

SNMP: Frequently Asked Questions About MIBs

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Introduction

This document provides answers to frequently asked questions about Simple Network Management Protocol (SNMP) and SNMP issues as they relate to Cisco equipment. It also provides related helpful resources.

Q. How have Cisco MIBs evolved?

A. In the past, all the objects under the Cisco MIB branch were documented in one huge document. This document was updated with each new release of Cisco IOS® software. Therefore, there was a 9.0 Cisco MIB and a 10.0 Cisco MIB, and so forth. Also, in those days, the product line was exclusively routers.

However, as Cisco IOS software matured and the product line grew, this massive MIB model became unscalable. Within one revision level of Cisco IOS software, there were different versions (such as the IP-only image and the IBM feature set version). The product line also included other devices, such as LAN switches that ran completely different software code.

Starting with Cisco IOS Software Release 10.2, the Cisco MIB was broken into individual component MIB documents, each focused on a specific feature, technology, or device type. This structure allows quicker implementation of new features. It also allows users to compile only the parts they need into their network management system (NMS).

Q. How do I retrieve Cisco MIBs on the Web?

A. Follow these steps:

1. Go to the Cisco IOS MIB Tools page on Cisco.com.
2. Choose one:
 - a. If you are looking for the MIBs supported by a specific Cisco IOS software release, go to Cisco IOS MIB Locator.
 - b. If you are looking for the MIBs supported by non-IOS products, go to Non-Cisco IOS MIBs.
 - c. If you are looking for all of the MIBs or a specific MIB, go to SNMP Object Navigator > View & Download MIBs.
3. Make all necessary selections until you reach the download page.

Q. How do I retrieve Cisco MIBs with anonymous FTP?

A. Follow these steps:

1. Use an FTP client program to go to ftp.cisco.com.
2. Log in with `anonymous` as the user name and your email address as the password.
3. Issue the `cd /pub/mibs` command, to change directories to `/pub/mibs/`. All version 1 MIBs are in the `v1` directory and all version 2 MIBs are in the `v2` directory.
4. Go to the appropriate `v1` or `v2` directory, to retrieve the MIB for which you are looking.

If you encounter any problems, try to log in with a minus sign (-) as the first character of your password. This turns off a feature that might be confusing your FTP client program.

To download files from CCO, you must use a passive-mode-capable FTP client. Contact your systems administrator to obtain one.

Send any questions, comments, or problem reports about FTP-related issues to Cisco.com Feedback.

Q. How do I navigate MIBs on ftp.cisco.com?

A. Under the `/pub/mibs` directory, you can find these subdirectories:

- ◆ `/traps` This is similar to the `/oid` (object identifier [OID]) and `/schema` directories. The files in this directory list traps that are supported by Cisco products. Files that end with the `.trap` extension are SunNet Manager trap definition files. They should be added to the `snmp.trap` file normally found in `/var/adm/snm`.
- ◆ `/v1` (SNMPv1 MIBs) This is a collection of SNMPv1 Structure of Management Information (SMI) MIB files. Included are the older MIB files that were implemented in SNMPv1 SMI and the newer SNMPv2 SMI MIB files converted to SNMPv1 SMI.
- ◆ `/v2` (SNMPv2 MIBs) The newer MIB files, all in SNMPv2 SMI.
- ◆ `/oid` A useful directory if you have SunNet Manager, which requires the OID strings of each object rather than ASN.1 format MIB files.
- ◆ `/app_notes` (Application Notes) Several application notes from wide-ranging areas are in this directory. (Not updated since 1998.)
- ◆ `/contrib` A collection of contributed non-supported scripts or files. (Not updated since 1998.)
- ◆ `/archive` The older monolithic MIB files are kept in this directory. The `/archive` directory somewhat mirrors the MIBs area. Here, you can find the MIB files, OID files, and schema files for Cisco IOS Software Release 10.0 and earlier.
- ◆ `/schema` Like the `/oid` directory, these files are provided if you have SunNet Manager that requires MIB files in this format.
- ◆ `/supportlists` These are directories for non-IOS products, and they contain

information about which products support which MIBs. For Cisco IOS software releases, use the Cisco IOS MIB Locator for more up-to-date information. At each directory level containing multiple files, all of the files located in that directory are compressed (with **tar** or **gzip**) into a single file for easy download. For example, traps.tar.gz contains all of the traps files.

Within the SNMP version directories, you can find all Cisco-specific MIBs in their latest form, along with some other MIBs that might apply to Cisco products. All MIB documents supersede any previous versions of the MIB document, including the monolithic MIB used in Cisco IOS Software Releases 9.x and 10.0.

To determine when the MIB document was released, look at the date in the comments at the beginning of the file.

For more information about SNMP and Cisco implementation, see Simple Network Management Protocol (SNMP) Product Overview.

Q. How can I determine which MIBs are supported by a device?

A. If you are looking for the MIBs supported by a specific Cisco IOS software release, go to Cisco IOS MIB Locator.

If you are looking for the MIBs supported by non-IOS products, go to Non-Cisco IOS MIBs.

Note: There is an automated email gateway to Cisco IOS MIB Locator. Send an e-mail to mii@external.cisco.com with `help` in the subject line, to learn more about it.

Q. How can I determine which Cisco IOS software releases support some specific MIB?

A. Use the **Search for MIB** field on the Cisco IOS MIB Locator.

Q. How can I add Cisco traps to HP OpenView and NetView?

A. Refer to Adding Cisco Traps in NetView and HP OpenView.

Q. How do I load Cisco MIBs into a third-party network management system (NMS)?

A. Refer to MIB Compilers and Loading MIBs.

Q. What can I do when Cisco MIBs give error messages while installing on my network management system (NMS) platform?

A. MIB compilers: What are they and why do they matter? What issues might you encounter and how can you work around those issues? Answers to these questions and more are available at ftp://ftp.cisco.com/pub/mibs/app_notes/mib-compilers.

Q. Is my MIB an SNMPv1 MIB or an SNMPv2 MIB?

A. There are several new macros defined for SNMPv2. You are dealing with an SNMPv2 MIB, if you can find any of these in your MIB:

- ◆ MODULE-IDENTITY
- ◆ MODULE-COMPLIANCE
- ◆ OBJECT-GROUP
- ◆ NOTIFICATION-TYPE TEXTUAL-CONVENTION

Another way to tell is that MIB objects defined in an SNMPv1 MIB should have an ACCESS clause. MIB objects defined in an SNMPv2 MIB should have a MAX-ACCESS clause.

Q. Is there an SNMP MIB to show Address Resolution Protocol (ARP) table information? I need both the IP and MAC addresses in the same table.

A. Yes, `ipNetToMediaPhysAddress` = .1.3.6.1.2.1.4.22.1.2 from the MIB RFC1213-MIB.my.

```

ipNetToMediaPhysAddress OBJECT-TYPE
    -- FROM RFC1213-MIB, IP-MIB
    -- TEXTUAL CONVENTION PhysAddress

    SYNTAX          OCTET STRING
    MAX-ACCESS      read-write
    STATUS          Mandatory
    DESCRIPTION     "The media-dependent `physical' address."

 ::= { iso(1) org(3) dod(6) internet(1) mgmt(2) mib-2(1) ip(4)
       ipNetToMediaTable(22) ipNetToMediaEntry(1) 2 }

```

Q. With Silicon Switching activated, MIB values for interface statistics are only updated every 10 seconds. Why?

A. This is expected (it is not a bug) and is part of a trade-off: the box is allowed to dedicate more resources to actually switching traffic because it is polled less often for interface statistics. The `show interfaces` command should have the same behavior.

Related Information

- [Cisco IOS MIB Tools](#)
- [Simple Network Management Protocol](#)
- [IETF Repository Retrieval](#)
- [Technical Support & Documentation – Cisco Systems](#)

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