



## CHAPTER 2

# Configuring MIB Support

---

This chapter describes how to configure SNMP and MIB support for the Cisco 10000 Series. It includes the following sections:

- [Determining MIB Support for Cisco IOS Releases, page 2-1](#)
- [Downloading and Compiling MIBs, page 2-1](#)
- [Cisco SNMP Support, page 2-3](#)

## Determining MIB Support for Cisco IOS Releases

Follow these steps to determine which MIBs are included in the Cisco IOS release running on the 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 **Cisco 10000** to display a list of MIBs supported on the router.
  - Step 3** Scroll through the list to find the release you are interested in.
- 

## Downloading and Compiling MIBs

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

- [Considerations for Working with MIBs](#)
- [Downloading MIBs](#)
- [Compiling MIBs](#)

## Considerations for Working with MIBs

While working with MIBs, consider the following:

- Mismatches on datatype definitions might cause compiler errors or warning messages. For example, the OLD-CISCO-CPU-MIB, OLD-CISCO-MEMORY-MIB, and OLD-CISCO-SYSTEM-MIB each define the following OID differently:

```

OLD-CISCO-CPU-MIB.my
    lcpu  OBJECT IDENTIFIER ::= {local 1 }

OLD-CISCO-MEMORY-MIB.my
    lenv  OBJECT IDENTIFIER ::= {local 1 }

```

To eliminate MIB compiler errors or warning messages for mismatched definitions, edit one of the MIB definitions to match the other. Other types of mismatches include:

```

MIB A
Datatype1 ::= INTEGER(0..100)
Datatype2 ::= INTEGER(1..50)

MIB B
Datatype1 ::= DisplayString
Datatype2 ::= OCTET STRING (SIZE(0..255))

```

- 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 information about trap definitions, alternative size definitions, and null OIDs, go to the following URL:

[ftp://ftp.cisco.com/pub/mibs/app\\_notes/mib-compilers](ftp://ftp.cisco.com/pub/mibs/app_notes/mib-compilers)

- For listings of OIDs assigned to MIB objects, go to the following URL:

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

- For additional information about downloading and compiling MIBs, go to the bottom of the page at the following URL:

<http://www.cisco.com/public/sw-center/netmgmt/cmtk/mibs.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 previous section (“[Considerations for Working with MIBs](#)”).
- 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.atmforum.com>
- 

## Compiling MIBs

If you plan to integrate the Cisco 10000 Series with an SNMP-based management application, you must also compile the MIBs for that platform. For example, if you are running HP OpenView on the UNIX operating system, you must compile the router MIBs with the HP OpenView network management system (NMS). For instructions, see the NMS documentation.

## Cisco SNMP Support

The following sections provide information about SNMP support for the Cisco 10000 Series:

- [Enabling SNMP Support, page 2-3](#)
- [Verifying SNMP Support, page 2-4](#)
- [SNMP Usage Guidelines, page 2-4](#)
- [SNMP Related Information, page 2-5](#)

## Enabling SNMP Support

The SNMP agent is disabled by default. The following procedure summarizes how to configure the Cisco 10000 Series for SNMP support. Note that these basic configuration commands are issued for SNMPv2c. For SNMPv3, you must also set up SNMP users and groups.

- 
- Step 1** Set up your basic SNMP configuration through the command line interface (CLI). (For command and setup information, see the list of documents that follows this procedure.)
- Step 2** 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
```
- Step 3** 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 4** See the “[Enabling Notifications](#)” section on page 4-2 for information on how to enable traps.
- 

### Configuration Examples

This section lists configuration examples showing how to enable the SNMP agent.

```
Router# configure terminal
Router(config)# snmp-server community
```

In the following example, SNMPv1 and SNMPv2C are enabled. The configuration permits any SNMP manager to access all objects with read-only permissions using the community string public.

```
Router(config)# snmp-server community public
```

In the following example, read-only access is allowed for all objects to members of access list 4 that specify the command access community string. No other SNMP managers have access to any objects.

```
Router(config)# snmp-server community comaccess ro 4
```

## Verifying SNMP Support

To verify that the SNMP agent has been enabled on the router, display the running configuration and look for SNMP information. Enter the following command:

```
Router(config)# show running-configuration
...
...
snmp-server community public RO
```

If you see any snmp-server statements, then SNMP is enabled on the router.

## SNMP Usage Guidelines

This section describes the **snmp-server community** command. To configure read-only or read/write Simple Network Management Protocol (SNMP) community strings, use the **snmp-server community** command in the global configuration mode.

To change the community string to its default value, use the **no** form of this command:

```
snmp-server community string [view view-name] [ro | rw] [number]
no snmp-server community string
```

Where:

- **community string** is a string of 1 to 32 alphanumeric characters. The community string acts like a password and permits access to the SNMP protocol.
- **view view-name** is the name of a previously defined view (optional). The view defines the objects available to the community.
- **ro** configures read-only access
- **rw** configures read/write access.
- **number** is the integer from 1 to 99 that specifies an access list of IP addresses that are allowed to use the community string to gain access to the SNMPv1 agent.

## Important Notes about SNMP-Server Community Command

The following is a list of SNMP usage information:

- The default value of the read/write parameter is read-only (**ro**). The default value of the read-only community string is **public**, and the default value of the read/write community string is **private**.
- The **no snmp-server** command disables both versions of SNMP (SNMPv1 and SNMPv2).
- The first snmp-server command that you enter enables both versions of SNMP.

**Note**

All other commands used with this feature are documented in the Cisco command reference publications. Related commands are **snmp-server-enable traps** and **snmp-server host**.

**Read/Write Community String Examples**

- In this example, the read/write community string is set to newstring:

```
Router(config)# snmp-server community newstring rw
```

- The string comaccess is assigned to SNMPv1, allowing read-only access. IP access list 4 is enabled to use the community string:

```
Router(config)# snmp-server community comaccess ro 4
```

- The string mgr is assigned to SNMPv1, allowing read/write access to the objects in the restricted view:

```
Router(config)# snmp-server community mgr view restricted rw
```

- The community comaccess is removed:

```
Router(config)# no snmp-server community comaccess
```

- Both versions of SNMP are disabled:

```
Router(config)# no snmp-server
```

## SNMP Related Information

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

- *Cisco IOS Release 12.3 Configuration Fundamentals Configuration Guide*, available at the following URL:  
[http://www.cisco.com/univercd/cc/td/doc/product/software/ios123/123cgcr/cfun\\_vcg.htm](http://www.cisco.com/univercd/cc/td/doc/product/software/ios123/123cgcr/cfun_vcg.htm)
- *Cisco IOS Release 12.3 Configuration Fundamentals Command Reference*, available at the the following URL:  
[http://www.cisco.com/univercd/cc/td/doc/product/software/ios123/123cgcr/fun\\_r/index.htm](http://www.cisco.com/univercd/cc/td/doc/product/software/ios123/123cgcr/fun_r/index.htm)

