



# O Commands

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This chapter describes the Cisco NX-OS unicast routing commands that begin with the letter O.

# object

o specify an object for a tracked list, use the **object** command. To remove the object from the tracked list, use the **no** form of this command.

**object** *object-number* [**not**] [**weight** *weight-number*]

**no object** *object-number*

<b>Syntax Description</b>	<b>not</b>	(Optional) Negates the state of an object.
	<b>Note</b>	The <b>not</b> keyword cannot be used in a weight or percentage threshold list. It can only be used in a Boolean list.
	<b>weight</b> <i>weight-number</i>	(Optional) Specifies a threshold weight for each object.

**Defaults** None

**Command Modes** tracking configuration

**Supported Use Roles** network-admin  
vdc-admin

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
		4.2(1)

**Usage Guidelines** You can configure an object track list that contains multiple tracked objects. A tracked list contains one or more objects.

The Boolean expression enables two types of calculation by using either “and” or “or” operators.

You can also configure an object track list that contains a percentage threshold. The percentage of up objects must exceed the configured track list up percent threshold before the track list is in an up state. For example, if the tracked list has three objects, and you configure an up threshold of 60%, two of the objects must be in the up state (66% of all objects) for the track list to be in the up state.

You can also configure an object track list that contains a weight threshold. A tracked list contains one or more objects. The combined weight of up objects must exceed the configured track list up weight threshold before the track list is in an up state. For example, if the tracked list has three objects with the default weight of 10 each, and you configure an up threshold of 15, two of the objects must be in the up state (combined weight of 20) for the track list to be in the up state.

This command does not require a license.

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**Examples**

This example shows how to configure a track list with an up weight threshold of 30 and a down threshold of 10:

```
switch(config)# track 1 list threshold weight
switch(config-track)# threshold weight up 30 down 10
switch(config-track)# object 10 weight 15
switch(config-track)# object 20 weight 15
switch(config-track)# object 30
```

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**Related Commands**

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Command	Description
<b>track list</b>	Configures a track list for object tracking.

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## ospfv3 authentication ipsec

To enable authentication of OSPFv3 packets for a particular interface, use the **ospfv3 authentication ipsec** command at the interface level. To disable the authentication of OSPFv3 packets, use the **no** form of this command.

**ospfv3 authentication ipsec spi spi auth [0|3|7] key**

**no ospfv3 authentication ipsec spi spi**

### Syntax Description

<b>spi</b>	Specifies the Security Policy Index.
<i>spi</i>	Value of <b>spi</b> . It ranges from 256 to 4294967295.
<i>auth</i>	Authentication algorithm. Its value can be md1 / sha1 / null.
<i>key</i>	Authentication password.
<b>0</b>	Specifies that the authentication password is unencrypted.
<b>3</b>	Specifies that the authentication password is 3DES encrypted.
<b>7</b>	Specifies that the authentication password is Cisco type 7 encrypted.

### Defaults

The OSPFv3 packets are not authenticated by default.

### Command Modes

Interface configuration (config-if).

### Command History

Release	Modification
7.3(0)D1(1)	This command was introduced.

### Usage Guidelines

Before running this command, ensure that you have enabled the authentication package with the **feature imp** command.

### Examples

The following example shows how to authenticate OSPFv3 packets at the ethernet interface 2/1:

```
switch# configure terminal
switch(config)# feature imp
switch(config)# interface ethernet 2/1
switch(config-if)# ipv6 router ospfv3 1
switch(config-if)# ospfv3 authentication ipsec spi 301 md5 1234
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>area authentication ipsec</b>	Enables authentication of the OSPFv3 packets for all interfaces under the area.
	<b>authentication ipsec</b>	Enables authentication of the OSPFv3 packets at the router level.

## ospfv3 cost

To specify the cost of sending a packet on an interface, use the **ospfv3 cost** command. To reset the path cost to the default, use the **no** form of this command.

**ospfv3 cost** *interface-cost*

**no ospfv3 cost** *interface-cost*

<b>Syntax Description</b>	<i>interface-cost</i>	Unsigned integer value expressed as the link-state metric. The range is from 1 to 65535.
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<b>Defaults</b>	Calculates the cost based on the reference bandwidth divided by the configured interface bandwidth. You can configure the reference bandwidth or it defaults to 40 Gb/s.
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<b>Command Modes</b>	Interface configuration
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<b>Supported Use Roles</b>	network-admin vdc-admin
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	4.0(1)	This command was introduced.

<b>Usage Guidelines</b>	Use the <b>ospfv3 cost</b> command to configure the cost metric manually for each interface. This command overrides any settings for the reference bandwidth that you set using the <b>auto-cost</b> command in router configuration mode.
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If this command is not used, the link cost is calculated using the following formula:

$$\text{link cost} = \text{reference bandwidth} / \text{interface bandwidth}$$

This command requires the Enterprise Services license.

<b>Examples</b>	This example shows how to configure the interface cost value to 65:
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```
switch(config)# interface ethernet 1/2
switch(config-if)# ospfv3 cost 65
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>auto-cost (OSPFv3)</b>	Specifies the reference bandwidth that OSPFv3 uses to calculate the link cost.

# ospfv3 dead-interval

To set the interval during which at least one hello packet must be received from a neighbor before the router declares that neighbor as down, use the **ospfv3 dead-interval** command. To restore the default, use the **no** form of this command.

**ospfv3 dead-interval** *seconds*

**no ospfv3 dead-interval**

<b>Syntax Description</b>	<i>seconds</i>	Interval (in seconds) during which the router must receive at least one hello packet from a neighbor or that neighbor adjacency is removed from the local router and does not participate in routing. The range is from 1 to 65535. The value must be the same for all nodes on the network.
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**Defaults** The default for *seconds* is four times the interval set by the **ospfv3 hello-interval** command.

**Command Modes** Interface configuration

**Supported User Roles** network-admin  
vdc-admin

<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	4.0(1)	This command was introduced.

**Usage Guidelines** Use the **ospfv3 dead-interval** command to set the dead interval that OSPFv3 advertises in hello packets. This value must be the same for all networking devices on a specific network.

Configure a shorter dead interval to detect down neighbors faster and improve convergence. Very short dead intervals could cause routing instability.

Use the **show ospfv3 interface** command to verify the dead interval and hello interval.

This command requires the Enterprise Services license.

**Examples** This example shows how to set the OSPFv3 dead interval to 20 seconds:

```
switch(config)# interface ethernet 1/2
switch(config-if)# ospfv3 dead-interval 20
```

## ■ ospfv3 dead-interval

Related Commands	Command	Description
	<b>ospfv3 hello-interval</b>	Interval between hello packets that OSPFv3 sends on the interface.
	<b>show ospfv3 interface</b>	Displays OSPFv3-related information.

# ospfv3 hello-interval

To specify the interval between hello packets that Open Shortest Path First version 3 (OSPFv3) sends on the interface, use the **ospfv3 hello-interval** command. To return to the default, use the **no** form of this command.

**ospfv3 hello-interval** *seconds*

**no ospfv3 hello-interval**

<b>Syntax Description</b>	<i>seconds</i>	Specifies the interval (in seconds). The value must be the same for all nodes on a specific network. The range is from 1 to 65535.
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<b>Defaults</b>	10 seconds
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<b>Command Modes</b>	Interface configuration
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<b>Supported User Roles</b>	network-admin vdc-admin
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	4.0(1)	This command was introduced.

<b>Usage Guidelines</b>	<p>Use the <b>ospfv3 hello-interval</b> command to set the rate at which OSPFv3 advertises hello packets. Shorter hello intervals allow OSPFv3 to detect topological changes faster. This value must be the same for all routers and access servers on a specific network.</p> <p>This command requires the Enterprise Services license.</p>
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<b>Examples</b>	This example shows how to set the interval between hello packets to 15 seconds:
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```
switch(config)# interface ethernet 1/2
switch(config-if)# ospfv3 hello-interval 15
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>ospfv3 dead-interval</b>	Sets the time period for which hello packets must not have been seen before neighbors declare the router as down.

## ospfv3 mtu-ignore

To disable Open Shortest Path First version 3 (OSPFv3) maximum transmission unit (MTU) mismatch detection on received Database Descriptor (DBD) packets, use the **ospfv3 mtu-ignore** command. To return to the default, use the **no** form of this command.

**ospfv3 mtu-ignore**

**no ospfv3 mtu-ignore**

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

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**Defaults** OSPFv3 MTU mismatch detection is enabled.

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**Command Modes** Interface configuration

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**Supported Use Roles** network-admin  
vdc-admin

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Command History	Release	Modification
	4.0(1)	This command was introduced.

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**Usage Guidelines** Use the **ospfv3 mtu-ignore** command to disable MTU mismatch detection on an interface. By default, OSPFv3 checks whether neighbors are using the same MTU on a common interface. If the receiving MTU is higher than the IP MTU configured on the incoming interface, OSPFv3 does not establish adjacencies. Use the **ospfv3 mtu-ignore** command to disable this check and allow adjacencies when the MTU value differs between OSPFv3 neighbors.

This command requires the Enterprise Services license.

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**Examples** This example shows how to disable MTU mismatch detection on received DBD packets:

```
switch(config)# interface ethernet 1/2
switch(config-if)# ospfv3 mtu-ignore
```

## ospfv3 network

To configure the Open Shortest Path First version 3 (OSPFv3) network type to a type other than the default for an interface, use the **ospfv3 network** command. To return to the default, use the **no** form of this command.

```
ospfv3 network {broadcast | point-to-point}
```

```
no ospfv3 network
```

Syntax Description	Command	Description
	<b>broadcast</b>	Sets the network type as broadcast.
	<b>point-to-point</b>	Sets the network type as point-to-point.

**Defaults** Depends on the network type.

**Command Modes** Interface configuration

**Supported User Roles** network-admin  
vdc-admin

Command History	Release	Modification
	4.0(1)	This command was introduced.

**Usage Guidelines** The network type influences the behavior of the OSPF interface. OSPF network type is usually broadcast, which uses OSPF multicasting capabilities. Under this network type a designated router and backup designated router are elected. For point-to-point networks there are only two neighbors and multicast is not required. For routers on an interface to become neighbors the network type for all should match.

This command requires the Enterprise Services license.

**Examples** This example shows how to set an OSPFv3 network as a broadcast network:

```
switch(config)# interface ethernet 1/2
switch(config-if)# ipv6 address 2001:0DB8::1/8
switch(config-if)# ospfv3 network broadcast
```

# ospfv3 passive-interface

To suppress Open Shortest Path First version 3 (OSPFv3) routing updates on an interface, use the **ospfv3 passive-interface** command. To return to the default, use the **no** form of this command.

**ospfv3 passive-interface**

**no ospfv3 passive-interface**

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

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**Defaults** Disabled

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**Command Modes** Interface configuration

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**Supported Use Roles** network-admin  
vdc-admin

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Command History	Release	Modification
	4.0(1)	This command was introduced.

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**Usage Guidelines** If an interface is configured as passive-interface it does not participate in the OSPF protocol and will not establish adjacencies or send routing updates. However the interface is announced as part of the routing network.

This command requires the Enterprise Services license.

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**Examples** This example shows how to set an interface as passive:

```
switch(config)# interface ethernet 1/2
switch(config-if)# ospfv3 passive-interface
```

# ospfv3 priority

To set the router priority for an Open Shortest Path First version 3 (osPFv3) interface, use the **ospfv3 priority** command. To return to the default, use the **no** form of this command.

**ospfv3 priority** *number-value*

**no ospfv3 priority** *number-value*

<b>Syntax Description</b>	<i>number-value</i>	Number value that specifies the priority of the router. The range is from 0 to 255.
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<b>Defaults</b>	Priority of 1
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<b>Command Modes</b>	Interface configuration
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<b>Supported User Roles</b>	network-admin vdc-admin
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	4.0(1)	This command was introduced.

<b>Usage Guidelines</b>	Use the <b>ospfv3 priority</b> command to set the router priority, which determines the designated router for this network. When two routers are attached to a network, both attempt to become the designated router. The router with the higher router priority takes precedence. If there is a tie, the router with the higher router ID takes precedence. A router with a router priority set to zero cannot become the designated router or backup designated router.
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This command requires the Enterprise Services license.

<b>Examples</b>	This example shows how to set the router priority value to 4:
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```
switch(config)# interface ethernet 1/2
switch(config-if)# ospfv3 priority 4
```

<b>Related Commands</b>	<b>Command</b>	<b>Description</b>
	<b>ospfv3 network</b>	Configures the OSPFv3 network type to a type other than the default for a given medium.

# ospfv3 retransmit-interval

To specify the time between Open Shortest Path First version 3 (OSPFv3) link-state advertisement (LSA) retransmissions for adjacencies belonging to the interface, use the **ospfv3 retransmit-interval** command. To return to the default, use the **no** form of this command.

**ospfv3 retransmit-interval** *seconds*

**no ospfv3 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>Defaults</b>	5 seconds
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<b>Command Modes</b>	Interface configuration
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<b>Supported User Roles</b>	network-admin vdc-admin
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	4.0(1)	This command was introduced.

<b>Usage Guidelines</b>	Use the <b>ospfv3 retransmit-interval</b> command to set the time between LSA retransmissions. When a router sends an LSA to its neighbor, it keeps the LSA until it receives an acknowledgment message from the neighbor. If the router receives no acknowledgment within the retransmit interval, the local router resends the LSA.
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This command requires the Enterprise Services license.

<b>Examples</b>	This example shows how to set the retransmit interval value to 8 seconds:
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```
switch(config)# interface ethernet 1/2
switch(config-if)# ospfv3 retransmit-interval 8
```

# ospfv3 shutdown

To shut down an Open Shortest Path First version 3 (OSPFv3) interface, use the **ospfv3 shutdown** command. To return to the default, use the **no** form of this command.

**ospfv3 shutdown**

**no ospfv3 shutdown**

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

---

**Defaults** None

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**Command Modes** Interface configuration

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**Supported Use Roles** network-admin  
vdc-admin

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Command History	Release	Modification
	4.0(1)	This command was introduced.

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**Usage Guidelines** Use the **ospfv3 shutdown** command to shut down OSPFv3 on this interface. This command requires the Enterprise Services license.

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**Examples** This example shows how to shut down OSPFv3 on an interface:

```
switch(config)# interface ethernet 1/2
switch(config-if)# ospfv3 shutdown
```

# ospfv3 transmit-delay

To set the estimated time required to send an Open Shortest Path First version 3 (OSPFv3) link-state update packet on the interface, use the **ospfv3 transmit-delay** command. To return to the default, use the **no** form of this command.

**ospfv3 transmit-delay** *seconds*

**no ospfv3 transmit-delay**

<b>Syntax Description</b>	<i>seconds</i>	Time (in seconds) required to send a link-state update. The range is from 1 to 450 seconds.
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<b>Defaults</b>	1 second
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<b>Command Modes</b>	Interface configuration
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<b>Supported User Roles</b>	network-admin vdc-admin
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<b>Command History</b>	<b>Release</b>	<b>Modification</b>
	4.0(1)	This command was introduced.

**Usage Guidelines** Use the **ospfv3 transmit-delay** command to set the estimated time needed to send an LSA update packet. OSPFv3 increments the LSA age time by transmit delay amount before transmitting the LSA update. You should take into account the transmission and propagation delays for the interface when you set this value.

This command requires the Enterprise Services license.

**Examples** This example shows how to set the transmit delay value to 8 seconds:

```
switch(config)# interface ethernet 1/2
switch(config-if)# ospfv3 transmit-delay 8
```

