



## IPv6 ACL Extensions for Hop by Hop Filtering

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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.

### 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 <http://tools.cisco.com/ITDIT/CFN/>. An account on <http://www.cisco.com/> is not required.

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## Hardware Compatibility Matrix for Cisco cBR Series Routers



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**Note** The hardware components introduced in a given Cisco IOS-XE Release are supported in all subsequent releases unless otherwise specified.

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Table 1: Hardware Compatibility Matrix for the Cisco cBR Series Routers

Cisco CMTS Platform	Processor Engine	Interface Cards
Cisco cBR-8 Converged Broadband Router	<p><b>Cisco IOS-XE Release 16.5.1 and Later Releases</b></p> <p>Cisco cBR-8 Supervisor:</p> <ul style="list-style-type: none"> <li>• PID—CBR-CCAP-SUP-160G</li> <li>• PID—CBR-CCAP-SUP-60G</li> <li>• PID—CBR-SUP-8X10G-PIC</li> </ul>	<p><b>Cisco IOS-XE Release 16.5.1 and Later Releases</b></p> <p>Cisco cBR-8 CCAP Line Cards:</p> <ul style="list-style-type: none"> <li>• PID—CBR-LC-8D30-16U30</li> <li>• PID—CBR-LC-8D31-16U30</li> <li>• PID—CBR-RF-PIC</li> <li>• PID—CBR-RF-PROT-PIC</li> <li>• PID—CBR-CCAP-LC-40G-R</li> </ul> <p>Cisco cBR-8 Downstream PHY Modules:</p> <ul style="list-style-type: none"> <li>• PID—CBR-D30-DS-MOD</li> <li>• PID—CBR-D31-DS-MOD</li> </ul> <p>Cisco cBR-8 Upstream PHY Modules:</p> <ul style="list-style-type: none"> <li>• PID—CBR-D30-US-MOD</li> <li>• PID—CBR-D31-US-MOD</li> </ul>

## 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

### Procedure

	Command or Action	Purpose
<b>Step 1</b>	<b>enable</b> <b>Example:</b> Device> enable	Enables privileged EXEC mode.  • Enter your password if prompted.
<b>Step 2</b>	<b>configure terminal</b> <b>Example:</b> Device# configure terminal	Enters global configuration mode.
<b>Step 3</b>	<b>ipv6 access-list <i>access-list-name</i></b> <b>Example:</b> Device(config)# ipv6 access-list hbh-acl	Defines an IPv6 ACL and enters IPv6 access list configuration mode.
<b>Step 4</b>	<b>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 ]</b> <b>Example:</b> Device(config-ipv6-acl)# permit icmp any any dest-option-type	Sets permit conditions for the IPv6 ACL.
<b>Step 5</b>	<b>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 ] [</b>	Sets deny conditions for the IPv6 ACL.

	Command or Action	Purpose
	<b>log</b> [ <b>log-input</b> ] [ <b>mobility</b> ] [ <b>mobility-type</b> ] [ <b>mh-number</b>   <b>mh-type</b> ] [ <b>routing</b> ] [ <b>routing-type</b> <i>routing-number</i> ] [ <b>sequence value</b> ] [ <b>time-range</b> <i>name</i> ] [ <b>undetermined-transport</b> ]  <b>Example:</b> Device(config-ipv6-acl)# deny icmp any any dest-option-type	
<b>Step 6</b>	<b>end</b>  <b>Example:</b> 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 TenGigabitEthernet4/1/0
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 TenGigabitEthernet4/1/0

Building configuration...

Current configuration : 114 bytes
!
interface TenGigabitEthernet4/1/0
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	<i>IPv6 Configuration Guide</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>

### 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.	<a href="http://www.cisco.com/cisco/web/support/index.html">http://www.cisco.com/cisco/web/support/index.html</a>

## Feature Information for IPv6 ACL Extensions for Hop by Hop Filtering

Use Cisco Feature Navigator to find information about the platform support and software image support. Cisco Feature Navigator enables you to determine which software images support a specific software release,

feature set, or platform. To access Cisco Feature Navigator, go to the [www.cisco.com/go/cfn](http://www.cisco.com/go/cfn) link. An account on the Cisco.com page is not required.



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**Note** The following table lists the software release in which a given feature is introduced. Unless noted otherwise, subsequent releases of that software release train also support that feature.

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**Table 2: Feature Information for IPv6 ACL Extensions for Hop by Hop Filtering**

Feature Name	Releases	Feature Information
IPv6 access lists	Cisco IOS XE Everest 16.6.1	This feature was integrated into Cisco IOS XE Everest 16.6.1 on the Cisco cBR Series Converged Broadband Routers.