



## Preface

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**Revised: December 2007, OL-4952-08**

This guide describes the implementation of the Simple Network Management Protocol (SNMP) for Cisco Cable Modem Termination System (CMTS) routers.

SNMP provides a set of commands for setting and retrieving the values of operating parameters on the router. Router information is stored in a virtual storage area called a Management Information Base (MIB), which contains many objects that describe router components and provides information about the status of the components and network status or events.

This Preface provides an overview of this guide with the following sections:

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- [Organization, page xix](#)
- [Obtaining Documentation and Submitting a Service Request, page xx](#)

## Document Revision History

The following Revision History tables record technical changes, additions, and corrections to this document. The table shows the release number and document revision number for the change, the date of the change, and a brief summary of the change.

Cisco IOS Release	Part Number	Publication Date
12.3(23)BC	OL-4952-08	December 2007

### Description of Changes

Cisco IOS Release 12.3(23)BC introduces support for DOCSIS 3.0 Downstream Solution on the Cisco uBR10012 router and Cisco SIP and SPA. The following MIBs are introduced or enhanced further in Cisco IOS Release 12.3(23)BC for DOCSIS 3.0 Downstream Solution on the Cisco CMTS:

- [CISCO-CABLE-SPECTRUM-MIB](#)
- [CISCO-CABLE-WIDEBAND-MIB](#)
- [CISCO-DOCS-EXT-MIB](#)
- [DOCS-DSG-IF-MIB](#)
- [DOCS-IF-MIB](#)

- DTI-MIB
- DOCS-BPI-PLUS-MIB
- DOCS-CABLE-DEVICE-MIB
- DOCS-CABLE-DEVICE-TRAP-MIB
- ENTITY-MIB
- IF-MIB

Cisco IOS Release	Cisco RF Switch Firmware Version	Part Number	Publication Date
12.3(21)BC	3.80	OL-4952-06	August 2007

### Description of Changes

Cisco RF Switch Firmware Version 3.80, installed on the Cisco RF Switch, supports the following changes or enhancements for SNMP MIBs on the Cisco RF Switch, to be used with Cisco IOS release 12.3BC on the Cisco CMTS:

- SNMP MIB get and set variables can be saved to cache in the AdminState MIB module. The SNMP Cache can be disabled or reenabled using the system-level **set snmp cache** firmware command. The setting for this command is stored in non-volatile memory on the Cisco RF Switch.
- Cisco RF Switch Firmware Version 3.80 adds a new MIB object identifier (OID) to control caching on the Cisco CMTS. To control caching in this manner, use the SNMP object **nruCacheSnmpData**, which is a read/write integer at OID 1.3.6.1.4.1.6804.2.1.1.9.
- Three system-level Cisco RF Switch firmware commands have been introduced or enhanced to reflect these additional caching functions and options:
  - **set snmp cache**
  - **show config**
  - **show module**

Refer to the following document on Cisco.com for additional command information:

- *Release Notes for Cisco RF Switch Firmware, Version 3.80*  
<http://www.cisco.com/en/US/docs/cable/rfswitch/ubr3x10/release/notes/rfswrn36.html>

Cisco IOS Release	Part Number	Publication Date
12.3(21)BC	OL-4952-05	February 2007

### Description of Changes

- **CISCO-CABLE-WIDEBAND-MIB** support on the Cisco uBR10012 universal broadband router. Cisco Wideband Protocol supports downstream wideband channels consisting of multiple bonded RF channels.



**Note** CISCO-CABLE-WIDEBAND-MIB support is only on the uBR10012 CMTS router and is a Cisco proprietary MIB that supports the DOCSIS 3.0 standard.

- Updated the [ENTITY-MIB](#) with the new wideband shared port adapter card, SPA-24XWBD-SFP support, OID 1.3.6.1.4.1.9.12.3.1.9.2.145. See [Cisco uBR100012 SPA-24XWBD-SFP Shared Port Adapter, page 72](#) for the shared port adapter physical entities and values in the ENTITY-MIB.
- Update the [IF-MIB](#) for interface wideband management support.
- Added ccwbFiberNodeTable which provides configuration and topology information for Fiber nodes. See [CISCO-CABLE-WIDEBAND-MIB, page 16](#).
- Updated [Cisco SNMP Notifications, page 3](#) with wideband cable trap support.
- Enhanced the [CISCO-DOCS-EXT-MIB, page 26](#) with new table objects that can query both CM and CPE information.
- Added tables (docsQosParamSetEntry, docsQosServiceFlowEntry, docsQosServiceFlowStatsEntry, docsQosPHSEntry, docsQosPktClassEntry, docsQosUpstreamStatsEntry) to support SNMP enhancements in the [DOCS-QOS-MIB](#). This enhancement significantly improves QoS MIB query time in a large scale system with much less CPU consumption.
- Enhanced [CISCO-CABLE-SPECTRUM-MIB, page 14](#) with new tables and objects to support the retrieval of spectrum group information using SNMP query.
- Updated Cisco CMTS platform support for unique device identifier (UDI) compliance. Added support for the unique device identifier (UDI) standard which displays information from any Cisco product that has electronically stored identity information. See [Overview of the ENTITY-MIB, page 73](#).
- Updated the CISCO-CABLE-METERING-MIB with the ccctrCollectionSrcIfIndex object which is used to specify the source interface for billing packets.
- Added the docsIfCmtsChannelUtilizationInterval object to the [DOCS-IF-MIB](#). This object provides operators with a mechanism to evaluate the load/utilization of both upstream and downstream physical channels. This information may be used for capacity planning and incident analysis, and may be particularly helpful in provisioning of high value QOS.
- Added support on the uBR10012 and uBR7246VXR router platforms for the [CISCO-CABLE-ADMISSION-CTRL-MIB](#)



**Note** For detailed information about admission control for Cisco CMTS, go to the following URL: [http://www.cisco.com/en/US/docs/cable/cmts/feature/guide/ufg\\_adm.html](http://www.cisco.com/en/US/docs/cable/cmts/feature/guide/ufg_adm.html)

Cisco IOS Release	Part Number	Publication Date
12.3(17a)BC2	OL-4952-04	July 2006

## Description of Changes

- Added the [DOCS-DSG-IF-MIB, page 62](#).
- Added cable traps, [Cable MIB Notifications, page 21](#).
- Added section describing the DOCS-DSG-IF-MIB validation capabilities. See, [DOCS-DSG-IF-MIB Validation Requirements, page 41](#).
- The [CISCO-ENHANCED-MEMPOOL-MIB](#) is supported on cable line cards.
- Added cable device traps. See [Cable MIB Notifications, page 21](#).

- [DOCS-IF-MIB, page 58](#) is updated to draft-ietf-ipcdn-docs-rfmibv2-05.txt.
- [IF-MIB, page 79](#) supports subinterfaces in the ifTable.
- Updated the [CISCO-DOCS-EXT-MIB, page 26](#) for the Dynamic Shared Secret feature.

Cisco IOS Release	Part Number	Publication Date
12.3(17a)BC	OL-4952-03	February 2006

## Description of Changes

- Added table ([Table 3-2 on page 6](#)) of cable-specific MIBs.
- Added Appendix C, [CMTS MIBs Supported in Cisco IOS Release 12.1\(20\)EC and IOS Release 12.3\(9a\)BC](#)—Tables list MIBs supported for past releases for the following universal broadband routers:
  - Cisco uBR7100 series and Cisco uBR7200 series for Cisco IOS Release 12.1(20)EC
  - Cisco uBR7100 series and Cisco uBR7200 series for Cisco IOS Release 12.3(9a)BC
  - Cisco uBR10012 for Cisco IOS Release 12.3(9a)BC
  - [CISCO-AAA-SERVER-MIB](#)
  - [CISCO-ENTITY-ALARM-MIB](#)
  - [CISCO-ENTITY-EXT-MIB](#)
  - [CISCO-ENTITY-FRU-CONTROL-MIB](#)
- Updated the following MIBs:
  - [CISCO-CLASS-BASED-QOS-MIB](#)—This MIB is now supported on the Cisco uBR10012 router
  - [CISCO-DOCS-EXT-MIB](#)—Supports the dynamic shared secret (DMIC) feature which ensures that every online cable modem uses the DOCSIS configuration file assigned to it. This protects against theft-of-service attempts from subscribers and safeguards operators against stolen or fraudulently downloaded configuration files.
  - [ENTITY-MIB](#)
  - [CISCO-ENTITY-VENDORTYPE-OID-MIB](#)—Updated OIDs.
  - [CISCO-ENVMON-MIB](#)
  - CISCO-CABLE-SPECTRUM-MIB notifications. See [Cable MIB Notifications, page 21](#).
  - [DOCS-QOS-MIB](#)—MIB object information is updated to support DCC for load balancing.
- Updated [Chapter 4, “Monitoring Notifications”](#)—Added the following information:
  - Brief description—What the event indicates
  - Probable cause—What might have caused the notification
  - Recommended action—Recommendation as to what should be done when the particular notification occurs
- Added the usage-based billing support feature to section, [Usage-Based Billing, page 36](#). This feature was introduced on Cisco uBR7246VXR and Cisco uBR10012 universal broadband routers.

Feature support includes the new [CISCO-CABLE-METERING-MIB](#), which contains objects that provide subscriber account and billing information in the Subscriber Account Management Interface Specification (SAMIS) format

For complete documentation about using the Usage-Based Billing feature for Cisco CMTS, go to:  
<http://www.cisco.com/en/US/docs/cable/cmts/feature/ubrsamis.html>

Cisco IOS Release	Part Number	Publication Date
12.3(9a)BC 12.1(20)EC	OL-4952-02	September 2004 (no revision table available). See <a href="#">Appendix C, “CMTS MIBs Supported in Cisco IOS Release 12.1(20)EC and IOS Release 12.3(9a)BC”</a> for a list of the MIBs included in Cisco IOS Release 12.1(20)EC and Cisco IOS Release 12.3(9a)BC for Cisco CMTS routers.

## Audience

This guide is intended for system and network administrators who must configure the router for operation and monitor its performance in the network.

This guide may also be useful for application developers who are developing management applications for the router.

## Organization

This guide contains the following chapters:

- [Chapter 1, “Cisco CMTS Router MIB Overview,”](#) provides background information about SNMP and its implementation on Cisco CMTS routers.
- [Chapter 2, “Configuring SNMP and MIB Support,”](#) provides instructions for configuring SNMP management support on the router.
- [Chapter 3, “MIB Specifications,”](#) describes each MIB included in the software image. Each description lists any constraints as to how the MIB is implemented on the router.
- [Chapter 4, “Monitoring Notifications,”](#) describes the SNMP traps and notifications supported by the router.
- [Appendix A, “Using Cisco CMTS MIBs,”](#) describes how to perform common tasks on the router.
- [Appendix B, “Relationship Between MIB Objects and CLI Show Commands,”](#) provides a cross-reference between commonly used objects in the MIBs and the related cable-related **show** commands.
- [Appendix C, “CMTS MIBs Supported in Cisco IOS Release 12.1\(20\)EC and IOS Release 12.3\(9a\)BC”](#) provides a list of Cisco CMTS MIBs from previous IOS releases.
- [Glossary](#)—Glossary provides a list of terms and the definitions.

# Obtaining Documentation and Submitting a Service Request

For information on obtaining documentation, submitting a service request, and gathering additional information, see the monthly *What's New in Cisco Product Documentation*, which also lists all new and revised Cisco technical documentation, at:

<http://www.cisco.com/en/US/docs/general/whatsnew/whatsnew.html>

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