



# OSPF Limit on Number of Redistributed Routes

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

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## Prerequisites for OSPF Limit on Number of Redistributed Routes

It is presumed that you have OSPF configured in your network, along with another protocol or another OSPF process you are redistributing.

## Information About OSPF Limit on Number of Redistributed Routes

If large number of IP routes are sent into OSPF by redistributing Border Gateway Protocol (BGP) into OSPF, the network can be severely flooded. Limiting the number of redistributed routes prevents this potential problem.

OSPF can receive and accept packets from non-routable addresses (for example, 0.0.0.0/7) also.

## How to Limit the Number of OSPF Redistributed Routes

This section contains the following procedures, which are mutually exclusive. That is, you cannot both limit redistributed prefixes and also choose to be warned.

# Limiting the Number of Redistributed Routes



**Note** You cannot both limit redistributed prefixes and also choose to be warned.

## SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **router ospf** *process-id*
4. **redistribute** *protocol* [*process-id* | *as-number*] [**metric** *metric-value*] [**metric-type** *type-value*] [**match** {**internal** | **external 1** | **external 2**}] [**tag** *tag-value*] [**route-map** *map-tag*]
5. **redistribute maximum-prefix** *maximum* [*threshold*]
6. **end**
7. **show ip ospf** [*process-id*]

## DETAILED STEPS

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	<b>enable</b> <b>Example:</b> Router> enable	Enables privileged EXEC mode. <ul style="list-style-type: none"> <li>• Enter your password if prompted.</li> </ul>
<b>Step 2</b>	<b>configure terminal</b> <b>Example:</b> Router# configure terminal	Enters global configuration mode.
<b>Step 3</b>	<b>router ospf</b> <i>process-id</i> <b>Example:</b> Router(config)# router ospf 1	Configures an OSPF routing process.
<b>Step 4</b>	<b>redistribute</b> <i>protocol</i> [ <i>process-id</i>   <i>as-number</i> ] [ <b>metric</b> <i>metric-value</i> ] [ <b>metric-type</b> <i>type-value</i> ] [ <b>match</b> { <b>internal</b>   <b>external 1</b>   <b>external 2</b> }] [ <b>tag</b> <i>tag-value</i> ] [ <b>route-map</b> <i>map-tag</i> ] <b>Example:</b> Router(config-router)# redistribute eigrp 10 <b>Note</b>	Redistributes routes from one routing domain into another routing domain.

	Command or Action	Purpose
	The <code>subnets</code> keyword is now deprecated from Cisco IOS XE Release 16.10 onwards. This means by default classful and classless subnets are redistributed.	
Step 5	<p><b>redistribute maximum-prefix</b> <i>maximum</i> [<i>threshold</i>]</p> <p><b>Example:</b></p> <pre>Router(config-router)# redistribute maximum-prefix 100 80</pre>	<p>Sets a maximum number of IP prefixes that are allowed to be redistributed into OSPF.</p> <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> <p><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.</p>
Step 6	<p><b>end</b></p> <p><b>Example:</b></p> <pre>Router(config-router)# end</pre>	Exits router configuration mode.
Step 7	<p><b>show ip ospf</b> [<i>process-id</i>]</p> <p><b>Example:</b></p> <pre>Router# show ip ospf 1</pre>	<p>(Optional) Displays general information about OSPF routing processes.</p> <ul style="list-style-type: none"> <li>• If a redistribution limit was configured, the output will include the maximum limit of redistributed prefixes and the threshold for warning messages.</li> </ul>

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



**Note** You cannot both limit redistributed prefixes and also choose to be warned.

### SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **router ospf** *process-id*
4. **redistribute** *protocol* [*process-id* | *as-number*] [**metric** *metric-value*] [**metric-type** *type-value*] [**match**{*internal*| *external 1*| *external 2*}][**tag** *tag-value*] [**route-map** *map-tag*]
5. **redistribute maximum-prefix** *maximum* [*threshold*] **warning-only**
6. **end**

## DETAILED STEPS

## Procedure

	Command or Action	Purpose
<b>Step 1</b>	<b>enable</b> <b>Example:</b> <pre>Router&gt; enable</pre>	Enables privileged EXEC mode. <ul style="list-style-type: none"> <li>• Enter your password if prompted.</li> </ul>
<b>Step 2</b>	<b>configure terminal</b> <b>Example:</b> <pre>Router# configure terminal</pre>	Enters global configuration mode.
<b>Step 3</b>	<b>router ospf</b> <i>process-id</i> <b>Example:</b> <pre>Router(config)# router ospf 1</pre>	Configures an OSPF routing process.
<b>Step 4</b>	<b>redistribute</b> <i>protocol</i> [ <i>process-id</i>   <i>as-number</i> ] [ <b>metric</b> <i>metric-value</i> ] [ <b>metric-type</b> <i>type-value</i> ] [ <b>match</b> { <b>internal</b>   <b>external 1</b>   <b>external 2</b> }][ <b>tag</b> <i>tag-value</i> ] [ <b>route-map</b> <i>map-tag</i> ] <b>Example:</b> <pre>Router(config-router)# redistribute eigrp 10</pre> <p><b>Note</b> The subnets keyword is now deprecated from Cisco IOS XE Release 16.10 onwards. This means by default classful and classless subnets are redistributed.</p>	Redistributes routes from one routing domain into another routing domain.
<b>Step 5</b>	<b>redistribute maximum-prefix</b> <i>maximum</i> [ <i>threshold</i> ] <b>warning-only</b> <b>Example:</b> <pre>Router(config-router)# redistribute maximum-prefix 1000 80 warning-only</pre>	Causes a warning message to be logged when the maximum number of IP prefixes has been redistributed into OSPF. <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 OSPF.</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 6</b>	<b>end</b> <b>Example:</b>	Exits router configuration mode.

	Command or Action	Purpose
	Router(config-router)# end	

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

### Example OSPF Limit the Number of Redistributed Routes

This example sets a maximum of 1200 prefixes that can be redistributed into OSPF 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.

```
router ospf 1
router-id 10.0.0.1
domain-id 5.6.7.8
log-adjacency-changes
timers lsa-interval 2
network 10.0.0.1 0.0.0.0 area 0
network 10.1.5.1 0.0.0.0 area 0
network 10.2.2.1 0.0.0.0 area 0
redistribute static
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.

```
router ospf 1
network 10.0.0.0 0.0.0.255 area 0
redistribute eigrp 10
redistribute maximum-prefix 600 85 warning-only
```

## Additional References

### Related Documents

Related Topic	Document Title
Cisco IOS commands	<a href="#">Cisco IOS Master Commands List, All Releases</a>
OSPF commands	<i>Cisco IOS IP Routing: OSPF Command Reference</i>
OSPFv3 Address Families	<i>OSPFv3 Address Families</i> module

**Standards**

Standards	Title
No new or modified standards are supported by this feature, and support for existing standards has not been modified by this feature.	—

**MIBs**

MIBs	MIBs Link
No new or modified MIBs are supported by this feature, and support for existing MIBs has not been modified by this feature.	To locate and download MIBs for selected platforms, Cisco software releases, and feature sets, use Cisco MIB Locator found at the following URL:  <a href="http://www.cisco.com/go/mibs">http://www.cisco.com/go/mibs</a>

**RFCs**

RFCs	Title
RFC 5187.	<i>OSPFv3 Graceful Restart</i>

**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.	<a href="http://www.cisco.com/cisco/web/support/index.html">http://www.cisco.com/cisco/web/support/index.html</a>

## Feature Information for OSPF 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.

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](http://www.cisco.com/go/cfn). An account on Cisco.com is not required.

*Table 1: Feature Information for OSPF Limit on Number of Redistributed Routes*

Feature Name	Releases	Feature Information
OSPF Limit on Number of Redistributed Routes	Cisco IOS XE Release 2.1 Cisco IOS XE Release 2.6	<p>OSPF supports a user-defined maximum number of prefixes (routes) that are allowed to be redistributed into OSPF from other protocols or other OSPF processes. Such a limit could help prevent the router from being flooded by too many redistributed routes.</p> <p>The following commands are introduced or modified in the feature documented in this module:</p> <ul style="list-style-type: none"><li>• <b>redistribute maximum-prefix</b></li><li>• <b>show ip ospf</b></li><li>• <b>show ip ospf database</b></li></ul>

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

Feature Name	Releases	Feature Information
OSPF Limit on Number of Redistributed Routes	Cisco IOS XE Release 17.4	This feature was introduced.

