commands | Cisco IOS IP Routing: OSPF Command Reference |
| OSPF configuration tasks | "Configuring OSPF" module in *IP Routing: OSPF Configuration Guide* |

### Standards and RFCs

| Standard | Title |
|---|---|
| RFC 5643 | *Management Information Base for OSPFv3* |

### MIBs

| MIB | MIBs Link |
|---|---|
| OSPFv3-MIB | To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL:<br>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 OSPFv3 MIB

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 OSPFv3 MIB*

| Feature Name | Releases | Feature Information |
|---|---|---|
| OSPFv3 MIB | Cisco IOS XE Release 3.7S | The OSPFv3 MIB feature enables remote monitoring and troubleshooting of OSPFv3 processes using standard SNMP management workstations.<br><br>The following commands were introduced or modified: **snmp-server host**, **snmp-server enable traps ospfv3 errors**, **snmp-server enable traps ospfv3 rate-limit**, **snmp-server enable traps ospfv3 state-change**. |

*Table 2: Feature Information for OSPFv3 MIB*

| Feature Name | Releases | Feature Information |
|---|---|---|
| OSPFv3 MIB | Cisco IOS XE Release 17.4 | This feature was introduced. |