



OSPFv3 Address Families

The Open Shortest Path First version 3 (OSPFv3) address families feature enables both IPv4 and IPv6 unicast traffic to be supported. With this feature, users may have two processes per interface, but only one process per address family (AF).

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Finding Feature Information

Your software release may not support all the features documented in this module. For the latest caveats and feature information, see [Bug Search Tool](#) and the release notes for your platform and software release. To find information about the features documented in this module, and to see a list of the releases in which each feature is supported, see the feature information table.

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. An account on Cisco.com is not required.

Prerequisites for OSPFv3 Address Families

- To use the IPv4 unicast address families (AF) in OSPFv3, you must enable IPv6 on a link, although the link may not be participating in IPv6 unicast AF.
- With the OSPFv3 Address Families feature, users may have two processes per interface, but only one process per AF. If the AF is IPv4, an IPv4 address must first be configured on the interface, but IPv6 must be enabled on the interface.

Information About OSPFv3 Address Families

OSPFv3 Address Families

The OSPFv3 address families feature enables both IPv4 and IPv6 unicast traffic to be supported. With this feature, you may have two device processes per interface, but only one process per AF. If the IPv4 AF is used, an IPv4 address must first be configured on the interface, but IPv6 must be enabled on the interface. A single IPv4 or IPv6 OSPFv3 process running multiple instances on the same interface is not supported.

If you have an IPv6 network that uses OSPFv3 as its Interior Gateway Protocol (IGP) you may want to use the same IGP to help carry and install IPv4 routes. All devices on this network have an IPv6 forwarding stack. Some (or all) of the links on this network may be allowed to do IPv4 forwarding and be configured with IPv4 addresses. Pockets of IPv4-only devices exist around the edges running an IPv4 static or dynamic routing protocol. In this scenario, you need the ability to forward IPv4 traffic between these pockets without tunneling overhead, which means that any IPv4 transit device has both IPv4 and IPv6 forwarding stacks (that is, dual stack).

This feature allows a separate (possibly incongruent) topology to be constructed for the IPv4 AF. It installs IPv4 routes in the IPv4 Routing Information Base (RIB), and then the forwarding occurs natively. The OSPFv3 process fully supports an IPv4 AF topology and can redistribute routes from and into any other IPv4 routing protocol.

An OSPFv3 process can be configured to be either IPv4 or IPv6. The **address-family** command is used to determine which AF will run in the OSPFv3 process, and only one address family can be configured per instance. Once the AF is selected, you can enable multiple instances on a link and enable address-family-specific commands.

Different instance ID ranges are used for each AF. Each AF establishes different adjacencies, has a different link state database, and computes a different shortest path tree. The AF then installs the routes in the AF-specific RIB. LSAs that carry IPv6 unicast prefixes are used without any modification in different instances to carry each AF's prefixes.

The IPv4 subnets configured on OSPFv3-enabled interfaces are advertised through intra-area prefix LSAs, just as any IPv6 prefixes. External LSAs are used to advertise IPv4 routes redistributed from any IPv4 routing protocol, including connected and static. The IPv4 OSPFv3 process runs the Shortest Path First (SPF) calculations and finds the shortest path to those IPv4 destinations. These computed routes are then inserted in the IPv4 RIB (computed routes are inserted into an IPv6 RIB for an IPv6 AF).

Because the IPv4 OSPFv3 process allocates a unique pdbindex in the IPv4 RIB, all other IPv4 routing protocols can redistribute routes from it. The parse chain for all protocols is the same, so the **ospfv3** keyword added to the list of IPv4 routing protocols causes OSPFv3 to appear in the **redistribute** command from any IPv4 routing protocol. With the **ospfv3** keyword, IPv4 OSPFv3 routes can be redistributed into any other IPv4 routing protocol as defined in the **redistribute ospfv3** command.

The OSPFv3 address families feature is supported as of Cisco IOS Release 15.1(3)S and Cisco IOS Release 15.2(1)T. Cisco devices that run software older than these releases and third-party devices will not neighbor with devices running the AF feature for the IPv4 AF because they do not set the AF bit. Therefore, those devices will not participate in the IPv4 AF SPF calculations and will not install the IPv4 OSPFv3 routes in the IPv6 RIB.

How to Configure OSPFv3 Address Families

Configuring the OSPFv3 Device Process

Once you have completed step 3 and entered OSPFv3 router configuration mode, you can perform any of the subsequent steps in this task as needed to configure OSPFv3 Device configuration.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **router ospfv3** [*process-id*]
4. **area** *area-ID* [**default-cost** | **nssa** | **stub**]
5. **auto-cost reference-bandwidth** *Mbps*
6. **default** {*area area-ID* [**range** *ipv6-prefix* | **virtual-link** *router-id*]} [**default-information originate** [**always** | **metric** | **metric-type** | **route-map**] | **distance** | **distribute-list** *prefix-list prefix-list-name* {**in** | **out**} [*interface*] | **maximum-paths** *paths* | **redistribute protocol** | **summary-prefix** *ipv6-prefix*]
7. **ignore-lsa mospf**
8. **interface-id snmp-if-index**
9. **log-adjacency-changes** [**detail**]
10. **passive-interface** [**default** | *interface-type interface-number*]
11. **queue-depth** {**hello** | **update**} {*queue-size* | **unlimited**}
12. **router-id** *router-id*

DETAILED STEPS

	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 [<i>process-id</i>] Example: Device(config)# router ospfv3 1	Enters router configuration mode for the IPv4 or IPv6 address family.

	Command or Action	Purpose
Step 4	area <i>area-ID</i> [default-cost nssa stub] Example: Device(config-router)# area 1	Configures the OSPFv3 area.
Step 5	auto-cost reference-bandwidth <i>Mbps</i> Example: Device(config-router)# auto-cost reference-bandwidth 1000	Controls the reference value OSPFv3 uses when calculating metrics for interfaces in an IPv4 OSPFv3 process.
Step 6	default { area <i>area-ID</i> [range <i>ipv6-prefix</i> virtual-link <i>router-id</i>]} [default-information originate [always metric metric-type route-map] distance distribute-list <i>prefix-list prefix-list-name</i> { in out } [<i>interface</i>] maximum-paths <i>paths</i> redistribute <i>protocol</i> summary-prefix <i>ipv6-prefix</i>] Example: Device(config-router)# default area 1	Returns an OSPFv3 parameter to its default value.
Step 7	ignore lsa mospf Example: Device(config-router)# ignore lsa mospf	Suppresses the sending of syslog messages when the device receives LSA Type 6 multicast OSPFv3 packets, which are unsupported.
Step 8	interface-id snmp-if-index Example: Device(config-router)# interface-id snmp-if-index	Configures OSPFv3 interfaces with Simple Network Management Protocol (SNMP) MIB-II interface Index (ifIndex) identification numbers in IPv4 and IPv6.
Step 9	log-adjacency-changes [detail] Example: Device(config-router)# log-adjacency-changes	Configures the device to send a syslog message when an OSPFv3 neighbor goes up or down.
Step 10	passive-interface [default <i>interface-type interface-number</i>] Example: Device(config-router)# passive-interface default	Suppresses sending routing updates on an interface when an IPv4 OSPFv3 process is used.

	Command or Action	Purpose
Step 11	queue-depth {hello update} { <i>queue-size</i> unlimited} Example: Device(config-router)# queue-depth update 1500	Configures the number of incoming packets that the IPv4 OSPFv3 process can keep in its queue.
Step 12	router-id <i>router-id</i> Example: Device(config-router)# router-id 10.1.1.1	Enter this command to use a fixed router ID.

Configuring the IPv6 Address Family in OSPFv3

Perform this task to configure the IPv6 address family in OSPFv3. Once you have completed step 4 and entered IPv6 address-family configuration mode, you can perform any of the subsequent steps in this task as needed to configure the IPv6 AF.

This task can be performed in Cisco IOS Release 15.1(3)S and 15.2(1)T and later releases.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **router ospfv3** [*process-id*]
4. **address-family ipv6 unicast**
5. **area** *area-ID* **range** *ipv6-prefix* / *prefix-length*
6. **default** {*area area-ID* [*range ipv6-prefix* | *virtual-link router-id*]} [**default-information originate** [*always* | *metric* | *metric-type* | *route-map*] | **distance** | **distribute-list** *prefix-list prefix-list-name* {*in* | *out*} [*interface*] | **maximum-paths** *paths* | **redistribute protocol** | **summary-prefix** *ipv6-prefix*]
7. **default-information originate** [*always*] *metric metric-value* | *metric-type type-value* | **route-map** *map-name*
8. **default-metric** *metric-value*
9. **distance** *distance*
10. **distribute-list prefix-list** *list-name* {*in* [*interface-type interface-number*] | *out routing-process* [*as-number*]}
11. **maximum-paths** *number-paths*
12. **summary-prefix** *prefix* [*not-advertise* | *tag tag-value*]

DETAILED STEPS

	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 [<i>process-id</i>] Example: Device(config)# router ospfv3 1	Enables OSPFv3 router configuration mode for the IPv4 or IPv6 address family.
Step 4	address-family ipv6 unicast Example: Device(config-router)# address-family ipv6 unicast Example: Device(config-router)# address-family ipv4 unicast	or address-family ipv4 unicast Enters IPv6 address family configuration mode for OSPFv3. or Enters IPv4 address family configuration mode for OSPFv3.
Step 5	area <i>area-ID</i> range <i>ipv6-prefix</i> / <i>prefix-length</i> Example: Device(config-router-af)# area 1 range 2001:DB8:0:0::0/128	Configures OSPFv3 area parameters.
Step 6	default { area <i>area-ID</i> [range <i>ipv6-prefix</i> virtual-link <i>router-id</i>]} [default-information originate [always metric metric-type route-map] distance distribute-list <i>prefix-list</i> <i>prefix-list-name</i> { in out } [<i>interface</i>] maximum-paths <i>paths</i> redistribute <i>protocol</i> summary-prefix <i>ipv6-prefix</i>] Example: Device(config-router-af)# default area 1	Returns an OSPFv3 parameter to its default value.

	Command or Action	Purpose
Step 7	default-information originate [always] metric <i>metric-value</i> metric-type <i>type-value</i> route-map <i>map-name</i> Example: Device(config-router-af)# default-information originate always metric 100 metric-type 2	Generates a default external route into an OSPFv3 for a routing domain.
Step 8	default-metric <i>metric-value</i> Example: Device(config-router-af)# default-metric 10	Sets default metric values for IPv4 and IPv6 routes redistributed into the OSPFv3 routing protocol.
Step 9	distance <i>distance</i> Example: Device(config-router-af)# distance 200	Configures an administrative distance for OSPFv3 routes inserted into the routing table.
Step 10	distribute-list prefix-list <i>list-name</i> { in [<i>interface-type interface-number</i>] out <i>routing-process</i> [<i>as-number</i>]} Example: Device(config-router-af)# distribute-list prefix-list PL1 in Ethernet0/0	Applies a prefix list to OSPFv3 routing updates that are received or sent on an interface.
Step 11	maximum-paths <i>number-paths</i> Example: Device(config-router-af)# maximum-paths 4	Controls the maximum number of equal-cost routes that a process for OSPFv3 routing can support.
Step 12	summary-prefix <i>prefix</i> [not-advertise tag <i>tag-value</i>] Example: Device(config-router-af)# summary-prefix FEC0::/24	Configures an IPv6 summary prefix in OSPFv3.

Configuring the IPv4 Address Family in OSPFv3

Perform this task to configure the IPv4 address family in OSPFv3. Once you have completed step 4 and entered IPv4 address family configuration mode, you can perform any of the subsequent steps in this task as needed to configure the IPv4 AF.

**Note**

OSPFv3 IPv4 support is specified in RFC5838 and it does not support virtual links.

This task can be performed in Cisco IOS Release 15.1(3)S and 15.2(1)T and later releases.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **router ospfv3** *[process-id]*
4. **address-family ipv4 unicast**
5. **area** *area-id* **range** *ip-address ip-address-mask* [**advertise** | **not-advertise**] [**cost** *cost*]
6. **default** {**area** *area-ID* [**default-information originate** [**always** | **metric** | **metric-type** | **route-map**] | **distance** | **distribute-list** *prefix-list prefix-list-name* {**in** | **out**} [*interface*] | **maximum-paths** *paths* | **redistribute protocol** | **summary-prefix** *ipv4-prefix*]
7. **default-information originate** [**always**] **metric** *metric-value* | **metric-type** *type-value* | **route-map** *map-name*
8. **default-metric** *metric-value*
9. **distance** *distance*
10. **distribute-list prefix-list** *list-name* {**in** [*interface-type interface-number*] | **out** *routing-process* [*as-number*]}
11. **maximum-paths** *number-paths*
12. **summary-prefix** *prefix* [**not-advertise** | **tag** *tag-value*]

DETAILED STEPS

	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 <i>[process-id]</i> Example: Device(config)# router ospfv3 1	Enables OSPFv3 router configuration mode for the IPv4 or IPv6 address family.

	Command or Action	Purpose
Step 4	address-family ipv4 unicast Example: Device(config-router)# address-family ipv4 unicast	Enters IPv4 address family configuration mode for OSPFv3.
Step 5	area area-id range ip-address ip-address-mask [advertise not-advertise] [cost cost] Example: Device(config-router-af)# area 0 range 192.168.110.0 255.255.0.0	Consolidates and summarizes routes at an area boundary.
Step 6	default {area area-ID[default-information originate [always metric metric-type route-map] distance distribute-list prefix-list prefix-list-name {in out} [interface] maximum-paths paths redistribute protocol summary-prefix ipv4-prefix] Example: Device(config-router-af)# default area 1	Returns an OSPFv3 parameter to its default value.
Step 7	default-information originate [always] metric metric-value metric-type type-value route-map map-name Example: Device(config-router-af)# default-information originate always metric 100 metric-type 2	Generates a default external route into an OSPFv3 for a routing domain.
Step 8	default-metric metric-value Example: Device(config-router-af)# default-metric 10	Sets default metric values for IPv4 and IPv6 routes redistributed into the OSPFv3 routing protocol.
Step 9	distance distance Example: Device(config-router-af)# distance 200	Configures an administrative distance for OSPFv3 routes inserted into the routing table.
Step 10	distribute-list prefix-list list-name {in [interface-type interface-number] out routing-process [as-number]} Example: Device(config-router-af)# distribute-list prefix-list PL1 in Ethernet 0/0	Applies a prefix list to OSPFv3 routing updates that are received or sent on an interface.

	Command or Action	Purpose
Step 11	maximum-paths <i>number-paths</i> Example: Device(config-router-af) # maximum-paths 4	Controls the maximum number of equal-cost routes that a process for OSPFv3 routing can support.
Step 12	summary-prefix <i>prefix</i> [not-advertise tag <i>tag-value</i>] Example: Device(config-router-af) # summary-prefix FEC0::/24	Configures an IPv6 summary prefix in OSPFv3.

Configuring Route Redistribution in OSPFv3

This task can be performed in Cisco IOS Release 15.1(3)S and 15.2(1)T and later releases.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **router ospfv3** [*process-id*]
4. **address-family ipv6 unicast**
5. **redistribute** *source-protocol* [*process-id*] [*options*]

DETAILED STEPS

	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 [<i>process-id</i>] Example: Device(config)# router ospfv3 1	Enables OSPFv3 router configuration mode for the IPv4 or IPv6 address family.

	Command or Action	Purpose
Step 4	address-family ipv6 unicast Example: Device(config-router)# address-family ipv6 unicast Example: Device(config-router)# address-family ipv4 unicast	Enters IPv6 address family configuration mode for OSPFv3. or Enters IPv4 address family configuration mode for OSPFv3.
Step 5	redistribute source-protocol [process-id] [options] Example:	Redistributes IPv6 and IPv4 routes from one routing domain into another routing domain.

Enabling OSPFv3 on an Interface

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **interface type number**
4. Do one of the following:
 - **ospfv3 process-id area area-ID {ipv4 | ipv6} [instance instance-id]**
 - **ipv6 ospf process-id area area-id [instance instance-id]**

DETAILED STEPS

	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.

	Command or Action	Purpose
Step 3	interface <i>type number</i> Example: Device(config)# interface ethernet 0/0	Specifies an interface type and number, and places the device in interface configuration mode.
Step 4	Do one of the following: • ospfv3 <i>process-id</i> area <i>area-ID</i> {ipv4 ipv6} [<i>instance instance-id</i>] • ipv6 ospf <i>process-id</i> area <i>area-id</i> [<i>instance instance-id</i>] Example: Device(config-if)# ospfv3 1 area 1 ipv4 Example: Device(config-if)# ipv6 ospf 1 area 0	Enables OSPFv3 on an interface with the IPv4 or IPv6 AF. or Enables OSPFv3 on an interface.

Defining an OSPFv3 Area Range for the IPv6 or IPv4 Address Family

The cost of the summarized routes will be the highest cost of the routes being summarized. For example, if the following routes are summarized:

```
OI 2001:DB8:0:7::/64 [110/20]
   via FE80::A8BB:CCFF:FE00:6F00, Ethernet0/0
OI 2001:DB8:0:8::/64 [110/100]
   via FE80::A8BB:CCFF:FE00:6F00, Ethernet0/0
OI 2001:DB8:0:9::/64 [110/20]
   via FE80::A8BB:CCFF:FE00:6F00, Ethernet0/0
```

They become one summarized route, as follows:

```
OI 2001:DB8::/48 [110/100]
   via FE80::A8BB:CCFF:FE00:6F00, Ethernet0/0
```

The task can be performed in Cisco IOS Release 15.1(3)S and 15.2(1)T and later releases.

Before You Begin

OSPFv3 routing must be enabled.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **router ospfv3** [*process-id*]
4. **address-family ipv6 unicast**
5. **area** *area-ID* **range** *ipv6-prefix*

DETAILED STEPS

	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 [<i>process-id</i>] Example: Device(config)# router ospfv3 1	Enables OSPFv3 router configuration mode for the IPv4 or IPv6 address family.
Step 4	address-family ipv6 unicast Example: Device(config-router)# address-family ipv6 unicast Example: Device(config-router)# address-family ipv4 unicast	Enters IPv6 address family configuration mode for OSPFv3. or Enters IPv4 address family configuration mode for OSPFv3.
Step 5	area <i>area-ID</i> range <i>ipv6-prefix</i> Example: Device(config-router-af)# area 1 range 2001:DB8:0:0::0/128	Configures OSPFv3 area parameters.

Defining an OSPFv3 Area Range

The task can be performed in releases prior to Cisco IOS Release 15.1(3)S and 15.2(1)T.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **ipv6 router ospf *process-id***
4. **area *area-id* range *ipv6-prefix* / *prefix-length* [**advertise** | **not-advertise**] [**cost** *cost*]**

DETAILED STEPS

	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	ipv6 router ospf <i>process-id</i> Example: Device(config)# ipv6 router ospf 1	Enables OSPFv3 router configuration mode.
Step 4	area <i>area-id</i> range <i>ipv6-prefix</i> / <i>prefix-length</i> [advertise not-advertise] [cost <i>cost</i>] Example: Device(config-router)# area 1 range 2001:DB8::/48	Consolidates and summarizes routes at an area boundary.

Configuration Examples for OSPFv3 Address Families

Example: Configuring OSPFv3 Address Families

```
Device# show ospfv3
Routing Process "ospfv3 1" with ID 10.0.0.1
```

```

Supports IPv6 Address Family
Event-log enabled, Maximum number of events: 1000, Mode: cyclic
Initial SPF schedule delay 5000 msec
Minimum hold time between two consecutive SPF's 10000 msec
Maximum wait time between two consecutive SPF's 10000 msec
Minimum LSA interval 5 secs
Minimum LSA arrival 1000 msec
LSA group pacing timer 240 secs
Interface flood pacing timer 33 msec
Retransmission pacing timer 66 msec
Number of external LSA 0. Checksum Sum 0x000000
Number of areas in this router is 0. 0 normal 0 stub 0 nssa
Graceful restart helper support enabled
Reference bandwidth unit is 100 mbps
Relay willingness value is 128
Pushback timer value is 2000 msec
Relay acknowledgement timer value is 1000 msec
LSA cache Disabled : current count 0, maximum 1000
ACK cache Disabled : current count 0, maximum 1000
Selective Peering is not enabled
Hello requests and responses will be sent multicast

```

Additional References

Related Documents

Related Topic	Document Title
IPv6 addressing and connectivity	<i>IPv6 Configuration Guide</i>
Cisco IOS commands	Cisco IOS Master Commands List, All Releases
IPv6 commands	Cisco IOS IPv6 Command Reference
Cisco IOS IPv6 features	Cisco IOS IPv6 Feature Mapping
OSPFv3 Address Families	" <i>OSPF Forwarding Address Suppression in Translated Type-5 LSAs</i> " module

Standards and RFCs

Standard/RFC	Title
RFCs for IPv6	IPv6 RFCs

MIBs

MIB	MIBs Link
	To locate and download MIBs for selected platforms, Cisco IOS releases, and feature sets, use Cisco MIB Locator found at the following URL: http://www.cisco.com/go/mibs

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.	http://www.cisco.com/cisco/web/support/index.html

Feature Information for OSPFv3 Address Families

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. An account on Cisco.com is not required.

Table 1: Feature Information for OSPFv3 Address Families

Feature Name	Releases	Feature Information
OSPFv3 Address Families	15.1(3)S 15.1(1)SY 15.2(1)T	

Feature Name	Releases	Feature Information
		The OSPFv3 address families feature enables IPv4 and IPv6 unicast traffic to be supported with a single network topology. The following commands were introduced or modified: address-family ipv4 (OSPFv3), address-family ipv6 (OSPFv3), area (OSPFv3), auto-cost (OSPFv3), bfd all-interfaces (OSPFv3), clear ospfv3 counters, clear ospfv3 force-spf, clear ospfv3 process, clear ospfv3 redistribution, clear ospfv3 traffic, debug ospfv3, debug ospfv3 database-timer rate-limit, debug ospfv3 events, debug ospfv3 lsd, debug ospfv3 packet, debug ospfv3 spf statistic, default (OSPFv3), default-information originate (OSPFv3), default-metric (OSPFv3), distance (OSPFv3), distribute-list prefix-list (OSPFv3), event-log (OSPFv3), log-adjacency-changes (OSPFv3), maximum-paths (OSPFv3), ospfv3 area, ospfv3 authentication, ospfv3 bfd, ospfv3 cost, ospfv3 database-filter, ospfv3 dead-interval, ospfv3 demand-circuit, ospfv3 encryption, ospfv3 flood-reduction, ospfv3 hello-interval, ospfv3 mtu-ignore, ospfv3 network, ospfv3 priority, ospfv3 retransmit-interval, ospfv3 transmit-delay, passive-interface (OSPFv3), queue-depth (OSPFv3), redistribute (OSPFv3), router ospfv3, router-id (OSPFv3), show ospfv3 border-routers, show ospfv3 database, show ospfv3 events, show ospfv3 flood-list, show ospfv3 graceful-restart, show ospfv3 interface, show ospfv3 max-metric, show ospfv3

Feature Name	Releases	Feature Information
		neighbor, show ospfv3 request-list, show ospfv3 retransmission-list, show ospfv3 statistics, show ospfv3 summary-prefix, show ospfv3 timers rate-limit, show ospfv3 traffic, show ospfv3 virtual-links, summary-prefix (OSPFv3), timers pacing flood (OSPFv3), timers pacing lsa-group (OSPFv3), timers pacing retransmission (OSPFv3).

