



## SNMP Traps for IP Multicast

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The SNMP Traps for IP Multicast feature provides support for the CISCO-PIM-MIB, which is an extension of RFC 2934 and an enhancement to the former Cisco implementation of the PIM MIB.

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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](http://www.cisco.com/go/cfn). An account on Cisco.com is not required.

## Prerequisites for SNMP Traps for IP Multicast

- Before performing the tasks in this module, you should be familiar with the concepts explained in the “IP Multicast Technology Overview” module.
- This module assumes that IP multicast has been enabled and that the Protocol Independent Multicast (PIM) interfaces have been configured using the tasks described in the “Configuring Basic IP Multicast” module.

- This module assumes that you are familiar with Simple Network Management Protocol (SNMP). For more information, see the “Configuring SNMP Support” module.

## Restrictions for SNMP Traps for IP Multicast

The following MIB tables are not supported in Cisco IOS and Cisco IOS XE software:

- pimIpMRouteTable
- pimIpMRouteNextHopTable
- The pimInterfaceVersion object was removed from RFC 2934 and, therefore, is no longer supported in software.

## Information About SNMP Traps for IP Multicast

### PIM MIB Extensions for SNMP Traps for IP Multicast

Protocol Independent Multicast (PIM) is an IP multicast routing protocol used for routing multicast data packets to multicast groups. RFC 2934 defines the PIM MIB for IPv4, which describes managed objects that enable users to remotely monitor and configure PIM using Simple Network Management Protocol (SNMP).

PIM MIB extensions introduce the following new classes of PIM notifications:

- neighbor-change--This notification results from the following conditions:
  - A router's PIM interface is disabled or enabled (using the **ip pim** command in interface configuration mode)
  - A router's PIM neighbor adjacency expires (defined in RFC 2934)
- rp-mapping-change--This notification results from a change in the rendezvous point (RP) mapping information due to either Auto-RP messages or bootstrap router (BSR) messages.
- invalid-pim-message--This notification results from the following conditions:
  - An invalid (\*, G) Join or Prune message is received by the device (for example, when a router receives a Join or Prune message for which the RP specified in the packet is not the RP for the multicast group)
  - An invalid PIM register message is received by the device (for example, when a router receives a register message from a multicast group for which it is not the RP)

## Benefits of PIM MIB Extensions

PIM MIB extensions:

- Allow users to identify changes in the multicast topology of their network by detecting changes in the RP mapping.

- Provide traps to monitor the PIM protocol on PIM-enabled interfaces.
- Help users identify routing issues when multicast neighbor adjacencies expire on a multicast interface.
- Enable users to monitor RP configuration errors (for example, errors due to flapping in dynamic RP allocation protocols like Auto-RP).

# How to Configure SNMP Traps for IP Multicast

## Enabling PIM MIB Extensions for IP Multicast

Perform this task to enable PIM MIB extensions for IP multicast.

### SUMMARY STEPS

1. **enable**
2. **configure terminal**
3. **snmp-server enable traps pim** [**neighbor-change** | **rp-mapping-change** | **invalid-pim-message**]
4. **snmp-server host** *host-address* [**traps** | **informs**] *community-string* **pim**

### DETAILED STEPS

	Command or Action	Purpose
<b>Step 1</b>	<b>enable</b>  <b>Example:</b> Router> enable	Enables privileged EXEC mode. <ul style="list-style-type: none"> <li>• Enter your password if prompted.</li> </ul>
<b>Step 2</b>	<b>configure terminal</b>  <b>Example:</b> Router# configure terminal	Enters global configuration mode.
<b>Step 3</b>	<b>snmp-server enable traps pim</b> [ <b>neighbor-change</b>   <b>rp-mapping-change</b>   <b>invalid-pim-message</b> ]  <b>Example:</b> Router(config)# snmp-server enable traps pim neighbor-change	Enables a router to send PIM notifications. <ul style="list-style-type: none"> <li>• <b>neighbor-change</b> --This keyword enables notifications indicating when a router's PIM interface is disabled or enabled, or when a router's PIM neighbor adjacency expires.</li> <li>• <b>rp-mapping-change</b> --This keyword enables notifications indicating a change in RP mapping information due to either Auto-RP messages or BSR messages.</li> <li>• <b>invalid-pim-message</b> --This keyword enables notifications for monitoring invalid PIM protocol operations (for example, when a router receives a join or prune message for which the RP specified</li> </ul>

	Command or Action	Purpose
		in the packet is not the RP for the multicast group or when a router receives a register message from a multicast group for which it is not the RP).
<b>Step 4</b>	<b>snmp-server host</b> <i>host-address</i> [ <b>traps</b>   <b>informs</b> ] <i>community-string</i> <b>pim</b>  <b>Example:</b>  Router(config)# snmp-server host 10.10.10.10 traps public pim	Specifies the recipient of a PIM SNMP notification operation.

## Configuration Examples for SNMP Traps for IP Multicast

### Example Enabling PIM MIB Extensions for IP Multicast

The following example shows how to configure a router to generate notifications indicating that a PIM interface of the router has been enabled. The first line configures PIM traps to be sent as SNMP v2c traps to the host with IP address 10.0.0.1. The second line configures the router to send the neighbor-change class of trap notification to the host.

```
snmp-server host 10.0.0.1 traps version 2c public pim
snmp-server enable traps pim neighbor-change
interface ethernet0/0
 ip pim sparse-dense-mode
```

## Additional References

### Related Documents

Related Topic	Document Title
Cisco IOS commands	<a href="#">Cisco IOS Master Commands List, All Releases</a>
IP multicast commands	<i>Cisco IOS IP Multicast Command Reference</i>

**Standards**

Standard	Title
No new or modified standards are supported, and support for existing standards has not been modified.	--

**MIBs**

MIB	MIBs Link
CISCO-PIM-MIB	To locate and download MIBs for selected platforms, Cisco software 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>

**RFCs**

RFC	Title
RFC 2934	<i>Protocol Independent Multicast MIB for IPv4</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.	<a href="http://www.cisco.com/cisco/web/support/index.html">http://www.cisco.com/cisco/web/support/index.html</a>

## Feature Information for SNMP Traps for IP Multicast

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.

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**Table 1: Feature Information for SNMP Traps for IP Multicast**

Feature Name	Releases	Feature Information
SNMP Traps for IP Multicast	12.0(15)S 12.2(4)T Cisco IOS XE 3.1.0SG 12.2(50)SY	<p>The SNMP Traps for IP Multicast feature provides support for the CISCO-PIM-MIB, which is an extension of RFC 2934 and an enhancement to the former Cisco implementation of the PIM MIB.</p> <p>The following commands were introduced or modified: <b>snmp-server enable traps pim,</b> <b>snmp-server host.</b></p>