CHAPTER 2

Configuring MIB Support

This chapter describes how to configure SNMP and MIB support for the Cisco 7600 Series router. It includes the following sections:

- Determining MIB Support for Cisco IOS Releases, page 2-1
- Using Cisco IOS MIB Tools, page 2-1
- Downloading and Compiling MIBs, page 2-2
- Enabling SNMP Support, page 2-4
- Digital Optical Monitoring Transceiver Support, page 2-5

Determining MIB Support for Cisco IOS Releases

Follow these steps to determine which MIBs are included in the Cisco IOS release running on the Cisco 7600 Series router:

Step 1 Go to the Cisco MIBs Support page:

http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.shtml

Step 2 Under Cisco Access Products, select a **Cisco 7600 Series Router** to display a list of MIBs supported on the Cisco 7600 routers.

Step 3 Scroll through the list to find the release you are interested in.

Using Cisco IOS MIB Tools

This section describes how to access the Cisco MIB tools page. The MIB Locator finds MIBs that are included in a Cisco IOS software image. You can find general MIB information, instructions about how to use the SNMP Object Navigator which translates OIDs into SNMP names, and how to load Cisco MIBs.

Follow these steps to access the Cisco IOS MIB tools site:

Step 1 Go to the Cisco Products and Services page:

http://tools.cisco.com/ITDIT/MIBS/servlet/index

Step 2 Click **MIB Locator** to launch the application. The MIB Locator application allows you to find a MIB in the following three ways.

From the MIB Locator page, you can:

a. Click the drop-down menu and select the desired Cisco IOS software release.

b. From the Platform Family menu, select **7600-SUP32/MSFC2A** or **7600-SUP720/MSFC3**. If you select the platform first, the system displays only those releases and feature sets that apply to the Cisco 7600 Series router.

c. From the Feature Set menu, select **Service Provider W/VIP**.

Step 3 From the MIB Locator page, you can search by image name. For example, enter the following input and click the **Submit** button:

```
s72033-adventerprisek9_wan-mz.12.2-33.SRE
```

Step 4 From the MIB Locator page, you can search for the MIB from the list of MIBs in the menu. You can select one, or for multiple selections, hold down the **CTRL** key, then click the **Submit** button.

Note After you make a selection, follow the links and instructions.

Downloading and Compiling MIBs

The following sections provide information about how to download and compile MIBs for the Cisco 7600 Series router:

- Considerations for Working with MIBs, page 2-2
- Downloading MIBs, page 2-3
- Compiling MIBs, page 2-4

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. For 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 (even though 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 you want 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, you might want to load the following MIBs in this order:

  SNMPv2-SMI.my
  SNMPv2-TC.my
  SNMPv2-MIB.my
  RFC1213-MIB.my
  IF-MIB.my
  CISCO-SMI.my
  CISCO-PRODUCTS-MIB.my
  CISCO-TC.my

- For a list of SNMP object identifiers (OIDs) assigned to MIB objects, go to the following URL and click on **SNMP Object Navigator** and follow the links:

  http://tools.cisco.com/ITDIT/MIBS/servlet/index

Note To access the MIB Locator tool, you must have a cisco.com login account.

- For information about trap definitions, alternative size definitions, and null OIDs, follow the link:

  ftp://ftp.cisco.com/pub/mibs/app_notes/mib-compilers

- For listings of OIDs assigned to MIB objects, follow the link:

  ftp://ftp.cisco.com/pub/mibs/oid

- For information about how to download and compile Cisco MIBs, go to the following URL:

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

Downloading MIBs

Follow these steps to download the MIBs onto your system if they are not already there:

Step 1 Review the considerations in the "Considerations for Working with MIBs" section.

Step 2 Go to one of the following Cisco URLs. If the MIB you want to download is not there, try the other URL; otherwise, go to one of the URLs in Step 5.

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

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

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 You can download industry-standard MIBs from the following URLs:

- http://www.ietf.org
- http://www.broadband-forum.org/

Compiling MIBs

If you plan to integrate the Cisco 7600 Series router with an SNMP-based management application, then you must also compile the MIBs for that platform. For example, if you are running HP OpenView on a UNIX operating system, you must compile Cisco 7600 Series router MIBs with the HP OpenView Network Management System (NMS). For instructions, see the NMS documentation.

Enabling SNMP Support

The following procedure summarizes how to configure the Cisco 7600 Series router for SNMP support.

For detailed information about SNMP commands, see the following Cisco documents:

- *Cisco IOS Release 12.2 Configuration Fundamentals Configuration Guide*, "Monitoring the Router and Network," available at the following URL:

  http://www.cisco.com/en/US/docs/ios/12_2/configfun/configuration/guide/ffun_c.html

- *Cisco IOS Release 12.2 Configuration Fundamentals Command Reference*, Part 3: System Management Commands, "Router and Network Configuration Commands," available at the the following URL:

  http://www.cisco.com/en/US/docs/ios/12_2/configfun/command/reference/ffun_r.html

To configure the Cisco 7600 Series router for SNMP support, follow these 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
Router (config)# snmp-server community Read_Write_Community_Name rw
```

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. You can use keywords to limit the number and types of messages generated.

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

Digital Optical Monitoring Transceiver Support

The CLI commands, **show inventory** and **show idprom interface,** are used on transceivers to obtain serial number, model name, and inventory information.

The following commands are specific to the transceivers that support the DOM capability:

- Display current values and thresholds for all sensor on a particular interface transceiver:

  ```
  show interfaces <int-name> transceiver [detail] [threshold]
  ```

- Enable/Disable the entSensorThresholdNotification for all sensors in all the transceivers:

  ```
  snmp-server enable trap transceiver
  ```

- Enable/Disable transceiver monitoring:

  ```
  transceiver type all
  ```

Note This feature is only available when a DOM capable transceiver is present and configured for monitoring. The frequency at which the sensor information is refreshed depends on default values configured in the transceiver SEEPROM (Serial Electrically Erasable Programmable Read Only Memory).