R Commands

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

bgp *as-number*	Distributes routes from Border Gateway Protocol (BGP). The *as-number* 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.
direct	Distributes routes that are directly connected on an interface.
eigrp *id*	Distributes routes from EIGRP. The *id* argument can be any case-sensitive, alphanumeric string.
ospf *instance-tag*	Distributes routes from the OSPF protocol. This protocol is supported in the IPv4 address family. The *instance-tag* argument can be any case-sensitive, alphanumeric string of up to 20 characters.
rip *instance-tag*	Distributes routes from the RIP protocol. The *instance-tag* can be a maximum of 20 alphanumeric characters.
static	Redistributes IP static routes, including the default static route.
route-map *map-name*	(Optional) Specifies the identifier of a configured route map. Use a route map to filter which routes are redistributed into EIGRP. The *map-name* 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
witch(config-router)#
```

Related Commands

Command	Description
copy running-config startup-config	Saves the configuration changes to the startup configuration file.
default-metric (OSPF)	Sets the default metrics for routes redistributed into OSPF.
show ip ospf	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*]

Syntax Description

max	Maximum number of prefixes that OSPF will distribute. The range is from 0 to 65535.
threshold	(Optional) Percentage of maximum prefixes that triggers a warning message. The range is from 1 to 100. The default is 75 percent.
warning-only	(Optional) Logs a warning message when the maximum number of prefixes is exceeded.
widthdraw	(Optional) Withdraws all redistributed routes.
num-retries	(Optional) Number of times OSPF tries to retrieve the redistributed routes. The range is from 1 to 12. The default is 1.
timeout	(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

Command History

Release	Modification
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
copy running-config startup-config	Saves the configuration changes to the startup configuration file.
show ip ospf	Displays OSPF information.
show running-config ospf	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

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

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
show ip ospf	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

Syntax Description

seconds	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.

Command Default

5 seconds

Command Modes

Virtual-link configuration mode

Command History

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

Usage Guidelines

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.

Examples

This example shows how to set the retransmit interval value to 8 seconds:

```
switch(config)# router ospf 109
switch(config-router)# area 33 virtual-link 192.0.2.2
switch(config-router-vrf)# retransmit-interval 8
```

Related Commands

Command	Description
area virtual-link	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

Syntax Description

This command has no arguments or keywords.

Command Default

RFC 1583 compatibility is disabled.

Command Modes

Router configuration mode

Command History

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

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.

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
```

Related Commands

Command	Description
show ip ospf	Displays general information about OSPF routing instances.

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*

Syntax Description

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

Command Default

No OSPF routing instance is defined.

Command Modes

Global configuration mode

Command History

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

Usage Guidelines

Use the **router ospf** command to specify multiple OSPF routing instances in each router.

This command requires the LAN Base Services license.

Examples

This example shows how to configure a basic OSPF instance:

```
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)#
```

Related Commands

Command	Description
copy running-config startup-config	Saves the configuration changes to the startup configuration file.
show ip ospf	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*

Syntax Description

ip-address	Router ID in IP address format.

Command Default

If this command is not configured, OSPF chooses an IPv4 address as the router ID from one of its interfaces.

Command Modes

Global configuration mode

Command History

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

Usage Guidelines

Use the **router-id** 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.

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.

This command requires the LAN Base Services license.

Examples

This example shows how to configure the router ID:

```
switch(config)# router ospf 12
switch(config-router)# router-id 192.0.2.1
```

Related Commands

Command	Description
router ospf	Configures the OSPF routing process.