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 the 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 can be redistributed into OSPFv3 from other protocols or other OSPFv3 processes. Such a limit helps prevent the device from being flooded by too many redistributed routes

For example, if a large number of IP routes are sent into OSPFv3 for a network that allows redistribution of Border Gateway Protocol (BGP) into OSPFv3, the network can get 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 are redistributed.

Procedure

	Command or Action	Purpose
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 ospfv3** *process-id* **Example:** `Device(config)# router ospfv3 1`	Configures an OSPFv3 routing process.
Step 4	**address-family ipv6** [**unicast**] **Example:** `Device(config-router)# address-family ipv6 unicast`	Enters IPv6 address family configuration mode.
Step 5	**redistribute** *protocol* [*process-id*] [*as-number*] [**include-connected** {**level-1** | **level-1-2** | **level-2**} [**metric** *metric-value*] [**metric-type** *type-value*] [**nssa-only**] [**tag** *tag-value*] [**route-map** *map-tag*]	Redistributes routes from one routing domain into another routing domain.

	Command or Action	Purpose
	Example: `Device(config-router-af)# redistribute eigrp 10`	
Step 6	**redistribute maximum-prefix** *maximum* [*threshold*] **Example:** `Device(config-router-af)# redistribute maximum-prefix 100 80`	Sets a maximum number of IPv6 prefixes that are allowed to be redistributed into OSPFv3. • There is no default value for the *maximum* argument. • The *threshold* value defaults to 75 percent. **Note** If the **warning-only** keyword is configured in this command, no limit is enforced; a warning message is logged.
Step 7	**exit-address-family** **Example:** `Device(config-router-af)# exit-address-family`	Exits IPv6 address family configuration mode.
Step 8	**end** **Example:** `Device(config-router)# end`	Exits router configuration mode.

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

To request a warning message when the number of routes redistributed into OSPFv3 exceeds the configuration limit, perform this procedure:

Procedure

	Command or Action	Purpose
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 ospfv3** *process-id* **Example:**	Configures an OSPFv3 routing process.

	Command or Action	Purpose
	`Device(config)# router ospfv3 1`	
Step 4	**address-family ipv6** [**unicast**] **Example:** `Device(config-router)# address-family ipv6 unicast`	Enters IPv6 address family configuration mode.
Step 5	**redistribute** *protocol* [*process-id*] [*as-number*] [**include-connected** {**level-1** | **level-1-2** | **level-2**} [**metric** *metric-value*] [**metric-type** *type-value*] [**nssa-only**] [**tag** *tag-value*] [**route-map** *map-tag*] **Example:** `Device(config-router-af)# redistribute eigrp 10`	Redistributes routes from one routing domain into another routing domain.
Step 6	**redistribute maximum-prefix** *maximum* [*threshold*] [**warning-only**] **Example:** `Device(config-router-af)# redistribute maximum-prefix 100 80 warning-only`	Causes a warning message to be logged when the maximum number of IP prefixes have been redistributed to OSPFv3. • Because the **warning-only** keyword is included, no limit is imposed on the number of redistributed prefixes into OSPFv3. • There is no default value for the *maximum* argument. • The *threshold* value defaults to 75 percent. • This example causes two warnings: one at 80 percent of 1000 (800 routes redistributed) and another at 1000 routes redistributed
Step 7	**end** **Example:** `Device(config-router)# end`	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 shows how to set a maximum of 1200 prefixes that can be redistributed into the OSPFv3 process 1. Prior to reaching the limit, when the number of prefixes that are redistributed reaches 80 percent of 1200 (960 prefixes), a warning message is logged. Another warning message 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 Message About the Number of Redistributed Routes

This example shows how to enable two warning messages to be logged, the first if the number of prefixes that are 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 the limit on the number of redistributed routes.

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

Command	Purpose
show ipv6 ospf [*process-id*] or **show ospfv3 ipv6** [*process-id*]	Displays general information about the OSPFv3 routing processes. The output includes the maximum limit of redistributed prefixes and the threshold for warning messages.

Additional References

Related Documents

Related Topic	Document Title
For complete syntax and usage information for the commands used in this chapter.	See the *Routing* section of the *Command Reference (Catalyst 9200 Series Switches)*

Feature History for OSPFv3 Limit on Number of Redistributed Routes

This table provides release and related 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	Feature Information
Cisco IOS XE Gibraltar 16.11.1	OSPFv3 Limit on Number of Redistributed Routes	OSPFv3 supports a user-defined maximum number of prefixes (routes) that can be redistributed into OSPFv3 from other protocols or other OSPFv3 processes.

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