IPv6 Device Tracking

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IPv6 device tracking provides IPv6 host liveness tracking so that a neighbor table can be immediately updated when an IPv6 host disappears.

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 Device Tracking

IPv6 First-Hop Security Binding Table

A database table of IPv6 neighbors connected to the device is created from information sources such as Neighbor Discovery Protocol (NDP) snooping. This database, or binding, table is used by various IPv6 guard features to validate the link-layer address (LLA), the IPv4 or IPv6 address, and prefix binding of the neighbors to prevent spoofing and redirect attacks.

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IPv6 Device Tracking

The IPv6 Device Tracking feature provides IPv6 host liveness tracking so that a neighbor table can be immediately updated when an IPv6 host disappears. The feature tracks the liveness of the neighbors connected through the Layer 2 device on a regular basis in order to revoke network access privileges as they become inactive.

How to Configure IPv6 Device Tracking

Configuring IPv6 Binding Table Content

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **ipv6 neighbor binding vlan** *vlan-id* {**interface** *type number* | *ipv6-address* | *mac-address*} [**tracking** [**disable** | **enable** | **retry-interval** *value*] | **reachable-lifetime** *value*]
4. **ipv6 neighbor binding max-entries** *entries* [**vlan-limit** *number* | **interface-limit** *number* | **mac-limit** *number*]
5. **ipv6 neighbor binding logging**
6. **exit**
7. **show ipv6 neighbor binding** [**vlan** *vlan-id* | **interface** *type number* | **ipv6** *ipv6-address* | **mac** *mac-address*]

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	**ipv6 neighbor binding vlan** *vlan-id* {**interface** *type number* | *ipv6-address* | *mac-address*} [**tracking** [**disable** | **enable** | **retry-interval** *value*] | **reachable-lifetime** *value*] **Example:** `Device(config)# ipv6 neighbor binding vlan 100 interface Ethernet 0/0 reachable-lifetime 100`	Adds a static entry to the binding table database.
Step 4	**ipv6 neighbor binding max-entries** *entries* [**vlan-limit** *number* | **interface-limit** *number* | **mac-limit** *number*] **Example:** `Device(config)# ipv6 neighbor binding max-entries 100`	Specifies the maximum number of entries that are allowed to be inserted in the binding table cache.
Step 5	**ipv6 neighbor binding logging** **Example:** `Device(config)# ipv6 neighbor binding logging`	Enables the logging of binding table main events.
Step 6	**exit** **Example:** `Device(config)# exit`	Exits global configuration mode and enters privileged EXEC mode.
Step 7	**show ipv6 neighbor binding** [**vlan** *vlan-id* | **interface** *type number* | **ipv6** *ipv6-address* | **mac** *mac-address*] **Example:** `Device# show ipv6 neighbor binding`	Displays the contents of a binding table.

Configuring IPv6 Device Tracking

Perform this task to provide fine tuning for the life cycle of an entry in the binding table for the IPv6 Device Tracking feature. For IPv6 device tracking to work, the binding table needs to be populated.

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **ipv6 neighbor tracking** [**retry-interval** *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	**ipv6 neighbor tracking** [**retry-interval** *value*] **Example:** `Device(config)# ipv6 neighbor tracking`	Tracks entries in the binding table.

Configuration Examples for IPv6 Device Tracking

• Example: Verifying IPv6 Device Tracking, page 4

Example: Verifying IPv6 Device Tracking

```
Device# show ipv6 neighbor

    IPv6 address                Link-Layer addr Interface vlan prlvl age   state      Time
left
ND  FE80::A8BB:CCFF:FE01:F500   AABB.CC01.F500  Et0/0     100  0002    0   REACHABLE  8850
L   FE80::21D:71FF:FE99:4900    001D.7199.4900  Vl100     100  0080 7203   DOWN       N/A
ND  2001:600::1                 AABB.CC01.F500  Et0/0     100  0003    0   REACHABLE  3181
ND  2001:300::1                 AABB.CC01.F500  Et0/0     100  0007    0   REACHABLE  9559
L   2001:400::1                 001D.7199.4900  Vl100     100  0080 7188   DOWN       N/A
```

Additional References

Related Documents

Related Topic	Document Title
IPv6 addressing and connectivity	*IPv6 Configuration Guide*

Related Topic	Document Title
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

Standards and RFCs

Standard/RFC	Title
RFCs for IPv6	*IPv6 RFCs*

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 IPv6 Device Tracking

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 Device Tracking

Feature Name	Releases	Feature Information
IPv6 Device Tracking	12.2(50)SY 15.0(1)SY 15.0(2)SE 15.3(1)S	IPv6 device tracking provides IPv6 host liveness tracking so that a neighbor table can be immediately updated when an IPv6 host disappears.
	Cisco IOS XE Release 3.2SE	The following commands were introduced or modified: **ipv6 neighbor binding logging**, **ipv6 neighbor binding max-entries**, **ipv6 neighbor binding vlan**, **ipv6 neighbor tracking**, **show ipv6 neighbor binding**.

Glossary

- **CA**—certification authority.
- **CGA**—cryptographically generated address.
- **CPA**—certificate path answer.
- **CPR**—certificate path response.
- **CPS**—certification path solicitation. The solicitation message used in the addressing process.
- **CRL**—certificate revocation list.
- **CS**—certification server.
- **CSR**—certificate signing request.
- **DAD**—duplicate address detection. A mechanism that ensures two IPv6 nodes on the same link are not using the same address.
- **DER**—distinguished encoding rules. An encoding scheme for data values.
- **nonce**—An unpredictable random or pseudorandom number generated by a node and used once. In SeND, nonces are used to ensure that a particular advertisement is linked to the solicitation that triggered it.
- **non-SeND node**—An IPv6 node that does not implement SeND but uses only the Neighbor Discovery Protocol without security.
- **NUD**—neighbor unreachability detection. A mechanism used for tracking neighbor reachability.
- **PACL**—port-based access list.
- **PKI**—public key infrastructure.
- **RA**—router advertisement.
- **RD**—Router discovery allows the hosts to discover what devices exist on the link and what subnet prefixes are available. Router discovery is a part of the Neighbor Discovery Protocol.
- **Router Authorization Certificate**—A public key certificate.
- **SeND node**—An IPv6 node that implements SeND.
- **trust anchor**—An entity that the host trusts to authorize devices to act as devices. Hosts are configured with a set of trust anchors to protect device discovery.