Configuring PIM MIB Extension for IP Multicast

Information About PIM MIB Extension 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 PIM MIB Extension for IP Multicast

Enabling PIM MIB Extensions for IP Multicast

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

Note

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

- The following MIB tables are not supported in Cisco software:

    - pimIpMRouteTable

    - pimIpMRouteNextHopTable

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	**snmp-server enable traps pim** [**neighbor-change** | **rp-mapping-change** | **invalid-pim-message**] **Example:**	Enables a device to send PIM notifications. - **neighbor-change** --This keyword enables notifications indicating when a device's PIM interface is disabled or enabled, or

	Command or Action	Purpose
	`Device(config)# snmp-server enable traps pim neighbor-change`	when a device's PIM neighbor adjacency expires. • **rp-mapping-change** --This keyword enables notifications indicating a change in RP mapping information due to either Auto-RP messages or BSR messages. • **invalid-pim-message** --This keyword enables notifications for monitoring invalid PIM protocol operations (for example, when a device receives a join or prune message for which the RP specified in the packet is not the RP for the multicast group or when a device receives a register message from a multicast group for which it is not the RP).
Step 4	**snmp-server host** *host-address* [**traps** | **informs**] *community-string* **pim** **Example:** `Device(config)# snmp-server host 10.10.10.10 traps public pim`	Specifies the recipient of a PIM SNMP notification operation.

Configuration Examples for PIM MIB Extensions

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-mode
```

Additional References for PIM MIB Extension for IP Multicast

Related Documents

Related Topic	Document Title
For complete syntax and usage information for the commands used in this chapter.	See the IP Multicast Routing Commands section of the *Command Reference (Catalyst 9400 Series Switches)*

Standards and RFCs

Standard/RFC	Title
RFC 1112	Host Extensions for IP Multicasting
RFC 1918	Address Allocation for Private Internets
RFC 2770	GLOP Addressing in 233/8
RFC 3569	An Overview of Source-Specific Multicast (SSM)

Feature History Information for PIM MIB Extension 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.

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 PIM MIB Extension for IP Multicast

Feature Name	Releases	Feature Information
PIM MIB Extension for IP Multicast	Cisco IOS XE Everest 16.6.1	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).