CHAPTER 2

Configuring MIB Support

This chapter describes how to configure SNMP (Simple Network Management Protocol) and MIB (Management Information Base) support for the Cisco Carrier Routing System and Cisco XR 12000 Series Router. It includes the following sections:

Downloading and Compiling MIBs

The following sections provide information about how to download and compile MIBs for the Cisco Carrier Routing System and Cisco XR 12000 Series Router:

Considerations for Working with MIBs

While working with MIBs, consider the following:

- Mismatches on datatype definitions might cause compiler errors or warning messages. Although Cisco MIB datatype definitions are not mismatched, some standard RFC MIBs do mismatch, see the following example:

```
MIB A defines: SomeDatatype ::= INTEGER(0..100)
MIB B defines: SomeDatatype ::= INTEGER(1..50)
```

  This example is considered to be a trivial error and the MIB loads successfully with a warning message.

  The following example is considered as a nontrivial error (although the two definitions are essentially equivalent), and the MIB is not successfully parsed:

```
MIB A defines: SomeDatatype ::= DisplayString
MIB B defines: SomeDatatype ::= OCTET STRING (SIZE(0..255))
```

  If your MIB compiler treats these as errors, or to delete the warning messages, edit one of the MIBs that defines this same datatype so that the definitions match.

- Many MIBs import definitions from other MIBs. If your management application requires MIBs to be loaded, and you experience problems with undefined objects, consider loading the following MIBs in this order:

  SNMPv2-SMI.my
  SNMPv2-TC.my
  SNMPv2-MIB.my
  IF-MIB.my
  CISCO-SMI.my

- For information about how to download and compile Cisco MIBs, see:

  http://www.cisco.com/en/US/tech/tk648/tk362/technologies_tech_note09186a00800b4cee.shtml

Downloading MIBs

To download the MIBs onto your system, perform the following steps:

Step 1 Review the considerations, see the "Considerations for Working with MIBs" section on page 2-7.

Step 2 Go to one of the following Cisco URLs.

- ftp://ftp.cisco.com/pub/mibs/v2
- ftp://ftp.cisco.com/pub/mibs/v1

If the MIB is not at these URLs, go to one of the URLs in Step 5.

Step 3 Click the link for a MIB to download that MIB to your system.

Step 4 Select **File > Save** or **File > Save As** to save the MIB on your system.

Step 5 Download industry-standard MIBs from the following URLs:

- http://www.ietf.org
- http://www.ipmplsforum.org/

Compiling MIBs

If you plan to integrate the Cisco Carrier Routing System or Cisco XR 12000 Series Router with an SNMP-based management application, you must compile the MIBs for that platform. For example, if you are running HP OpenView on a UNIX operating system, you must compile Cisco Carrier Routing System MIBs with the HP OpenView Network Management System (NMS).

Enabling SNMP Support

The following procedure summarizes how to configure the Cisco Carrier Routing System or the Cisco XR 12000 Series Router for SNMP support.

For detailed information about SNMP commands, go to the following URL:

- http://www.cisco.com/en/US/docs/ios_xr_sw/iosxr_r3.7/system_management/configuration/guide/yc37snmp.html provides general information about configuring and implementing SNMP support. It is part of *Cisco IOS XR System Management Configuration Guide, Release 3.7*.

- http://www.cisco.com/en/US/docs/ios_xr_sw/iosxr_r3.7/system_management/command/reference/yr37snmp.html provides information about SNMP commands. It is part of *Cisco IOS XR System Management Command Reference, Release 3.7*.

To configure the Cisco Carrier Routing System or Cisco XR 12000 Series Router for SNMP support, perform the following steps:

Step 1 Set up your basic SNMP configuration through the command-line interface (CLI) on the router. Note that these basic configuration commands are issued for SNMPv2c. For SNMPv3, you must also set up SNMP users and groups. (See the preceding list of documents for command and setup information.)

a. Define SNMP read-only and read-write communities:

```
Router (config)# snmp-server community Read_Only_Community_Name ro SystemOwner
Router (config)# snmp-server community Read_Write_Community_Name rw SystemOwner
```

b. Configure SNMP views (to limit the range of objects accessible to different SNMP user groups):

```
Router (config)# snmp-server view view_name oid-tree {included | excluded}
```

Step 2 Identify (by IP address) the host to receive SNMP notifications from the router:

```
Router (config)# snmp-server host host
```

Step 3 Configure the router to generate notifications. Use keywords to limit the number and types of messages generated.

```
Router (config)# snmp-server traps [notification-type] [notification-option]
```

For information about how to configure SNMP community strings, see the following URL:

http://www.cisco.biz/en/US/docs/ios_xr_sw/iosxr_r3.6/system_management/command/reference/yr36snmp.html#wp1013028