IPv6 Multicast: Static Multicast Routing for IPv6

IPv6 static multicast routes, or mroutes, share the same database as IPv6 static routes and are implemented by extending static route support for reverse path forwarding (RPF) checks.

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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 at the end of this module.

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 Static Mroutes

IPv6 static mroutes behave much in the same way as IPv4 static mroutes used to influence the RPF check. IPv6 static mroutes share the same database as IPv6 static routes and are implemented by extending static route support for RPF checks. Static mroutes support equal-cost multipath mroutes, and they also support unicast-only static routes.

How to Configure IPv6 Static Multicast Routes

Configuring Static Mroutes

Static multicast routes (mroutes) in IPv6 can be implemented as an extension of IPv6 static routes. You can configure your device to use a static route for unicast routing only, to use a static multicast route for multicast RPF selection only, or to use a static route for both unicast routing and multicast RPF selection.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **ipv6 route** *ipv6-prefix / prefix-length ipv6-address* | *interface-type interface-number ipv6-address*]} [*administrative-distance*] [*administrative-multicast-distance* | **unicast**| **multicast**] [**tag** *tag*
4. **end**
5. **show ipv6 mroute** [**vrf** *vrf-name*] [**link-local** | [*group-name* | *group-address* [*source-address* | *source-name*]] [**summary**] [**count**]
6. **show ipv6 mroute** [**vrf** *vrf-name*] [**link-local** | *group-name* | *group-address*] **active**[*kbps*]
7. **show ipv6 rpf** [**vrf** *vrf-name*] *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	**ipv6 route** *ipv6-prefix / prefix-length ipv6-address* | *interface-type interface-number ipv6-address*]} [*administrative-distance*] [*administrative-multicast-distance* | **unicast**| **multicast**] [**tag** *tag* **Example:** `Device(config)# ipv6 route 2001:DB8::/64 6::6 100`	Establishes static IPv6 routes. The example shows a static route used for both unicast routing and multicast RPF selection.

	Command or Action	Purpose
Step 4	**end** **Example:** `Device(config-if)# end`	Exits to privileged EXEC mode.
Step 5	**show ipv6 mroute** [**vrf** *vrf-name*] [**link-local** | [*group-name* | *group-address* [*source-address* | *source-name*]] [**summary**] [**count**] **Example:** `Device# show ipv6 mroute ff07::1`	Displays the contents of the IPv6 multicast routing table.
Step 6	**show ipv6 mroute** [**vrf** *vrf-name*] [**link-local** | *group-name* | *group-address*] **active**[*kbps*] **Example:** `Device# show ipv6 mroute active`	Displays the active multicast streams on the device.
Step 7	**show ipv6 rpf** [**vrf** *vrf-name*] *ipv6-prefix* **Example:** `Device# show ipv6 rpf 2001:DB8::1:1:2`	Checks RPF information for a given unicast host address and prefix.

Configuration Examples for IPv6 Static Multicast Routes

Example: Configuring Static Mroutes

Using the **show ipv6 mroute** command allows you to verify that multicast IPv6 data is flowing:

```
Device# show ipv6 mroute ff07::1

Multicast Routing Table
Flags:D - Dense, S - Sparse, B - Bidir Group, s - SSM Group,
       C - Connected, L - Local, I - Received Source Specific Host Report,
       P - Pruned, R - RP-bit set, F - Register flag, T - SPT-bit set,
       J - Join SPT
Timers:Uptime/Expires
Interface state:Interface, State

(*, FF07::1), 00:04:45/00:02:47, RP 2001:DB8:6::6, flags:S
  Incoming interface:Tunnel5
  RPF nbr:6:6:6::6
  Outgoing interface list:
    POS4/0, Forward, 00:04:45/00:02:47

(2001:DB8:999::99, FF07::1), 00:02:06/00:01:23, flags:SFT
```

```
  Incoming interface:POS1/0
  RPF nbr:2001:DB8:999::99
  Outgoing interface list:
    POS4/0, Forward, 00:02:06/00:03:27
```

The following sample output displays information from the **show ipv6 mroute active** command:

```
Device# show ipv6 mroute active

Active IPv6 Multicast Sources - sending >= 4 kbps
Group:FF05::1
 Source:2001:DB8:1:1:1
   Rate:11 pps/8 kbps(1sec), 8 kbps(last 8 sec)
```

The following example displays RPF information for the unicast host with the IPv6 address of 2001:DB8:1:1:2:

```
Device# show ipv6 rpf 2001:DB8:1:1:2

RPF information for 2001:DB8:1:1:2
  RPF interface:Ethernet3/2
  RPF neighbor:FE80::40:1:3
  RPF route/mask:20::/64
  RPF type:Unicast
  RPF recursion count:0
  Metric preference:110
  Metric:30
```

Additional References

Related Documents

Related Topic	Document Title
IPv6 addressing and connectivity	*IPv6 Configuration Guide*
Cisco IOS commands	Cisco IOS Master Commands List, All Releases
IP multicast commands	Cisco IOS IP Multicast Command Reference
IPv6 commands	Cisco IOS IPv6 Command Reference
Cisco IOS IPv6 features	Cisco IOS IPv6 Feature Mapping

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 IPv6 Multicast: Static Multicast Routing 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. An account on Cisco.com is not required.

Table 1: Feature Information for IPv6 Multicast: Static Multicast Routing for IPv6

Feature Name	Releases	Feature Information
IPv6 Multicast: Static Multicast Routing (mroute) for IPv6	12.0(26)S 12.3(4)T 12.2(25)S 12.2(33)SRA 12.2(33)SXH 12.4 12.4(2)T Cisco IOS XE Release 2.4 15.0(1)S	IPv6 static mroutes share the same database as IPv6 static routes and are implemented by extending static route support. The following commands were introduced or modified: **ipv6 route**, **show ipv6 mroute**, **show ipv6 mroute active**, **show ipv6 rpf**.