



# Configuring OSPFv3 Limit on Number of Redistributed Routes

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## Restrictions for OSPFv3 Limit on Number of Redistributed Routes

This feature is supported only for IPv6 address family.

## Prerequisites for OSPFv3 Limit on Number of Redistributed Routes

You must have Open Shortest Path First version 3 (OSPFv3) configured in your network either along with another protocol, or another OSPFv3 process for redistribution.

## Information About OSPFv3 Limit on Number of Redistributed Routes

OSPFv3 supports a user-defined maximum number of prefixes (routes) that are allowed to be redistributed into OSPFv3 from other protocols or other OSPFv3 processes. Such a limit could help prevent the device from being flooded by too many redistributed routes

For example, if large number of IPv6 routes are sent into OSPFv3, for a network that allows redistributing Border Gateway Protocol (BGP) into OSPFv3, the network can be severely flooded. Limiting the number of redistributed routes prevents this potential problem.

# How to Configure an OSPFv3 Limit on the Number of Redistributed Routes

The following sections provide information on configuring an OSPFv3 limit on the number of redistributed routes:



## Note

The following procedures are mutually exclusive, that is, you can either limit the number of redistributed routes, or request a warning about the number of routes redistributed into OSPFv3.

## Limiting the Number of OSPFv3 Redistributed Routes

This task describes how to limit the number of OSPFv3 redistributed routes. If the number of redistributed routes reaches the maximum value configured, no more routes will be redistributed.

### Procedure

|               | Command or Action   | Purpose   |
|---------------|---|---|
| <b>Step 1</b> | <b>enable</b><br><b>Example:</b><br>Device> <b>enable</b>   | Enables privileged EXEC mode.<br>Enter your password if prompted.         |
| <b>Step 2</b> | <b>configure terminal</b><br><b>Example:</b><br>Device# <b>configure terminal</b>   | Enters global configuration mode.   |
| <b>Step 3</b> | <b>router ospfv3 <i>process-id</i></b><br><b>Example:</b><br>Device(config)# <b>router ospfv3 1</b>   | Configures an OSPFv3 routing process.                                     |
| <b>Step 4</b> | <b>address-family ipv6 [<i>unicast</i>] [<i>vrf vrf-name</i>]</b><br><b>Example:</b><br>Device(config-router)# <b>address-family ipv6 unicast</b>   | Enters IPv6 address family configuration mode.                            |
| <b>Step 5</b> | <b>redistribute <i>protocol</i> [<i>process-id</i>] [<i>as-number</i>] [<i>include-connected</i> {<i>level-1</i>   <i>level-1-2</i>   <i>level-2</i>}] [<i>metric metric-value</i>] [<i>metric-type type-value</i>] [<i>nssa-only</i>] [<i>tag tag-value</i>] [<i>route-map map-tag</i>]</b><br><b>Example:</b> | Redistributes routes from one routing domain into another routing domain. |

|               | Command or Action   | Purpose   |
|---------------|---|---|
|               | Device(config-router-af) # <b>redistribute eigrp 10</b>   |   |
| <b>Step 6</b> | <b>redistribute maximum-prefix</b> <i>maximum</i> [ <i>threshold</i> ]<br><b>Example:</b><br>Device(config-router-af) # <b>redistribute maximum-prefix 100 80</b> | Sets a maximum number of IPv6 prefixes that are allowed to be redistributed into OSPFv3. <ul style="list-style-type: none"> <li>• There is no default value for the <i>maximum</i> argument.</li> <li>• The <i>threshold</i> value defaults to 75 percent.</li> </ul> <b>Note</b> If the <b>warning-only</b> keyword had been configured in this command, no limit would be enforced; a warning message is simply logged. |
| <b>Step 7</b> | <b>exit-address-family</b><br><b>Example:</b><br>Device(config-router-af) # <b>exit-address-family</b>  | Exits IPv6 address family configuration mode.   |
| <b>Step 8</b> | <b>end</b><br><b>Example:</b><br>Device(config-router) # <b>end</b>   | Exits router configuration mode.  |

## Requesting a Warning About the Number of Routes Redistributed into OSPFv3

To request a warning about the number of routes redistributed into OSPFv3, perform this procedure:

### Procedure

|               | Command or Action  | Purpose   |
|---------------|--|---|
| <b>Step 1</b> | <b>enable</b><br><b>Example:</b><br>Device> <b>enable</b>  | Enables privileged EXEC mode.<br>Enter your password if prompted. |
| <b>Step 2</b> | <b>configure terminal</b><br><b>Example:</b><br>Device# <b>configure terminal</b>                    | Enters global configuration mode.                                 |
| <b>Step 3</b> | <b>router ospfv3</b> <i>process-id</i><br><b>Example:</b><br>Device(config) # <b>router ospfv3 1</b> | Configures an OSPFv3 routing process.                             |
| <b>Step 4</b> | <b>address-family ipv6</b> [ <b>unicast</b> ] [ <b>vrf</b> <i>vrf-name</i> ]<br><b>Example:</b>      | Enters IPv6 address family configuration mode.                    |

|               | Command or Action   | Purpose  |
|---------------|---|--|
|               | Device(config-router)# <b>address-family</b><br><b>ipv6 unicast</b>   |  |
| <b>Step 5</b> | <b>redistribute</b> <i>protocol</i> [ <i>process-id</i> ] [ <i>as-number</i> ]<br>[ <b>include-connected</b> { <b>level-1</b>   <b>level-1-2</b>  <br><b>level-2</b> } [ <b>metric</b> <i>metric-value</i> ] [ <b>metric-type</b><br><i>type-value</i> ] [ <b>nssa-only</b> ] [ <b>tag</b> <i>tag-value</i> ]<br>[ <b>route-map</b> <i>map-tag</i> ]<br><br><b>Example:</b><br>Device(config-router-af)# <b>redistribute</b><br><b>eigrp 10</b> | Redistributes routes from one routing domain into another routing domain.  |
| <b>Step 6</b> | <b>redistribute maximum-prefix</b> <i>maximum</i><br>[ <i>threshold</i> ] <b>warning-only</b><br><br><b>Example:</b><br>Device(config-router-af)# <b>redistribute</b><br><b>maximum-prefix 100 80 warning-only</b>  | Causes a warning message to be logged when the maximum number of IP prefixes has been redistributed into OSPFv3. <ul style="list-style-type: none"> <li>• Because the <b>warning-only</b> keyword is included, no limit is imposed on the number of redistributed prefixes into OSPFv3.</li> <li>• There is no default value for the <i>maximum</i> argument</li> <li>• The <i>threshold</i> value defaults to 75 percent.</li> <li>• This example causes two warnings: one at 80 percent of 1000 (800 routes redistributed) and another at 1000 routes redistributed</li> </ul> |
| <b>Step 7</b> | <b>end</b><br><br><b>Example:</b><br>Device(config-router)# <b>end</b>  | Exits router configuration mode.   |

## Configuration Examples for OSPFv3 Limit on Number of Redistributed Routes

The following sections provide configuration examples for OSPFv3 limit on number of redistributed routes:

### Example: OSPFv3 Limit on Number of Redistributed Routes

This example sets a maximum of 1200 prefixes that can be redistributed into OSPFv3 process 1. Prior to reaching the limit, when the number of prefixes redistributed reaches 80 percent of 1200 (960 prefixes), a warning message is logged. Another warning is logged when the limit is reached and no more routes are redistributed

```

Device> enable
Device# configure terminal
Device(config)# router ospfv3 1
Device(config-router)# address-family ipv6
Device(config-router-af)# redistribute static subnets
Device(config-router-af)# redistribute maximum-prefix 1200 80

```

## Example: Requesting a Warning About the Number of Redistributed Routes

This example allows two warning messages to be logged, the first if the number of prefixes redistributed reaches 85 percent of 600 (510 prefixes), and the second if the number of redistributed routes reaches 600. However, the number of redistributed routes is not limited:

```

Device> enable
Device# configure terminal
Device(config)# router ospfv3 11
Device(config-router)# address-family ipv6
Device(config-router-af)# redistribute eigrp 10 subnets
Device(config-router-af)# redistribute maximum-prefix 600 85 warning-only

```

## Monitoring OSPFv3 Limit on Number of Redistributed Routes

Use the privileged EXEC commands in the following table to monitor limit on number of redistributed routes

**Table 1: Commands to Monitor OSPFv3 Limit on Number of Redistributed Routes**

| Command  | Purpose  |
|--|--|
| <b>show ipv6 ospf</b> [ <i>process-id</i> ]<br>OR<br><b>show ospfv3 ipv6</b> [ <i>process-id</i> ] | Displays general information about OSPFv3 routing processes. The output will include the maximum limit of redistributed prefixes and the threshold for warning messages. |

## Feature Information for OSPFv3 Limit on Number of Redistributed Routes

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.

*Table 2: Feature Information for OSPFv3 Limit on Number of Redistributed Routes*

| <b>Feature Name</b>                            | <b>Releases</b>                | <b>Feature Information</b>   |
|--|--------------------------------|--|
| OSPFv3 Limit on Number of Redistributed Routes | Cisco IOS XE Gibraltar 16.11.1 | OSPFv3 supports a user-defined maximum number of prefixes (routes) that are allowed to be redistributed into OSPFv3 from other protocols or other OSPFv3 processes. Such a limit could help prevent the router from being flooded by too many redistributed routes |