



Enhanced IPv6 Neighbor Discovery Cache Management

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The IPv6 highly scalable neighbor discovery feature optimizes IPv6 neighbor discovery by providing Neighbor Discovery cache autorefresh, unsolicited NA gleaning, and NUD exponential retransmit.

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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 Enhanced IPv6 Neighbor Discovery Cache Management

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Enhanced IPv6 Neighbor Discovery Cache Management

The enhanced IPv6 neighbor discovery cache management feature optimizes IPv6 neighbor discovery by providing ND cache autorefresh, unsolicited neighbor advertisement (NA) gleaning, and neighbor unreachability detection (NUD) exponential retransmit.

The neighbor discovery protocol enforces NUD, which can detect failing nodes or devices and changes to link-layer addresses. NUD is used to maintain reachability information for all paths between hosts and neighboring nodes, including host-to-host, host-to-device, and device-to-host communication.

The neighbor cache maintains mapping information about the IPv6 link-local or global address to the link-layer address. The neighbor cache also maintains the neighbor's reachability state, which is updated using NUD. Neighbors can be in one of the following five possible states:

- DELAY—Neighbor is pending re-resolution, and traffic might flow to this neighbor.
- INCOMPLETE—Address resolution is in progress, and the link-layer address is not yet known.
- PROBE—Neighbor re-resolution is in progress, and traffic might flow to this neighbor.
- REACHABLE—Neighbor is known to be reachable within the last reachable time interval.
- STALE—Neighbor requires re-resolution, and traffic may flow to this neighbor.
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How to Configure Enhanced IPv6 Neighbor Discovery Cache Management

- [Customizing the Parameters for IPv6 Neighbor Discovery, page 2](#)

Customizing the Parameters for IPv6 Neighbor Discovery

SUMMARY STEPS

1. `enable`
2. `configure terminal`
3. `interface type number`
4. `ipv6 nd nud retry base interval max-attempts`
5. `ipv6 nd cache expire expire-time-in-seconds [refresh]`
6. `ipv6 nd na glean`

DETAILED STEPS

Command or Action	Purpose
<p>Step 1 <code>enable</code></p> <p>Example:</p> <pre>Device> enable</pre>	<p>Enables privileged EXEC mode.</p> <ul style="list-style-type: none"> Enter your password if prompted.
<p>Step 2 <code>configure terminal</code></p> <p>Example:</p> <pre>Device# configure terminal</pre>	<p>Enters global configuration mode.</p>
<p>Step 3 <code>interface type number</code></p> <p>Example:</p> <pre>Device(config)# interface Ethernet 1/0</pre>	<p>Specifies an interface type and number, and places the device in interface configuration mode.</p>
<p>Step 4 <code>ipv6 nd nud retry base interval max-attempts</code></p> <p>Example:</p> <pre>Device(config-if)# ipv6 nd nud retry 1 1000 3</pre>	<p>Configures the number of times neighbor unreachability detection (NUD) resends neighbor solicitations.</p>
<p>Step 5 <code>ipv6 nd cache expire expire-time-in-seconds [refresh]</code></p> <p>Example:</p> <pre>Device(config-if)# ipv6 nd cache expire 7200</pre>	<p>Configures the length of time before an IPv6 neighbor discovery cache entry expires.</p>
<p>Step 6 <code>ipv6 nd na glean</code></p> <p>Example:</p> <pre>Device(config-if)# ipv6 nd na glean</pre>	<p>Configures ND to glean an entry from an unsolicited neighbor advertisement (NA).</p>

Configuration Examples for Enhanced IPv6 Neighbor Discovery Cache Management

- [Example: Customizing the Parameters for IPv6 Neighbor Discovery, page 4](#)

Example: Customizing the Parameters for IPv6 Neighbor Discovery

In the following example, IPv6 ND NA gleaning is enabled and the IPv6 ND cache expiry is set to 7200 seconds (2 hours):

```
interface Port-channel189
no ip address
ipv6 address FC07::789:1:0:0:3/64
ipv6 nd reachable-time 2700000
ipv6 nd na glean
ipv6 nd cache expire 7200
no ipv6 redirects
standby version 2
standby 2 ipv6 FC07::789:1:0:0:1/64
standby 2 priority 150
standby 2 preempt
```

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	<i>Cisco IOS IPv6 Command Reference</i>
Cisco IOS IPv6 features	Cisco IOS IPv6 Feature Mapping

Standards and RFCs

Standard/RFC	Title
RFCs for IPv6	<i>IPv6 RFCs</i>

MIBs

MIB	MIBs Link
No new or modified MIBs are supported by this feature, and support for existing MIBs has not been modified by this feature.	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 Enhanced IPv6 Neighbor Discovery Cache Management

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 Enhanced IPv6 Neighbor Discovery Cache Management

Feature Name	Releases	Feature Information
Enhanced IPv6 Neighbor Discovery Cache Management	12.2(33)SX17	<p>The IPv6 highly scalable neighbor discovery feature optimizes IPv6 neighbor discovery by providing ND cache autorefresh, unsolicited NA gleaning, and NUD exponential retransmit.</p> <p>The following commands were introduced or modified: ipv6 nd cache expire, ipv6 nd na glean, ipv6 nd nud retry.</p>

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