



IPv6 Destination Guard

The IPv6 Destination Guard feature works with IPv6 neighbor discovery to ensure that the device performs address resolution only for those addresses that are known to be active on the link. It relies on the address glean functionality to populate all destinations active on the link into the binding table and then blocks resolutions before they happen when the destination is not found in the binding table.

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Finding Feature Information

Your software release may not support all the features documented in this module. For the latest feature information and caveats, see 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 document.

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.

Prerequisites for IPv6 Destination Guard

- You should be familiar with the IPv6 Neighbor Discovery feature. For information about IPv6 neighbor discovery, see the “Implementing IPv6 Addressing and Basic Connectivity” module.
- You should be familiar with the IPv6 First-Hop Security Binding Table feature. For information, see the “IPv6 First-Hop Security Binding Table” module.

Information About IPv6 Destination Guard

IPv6 Destination Guard Overview

The IPv6 Destination Guard feature works with IPv6 neighbor discovery to ensure that the device performs address resolution only for those addresses that are known to be active on the link. It relies on the address glean functionality to populate all destinations active on the link into the binding table and then blocks resolutions before they happen when the destination is not found in the binding table.

Prior to filtering incoming routed traffic, the device gleans addresses on the link, by snooping Neighbor Discovery Protocol (NDP) and DHCP messages. When a packet reaches the device and there is not yet an adjacency for the destination or for the next hop, the NDP consults the device binding table to verify that the destination on link or the next-hop have been previously gleaned. If the destination is not found in the binding table, the packet is dropped. Otherwise, neighbor discovery resolution is performed.

How to Configure the IPv6 Destination Guard

Configuring IPv6 Destination Guard

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **ipv6 destination-guard policy *policy-name***
4. **enforcement {always | stressed}**
5. **exit**
6. **interface *type number***
7. **ipv6 destination-guard attach-policy [*policy-name*]**
8. **exit**
9. **show ipv6 destination-guard policy [*policy-name*]**

DETAILED STEPS

	Command or Action	Purpose
Step 1	enable	Enables privileged EXEC mode. • Enter your password if prompted.
	Example: Device> enable	

	Command or Action	Purpose
Step 2	configure terminal Example: Device# configure terminal	Enters global configuration mode.
Step 3	ipv6 destination-guard policy <i>policy-name</i> Example: Device(config)# ipv6 destination-guard policy poll	Defines the destination guard policy name and enters destination-guard configuration mode.
Step 4	enforcement {always stressed} Example: Device(config-destguard)# enforcement always	Sets the enforcement level for the target address.
Step 5	exit Example: Device(config-destguard)# exit	Exits destination-guard configuration mode and returns to global configuration mode.
Step 6	interface <i>type number</i> Example: Device(config)# interface GigabitEthernet 0/0/1	Enters interface configuration mode.
Step 7	ipv6 destination-guard attach-policy [<i>policy-name</i>] Example: Device(config-if)# ipv6 destination-guard attach-policy poll	Attaches a destination guard policy to an interface.
Step 8	exit Example: Device(config-if)# exit	Exits interface configuration mode and returns to privileged EXEC configuration mode.
Step 9	show ipv6 destination-guard policy [<i>policy-name</i>] Example: Device# show ipv6 destination-guard policy poll	(Optional) Displays the policy configuration and all interfaces where the policy is applied.

Configuration Examples for IPv6 Destination Guard

Example: Configuring an IPv6 Destination Guard Policy

The following example shows how to configure a destination guard policy:

```
Router> enable
Router# configure terminal
Router(config)# interface GigabitEthernet 0/0/1
Router(config-if)# ipv6 destination-guard attach-policy destination

Router# show ipv6 destination-guard policy destination
Destination guard policy Destination:
  enforcement always
  Target: Gi0/0/1
```

Additional References for IPv6 Destination Guard

Related Documents

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

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 Destination Guard

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 Destination Guard

Feature Name	Releases	Feature Information
IPv6 Destination Guard	15.2(4)S 15.1(2)SG Cisco IOS XE Release 3.9S	The IPv6 Destination Guard feature blocks data traffic from an unknown source and filters IPv6 traffic based on the destination address. In Cisco IOS XE Release 3.9S, support was added for the Cisco CSR 1000V. In Cisco IOS XE Release 3.9S, support was added for the Cisco ASR 1000 Series Routers. The following commands were introduced or modified: enforcement, ipv6 destination-guard attach-policy, ipv6 destination-guard policy, show ipv6 destination-guard policy.

