

IPv6 ACL Extensions for Hop by Hop Filtering

The IPv6 ACL Extensions for Hop by Hop Filtering feature allows you to control IPv6 traffic that might contain hop-by-hop extension headers. You can configure an access control list (ACL) to deny all hop-by-hop traffic or to selectively permit traffic based on protocol.

- Information About IPv6 ACL Extensions for Hop by Hop Filtering, on page 1
- How to Configure IPv6 ACL Extensions for Hop by Hop Filtering, on page 1
- Configuration Example for IPv6 ACL Extensions for Hop by Hop Filtering, on page 3
- Additional References, on page 4
- Feature Information for IPv6 ACL Extensions for Hop by Hop Filtering, on page 5

Information About IPv6 ACL Extensions for Hop by Hop Filtering

ACLs and Traffic Forwarding

IPv6 access control lists (ACLs) determine what traffic is blocked and what traffic is forwarded at device interfaces. ACLs allow filtering based on source and destination addresses, inbound and outbound to a specific interface. Use the **ipv6 access-list** command to define an IPv6 ACL, and the **deny** and **permit** commands to configure its conditions.

The IPv6 ACL Extensions for Hop by Hop Filtering feature implements RFC 2460 to support traffic filtering in any upper-layer protocol type.

How to Configure IPv6 ACL Extensions for Hop by Hop Filtering

Configuring IPv6 ACL Extensions for Hop by Hop Filtering

SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **ipv6 access-list** *access-list-name*

4. **permit** *protocol* {*source-ipv6-prefix/prefix-length* | **any** | **host** *source-ipv6-address* | **auth**} [*operator* [*port-number*]] {*destination-ipv6-prefix/prefix-length* | **any** | **host** *destination-ipv6-address* | **auth**} [*operator* [*port-number*]] [**dest-option-type** [*header-number* | *header-type*]] [**dscp** *value*] [**flow-label** *value*] [**fragments**] [**hbh**] [**log**] [**log-input**] [**mobility**] [**mobility-type** [*mh-number* | *mh-type*]] [**reflect** *name* [**timeout** *value*]] [**routing**] [**routing-type** *routing-number*] [**sequence** *value*] [**time-range** *name*]
5. **deny** *protocol* {*source-ipv6-prefix/prefix-length* | **any** | **host** *source-ipv6-address* | **auth**} [*operator* [*port-number*]] {*destination-ipv6-prefix/prefix-length* | **any** | **host** *destination-ipv6-address* | **auth**} [*operator* [*port-number*]] [**dest-option-type** [*header-number* | *header-type*]] [**dscp** *value*] [**flow-label** *value*] [**fragments**] [**hbh**] [**log**] [**log-input**] [**mobility**] [**mobility-type** [*mh-number* | *mh-type*]] [**routing**] [**routing-type** *routing-number*] [**sequence** *value*] [**time-range** *name*] [**undetermined-transport**]
6. **end**

DETAILED STEPS

Procedure

	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 access-list** *access-list-name* **Example:** `Device(config)# ipv6 access-list hbh-acl`	Defines an IPv6 ACL and enters IPv6 access list configuration mode.
Step 4	**permit** *protocol* {*source-ipv6-prefix/prefix-length*	**any**	**host** *source-ipv6-address*	**auth**} [*operator* [*port-number*]] {*destination-ipv6-prefix/prefix-length*	**any**	**host** *destination-ipv6-address*	**auth**} [*operator* [*port-number*]] [**dest-option-type** [*header-number*	*header-type*]] [**dscp** *value*] [**flow-label** *value*] [**fragments**] [**hbh**] [**log**] [**log-input**] [**mobility**] [**mobility-type** [*mh-number*	*mh-type*]] [**reflect** *name* [**timeout** *value*]] [**routing**] [**routing-type** *routing-number*] [**sequence** *value*] [**time-range** *name*] **Example:** `Device(config-ipv6-acl)# permit icmp any any dest-option-type`	Sets permit conditions for the IPv6 ACL.
Step 5	**deny** *protocol* {*source-ipv6-prefix/prefix-length*	**any**	**host** *source-ipv6-address*	**auth**} [*operator* [*port-number*]] {*destination-ipv6-prefix/prefix-length*	**any**	**host** *destination-ipv6-address*	**auth**} [*operator* [*port-number*]] [**dest-option-type** [*header-number*	*header-type*]] [**dscp**	Sets deny conditions for the IPv6 ACL.

	Command or Action	Purpose
	value] [**flow-label** *value*] [**fragments**] [**hbh**] [**log**] [**log-input**] [**mobility**] [**mobility-type** [*mh-number* | *mh-type*]] [**routing**] [**routing-type** *routing-number*] [**sequence** *value*] [**time-range** *name*] [**undetermined-transport**] **Example:** `Device(config-ipv6-acl)# deny icmp any any dest-option-type`	
Step 6	**end** **Example:** `Device (config-ipv6-acl)# end`	Returns to privileged EXEC configuration mode.

Configuration Example for IPv6 ACL Extensions for Hop by Hop Filtering

Example: IPv6 ACL Extensions for Hop by Hop Filtering

```
Device(config)# ipv6 access-list hbh_acl
Device(config-ipv6-acl)# permit tcp any any hbh
Device(config-ipv6-acl)# permit tcp any any
Device(config-ipv6-acl)# permit udp any any
Device(config-ipv6-acl)# permit udp any any hbh
Device(config-ipv6-acl)# permit hbh any any
Device(config-ipv6-acl)# permit any any
Device(config-ipv6-acl)# hardware statistics
Device(config-ipv6-acl)# exit

! Assign an IP address and add the ACL on the interface.

Device(config)# interface FastEthernet3/1
Device(config-if)# ipv6 address 1001::1/64
Device(config-if)# ipv6 traffic-filter hbh_acl in
Device(config-if)# exit
Device(config)# exit
Device# clear counters
Clear "show interface" counters on all interfaces [confirm]
Device#

! Verify the configurations.

Device# show running-config interface FastEthernet3/1

Building configuration...

Current configuration : 114 bytes
!
interface FastEthernet3/1
no switchport
```

```
ipv6 address 1001::1/64
ipv6 traffic-filter hbh_acl
end
```

Additional References

Related Documents

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

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 ACL Extensions for Hop by Hop Filtering

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 ACL Extensions for Hop by Hop Filtering

Feature Name	Releases	Feature Information
IPv6 ACL Extensions for Hop by Hop Filtering	Cisco IOS Release XE 3.4S Cisco IOS Release XE 3.5S Cisco IOS Release XE 3.6S Cisco IOS Release XE 3.3SG	Allows you to control IPv6 traffic that might contain hop-by-hop extension headers. The following commands were introduced or modified: **deny** (IPv6), **permit** (IPv6).