IPv6 Routing: IS-IS Support for IPv6

This module describes how to configure Integrated Intermediate System-to-Intermediate System (IS-IS) for IPv6. IS-IS is an Interior Gateway Protocol (IGP) that advertises link-state information throughout the network to create a picture of the network topology. IS-IS is an Open Systems Interconnection (OSI) hierarchical routing protocol that designates an intermediate system as a Level 1 or Level 2 device. Level 2 devices route between Level 1 areas to create an intradomain routing backbone. Integrated IS-IS uses a single routing algorithm to support several network address families, such as IPv6, IPv4, and OSI.

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- How to Configure IPv6 Routing: IS-IS Support for IPv6, on page 2
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- Additional References, on page 12
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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.

Information About IPv6 Routing: IS-IS Support for IPv6

IS-IS Enhancements for IPv6

IS-IS in IPv6 functions the same and offers many of the same benefits as IS-IS in IPv4. IPv6 enhancements to IS-IS allow IS-IS to advertise IPv6 prefixes in addition to IPv4 and OSI routes. Extensions to the IS-IS command-line interface (CLI) allow configuration of IPv6-specific parameters. IPv6 IS-IS extends the address families supported by IS-IS to include IPv6, in addition to OSI and IPv4.

IS-IS in IPv6 supports either single-topology mode or multiple topology mode.
Single-topology support for IPv6 allows IS-IS for IPv6 to be configured on interfaces along with other network protocols (for example, IPv4 and Connectionless Network Service [CLNS]). All interfaces must be configured with the identical set of network address families. In addition, all routers in the IS-IS area (for Level 1 routing) or the domain (for Level 2 routing) must support the identical set of network layer address families on all interfaces.

When single-topology support for IPv6 is being used, either old- or new-style TLVs may be used. However, the TLVs used to advertise reachability to IPv6 prefixes use extended metrics. Cisco routers do not allow an interface metric to be set to a value greater than 63 if the configuration is not set to support only new-style TLVs for IPv4. In single-topology IPv6 mode, the configured metric is always the same for both IPv4 and IPv6.

IPv6 IS-IS Local RIB

A router that is running IS-IS IPv6 maintains a local RIB in which it stores all routes to destinations it has learned from its neighbors. At the end of each SPF, IS-IS attempts to install the best (that is, the least-cost) routes to a destination present in the local RIB in the global IPv6 routing table.

How to Configure IPv6 Routing: IS-IS Support for IPv6

Configuring Single-Topology IS-IS for IPv6

Perform this task to create an IPv6 IS-IS process and enable IPv6 IS-IS support on an interface.

Configuring IS-IS comprises two activities. The first activity creates an IS-IS routing process and is performed using protocol-independent IS-IS commands. The second activity in configuring IPv6 IS-IS configures the operation of the IS-IS protocol on an interface.

Before you begin

Before configuring the router to run IPv6 IS-IS, globally enable IPv6 using the `ipv6 unicast-routing` global configuration command.

Note

If you are using IS-IS single-topology support for IPv6, IPv4, or both IPv6 and IPv4, you may configure both IPv6 and IPv4 on an IS-IS interface for Level 1, Level 2, or both Level 1 and Level 2. However, if both IPv6 and IPv4 are configured on the same interface, they must be running the same IS-IS level. That is, IPv4 cannot be configured to run on IS-IS Level 1 only on a specified Ethernet interface while IPv6 is configured to run IS-IS Level 2 only on the same Ethernet interface.

SUMMARY STEPS

1. enable
2. configure terminal
### Detailed Steps

<table>
<thead>
<tr>
<th>Command or Action</th>
<th>Purpose</th>
</tr>
</thead>
</table>
| **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 isis area-tag
  Example:
  Device(config)# router isis area2 | Enables IS-IS for the specified IS-IS routing process, and enters router configuration mode. |
| **Step 4**
  net network-entity-title
  Example:
  Device(config-router)# net 49.0001.0000.0000.000c.00 | Configures an IS-IS network entity title (NET) for the routing process.
  • The `network-entity-title` argument defines the area addresses for the IS-IS area and the system ID of the router. |
| **Step 5**
  exit
  Example:
  Device(config-router)# exit | Exits router configuration mode and enters global configuration mode. |
| **Step 6**
  interface type number
  Example: | Specifies the interface type and number, and enters interface configuration mode. |
| **Step 7**
  ipv6 address {ipv6-address / prefix-length | prefix-name sub-bits / prefix-length
  Example: | Specifies the IPv6 network assigned to the interface and enables IPv6 processing on the interface. |
Customizing IPv6 IS-IS

Perform this task to configure a new administrative distance for IPv6 IS-IS, configure the maximum number of equal-cost paths that IPv6 IS-IS will support, configure summary prefixes for IPv6 IS-IS, and configure an IS-IS instance to advertise the default IPv6 route (::/0). It also explains how to configure the hold-down period between partial route calculations (PRCs) and how often Cisco IOS software performs the SPF calculation when using multitopology IS-IS.

You can customize IS-IS multitopology for IPv6 for your network, but you likely will not need to do so. The defaults for this feature are set to meet the requirements of most customers and features. If you change the defaults, refer to the IPv4 configuration guide and the IPv6 command reference to find the appropriate syntax.

**SUMMARY STEPS**

1. enable
2. configure terminal
3. router isis area-tag
4. address-family ipv6 [unicast | multicast]
5. default-information originate [route-map map-name]
6. distance value
7. maximum-paths number-paths
8. summary-prefix ipv6-prefix prefix-length [ level-1 | level-1-2 | level-2]
9. prc-interval seconds [initial-wait] [secondary-wait]
10. spf-interval [level-1 | level-2] seconds initial-wait [secondary-wait]
11. exit
12. interface type number
13. isis ipv6 metric metric-value [level-1 | level-2 | level-1-2]

**DETAILED STEPS**

<table>
<thead>
<tr>
<th>Command or Action</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1 enable</td>
<td>Enables privileged EXEC mode.</td>
</tr>
<tr>
<td>Example: Device&gt; enable</td>
<td>- Enter your password if prompted.</td>
</tr>
</tbody>
</table>
### Purpose

**Command or Action**

| Step 2 | configure terminal  
| Example: |
| Device# configure terminal |

Enables IS-IS for the specified IS-IS routing process, and enters router configuration mode.

| Step 3 | router isis area-tag  
| Example: |
| Device(config)# router isis area2 |

**Step 4**

**address-family ipv6 [unicast | multicast]**

**Example:**

Device(config-router)# address-family ipv6

Specifies the IPv6 address family, and enters address family configuration mode.

- The **unicast** keyword specifies the unicast IPv6 unicast address family. By default, the router is placed in configuration mode for the unicast IPv6 address family if the **unicast** keyword is not specified with the **address-family ipv6** command.

| Step 5 | default-information originate [route-map map-name]  
| Example: |
| Device(config-router-af)# default-information originate |

(Optional) Injects a default IPv6 route into an IS-IS routing domain.

- The **route-map** keyword and **map-name** argument specify the conditions under which the IPv6 default route is advertised.

| Step 6 | distance value  
| Example: |
| Device(config-router-af)# distance 90 |

(Optional) Defines an administrative distance for IPv6 IS-IS routes in the IPv6 routing table.

- The **value** argument is an integer from 10 to 254. (The values 0 to 9 are reserved for internal use).

| Step 7 | maximum-paths number-paths  
| Example: |
| Device(config-router-af)# maximum-paths 3 |

(Optional) Defines the maximum number of equal-cost routes that IPv6 IS-IS can support.

- This command also supports IPv6 Border Gateway Protocol (BGP) and Routing Information Protocol (RIP).

| Step 8 | summary-prefix ipv6-prefix prefix-length [ level-1 | level-1-2 | level-2]  
| Example: |

(Optional) Allows a Level 1-2 router to summarize Level 1 prefixes at Level 2, instead of advertising the Level 1 prefixes directly when the router advertises the summary.
Disabling IPv6 Protocol-Support Consistency Checks

Perform this task to disable protocol-support consistency checks in IPv6 single-topology mode.

For single-topology IS-IS IPv6, routers must be configured to run the same set of address families. IS-IS performs consistency checks on hello packets and will reject hello packets that do not have the same set of configured address families. For example, a router running IS-IS for both IPv4 and IPv6 will not form an adjacency with a router running IS-IS for IPv4 or IPv6 only. In order to allow adjacency to be formed in mismatched address-families network, the adjacency-check command in IPv6 address family configuration mode must be disabled.
Disabling IPv6 Protocol-Support Consistency Checks

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**Note**

Entering the `no adjacency-check` command can adversely affect your network configuration. Enter the `no adjacency-check` command only when you are running IPv4 IS-IS on all your routers and you want to add IPv6 IS-IS to your network but you need to maintain all your adjacencies during the transition. When the IPv6 IS-IS configuration is complete, remove the `no adjacency-check` command from the configuration.

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**SUMMARY STEPS**

1. `enable`
2. `configure terminal`
3. `router isis area-tag`
4. `address-family ipv6 [unicast | multicast]`
5. `no adjacency-check`

**DETAILED STEPS**

<table>
<thead>
<tr>
<th>Command or Action</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong> enable</td>
<td>Enables privileged EXEC mode.</td>
</tr>
<tr>
<td><strong>Example:</strong> Device&gt; enable</td>
<td>Enter your password if prompted.</td>
</tr>
<tr>
<td><strong>Step 2</strong> configure terminal</td>
<td>Enters global configuration mode.</td>
</tr>
<tr>
<td><strong>Example:</strong> Device# configure terminal</td>
<td></td>
</tr>
<tr>
<td><strong>Step 3</strong> router isis area-tag</td>
<td>Enables IS-IS for the specified IS-IS routing process, and enters router configuration mode.</td>
</tr>
<tr>
<td><strong>Example:</strong> Device(config)# router isis area2</td>
<td></td>
</tr>
<tr>
<td><strong>Step 4</strong> address-family ipv6 [unicast</td>
<td>multicast]</td>
</tr>
<tr>
<td><strong>Example:</strong> Device(config-router)# address-family ipv6</td>
<td></td>
</tr>
<tr>
<td><strong>Step 5</strong> no adjacency-check</td>
<td>Disables the IPv6 protocol-support consistency checks performed on hello packets, allowing IPv6 to be introduced into an IPv4-only network without disrupting existing adjacencies.</td>
</tr>
<tr>
<td><strong>Example:</strong> Device(config-router-af)# no adjacency-check</td>
<td>The <code>adjacency-check</code> command is enabled by default.</td>
</tr>
</tbody>
</table>
Disabling IPv4 Subnet Consistency Checks

Perform this task to disable IPv4 subnet consistency checking when forming adjacencies. Software historically makes checks on hello packets to ensure that the IPv4 address is present and has a consistent subnet with the neighbor from which the hello packets are received. To disable this check, use the `no adjacency-check` command in the router configuration mode. However, if multitopology IS-IS is configured, this check is automatically suppressed, because multitopology IS-IS requires routers to form an adjacency regardless of whether or not all routers on a LAN support a common protocol.

**SUMMARY STEPS**

1. enable
2. configure terminal
3. router isis area-tag
4. no adjacency-check

**DETAILED STEPS**

<table>
<thead>
<tr>
<th>Command or Action</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Step 1</strong> enable</td>
<td>Enables privileged EXEC mode.</td>
</tr>
<tr>
<td>Example:</td>
<td></td>
</tr>
<tr>
<td>Device&gt; enable</td>
<td></td>
</tr>
<tr>
<td><strong>Step 2</strong> configure terminal</td>
<td>Enters global configuration mode.</td>
</tr>
<tr>
<td>Example:</td>
<td></td>
</tr>
<tr>
<td>Device# configure terminal</td>
<td></td>
</tr>
<tr>
<td><strong>Step 3</strong> router isis area-tag</td>
<td>Enables IS-IS for the specified IS-IS routing process, and enters router configuration mode.</td>
</tr>
<tr>
<td>Example:</td>
<td></td>
</tr>
<tr>
<td>Device(config)# router isis area2</td>
<td></td>
</tr>
<tr>
<td><strong>Step 4</strong> no adjacency-check</td>
<td>Disables the IPv6 protocol-support consistency checks performed on hello packets, allowing IPv6 to be introduced into an IPv4-only network without disrupting existing adjacencies.</td>
</tr>
<tr>
<td>Example:</td>
<td></td>
</tr>
<tr>
<td>Device(config-router-af)# no adjacency-check</td>
<td></td>
</tr>
</tbody>
</table>

• The `adjacency-check` command is enabled by default.

Verifying IPv6 IS-IS Configuration and Operation

**SUMMARY STEPS**

1. enable
2. show ipv6 protocols [summary]
3. show isis [process-tag] [ipv6 | *] topology
IPv6 Routing: IS-IS Support for IPv6

### Detailed Steps

<table>
<thead>
<tr>
<th>Step</th>
<th>Command or Action</th>
<th>Purpose</th>
</tr>
</thead>
</table>
| 1    | enable            | Enables privileged EXEC mode.  
  **Example:**  
  Device> enable |
| 2    | show ipv6 protocols [summary] | Displays the parameters and current state of the active IPv6 routing processes.  
  **Example:**  
  Device# show ipv6 protocols |
| 3    | show isis [process-tag] [ipv6 | topology | Displays a list of all connected routers running IS-IS in all areas.  
  **Example:**  
  Device# show isis topology |
| 4    | show clns [process-tag] neighbors interface-type interface-number] [area] [detail] | Displays end system (ES), intermediate system (IS), and multitopology IS-IS (M-ISIS) neighbors.  
  **Example:**  
  Device# show clns neighbors detail |
| 5    | show clns area-tag is-neighbors [type number] [detail] | Displays IS-IS adjacency information for IS-IS neighbors.  
  **Example:**  
  Device# show clns is-neighbors detail |
| 6    | show isis [process-tag] database [level-1] [level-2] [l1] [l2] [detail] [lspid] | Displays the IS-IS link-state database.  
  **Example:**  
  Device# show isis database detail |
| 7    | show isis ipv6 rib [ipv6-prefix] | Displays the IPv6 local RIB.  
  **Example:**  
  Device# show isis ipv6 rib |
Configuration Examples for IPv6 Routing: IS-IS Support for IPv6

Example: Customizing IPv6 IS-IS

The following example advertises the IPv6 default route (::/0)--with an origin of Ethernet interface 0/0/1--with all other routes in router updates sent on Ethernet interface 0/0/1. This example also sets an administrative distance for IPv6 IS-IS to 90, defines the maximum number of equal-cost paths that IPv6 IS-IS will support as 3, and configures a summary prefix of 2001:DB8::/24 for IPv6 IS-IS.

```
router isis
    address-family ipv6
    default-information originate
distance 90
maximum-paths 3
summary-prefix 2001:DB8::/24
exit
```

Example: Disabling IPv6 Protocol-Support Consistency Checks

The following example disables the `adjacency-check` command to allow a network administrator to configure IPv6 IS-IS on the router without disrupting the existing adjacencies:

```
router isis
    address-family ipv6
    no adjacency-check
```

Example: Configuring IS-IS for IPv6

In the following example, output information about the parameters and current state of that active IPv6 routing processes is displayed using the `show ipv6 protocols` command:

```
Device# show ipv6 protocols
IPv6 Routing Protocol is "connected"
IPv6 Routing Protocol is "static"
IPv6 Routing Protocol is "isis"
Interfaces:
    Ethernet0
    Ethernet1
    Serial1
    Loopback1 (Passive)
    Loopback2 (Passive)
    Loopback3 (Passive)
    Loopback4 (Passive)
    Loopback5 (Passive)
Redistribution:
    Redistributing protocol static at level 1
Address Summarization:
    L2: 2001:DB8:33::/16 advertised with metric 0
    L2: 2001:DB8:44::/16 advertised with metric 20
    L2: 2001:DB8:66::/16 advertised with metric 10
    L2: 2001:DB8:77::/16 advertised with metric 10
```
In the following example, output information about all connected routers running IS-IS in all areas is displayed using the **show isis topology** command:

```
Device# show isis topology
IS-IS paths to level-1 routers
  System Id  Metric  Next-Hop  Interface  SNPA
0000.0000.000C  20  0000.0000.00AA  Se1/0/1 *HDLC*
0000.0000.000F  10  0000.0000.000F  GE0/0/1  0050.e2e5.d01d
0000.0000.00AA  10  0000.0000.00AA  Se1/0/1 *HDLC*
IS-IS paths to level-2 routers
  System Id  Metric  Next-Hop  Interface  SNPA
0000.0000.000A  10  0000.0000.000A  GE0/0/3  0010.f68d.f063
0000.0000.000B  20  0000.0000.000A  GE0/0/3  0010.f68d.f063
0000.0000.000C --
0000.0000.000D  30  0000.0000.000A  GE0/0/3  0010.f68d.f063
0000.0000.000E  30  0000.0000.000A  GE0/0/3  0010.f68d.f063
```

In the following example, output information to confirm that the local router has formed all the necessary IS-IS adjacencies with other IS-IS neighbors is displayed using the **show clns is-neighbors** command. To display the IPv6 link-local addresses of the neighbors, specify the **detail** keyword.

```
Device# show clns is-neighbors detail
  System Id  Interface  State  Type  Priority  Circuit Id  Format
0000.0000.00AA  Se1  Up  L1  0  00  Phase V
  Area Address(es): 49.0001
  IPv6 Address(es): FE80::YYYY:D37C:C854:5
  Uptime: 17:21:38
0000.0000.000F  Et0  Up  L1  64  0000.0000.000C.02  Phase V
  Area Address(es): 49.0001
  IPv6 Address(es): FE80::XXXX:E2FF:FEE5:D01D
  Uptime: 17:21:41
0000.0000.000A  Et0  Up  L2  64  0000.0000.000C.01  Phase V
  Area Address(es): 49.000b
  IPv6 Address(es): FE80::ZZZZ:F6FF:FE8D:F063
  Uptime: 17:22:06
```

In the following example, detailed output information about LSPs received from other routers and the IPv6 prefixes they are advertising is displayed using the **show isis database** command with the **detail** keyword specified:

```
Device# show isis database detail
IS-IS Level-1 Link State Database
  LSPID  LSP Seq Num  LSP Checksum  LSP Holdtime  ATT/P/OL
0000.0C00.0C35.00-00  0x0000000C  0x5696  325  0/0/0
  Area Address: 47.0004.004D.0001
  Area Address: 39.0001
  Metric: 10  IS  0000.0C00.62E6.03
  Metric: 0  ES  0000.0C00.0C35
  --More--
0000.0C00.40AF.00-00*  0x00000009  0x8452  608  1/0/0
  Area Address: 47.0004.004D.0001
  Topology: IPv4 (0x0) IPv6 (0x2)
  NLPID: 0xCC 0x8E
  IP Address: 172.16.21.49
  Metric: 10  IS  0800.2B16.24EA.01
  Metric: 10  IS  0000.0C00.62E6.03
  Metric: 0  ES  0000.0C00.40AF
  IPv6 Address: 2001:DB8::/32
  Metric: 10  IPv6 (MT-IPv6) 2001:DB8::/64
```
Metric: 5 IS-Extended cisco.03
Metric: 10 IS-Extended cisco1.03
Metric: 10 IS (MT-IPv6) cisco.03
IS-IS Level-2 Link State Database:
LSPID LSP Seq Num LSP Checksum LSP Holdtime ATT/P/OL
0000.0000.000A.00-00 0x00000059 0x378A 949 0/0/0
Area Address: 49.000b
NLPID: 0x8E
Metric: 10 IPv6 2001:DB8:2:YYYY::/64
Metric: 10 IPv6 2001:DB8:3:YYYY::/64
Metric: 10 IPv6 2001:DB8:2:YYYY::/64
Metric: 10 IS-Extended 0000.0000.000A.01
Metric: 10 IS-Extended 0000.0000.000B.00
Metric: 10 IS-Extended 0000.0000.000C.01
0000.0000.000A.01-00 0x00000050 0xB0AF 491 0/0/0
Metric: 0 IS-Extended 0000.0000.000A.00
Metric: 0 IS-Extended 0000.0000.000B.00

The following example shows output from the `show isis ipv6 rib` command. An asterisk (*) indicates prefixes that have been installed in the master IPv6 RIB as IS-IS routes. Following each prefix is a list of all paths in order of preference, with optimal paths listed first and suboptimal paths listed after optimal paths.

```
Device# show isis ipv6 rib

IS-IS IPv6 process "", local RIB
2001:DB8:88:1::/64
  via FE80::210:7BFF:FEC2:ACC9/GigabitEthernet2/0/0, type L2 metric 20 LSP [3/7]
  via FE80::210:7BFF:FEC2:ACC9/GigabitEthernet2/1/0, type L2 metric 20 LSP [3/7]
* 2001:DB8:1357:1::/64
  via FE80::202:7DFF:FE1A:9471/GigabitEthernet2/1/0, type L2 metric 10 LSP [4/9]
* 2001:DB8:45A::/64
  via FE80::210:7BFF:FEC2:ACC9/GigabitEthernet2/0/0, type L1 metric 20 LSP [C/6]
  via FE80::210:7BFF:FEC2:ACC9/GigabitEthernet2/1/0, type L1 metric 20 LSP [C/6]
  via FE80::210:7BFF:FEC2:ACC9/GigabitEthernet2/0/0, type L2 metric 20 LSP [3/7]
  via FE80::210:7BFF:FEC2:ACC9/GigabitEthernet2/1/0, type L2 metric 20 LSP [3/7]
```

### Additional References

#### Related Documents

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<thead>
<tr>
<th>Related Topic</th>
<th>Document Title</th>
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<tbody>
<tr>
<td>IPv6 addressing and connectivity</td>
<td>IPv6 Configuration Guide</td>
</tr>
<tr>
<td>Cisco IOS commands</td>
<td>Cisco IOS Master Commands List, All Releases</td>
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<tr>
<td>IPv6 commands</td>
<td>Cisco IOS IPv6 Command Reference</td>
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</table>
Related Topic | Document Title
---|---
Cisco IOS IPv6 features | Cisco IOS IPv6 Feature Mapping

Standards and RFCs

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<th>Standard/RFC</th>
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<td>RFCs for IPv6</td>
<td>IPv6 RFCs</td>
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MIBs

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<thead>
<tr>
<th>MIB</th>
<th>MIBs Link</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>To locate and download MIBs for selected platforms, Cisco IOS 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></td>
</tr>
</tbody>
</table>

Technical Assistance

<table>
<thead>
<tr>
<th>Description</th>
<th>Link</th>
</tr>
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<tbody>
<tr>
<td>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.</td>
<td><a href="http://www.cisco.com/cisco/web/support/index.html">http://www.cisco.com/cisco/web/support/index.html</a></td>
</tr>
</tbody>
</table>

**Feature Information for IPv6 Routing: IS-IS Support for IPv6**

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 IPv6 Routing: IS-IS Support for IPv6

<table>
<thead>
<tr>
<th>Feature Name</th>
<th>Releases</th>
<th>Feature Information</th>
</tr>
</thead>
<tbody>
<tr>
<td>IPv6 Routing: IS-IS Support for IPv6</td>
<td></td>
<td>IPv6 enhancements to IS-IS allow IS-IS to advertise IPv6 prefixes in addition to IPv4 and OSI routes. The following commands were introduced or modified: <code>address-family ipv6 (IS-IS)</code>, <code>adjacency-check</code>, <code>default-information originate (IPv6 IS-IS)</code>, <code>distance (IPv6)</code>, <code>ipv6 router isis</code>, <code>isis ipv6 metric</code>, <code>maximum-paths (IPv6)</code>, <code>prc-interval (IPv6)</code>, <code>router isis</code>, <code>show clns neighbors</code>, <code>show ipv6 protocols</code>, <code>show isis database</code>, <code>show isis topology</code>, <code>spf-interval</code>, <code>summary-prefix (IPv6 IS-IS)</code>.</td>
</tr>
<tr>
<td>IPv6 ISIS Local RIB</td>
<td></td>
<td>A router that is running IS-IS IPv6 maintains a local RIB in which it stores all routes to destinations it has learned from its neighbors. The following command was introduced: <code>show isis ipv6 rib</code>.</td>
</tr>
</tbody>
</table>