



# R Commands

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This chapter describes the Cisco NX-OS Open Shortest Path First (OSPF) commands that begin with R.

# redistribute (OSPF)

To inject routes from one routing domain into Open Shortest Path First (OSPF), use the **redistribute** command. To remove the **redistribute** command from the configuration file and restore the system to its default condition in which the software does not redistribute routes, use the **no** form of this command.

**redistribute** { **bgp** *as-number* | **direct** | **eigrp** *id* | **ospf** *instance-tag* | **rip** *instance-tag* | **static** }  
[**route-map** *map-name*]

**no redistribute** { **bgp** *as-number* | **direct** | **eigrp** *as-number* | **ospf** *instance-tag* | **rip** *instance-tag* | **static** }

Syntax Description		
<b>bgp</b> <i>as-number</i>		Distributes routes from Border Gateway Protocol (BGP). The <i>as-number</i> is a 2-byte or 4-byte autonomous system number. The range for 2-byte numbers is from 1 to 65535. The range for 4-byte numbers is from 1 to 4294967295.
<b>direct</b>		Distributes routes that are directly connected on an interface.
<b>eigrp</b> <i>id</i>		Distributes routes from EIGRP. The <i>id</i> argument can be any case-sensitive, alphanumeric string.
<b>ospf</b> <i>instance-tag</i>		Distributes routes from the OSPF protocol. This protocol is supported in the IPv4 address family. The <i>instance-tag</i> argument can be any case-sensitive, alphanumeric string of up to 20 characters.
<b>rip</b> <i>instance-tag</i>		Distributes routes from the RIP protocol. The <i>instance-tag</i> can be a maximum of 20 alphanumeric characters.
<b>static</b>		Redistributes IP static routes, including the default static route.
<b>route-map</b> <i>map-name</i>		(Optional) Specifies the identifier of a configured route map. Use a route map to filter which routes are redistributed into EIGRP. The <i>map-name</i> argument can be a maximum of 63 alphanumeric characters.

**Command Default** Route redistribution is disabled.

**Command Modes** Router configuration mode  
VRF configuration mode

Command History	Release	Modification
	5.2(1)N1(1)	This command was introduced.

**Usage Guidelines** Use the **redistribute** command to import routes from other routing protocols into OSPF. You should always use a route map to filter these routes to ensure that OSPF redistributes only the routes that you intend.

You must configure a default metric to redistribute routes from another protocol into OSPF. You can configure the default metric with the **default-metric** command or with the route map configured with the **redistribute** command.

**Note**

If you redistribute static routes, Cisco NX-OS also redistributes the default static route.

This command requires the LAN Base Services license.

**Examples**

This example shows how to redistribute BGP routes into an OSPF autonomous system:

```
switch(config)# router ospf 209
switch(config-router)# redistribute bgp 64496
switch(config-router)#
```

**Related Commands**

Command	Description
<b>copy running-config startup-config</b>	Saves the configuration changes to the startup configuration file.
<b>default-metric (OSPF)</b>	Sets the default metrics for routes redistributed into OSPF.
<b>show ip ospf</b>	Displays OSPF information.

# redistribute maximum-prefix (OSPF)

To limit the number of routes redistributed into Open Shortest Path First (OSPF), use the **redistribute maximum-prefix** command. To return to the default setting, use the **no** form of this command.

**redistribute maximum-prefix** *max* [*threshold*] [**warning-only** | **withdraw** [*num-retries* *timeout*]]

**no redistribute maximum-prefix** *max* [*threshold*] [**warning-only** | **withdraw** [*num-retries* *timeout*]]

<b>Syntax Description</b>	<i>max</i>	Maximum number of prefixes that OSPF will distribute. The range is from 0 to 65535.
	<i>threshold</i>	(Optional) Percentage of maximum prefixes that triggers a warning message. The range is from 1 to 100. The default is 75 percent.
	<b>warning-only</b>	(Optional) Logs a warning message when the maximum number of prefixes is exceeded.
	<b>withdraw</b>	(Optional) Withdraws all redistributed routes.
	<i>num-retries</i>	(Optional) Number of times OSPF tries to retrieve the redistributed routes. The range is from 1 to 12. The default is 1.
	<i>timeout</i>	(Optional) Time between retry attempts. The range is from 60 to 600 seconds. The default is 300.

**Command Default** No limit

**Command Modes** Router configuration mode  
VRF configuration mode

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	5.2(1)N1(1)	This command was introduced.

**Usage Guidelines** Use the **clear ip ospf redistribute** command if all routes are withdrawn.  
This command requires the LAN Base Services license.

**Examples** This example shows how to limit the number of redistributed routes into OSPF:

```
switch# configure terminal
switch(config)# router ospf 201
switch(config-router)# redistribute bgp route-map FilterExternalBGP
switch(config-router)# redistribute maximum-prefix 1000 75
```

Related Commands	Command	Description
	<b>copy running-config startup-config</b>	Saves the configuration changes to the startup configuration file.
	<b>show ip ospf</b>	Displays OSPF information.
	<b>show running-config ospf</b>	Displays the OSPF running configuration.

# restart (OSPF)

To restart an Open Shortest Path First version 2 (OSPFv2) instance and remove all associated neighbors, use the **restart** command.

**restart ospf** *instance-tag*

## Syntax Description

<i>instance-tag</i>	Internally used identification parameter for an OSPF routing instance. It is locally assigned and can be any word or positive integer. The <i>instance-tag</i> argument can be a maximum of 20 alphanumeric characters.
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## Command Default

None

## Command Modes

Global configuration mode

## Command History

Release	Modification
5.2(1)N1(1)	This command was introduced.

## Usage Guidelines

This command requires the LAN Base Services license.

## Examples

This example shows how to restart the OSPFv2 instance and remove all neighbors:

```
switch(config)# restart ospf 12
switch(config)#
```

## Related Commands

Command	Description
<b>show ip ospf</b>	Displays OSPF information.

## retransmit-interval (OSPF virtual link)

To specify the time between link-state advertisement (LSA) retransmissions for adjacencies that belong to the virtual link, use the **retransmit-interval** command. To return to the default, use the **no** form of this command.

**retransmit-interval** *seconds*

**retransmit-interval**

<b>Syntax Description</b>	<i>seconds</i>	Time (in seconds) between retransmissions. The time must be greater than the expected round-trip delay between any two routers on the attached network. The range is from 1 to 65535 seconds. The default is 5 seconds.
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<b>Command Default</b>	5 seconds
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<b>Command Modes</b>	Virtual-link configuration mode
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	5.2(1)N1(1)	This command was introduced.

<b>Usage Guidelines</b>	Use this command to set the LSA retransmission time. If a router receives no acknowledgment that an LSA was received, the router resends the LSA at the retransmission interval.
	You should set this value larger for virtual links.
	This command requires the LAN Base Services license.

<b>Examples</b>	This example shows how to set the retransmit interval value to 8 seconds:
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```
switch(config)# router ospf 109
switch(config-router)# area 33 virtual-link 192.0.2.2
switch(config-router-vrf)# retransmit-interval 8
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>area virtual-link</b>	Creates a virtual link in an OSPF area.

# rfc1583compatibility

To configure RFC 1583 compatibility as the method used to calculate summary route costs, use the **rfc1583compatibility** command. To disable RFC 1583 compatibility, use the **no** form of this command.

**rfc1583compatibility**

**no rfc1583compatibility**

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**Syntax Description** This command has no arguments or keywords.

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**Command Default** RFC 1583 compatibility is disabled.

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**Command Modes** Router configuration mode

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Command History	Release	Modification
	5.2(1)N1(1)	This command was introduced.

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**Usage Guidelines** To minimize the chance of routing loops, all Open Shortest Path First (OSPF) routers in an OSPF routing domain should have RFC compatibility set identically.

Because of the introduction of RFC 2328, OSPF Version 2, the method used to calculate summary route costs has changed. Use the **no rfc1583compatibility** command to enable the calculation method used per RFC 2328.

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**Examples** This example specifies that the router process is compatible with RFC 1583:

```
switch# configure terminal
Enter configuration commands, one per line. End with CNTL/Z.
switch(config)# router ospf 2
switch(config-router)# rfc1583compatibility
```

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Related Commands	Command	Description
	<b>show ip ospf</b>	Displays general information about OSPF routing instances.

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# router ospf

To configure an Open Shortest Path First (OSPF) routing instance, use the **router ospf** command. To terminate an OSPF routing process, use the **no** form of this command.

**router ospf** *instance-tag*

**no router ospf** *instance-tag*

<b>Syntax Description</b>	<i>instance-tag</i>	Internally used identification parameter for an OSPF routing instance. It is locally assigned and can be any word or positive integer. The <i>instance-tag</i> argument can be a maximum of 20 alphanumeric characters.
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<b>Command Default</b>	No OSPF routing instance is defined.
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<b>Command Modes</b>	Global configuration mode
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	5.2(1)N1(1)	This command was introduced.

<b>Usage Guidelines</b>	Use the <b>router ospf</b> command to specify multiple OSPF routing instances in each router. This command requires the LAN Base Services license.
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<b>Examples</b>	This example shows how to configure a basic OSPF instance:
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```
switch(config)# router ospf 12
switch(config-router)#
```

This example shows how to delete an OSPF instance:

```
switch(config)# no router ospf 12
switch(config)#
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>copy running-config startup-config</b>	Saves the configuration changes to the startup configuration file.
	<b>show ip ospf</b>	Displays OSPF information.

## router-id (OSPF)

To use a fixed router ID for an Open Shortest Path First (OSPF) instance, use the **router-id** command. To revert to the previous OSPF router ID behavior, use the **no** form of this command.

**router-id** *ip-address*

**no router-id** *ip-address*

<b>Syntax Description</b>	<i>ip-address</i> Router ID in IP address format.	
<b>Command Default</b>	If this command is not configured, OSPF chooses an IPv4 address as the router ID from one of its interfaces.	
<b>Command Modes</b>	Global configuration mode	
<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	5.2(1)N1(1)	This command was introduced.
<b>Usage Guidelines</b>	<p>Use the <b>router-id</b> command to manually specify a unique 32-bit numeric value for the router ID. This action ensures that EIGRP can function regardless of the interface address configuration.</p> <p>If this command is used on an OSPF instance that has neighbors, OSPF uses the new router ID at the next reload or at a restart of OSPF.</p> <p>This command requires the LAN Base Services license.</p>	
<b>Examples</b>	<p>This example shows how to configure the router ID:</p> <pre>switch(config)# <b>router ospf</b> 12 switch(config-router)# <b>router-id</b> 192.0.2.1</pre>	
<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>router ospf</b>	Configures the OSPF routing process.