



IPv6 Snooping

The IPv6 Snooping feature bundles several Layer 2 IPv6 first-hop security features, including IPv6 neighbor discovery inspection, IPv6 device tracking, IPv6 address glean, and IPv6 binding table recovery, to provide security and scalability. IPv6 ND inspection operates at Layer 2, or between Layer 2 and Layer 3, to provide IPv6 functions with security and scalability.

- [Finding Feature Information, on page 1](#)
- [Restrictions for IPv6 Snooping, on page 1](#)
- [Information About IPv6 Snooping, on page 2](#)
- [How to Configure IPv6 Snooping, on page 4](#)
- [Configuration Examples for IPv6 Snooping, on page 14](#)
- [Additional References for IPv6 Source Guard and Prefix Guard, on page 16](#)
- [Feature Information for IPv6 Snooping, on page 17](#)

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.

Restrictions for IPv6 Snooping

The IPv6 snooping feature is not supported on Etherchannel ports.

Information About IPv6 Snooping

IPv6 Global Policies

IPv6 global policies provide storage and access policy database services. IPv6 ND inspection and IPv6 RA guard are IPv6 global policies features. Every time an ND inspection or RA guard is configured globally, the policy attributes are stored in the software policy database. The policy is then applied to an interface, and the software policy database entry is updated to include this interface to which the policy is applied.

IPv6 Neighbor Discovery Inspection

The IPv6 Neighbor Discovery Inspection, or IPv6 "snooping," feature bundles several Layer 2 IPv6 first-hop security features, including IPv6 Address Glean and IPv6 Device Tracking. IPv6 neighbor discovery (ND) inspection operates at Layer 2, or between Layer 2 and Layer 3, and provides IPv6 features with security and scalability. This feature mitigates some of the inherent vulnerabilities for the neighbor discovery mechanism, such as attacks on duplicate address detection (DAD), address resolution, device discovery, and the neighbor cache.

IPv6 ND inspection learns and secures bindings for stateless autoconfiguration addresses in Layer 2 neighbor tables and analyzes ND messages in order to build a trusted binding table. IPv6 ND messages that do not have valid bindings are dropped. An ND message is considered trustworthy if its IPv6-to-MAC mapping is verifiable. This feature mitigates some of the inherent vulnerabilities for the neighbor discovery mechanism, such as attacks on duplicate address detection (DAD), address resolution, device discovery, and the neighbor cache.

When IPv6 ND inspection is configured on a target (which varies depending on platform target support and may include device ports, switch ports, Layer 2 interfaces, Layer 3 interfaces, and VLANs), capture instructions are downloaded to the hardware to redirect the ND protocol and Dynamic Host Configuration Protocol (DHCP) for IPv6 traffic up to the switch integrated security features (SISF) infrastructure in the routing device. For ND traffic, messages such as NS, NA, RS, RA, and REDIRECT are directed to SISF. For DHCP, UDP messages sourced from port 546 or 547 are redirected.

IPv6 ND inspection registers its "capture rules" to the classifier, which aggregates all rules from all features on a given target and installs the corresponding ACL down into the platform-dependent modules. Upon receiving redirected traffic, the classifier calls all entry points from any registered feature (for the target on which the traffic is being received), including the IPv6 ND inspection entry point. This entry point is the last to be called, so any decision (such as drop) made by another feature supersedes the IPv6 ND inspection decision.

IPv6 ND Inspection

IPv6 ND inspection learns and secures bindings for stateless autoconfiguration addresses in Layer 2 neighbor tables. IPv6 ND inspection analyzes neighbor discovery messages in order to build a trusted binding table database, and IPv6 neighbor discovery messages that do not have valid bindings are dropped. A neighbor discovery message is considered trustworthy if its IPv6-to-MAC mapping is verifiable.

This feature mitigates some of the inherent vulnerabilities for the neighbor discovery mechanism, such as attacks on duplicate address detection (DAD), address resolution, device discovery, and the neighbor cache.

IPv6 Device Tracking

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

IPv6 First-Hop Security Binding Table

The IPv6 First-Hop Security Binding Table recovery mechanism feature enables the binding table to recover in the event of a device reboot. A database table of IPv6 neighbors connected to the device is created from information sources such as ND 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.

This mechanism enables the binding table to recover in the event of a device reboot. The recovery mechanism will block any data traffic sourced from an unknown source; that is, a source not already specified in the binding table and previously learned through ND or DHCP gleaning. This feature recovers the missing binding table entries when the resolution for a destination address fails in the destination guard. When a failure occurs, a binding table entry is recovered by querying the DHCP server or the destination host, depending on the configuration.

Recovery Protocols and Prefix Lists

The IPv6 First-Hop Security Binding Table Recovery Mechanism feature introduces the capability to provide a prefix list that is matched before the recovery is attempted for both DHCP and NDP.

If an address does not match the prefix list associated with the protocol, then the recovery of the binding table entry will not be attempted with that protocol. The prefix list should correspond to the prefixes that are valid for address assignment in the Layer 2 domain using the protocol. The default is that there is no prefix list, in which case the recovery is attempted for all addresses. The command to associate a prefix list to a protocol is **protocol {dhcp | ndp} [prefix-list prefix-list-name]**.

IPv6 Device Tracking

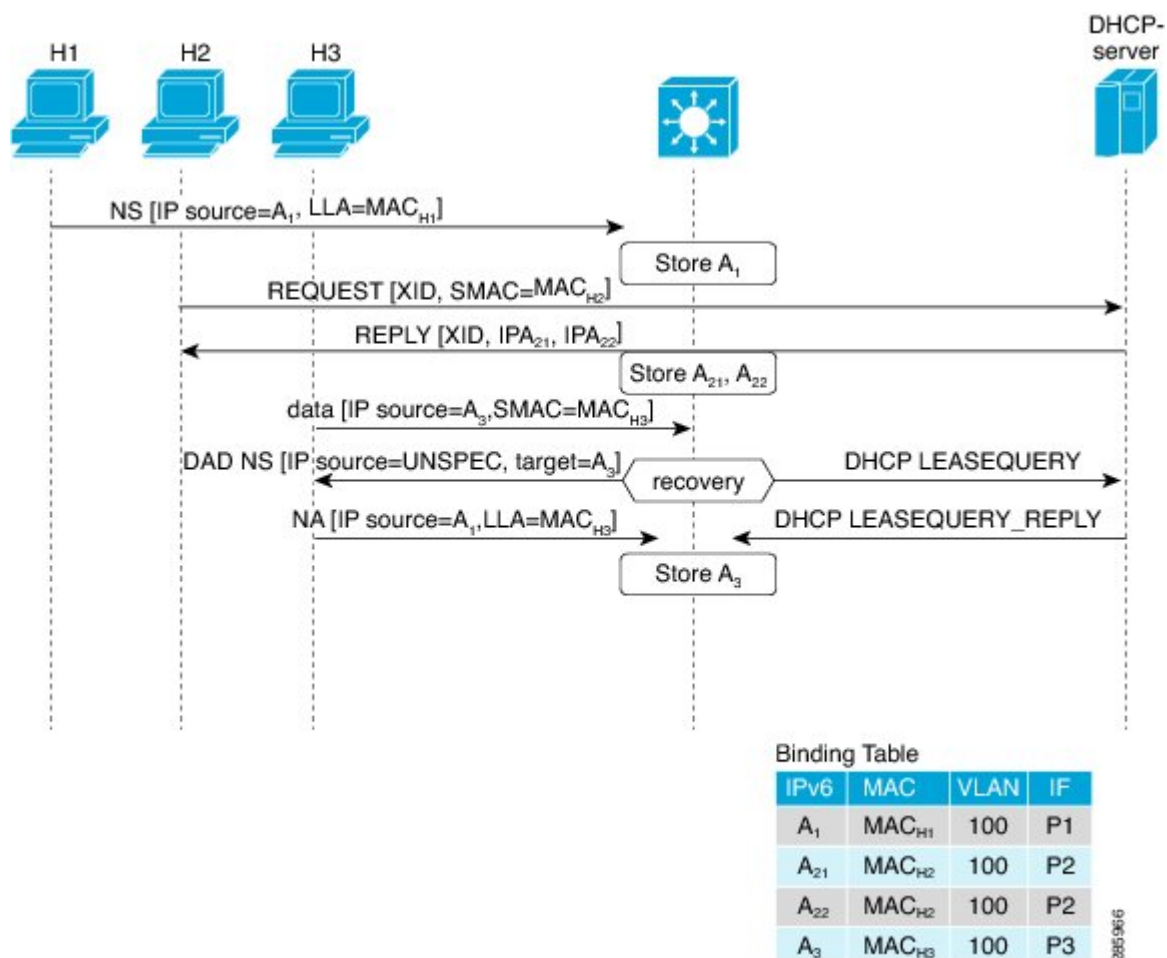
IPv6 device tracking provides IPv6 host liveness tracking so that a neighbor table can be immediately updated when an IPv6 host disappears.

IPv6 Address Glean

IPv6 address glean is the foundation for many other IPv6 features that depend on an accurate binding table. It inspects ND and DHCP messages on a link to glean addresses, and then populates the binding table with these addresses. This feature also enforces address ownership and limits the number of addresses any given node is allowed to claim.

The following figure shows how IPv6 address glean works.

Figure 1: IPv6 Address Glean



How to Configure IPv6 Snooping

Configuring IPv6 ND Inspection

SUMMARY STEPS

1. enable
2. configure terminal
3. ipv6 snooping policy *snooping-policy*
4. ipv6 snooping attach-policy *snooping-policy*

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: <pre>Device> enable</pre>	Enables privileged EXEC mode. <ul style="list-style-type: none"> • Enter your password if prompted.
Step 2	configure terminal Example: <pre>Device# configure terminal</pre>	Enters global configuration mode.
Step 3	ipv6 snooping policy <i>snooping-policy</i> Example: <pre>Device(config)# ipv6 snooping policy policy1</pre>	Configures an IPv6 snooping policy and enters IPv6 snooping configuration mode.
Step 4	ipv6 snooping attach-policy <i>snooping-policy</i> Example: <pre>Device(config-ipv6-snooping)# ipv6 snooping attach-policy policy1</pre>	Attaches the IPv6 snooping policy to a target.

Configuring IPv6 ND Inspection Globally

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **ipv6 nd inspection policy** *policy-name*
4. **drop-unsecure**
5. **sec-level minimum** *value*
6. **device-role** {host | monitor | router}
7. **tracking** {enable [reachable-lifetime {*value* | infinite}] | disable [stale-lifetime {*value* | infinite}]}
8. **trusted-port**

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: <pre>Device> enable</pre>	Enables privileged EXEC mode. <ul style="list-style-type: none"> • Enter your password if prompted.
Step 2	configure terminal Example: <pre>Device# configure terminal</pre>	Enters global configuration mode.

	Command or Action	Purpose
Step 3	ipv6 nd inspection policy <i>policy-name</i> Example: <pre>Device(config)# ipv6 nd inspection policy policy1</pre>	Defines the ND inspection policy name and enters ND inspection policy configuration mode.
Step 4	drop-unsecure Example: <pre>Device(config-nd-inspection)# drop-unsecure</pre>	Drops messages with no options, invalid options, or an invalid signature.
Step 5	sec-level minimum <i>value</i> Example: <pre>Device(config-nd-inspection)# sec-level minimum 2</pre>	Specifies the minimum security level parameter value when cryptographically generated address (CGA) options are used.
Step 6	device-role { <i>host</i> <i>monitor</i> <i>router</i> } Example: <pre>Device(config-nd-inspection)# device-role monitor</pre>	Specifies the role of the device attached to the port.
Step 7	tracking { <i>enable</i> [<i>reachable-lifetime</i> { <i>value</i> <i>infinite</i> }] <i>disable</i> [<i>stale-lifetime</i> { <i>value</i> <i>infinite</i> }]} Example: <pre>Device(config-nd-inspection)# tracking disable stale-lifetime infinite</pre>	Overrides the default tracking policy on a port.
Step 8	trusted-port Example: <pre>Device(config-nd-inspection)# trusted-port</pre>	Configures a port to become a trusted port.

Applying IPv6 ND Inspection on an Interface

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **interface** *type number*
4. **ipv6 nd inspection** [*attach-policy* [*policy* *policy-name*] | *vlan* {*add* | *except* | *none* | *remove* | *all*} *vlan* [*vlan1*, *vlan2*, *vlan3*...]]

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: <pre>Device> enable</pre>	Enables privileged EXEC mode. <ul style="list-style-type: none"> • Enter your password if prompted.
Step 2	configure terminal Example: <pre>Device# configure terminal</pre>	Enters global configuration mode.
Step 3	interface <i>type number</i> Example: <pre>Device(config)# interface fastethernet 0/0</pre>	Specifies an interface type and number and enters interface configuration mode.
Step 4	ipv6 nd inspection [attach-policy [<i>policy policy-name</i>] vlan { add except none remove all } <i>vlan</i> [<i>vlan1, vlan2, vlan3...</i>]] Example: <pre>Device(config-if)# ipv6 nd inspection</pre>	Applies the ND Inspection feature on the interface.

Verifying and Troubleshooting IPv6 ND Inspection

SUMMARY STEPS

1. enable
2. show ipv6 snooping capture-policy [*interface type number*]
3. show ipv6 snooping counter [*interface type number*]
4. show ipv6 snooping features
5. show ipv6 snooping policies [*interface type number*]
6. debug ipv6 snooping

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: <pre>Device> enable</pre>	Enables privileged EXEC mode. <ul style="list-style-type: none"> • Enter your password if prompted.
Step 2	show ipv6 snooping capture-policy [<i>interface type number</i>] Example:	Displays snooping ND message capture policies.

	Command or Action	Purpose
	Device# show ipv6 snooping capture-policy interface ethernet 0/0	
Step 3	show ipv6 snooping counter [<i>interface type number</i>] Example: Device# show ipv6 snooping counter interface FastEthernet 4/12	Displays information about the packets counted by the interface counter.
Step 4	show ipv6 snooping features Example: Device# show ipv6 snooping features	Displays information about snooping features configured on the device.
Step 5	show ipv6 snooping policies [<i>interface type number</i>] Example: Device# show ipv6 snooping policies	Displays information about the configured policies and the interfaces to which they are attached.
Step 6	debug ipv6 snooping Example: Device# debug ipv6 snooping	Enables debugging for snooping information in IPv6.

Configuring IPv6 Device Tracking

Configuring IPv6 First-Hop Security Binding Table Recovery

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	Enables privileged EXEC mode.

	Command or Action	Purpose
	Example: Device> enable	<ul style="list-style-type: none"> Enter your password if prompted.
Step 2	configure terminal Example: Device# configure terminal	Enters global configuration mode.
Step 3	ipv6 neighbor binding vlan <i>vlan-id</i> {interface <i>type number</i> <i>ipv6-address</i> <i>mac-address</i>} [tracking [disable enable retry-interval <i>value</i>] reachable-lifetime <i>value</i>] 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 <i>entries</i> [vlan-limit <i>number</i> interface-limit <i>number</i> mac-limit <i>number</i>] 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 <i>vlan-id</i> interface <i>type number</i> ipv6 <i>ipv6-address</i> mac <i>mac-address</i>] Example: Device# show ipv6 neighbor binding	Displays the contents of a binding table.

Configuring the IPv6 First-Hop Security Binding Table Recovery Mechanism

SUMMARY STEPS

1. enable
2. configure terminal
3. ipv6 neighbor binding vlan *vlan-id* *ipv6-address* interface *type number*
4. ipv6 prefix-list *list-name* permit *ipv6-prefix/prefix-length* ge *ge-value*

5. **ipv6 snooping policy** *snooping-policy-id*
6. **destination-glean** {*recovery* | *log-only*} [*dhcp*]
7. **protocol dhcp** [*prefix-list prefix-list-name*]
8. **exit**
9. **ipv6 destination-guard policy** *policy-name*
10. **enforcement** {*always* | *stressed*}
11. **exit**
12. **ipv6 dhcp guard policy** *policy-name*
13. **device-role server**
14. **exit**
15. **vlan configuration** *vlan-list-id*
16. **ipv6 snooping attach-policy** *policy-name*
17. **ipv6 destination-guard attach-policy** *policy-name*
18. **end**

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 binding vlan <i>vlan-id</i> <i>ipv6-address</i> interface <i>type number</i> Example: Device(config)# ipv6 neighbor binding vlan 100 2001:db8::1 interface ethernet3/0	Adds a static entry to the binding table database.
Step 4	ipv6 prefix-list <i>list-name</i> permit <i>ipv6-prefix/prefix-length</i> ge <i>ge-value</i> Example: Device(config)# ipv6 prefix-list abc permit 2001:DB8::/64 ge 128	Creates an entry in an IPv6 prefix list.
Step 5	ipv6 snooping policy <i>snooping-policy-id</i> Example: Device(config)# ipv6 snooping policy xyz	Enters IPv6 snooping configuration mode and allows you to modify the configuration of the snooping policy specified.

	Command or Action	Purpose
Step 6	destination-glean {recovery log-only} [dhcp] Example: <pre>Device(config-ipv6-snooping)# destination-glean recovery dhcp</pre>	<p>Specifies that destination addresses should be recovered from DHCP.</p> <p>Note If logging (without recovery) is required, use the destination-glean log-only command.</p>
Step 7	protocol dhcp [prefix-list prefix-list-name] Example: <pre>Device(config-ipv6-snooping)# protocol dhcp prefix-list abc</pre>	(Optional) Specifies that addresses should be gleaned with DHCP and associates the protocol with a specific IPv6 prefix list.
Step 8	exit Example: <pre>Device(config-ipv6-snooping)# exit</pre>	Exits IPv6 snooping configuration mode and returns to global configuration mode.
Step 9	ipv6 destination-guard policy policy-name Example: <pre>Device(config)# ipv6 destination-guard policy xyz</pre>	(Optional) Enters destination guard configuration mode and allows you to modify the configuration of the specified destination guard policy.
Step 10	enforcement {always stressed} Example: <pre>Device(config-destguard)# enforcement stressed</pre>	Sets the enforcement level of the policy to be either enforced under all conditions or only when the system is under stress.
Step 11	exit Example: <pre>Device(config-destguard)# exit</pre>	Exits destination guard configuration mode and returns to global configuration mode.
Step 12	ipv6 dhcp guard policy policy-name Example: <pre>Device(config)# ipv6 dhcp guard policy server_side</pre>	Enters DHCP guard configuration mode and allows you to modify the configuration of the specified DHCP guard policy.
Step 13	device-role server Example: <pre>Device(config-dhcp-guard)# device-role server</pre>	Sets the role of the device that is attached to the server.
Step 14	exit Example: <pre>Device(config-destguard)# exit</pre>	Exits DHCP guard configuration mode and returns to global configuration mode.

	Command or Action	Purpose
Step 15	vlan configuration <i>vlan-list-id</i> Example: <pre>Device(config)# vlan configuration 100</pre>	Enters VLAN configuration mode and allows you to modify the configuration of the specified VLAN.
Step 16	ipv6 snooping attach-policy <i>policy-name</i> Example: <pre>Device(config-vlan-config)# ipv6 snooping attach-policy xyz</pre>	Attaches the IPv6 snooping policy to a VLAN.
Step 17	ipv6 destination-guard attach-policy <i>policy-name</i> Example: <pre>Device(config-vlan-config)# ipv6 destination-guard attach-policy xyz</pre>	Attaches the destination guard policy to the specified VLAN. Note For information about how to configure an IPv6 destination guard policy, see the “IPv6 Destination Guard” module.
Step 18	end Example: <pre>Device(config-vlan-config)# end</pre>	Exits VLAN configuration mode and returns to privileged EXEC mode.

Configuring Address Gleaning and Associating Recovery Protocols with Prefix Lists

SUMMARY STEPS

1. enable
2. configure terminal
3. ipv6 snooping policy *snooping-policy-id*
4. protocol {dhcp | ndp} [*prefix-list prefix-list-name*]
5. end

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: <pre>Device> enable</pre>	Enables privileged EXEC mode. <ul style="list-style-type: none"> • Enter your password if prompted.
Step 2	configure terminal Example: <pre>Device# configure terminal</pre>	Enters global configuration mode.

	Command or Action	Purpose
Step 3	ipv6 snooping policy <i>snooping-policy-id</i> Example: <pre>Device(config)# ipv6 snooping policy 200</pre>	Enters IPv6 snooping configuration mode and allows you to modify the configuration of the snooping policy specified.
Step 4	protocol {dhcp ndp} [prefix-list <i>prefix-list-name</i>] Example: <pre>Device(config-ipv6-snooping)# protocol dhcp prefix-list dhcp_prefix_list</pre>	Specifies that address should be gleaned with dynamic Host Configuration Protocol (DHCP) and associates a recovery protocol (DHCP) with the prefix list.
Step 5	end Example: <pre>Device(config-ipv6-snooping)# end</pre>	Exits IPv6 snooping configuration mode and returns to privileged EXEC mode.

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: <pre>Device> enable</pre>	Enables privileged EXEC mode. <ul style="list-style-type: none"> • Enter your password if prompted.
Step 2	configure terminal Example: <pre>Device# configure terminal</pre>	Enters global configuration mode.
Step 3	ipv6 neighbor tracking [<i>retry-interval value</i>] Example: <pre>Device(config)# ipv6 neighbor tracking</pre>	Tracks entries in the binding table.

Configuring IPv6 Prefix Glean

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **ipv6 snooping policy** *snooping-policy*
4. **prefix-glean** [only]

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable Example: <pre>Device> enable</pre>	Enables privileged EXEC mode. <ul style="list-style-type: none"> • Enter your password if prompted.
Step 2	configure terminal Example: <pre>Device# configure terminal</pre>	Enters global configuration mode.
Step 3	ipv6 snooping policy <i>snooping-policy</i> Example: <pre>Device(config)# ipv6 snooping policy policy1</pre>	Configures an IPv6 snooping policy and enters IPv6 snooping policy configuration mode.
Step 4	prefix-glean [only] Example: <pre>Device(config-ipv6-snooping)# prefix-glean</pre>	Enables the device to glean prefixes from IPv6 RAs or DHCPv6 traffic.

Configuration Examples for IPv6 Snooping

Example: Configuring IPv6 ND Inspection

```

Device(config)# ipv6 snooping policy policy1
Device(config-ipv6-snooping)# ipv6 snooping attach-policy policy1
Device(config-ipv6-snooping)# exit
.
.
.
Device# show ipv6 snooping policies policy1
Policy policy1 configuration:
  trusted-port
  device-role node
Policy applied on the following interfaces:
  Et0/0      vlan all
  Et1/0      vlan all

```

Policy applied on the following vlans:
 vlan 1-100,200,300-400

Example: Configuring IPv6 ND Inspection and RA Guard

This example provides information about an interface on which both the Neighbor Discovery Inspection and RA Guard features are configured:

Device# **show ipv6 snooping capture-policy interface ethernet 0/0**

```
Hardware policy registered on Ethernet 0/0
Protocol      Protocol value  Message  Value  Action  Feature
ICMP          58              RS        85     punt    RA Guard
              58              RA        86     drop    RA guard
              58              NS        87     punt    ND Inspection
ICM           58              NA        88     punt    ND Inspection
ICMP          58              REDIR     89     drop    RA Guard
              58              REDIR     89     punt    ND Inspection
```

Example: Configuring IPv6 Binding Table Content

```
ipv6 neighbor binding vlan 100 ethernet 0/0 reachable-entries 100
ipv6 neighbor binding max-entries 100
ipv6 neighbor binding logging
exit
```

Example: Configuring IPv6 First-Hop Security Binding Table Recovery

```
ipv6 dhcp-client leasequery server 2001:db8::1 vlan 100
ipv6 neighbor binding vlan 100 2001:db8::1 interface ethernet3/0

ipv6 prefix-list abc permit 2001:DB8::/64 ge 128
ipv6 snooping policy xyz
destination-glean recovery dhcp
protocol dhcp prefix-list abc
  ipv6 destination-guard policy xyz
exit

ipv6 dhcp guard policy server_side
device-role server

vlan configuration 100
  ipv6 snooping attach-policy xyz
  ipv6 destination-guard attach-policy xyz

interface ethernet3/0
  switchport
  switchport access vlan 100
  switchport mode access
  duplex auto
  ipv6 dhcp guard attach-policy server_side
```

```
interface vlan100
no ip address
ipv6 address 2001:DB8::100/64
```

Example: Configuring Address Gleaning and Associating Recovery Protocols with Prefix Lists

The following example shows that NDP will be used for the recovery for all addresses and that DHCP will be used to recover addresses that match the prefix list called `dhcp_prefix_list`:

```
Device(config-ipv6-snooping)# protocol ndp
Device(config-ipv6-snooping)# protocol dhcp prefix-list dhcp_prefix_list
```

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	Eth0/0	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	Eth0/0	100	0003	0	REACHABLE	3181
ND	2001:300::1	AABB.CC01.F500	Eth0/0	100	0007	0	REACHABLE	9559
L	2001:400::1	001D.7199.4900	Vl100	100	0080	7188	DOWN	N/A

Additional References for IPv6 Source Guard and Prefix Guard

Related Documents

Related Topic	Document Title
IPv6 addressing and connectivity	<i>IPv6 Configuration Guide</i>
IPv4 addressing	<i>IP Addressing: IPv4 Addressing Configuration Guide</i>
Cisco IOS commands	<i>Cisco IOS Master Command List, All Releases</i>
IPv6 commands	<i>Cisco IOS IPv6 Command Reference</i>
Cisco IOS IPv6 features	<i>Cisco IOS IPv6 Feature Mapping</i>

Standards and RFCs

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

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 Snooping

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 Snooping

Feature Name	Releases	Feature Information
IPv6 Snooping	12.2(50)SY 15.0(1)SY 15.0(2)SE 15.1(2)SG 15.3(1)S Cisco IOS XE Release 3.2SE Cisco IOS XE Release 3.8S Cisco IOS Release 15.2(1)E	<p>IPv6 snooping bundles several Layer 2 IPv6 first-hop security features, including IPv6 ND inspection, IPv6 device tracking, IPv6 address glean, and IPv6 first-hop security binding table recovery, to provide security and scalability. IPv6 snooping operates at Layer 2, or between Layer 2 and Layer 3, to provide IPv6 functions with security and scalability.</p> <p>The following commands were introduced or modified: data-glean, debug ipv6 snooping, destination-glean, device-role, drop-unsecure, ipv6 nd inspection, ipv6 nd inspection policy, ipv6 neighbor binding logging, ipv6 neighbor binding max-entries, ipv6 neighbor binding vlan, ipv6 neighbor tracking, ipv6 snooping attach-policy, ipv6 snooping policy, prefix-glean, protocol (IPv6), sec-level minimum, show ipv6 neighbor binding, show ipv6 snooping capture-policy, show ipv6 snooping counters, show ipv6 snooping features, show ipv6 snooping policies, tracking, trusted-port.</p>