SSM Channel Based Filtering for Multicast Boundaries

The SSM Channel Based Filtering for Multicast Boundaries feature enables the user to apply filtering policies based on Source Specific Multicast (SSM) channels for Source and Group (S,G) addresses, which is a combination of source and destination IP addresses.

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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.

Prerequisites for SSM Channel Based Filtering for Multicast Boundaries

IP multicast is enabled on the device using the tasks described in the "Configuring Basic IP Multicast" module of the IP Multicast: PIM Configuration Guide.
Information About the SSM Channel Based Filtering for Multicast Boundaries Feature

Rules for Multicast Boundaries

The SSM Channel Based Filtering for Multicast Boundaries feature expands the `ip multicast boundary` command for control plane filtering support. More than one `ip multicast boundary` command can be applied to an interface.

The following rules govern the `ip multicast boundary` command:

- One instance of the `in` and `out` keywords can be configured on an interface.
- The `in` and `out` keywords can be used for standard or extended access lists.
- Only standard access lists are permitted with the use of the `filter-autorp` keyword or no keyword.
- A maximum of three instances of a command will be allowed on an interface: one instance of `in`, one instance of `out`, and one instance of `filter-autorp` or no keyword.
- When multiple instances of the command are used, the filtering will be cumulative. If a boundary statement with no keyword exists with a boundary statement with the `in` keyword, both access lists will be applied on the in direction and a match on either one will be sufficient.
- All instances of the command apply to both control and data plane traffic.
- Protocol information on the extended access list is parsed to allow reuse and filtering for consistency. An (S,G) operation will be filtered by an extended access list under all conditions stated above for keywords if the access list filters (S,G) traffic for all protocols.

Benefits of SSM Channel Based Filtering for Multicast Boundaries

- This feature allows input on the source interface.
- The access control capabilities are the same for SSM and Any Source Multicast (ASM).
How to Configure SSM Channel Based Filtering for Multicast Boundaries

Configuring Multicast Boundaries

SUMMARY STEPS

1. enable
2. configure terminal
3. ip access-list {standard|extended} access-list-name
4. permit protocol host address host address
5. deny protocol host address host address
6. Repeat Step 4 or Step 5 as needed.
7. interface type interface-number port-number
8. ip multicast boundary access-list-name [in|out | filter-autorp]

DETAILED STEPS

<table>
<thead>
<tr>
<th>Command or Action</th>
<th>Purpose</th>
</tr>
</thead>
<tbody>
<tr>
<td>Step 1 enable</td>
<td>Enables privileged EXEC mode.</td>
</tr>
<tr>
<td>Example: Device&gt; enable</td>
<td></td>
</tr>
<tr>
<td>Step 2 configure terminal</td>
<td>Enters global configuration mode.</td>
</tr>
<tr>
<td>Example: Device# configure terminal</td>
<td></td>
</tr>
<tr>
<td>Step 3 ip access-list {standard</td>
<td>extended} access-list-name</td>
</tr>
<tr>
<td>Example: Device(config)# ip access-list 101</td>
<td></td>
</tr>
<tr>
<td>Step 4 permit protocol host address host address</td>
<td>Permits specified ip host traffic.</td>
</tr>
<tr>
<td>Example: Device(config-ext-nacl)# permit ip host 181.1.2.201 host 232.1.1.11</td>
<td></td>
</tr>
</tbody>
</table>
### Command or Action

<table>
<thead>
<tr>
<th>Step 5</th>
<th><code>deny protocol host address host address</code></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Example:</strong></td>
<td><code>Device(config-acl-nacl)# deny ip host 181.1.2.203 host 232.1.1.1</code></td>
</tr>
</tbody>
</table>

| Step 6 | Repeat Step 4 or Step 5 as needed. |

<table>
<thead>
<tr>
<th>Step 7</th>
<th><code>interface type interface-number port-number</code></th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Example:</strong></td>
<td><code>Device(config)# interface gigabitethernet 2/3/0</code></td>
</tr>
</tbody>
</table>

| Step 8 | `ip multicast boundary access-list-name [in|out] filter-autorp` |
|--------|----------------------------------------------------------|
| **Example:** | `Device(config-if)# ip multicast boundary acc_grpl out` |

### Purpose

| Denies specified multicast ip group and source traffic. |

| Permits and denies specified host and source traffic. |

| Enables interface configuration mode. |

| Configures the multicast boundary. |

**Note** The `filter-autorp` keyword does not support extended access lists.

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### Configuration Examples for SSM Channel Based Filtering for Multicast Boundaries

#### Configuring the Multicast Boundaries Permitting and Denying Traffic Example

The following example permits outgoing traffic for (181.1.2.201, 232.1.1.1) and (181.1.2.202, 232.1.1.1) and denies all other (S,G)s.

```
configure terminal
ip access-list extended acc_grpl
permit ip host 0.0.0.0 232.1.1.1 0.0.0.255
permit ip host 181.1.2.201 host 232.1.1.1
permit udp host 181.1.2.202 host 232.1.1.1
permit ip host 181.1.2.202 host 232.1.1.1
deny igmp host 181.2.3.303 host 232.1.1.1
interface gigabitethernet 2/3/0
ip multicast boundary acc_grpl out
```
Configuring the Multicast Boundaries Permitting Traffic Example

The following example permits outgoing traffic for (192.168.2.201, 232.1.1.5) and 192.168.2.202, 232.1.1.5).

```bash
configure terminal
ip access-list extended acc_grp6
  permit ip host 0.0.0.0 232.1.1.1 5.0.0.255
  deny udp host 192.168.2.201 host 232.1.1.5
  permit ip host 192.168.2.201 host 232.1.1.5
  deny pim host 192.168.2.201 host 232.1.1.5
  permit ip host 192.168.2.202 host 232.1.1.5
  deny igmp host 192.2.3.303 host 232.1.1.1
interface gigabitethernet 2/3/0
  ip multicast boundary acc_grp6 out
```

Configuring the Multicast Boundaries Denying Traffic Example

The following example denies a group-range that is announced by the candidate RP. Because the group range is denied, no pim auto-rp mappings are created.

```bash
configure terminal
ip access-list standard acc_grp10
  deny 225.0.0.0 0.255.255.255
  permit any
access-list extended acc_grp12
  permit pim host 181.1.2.201 host 232.1.1.8
  deny udp host 181.1.2.201 host 232.1.1.8
  permit pim host 181.1.2.201 0.0.0.255 host 227.7.7.7
  permit ip host 0.0.0.0 host 227.7.7.7
  permit ip 181.1.2.203 0.0.0.255 host 227.7.7.7
  permit ip host 181.1.2.201 host 232.1.1.7
ip access-list extended acc_grp13
  deny ip host 181.1.2.201 host 232.1.1.8
  permit ip any any
interface gigabitethernet 2/3/0
  ip multicast boundary acc_grp10 filter-autorp
  ip multicast boundary acc_grp12 out
  ip multicast boundary acc_grp13 in
```

Additional References

### Related Documents

<table>
<thead>
<tr>
<th>Related Topic</th>
<th>Document Title</th>
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<tbody>
<tr>
<td>Cisco IOS commands</td>
<td>Cisco IOS Master Commands List, All Releases</td>
</tr>
<tr>
<td>Cisco IOS IP Multicast commands</td>
<td>Cisco IOS IP Multicast Command Reference</td>
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MIBs

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<tr>
<th>MIB</th>
<th>MIBs Link</th>
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<tbody>
<tr>
<td>No new or modified MIBs are supported by this feature, and support for existing standards has not been modified by this feature.</td>
<td>To locate and download MIBs for selected platforms, Cisco IOS XE releases, and feature sets, use Cisco MIB Locator found at the following URL: <a href="http://www.cisco.com/go/mibs">http://www.cisco.com/go/mibs</a></td>
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Technical Assistance

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<th>Description</th>
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<tr>
<td>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.</td>
<td><a href="http://www.cisco.com/cisco/web/support/index.html">http://www.cisco.com/cisco/web/support/index.html</a></td>
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</table>

Feature Information for SSM Channel Based Filtering for Multicast Boundaries

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 SSM Channel Based Filtering for Multicast Boundaries

<table>
<thead>
<tr>
<th>Feature Name</th>
<th>Releases</th>
<th>Feature Information</th>
</tr>
</thead>
</table>
| SSM Channel Based Filtering for Multicast Boundaries | Cisco IOS XE Release 2.1  | The SSM Channel Based Filtering for Multicast Boundaries feature enables the user to apply filtering policies based on Source Specific Multicast (SSM) channels for Source and Group (S,G) addresses, which is a combination of source and destination IP addresses. The following command was introduced or modified:  
  - `ip multicast boundary` |
Feature Information for SSM Channel Based Filtering for Multicast Boundaries