CHAPTER 3

MIB Specifications

This chapter describes each Management Information Base (MIB) on the Cisco CMTS router. Each description lists any constraints on how the MIB or its object identifiers (OIDs) are implemented on the router.

Unless noted otherwise, the Cisco CMTS implementation of a MIB follows the standard MIB that has been defined. Any MIB table or object not listed the tables is implemented as defined in the standard MIB definition.

Note Not all MIBs included in a Cisco IOS software release are fully supported by the router. Some MIBs are not supported at all. Other MIBs might work, but they have not been tested on the router. In addition, some MIBs are deprecated but cannot be removed from the software. When a MIB is included in the image, this does not necessarily mean it is supported by the Cisco CMTS platform.

Note For information about how to avoid performance problems when you use Simple Network Management Protocol (SNMP) to poll the router for routing table entries, see the "High CPU Usage When Polling Routing ARP Tables" section on page 2-5.

Overview of MIB Support

Support for a particular MIB is included as part of the Cisco IOS software release. Each version of Cisco IOS software contains code that responds to SNMP requests for objects that are in the MIBs that are supported in that release for that particular software image.

Each new release of Cisco IOS software typically changes that support to some extent, usually involving one or more of the following:

- Fixing a caveat or software defect that is preventing the proper use of the MIB
- Updating the software to support the latest version of the MIB or to support optional objects that were not supported previously
- Adding support for new MIBs that are part of a new feature that is being introduced

The fact that a MIB might be included in a Cisco IOS software release does not imply that the MIB is fully supported on the router. Similarly, the fact that you can access a particular object in a MIB does not imply that the object is fully supported either.

Note As a general rule, deprecated objects and MIBs should not be used, because they have been replaced by other, more functional objects and MIBs. Also, deprecated objects and MIBs can be removed in a future release without notice.

Note The exact MIB support depends on both the Cisco IOS software image and the Cisco IOS software release being used. To determine which MIBs are included in other releases and software images, see the "Determining MIB Support for Cisco IOS Releases" section on page 2-1.

Table 3-1 lists the MIBs that are included in Cisco IOS Release 12.3BC for Cisco CMTS routers, through Cisco IOS Release 12.3(23)BC. Shaded cells indicate that the MIB is not included for that particular platform and software release. Unless otherwise indicated, each MIB is included in all software images for the indicated release. In some cases, MIBs that are included in the software image are not actually supported or are only partially supported.

Table 3-1 Included MIBs on Cisco uBR10012 and uBR7200 Series Routers in Cisco IOS Release 12.3(23)BC

Cisco uBR7200 series in Cisco IOS Release 12.3(23)BC	Cisco uBR10012 Cisco IOS Release 12.3(23)BC
ATM-MIB	ATM-MIB
BGP4-MIB	BGP4-MIB
BRIDGE-MIB (-is- software images only)	
CISCO-AAA-SERVER-MIB	CISCO-AAA-SERVER-MIB
CISCO-AAL5-MIB	CISCO-AAL5-MIB
CISCO-ACCESS-ENVMON-MIB	CISCO-ACCESS-ENVMON-MIB
CISCO-ATM-EXT-MIB	CISCO-ATM-EXT-MIB
CISCO-ATM-PVCTRAP-EXTN-MIB	CISCO-ATM-PVCTRAP-EXTN-MIB
CISCO-BGP4-MIB	CISCO-BGP4-MIB
CISCO-BULK-FILE-MIB (-is- software images only)	CISCO-BULK-FILE-MIB
CISCO-BUS-MIB (-is- software images only)	
CISCO-CABLE-ADMISSION-CTRL-MIB	CISCO-CABLE-ADMISSION-CTRL-MIB
CISCO-CABLE-AVAILABILITY-MIB	CISCO-CABLE-AVAILABILITY-MIB
CISCO-CABLE-METERING-MIB	CISCO-CABLE-METERING-MIB
CISCO-CABLE-QOS-MONITOR-MIB	CISCO-CABLE-QOS-MONITOR-MIB
CISCO-CABLE-SPECTRUM-MIB	CISCO-CABLE-SPECTRUM-MIB
	CISCO-CABLE-WIDEBAND-MIB
CISCO-CAR-MIB	CISCO-CAR-MIB
CISCO-CASA-FA-MIB (-is- software images only)	

Table 3-1 Included MIBs on Cisco uBR10012 and uBR7200 Series Routers in Cisco IOS Release 12.3(23)BC

Cisco uBR7200 series in Cisco IOS Release 12.3(23)BC	Cisco uBR10012 Cisco IOS Release 12.3(23)BC
CISCO-CASA-MIB (-is- software images only)	
CISCO-CDP-MIB	CISCO-CDP-MIB
CISCO-CIRCUIT-INTERFACE-MIB	CISCO-CIRCUIT-INTERFACE-MIB
CISCO-CLASS-BASED-QOS-MIB	
CISCO-COMPRESSION-SERVICE-ADAPTER-MIB	
CISCO-CONFIG-COPY-MIB	CISCO-CONFIG-COPY-MIB
CISCO-CONFIG-MAN-MIB	CISCO-CONFIG-MAN-MIB
CISCO-DOCS-EXT-MIB	CISCO-DOCS-EXT-MIB
CISCO-DOCS-REMOTE-QUERY-MIB	
	CISCO-ENHANCED-MEMPOOL-MIB
CISCO-ENTITY-ALARM-MIB	CISCO-ENTITY-ALARM-MIB
CISCO-ENTITY-ASSET-MIB	CISCO-ENTITY-ASSET-MIB
CISCO-ENTITY-EXT-MIB	CISCO-ENTITY-EXT-MIB
CISCO-ENTITY-FRU-CONTROL-MIB	CISCO-ENTITY-FRU-CONTROL-MIB
CISCO-ENTITY-VENDORTYPE-OID-MIB	CISCO-ENTITY-VENDORTYPE-OID-MIB
CISCO-ENVMON-MIB	
CISCO-FLASH-MIB	CISCO-FLASH-MIB
CISCO-FRAME-RELAY-MIB	CISCO-FRAME-RELAY-MIB
CISCO-FTP-CLIENT-MIB (-is- software images only)	CISCO-FTP-CLIENT-MIB
CISCO-HSRP-EXT-MIB	CISCO-HSRP-EXT-MIB
CISCO-HSRP-MIB	CISCO-HSRP-MIB
CISCO-IETF-ATM2-PVCTRAP-MIB	CISCO-IETF-ATM2-PVCTRAP-MIB
CISCO-IETF-IP-FORWARD-MIB	
CISCO-IETF-IP-MIB	
CISCO-IETF-NAT-MIB (-is- software images only)	
CISCO-IMAGE-MIB	CISCO-IMAGE-MIB
CISCO-IPMROUTE-MIB	CISCO-IPMROUTE-MIB
CISCO-IPSEC-FLOW-MONITOR-MIB (-k8- or -k9- software images only)	CISCO-IPSEC-FLOW-MONITOR-MIB
CISCO-IPSEC-MIB (-k8- or -k9- software images only)	CISCO-IPSEC-MIB
CISCO-IPSEC-POLICY-MAP-MIB (-k8- or -k9- software images only)	CISCO-IPSEC-POLICY-MAP-MIB
CISCO-IP-STAT-MIB	CISCO-IP-STAT-MIB

Table 3-1 Included MIBs on Cisco uBR10012 and uBR7200 Series Routers in Cisco IOS Release 12.3(23)BC

Cisco uBR7200 series in Cisco IOS Release 12.3(23)BC	Cisco uBR10012 Cisco IOS Release 12.3(23)BC
CISCO-ISDN-MIB	
CISCO-LEC-DATA-VCC-MIB (-is- software images only)	
CISCO-LEC-EXT-MIB (-is- software images only)	
CISCO-LECS-MIB (-is- software images only)	
CISCO-LES-MIB (-is- software images only)	
CISCO-MEMORY-POOL-MIB	CISCO-MEMORY-POOL-MIB
CISCO-NBAR-PROTOCOL-DISCOVERY-MIB	
CISCO-NTP-MIB	CISCO-NTP-MIB
CISCO-PIM-MIB	CISCO-PIM-MIB
CISCO-PING-MIB	CISCO-PING-MIB
CISCO-PPPOE-MIB	
CISCO-PROCESS-MIB	CISCO-PROCESS-MIB
CISCO-PRODUCTS-MIB	CISCO-PRODUCTS-MIB
CISCO-QUEUE-MIB	CISCO-QUEUE-MIB
CISCO-RMON-SAMPLING-MIB	CISCO-RMON-SAMPLING-MIB
CISCO-RTTMON-MIB	CISCO-RTTMON-MIB
CISCO-SNAPSHOT-MIB	CISCO-SNAPSHOT-MIB
	CISCO-SRP-MIB
CISCO-SYSLOG-MIB	CISCO-SYSLOG-MIB
CISCO-TCP-MIB	CISCO-TCP-MIB
CISCO-VLAN-IFTABLE-RELATIONSHIP-MIB	CISCO-VLAN-IFTABLE-RELATIONSHIP-MIB
CISCO-VPDN-MGMT-MIB (-is- software images only)	
CISCO-VPDN-MGMT-EXT-MIB (-is- software images only)	
CISCO-VSIMASTER-MIB	
DOCS-BPI-MIB (-k8- or -k9- software images only)	DOCS-BPI-MIB
DOCS-BPI-PLUS-MIB (-k8- or -k9- software images only)	DOCS-BPI-PLUS-MIB Narrowband fiber nodes and Multicast supported in Cisco IOS Release 12.3(23)BC and later.
DOCS-CABLE-DEVICE-MIB	DOCS-CABLE-DEVICE-MIB
DOCS-CABLE-DEVICE-TRAP-MIB	DOCS-CABLE-DEVICE-TRAP-MIB
DOCS-DSG-IF-MIB	DOCS-DSG-IF-MIB

Table 3-1 Included MIBs on Cisco uBR10012 and uBR7200 Series Routers in Cisco IOS Release 12.3(23)BC

Cisco uBR7200 series in Cisco IOS Release 12.3(23)BC	Cisco uBR10012 Cisco IOS Release 12.3(23)BC
DOCS-IF-MIB	DOCS-IF-MIB
DOCS-IF-EXT-MIB	DOCS-IF-EXT-MIB
DOCS-QOS-MIB	DOCS-QOS-MIB
	DTI-MIB
ENTITY-MIB	ENTITY-MIB*
ETHERLIKE-MIB	ETHERLIKE-MIB
EVENT-MIB (-is- software images only)	EVENT-MIB
EXPRESSION-MIB (-is- software images only)	EXPRESSION-MIB
HC-RMON-MIB	HC-RMON-MIB
IF-MIB	IF-MIB
IGMP-STD-MIB	IGMP-STD-MIB
INT-SERV-MIB	INT-SERV-MIB
IP-MIB	IP-MIB
IPMROUTE-STD-MIB	IPMROUTE-STD-MIB
ISDN-MIB	
LAN-EMULATION-CLIENT-MIB (-is- software images only)	
MSDP-MIB	MSDP-MIB
NOTIFICATION-LOG-MIB (not supported in -is- software images)	
	nruCacheSnmpData
OLD-CISCO-CHASSIS-MIB	OLD-CISCO-CHASSIS-MIB
OLD-CISCO-CPU-MIB	OLD-CISCO-CPU-MIB
OLD-CISCO-INTERFACES-MIB	OLD-CISCO-INTERFACES-MIB
OLD-CISCO-IP-MIB	OLD-CISCO-IP-MIB
OLD-CISCO-MEMORY-MIB	OLD-CISCO-MEMORY-MIB
OLD-CISCO-SYSTEM-MIB	OLD-CISCO-SYSTEM-MIB
OLD-CISCO-TCP-MIB	OLD-CISCO-TCP-MIB
OLD-CISCO-TS-MIB	OLD-CISCO-TS-MIB
PIM-MIB	PIM-MIB
RFC1213-MIB	RFC1213-MIB
RFC1231-MIB	
RFC1253-MIB	RFC1253-MIB
RFC1315-MIB	RFC1315-MIB
RFC1381-MIB	
RFC1382-MIB	

Table 3-1 Included MIBs on Cisco uBR10012 and uBR7200 Series Routers in Cisco IOS Release 12.3(23)BC

Cisco uBR7200 series in Cisco IOS Release 12.3(23)BC	Cisco uBR10012 Cisco IOS Release 12.3(23)BC
RFC1406-MIB	RFC1406-MIB
RFC1407-MIB	RFC1407-MIB
RFC1595-MIB	RFC1595-MIB
RMON-MIB	RMON-MIB
RMON2-MIB	RMON2-MIB
RS-232-MIB	RS-232-MIB
RSVP-MIB	RSVP-MIB
SMON-MIB	SMON-MIB
SNMP-COMMUNITY-MIB	SNMP-COMMUNITY-MIB
SNMP-FRAMEWORK-MIB	SNMP-FRAMEWORK-MIB
SNMP-MPD-MIB	
SNMP-NOTIFICATION-MIB	SNMP-NOTIFICATION-MIB
SNMP-PROXY-MIB	SNMP-PROXY-MIB
SNMP-TARGET-MIB	SNMP-TARGET-MIB
SNMP-USM-MIB	SNMP-USM-MIB
SNMPv2-MIB	SNMPv2-MIB
SNMP-VACM-MIB	SNMP-VACM-MIB
TCP-MIB	TCP-MIB
UDP-MIB	UDP-MIB

Table 3-2 list the specific cable MIBs.

Table 3-2 Cable-Specific MIBs

MIB Name	MIB Description
DOCS-IF-MIB	Describes the DOCSIS-compliant Radio Frequency (RF) interfaces in cable modems and the CMTS. This MIB has been released as an RFC 2670.
DOCS-BPI-PLUS-MIB	Describes the attributes for the DOCSIS 1.1-specified Baseline Privacy Interface Plus (BPI+) on CMS and the CMTS. This is a draft revision 05 of the MIB. **Note** This MIB replaces DOCS-BPI-MIB, which was used in the initial DOCSIS 1.0 releases.
CISCO-DOCS-EXT-MIB	Extends the DOCSIS standard RFI MIB (DOCS-IF-MIB) with Cisco-specific extensions, such as Quality of Service (QoS) attributes and connection status and other information regarding the cable modems and Customer Premise Equipment (CPE) devices supported by the CMTS.
CISCO-DOCS-REMOTE-QUERY-MIB	Facilitates SNMP polling of remote cable modems on CMTS.

Table 3-2 Cable-Specific MIBs

MIB Name	MIB Description
CISCO-CABLE-SPECTRUM-MIB	Describes the spectrum management and flap list attributes.
CISCO-CABLE-ADMISSION-CTRL-MIB	Enables the management of Cable Modem Termination System (CMTS) admission control.
CISCO-CABLE-AVAILABILITY-MIB	Describes the operation of Hot Standby Connection to Connection Protocol (HCCP) N+1 redundancy on the Cisco CMTS.
CISCO-CABLE-METERING-MIB	Describes subscriber account and billing information in the Subscriber Account Management Interface Specification (SAMIS) format, also known as Usage-Based Billing on the Cisco CMTS.
CISCO-CABLE-QOS-MONITOR-MIB	Describes SNMP support for the Subscriber Traffic Management (STM) feature.
DOCS-QOS-MIB	Describes the QoS attributes. This is a draft revision 05 of the MIB. **Note** Cisco IOS Software Release 12.1(4)CX implemented revision 02 of this MIB. Revision 05 includes substantial changes to the tables and attributes.
DOCS-SUBMGT-MIB	Describes the subscriber management attributes. This is revision 02 of the MIB.
IGMP-STD-MIB	Describes the Internet Group Management Protocol (IGMP) attributes, as defined in RFC 2933.
DOCS-CABLE-DEVICE-MIB	Describes the operation of cable modem and CMTS. Only the syslog and Event tables are supported by this MIB, which was released as RFC 2669.
DOCS-CABLE-DEVICE-TRAP-MIB	This is the extension of the RFC2669 (DOCS-CABLE-DEVICE-MIB). It defines all the traps supported by a cable modem and CMTS.
CISCO-CABLE-WIDEBAND-MIB	Contains objects that support Wideband DOCSIS on the Cable Modem Termination System (CMTS).

MIB Specifications

This section gives a short summary of each MIB, along with the MODULE-IDENTITY and top-level object identifier (OID) that can be used to access the MIB when using an SNMP manager.

ATM-MIB

The ATM-MIB contains the Asynchronous Transfer Mode (ATM) and ATM adaptation layer 5 (AAL5) objects used to manage ATM interfaces, virtual links, cross connects, and AAL5 entities and connections, as defined in RFC 1695.

The MODULE-IDENTITY for the ATM-MIB is atmMIB, and its top-level OID is 1.3.6.1.2.1.37 (iso.org.dod.internet.mgmt.mib-2.atmMIB).

MIB Constraints

There are no constraints on this MIB.

BGP4-MIB

The BGP4-MIB provides access to information related to the implementation of the Border Gateway Protocol (BGP), as defined in RFC 1657. The MIB provides:

- BGP configuration information
- Information about BGP peers and messages exchanged with them
- Information about advertised networks

The MODULE-IDENTITY for the BGP4-MIB is bgp, and its top-level OID is 1.3.6.1.2.1.15 (iso.org.dod.internet.mgmt.mib-2.bgp).

MIB Constraints

There are no constraints on this MIB.

BRIDGE-MIB

The BRIDGE-MIB provides access to information related to Layer 2 bridging that is based on MAC addresses, as defined in RFC 1493.

The MODULE-IDENTITY for the BRIDGE-MIB is dot1dBridge, and its top-level OID is 1.3.6.1.2.1.17 (iso.org.dod.internet.mgmt.mib-2.dot1dBridge).

MIB Constraints

This MIB is supported only on the Cisco uBR7100 series router when running a Cisco IOS "-is-" software image. It is not supported on the Cisco uBR7200 series and Cisco uBR10012 routers, which do not support bridging across cable interfaces.

CISCO-AAA-SERVER-MIB

The CISCO-AAA-SERVER-MIB contains information about authentication, authorization, and accounting (AAA) servers within the router and external to the router. The MIB provides:

- Configuration information for AAA servers, including identities of external AAA servers
- Statistics for AAA functions
- Status (state) information for AAA servers

MIB Constraints

The configuration objects in casConfigTable are implemented as read-only.

Table 3-3 CISCO-AAA-SERVER-MIB Constraints

MIB Object	Notes
casConfigTable	
• casAddress	Read-only.
• casAuthenPort	Read-only.
• casAcctPort	Read-only.
• casKey	Read-only.
• casConfigRowStatus	Read-only.

CISCO-AAL5-MIB

The CISCO-AAL5-MIB contains performance statistics for ATM adaptation layer 5 (AAL5) virtual channel connections (VCCs). This MIB provides additional statistics that supplement the information stored in the aal5VccTable in ATM-MIB (RFC 1695), such as packets and octets received and transmitted on the VCC.

The MODULE-IDENTITY for the CISCO-AAL5-MIB is ciscoAal5MIB, and its top-level OID is 1.3.6.1.4.1.9.9.66 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoAal5MIB).

MIB Constraints

There are no constraints on this MIB.

CISCO-ACCESS-ENVMON-MIB

The CISCO-ACCESS-ENVMON-MIB supplements the ciscoEnvMonSupplyStatusTable table in CISCO-ENVMON-MIB, providing additional information about power supply failures. This MIB also defines new temperature and voltage notifications that replace those in CISCO-ENVMON-MIB.

The MODULE-IDENTITY for the CISCO-ACCESS-ENVMON-MIB is ciscoAccessEnvMonMIB, and its top-level OID is 1.3.6.1.4.1.9.9.61 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoAccessEnvMonMIB).

MIB Constraints

There are no constraints on this MIB.

CISCO-ATM-EXT-MIB

The CISCO-ATM-EXT-MIB contains extensions to the Cisco ATM module that are used to manage ATM entities. It supplements the CISCO-AAL5-MIB, providing additional AAL5 performance statistics for a virtual channel connection (VCC) on an ATM interface.

The MODULE-IDENTITY for the CISCO-ATM-EXT-MIB is ciscoAtmExtMIB, and its top-level OID is 1.3.6.1.4.1.9.9.88 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoAtmExtMIB).

MIB Constraints

There are no constraints on this MIB.

CISCO-ATM-PVCTRAP-EXTN-MIB

The CISCO-ATM-PVCTRAP-EXTN-MIB contains extensions to the ATM-MIB, providing additional notifications and traps about the status of permanent virtual circuits (PVCs) on the Cisco CMTS.

The MODULE-IDENTITY for the CISCO-ATM-PVCTRAP-EXTN-MIB is ciscoAtmPvcTrapExtnMIB, and its top-level OID is 1.3.6.1.4.1.9.10.97 (iso.org.dod.internet.private.enterprises.cisco.ciscoExperiment.ciscoAtmPvcTrapExtnMIB).

MIB Constraints

The CISCO-ATM-PVCTRAP-EXTN-MIB has the following constraints.

Table 3-4 CISCO-ATM-PVCTRAP-EXTN-MIB Constraints

This is an experimental MIB that can be obsoleted and replaced without prior notice.
This MIB is not supported in any Cisco IOS Release 12.1EC software image

CISCO-BGP4-MIB

The CISCO-BGP4-MIB contains extensions to the BGP4-MIB that are specific to Cisco, including additional information about the entries in the BGP routing table.

The MODULE-IDENTITY for the CISCO-BGP4-MIB is ciscoBgp4MIB, and its top-level OID is 1.3.6.1.4.1.9.9.187 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoBgp4MIB).

MIB Constraints

There are no constraints on this MIB.

CISCO-BGP-POLICY-ACCOUNTING-MIB

The CISCO-BGP-POLICY-ACCOUNTING-MIB contains objects for BGP policy-based accounting that are specific to Cisco platforms.

The MODULE-IDENTITY for the CISCO-BGP-POLICY-ACCOUNTING-MIB is ciscoBgpPolAcctMIB, and its top-level OID is 1.3.6.1.4.1.9.9.148 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoBgpPolAcctMIB).

MIB Constraints

This MIB has the following constraints:

- This MIB is supported only in Cisco IOS Release 12.1EC and only for Cisco uBR7100 series and Cisco uBR7200 series routers.
- This MIB is not supported on Cisco uBR10012 routers.
- This MIB is not supported in Cisco IOS Release 12.2BC.

CISCO-BULK-FILE-MIB

The CISCO-BULK-FILE-MIB contains objects to create and delete files of SNMP data for bulk-file transfer, in different file formats (ASN.1/BER, binary, and ASCII).

The MODULE-IDENTITY for the CISCO-BULK-FILE-MIB is ciscoBulkFileMIB, and its top-level OID is 1.3.6.1.4.1.9.9.81 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoBulkFileMIB).

MIB Constraint

This MIB is supported only on Cisco uBR7100 series and Cisco uBR7200 series routers that are running a Cisco IOS "-is-" software image.

CISCO-BUS-MIB

The CISCO-BUS-MIB contains objects about the operation of each broadcast and unknown server (BUS) that is operating on an ATM virtual LAN (VLAN) that is using LAN Emulation (LANE) tagging.

The MODULE-IDENTITY for the CISCO-BUS-MIB is ciscoBusMIB, and its top-level OID is 1.3.6.1.4.1.9.9.40 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoBusMIB).

MIB Constraints

This MIB has the following constraints:

- This MIB is supported only on Cisco uBR7100 series and Cisco uBR7200 series routers that are running a Cisco IOS "-is-" software image.
- This MIB is not supported on the Cisco uBR10012 router.

CISCO-CABLE-ADMISSION-CTRL-MIB

The CISCO-CABLE-ADMISSION-CTRL-MIB contains objects enabling the management of Cable Modem Termination System (CMTS) admission control. Admission Control refers to the rules that the Cisco CMTS follows when allocating and monitoring events for resources such as the following:

- CPU and memory utilization—Data and thresholds setting on the physical entity, such as the main processor or line card or Broadband processing Engines (BPE), when a monitoring event happens
- Configuration of thresholds and channel bandwidth utilization, both Upstream (US) and Downstream (DS), are based on application types

The monitored events for Admission Control on the Cisco CMTS include the following:

- Dynamic service flow creation requests—Dynamic service flow allows on-demand reservation on Layer 2 bandwidth resources. CMTS provides special QoS to the cable modem dynamically during a voice call or video session which provides a more efficient use of the available bandwidth.
- Resource requests during cable modem (CM) registration—CMTS resources are required during CM registration. CMTS resources are checked when CM receives a registration request.

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

MIB Constraints

This MIB has the following constraints.

Table 3-5 CISCO-CABLE-ADMISSION-CTRL-MIB Constraints

MIB Object	Notes
ccacEventHistTable	
• ccacEventHistTableSize	The ccacEventHistTableSize object specifies the number of entries that the ccacEventHistTable can contain. When the capacity of the ccacEventHistTable has reached the value specified by this object, then the agent deletes the oldest entity in order to accommodate the new entry. A value of zero prevents any history from being retained. The ccacEventHistTableSize is restricted to 5000.
• ccacSysRscConfigStatus	Read-only.

CISCO-CABLE-AVAILABILITY-MIB

The CISCO-CABLE-AVAILABILITY-MIB contains objects about the operation of Hot Standby Connection to Connection Protocol (HCCP) N+1 redundancy on the Cisco CMTS.

The MODULE-IDENTITY for the CISCO-CABLE-AVAILABILITY-MIB is ciscoCableAvailabilityMIB, and its top-level OID is 1.3.6.1.4.1.9.9.242 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoCableAvailabilityMIB).

MIB Constraints

This MIB has the following constraints:

- This MIB is not supported in any Cisco IOS Release 12.1EC software image.
- This MIB is not supported on the Cisco uBR7100 series router.
- This MIB is supported on the Cisco uBR10012 router in Cisco IOS Release 12.2(8)BC1 and later releases.

CISCO-CABLE-METERING-MIB

The CISCO-CABLE-METERING-MIB contains objects that provide subscriber account and billing information in the Subscriber Account Management Interface Specification (SAMIS) format, also known as Usage-Based Billing on the Cisco CMTS. This format is specified by the Data-over-Cable Service Interface Specifications (DOCSIS) Operations Support System Interface (OSSI) specification.

The MODULE-IDENTITY for the CISCO-CABLE-METERING-MIB is ciscoCableMeteringMIB, and its top-level OID is 1.3.6.1.4.1.9.9.424 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoCableMeteringMIB).

Note 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

MIB Constraints

This MIB has the following constraints:

- The packet counters displayed by CLI commands are reset to zero whenever the Cisco CMTS router is rebooted. The packet counters displayed by SNMP commands are retained across router resets. These counters are 64-bit values and could roll over to zero during periods of heavy usage.
- This MIB is supported only in Cisco IOS Release 12.3(9a)BC and later releases.

CISCO-CABLE-QOS-MONITOR-MIB

The CISCO-CABLE-QOS-MONITOR-MIB provides SNMP support for the Subscriber Traffic Management (STM) feature, which allows network administrators to identify users who violate their service level agreements (SLA) by using resources beyond their allowable bandwidth.

This MIB provides configuration options similar to those provided by the **cable qos enforce-rule** command. It also provides access to the attributes that are displayed by the **show cable qos enforce-rule** and **show cable subscriber-usage** commands.

The MODULE-IDENTITY for the CISCO-CABLE-QOS-MONITOR-MIB is ciscoCableQosMonitorMIB, and its top-level OID is 1.3.6.1.4.1.9.9.341 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoCableQosMonitorMIB).

MIB Constraints

This MIB has the following constraints:

- This MIB is not supported in any Cisco IOS Release 12.1EC software image.
- This MIB is supported starting with Cisco IOS Release 12.2(15)BC1 and later releases.

CISCO-CABLE-SPECTRUM-MIB

The CISCO-CABLE-SPECTRUM-MIB provides SNMP support for spectrum management and flap-list operations on the Cisco CMTS.

Spectrum management is a feature provided in the CMTS so that the CMTS may identify both downstream and upstream plant impairments, report them to a management entity, and automatically diminish them where possible.

The purpose of cable spectrum management is to:

- Prevent long-term service interruptions caused by upstream noise events in the cable plant
- Provide fault management and troubleshooting on the cable network. The following new tables and objects are supported in this MIB:
  - ccsSpecGroupFreqTable
  - ccsUpInSpecGroupTable
  - ccsUpInCombGroupTable
  - ccsUpSpecMgmtSpecGroup
  - ccsUpSpecMgmtSharedSpectrum

The MODULE-IDENTITY for the CISCO-CABLE-SPECTRUM-MIB is ciscoCableSpectrumMIB, and its top-level OID is 1.3.6.1.4.1.9.9.114 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoCableSpectrumMIB).

MIB Constraints

This MIB has the following constraints.

Table 3-6 CISCO-CABLE-SPECTRUM-MIB Constraints

MIB Object	Notes
ccsUpSpecMgmtTable	
• ccsUpSpecMgmtSNR	This object returns zero (0) in three situations: when the actual signal-to-noise ratio (SNR) measures 0 (when ingress noise cancellation is being used), when no cable modems are online the upstream, or when the SNMP agent on the router could not determine a valid SNR value.
• ccsUpSpecMgmtSpecGroup	Read-only. The value of 0 for this object indicates that the upstream has no spectrum group assigned to it.

Table 3-6 CISCO-CABLE-SPECTRUM-MIB Constraints (continued)

MIB Object	Notes
• ccsUpSpecMgmtSharedSpectrum	Read-only. The combiner group assigned to the upstream. Note: Upstreams having same combiner group number indicates that they physically combine together into the same RF domain and must have unique frequency assigned. The value of 0 for the object indicates that the upstream is not physically combine with any others.
ccsCmFlapTable	
• ccsFlapAging ccsFlapListMaxSize ccsFlapInsertionTime ccsFlapMissThreshold ccsFlapPowerAdjustThreshold ccsFlapResetAll, ccsFlapClearAll ccsFlapResetNow • The following objects are supported in Cisco IOS release 12.3(23)BC and later releases: ccsCmFlapDownstreamIfIndex ccsCmFlapUpstreamIfIndex ccsCmFlapMacAddr	These objects are supported on the Cisco uBR10012 router in Cisco IOS Release 12.2(11)BC3 and later releases. Commencing in Cisco IOS Release 12.3(23)BC, This table keeps the records of modem state changes, and can be used to identify problematic cable modems. The system automatically adds an entry per modem to the table when it detects any state changes to the modem. This table can be deleted but cannot be added by the management system. The index objects are ccsCmFlapDownstreamIfIndex, ccsCmFlapUpstreamIfIndex, ccsCmFlapMacAddr. This table is used to replace ccsFlapTable, using downstream, upstream and MAC address as indices for the flapped modem. For NB CMs using SPA Downstream, ccsCmFlapDownstreamIfIndex should be the ifindex of Modular Cable Interface's snmp ifindex.

MIB Group Objects

Table 3-7 lists the groups and objects added to the CISCO-CABLE-SPECTRUM-MIB.

Table 3-7 CISCO-CABLE-SPECTRUM-MIB Group Objects

MIB Object	Notes
ccsSpecGroupFreqTable	Contains the frequency and band configuration of the spectrum group.
• ccsSpecGroupNumber	
• ccsSpecGroupFreqIndex	Unsigned32
• ccsSpecGroupFreqType	INTEGER
• ccsSpecGroupFreqLower	Unsigned32
• ccsSpecGroupFreqUpper	Unsigned32
• ccsSpecGroupStorage	StorageType
• ccsSpecGroupRowStatus	RowStatus

Table 3-7 CISCO-CABLE-SPECTRUM-MIB Group Objects (continued)

MIB Object	Notes
ccsUpInSpecGroupTable	Contains the cable upstream interfaces assigned to a spectrum group. A spectrum group contains one or more fixed frequencies or frequency bands which can be assigned to cable upstream interfaces in the spectrum group.
• ccsSpecGroupNumber	Unsigned32
• ccsSpecGroupUpstreamIfIndex	InterfaceIndex
• ccsSpecGroupUpstreamStorage	StorageType
• ccsSpecGroupUpstreamRowStatus	RowStatus
ccsUpInCombGroupTable	Contains all the cable upstream interfaces in a combiner group. Each combiner group uniquely represents a RF domain. Cable upstream interfaces in same combiner group are physically combined together into same RF domain
• ccsCombGroupNumber	Unsigned32
• ccsCombGroupUpstreamIfIndex	InterfaceIndex
• ccsCombGroupUpstreamStorage	StorageType
• ccsCombGroupUpstreamRowStatus	RowStatus

CISCO-CABLE-WIDEBAND-MIB

CISCO-CABLE-WIDEBAND-MIB in Cisco IOS 12.3(21)BC

The CISCO-CABLE-WIDEBAND-MIB contains objects that support Channel Bonding Protocol for the Cable Modem Termination System (CMTS). Cisco Cable Wideband MIB supports Wideband DOCSIS on the Cable Modem Termination System (CMTS). Wideband DOCSIS enhances per-cable-modem data rates that exceed the bandwidth of a single 256QAM downstream channel.

The MODULE-IDENTITY for the CISCO-CABLE-WIDEBAND-MIB is ciscoCableWidebandMIBObjects, and its top-level OID is 1.3.6.1.4.1.9.9.479.

A wideband channel or Bonded Group is a logical grouping of one or more physical RF channels over which MPEG-TS packets are carried. The wideband channel carries DOCSIS-bonded packets encapsulated in MPEG-TS packets from a wideband Cisco CMTS to one or more wideband cable modems.

Narrowband and Wideband Channels in Cisco IOS 12.3(23)BC

Commencing in Cisco IOS Release 12.3(23)BC and later releases, the Cisco CMTS supports a narrowband channel in a standard DOCSIS downstream channel containing exactly one RF channel. The fiber node in a narrowband channel is an optical node that terminates the fiber-based downstream signal as an electrical signal onto a coaxial RF cable. This type of narrowband channel is distinct from another new narrowband channel that applies to the Shared Port Adaptor (SPA) downstream channel.

Narrowband in Cisco IOS 12.3(23)BC has been enhanced to support two tables in the CISCO-CABLE-WIDEBAND-MIB:

- ccwbWBtoRFMappingTable
- ccwbWBtoNBMappingTable

These MIB objects correspond to the two following privileged EXEC commands:

- **show hw-module bay all mapping wideband-channel**
- **show hw-module bay all association wideband-channel**

MIB Notes and Constraints

The CISCO-CABLE-WIDEBAND-MIB has the following constraints.

Table 3-8 CISCO-CABLE-WIDEBAND-MIB Constraints

MIB Object	Notes and Constraints
ccwbRFChannelTable	This table contains attributes of the physical RF channels.
• ccwbRFChannelFrequency	Unsigned32 Note: A range of 54MHz to 860MHz is appropriate for a cable plant using a North American Sub-Split channel plan. The spectrum range has been expanded to accommodate a lower edge of 47MHz and an upper edge of 862MHz for some European channel plants.
• ccwbRFChannelWidth	Read-only. Note: The value of 6 MHz is appropriate for cable plants running under NTSC (National Television Standards Committee) standards. The value of 8 MHz is appropriate for cable plants running under ETSI standards.
• ccwbRFChannelRowStatus	Values: • active(1) • createAndGo(4) • destroy(6)
• ccwbRFChannelAnnex	Read-create. Value must be the same for all RF channels.
• ccwbRFChannelModulation	Read-create. Value must be the same for all RF channels.
• ccwbRFChannelStorageType	Value is volatile(2).
• ccwbRFChannelNum	Unsigned32
• ccwbRFChannelMpegPkts	Read-only. Counter64
ccwbRFChannelQamTable	This table contains information of the external edge QAM which provide the physical RF channels which are available to the wideband channels.
• ccwbRFChanQamTos	Not implemented.
• ccwbRFChanQamVlanId	Not implemented.
• ccwbRFChanQamPriorityBits	Not implemented.
• ccwbWBtoNBRowStatus	Read-only.
• ccwbWBtoNBStorageType	Values: • volatile(2). • Read-only.

Table 3-8 CISCO-CABLE-WIDEBAND-MIB Constraints (continued)

MIB Object	Notes and Constraints
• ccwbRFChanQamIPAddressType	Only Internet address type **ipv4** is supported.
ccwbWBtoRFMappingTable	This table contains association information of the wideband channels to RF channels available for WCMTS. This converts to a Read-only table.
• ccwbWBtoRFStorageType	Value is volatile(2).
• ccwbWBtoRFRowStatus	Values: • active(1) • createAndGo(4) • destroy(6)
ccwbFiberNodeDescrTable	This table contains the description of a fiber node on a CMTS.
• ccwbFiberNodeDescription	Read-only.
• ccwbFiberNodeDescrStorageType	Values: • volatile(2). • Read-only.
• ccwbFiberNodeDescrRowStatus	Read-only.
ccwbFiberNodeTable	This is a read-only table which provides configuration and topology information for each Fiber node, such as, Narrowband Ifindex, Wideband controller Index and the Wideband rf-ports
• ccwbFiberNodeNBIfIndx	Read-only.
• ccwbFiberNodeWBContlrPhyIndx	Read-only.
• ccwbFiberNodeWBRFPort	Read-only.
• ccwbFiberNodeStorageType	Values: • volatile(2). • Read-only.
• ccwbFiberNodeRowStatus	Read-only.
ccwbWBCmStatusTable	This table contains wideband cable connectivity status .
• ccwbWBCmStatusValue	Read-only.
ccwbWBBondGrpTable	This table provides information on either a primary or non-primary interface for the Wideband Interface.
• ccwbWBBondGrpSecondary	Values: • true(1) if the wideband interface (BG) is Secondary • false(2) for non-secondary

Table 3-8 CISCO-CABLE-WIDEBAND-MIB Constraints (continued)

MIB Object	Notes and Constraints
ccwbWBtoRFMappingTable	This table maps the Wideband Fiber Node and associated interfaces to the RF downstream. This table is supported only in Cisco IOS Release 12.3(23)BC or later on the Cisco uBR10012 router. This MIB table corresponds to the **show hw-module bay all mapping wideband-channel** privileged EXEC command.
ccwbWBtoNBMappingTable	This table maps the Wideband interfaces to the Narrowband Fiber Node for downstream channels. This table is supported only in Cisco IOS Release 12.3(23)BC or later on the Cisco uBR10012 router. This MIB table corresponds to the **show hw-module bay all association wideband-channel** privileged EXEC command.

This is a Cisco-only proprietary MIB which supports the DOCSIS 3.0 standard.

CISCO-CALL-HISTORY-MIB

The CISCO-CALL-HISTORY-MIB contains objects about the information that is stored in the router's call history table, which keeps a record of the calls made on the router.

The MODULE-IDENTITY for the CISCO-CALL-HISTORY-MIB is ciscoCallHistoryMib, and its top-level OID is 1.3.6.1.4.1.9.9.27 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoCallHistoryMib).

MIB Constraints

This MIB is not supported on the Cisco uBR10012 router.

CISCO-CAR-MIB

The CISCO-CAR-MIB contains objects that provide information about the operation of packet filtering on the interfaces that use weighted rate-limiting, which is also known as the committed access rate (CAR).

The MODULE-IDENTITY for the CISCO-CAR-MIB is ciscoCarMIB, and its top-level OID is 1.3.6.1.4.1.9.9.113 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoCarMIB).

MIB Constraints

There are no constraints on this MIB.

CISCO-CASA-FA-MIB

The CISCO-CASA-FA-MIB supplements the CISCO-CASA-MIB, containing additional objects to manage a Cisco Appliance Services Architecture (CASA) forwarding agent (FA).

The MODULE-IDENTITY for the CISCO-CASA-FA-MIB is ciscoCasaFaMIB, and its top-level OID is 1.3.6.1.4.1.9.9.115 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoCasaFaMIB).

MIB Constraints

This MIB has the following constraints:

- This MIB is supported only on Cisco uBR7100 series and Cisco uBR7200 series routers that are running a Cisco IOS "-is-" software image.
- This MIB is not supported on the Cisco uBR10012 router.

CISCO-CASA-MIB

The CISCO-CASA-MIB contains the objects needed to manage a Cisco Appliance Services Architecture (CASA) entity, which can be either a manager agent or forwarding agent.

The MODULE-IDENTITY for the CISCO-CASA-MIB is ciscoCasaMIB, and its top-level OID is 1.3.6.1.4.1.9.9.122 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoCasaMIB).

MIB Constraints

This MIB has the following constraints:

- This MIB is supported only on Cisco uBR7100 series and Cisco uBR7200 series routers that are running a Cisco IOS "-is-" software image.
- This MIB is not supported on the Cisco uBR10012 router.

CISCO-CDP-MIB

The CISCO-CDP-MIB contains objects to manage the Cisco Discovery Protocol (CDP) on the router, and to display the contents of the CDP neighbor table.

The MODULE-IDENTITY for the CISCO-CDP-MIB is ciscoCdpMIB, and its top-level OID is 1.3.6.1.4.1.9.9.23 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoCdpMIB).

MIB Constraints

There are no constraints on this MIB.

CISCO-CIRCUIT-INTERFACE-MIB

The CISCO-CIRCUIT-INTERFACE-MIB contains objects to manage circuits on circuit-based interfaces, such as ATM or Frame Relay.

The MODULE-IDENTITY for the CISCO-CIRCUIT-INTERFACE-MIB is ciscoCircuitInterfaceMIB, and its top-level OID is 1.3.6.1.4.1.9.9.160 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoCircuitInterfaceMIB).

MIB Constraints

This MIB is not supported in any Cisco IOS Release 12.1EC software image.

CISCO-CLASS-BASED-QOS-MIB

The CISCO-CLASS-BASED-QOS-MIB provides access to quality of service (QoS) configuration information and statistics. The MIB uses several indexes to identify QoS features and distinguish among instances of those features:

- cbQosPolicyIndex—Identifies a service policy attached to a logical interface.
- cbQosObjectsIndex—Identifies each QoS feature on a Cisco uBR7200 and the uBR10k routers.
- cbQosConfigIndex—Identifies a type of QoS configuration. This index is shared by QoS objects that have identical configurations.

The indexes cbQosPolicyIndex and cbQosObjectsIndex are assigned by the system to uniquely identify each instance of a QoS feature.

Note Do not reuse these indexes between router reboots, even if the QoS configuration changes.

QoS information is stored in:

- Configuration objects—Might have multiple identical instances. Multiple instances of the same QoS feature share a single configuration object, which is identified by cbQosConfigIndex.
- Statistics objects—Each has a unique run-time instance. Multiple instances of a QoS feature have a separate statistics object. Run-time instances of QoS objects are each assigned a unique identifier (cbQosObjectsIndex) to distinguish among multiple objects with matching configurations.

The MODULE-IDENTITY for the CISCO-CLASS-BASED-QOS-MIB is ciscoCBQosMIB, and its top-level OID is 1.3.6.1.4.1.9.9.166 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoCBQosMIB).

MIB Constraints

Table 3-9 lists the constraints that the Cisco uBR7200 series router places on objects in the CISCO-CLASS-BASED-QOS-MIB. For detailed definitions of MIB objects, see the standard MIB file. Any MIB table or object not listed in this table is implemented as defined in the MIB.

Table 3-9 CISCO-CLASS-BASED-QOS-MIB Constraints for the uBR7200 Series Router

MIB Object	Notes
cbQosServicePolicyTable	
• cbQosFrDLCI	Not supported. Always 0.
• cbQosAtmVCI	Not supported. Always 0.
• cbQosAtmVPI	Not supported. Always 0.
cbQosInterfacePolicyTable	
• cbQosInterfacePolicyIndex	Not supported. Always 0.
cbQosFrameRelayPolicyTable	
• cbQosFRPolicyIndex	Not supported. Always 0.
cbQosATMPVCPolicyTable	
• cbQosATMPolicyIndex	Not supported. Always 0.
cbQosQueueingCfgTable	
• cbQosQueueingCfgFlowEnabled·	Not supported. Always false(2).
• cbQosQueueingCfgIndividualQSize·	Not supported. Always 0.
• cbQosQueueingCfgDynamicQNumber·	Not supported. Always 0.
• cbQosQueueingCfgPrioBurstSize	Not supported. Always 0.
cbQosREDCfgTable	
• cbQosREDCfgMeanQsize	Not supported for PRE1. Always 0.
• cbQosREDCfgDscpPrec	DSCP-based is not supported.
cbQosREDClassCfgTable	
	If IP precedence is configured for the policy. • For PRE1, this table will have entries for all seven IP precedences. The MIB objects in cbQosREDClassCfgEntry will have a value of 0 if IP precedence is not configured for the policy. • For PRE2, this table will only have an entry for the configured IP precedence.
cbQosTSCfgTable	
• cbQosTSCfgBurstSize	Not supported. Always 0.
• cbQosTSCfgExtBurstSize	Not supported. Always 0.
• cbQosTSCfgAdaptiveEnabled	Not supported. Always false(2).
• cbQosTSCfgAdaptiveRate	Not supported. Always 0.
• cbQosTSCfgLimitType	Not supported. Always average(1).
cbQosCMStatsTable	
• cbQosCMDropByte64	Not supported. Always 0.
• cbQosCMDropByteOverflow	Not supported. Always 0.
• cbQosCMDropByte	Not supported. Always 0.

Table 3-9 CISCO-CLASS-BASED-QOS-MIB Constraints for the uBR7200 Series Router

MIB Object	Notes
cbQosPoliceStatsTable	
• cbQosPoliceConformedBitRate	Not supported. Always 0.
• cbQosPoliceExceededBitRate	Not supported. Always 0.
• cbQosPoliceViolatedBitRate	Not supported. Always 0.
cbQosQueueingStatsTable	
• cbQosQueueingDiscardByte64	Not supported. Always 0.
• cbQosQueueingDiscardByteOverflow	Not supported. Always 0.
• cbQosQueueingDiscardByte	Not supported. Always 0.
cbQosTSStatsTable	
• cbQosTSStatsDelayedByteOverflow·	Not supported. Always 0.
• cbQosTSStatsDelayedByte	Not supported. Always 0.
• cbQosTSStatsDelayedByte64	Not supported. Always 0.
• cbQosTSStatsDelayedPktOverflow	Not supported. Always 0.
• cbQosTSStatsDelayedPkt·	Not supported. Always 0.
• cbQosTSStatsDelayedPkt64	Not supported. Always 0.
• cbQosTSStatsDropByteOverflow	Not supported. Always 0.
• cbQosTSStatsDropByte	Not supported. Always 0.
• cbQosTSStatsDropByte64	Not supported. Always 0.
• cbQosTSStatsActive	Not dynamic. If traffic shaping is configured, then cbQosTSStatsActive is true(1); otherwise, it is false(2).
cbQosREDClassStatsTable	
• cbQosREDRandomDropPktOverflow • cbQosREDRandomDropPkt • cbQosREDRandomDropPkt64	Counts are recorded per class, not per cbQosREDValue (IP precedence). All counters with the same cbQosPolicyIndex and cbQosObjectsIndex contain the same count.
• cbQosREDRandomDropByteOverflow • cbQosREDRandomDropByte • cbQosREDRandomDropByte64	Not supported. Always 0.
• cbQosREDTailDropPktOverflow • cbQosREDTailDropPkt • cbQosREDTailDropPkt64	Counts are recorded per class, not per cbQosREDValue (IP precedence). All counters with the same cbQosPolicyIndex and cbQosObjectsIndex contain the same count.

Table 3-9 CISCO-CLASS-BASED-QOS-MIB Constraints for the uBR7200 Series Router

MIB Object	Notes
• cbQosREDTailDropByteOverflow • cbQosREDTailDropByte • cbQosREDTailDropByte64	Not supported. Always 0.
• cbQosREDTransmitPktOverflow • cbQosREDTransmitPkt • cbQosREDTransmitPkt64 • cbQosREDTransmitByteOverflow • cbQosREDTransmitByte • cbQosREDTransmitByte64	Counts are recorded per class, not per cbQosREDValue (IP precedence). All counters with the same cbQosPolicyIndex and cbQosObjectsIndex contain the same count.

CISCO-COMPRESSION-SERVICE-ADAPTER-MIB

The CISCO-COMPRESSION-SERVICE-ADAPTER-MIB contains objects with statistics and status information for hardware-based compression service adapters that are installed in the router.

The MODULE-IDENTITY for the CISCO-COMPRESSION-SERVICE-ADAPTER-MIB is ciscoCompressionServiceAdapterMIB, and its top-level OID is 1.3.6.1.4.1.9.9.57 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoCompressionServiceAdapterMIB).

MIB Constraints

This MIB has the following constraints:

- This MIB exists on Cisco uBR7100 series and Cisco uBR7200 series routers, but is not supported because these routers do not support any compression service adapter line cards.
- This MIB is not supported on the Cisco uBR10012 router.

CISCO-CONFIG-COPY-MIB

The CISCO-CONFIG-COPY-MIB contains objects to copy configuration files on the router. For example, the MIB enables the SNMP agent to:

- Copy configuration files to and from the network
- Copy the running configuration to the startup config and startup to running
- Copy the startup or running configuration files to and from a local Cisco IOS file system

The MODULE-IDENTITY for the CISCO-CONFIG-COPY-MIB is ciscoConfigCopyMIB, and its top-level OID is 1.3.6.1.4.1.9.9.96 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoConfigCopyMIB).

MIB Constraints

This MIB has the following constraints.

Table 3-10 CISCO-CONFIG-COPY-MIB Constraints

MIB Object	Notes
ccCopyTable	
• ccCopyProtocol	Only the Trivial File Transfer Protocol, tftp(1), is supported. The File Transfer Protocol, ftp(2), and remote copy protocol, rcp(3), are not supported.
• ccCopySourceFileType ccCopyDestFileType	The values iosFile(2) and terminal(5) are not supported for source and destination file types.
• cCopyUserName and ccCopyUserPassword	Not supported, because it is only valid when FTP and Remote Copy Protocol (RCP) are supported.

CISCO-CONFIG-MAN-MIB

The CISCO-CONFIG-MAN-MIB contains objects to track and save changes to the router configuration. The MIB represents a model of the configuration data that exists elsewhere in the router and in peripheral devices. Its main purpose is to report changes to the running configuration through the SNMP notification ciscoConfigManEvent.

The MODULE-IDENTITY for the CISCO-CONFIG-MAN-MIB is ciscoConfigManMIB, and its top-level OID is 1.3.6.1.4.1.9.9.43 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoConfigManMIB).

MIB Constraints

There are no constraints on this MIB.

CISCO-DOCS-EXT-MIB

The CISCO-DOCS-EXT-MIB contains objects that support extensions to the Data-over-Cable Service Interface Specifications (DOCSIS) interface MIB, DOCS-IF-MIB. In addition, this MIB:

- Includes attributes to configure the (DMIC) dynamic shared secret feature.
- Generate traps when a cable modem fails the shared-secret security checks.
- Allows the CMTS to help ensure that every online cable modem uses the DOCSIS configuration file assigned to it.

This support protects against theft-of-service attempts from subscribers and safeguards operators against stolen or fraudulently downloaded configuration files. Configuration files are signed with a shared secret that is verified when a cable modem connects to the CMTS.

This MIB includes objects to manage the Cisco CMTS, as well as to manage the following:

- Quality of service (QoS) configuration on the router.

- DOCSIS 1.0 cable modems and customer premises equipment (CPE) devices, including counters for the number of cable modems on each interface.
- Spectrum management of the upstream channels—Objects that keep count of the total # of modems, # of registered and # of active modems on the interface as well as each upstream.
- CM CPE (customer premises equipment) information—Two new tables have been added to the CISCO-DOCS-EXT-MIBto query CPE information:
  - cdxCmToCpeTable contains objects about CPE connects behind cable modem. It provides information on IP address and IP address type of each CPE connect to a CM.
  - cdxCpeToCmTable contains objects that query information about cable modems with CPE connects.

Note This MIB provides information for DOCSIS 1.0 cable modems. For DOCSIS 1.1 cable modems, see DOCS-QOS-MIB.

The MODULE-IDENTITY for the CISCO-DOCS-EXT-MIB is ciscoDocsExtMIB, and its top-level OID is 1.3.6.1.4.1.9.9.116.1.3.7 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoDocsExtMIB). One of the most commonly used OID is ccsFlapObjects.ccsFlapTable.ccsFlapEntry.ccsFlapInsertionFails (1.3.6.1.4.1.9.9.114.1.1.5.1.4).

Wideband Support in Cisco IOS Release 12.3(23)BC

This MIB module includes objects for the scheduler that support Quality of Service (QoS) of MCNS/DOCSIS compliant Radio Frequency (RF) interfaces. Also this MIB shows various states of the schedulers enabling you to monitor of the schedulers' current status.

- RateLimit: The MC interface layer is not supported.
- Bandwidth Queue: This is only supported on the Cable interface upstream, and there is no downstream support for MC interfaces.

MIB Constraints

This MIB has the following constraints.

Table 3-11 CISCO-DOCS-EXT-MIB Constraints

MIB Object	Notes
cdxCmToCpeTable	
cdxCpeToCmTable	

Table 3-11 CISCO-DOCS-EXT-MIB Constraints (continued)

MIB Object	Notes
cdxCmCpeTable	Using GET-NEXT requests to retrieve the rows of this table might require lengthy, time-consuming searches on the MAC address, which could consume excessive amounts of CPU processor time when the table is large. Retrieve the individual rows using a GET request that uses the device's MAC address as the table index. This avoids possible performance problems and also ensures that the retrieved rows contain the most current, real-time data for those devices.
cdxCmCpeAccessGroup	The Cisco uBR10012 router does not support the objects in cdxCmCpeAccessGroup (equivalent to the **cable host access-group** command). On the Cisco uBR10012 router, use the similar functionality in the DOCS-SUBMGT-MIB.
cdxIfUpChannelTable	
• cdxIfUpChannelNumActiveUGS cdxIfUpChannelMaxUGSLastOneHour cdxIfUpChannelMinUGSLastOneHour cdxIfUpChannelAvgUGSLastOneHour cdxIfUpChannelMaxUGSLastFiveMins cdxIfUpChannelMinUGSLastFiveMins cdxIfUpChannelAvgUGSLastFiveMins	These objects related to Unsolicited Grant Service (UGS) flows are supported only in Cisco IOS Release 12.1(8)EC, Cisco IOS Release 12.2(15)BC1a, and later releases.
• cdxIfUpChannelAvgLastOneHour	Displays accurate values only in Cisco IOS Release 12.1(8)EC, Cisco IOS Release 12.2(15)BC1a, and later releases
cdxCmtsServiceExtTable	Reports the downstream traffic counters only for cable modems that are provisioned for DOCSIS 1.0 operation. For DOCSIS 1.1 and DOCSIS 2.0 cable modems, use the docsQosServiceFlowStatsTable in DOCS-QOS-MIB.
cdxCmtsCmTable	
• cdxCmtsCmQosProfile	Associating a cable modem to a QoS profile is supported only in Cisco IOS Release 12.1(19)EC and Release 12.2(11)BC2 and later releases.

Table 3-11 CISCO-DOCS-EXT-MIB Constraints (continued)

MIB Object	Notes
• cdxCmCpeEntry	When a Cisco uBR7100 series router is running in bridging mode, it is possible for the same IP address to appear for different MAC addresses in the cdxCmCpeEntry rows. This occurs when the first device goes offline, and its IP address is given to a second device. Because the router is in bridging mode, it cannot extract the IP addresses from DHCP requests, and so assumes all IP addresses are static. This is expected behavior while in bridging mode and does not occur when the router is operating in the default behavior of routing mode. • A GET request for cdxCmCpeEntry returns NULL if the router is already processing another request for this table (either by an SNMP GET or CLI **show** command). • A null is also returned if the router is processing a request for any other table that is indexed by cable modem or CPE MAC address, such as cdrqCmtsCmStatusTable, docsIfCmtsMacToCmTable, and docsQosCmtsMacToSrvFlowTable. Wait until the first request is done and then repeat the request for cdxCmCpeEntry.
cdxCmtsCmStatusExtTable • cdxIfCmtsCmStatusLastResetTime • cdxIfCmtsCmStatusOnlineTimesNum	
cdxCmtsCmStatusDMICTable	This table contains the list of modems which failed the CMTS Dynamic Message Integrity Check (DMIC).

Table 3-11 CISCO-DOCS-EXT-MIB Constraints (continued)

MIB Object	Notes
• cdxCmtsCmDMICMode	The DMIC feature operates in the following modes, depending on what action should be taken for cable modems that fail the CMTS DMIC verification check: • notConfigured(1)—Indicates that the DMIC is not configured for this cable interface. • mark(2)—By default, the DMIC feature is enabled on all cable interfaces using the mark option. In this mode, the CMTS allows cable modems to come online even if they fail the CMTS DMIC validity check. • lock(3)—When the lock option is used, the CMTS assigns a restrictive QoS configuration to CMs that fail the DMIC validity check twice in a row. A particular QoS profile is used for locked cable modems and is specified by setting cdxCmtsCmDMICLockQos. If a customer resets their CM, the CM will reregister but still uses the restricted QoS profile. A locked CM continues with the restricted QoS profile until it goes offline and remains offline for at least 24 hours, at which point it is allowed to reregister with a valid DOCSIS configuration file. A system operator can manually clear the lock on a CM by setting the cdxCmtsCmStatusDMICUnLock object. • reject(4)—In the reject mode, the CMs cannot go online if they fail the CMTS DMIC validity check.
• cdxCmtsCmDMICLockQos	If cdxCmtsCmDMICMode is set to lockingMode(3), this object would contain the restrictive QoS profile number as indicated by docsIfQosProfIndex if set and it will have a value of zero (0) if not applicable or not defined. If, cdxCmtsCmDMICMode is set to lockingMode(3) and this object is not defined, then the CMTS defaults to special QoS profile that limits the downstream and upstream service flows to a maximum rate of 10 kbps. However, for this to happen the modems should have the permission to create QoS profile.

CISCO-DOCS-REMOTE-QUERY-MIB

The CISCO-DOCS-REMOTE-QUERY-MIB contains the objects that are monitored and collected by the remote query feature, which is enabled using the **cable modem remote-query** command on the Cisco CMTS.

The MODULE-IDENTITY for the CISCO-DOCS-REMOTE-QUERY-MIB is ciscoDocsRemoteQueryMIB, and its top-level OID is 1.3.6.1.4.1.9.10.59 (iso.org.dod.internet.private.enterprises.cisco.ciscoExperiment.ciscoDocsRemoteQueryMIB). One of the most commonly used OID is cdrqCmtsCmSigQSignalNoise (1.3.6.1.4.1.9.10.59.1.2.1.1.4).

MIB Constraints

This MIB has the following constraints.

- This MIB is supported only in Cisco IOS Release 12.2(4)BC1 and later releases.
- This MIB is not supported on the Cisco uBR10012 router.

Table 3-12 CISCO-DOCS-REMOTE-QUERY-MIB Constraints

MIB Object	Notes
cdrqCmtsCmStatusTable	We do not recommend using GET-NEXT requests to retrieve the rows of this table, because it could require lengthy, time-consuming searches on the MAC address, which could consume excessive amounts of CPU processor time when the table is large. Retrieve the individual rows using a GET request that uses the device's MAC address as the table index. This prevents possible performance problems and also ensures that the retrieved rows contain the most current, real-time data for those devices. A GET request for cdrqCmtsCmStatusTable returns NULL if the router is already processing another request for this table (either by an SNMP GET or CLI **show** command). A null is also returned if the router is processing a request for any other table that is indexed by CM or CPE MAC address, such as cdxCmCpeEntry, docsIfCmtsMacToCmTable, and docsQosCmtsMacToSrvFlowTable. Wait until the first request is done and then repeat the request for cdrqCmtsCmStatusTable.

CISCO-ENHANCED-MEMPOOL-MIB

The CISCO-ENHANCED-MEMPOOL-MIB contains objects to monitor the status of memory pools of all physical entities in a system, including line cards that contain their own onboard processors and memory.

The CISCO-ENHANCED-MEMPOOL-MIB enables you to monitor CPU and memory utilization for cable line cards and broadband processing engines (BPEs) on the Cisco uBR10012 routers. These would include the Cisco MC16X and Cisco MC28X series line cards.

The MODULE-IDENTITY for the CISCO-ENHANCED-MEMPOOL-MIB is ciscoEnhancedMemPoolMIB, and its top-level OID is 1.3.6.1.4.1.9.9.221 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoEnhancedMemPoolMIB).

MIB Constraints

This MIB is supported only in Cisco IOS Release 12.3(9a)BC and later releases.

CISCO-ENTITY-ALARM-MIB

The CISCO-ENTITY-ALARM-MIB enables the router to monitor alarms generated by system components, such as the chassis, slots, modules, power supplies, fans, and module ports.

Note The CISCO-ENTITY-ALARM-MIB monitors the alarms of physical entities.

MIB Constraints

Table 3-13 lists the constraints that the router places on objects in the CISCO-ENTITY-ALARM-MIB. For detailed definitions of MIB objects, see the MIB.

Table 3-13 CISCO-ENTITY-ALARM-MIB Constraints

MIB Object	Notes
ceAlarmDescrTable	Read-only.
ceAlarmFilterProfileTable	Not implemented.
ceAlarmCutOff	Not implemented.

CISCO-ENTITY-ASSET-MIB

The CISCO-ENTITY-ASSET-MIB provides asset tracking information for the physical components in the ENTITY-MIB entPhysicalTable. The ceAssetTable object is automatically updated whenever a line card is removed or inserted into a slot, or when you enter a command at the CLI prompt that affects the operation of a line card.

The MODULE-IDENTITY for the CISCO-ENTITY-ASSET-MIB is ciscoEntityAssetMIB, and its top-level OID is 1.3.6.1.4.1.9.9.92 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoEntityAssetMIB).

MIB Constraint

This MIB is not supported on any Cisco CMTS platforms, although it is included in the Cisco IOS software images.

CISCO-ENTITY-EXT-MIB

The CISCO-ENTITY-EXT-MIB contains objects that supplement the entityPhysicalTable in the ENTITY-MIB (RFC 2737). These objects provide information about entries in the entityPhysicalTable that have a CPU or other type of onboard processor.

The MODULE-IDENTITY for the CISCO-ENTITY-EXT-MIB is ciscoEntityExtMIB, and its top-level OID is 1.3.6.1.4.1.9.9.195 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoEntityExtMIB).

MIB Constraints

This MIB has the following constraints:

- This MIB is only supported for the physical entities representing active and standby processors.
- The set operations of ceExtConfigRegNext and ceExtSysBootImageList are only supported on the physical entity representing the active Route Processor (RP).
- Because the ceExtSysBootImageList for the secondary RP is returned from the bootvar (To display information about the BOOT environment variable), the secondary route processor ceExtSysBootImageList is only updated from the active route processor when configuration is synced from the active router processor. Use the **write memory** command to force the sync process.

CISCO-ENTITY-FRU-CONTROL-MIB

The CISCO-ENTITY-FRU-CONTROL-MIB contains objects that supplement the entityPhysicalTable in the ENTITY-MIB (RFC 2737). These objects provide information about the configuration and operational status of entries in the entityPhysicalTable that are field-replaceable units (FRUs).

The cefcModuleTable object is automatically updated whenever a line card is removed or inserted into a slot or when you enter a command at the CLI prompt that affects the operation of the line card.

The MODULE-IDENTITY for the CISCO-ENTITY-FRU-CONTROL-MIB is ciscoEntityFRUControlMIB, and its top-level OID is 1.3.6.1.4.1.9.9.117 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoEntityFRUControlMIB).

MIB Constraints

Table 3-14 lists the constraints that the router places on objects in the CISCO-ENTITY-FRU-CONTROL-MIB. For detailed definitions of MIB objects, see the MIB.

Table 3-14 CISCO-ENTITY-FRU-CONTROL-MIB Constraints

MIB Object	Notes
cefcModuleTable	
• cefcModuleAdminStatus	Supported values: • Enable(1) • Reset(3) Write is not supported.
• cefcModuleOperStatus	Supported values: • Unknown(1)—Read-only. • Ok(2)—Read-only. • Failed(7)—Read-only.
• cefcModuleResetReason	Supported values: • Unknown(1)—Read-only. • PowerUp(2)—Read-only. • ManualReset(5)—Read-only.
cefcFRUPowerSupplyGroupTable	Not supported.
cefcFRUPowerSupplyTable	Not supported.
• cefcMaxDefaultInLinePower	Not supported.
• cefcPowerStatusChange	Not supported. Use ciscoEnvMonSuppStatusChangeNotif for redundant power supply.

1. The entPhysicalEntry (which has module(9) as entPhysicalClass in the entPhysicalTable) has a corresponding entry in the cefcModuleTable.

CISCO-ENTITY-SENSOR-MIB

The CISCO-ENTITY-SENSOR-MIB contains objects that supplement the entityPhysicalTable in the ENTITY-MIB (RFC 2737). These objects provide information about the entries in the entityPhysicalTable that are sensors (such as temperature sensors).

The MODULE-IDENTITY for the CISCO-ENTITY-SENSOR-MIB is entitySensorMIB, and its top-level OID is 1.3.6.1.4.1.9.9.91 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.entitySensorMIB).

MIB Constraints

This MIB has the following constraints:

- This MIB is supported only in Cisco IOS Release 12.1EC and only for Cisco uBR7100 series and Cisco uBR7200 series routers.
- This MIB is not supported in Cisco IOS Release 12.2BC for any Cisco CMTS router. For temperature reporting, use the CISCO-ENVMON-MIB.

CISCO-ENTITY-VENDORTYPE-OID-MIB

The CISCO-ENTITY-VENDORTYPE-OID-MIB defines the object identifiers (OIDs) assigned to components in the Cisco CMTS routers. The OIDs in this MIB are used in the ENTITY-MIB as values for the entPhysicalVendorType field in entPhysicalTable. Each OID uniquely identifies a type of physical entity (for example, a fan tray, power supply, or card).

Note This MIB is regularly updated with OIDs for new components in the Cisco IOS software release that introduced support for those components.

The MODULE-IDENTITY for the CISCO-ENTITY-VENDORTYPE-OID-MIB is ciscoEntityVendortypeOIDMIB, and its top-level OID is 1.3.6.1.4.1.9.12.3 (iso.org.dod.internet.private.enterprises.cisco.ciscoModules.ciscoEntityVendortypeOIDMIB).

MIB Constraints

Table 3-15 lists the objects and OIDs in the CISCO-ENTITY-VENDORTYPE-OID-MIB that describe router entities. For detailed definitions of MIB objects, see the MIB.

Table 3-15 CISCO-ENTITY-VENDORTYPE-OID-MIB Objects and Constraints

MIB Object (OID Assignment)	Notes
cevChassis	
• cevChassisUbr7246 (1.3.6.1.4.1.9.12.3.1.3.57)	Cisco uBR7246 chassis
• cevChassisUbr7223 (1.3.6.1.4.1.9.12.3.1.3.68)	Cisco uBR7223 chassis
• cevChassisUbr7246Vxr (1.3.6.1.4.1.9.12.3.1.3.134)	Cisco uBR7246VXR chassis
• cevChassisUbr10012 (1.3.6.1.4.1.9.12.3.1.3.183)	Cisco uBR10012 chassis
• cevChassisUbr7111 (1.3.6.1.4.1.9.12.3.1.3.211)	Cisco uBR7111 chassis
• cevChassisUbr7111E (1.3.6.1.4.1.9.12.3.1.3.212)	Cisco uBR7111E chassis
• cevChassisUbr7114 (1.3.6.1.4.1.9.12.3.1.3.213)	Cisco uBR7114 chassis
• cevChassisUbr7114E (1.3.6.1.4.1.9.12.3.1.3.214)	Cisco uBR7114E chassis
cevPowerSupply	
• cevPowerSupplyUbr10012AC (1.3.6.1.4.1.9.12.3.1.6.150)	UBR10012 Series AC Power Entry Module
• cevPowerSupplyUbr10012DC (1.3.6.1.4.1.9.12.3.1.6.151)	UBR10012 Series DC Power Entry Module
• cevPowerSupplyC10KDC (1.3.6.1.4.1.9.12.3.1.6.55)	DC power supply
• cevPowerSupplyC10KAC (1.3.6.1.4.1.9.12.3.1.6.56)	AC power supply
cevFan	
• cevFanTrayUbr10012 (1.3.6.1.4.1.9.12.3.1.6.151)	UBR10012 Series Fan Assembly Module
cevModule	
cevModuleCpuType	
• cevC7200Io1fe (1.3.6.1.4.1.9.12.3.1.9.5.1)	UBR7200-I/O-FE controller for Cisco uBR7200 series
• cevC7200Io (1.3.6.1.4.1.9.12.3.1.9.5.2)	UBR7200-I/O controller for Cisco uBR7200 series

Table 3-15 CISCO-ENTITY-VENDORTYPE-OID-MIB Objects and Constraints (continued)

MIB Object (OID Assignment)	Notes
• cevCpu7200Npe300 (1.3.6.1.4.1.9.12.3.1.9.5.9)	NPE-300 processor for Cisco uBR7200 series
• cevCpu7200Npe175 (1.3.6.1.4.1.9.12.3.1.9.5.14)	NPE-175 processor for Cisco uBR7200 series
• cevCpu7200Npe225 (1.3.6.1.4.1.9.12.3.1.9.5.15)	NPE-225 processor for Cisco uBR7200 series
• cevCpu7200Npe100 (1.3.6.1.4.1.9.12.3.1.9.5.26)	NPE-100 processor for Cisco uBR7200 series
• cevCpu7200Npe150 (1.3.6.1.4.1.9.12.3.1.9.5.27)	NPE-150 processor for Cisco uBR7200 series
• cevCpu7200Npe200 (1.3.6.1.4.1.9.12.3.1.9.5.28)	NPE-200 processor for Cisco uBR7200 series
• cevCpu7200Npe400 (1.3.6.1.4.1.9.12.3.1.9.5.39)	NPE-400 processor for Cisco uBR7246VXR
• cevCpu7200Npeg1 (1.3.6.1.4.1.9.12.3.1.9.5.56)	NPE-G1 processor for Cisco uBR7246VXR
• cevCpuCreRp (1.3.6.1.4.1.9.12.3.1.9.5.29)	Central Routing Engine—Route processor for the Cisco uBR10012
• cevCpuCreFp (1.3.6.1.4.1.9.12.3.1. 9.5.30)	Central Routing Engine—Forwarding processor for the Cisco uBR10012
cevModuleC7xxxType	
• cevC7xxxMc14a (1.3.6.1.4.1.9.12.3.1.9.7.1)	Cisco uBR-MC14C cable interface line card
• cevC7xxxMc16a (1.3.6.1.4.1.9.12.3.1.9.7.2)	Cisco uBR-MC16C cable interface line card
• cevC7xxxMc11 (1.3.6.1.4.1.9.12.3.1.9.7.3)	Cisco uBR-MC11-FPGA cable interface line card
• cevC7xxxMc12a (1.3.6.1.4.1.9.12.3.1.9.7.4)	Cisco uBR-MC12C cable interface line card
• cevC7xxxMc11a (1.3.6.1.4.1.9.12.3.1.9.7.5)	Cisco uBR-MC11C cable interface line card
• cevC7xxxIo1feTxIsl (1.3.6.1.4.1.9.12.3.1.9.7.6)	Fast Ethernet I/O Controller
• cevC7xxxMc28 (1.3.6.1.4.1.9.12.3.1.9.7.8)	Cisco uBR-MC28C cable interface line card
• cevC7xxxIo2FE (1.3.6.1.4.1.9.12.3.1.9.7.12)	UBR7200-I/O-2FE/E controller for Cisco uBR7200 series
cevModuleUbrType (1.3.6.1.4.1.9.12.3.1.9.27)	
• cevUbrMc16s (1.3.6.1.4.1.9.12.3.1.9.27.2)	Cisco uBR-MC16S cable interface line card
• cevUbrMc11 (1.3.6.1.4.1.9.12.3.1.9.27.3)	Cisco uBR-MC11-FPGA cable interface line card
• cevUbrMc11c (1.3.6.1.4.1.9.12.3.1.9.27.4)	Cisco uBR-MC11C cable interface line card
• cevUbrMc12c (1.3.6.1.4.1.9.12.3.1.9.27.5)	Cisco uBR-MC12C cable interface line card
• cevUbrMc14c (1.3.6.1.4.1.9.12.3.1.9.27.6)	Cisco uBR-MC14C cable interface line card
• cevUbrMc16b (1.3.6.1.4.1.9.12.3.1.9.27.8)	Cisco uBR-MC16B cable interface line card
• cevUbrMc16c (1.3.6.1.4.1.9.12.3.1.9.27.9)	Cisco uBR-MC16C cable interface line card
• cevUbrMc16e (1.3.6.1.4.1.9.12.3.1.9.27.10)	Cisco uBR-MC16E cable interface line card
• cevUbrMc28c (1.3.6.1.4.1.9.12.3.1.9.27.11)	Cisco uBR-MC28C cable interface line card
• cevUbrClk (1.3.6.1.4.1.9.12.3.1.9.27.16)	Cisco National Clock Card for the Cisco uBR7246VXR router
• cevUbrMc28cBnc (1.3.6.1.4.1.9.12.3.1.9.27.22)	Cisco uBR-MC28C-BNC cable interface line card
• cevUbrMc520sD (1.3.6.1.4.1.9.12.3.1.9.27.32)	Cisco uBR-MC5X20S-D cable interface line card
• cevUbrMc28u (1.3.6.1.4.1.9.12.3.1.9.27.34)	Cisco uBR-MC28U cable interface line card

Table 3-15 CISCO-ENTITY-VENDORTYPE-OID-MIB Objects and Constraints (continued)

MIB Object (OID Assignment)	Notes
• cevUbrMc16u (1.3.6.1.4.1.9.12.3.1.9.27.35)	Cisco uBR-MC16U cable interface line card
• cevUbrMc28ux (1.3.6.1.4.1.9.12.3.1.9.27.36)	Cisco uBR-MC28X cable interface line card
• cevUbrMc16ux (1.3.6.1.4.1.9.12.3.1.9.27.37)	Cisco uBR-MC16X cable interface line card
• cevUbrMc520uD (1.3.6.1.4.1.9.12.3.1.9.27.38)	Cisco uBR-MC5X20U-D cable interface line card
cevModule100012Type	
• cevPos1oc12 (1.3.6.1.4.1.9.12.3.1.9.32.1)	Cisco uBR10-1OC12/P-SMI OC-12 POS uplink line card
• cevGe (1.3.6.1.4.1.9.12.3.1.9.32.3)	Cisco uBR10-1GE Gigabit Ethernet uplink line card
• cevSrpOc48SmSr (1.3.6.1.4.1.9.12.3.1.9.32.11)	Cisco uBR10012 OC-48 DPT/POS interface module (short reach)
• cevSrpOc48SmLr1 (1.3.6.1.4.1.9.12.3.1.9.32.26)	Cisco uBR10012 OC-48 DPT/POS interface module (long reach)
• cevC10K48MbFlashCard (1.3.6.1.4.1.9.12.3.1.9.32.18)	48MB flash card
• cevC10K128MbFlashCard (1.3.6.1.4.1.9.12.3.1.9.32.19)	128MB flash card
• cevSpa24xWbdSfp(1.3.6.1.4.1.9.12.3.1.9.2.145)	Cisco SPA-24-XWBD-SFP shared port adapter (cevPortGe)

CISCO-ENVMON-MIB

The CISCO-ENVMON-MIB contains information about the status of environmental sensors (for voltage, temperature, fans, and power supplies). It also contains MIB objects to enable and disable notifications for changes to the status of these sensors. In Cisco IOS Release 12.2BC and later releases, use this MIB instead of CISCO-ENTITY-SENSOR-MIB for temperature monitoring.

When a router temperature test point reaches a critical state, the environmental monitor initiates a shutdown and sends a ciscoEnvMonShutdownNotification if it has been configured to do so (see the "Enabling Notifications" section on page 4-2).

The MODULE-IDENTITY for the CISCO-ENVMON-MIB is ciscoEnvMonMIB, and its top-level OID is 1.3.6.1.4.1.9.9.13 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoEnvMonMIB).

MIB Constraints

Table 3-16 lists the constraints that the router places on objects in the CISCO-ENVMON-MIB.

This MIB is supported for:

- Cisco uBR7100 series and Cisco uBR7200 series routers only in Cisco IOS Release 12.1(11)EC and Cisco IOS Release 12.2(4)BC1 and later releases.
- Cisco uBR10012 routers only in Cisco IOS Release 12.2(8)BC2 and later releases.

For detailed definitions of MIB objects, see the MIB.

Table 3-16 CISCO-ENVMON-MIB Constraints

MIB Object	Notes
ciscoEnvMonTable	
• ciscoEnvMonEnableStatChangeNotif	Supported in IOS Release 12.3(18)BC and later releases. This variable indicates whether the system produces the ciscoEnvMonVoltStatusChangeNotif, ciscoEnvMonTempStatusChangeNotif, ciscoEnvMonFanStatusChangeNotif and ciscoEnvMonSuppStatusChangeNotif. A false value will prevent these notifications from being generated by the uBR system.
• ciscoEnvMonEnableVoltageNotification • ciscoEnvMonEnableTemperatureNotification • ciscoEnvMonEnableFanNotification, • ciscoEnvMonEnableRedundantSupply	Notification had been deprecated. Use ciscoEnvMonEnableStatChangeNotif.
ciscoEnvMonTemperatureStatusTable	
• ciscoEnvMonEnableTemperatureNotification • ciscoEnvMonTemperatureNotification	Supported values are: • ubr7200(8) for the Cisco uBR7100 series and Cisco uBR7200 series routers • c10000(10) for the Cisco uBR10012 router.
ciscoEnvMonVoltageStatusTable	
• ciscoEnvMonVoltageNotification	Not supported for the Cisco uBR10012 router.
• ciscoEnvMonEnableVoltageNotification	Supported in Cisco IOS Release 12.1(19)EC, Cisco IOS Release 12.2(4)BC, and later releases.
ciscoEnvMonFanStatusTable	• Not supported for Cisco uBR7100 series and Cisco uBR7200 series routers. • Supported for the Cisco uBR10012 router only in Cisco IOS Release 12.2(11)BC1 and later releases.
• ciscoEnvMonFanStatusIndex	Always 1. Only one table row supported for fan tray.
• ciscoEnvMonFanStatusDescr	Always Fan Tray.
• ciscoEnvMonFanState	Supported values are: • normal(1)—Both fans are working • warning(2)—One fan is failing • critical(3)—Both fans are failing • notPresent(5)—Fan tray is missing • notFunctioning(6)—Unable to get status

Table 3-16 CISCO-ENVMON-MIB Constraints

MIB Object	Notes
ciscoEnvMonSupplyStatusTable	• Supported in Cisco IOS Release 12.1 EC and in Cisco IOS Release 12.2(11)BC1 and later releases. • On the Cisco uBR7200 series routers, this table reports accurate results only in Cisco IOS Release 12.1(19)EC, Cisco IOS Release 12.2(15)BC1, and later releases.
• ciscoEnvMonSupplyStatusIndex	For uBR10012: • 1 indicates PEM0 • 2 indicates PEM1
• ciscoEnvMonSupplyStatusDescr	For uBR10012 valid values are PEM0 or PEM1.
• ciscoEnvMonSupplyState	Supported values are the following: • normal(1)—Power supply is working • critical(3)—Power supply is failing • notPresent(5)—Power supply is missing
• ciscoEnvMonSupplySource	Supported values are: • unknown(1)—Missing or unknown power supply • ac(2)—AC power supply • dc(3)—DC power supply
ciscoEnvMonAlarmContacts	Not implemented.

CISCO-FLASH-MIB

The CISCO-FLASH-MIB contains objects to manage flash cards and flash-card operations.

The MODULE-IDENTITY for the CISCO-FLASH-MIB is ciscoFlashMIB, and its top-level OID is 1.3.6.1.4.1.9.9.10 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoFlashMIB).

MIB Constraints

There are no constraints on this MIB.

CISCO-FRAME-RELAY-MIB

The CISCO-FRAME-RELAY-MIB contains Frame Relay information that is specific to Cisco products or that is missing from RFC 1315.

The MODULE-IDENTITY for the CISCO-FRAME-RELAY-MIB is ciscoFrameRelayMIB, and its top-level OID is 1.3.6.1.4.1.9.9.49 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoFrameRelayMIB).

MIB Constraints

There are no constraints on this MIB.

CISCO-FTP-CLIENT-MIB

The CISCO-FTP-CLIENT-MIB contains objects to invoke File Transfer Protocol (FTP) operations for network management.

The MODULE-IDENTITY for the CISCO-FTP-CLIENT-MIB is ciscoFtpClientMIB, and its top-level OID is 1.3.6.1.4.1.9.9.80 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoFtpClientMIB).

MIB Constraints

This MIB is not supported on any Cisco CMTS platforms, although it is included in the Cisco IOS software images.

CISCO-HSRP-EXT-MIB

The CISCO-HSRP-EXT-MIB provides an extension to the CISCO-HSRP-MIB. It contains objects to perform functions such as assigning secondary Hot Standby Router Protocol (HSRP) IP addresses, monitoring the operational status of interfaces, and modifying an HSRP group's priority.

The MODULE-IDENTITY for the CISCO-HSRP-EXT-MIB is ciscoHsrpExtMIB, and its top-level OID is 1.3.6.1.4.1.9.9.107 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoHsrpExtMIB).

MIB Constraints

This MIB is not supported on any Cisco CMTS platforms, although it is included in the Cisco IOS software images.

CISCO-HSRP-MIB

The CISCO-HSRP-MIB contains objects to configure and manage the Cisco Hot Standby Router Protocol (HSRP), which is defined in RFC 2281.

The MODULE-IDENTITY for the CISCO-HSRP-MIB is ciscoHsrpMIB, and its top-level OID is 1.3.6.1.4.1.9.9.106 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoHsrpMIB).

MIB Constraint

This MIB is not supported on any Cisco CMTS platforms, although it is included in the Cisco IOS software images.

CISCO-IETF-ATM2-PVCTRAP-MIB

The CISCO-IETF-ATM2-PVCTRAP-MIB supplements the ATM-MIB. It implements the virtual channel link (VCL) section of the IETF draft, *Definitions of Supplemental Managed Objects for ATM Interface*, Section 9, "ATM Related Trap Support," which is available at the following URL:

http://www.ietf.org/old/2009/proceedings/03jul/I-D/draft-ietf-atommib-atm2-19.txt

The MODULE-IDENTITY for the CISCO-IETF-ATM2-PVCTRAP-MIB is ciscoIetfAtm2PvctrapMIB, and its top-level OID is 1.3.6.1.4.1.9.10.29 (iso.org.dod.internet.private.enterprises.cisco.ciscoExperiment.ciscoIetfAtm2PvctrapMIB).

MIB Constraint

This MIB is not supported on any Cisco CMTS platforms, although it is included in the Cisco IOS software images.

CISCO-IETF-IP-FORWARD-MIB

The CISCO-IETF-IP-FORWARD-MIB contains objects that manage and describe the forwarding of IP traffic across networks that might use different versions of IP (IPv4 and IPv6).

This MIB was derived from the initial version of the Internet Draft that is being drafted to replace the current IP-FORWARD-MIB, which is defined in RFC 2096, *IP Forwarding Table MIB*. Cisco implemented this temporary MIB to provide this functionality until the Internet Draft is finalized and a new RFC is released to replace RFC 2096.

The MODULE-IDENTITY for the CISCO-IETF-IP-FORWARD-MIB is ciscoIetfIpForward, and its top-level OID is 1.3.6.1.4.1.9.10.85 (iso.org.dod.internet.private.enterprises.cisco.ciscoExperiment.ciscoIetfIpForward).

MIB Constraints

This MIB is not supported on:

- Cisco uBR10012 router.
- Any Cisco IOS Release 12.1EC software image.

CISCO-IETF-IP-MIB

The CISCO-IETF-IP-MIB contains objects to manage the IP and ICMP protocols across networks that might use different versions of IP (IPv4 and IPv6).

This MIB was derived from the initial version of the Internet Draft that is being drafted to replace the current IP-MIB, which is defined in RFC 2011, *SNMPv2 Management Information Base for the Internet Protocol using SMIv2*. Cisco implemented this temporary MIB to provide this functionality until the Internet Draft is finalized and a new RFC is released to replace RFC 2011.

The MODULE-IDENTITY for the CISCO-IETF-IP-MIB is ciscoIetfIpMIB, and its top-level OID is 1.3.6.1.4.1.9.10.86 (iso.org.dod.internet.private.enterprises.cisco.ciscoExperiment.ciscoIetfIpMIB).

MIB Constraints

This MIB is not supported on:

- Any Cisco IOS Release 12.1EC software image.
- Cisco uBR10012 router.

CISCO-IETF-NAT-MIB

The CISCO-IETF-NAT-MIB contains objects about the operation of Network Address Translation (NAT) on the router, as defined in RFC 3022. This includes objects about NAT configuration, NAT bindings, and run-time statistics.

This MIB was derived from the initial version of the Internet Draft that is being drafted to provide this support. Cisco implemented this temporary MIB to provide this functionality until the Internet Draft is finalized and a new RFC is released.

The MODULE-IDENTITY for the CISCO-IETF-NAT-MIB is ciscoIetfNatMIB, and its top-level OID is 1.3.6.1.4.1.9.10.77 (iso.org.dod.internet.private.enterprises.cisco.ciscoExperiment.ciscoIetfNatMIB).

MIB Constraints

This MIB is:

- Supported only on Cisco uBR7100 series and Cisco uBR7200 series routers that are running a Cisco IOS Release 12.2BC “-is-” software image.
- Not supported on any Cisco IOS Release 12.1EC software image.
- Not supported on the Cisco uBR10012 router.

CISCO-IMAGE-MIB

The CISCO-IMAGE-MIB identifies the characteristics and capabilities of the Cisco IOS software image running on the router.

The MODULE-IDENTITY for the CISCO-IMAGE-MIB is ciscoImageMIB, and its top-level OID is 1.3.6.1.4.1.9.9.25 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoImageMIB).

MIB Constraints

There are no constraints on this MIB.

CISCO-IP-ENCRYPTION-MIB

The CISCO-IP-ENCRYPTION-MIB contains objects that provide information about encrypted IP traffic on the router and the crypto maps that are being used.

The MODULE-IDENTITY for the CISCO-IP-ENCRYPTION-MIB is ciscoIpEncryptionMIB, and its top-level OID is 1.3.6.1.4.1.9.9.52 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoIpEncryptionMIB).

MIB Constraints

This MIB is:

- Supported only in Cisco IOS Release 12.1EC and only for Cisco uBR7100 series and Cisco uBR7200 series routers.
- Not supported in Cisco IOS Release 12.2BC for any Cisco CMTS router.

CISCO-IPMROUTE-MIB

The CISCO-IPMROUTE-MIB contains objects to manage IP multicast routing on the router.

The MODULE-IDENTITY for the CISCO-IPMROUTE-MIB is ciscoIpMRouteMIB, and its top-level OID is 1.3.6.1.4.1.9.10.2 (iso.org.dod.internet.private.enterprises.cisco.ciscoExperiment.ciscoIpMRouteMIB).

MIB Constraints

There are no constraints on this MIB.

CISCO-IP-STAT-MIB

The CISCO-IP-STAT-MIB contains objects to manage the collection and display of IP statistics, categorized by IP precedence and the Media Access Control (MAC) address associated with IP packets. To use the MIB to access additional IP statistics, you can issue the **ip accounting mac-address** and **ip accounting precedence** commands at the CLI.

The MODULE-IDENTITY for the CISCO-IP-STAT-MIB is ciscoIpStatMIB, and its top-level OID is 1.3.6.1.4.1.9.9.84 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoIpStatMIB).

MIB Constraints

There are no constraints on this MIB.

CISCO-IPSEC-FLOW-MONITOR-MIB

The CISCO-IPSEC-FLOW-MONITOR-MIB contains objects to manage IPSec-based virtual private networks (VPNs). These objects include information about Internet Key Exchange (IKE) negotiations and tunnels, data tunnels, historical trending analysis, and packet counters. This MIB also defines notifications about possible failures and intrusion attempts on the network.

The MODULE-IDENTITY for the CISCO-IPSEC-FLOW-MONITOR-MIB is ciscoIpSecFlowMonitorMIB, and its top-level OID is 1.3.6.1.4.1.9.9.171 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoIpSecFlowMonitorMIB).

MIB Constraints

There are no constraints on this MIB.

CISCO-IPSEC-MIB

The CISCO-IPSEC-MIB contains objects about features that are used to configure and manage IPSec-based virtual private networks (VPNs).

The MODULE-IDENTITY for the CISCO-IPSEC-MIB is ciscoIPsecMIB, and its top-level OID is 1.3.6.1.4.1.9.10.62 (iso.org.dod.internet.private.enterprises.cisco.ciscoExperiment.ciscoIPsecMIB).

MIB Constraint

This MIB is supported only in Cisco IOS software images that support DES encryption (-k8- or -k9-).

CISCO-IPSEC-POLICY-MAP-MIB

The CISCO-IPSEC-POLICY-MAP-MIB contains objects that supplement the proposed IETF standards for IPSec VPNs. In particular, this MIB maps dynamically instantiated IPSec protocol structures (such as tunnels and security associations) to the policy entities that created them (such as policy definitions, crypto maps, and transforms).

The MODULE-IDENTITY for the CISCO-IPSEC-POLICY-MAP-MIB is ciscoIpSecPolMapMIB, and its top-level OID is 1.3.6.1.4.1.9.9.172 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoIpSecPolMapMIB).

MIB Constraint

This MIB is supported only in Cisco IOS software images that support DES encryption (-k8- or -k9-).

CISCO-ISDN-MIB

The CISCO-ISDN-MIB contains objects that describe the status of ISDN interfaces on the router.

The MODULE-IDENTITY for the CISCO-ISDN-MIB is ciscoIsdnMib, and its top-level OID is 1.3.6.1.4.1.9.9.26 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoIsdnMib).

MIB Constraint

This MIB is not supported on the Cisco uBR10012 router.

CISCO-LEC-DATA-VCC-MIB

The CISCO-LEC-DATA-VCC-MIB is a Cisco extension to the standard ATM-MIB. This MIB contains objects that identify the VCCs that carry packets being sent on LAN Emulation (LANE) VLANs over ATM interfaces.

The MODULE-IDENTITY for the CISCO-LEC-DATA-VCC-MIB is ciscoLecDataVccMIB, and its top-level OID is 1.3.6.1.4.1.9.9.69 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoLecDataVccMIB).

MIB Constraints

This MIB is:

- Supported only on Cisco uBR7100 series and Cisco uBR7200 series routers running a Cisco IOS "-is-" software image.
- Not supported on the Cisco uBR10012 router.

CISCO-LEC-EXT-MIB

The CISCO-LEC-EXT-MIB is a Cisco extension to the standard ATM-MIB. This MIB contains objects that map a LAN emulation client (LEC) to its VLAN.

The MODULE-IDENTITY for the CISCO-LEC-EXT-MIB is ciscoLecExtMIB, and its top-level OID is 1.3.6.1.4.1.9.9.77 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoLecExtMIB).

MIB Constraints

This MIB is:

- Supported only on Cisco uBR7100 series and Cisco uBR7200 series routers running a Cisco IOS "-is-" software image.
- Not supported on the Cisco uBR10012 router.

CISCO-LECS-MIB

The CISCO-LECS-MIB is a Cisco extension to the standard ATM-MIB. This MIB contains objects about the configuration of LANE VLANs on the Cisco router.

The MODULE-IDENTITY for the CISCO-LECS-MIB is ciscoLecsMIB, and its top-level OID is 1.3.6.1.4.1.9.9.38 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoLecsMIB).

MIB Constraints

This MIB is:

- Supported only on Cisco uBR7100 series and Cisco uBR7200 series routers running a Cisco IOS "-is-" software image.
- Not supported on the Cisco uBR10012 router.

CISCO-LES-MIB

The CISCO-LES-MIB is a Cisco extension to the standard ATM-MIB. This MIB contains objects to manage LAN emulation services (LES) on the router.

The MODULE-IDENTITY for the CISCO-LES-MIB is ciscoLesMIB, and its top-level OID is 1.3.6.1.4.1.9.9.39 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoLesMIB).

MIB Constraints

This MIB is:

- Supported only on Cisco uBR7100 series and Cisco uBR7200 series routers running a Cisco IOS "-is-" software image.
- Not supported on the Cisco uBR10012 router.

CISCO-MEMORY-POOL-MIB

The CISCO-MEMORY-POOL-MIB contains objects to monitor memory pools on the router.

The MODULE-IDENTITY for the CISCO-MEMORY-POOL-MIB is ciscoMemoryPoolMIB, and its top-level OID is 1.3.6.1.4.1.9.9.48 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoMemoryPoolMIB).

MIB Constraints

There are no constraints on this MIB.

CISCO-NBAR-PROTOCOL-DISCOVERY-MIB

The CISCO-NBAR-PROTOCOL-DISCOVERY-MIB provides SNMP support for Network-Based Application Recognition (NBAR), including enabling and disabling protocol discovery on a per-interface basis and configuring the traps that are generated when certain events occur. You can also display the current NBAR configuration and run-time statistics.

The MODULE-IDENTITY for the CISCO-NBAR-PROTOCOL-DISCOVERY-MIB is ciscoNbarProtocolDiscoveryMIB, and its top-level OID is 1.3.6.1.4.1.9.9.244 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoNbarProtocolDiscoveryMIB).

MIB Constraints

This MIB is supported:

- Only on Cisco uBR7246VXR universal broadband routers.
- In Cisco IOS Release 12.2(15)BC2 and later releases.
- Not supported in Cisco IOS Release 12.1 EC.

CISCO-NDE-MIB

The CISCO-NDE-MIB contains objects about the configuration and operation of the Netflow Data Export (NDE) feature.

The MODULE-IDENTITY for the CISCO-NDE-MIB is ciscoNDEMIB, and its top-level OID is 1.3.6.1.4.1.9.9.226 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoNDEMIB).

MIB Constraints

This MIB is:

- Supported only in Cisco IOS Release 12.1EC and only for Cisco uBR7100 series and Cisco uBR7200 series routers.
- Not supported in Cisco IOS Release 12.2BC for any Cisco CMTS router.

CISCO-NTP-MIB

The CISCO-NTP-MIB contains objects to monitor the Network Time Protocol (NTP) clients and servers that are operating on the router.

The MODULE-IDENTITY for the CISCO-NTP-MIB is ciscoNtpMIB, and its top-level OID is 1.3.6.1.4.1.9.9.168 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoNtpMIB).

MIB Constraints

This MIB is:

- Supported only in Cisco IOS Release 12.2BC for the Cisco uBR7100 series and Cisco uBR7200 series routers.
- Not supported in Cisco IOS Release 12.2BC for any Cisco CMTS router.

CISCO-PIM-MIB

The CISCO-PIM-MIB defines objects and variables for managing Protocol Independent Multicast (PIM) on the router. These MIB definitions are an extension of those in RFC 2934, which is the IETF PIM MIB.

The MODULE-IDENTITY for the CISCO-PIM-MIB is ciscoPimMIB, and its top-level OID is 1.3.6.1.4.1.9.9.184 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoPimMIB).

MIB Constraints

This MIB is supported only in Cisco IOS Release 12.2BC software images. It is not supported in Cisco IOS Release 12.1EC software images.

CISCO-PING-MIB

The CISCO-PING-MIB contains objects to manage ICMP echo (ping) requests on the router.

The MODULE-IDENTITY for the CISCO-PING-MIB is ciscoPingMIB, and its top-level OID is 1.3.6.1.4.1.9.9.16 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoPingMIB).

MIB Constraints

There are no constraints on this MIB.

CISCO-PPPOE-MIB

The CISCO-PPPOE-MIB contains objects to manage Point-to-Point Protocol over Ethernet (PPPoE) sessions. These objects represent PPPoE sessions at the system and virtual channel (VC) level.

The MODULE-IDENTITY for the CISCO-PPPOE-MIB is ciscoPppoeMIB, and its top-level OID is 1.3.6.1.4.1.9.9.194 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoPppoeMIB).

MIB Constraints

This MIB is not supported:

- On the Cisco uBR10012 router.
- In any Cisco IOS Release 12.1EC software image.

CISCO-PROCESS-MIB

The CISCO-PROCESS-MIB displays memory and CPU usage on the router and describes active system processes. The CISCO-PROCESS-MIB enables you to monitor CPU and memory utilization for line cards, cable interface line cards, and broadband processing engines on the Cisco uBR10012 or Cisco uBR7246VXR routers.

The MODULE-IDENTITY for the CISCO-PROCESS-MIB is ciscoProcessMIB, and its top-level OID is 1.3.6.1.4.1.9.9.109 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoProcessMIB).

MIB Constraints

This MIB supports:

- PRE2 modules on the Cisco uBR10012 routers with Cisco IOS Release 12.3(9a)BC and later BC releases.
- The Cisco uBR7246VXR router and the Cisco uBR10012 router with the PRE1 module in Cisco IOS Release 12.2(15)BC2 and later BC releases.
- CPU statistics for processors are distributed line cards (such as the Broadband Processing Engines) are supported in Cisco IOS Release 12.3(9a)BC and later releases.

Table 3-18 lists CISCO-PROCESS-MIB constraints.:

Table 3-17 Cisco CMTS Router CISCO-PROCESS-MIB

Object Name	Description
cpmCPUTotalTable	Maintained only for the active Performance Routing Engine (PRE) on the Cisco uBR10012 router. Statistics are not maintained for the standby PRE or for line cards. This means that cpmCPUTotalPhysicalIndex is always the index of the active PRE.

CISCO-PRODUCTS-MIB

The CISCO-PRODUCTS-MIB lists the object identifiers (OIDs) assigned to Cisco hardware platforms.

The MODULE-IDENTITY for the CISCO-PRODUCTS-MIB is ciscoProductsMIB, and its top-level OID is 1.3.6.1.4.1.9.12.2 (iso.org.dod.internet.private.enterprises.cisco.ciscoModules.ciscoProductsMIB).

MIB Constraints

Table 3-18 lists the relevant OIDs for the Cisco CMTS routers.

Table 3-18 Cisco CMTS Router OIDs from CISCO-PRODUCTS-MIB

Object Name	Object Identifier	Description
ciscoUBR7246	1.3.6.1.4.1.9.1.179	Cisco uBR7246 universal broadband router
ciscoUBR7223	1.3.6.1.4.1.9.1.210	Cisco uBR7223 universal broadband router
ciscoUBR7246VXR	1.3.6.1.4.1.9.1.271	Cisco uBR7246VXR universal broadband router
ciscoUBR10012	1.3.6.1.4.1.9.1.317	Cisco uBR10012 universal broadband router
ciscoUBR7111	1.3.6.1.4.1.9.1.344	Cisco uBR7111 universal broadband router
ciscoUBR7111E	1.3.6.1.4.1.9.1.345	Cisco uBR7111E universal broadband router

Table 3-18 Cisco CMTS Router OIDs from CISCO-PRODUCTS-MIB (continued)

Object Name	Object Identifier	Description
ciscoUBR7114	1.3.6.1.4.1.9.1.346	Cisco uBR7114 universal broadband router
ciscoUBR7114E	1.3.6.1.4.1.9.1.347	Cisco uBR7114E universal broadband router

CISCO-QUEUE-MIB

The CISCO-QUEUE-MIB contains objects to manage interface queues on the router.

The MODULE-IDENTITY for the CISCO-QUEUE-MIB is ciscoQueueMIB, and its top-level OID is 1.3.6.1.4.1.9.9.37 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoQueueMIB).

MIB Constraints

There are no constraints on this MIB.

CISCO-RMON-SAMPLING-MIB

The CISCO-RMON-SAMPLING-MIB contains objects that supplement the RMON-MIB and the RMON2-MIB, providing additional information about the statistical reliability of the estimated counter values in these MIBs.

The MODULE-IDENTITY for the CISCO-RMON-SAMPLING-MIB is ciscoRmonSamplingMIB, and its top-level OID is 1.3.6.1.4.1.9.9.104 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoRmonSamplingMIB).

MIB Constraints

There are no constraints on this MIB.

CISCO-RTTMON-MIB

The CISCO-RTTMON-MIB contains objects to monitor network performance. The MIB provides information about the response times of network resources and applications. Each conceptual round-trip time (RTT) control row in the MIB represents a single probe, which is used to determine an entity response time. The probe defines an RTT operation to perform (for example, an FTP or HTTP GET request), and the results indicate whether the operation succeeded or failed, and how long it took to complete.

The MODULE-IDENTITY for the CISCO-RTTMON-MIB is ciscoRttMonMIB, and its top-level OID is 1.3.6.1.4.1.9.9.42 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoRttMonMIB).

Note An rttMonCtrlOperConnectionLostOccurred trap is generated when an RTT connection cannot be established to the destination router because the router responder application is not running. However, the trap is not generated if the physical connection to the router is lost.

CISCO-SLB-EXT-MIB

The CISCO-SLB-EXT-MIB contains objects to supplement the CISCO-SLB-MIB, which provide additional information about server load balancing (SLB) operations on the router. In particular, the MIB contains objects about the Dynamic Feedback Protocol (DFP) manager and Layer 7 policy load balancing features.

The MODULE-IDENTITY for the CISCO-SLB-EXT-MIB is ciscoSlbExtMIB, and its top-level OID is 1.3.6.1.4.1.9.9.254 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoSlbExtMIB).

MIB Constraints

This MIB is:

- Supported only in Cisco IOS Release 12.1EC "-is-" software images for the Cisco uBR7100 series and Cisco uBR7200 series routers.
- Not supported in Cisco IOS Release 12.2BC for any Cisco CMTS router.

CISCO-SLB-MIB

The CISCO-SLB-MIB contains objects about the operation of server load balancing (SLB) and the Dynamic Feedback Protocol (DFP) on the router.

The MODULE-IDENTITY for the CISCO-SLB-MIB is ciscoSlbMIB, and its top-level OID is 1.3.6.1.4.1.9.9.161 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoSlbMIB).

MIB Constraints

This MIB is:

- Supported only in Cisco IOS Release 12.1EC "-is-" software images for the Cisco uBR7100 series and Cisco uBR7200 series routers.
- Not supported in Cisco IOS Release 12.2BC for any Cisco CMTS router.

CISCO-SNAPSHOT-MIB

The CISCO-SNAPSHOT-MIB contains objects to manage snapshot routing, which helps improve the use of system resources for static routing and routing for dedicated serial lines.

The MODULE-IDENTITY for the CISCO-SNAPSHOT-MIB is ciscoSnapshotMIB, and its top-level OID is 1.3.6.1.4.1.9.9.19 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoSnapshotMIB).

MIB Constraints

There are no constraints on this MIB.

CISCO-SRP-MIB

The CISCO-SRP-MIB contains objects to monitor and configure Spatial Reuse Protocol (SRP) interfaces and rings.

The MODULE-IDENTITY for the CISCO-SRP-MIB is ciscosrpMIB, and its top-level OID is 1.3.6.1.4.1.9.10.60 (iso.org.dod.internet.private.enterprises.cisco.ciscoExperiment.ciscosrpMIB).

MIB Constraints

This MIB is not supported on Cisco uBR7100 series and Cisco uBR7200 series routers.

CISCO-SYSLOG-MIB

The CISCO-SYSLOG-MIB contains all system log messages generated by the Cisco IOS software. The MIB provides a way to access these SYSLOG messages through Simple Network Management Protocol (SNMP). All Cisco IOS SYSLOG messages contain the message name and its severity, message text, the name of the entity generating the message, and an optional time stamp. The MIB also contains a history of SYSLOG messages and counts related to SYSLOG messages.

The MODULE-IDENTITY for the CISCO-SYSLOG-MIB is ciscoSyslogMIB, and its top-level OID is 1.3.6.1.4.1.9.9.41 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoSyslogMIB).

MIB Constraints

This MIB does not track messages generated by **debug** commands that are entered through the CLI.

Note When you plan to enable traps for SYSLOG events, increase the trap queue size from its default of 10, using the **snmp-server queue-length** command. The size of the queue can range from 1 to 1000 traps, and we recommend a size of at least 100 for systems that are sending traps for SYSLOG events.

CISCO-TCP-MIB

The CISCO-TCP-MIB contains objects to manage the Transmission Control Protocol (TCP) on the router. This MIB is an extension to the TCP-MIB.

The MODULE-IDENTITY for the CISCO-TCP-MIB is ciscoTcpMIB, and its top-level OID is 1.3.6.1.4.1.9.9.6 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoTcpMIB).

MIB Constraint

This MIB is not supported on Cisco CMTS platforms, even though it is included in the Cisco IOS software images.

CISCO-VLAN-IFTABLE-RELATIONSHIP-MIB

The CISCO-VLAN-IFTABLE-RELATIONSHIP-MIB maps the Virtual Local Area Network (VLAN) group ID to the interface index for routed VLAN interfaces.

The MODULE-IDENTITY for the CISCO-VLAN-IFTABLE-RELATIONSHIP-MIB is ciscoVlanIfTableRelationshipMIB, and its top-level OID is 1.3.6.1.4.1.9.9.128 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoVlanIfTableRelationshipMIB).

MIB Constraint

This MIB is not supported on Cisco CMTS platforms, even though it is included in the Cisco IOS software images.

CISCO-VPDN-MGMT-EXT-MIB

The CISCO-VPDN-MGMT-EXT-MIB supplements the CISCO-VPDN-MGMT-MIB with additional information about virtual private dial-up network (VPDN) tunnels and sessions. The MIB contains the following tables, which provide read-only information not found in the CISCO-VPDN-MGMT-MIB:

- cvpdnTunnelExtTable—Provides information about Layer 2 Tunnel Protocol (L2TP) tunnels, such as tunnel statistics and User Datagram Protocol (UDP) port numbers.
- cvpdnSessionExtTable—Provides information about L2TP sessions, as well as information about session packet counts, packet sequencing information, window size, and operating characteristics.

The MODULE-IDENTITY for the CISCO-VPDN-MGMT-EXT-MIB is ciscoVpdnMgmtExtMIB, and its top-level OID is 1.3.6.1.4.1.9.10.51 (iso.org.dod.internet.private.enterprises.cisco.ciscoExperiment.ciscoVpdnMgmtExtMIB).

MIB Constraints

This MIB is:

- Read-only, which means that you cannot use the MIB to configure VPDN on the router.
- Supported only on Cisco IOS "-is-" software images for Cisco uBR7100 series and Cisco uBR7200 series routers.
- Not supported on the Cisco uBR10012 router.

CISCO-VPDN-MGMT-MIB

The CISCO-VPDN-MGMT-MIB provides operational information about the Virtual Private Dialup Network (VPDN) feature on the router. You can use the MIB to monitor VPDN tunnel information on the router, but you cannot use the MIB to configure VPDN.

VPDN enables the router to forward Point-to-Point Protocol (PPP) traffic between an Internet service provider (ISP) and a home gateway. The CISCO-VPDN-MGMT-MIB includes several tables that contain VPDN tunneling information:

- cvpdnSystemTable—Provides system-wide VPDN information.
- cvpdnTunnelAttrTable—Provides information about each active tunnel.
- cvpdnSessionAttrTable—Provides information about each active session within each tunnel.
- cvpdnUserToFailHistInfoTable—Provides information about the last failure that occurred for each tunnel user.
- cvpdnTemplateTable—Identifies each VPDN template and indicates the number of active sessions associated with the template. See Table 3-19 for information about template name restrictions and and their effect on SNMP.

The MODULE-IDENTITY for the CISCO-VPDN-MGMT-MIB is ciscoVpdnMgmtMIB, and its top-level OID is 1.3.6.1.4.1.9.10.24 (iso.org.dod.internet.private.enterprises.cisco.ciscoExperiment.ciscoVpdnMgmtMIB).

MIB Constraints

This MIB is:

- Read-only, which means that you cannot use the MIB to configure VPDN on the router.
- Supported only on Cisco IOS Release 12.2BC "-is-" software images for Cisco uBR7100 series and Cisco uBR7200 series routers.
- Not supported on the Cisco uBR10012 router.

The MIB objects in Table 3-19 have been deprecated. Although currently supported, their use is being phased out and we recommend that you use the replacement object instead. For detailed definitions of MIB objects, see the MIB.

Table 3-19 Deprecated CISCO-VPDN-MGMT-MIB Objects

MIB Object	Notes
cvpdnTunnelTotal	Replaced by cvpdnSystemTunnelTotal.
cvpdnSessionTotal	Replaced by cvpdnSystemSessionTotal.
cvpdnDeniedUsersTotal	Replaced by cvpdnSystemDeniedUsersTotal.
cvpdnTunnelTable	Replaced by cvpdnTunnelAttrTable.
cvpdnTunnelSessionTable	Replaced by cvpdnSessionAttrTable.
cvpdnTemplateTable	SNMP limits the size of VPDN template names to 128 characters. If any template name in the cvpdnTemplateTable exceeds this length, then in order to retrieve any table entries, you must use individual GET requests to retrieve each template name (cvpdnTemplateName) that does not exceed 128 characters.

CISCO-VSIMASTER-MIB

The CISCO-VSIMASTER-MIB contains objects about the master side of the the Virtual Switch Interface (VSI) protocol that is used to control ATM interfaces.

The MODULE-IDENTITY for the CISCO-VSIMASTER-MIB is ciscoVsiMasterMIB, and its top-level OID is 1.3.6.1.4.1.9.9.162 (iso.org.dod.internet.private.enterprises.cisco.ciscoMgmt.ciscoVsiMasterMIB).

MIB Constraints

This MIB is:

- Supported only on Cisco IOS Release 12.2BC software images. It is not supported on Cisco IOS Release 12.1EC software images.
- Not supported on the Cisco uBR10012 router.

DOCS-BPI-MIB

The DOCS-BPI-MIB contains objects to configure, operate, and monitor the DOCSIS 1.0 Baseline Privacy Interface (BPI) feature. This MIB has been released as RFC 3083, *Baseline Privacy Interface Management Information Base for DOCSIS Compliant Cable Modems and Cable Modem Termination Systems*.

The MODULE-IDENTITY for the DOCS-BPI-MIB is docsBpiMIB, and its top-level OID is 1.3.6.1.2.1.10.127.5 (iso.org.dod.internet.mgmt-mib-2.transmission.docsIfMIB.docsBpiMIB).

MIB Constraints

This MIB is supported only in:

- Cisco IOS software images that support DES encryption (-k8- or -k9-).
- DOCSIS 1.0 software images (Cisco IOS Release 12.1EC). In DOCSIS 1.1 software images (Cisco IOS Release 12.2BC and later releases), use the DOCS-BPI-PLUS-MIB instead.

DOCS-BPI-PLUS-MIB

The DOCS-BPI-PLUS-MIB contains objects to configure, operate, and monitor the DOCSIS 1.1 Baseline Privacy Interface Plus (BPI+) feature. This MIB is currently being reviewed as an Internet Draft, *Management Information Base for DOCSIS Cable Modems and Cable Modem Termination Systems for Baseline Privacy Plus*. The current version is draft-ietf-ipcdn-bpiplus-mib-11.txt and is a work in progress that is subject to change without notice.

The MODULE-IDENTITY for the DOCS-BPI-PLUS-MIB is docsBpi2MIB, and its top-level OID is 1.3.6.1.2.1.10.127.6 (iso.org.dod.internet.mgmt-mib-2.transmission.docsIfMIB.docsBpi2MIB).

MIB Constraints

This MIB is supported only in:

- Cisco IOS software images that support DES encryption (-k8- or -k9-).
- DOCSIS 1.1 and DOCSIS 2.0 software images (Cisco IOS Release 12.2BC and later). In DOCSIS 1.0 software images (Cisco IOS Release 12.1EC), use the DOCS-BPI-MIB instead.
- DOCSIS BPI+ in narrowband fiber node interface configurations are supported only in Cisco IOS Release 12.3(23)BC or later on the Cisco uBR10012 router. This application of narrowband fiber nodes is distinct from additional narrowband functions supported for the Shared Port Adapter (SPA).

Table 3-20 DOCS-BPI-PLUS-MIB Constraints

MIB Object	Notes
docsBpi2CmtsCACertTable	This table cannot be used to load a root Certificate Authority (CA) certificate into the Cisco CMTS router. The root CA certificate must always be loaded on the local bootflash or Flash Disk. (For security and operational reasons, we recommend always loading the root CA certificate on the bootflash, and not on a removable Flash Disk.
docsBpi2CmtsIpMulticastMapTable **docsBpi2CmtsMulticastAuthTable.**	These tables are supported in the DOCS-BPI-PLUS-MIB in Cisco IOS Release 12.3(23)BC or later on the Cisco uBR10012 router.

DOCS-CABLE-DEVICE-MIB

The DOCS-CABLE-DEVICE-MIB contains objects to configure and monitor DOCSIS-compliant CMTS platforms and cable modem devices. This MIB was released as RFC 2669.

The MODULE-IDENTITY for the DOCS-CABLE-DEVICE-MIB is docsDev, and its top-level OID is 1.3.6.1.2.1.69 (iso.org.dod.internet.mgmt-mib-2.docsDev).

MIB Constraints

This MIB has the following constraints.

Table 3-21 DOCS-CABLE-DEVICE-MIB Constraints

MIB Object	Notes
docsDevEventTable	This table is supported in Cisco IOS Release 12.1(5)EC and later releases, and holds a maximum number of 50 events. When the table is full and a new event occurs, the oldest event is removed and replaced by the new event. The docsDevEvIndex, however, continues incrementing, up to its maximum value of 2,147,483,647.
• docsDevSerialNumber docsDevRole docsDevSTPControl	Not supported on the CMTS
• docsDevSoftware	This group of objects is not supported on the CMTS.
• docsDevCpeIpMax	Initial DOCSIS 1.1 specifications set this object to 1, but CableLabs has determined that this default can prevent PCs from communicating in certain situations (such as when the PC is booted up and defaults to a private IP address before being connected to the cable modem or before the cable modem is turned on). The cable modem must be rebooted to allow the PC to communicate. A change notice has been introduced to change the default to –1, which disables IP filtering, but this change notice has not been given final approval or been implemented. We therefore recommend configuring this parameter either to –1 or to a value greater than 1.

DOCS-CABLE-DEVICE-TRAP-MIB

The DOCS-CABLE-DEVICE-TRAP-MIB contains objects that supplement the DOCS-CABLE-DEVICE-MIB to define and configure traps and notifications for DOCSIS-compliant CMTS platforms and cable modems.

The MODULE-IDENTITY for the DOCS-CABLE-DEVICE-TRAP-MIB is docsDevTrapMIB, and its top-level OID is 1.3.6.1.2.1.69.10 (iso.org.dod.internet.mgmt-mib-2.docsDev.docsDevTrapMIB).

MIB Constraints

This MIB has the following constraints:

Table 3-22 DOCS-CABLE-DEVICE-TRAP-MIB Constraints

MIB Object	Notes
docsDevTable	
• docsIfDocsisCapability • docsIfDocsisOperMode	Both objects are deprecated.

DOCS-IF-EXT-MIB

The DOCS-IF-EXT-MIB contains objects that supplement the DOCS-IF-MIB to provide information about the capabilities and status of online cable modems.

The MODULE-IDENTITY for the DOCS-IF-EXT-MIB is docsIfExtMib, and its top-level OID is 1.3.6.1.2.1.10.127.21 (iso.org.dod.internet.mgmt.mib-2.transmission.docsIfMIB.docsIfExtMib).

MIB Constraints

Table 3-23 DOCS-IF-EXT-TRAP-MIB Constraints

MIB Object	Notes
docsDevTable	In Cisco IOS Release 12.2(15)BC1 and later releases, this MIB has been deprecated and removed as part of the support for the DOCSIS 2.0 specifications. The objects in this MIB have been replaced by new objects in the DOCS-IF-MIB and the proposed DOCS-RFI-MIB, so as to conform to the requirements given in the *DOCSIS 2.0 Operations Support System Interface Specification* (SP-OSSIv2.0-I04-030730).
• docsIfDocsisBaseCapability	Replaces docsIfDocsisCapability and docsIfDocsisOperMode
• docsIfCmtsCmStatusDocsisRegMode	Replaces docsIfCmtsCmStatusDocsisMode

DOCS-IF-MIB

The DOCS-IF-MIB contains objects to configure and monitor the radio frequency (RF) interfaces on DOCSIS-compliant CMTS platforms and cable modems. This MIB was released as RFC 2670. This MIB has been updated to draft-ietf-ipcdn-rfmibv2-05.txt.

The MODULE-IDENTITY for the DOCS-IF-MIB is docsIfMIB, and its top-level OID is 1.3.6.1.2.1.10.127 (iso.org.dod.internet.mgmt.mib-2.transmission.docsIfMIB). One of the most commonly used OIDs is docsIfUpChannelWidth (1.3.6.1.2.1.10.127.1.1.2.1.3).

MIB Constraints

This MIB has the following constraints:

Table 3-24 DOCS-IF-MIB Constraints

MIB Object	Notes
docsIfUpstreamChannelTable	
• docsIfUpChannelWidth docsIfUpChannelSlotSize	The channel width and minislot size are related. Trying to set the channel width or minislot size separately fails if the new value is incompatible with the other parameter current setting. In addition, setting both objects together is supported only in Cisco IOS Release 12.2(15)BC2 and later releases.
docsIfCmtsMacToCmTable	Do not use GET-NEXT requests to retrieve the rows of this table, because it requires lengthy, time-consuming searches on the MAC address, which could consume excessive amounts of CPU processor time when the table is large. Instead, retrieve the individual rows using a GET request that uses the device's MAC address as the table index. This avoids possible performance problems and also ensures that the retrieved rows contain the most current, real-time data for those devices. A GET request for docsIfCmtsMacToCmTable returns NULL if the router is already processing another request for this table (either by an SNMP GET or CLI **show** command). A null string is returned if the router is processing a request for any other table that is indexed by CM or CPE MAC address, such as cdxCmCpeEntry, cdrqCmtsCmStatusTable, and docsQosCmtsMacToSrvFlowTable. Wait until the first request is done and then repeat the request for docsIfCmtsMacToCmTable.
docsIfCmtsModulationTable	

Table 3-24 DOCS-IF-MIB Constraints (continued)

MIB Object	Notes
• docsIfCmtsModGuardTimeSize • docsIfCmtsModPreambleLen	The SNMP agent might report a guard time (docsIfCmtsModGuardTimeSize) and preamble length (docsIfCmtsModPreambleLen) that do not match the values that are configured using the CLI for a particular modulation profile. This occurs when the CLI values are not appropriate for the particular PHY type and cable interface being used, and the Cisco IOS overrides the CLI values with values that are more appropriate.
docsIfCmtsTable	
• docsIfCmtsUcdInterval	Read-only.
• docsIfSigQSignalNoise	This object cannot be used with Cisco uBR-MC16S cable interface line cards when spectrum groups are configured in Cisco IOS Release 12.2(15)BC2 and earlier releases.
• docsIfUpChannelStatus	Not implemented.
• docsIfUpChannelModulationProfile	If the Cisco CMTS is configured with two modulation profiles (dynamic upstream modulation), this object returns whichever of the two profiles is currently active. This means that even if you set this object with one profile, it could return the other profile the next time it is read.
• docsIfQosProfMaxTxBurst	Deprecated and always returns NULL.
• docsIfCmtsCmStatusExtUnerroreds • docsIfCmtsCmStatusExtCorrecteds • docsIfCmtsCmStatusExtUncorrectables	Supported only in Cisco IOS Release 12.2(15)BC2 and later releases. In previous releases, these objects always return NULL.
• docsIfCmtsServiceCreateTime	Before Cisco IOS Release 12.2(15)BC1, this object displays the same creation time for all Service IDs (SIDs) for the same cable modem. In Cisco IOS Release 12.2(15)BC1 and later releases, this object shows the correct creation time for each SID.
• docsIfCmtsQosProfilePermissions	This object accurately sets the QoS profile permissions in Cisco IOS Release 12.1(20)EC, Cisco IOS Release 12.2(4)BC1, and later releases.
docsIfCmtsChannelUtilizationTable	Read-only.
• docsIfCmtsChannelUtIfType	Value is IANAifType
• docsIfCmtsChannelUtId	Value is Integer32

Table 3-24 DOCS-IF-MIB Constraints (continued)

MIB Object	Notes
• docsIfCmtsChannelUtUtilization	Value is Integer32
• docsIfCmtsChannelUtilizationInterval	Read, write.
docsIfUpstreamChannelTable	
• docsIfUpChannelPreEqEnable	
docsIfSignalQualityTable	
• docsIfSigQExtUnerroreds	Read-only. Value is 64-bit counter.
• docsIfSigQExtCorrecteds	Read-only. Value is 64-bit counter.
• docsIfSigQExtUncorrectables	Read-only. Value is 64-bit counter.
docsIfCmtsDownChannelCounterTable	Read-only.
• docsIfCmtsDownChnlCtrId	Value is Integer32
• docsIfCmtsDownChnlCtrTotalBytes	Value is Counter32
• docsIfCmtsDownChnlCtrUsedBytes	Value is Counter32
• docsIfCmtsDownChnlCtrExtTotalBytes	Value is Counter64
• docsIfCmtsDownChnlCtrExtUsedBytes	Value is Counter64
docsIfCmtsUpChannelCounterTable	Read-only.
• docsIfCmtsUpChnlCtrId	Value is Integer32
• docsIfCmtsUpChnlCtrTotalMslots	Value is Counter32
• docsIfCmtsUpChnlCtrUcastGrantedMslot	Value is Counter32
• docsIfCmtsUpChnlCtrTotalCntnMslots	Value is Counter32
• docsIfCmtsUpChnlCtrUsedCntnMslots	Value is Counter32
• docsIfCmtsUpChnlCtrExtTotalMslots	Value is Counter64
• docsIfCmtsUpChnlCtrExtUcastGrantedMslots	Value is Counter64
• docsIfCmtsUpChnlCtrExtTotalCntnMslots	Value is Counter64
• docsIfCmtsUpChnlCtrExtUsedCntnMslots	Value is Counter64

Note When using docsIfCmtsQosProfilePermissions to remove the create by modem permission from cable modems, prohibits only future activity by cable modems and deletes only unused QoS profiles that have been created by cable modems; it does not affect QoS profiles that are currently in use. This behavior is different than the **no cable qos permission modem** command, which immediately deletes QoS profiles that have been created by the cable modems and takes those modems offline.

Note The docsIfCmtsChannelUtilizationInterval attribute retains its value after a reboot even though it is not visible in the output of **show run** command.

Constraints in Cisco IOS Release 12.3(23)BC

There are no entries for the narrowband SPA downstream channels for the tables docsIfDownstreamChannelTable and docsIfCmtsDownChannelCounterTable in Cisco IOS Release 12.3(23)BC. Note that the CISCO-CABLE-WIDEBAND-MIB MIB contains narrow band information.

However, the following changes are introduced in Cisco IOS release 12.3(23)BC:

- docsIfCmtsCmStatusTable—See Table 3-25. This object points to the corresponding narrowband channel's SNMP IF index, or the Modular Cable Interface SNMP IF index.

Table 3-25 docsIfCmtsCmStatusTable

MIB Attribute	Value	Notes
docsIfCmtsCmStatusIndex	No impact	
docsIfCmtsCmStatusMacAddress	No impact	
docsIfCmtsCmStatusIpAddress	No impact	
docsIfCmtsCmStatusDownChannelIfIndex	NB channel ifindex	Return 0 if is unknown
docsIfCmtsCmStatusUpChannelIfIndex	Up channel	Return 0 if is unknown
docsIfCmtsCmStatusRxPower	No impact	
docsIfCmtsCmStatusTimingOffset	No impact	
docsIfCmtsCmStatusEqualizationData	No impact	
docsIfCmtsCmStatusValue	No impact	
docsIfCmtsCmStatusUnerroreds	No impact	
docsIfCmtsCmStatusCorrecteds	No impact	
docsIfCmtsCmStatusUncorrectables	No impact	
docsIfCmtsCmStatusSignalNoise	No impact	
docsIfCmtsCmStatusMicroreflections	No impact	
docsIfCmtsCmStatusExtUnerroreds	No impact	
docsIfCmtsCmStatusExtCorrecteds	No impact	
docsIfCmtsCmStatusExtUncorrectables	No impact	
docsIfCmtsCmStatusDocsisRegMode	No impact	
docsIfCmtsCmStatusModulationType	No impact	
docsIfCmtsCmStatusInetAddressType	No impact	
docsIfCmtsCmStatusInetAddress	No impact	
docsIfCmtsCmStatusValueLastUpdate	No impact	

DOCS-DSG-IF-MIB

This is the MIB Module for the DOCSIS Set-top Gateway(DSG). The DSG provides a one-way IP datagram transport for Out-Of-Band (OOB) messaging to cable set-top clients. The one-way IP datagram transport is called a DSG Tunnel. A DSG Tunnel carrying either a broadcast, unicast or multicast IP datagram stream originating at the DOCSIS Set-top Gateway and carrying Out-Of-Band messages intended for set-top clients. It is carried over one or more downstream DOCSIS channels. Multiple DSG tunnels may exist on a single downstream DOCSIS channel.

The following MIB tables were added with this release:

- dsgIfClassifierTable—Contains attributes use to classify inbound packets into the tunnel and classifiers for the DSG clients, encoding in the DCD messages on the downstream channels to which the classifiers apply.
- dsgIfTunnelTable—Contains group(s) of tunnel(s). Each tunnel is associated to the destination MAC address and associated to the QOS service class name.
- dsgIfTunnelGrpToChannelTable—Associates a group of tunnels to one or more downstream channel.
- dsgIfDownstreamChannelTable—Contains the associated timers, vendor specific parameters index and the channel list index to a specific downstream.
- dsgIfClientIdTable—Contains the client identification type and value. It also contains the vendor specific parameter identification.
- dsgIfVendorParamTable—Allows vendors to send specific parameters to the DSG clients within a DSG rule or within the DSG Configuration block in a DCD message.
- dsgIfChannelListTable—Contains list of one or multiple downstream frequencies that are carrying DSG tunnel(s).
- dsgIfTimerTable—Contains timers that are sent to the DSG client(s) through the DCD message.

Note DOCS-DSG-IF-MIB does not support Route Processor Redundancy Plus (RPR+) mode.

Note The DOCS-DSG-IF-MIB defines objects that are used to configure, control, and monitor the operation of the DOCSIS Set-top Gateway (DSG) 1.0 feature on Cisco uBR7200 series and Cisco uBR10012 routers. For detailed information about DOCSIS DSG, go to: http://www.cisco.com/en/US/products/hw/cable/ps2217/products_feature_guide09186a00802065c8.html

Note The DOCS-DSG-IF-MIB top-level OID is 1.3.6.1.4.1.4491.2.1.3 (iso.org.dod.internet.private.enterprises.cableLabs.clabProject.clabProjDocsis.dsgIfMIB).

MIB Constraints

Prior to Cisco IOS Release 12.3(23)BC, there are no constraints on the DOCS-DSG-IF-MIB. (All objects listed in this MIB are implemented as defined in the MIB definition.)

Wideband Support in Cisco IOS Release 12.3(23)BC

The DOCS-DSG-IF-MIB is defined to manage DOCSIS Set-top Gateway interfaces in the following manner.

- DSG is configured on the MC interface's CGD master interface.
- A packet transmits via Multicast to the DOCSIS Set-top Gateway (DSG).
- Cisco IOS uses an IGMP configuration command to control the packets.

In Cisco IOS Release 12.3(23)BC and later, Cisco IOS no longer accepts SNMP that is mapped in the the dsgIfTunnelGrpToChannelTable on MC interface. In this circumstance, an INCONSISTENT_VALUE_ERROR system message is reported, and a corresponding error message is prompted as follows:

```
Cannot set dsg tunnel group to Modular-Cable interface, set on CGD's host downstream instead.
```

DOCS-QOS-MIB

The DOCS-QOS-MIB contains objects to configure and monitor the QoS features that are available in DOCSIS 1.1 and DOCSIS 2.0 cable networks. This MIB was published as an Internet Draft, *Data Over Cable System Interface Specification Quality of Service Management Information Base*.

The MODULE-IDENTITY for the DOCS-QOS-MIB is docsQosMIB, and its top-level OID is 1.3.6.1.2.1.10.127.7 (iso.org.dod.internet.mgmt.mib-2.transmission.docsIfMIB.docsQosMIB).

MIB Constraints and Notes

This MIB is supported only in Cisco IOS Release 12.2(4)BC1 through Release 12.2(11)BC3 to support DOCSIS 1.1 operations. The MIB is deprecated in later releases to conform with the DOCSIS 2.0 specifications.

Table 3-26 DOCS-QOS-MIB Constraints

MIB Object	Notes
docsQosCmtsMacToSrvFlowTable	Do not use GET-NEXT requests to retrieve the rows of this table, because it could require lengthy, time-consuming searches on the MAC address, which could consume excessive amounts of CPU processor time when the table is large. Instead, retrieve the individual rows using a GET request that uses the device's MAC address as the table index. This avoids possible performance problems and also ensures that the retrieved rows contain the most current, real-time data for those devices. A GET request for docsQosCmtsMacToSrvFlowTable returns NULL if the router is already processing another request for this table (either by an SNMP GET or CLI **show** command). A null is also returned if the router is processing a request for any other table that is indexed by CM or CPE MAC address, such as cdxCmCpeEntry, cdrqCmtsCmStatusTable, and docsIfCmtsMacToCmTable. Wait until the first request is done and then repeat the request for docsQosCmtsMacToSrvFlowTable.
docsQosParamSetTable	This table describes the set of DOCSIS 1.1 QOS parameters defined in a managed device.
• docsQosParamSetMaxTrafficBurst	Valid only for Best Effort, non-Real-Time Polling, and Real-Time Polling bursts. For all other bursts, this object reports 0.

Table 3-26 DOCS-QOS-MIB Constraints (continued)

MIB Object	Notes
• docsQosServiceClassDirection • docsQosServiceClassSchedulingType	These objects must be set together as part of the same SET request when configuring a downstream service class.
• docsQosParamSetEntry**	Identifies a unique set of QoS parameters.
docsQosServiceFlowStatsTable	Reports the downstream traffic counters for cable modems that are provisioned for DOCSIS 1.1 and DOCSIS 2.0 operation. For DOCSIS 1.0 cable modems, use the cdxCmtsServiceExtTable in CISCO-DOCS-EXT-MIB.
• docsQosServiceFlowStatsEntry**	Describes a set of service flow statistics. An entry in the table exists for each Service Flow ID. The ifIndex is an ifType of docsCableMaclayer(127)."
docsQosPHSTable	This table describes set of payload header suppression entries.
• docsQosPHSEntry**	
docsQosPktClassTable	
• docsQosPktClassEntry**	An entry in this table that provides a single packet classifier rule.
docsQosServiceFlowTable	
• docsQosServiceFlowEntry**	Describes a service flow. An entry in the table exists for each Service Flow ID. The ifIndex is an ifType of docsCableMaclayer(127).
docsQosUpstreamStatsTable	
• docsQosUpstreamStatsEntry**	Describes a set of upstream service flow statistics.
docsQosServiceFlowLogTable	Logs deleted DOCSIS 1.1 and DOCSIS 2.0 service flows, but this table does not contain any information until after logging is specifically enabled using the **cable sflog** command in global configuration mode.
docsQosDynamicServiceStatsTable	(not applicable for Docsis 1.0 modems)
• docsQosDCCReqs	Read-only.The number of Dynamic Channel Change Request messages traversing an interface. This count is nonzero only on downstream direction rows.
• docsQosDCCRsps	Read-only. The number of Dynamic Channel Change Response messages traversing an interface. This count is nonzero only on upstream direction rows.
• docsQosDCCAcks	Read-only. The number of Dynamic Channel Change Acknowledgement messages traversing an interface. This count is nonzero only on downstream direction rows.
• docsQosDCCs	Read-only. The number of successful Dynamic Channel Change transactions. This count is nonzero only on downstream direction rows.

Table 3-26 DOCS-QOS-MIB Constraints (continued)

MIB Object	Notes
• docsQosDCCFails	Read-only. The number of failed Dynamic Channel Change transactions. This count is nonzero only on downstream direction rows.

**The SNMP query sessions have been improved in these tables.

Note For detailed information about load balancing and dynamic channel change on CMTS, go to the following URL:
http://www.cisco.com/en/US/docs/cable/cmts/troubleshooting_batch9/cmtslbg.html

DOCS-SUBMGT-MIB

The DOCS-SUBMGT-MIB contains objects to configure and monitor the subscriber management features in DOCSIS 1.1 and DOCSIS 2.0 cable networks. These objects include packet filtering and CPE device control, and help protect the cable network from intentional or accidental misuse by subscribers.

This MIB was published as an Internet Draft, *Management Information Base for Data Over Cable Service Interface Specification (DOCSIS) Cable Modem Termination Systems for Subscriber Management*.

The MODULE-IDENTITY for the DOCS-SUBMGT-MIB is docsSubMgt, and its top-level OID is 1.3.6.1.3.83.4 (iso.org.dod.internet.experimental.83.docsSubMgt). Because this is an experimental MIB, its top-level OID is expected to change when the specifications are finalized.

MIB Constraints

This MIB has the following constraints:

- The Cisco uBR10012 router does not support the packet filtering objects in this MIB.
- Supported only in Cisco IOS Release 12.2BC and later releases that support DOCSIS 1.1 and DOCSIS 2.0 operations.
- The Cisco uBR-MC16U/X and Cisco uBR-MC28U/X cable interface line cards support this MIB and its objects only in Cisco IOS Release 12.2(15)BC1 and later releases.

Table 3-27 DOCS-SUBMGT-MIB Constraints

MIB Object	Notes
docsSubMgtCpeIpTable	CPE devices listed for a particular cable modem are not automatically cleared when the cable modem is reset. If a problem occurs, then set the docsSubMgtCpeControlReset object to True for that particular cable modem to erase all of its CPE entries.
• docsSubMgtCpeControlMaxCpeIp	This object can be overridden by the **cable modem max-cpe** command in global configuration mode.

DTI-MIB

The DTI-MIB supports the RF Gateway with these MIB attributes and values for the :

- dtiProtocolEntityType—Refer to Table 3-28.
- dtiPathTraceabilityTable—Refer to Table 3-29.
- entPhysicalTable—Refer to these tables:
  - Table 3-30—entPhysicalTable Entries for the Cisco DTI Card
  - Table 3-30—entPhysicalTable Entries for Cisco DTI Ports
  - Table 3-31—entAliasMappingTable Entries for DTI Interfaces

Table 3-28 dtiProtocolEntityType Entries

MIB Attribute	Value	Notes
dtiProtocolEntityType	root(1), server(2), client(3)	
dtiProtocolClientClockType	ituI(1), ituII(2), ituIII(3), st3(4), dtiClock(5)	
dtiProtocolServerStatusFlag	unknown(0), warmup(1), freerun(2), fastTrackingMode(3), normalMode(4), holdoverMode(5), clientStable(6), testMode(7)	Server status
dtiProtocolClientStatusFlag	unknown(0), warmup(1), freerun(2), fastTrackingMode(3), normalMode(4), holdoverMode(5), bridgingMode(6), testMode(7)	Client status
dtiProtocolServerToDState	Valid(1) or Invalid(2)	Validity of TOD
dtiProtocolServerToDType	Default(1), userTime(2), ntpv4(3), gps(4)	Current TOD source for DTI connection
dtiProtocolServerToDValue	String	Value of TOD in format DDDDD.YYYY/MM/DD.HH:MM:SS.SHH:F.D
dtiProtocolServerCableAdvanceFlag	Valid(1), invalid(2), manual(3)	Cable advance status
dtiProtocolServerCableAdvanceValue	String	Cable advance value
dtiProtocolClientPhaseError	Signed number	Phase error counter
dtiProtocolClientVersion	Unsigned number	Client DTI version
dtiProtocolClientPathTraceability	Unsigned number	DTI tracibility
dtiProtocolServerClientStableFlag	Valid(1) or Invalid(2)	Client performance stable status of DTI server frame

Table 3-29 dtiPathTraceabilityTable Entries

MIB Attribute	Value	Notes
dtiPathTraceabilityIndex	Unsigned number	index
dtiPathTraceabilityRootServerInetAddrType	unknown(0), ipv4(1), ipv6(2), ipv4z(3), ipv6z(4), dns(16)	Server address type
dtiPathTraceabilityRootServerInetAddr	<IP address>	Server address
dtiPathTraceabilityRootServerOutPhyIdx	Physical index	
dtiPathTraceabilityServerInetAddrType	unknown(0), ipv4(1), ipv6(2), ipv4z(3), ipv6z(4), dns(16)	
dtiPathTraceabilityServerInetAddr	<IP address>	
dtiPathTraceabilityServerOutPhyIdx	Physical index	
dtiPathTraceabilityRootServerProtVersion		DTI version
dtiPathTraceabilityServerProtVersion		DTI protocol version

MIB Constraints

This MIB is supported in Cisco IOS Release 12.3(23)BC and later releases.

ENTITY-MIB

The ENTITY-MIB represents physical and logical entities (components) in the router and allow SNMP management of those entities. This MIB was released as RFC 2737, *Entity MIB (Version 2)*.

The MIB table entPhysicalTable identifies the physical entities in the router. The entPhysicalTable contains a single row for the chassis and a row for each entity in the chassis. A physical entity may contain other entities (for example, a fan-tray bay may contain a fan-tray module, which may contain one or more fans). The physical hierarchy of system components is determined at run time, based on the actual router configuration.

The ENTITY-MIB shows information only about hardware devices, not virtual devices.

The MODULE-IDENTITY for the ENTITY-MIB is entityMIB, and its top-level OID is 1.3.6.1.2.1.47 (iso.org.dod.internet.mgmt.mib-2.entityMIB).

MIB objects and related constraints introduced in Cisco IOS Release 12.3(23)BC are included in Table 3-33.

MIB Constraints

Table 3-30 entPhysicalTable Entries for the DTI Line Card in Cisco IOS Release 12.3(23)BC

MIB Attribute	Value	Notes
entPhysicalIndex	Physical index	Cisco IOS Release 12.3(23)BC. Set by Entity MIB when instance is created
entPhysicalDescr	UBR10-DTCC for Fireballs, UBR10-DTCC for EightBells.	Cisco IOS Release 12.3(23)BC. Eightbell is the current value.
entPhysicalVendorType	cevUbrTccPlus for Fireballs, cevUbrDtcc for Eightbells	Cisco IOS Release 12.3(23)BC.
entPhysicalContainedIn	Corresponding chassis index	Cisco IOS Release 12.3(23)BC.
entPhysicalClass	`module`	Cisco IOS Release 12.3(23)BC.
entPhysicalParentRelPos	A number denotes where the TCC w/ DTI card locates.	Cisco IOS Release 12.3(23)BC.
entPhysicalName	uBR10k DTI port slot/subslot.	Cisco IOS Release 12.3(23)BC.
entPhysicalHardwareRev	Hardware revision	Cisco IOS Release 12.3(23)BC. Read from EEPROM
entPhysicalFirmwareRev	Firmware revision	Cisco IOS Release 12.3(23)BC. Read from EEPROM
entPhysicalSoftwareRev	Software revision	Cisco IOS Release 12.3(23)BC. Read from EEPROM
entPhysicalSerialNum	N/A	Cisco IOS Release 12.3(23)BC. Read from EEPROM
entPhysicalMfgName	Cisco	Cisco IOS Release 12.3(23)BC.
entPhysicalModelName	UBR10-TCC+-T1 for FireBalls, UBR10-DTCC for Eightbells.	Cisco IOS Release 12.3(23)BC.
entPhysicalAlias		Cisco IOS Release 12.3(23)BC. Null by default, can be set.
entPhysicalAssetID		Cisco IOS Release 12.3(23)BC. Null by default, can be set.
entPhysicalIsFRU	TRUE(1)	Cisco IOS Release 12.3(23)BC.

Table 3-31 entPhysicalTable Entries for the DTI Ports in Cisco IOS Release 12.3(23)BC

MIB Attribute	Value	Notes
entPhysicalIndex	Physical index	Set when the port is enabled.
entPhysicalDescr	uBR1000 DTI 10BaseT like port	
entPhysicalVendorType	cevPortBaseTEther	Applying, will give update later.
entPhysicalContainedIn	DTI card physical index	e.g. Ge containedin SFP module
entPhysicalClass	Port(10)	

Table 3-31 entPhysicalTable Entries for the DTI Ports in Cisco IOS Release 12.3(23)BC (continued)

MIB Attribute	Value	Notes
entPhysicalParentRelPos	0	A number given when DTI is enabled, increasing from 0.
entPhysicalName	uBR10k DTI port <slot>/<subslot>/<unit>	
entPhysicalHardwareRev	N/A	
entPhysicalFirmwareRev	N/A	
entPhysicalSerialNum	N/A	
entPhysicalMfgname	Cisco	
entPhysicalModelname	N/A	
entPhysicalAlias	NA	
entPhysicalAssetID	NA	
entPhysicalIsFRU	False(2)	

Table 3-32 entAliasMappingTable Entries for DTI interfaces

MIB Attribute	Value	Notes
entAliasLogicalIndexOrZero	0	Logical index.
entAliasMappingIdentifier	ifIndex.<ifIndex#>	ifindex# is corresponding DTI interface's index.

Table 3-33 ENTITY-MIB Constraints Prior to Cisco IOS Release 12.3(23)BC

MIB Object	Notes
entPhysicalTable	This table does not include the NPE on the Cisco uBR7200 series routers until Cisco IOS Release 12.2(8)BC1 and later releases.
• entPhysicalFirmwareRev	Not implemented.
• entPhysicalAlias	Not implemented.
• entPhysicalAssetID	Not implemented.
• entPhysicalSoftwareRev	Supported only in Cisco IOS Release 12.2(8)BC2 and later releases.
• entPhysicalHardwareRev • entPhysicalModelName • entPhysicalSerialNumber	Supported only for some cards. In addition, entPhysicalSerialNumber displays the correct serial number only in Cisco IOS Release 12.1(20)EC, 12.2(15)BC2, and later releases.
• entPhysicalHardwareRev	• Supports the Cisco Unique Device Identifier (UDI). • Contains the Version Identifier (VID).
• entPhysicalModelName	• Supports the Cisco Unique Device Identifier (UDI). • Contains the orderable Product Identifier (PID).

Table 3-33 ENTITY-MIB Constraints Prior to Cisco IOS Release 12.3(23)BC (continued)

MIB Object	Notes
• entPhysicalSerialNumber	• Supports the Cisco unique device Identifier (UDI). • Contains the hardware Serial Number (SN). Note that for non-UDI compliant hardware, these fields might contain a NULL string. Currently, the UDI support is not implemented for the standby PRE. For standby PRE, both entPhysicalHardwareRev and entPhysicalSerialNumber will contain NULL string.
• entPhysicalIsFRU	• Supported on the Cisco uBR7100 series and Cisco uBR7200 series routers in all releases. • Supported on the Cisco uBR10012 router only in Cisco IOS Release 12.2(11)BC2 and later releases.
• entPhysicalDescr	This object describes the Cisco uBR10012 router either as UBR10000 or UBR10012, depending on Cisco IOS release.
• entPhysicalContainedIn	This object accurately displays the location of the FastEthernet network management port on the active PRE-1 module only in Cisco IOS Release 12.2(4)BC1b and later releases.
entLPMappingTable	Not implemented.
entAliasMappingTable	• On Cisco uBR10012 routers, this table does not contain entries for the TCC+ cards. • On Cisco uBR10012 routers with two redundant PRE modules installed, the entPhysicalDesc entries in the entAliasMappingTable contain two sets of apparently identical references for each PRE module to "Forwarding Processor," "Routing Processor," and "Network Management Ethernet" (the Fast Ethernet port on the PRE modules). This occurs because two PRE modules are installed in the chassis, but only one is active. So the SNMP agent points both entries to the same PRE module. • The entAliasMappingTable supports virtual interfaces only in Cisco IOS Release 12.2(15)BC2 and later releases. The entries in this table show the logical upstream interface (as defined by ifIndex from the IF-MIB) that is using each physical upstream connector. This support also slightly changed the parent-child relationships of the ports on cable interface line cards, as described in the next section, "Changes to Support Virtual Interfaces".

The entPhysicalTable and entAliasMappingTable objects are automatically updated whenever a card is removed or inserted into a slot or when you enter a command at the CLI prompt that affects the operation of the card.

Cisco uBR100012 SPA-24XWBD-SFP Shared Port Adapter

Table 3-34 lists physical entities and values for the Cisco uBR100012 CMTS SPA-24XWBD-SFP.

Table 3-34 entPhysicalTable Objects for Cisco Ubr100012 SPA-24XWBD-SFP

entPhysicalDescr	entPhysical-Class	entPhysicalVendor-Type	entPhysicalName	entPhysical/IsFRU
SPA Bay Container	container	cevContainerSPABay	“ ”(null)	
uBR10KSPA Card	Module(9)	cevSpa24xWbdSfp	SPA-WB Wideband CMTS SPA 3/00	True(1) (represents a field re-placeable unit)
Pluggable Optics Container	container	cevContainerSFP	“ ”(null)	
Short wavelength gigabit Ethernet SFP	Port(10)	cevSFP1000BaseSx	SFP slot/sub-slot/unit/port Where port can be 0 or 1. For example, SFP 3/0/0/1	True(1)
Long wavelength gigabit Ethernet SFP	Port(10)	cevSFP1000BaseLx	SFP slot/sub-slot/unit/port Where port can be 0 or 1. For example, SFP 3/0/0/1	True(1)
Copper gigabit Ethernet SFP	Port(10)	cevSFP1000BaseT	SFP slot/sub-slot/unit/port Where port can be 0 or 1. For example, SFP 3/0/0/1	True(1)
Extended reach gigabit Ethernet SFP 1000BaseZx	Port(10)	cevSFP1000BaseZx	SFP slot/sub-slot/unit/port Where port can be 0 or 1. For example, SFP 3/0/0/1	True(1)

ENTITY-MIB UDI Support

The ENTITY-MIB supports the Cisco compliance effort for a Cisco unique device identifier (UDI) standard which is stored in IDPROM.

The Cisco UDI provides a unique identity for every Cisco product. The unique device identifier is comprised of an orderable product identifier (PID), the version identifier (VID), and the hardware Serial Number (SN). The UDI is stored in IDPROM. The PID, VID, and SN must be stored in the entPhysicalTable:

- PID shall be stored in the entPhysicalModelName object

- VID shall be stored in the entPhysicalHardwareRev object
- SN shall be stored in the entPhysicalSerialNum object

Note The Version ID returns NULL for those old or existing cards whose IDPROMs do not have the Version ID field. Therefore, corresponding entPhysicalHardwareRev returns NULL for cards that do not have the Version ID field in IDPROM. See Identifying Cisco Unique Device Identifiers, page A-41 for a complete description of the Cisco UDI feature.

Each product that is capable of MIB support is required to populate ENTITY-MIB v2 or later with PID, VID, and SN. This compliance is also a requirement of the Consistent Network Element Manageability initiative. If the product uses both ENTITY-MIB and CISCO-ENTITY-ASSET-MIB, then the data in the following fields should be identical.

ENTITY-MIB v2 (RFC-2737) fields to be populated are:

- Entity-MIB.entPhysicalName (Product Name)
- Entity-MIB.entPhysicalDescr (Product Description)
- Entity-MIB.entPhysicalModelName (PID)
- Entity-MIB.entPhysicalHardwareRev (VID)
- Entity-MIB.entPhysicalSerialNumber (SN)

Overview of the ENTITY-MIB

The following are the most important objects in the ENTITY-MIB for the management of physical entities on the router:

- entPhysicalTable—Describes each physical component (entity) in the router. The table contains a row entry for the top-most entity (the chassis) and then for each entity in the chassis. Each entry provides the name and description of the entry, its type and vendor, and a description of the reason how the entity was first entered into the containment tree.
- entPhysicalIndex—Uniquely identifies each entry. This value is guaranteed to be unique across all equipment in this chassis and across all MIBs, allowing you to correlate the data from several MIBs for any particular entity.

- entAliasMappingTable—Maps each physical port's entPhysicalIndex value to the corresponding ifIndex value in the ifTable in the IF-MIB. This provides a quick way of identifying a particular port with a particular interface.

  In Cisco IOS Release 12.2(15)BC2 and later releases, the entAliasMappingTable also shows the mapping of physical upstream connectors to logical upstream interface when virtual interfaces are configured on the Cisco uBR-MC5X20S and Cisco uBR-MC5X20U cable interface line cards. This support also changed the parent-child relationships of cable interface line cards and their ports. For more information, see the "Changes to Support Virtual Interfaces" section on page 3-76.

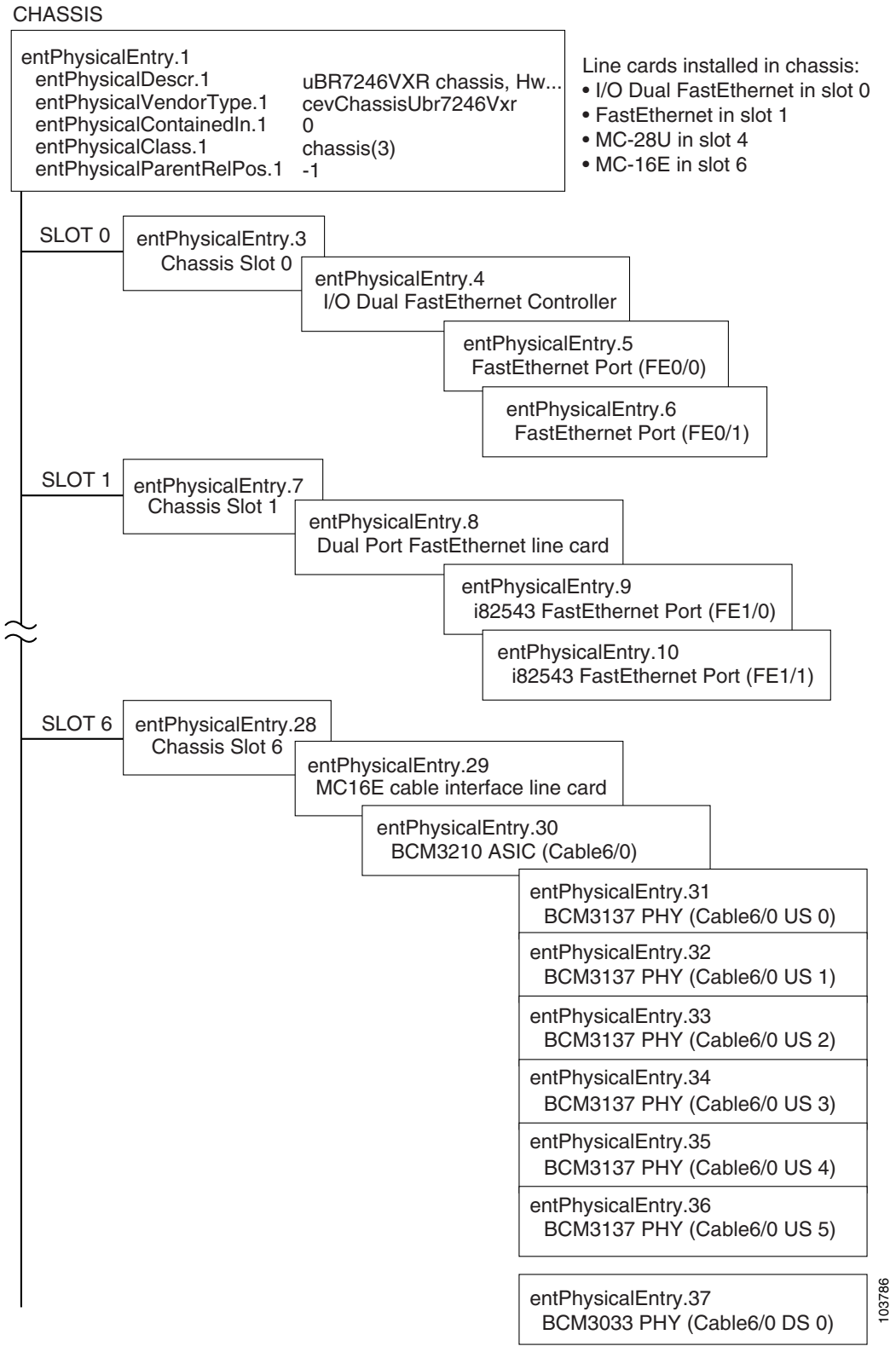
- entPhysicalContainsTable—For each physical entity, lists the entPhysicalIndex value for any child objects of the entity. This provides an easy way of creating the container tree for the router, which shows the relationship between physical entities in the chassis.

  Typically, the container tree is organized as follows:

  - The chassis is the top-most level and contains the processor card and chassis slots.
  - Chassis slots contain the individual line cards and I/O controller (if installed).
  - Line cards contain ports (interfaces).
  - Cable interface line cards contain downstream ports (known as cable line card). In Cisco IOS Release 12.2(15)BC1 and earlier releases, each downstream port then contains the upstream ports that are associated with it. In Cisco IOS Release 12.2(15)BC2 and later releases, the downstream ports and upstream are all children of the cable interface line card.

Figure 3-1 shows an overview of the arrangement of objects in a Cisco uBR7246VXR router, with one Fast Ethernet line card and two cable interface line cards. (This graphic shows the cable interface line cards as they are represented in Cisco IOS Release 12.2(15)BC1 and earlier releases.)

Figure 3-1 ENTITY-MIB for Cisco uBR7246VXR Chassis



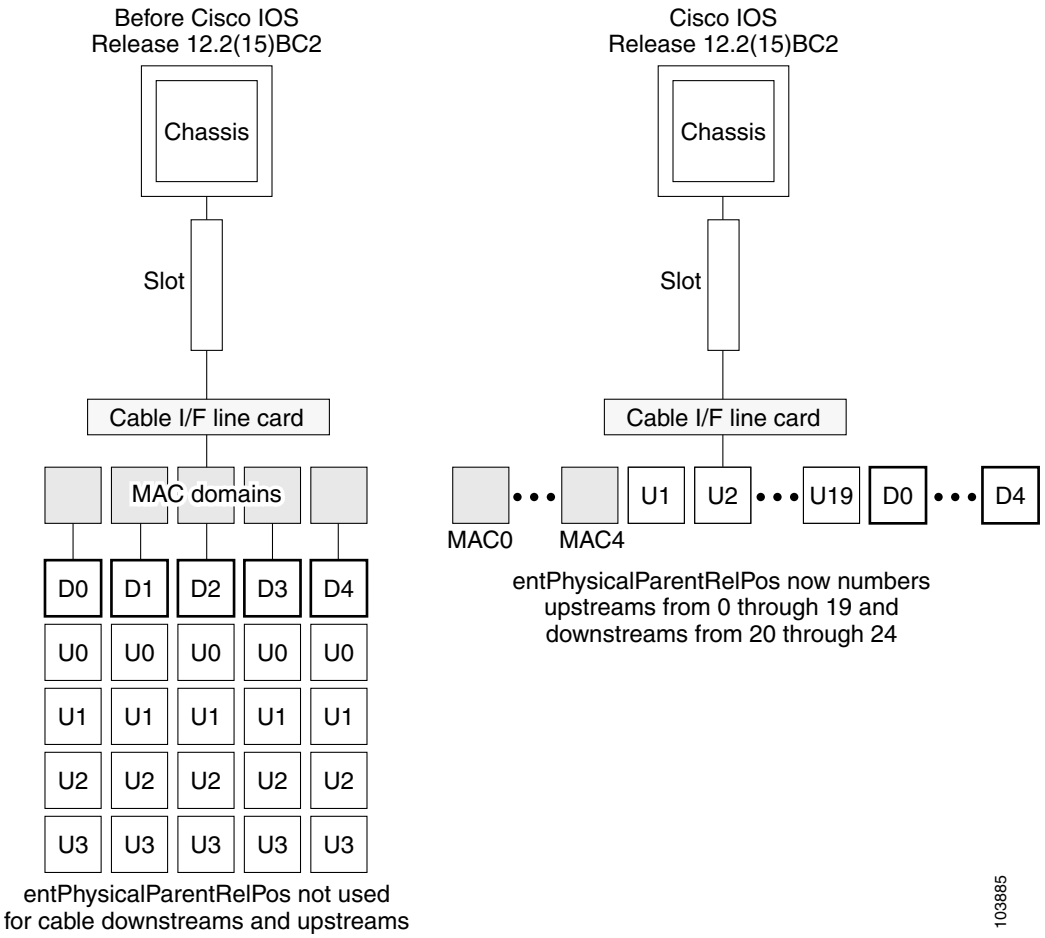
Changes to Support Virtual Interfaces

To enable SNMP support for Virtual Interfaces, Cisco IOS Release 12.2(15)BC2 changed how the entPhysicalTable in the ENTITY-MIB displays the information for cable interface line cards. Previously, the cable interface line card was the parent to one or more MAC domains, and each MAC domain then was the parent to one downstream and one or more upstreams.

Because an upstream can now be associated with any MAC domain and downstream in Cisco IOS Release 12.2(15)BC2, the ENTITY-MIB no longer associates upstreams and downstreams with specific MAC domains, but instead shows all of them as being children of the line card. The entityPhysicalParentRelPos also now numbers the upstreams in sequential order, followed by the downstreams, so that on the Cisco uBR-MC5X20S cards, the upstreams are numbered from 0 to 19, and the downstreams from 20 to 24.

Figure 3-2 shows the difference in how the entPhysicalTable in the ENTITY-MIB organized a Cisco uBR-MC5X20S cable interface line card in previous releases and in Cisco IOS Release 12.2(15)BC2. For consistency, all cable interface line cards use this approach, even if they do not support the Virtual Interfaces feature.

Figure 3-2 ENTITY-MIB Changes for Virtual Interface Support on Cable Interface Line Cards



The mapping between the physical upstream connectors and the logical upstream interfaces is shown in the entityAliasMappingTable. Each entry in this table contains the ifDescr index (as defined in the ifTable in the IF-MIB) that maps to the physical connector that is being used for that interface. The entityAliasMappingTable is automatically updated to show the mapping between the physical upstream connectors and the logical interfaces whenever the **cable upstream connector** command used.

Chassis Slot Layout

Table 3-35 provides information about the entities contained in chassis slots on the Cisco uBR10012 router.

Table 3-35 Cisco uBR10012 Router Chassis Slot Contents

Entity	Can Contain	Notes
Slots 1 to 8	One full-size line card per slot.	For chassis slot containers: • entPhysicalContainedIn is always 1 (which is the entPhysicalIndex of the chassis, which contains all chassis slots). • entPhysicalParentRelPos is different for each chassis slot, to show its position in the chassis. The Cisco uBR10012 router supports only full-size line cards in chassis slots: • entPhysicalContainedIn is different for each line card (because each line card is installed in a different chassis slot). • entPhysicalParentRelPos is always 1 (only one card per slot).
Slots A and B	One route processor (RP) per slot.	Router can have two RPs (one for each PRE installed in slot A and slot B). Each RP contains: FP NME Core temperature sensor Inlet temperature sensor Flash card slots (2), which are not modeled in the ENTITY MIB.
	One forwarding processor (FP) per slot.	Router can have two FPs (one for each PRE installed in slot A and slot B).

ETHERLIKE-MIB

The ETHERLIKE-MIB contains objects to manage Ethernet-like interfaces on the router. This MIB was released as RFC 2665, *Definitions of Managed Objects for the Ethernet-like Interface Types*.

The MODULE-IDENTITY for the ETHERLIKE-MIB is etherMIB, and its top-level OID is 1.3.6.1.2.1.35 (iso.org.dod.internet.mgmt.mib-2.etherMIB).

MIB Constraints

Table 3-36 lists the ETHERLIKE-MIB constraints.

Table 3-36 ETHERLIKE-MIB Constraints

MIB Object	Notes
dot3StatsTable	
• dot3StatsCarrierSenseErrors	Implemented starting in Cisco IOS Release 12.2(15)BC2 and later releases. It returns NULL in earlier releases.
• dot3StatsSQETestErrors	Not implemented and is always 0.
• dot3StatsInternalMacTransmitErrors	Not implemented and is always 0.
• dot3StatsEtherChipSet	Deprecated and is always NULL
• dot3StatsFrameTooLongs	For Fast Ethernet interfaces and for Gigabit Ethernet interfaces, this object counts only frames of 1545 bytes or larger (not counting the cyclic redundancy check [CRC]), regardless of the maximum transmission unit (MTU) value.
dot3CollTable	Not implemented.

EVENT-MIB

The EVENT-MIB contains objects to define event triggers and actions for network management purposes.

The MODULE-IDENTITY for the EVENT-MIB is dismanEventMIB, and its top-level OID is 1.3.6.1.2.1.88 (iso.org.dod.internet.mgmt.mib-2.dismanEventMIB).

MIB Constraints

This MIB is:

- Not supported in any Cisco IOS Release 12.1EC software image.
- Supported in all Cisco IOS Release 12.2BC software images for the Cisco uBR10012 router.
- Supported only in Cisco IOS Release 12.2BC "-is-" software images in Cisco uBR7100 series and Cisco uBR7200 series routers.

EXPRESSION-MIB

The EXPRESSION-MIB contains objects to define expressions of MIB objects for network management purposes.

The MODULE-IDENTITY for the EXPRESSION-MIB is expressionMIB, and its top-level OID is 1.3.6.1.4.1.9.10.22 (iso.org.dod.internet.private.enterprises.cisco.ciscoExperiment.expressionMIB).

MIB Constraints

There are no constraints on this MIB.

HC-RMON-MIB

The HC-RMON-MIB contains objects that provide high capacity (HC) information that supplements the remote monitoring objects in the RMON-MIB and the RMON2-MIB.

The MODULE-IDENTITY for the HC-RMON-MIB is hcRMON, and its top-level OID is 1.3.6.1.2.1.16.20.8 (iso.org.dod.internet.mgmt-mib-2.rmon.rmonConformance.hcRMON).

MIB Constraints

These are no constraints on this MIB.

IF-MIB

The IF-MIB describes the attributes of physical and logical interfaces. The router supports the ifGeneralGroup of MIB objects for all layers (ifIndex, ifDescr, ifType, ifSpeed, ifPhysAddress, ifAdminStatus, ifOperStatus, ifLastChange, ifName, ifLinkUpDownTrapEnable, ifHighSpeed, and ifConnectorPresent). This MIB was released as RFC 2233, *The Interfaces Group MIB Using SMIv2*.

In Cisco IOS Release 12.2(15)BC1c and later releases, the Cisco CMTS routers implemented a cache to allow continuous polling of the ifTable interface counters, without creating spikes in the CPU usage. The cache is updated approximately every 10 seconds, which means that if you read the counter more quickly than that, the SNMP request might not return a new value.

The counters do continue to increment, however, to account for the actual traffic occurring on the interfaces, and another SNMP request in 10 seconds will show the new values. However, the use of the cache means that the counters displayed by the **show interface** command might not exactly match the values returned by the ifTable interface counters.

Also, you can retrieve interface packet counters for both a cable interface and for the corresponding downstream. When using an ifIndex that points to a downstream (the ifDescr shows "cX/Y/Z-downstream"), the packet counters include not only the data packets but also the DOCSIS MAC-layer packets that are transmitted on that downstream. To retrieve counters for only the data packets (which corresponds to the output from the **show interface** command), use the ifIndex for the interface itself (the ifDescr shows "cX/Y/Z").

The MODULE-IDENTITY for the IF-MIB is ifMIB, and its top-level OID is 1.3.6.1.2.1.31 (iso.org.dod.internet.mgmt.mib-2.ifMIB).

IF-MIB Notes

Note The IF-MIB does not contain any information about cable subinterfaces.

Note It is expected that the interface counters displayed by the **show interface** command might not exactly match the values returned by the ifTable interface counters.

Table 3-36 lists the IF-MIB constraints and notes.

Table 3-37 IF-MIB Notes

MIB Object	Notes
ifXEntryTable	
• ifAlias	Supported for non-cable interfaces on the Cisco uBR10012 router in Cisco IOS Release 12.2(11)BC2 and later releases. Supported for cable interfaces only in Cisco IOS Release 12.2(15)BC2 and later releases.
IfTable	
• ifDescr	On the Cisco uBR10012 router, the first ifDescr object is typically "Ethernet0/0/0," which is the internal backplane Ethernet interface that the PRE module uses to communicate with the line cards and the secondary PRE module (if installed). This interface cannot be configured or otherwise used, and therefore should be ignored. Separate ifDescr entries appear for each cable interface upstream and downstream. These entries have an "upstream" or "downstream" suffix. In addition, an ifDescr entry exists for the cable interface itself (without an "upstream" or "downstream" suffix). This entry represents the MAC-layer interface on the cable interface. Note that ifDescr supports Virtual Interfaces only in Cisco IOS Release 12.2(15)BC2 and later releases. Also see the ENTITY-MIB for entAliasMappingTable support.
• ifType	Always reports a value of 6 (Ethernet interface) for Ethernet, Fast Ethernet, and Gigabit Ethernet interfaces. This conforms with the recommendations of RFC 2665, and accommodates 10/100/1000 interfaces that negotiate the link speed with the remote end.
• ifInOctets • ifOutOctets	You must use Cisco IOS Release 12.2(11)BC3 or a later release for these objects to reliably count the octets on cable interfaces.
• ifSpeed	For cable interfaces, this object has valid values only for the upstream and downstream ifDescr entries. The ifSpeed for the MAC-layer cable interface entry is always 0.
• ifInUcastPkts • ifOutMulticast	These objects count both data packets and MAC-layer request packets from cable modems on an upstream, so as to conform to RFC 2670.
• ifHCInUcastPkts • ifHCInBroadcastPkts • ifHCOutUcastPkts	Supported only in Cisco IOS Release 12.2(15)BC2 and later releases.
• ifInUnknownProtos	This object can double-count packets in some circumstances before Cisco IOS Release 12.2(11)BC2.

IF-MIB Notes for Cisco IOS Release 12.3(23)BC

IF-MIB Supported Traps

Cisco IOS Release 12.3(23)BC enables you to shut down the narrowband downstream ports of a Shared Port Adaptor (SPA) with the **shutdown** command. The following traps are supported:

- LinkDown
- LinkUp

When an interface is shut down, or enabled with the **no shutdown** command, traps are sent for each individual channel. The GigE interfaces are not included in this event, and there is no statistical data available per interface for these GigE ports.

Cisco IOS Release 12.3(23)BC introduces support for new narrowband virtual interfaces, and the modular-cable interface. The RF channels are logical channels that represent external QAMs. The RF channels do not represent an interface, but the narrowband channel represents a logical identity of cable interfaces.

The two GigE ports of the Shared Port Adapter are not supported in the IF-MIB for these reasons. However, the following tables are supported:

- ifTable
- ifXTable
- ifStackTable

Table 3-38 ifTable Entries for NB channels

MIB Attribute	Value	Notes
ifIndex	index, unsigned integer	A unique value for each interface, greater than zero, remains constant between initializations.
ifDescr	Modular-Cable[slot#]/[subslot#]/[unit#]:[Chan#]	
ifType	other	Use "other" for downstream
ifMtu	1500	c.f. IF-MIB
ifSpeed	NA	RFC2670 requires 0 for Cable MAC layer ifSpeed
ifPhysAddress	MAC Address	
ifAdminStatus	Up/Down	It presents shut/no-shut of the narrowband downstream narrowband channel. It will always be Down unless Admin Status is Up, corresponding RF channel is configured and the Modular-Cable interface is configured.
ifOperStatus	Up/Down	It will always be Down unless Admin Status is Up and corresponding RF channel and the Modular-Cable interfaces are configured.
ifLastChange	Timeticks	c.f. IF-MIB
ifInOctets	NA - Only out supported	In counter not supported
ifInUCastPkts	NA - Only out supported	In counter not supported

Table 3-38 ifTable Entries for NB channels (continued)

MIB Attribute	Value	Notes
ifInNUcastPkts	NA - Only out supported	In counter not supported
ifInDiscards	NA - Only out supported	In counter not supported
ifInErrors	NA - Only out supported	In counter not supported
ifInUnknownProtos	NA - Only out supported	In counter not supported
ifOutOctets	Counter Value	c.f. IF-MIB
ifOutUcastPkts	Counter Value	c.f. IF-MIB
ifOutNUcastPkts	Deprecated	c.f. IF-MIB
ifOutDiscards	Counter Value - Not Supported	c.f. IF-MIB
ifOutErrors	Counter Value - NA	c.f. IF-MIB
ifOutQLen	Deprecated	c.f. IF-MIB
ifSpecific	Deprecated	c.f. IF-MIB

Table 3-39 ifXTable Entries for NB channels

MIB Attribute	Value	Notes
ifName	Mo[slot#]/[subslot#]/[unit#]:[Chan#]	
ifInMulticastPkts	NA - Only out supported	In counter not supported
ifInBroadcastPkts	NA - Only out supported	In counter not supported
ifOutMulticastPkts	NA	c.f. IF-MIB
ifOutBroadcastPkts	NA	c.f. IF-MIB
ifHCInOctets	NA - Only out supported	In counter not supported
ifHCInUcastPkts	NA - Only out supported	In counter not supported
ifHCInMulticastPkts	NA - Only out supported	In counter not supported
ifHCInBroadcastPkts	NA - Only out supported	In counter not supported
ifHCOutOctets	Counter Value	c.f. IF-MIB
ifHCOutUcastPkts	Counter Value	c.f. IF-MIB
ifHCOutMulticastPkts	NA	c.f. IF-MIB
ifHCOutBroadcastPkts	NA	c.f. IF-MIB
ifLinkUpDownTrapEnable	enable(1)/disable(2)	enabled by default
ifHighSpeed	NA - same as ifSpeed	RFC2670 requires 0 for Cable MAC layer ifSpeed.
ifPromiscuousMode	false(2)	always set to false
ifConnectorPresent	false(2)	always set to false
ifAlias	Description string	
ifCounterDiscontinuityTime	Timeticks	c.f. IF-MIB

Table 3-40 ifStackTable Entries for NB channel

MIB Attribute	Value	Notes
ifStackHigherLayer	ifIndex or zero	ifIndex or zero
ifStackLowerLayer	zero	ifIndex or zero, return always zero
ifStackStatus	active	not allowed for set, return always active

IGMP-MIB

The IGMP-MIB contains objects to manage the Internet Group Management Protocol (IGMP) on the router. This MIB was published as an experimental Internet Draft that has since been replaced by the IGMP-STD-MIB.

The MODULE-IDENTITY for the IGMP-MIB is igmpMIB, and its top-level OID is 1.3.6.1.3.59 (iso.org.dod.internet.experimental-2.igmpMIB).

MIB Constraints

This MIB is supported only in Cisco IOS Release 12.1EC and only for the Cisco uBR7100 series and Cisco uBR7200 series routers. In other releases, this MIB is deprecated and replaced by the IGMP-STD-MIB (RFC 2933).

IGMP-STD-MIB

The IGMP-STD-MIB contains objects to manage the Internet Group Management Protocol (IGMP) on the router. This MIB was released as RFC 2933, *Internet Group Management Protocol MIB*, and replaces the IGMP-MIB that was supported in earlier releases.

The MODULE-IDENTITY for the IGMP-STD-MIB is igmpStdMIB, and its top-level OID is 1.3.6.1.2.1.85 (iso.org.dod.internet.mgmt.mib-2.igmpStdMIB).

MIB Constraint

This MIB is supported only in Cisco IOS Release 12.2BC and later releases.

INT-SERV-MIB

The INT-SERV-MIB describes the Integrated Services Protocol (ISP).

The MODULE-IDENTITY for the INT-SERV-MIB is intSrv, and its top-level OID is 1.3.6.1.2.1.52 (iso.org.dod.internet.mgmt.mib-2.intSrv).

MIB Constraints

There are no constraints on this MIB.

IP-MIB

The IP-MIB contains objects to display classless interdomain routing (CIDR) multipath IP routes. This MIB was initially defined as part of RFC1213-MIB and then later released as RFC 2011, *SNMPv2 Management Information Base for the Internet Protocol Using SMIv2*.

In RFC1213-MIB, the MODULE-IDENTITY for the IP-MIB is ipMIB, and its top-level OID is 1.3.6.1.2.1.4 (iso.org.dod.internet.mgmt.mib-2.ipMIB). In RFC 2011, its top-level OID is 1.3.6.1.2.1.48 (iso.org.dod.internet.mgmt.mib-2.ipMIB).

MIB Constraint

The Cisco CMTS routers support the RFC1213-MIB version of this MIB (1.3.6.1.2.1.4).

IPMROUTE-MIB

The IPMROUTE-MIB contains objects to monitor and configure the operation of IP multicast routing on the router. This MIB was published as an experimental Internet Draft that has since expired and has been replaced by the IPMROUTE-STD-MIB.

The MODULE-IDENTITY for the IPMROUTE-MIB is ipMRoute, and its top-level OID is 1.3.6.1.3.60 (iso.org.dod.internet.experimental.ipMRoute).

MIB Constraint

This MIB is supported only in Cisco IOS Release 12.1EC and only for Cisco uBR7100 series and Cisco uBR7200 series routers.

IPMROUTE-STD-MIB

The IPMROUTE-STD-MIB contains objects to monitor and configure the operation of IP multicast routing on the router. This MIB was released as RFC 2932, *IPv4 Multicast Routing MIB*, and replaces the IPMROUTE-MIB that was supported in earlier releases.

The MODULE-IDENTITY for the IPMROUTE-STD-MIB is ipMRouteStdMIB, and its top-level OID is 1.3.6.1.2.1.83 (iso.org.dod.internet.mgmt.mib-2.ipMRouteStdMIB).

MIB Constraint

This MIB is not supported on the Cisco uBR10012 router.

ISDN-MIB

The ISDN-MIB contains objects to monitor and configure the ISDN interfaces, both Basic Rate Interface (BRI) and Primary Rate Interface (PRI), on the router. This MIB was released as RFC 2127, *ISDN Management Information Base using SMIv2*.

The MODULE-IDENTITY for the ISDN-MIB is isdnMIB, and its top-level OID is 1.3.6.1.2.1.10.20 (iso.org.dod.internet.mgmt.mib-2.transmission.isdnMIB).

MIB Constraint

This MIB is not supported on the Cisco uBR10012 router.

LAN-EMULATION-CLIENT-MIB

The LAN-EMULATION-CLIENT-MIB supplements the ATM-MIB and contains objects to manage the ATM-based LAN emulation clients (LECs) on the router.

The MODULE-IDENTITY for the LAN-EMULATION-CLIENT-MIB is atmfLanEmulation, and its top-level OID is 1.3.6.1.4.1.353.5.3 (iso.org.dod.internet.private.enterprises.atmForum.atmForumNetworkManagement.atmfLanEmulation)

MIB Constraints

This MIB is:

- Supported only on Cisco IOS "-is-" software images for Cisco uBR7100 series and Cisco uBR7200 series routers.
- Not supported on the Cisco uBR10012 router.

MSDP-MIB

The MSDP-MIB contains objects to monitor the Multicast Source Discovery Protocol (MSDP). The MIB can be used with SNMPv3 to remotely monitor MSDP speakers. This MIB is currently in development as an IETF draft, Multicast Source Discovery Protocol MIB (the current version is draft-ietf-msdp-mib-spec-20.txt).

For addition information about this MIB, see the document *MSDP MIB*, at the following URL:

http://www.cisco.com/en/US/docs/ios/12_1t/12_1t5/feature/guide/dt5msdp.html

The MODULE-IDENTITY for the MSDP-MIB is msdpMIB, and its top-level OID is 1.3.6.1.3.92 (iso.org.dod.internet.experimental.msdpMIB).

MIB Constraints

The MSDP-MIB has the following constraints:

- This MIB is not supported in any Cisco IOS Release 12.1EC software images.
- All other MIB objects—Read-only.

Table 3-41 lists the MSDP-MIB constraints.

Table 3-41 MSDP-MIB Constraints

MIB Object	Notes
msdpRequestsTable	Not supported.
• msdpEstablished	Not supported.

NOTIFICATION-LOG-MIB

The NOTIFICATION-LOG-MIB contains objects that put the SNMP notifications that are sent by the router into a log table for later retrieval or browsing. This MIB was released as RFC 3014, *Notification Log MIB*.

The MODULE-IDENTITY for the NOTIFICATION-LOG-MIB is notificationLogMIB, and its top-level OID is 1.3.6.1.2.1.92 (iso.org.dod.internet.mgmt.mib-2.notificationLogMIB).

MIB Constraints

This MIB is not supported:

- In any Cisco IOS "-is-" software images for Cisco uBR7100 series and Cisco uBR7200 series routers.
- On Cisco uBR10012 routers.

nruCacheSnmpData

Cisco RF Switch Firmware Version 3.80 adds a new MIB object identifier (OID) to control caching on the Cisco CMTS, and the desired state may be set in the AdminState caching flag. 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.

The object information for nruCacheSnmpData is as follows:

- Syntax is an integer of 0 or 1.
- Access is read or write.
- The status is mandatory.

Setting the nruCacheSnmpData object with SNMP alters the run-time setting of the cache flag, but does not effect the state of the non-volatile memory (NVRAM) setting. This allows you to override the setting of the cache flag dynamically to verify the state of the settings, if desired.

The state of the NVRAM setting has been added to the **show config** firmware command. The current run-time state has been added to the **show module** firmware command.

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.

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

MIB Constraints

This object and related functions are supported strictly in Cisco RF Switch Firmware Version 3.80 or later, to be used in conjunction with Cisco IOS Release 12.3BC on the Cisco CMTS.

OLD-CISCO-CHASSIS-MIB

The OLD-CISCO-CHASSIS-MIB describes chassis objects in devices running an older implementation of the Cisco IOS operating system. Although currently supported on the router, the OLD-CISCO-CHASSIS-MIB is being phased out and could become unsupported without prior notice. We recommend that you use the ENTITY-MIB instead of OLD-CISCO-CHASSIS-MIB.

Note The one exception to this recommendation is the chassisId object in this MIB, which can be set using the **snmp-server chassis-id** command. This object provides a convenient location for storing the serial number for the router's chassis, which is typically used to determine the service contract that you have purchased for this router.

OLD-CISCO-CPU-MIB

The OLD-CISCO-CPU-MIB describes CPU usage and active system processes on devices running an older implementation of the Cisco IOS operating system. Although currently supported on the router, the OLD-CISCO-CPU-MIB is being phased out and could become unsupported without prior notice. Therefore, use care if you implement the MIB.

OLD-CISCO-INTERFACES-MIB

The OLD-CISCO-INTERFACES-MIB contains objects to manage interfaces on devices running an older implementation of the Cisco IOS operating system. Although currently supported on the router, the OLD-CISCO-INTERFACES-MIB is being phased out and could become unsupported without prior notice. Therefore, use care if you implement the MIB.

OLD-CISCO-IP-MIB

The OLD-CISCO-IP-MIB contains objects to manage IP on devices running an older implementation of the Cisco IOS operating system. Although currently supported on the router, the OLD-CISCO-IP-MIB is being phased out and could become unsupported without prior notice. Therefore, use care if you implement the MIB.

OLD-CISCO-MEMORY-MIB

The OLD-CISCO-MEMORY-MIB contains objects that describe memory pools on devices running an older implementation of the Cisco IOS operating system. This MIB was replaced by the CISCO-MEMORY-POOL-MIB. Therefore, use care if you implement the OLD-CISCO-MEMORY-MIB, which is being phased out and could become unsupported without prior notice.

OLD-CISCO-SYSTEM-MIB

The OLD-CISCO-SYSTEM-MIB provides information about system resources on devices running an older implementation of the Cisco IOS operating system. Although currently supported on the router, the OLD-CISCO-SYSTEM-MIB is being phased out and could become unsupported without prior notice. Therefore, use care if you implement the MIB.

OLD-CISCO-TCP-MIB

The OLD-CISCO-TCP-MIB contains information about the TCP implementation on devices running an older implementation of the Cisco IOS operating system. This MIB was replaced by the CISCO-TCP-MIB. Therefore, use care if you implement the OLD-CISCO-TCP-MIB, which is being phased out and could become unsupported without prior notice.

OLD-CISCO-TS-MIB

The OLD-CISCO-TS-MIB contains objects to manage terminals and terminal lines on devices running an older implementation of the Cisco IOS operating system. Although currently supported on the router, the OLD-CISCO-TS-MIB is being phased out and could become unsupported without prior notice. Therefore, use care if you implement the MIB.

PIM-MIB

The PIM-MIB contains objects to manage Protocol Independent Multicast (PIM) on the router. The MIB was released as RFC 2934, *Protocol Independent Multicast MIB for IPv4*.

Note The MODULE-IDENTITY for the PIM-MIB is pimMIB, and its top-level OID is 1.3.6.1.3.61 (iso.org.dod.internet.experimental.pimMIB).

MIB Constraints

There are no constraints on this MIB.

RFC1213-MIB

The RFC1213-MIB defines the second version of the Management Information Base (MIB-II) for use with network-management protocols in TCP-based internets. This MIB was released as RFC 1213, *Management Information Base for Network Management of TCP/IP-Based Internets: MIB-II*.

The MODULE-IDENTITY for the RFC1213-MIB is mib-2, and its top-level OID is 1.3.6.1.2.1 (iso.org.dod.internet.mgmt.mib-2).

MIB Constraints

Table 3-42 lists the RFC1213-MIB constraints.

Table 3-42 RFC1213-MIB Constraints

MIB Object	Notes
atTable	
• ipInAddrErrors • ipInHdrErrors	These objects can provide inaccurate counts in releases before Cisco IOS Release 12.2(11)BC2.

RFC1231-MIB

The RFC1231-MIB includes objects to manage Token Ring (IEEE 802.5) interfaces. This MIB was released as RFC 1231, *IEEE 802.5 Token Ring MIB,* and has since been superseded by TOKENRING-MIB, which is not supported on Cisco CMTS routers.

MIB Constraint

This MIB was an experimental MIB and is no longer supported on Cisco CMTS platforms, although this MIB might be included in software images.

RFC1253-MIB

The RFC1253-MIB contains objects to manage Version 2 of the Open Shortest Path First (OSPF) protocol. This MIB was released as RFC 1253, *OSPF Version 2 Management Information Base*.

The MODULE-IDENTITY for the RFC1253-MIB is ospf, and its top-level OID is 1.3.6.1.2.1.14 (iso.org.dod.internet.mgmt.mib-2.ospf).

MIB Constraints

There are no constraints on this MIB.

RFC1315-MIB

The RFC1315-MIB contains objects to manage a Frame Relay data terminal equipment (DTE) interface, which consists of a single physical connection to the network with many virtual connections to other destinations and neighbors. The MIB contains the objects used to manage:

- The Data Link Connection Management Interface (DLCMI)
- Virtual circuits on each Frame Relay interface
- Errors detected on Frame Relay interfaces

The MODULE-IDENTITY for the RFC1315-MIB is frame-relay, and its top-level OID is 1.3.6.1.2.1.10.32 (iso.org.dod.internet.mgmt.mib-2.transmission.frame-relay).

MIB Constraints

There are no constraints on this MIB.

RFC1381-MIB

The RFC1381-MIB contains objects to manage the Link Access Procedure, Balanced (LAPB) link layer protocol for X.25 interfaces. This MIB was released as RFC 1381, *SNMP MIB Extension for X.25 LAPB*.

The MODULE-IDENTITY for the RFC1381-MIB is lapb, and its top-level OID is 1.3.6.1.2.1.10.16 (iso.org.dod.internet.mgmt.mib-2.transmission.lapb).

MIB Constraint

This MIB is not supported on the Cisco uBR10012 router.

RFC1382-MIB

The RFC1382-MIB contains objects to manage each Packet Level Entity (PLE) on X.25 interfaces. This MIB was released as RFC 1382, *SNMP MIB Extension for the X.25 Packet Layer*.

The MODULE-IDENTITY for the RFC1382-MIB is x25, and its top-level OID is 1.3.6.1.2.1.10.5 (iso.org.dod.internet.mgmt.mib-2.transmission.x25).

MIB Constraint

This MIB is not supported on the Cisco uBR10012 router.

RFC1406-MIB

The RFC1406-MIB contains objects to manage E1 and DS1 (T1) interfaces. This MIB was released as RFC 1406, *Definitions of Managed Objects for the DS1 and E1 Interface Types*.

The MODULE-IDENTITY for the RFC1595-MIB is ds1, and its top-level OID is 1.3.6.1.2.1.10.18 (iso.org.dod.internet.mgmt.mib-2.transmission.ds1).

MIB Constraints

There are no constraints on this MIB.

RFC1407-MIB

The RFC1407-MIB contains objects to manage E3 and DS3 (T3) interfaces. This MIB was released as RFC 1407, *Definitions of Managed Objects for the DS3/E3 Interface Type*.

The MODULE-IDENTITY for the RFC1595-MIB is ds3, and its top-level OID is 1.3.6.1.2.1.10.30 (iso.org.dod.internet.mgmt.mib-2.transmission.ds3).

MIB Constraints

There are no constraints on this MIB.

RFC1595-MIB

The RFC1595-MIB contains objects to manage Synchronous Optical Network/Synchronous Digital Hierarchy (SONET/SDH) interfaces. This MIB was released as RFC 1595, *Definitions of Managed Objects for the SONET/SDH Interface Type* and has since been replaced by the RFC2558-MIB.

The MODULE-IDENTITY for the RFC1595-MIB is sonetMIB, and its top-level OID is 1.3.6.1.2.1.10.39 (iso.org.dod.internet.mgmt.mib-2.transmission.sonetMIB).

MIB Constraint

This MIB is not supported in Cisco IOS Release 12.1EC software images.

RFC2558-MIB

The RFC2558-MIB contains objects to manage Synchronous Optical Network/Synchronous Digital Hierarchy (SONET/SDH) interfaces. This MIB was released as RFC 2558, *Definitions of Managed Objects for the SONET/SDH Interface Type*, and it replaces the previous MIB, RFC1595-MIB.

The MODULE-IDENTITY for the RFC2558-MIB is sonetMIB, and its top-level OID is 1.3.6.1.2.1.10.39 (iso.org.dod.internet.mgmt.mib-2.transmission.sonetMIB).

MIB Constraints

This MIB is supported only in Cisco IOS Release 12.1EC and only for Cisco uBR7100 series and Cisco uBR7200 series routers. Cisco IOS Release 12.2BC supports the previous version of this MIB, RFC1595-MIB.

RMON-MIB

The RMON-MIB contains objects to remotely monitor devices in the network. This MIB was released as RFC 1757, *Remote Network Monitoring Management Information Base*.

The MODULE-IDENTITY for the RMON-MIB is rmon, and its top-level OID is 1.3.6.1.2.1.16 (iso.org.dod.internet.mgmt.mib-2.rmon).

MIB Constraints

There are no constraints on this MIB.

RMON2-MIB

The RMON2-MIB contains supplements to RMON-MIB and contains additional objects to remotely monitor devices in the network.

The MODULE-IDENTITY for the RMON2-MIB is rmon2, and its top-level OID is 1.3.6.1.2.1.16 (iso.org.dod.internet.mgmt.mib-2.rmon2).

MIB Constraints

There are no constraints on this MIB.

RS-232-MIB

The RS-232-MIB contains objects to manage RS-232-like (EIA/TIA-232) serial interfaces. This MIB was derived from RFC 1659, *Definitions of Managed Objects for RS-232-like Hardware Devices using SMIv2*.

The MODULE-IDENTITY for the RS-232-MIB is rs232, and its top-level OID is 1.3.6.1.2.1.10.33 (iso.org.dod.internet.mgmt.mib-2.transmission.rs232).

MIB Constraints

There are no constraints on this MIB.

RSVP-MIB

The RSVP-MIB contains objects to manage the Resource Reservation Protocol (RSVP). This MIB was derived from RFC 2206, *RSVP Management Information Base Using SMIv2*.

The MODULE-IDENTITY for the RSVP-MIB is rsvp, and its top-level OID is 1.3.6.1.2.1.51 (iso.org.dod.internet.mgmt.mib-2.rsvp).

MIB Constraints

There are no constraints on this MIB.

SMON-MIB

The SMON-MIB contains objects that supplement the RMON-MIB and the RMON2-MIB to manage the remote monitoring of switched networks. This MIB was derived from RFC 2613, *Remote Network Monitoring MIB Extensions for Switched Networks*.

The MODULE-IDENTITY for the SMON-MIB is switchRMON, and its top-level OID is 1.3.6.1.2.1.16.22 (iso.org.dod.internet.mgmt.mib-2.rmon.switchRMON).

MIB Constraints

There are no constraints on this MIB.

SNMP-COMMUNITY-MIB

The SNMP-COMMUNITY-MIB contains objects to help support coexistence between the different SNMP versions (SNMPv1, SNMPv2c, and SNMPv3). This MIB was released as RFC 2576, *Coexistence Between Version 1, Version 2, and Version 3 of the Internet-Standard Network Management Framework*.

The MODULE-IDENTITY for the SNMP-COMMUNITY-MIB is snmpCommunityMIB, and its top-level OID is 1.3.6.1.6.3.18 (iso.org.dod.internet.snmpv2.snmpModules.snmpCommunityMIB).

MIB Constraints

There are no constraints on this MIB.

SNMP-FRAMEWORK-MIB

The SNMP-FRAMEWORK-MIB contains objects that describe the SNMP management architecture. This MIB was released as RFC 2571, *An Architecture for Describing SNMP Management Frameworks*.

The MODULE-IDENTITY for the SNMP-FRAMEWORK-MIB is snmpFrameworkMIB, and its top-level OID is 1.3.6.1.6.3.10 (iso.org.dod.internet.snmpv2.snmpModules.snmpFrameworkMIB).

MIB Constraints

There are no constraints on this MIB.

SNMP-MPD-MIB

The SNMP-MPD-MIB contains objects from the agent's Message Processing and Dispatching (MPD) server that report on the the total number of packets received by the SNMP engine that were dropped because they referred to an unknown security model, were for an unknown application, or were otherwise invalid. This MIB was released as RFC 2572, *Message Processing and Dispatching for the Simple Network Management Protocol (SNMP)*.

The MODULE-IDENTITY for the SNMP-MPD-MIB is snmpMPDMIB, and its top-level OID is 1.3.6.1.6.3.11 (iso.org.dod.internet.snmpv2.snmpModules.snmpMPDMIB).

MIB Constraints

There are no constraints on this MIB.

SNMP-NOTIFICATION-MIB

The SNMP-NOTIFICATION-MIB contains objects to manage SNMP v3 notifications. This MIB was released as RFC 2573, *SNMP Applications*.

The MIB also defines a set of filters that limit the number of notifications generated by a particular entity (snmpNotifyFilterProfileTable and snmpNotifyFilterTable). Objects in the snmpNotifyTable are used to select entities in the SNMP-TARGET-MIB snmpTargetAddrTable and specify the types of SNMP notifications those entities are to receive.

The MODULE-IDENTITY for the SNMP-NOTIFICATION-MIB is snmpNotificationMIB, and its top-level OID is 1.3.6.1.6.3.13 (iso.org.dod.internet.snmpv2.snmpModules.snmpNotificationMIB).

MIB Constraints

There are no constraints on this MIB.

SNMP-PROXY-MIB

The SNMP-PROXY-MIB contains managed objects to remotely configure the parameters used by an SNMP entity for proxy forwarding operations. The MIB contains a single table, snmpProxyTable, which defines the translations to use to forward messages between management targets. This MIB was defined as part of RFC 2573, *SNMP Applications*.

The MODULE-IDENTITY for the SNMP-PROXY-MIB is snmpProxyMIB, and its top-level OID is 1.3.6.1.6.3.14 (iso.org.dod.internet.snmpv2.snmpModules.snmpProxyMIB).

MIB Constraints

There are no constraints on this MIB.

SNMP-TARGET-MIB

The SNMP-TARGET-MIB contains objects to remotely configure the parameters used by an entity to generate SNMP notifications. The MIB defines the addresses of entities to send SNMP notifications to, and contains a list of tag values that are used to filter the notifications sent to these entities (see the SNMP-NOTIFICATION-MIB). This MIB was defined as part of RFC 2573, *SNMP Applications*.

The MODULE-IDENTITY for the SNMP-TARGET-MIB is snmpTargetMIB, and its top-level OID is 1.3.6.1.6.3.12 (iso.org.dod.internet.snmpv2.snmpModules.snmpTargetMIB).

MIB Constraints

There are no constraints on this MIB.

SNMP-USM-MIB

The SNMP-USM-MIB contains objects that describe the SNMP User-Based Security Model. This MIB was released as RFC 2574, *User-Based Security Model (USM) for Version 3 of the Simple Network Management Protocol (SNMPv3)*.

The MODULE-IDENTITY for the SNMP-USM-MIB is snmpUsmMIB, and its top-level OID is 1.3.6.1.6.3.15 (iso.org.dod.internet.snmpv2.snmpModules.snmpUsmMIB).

MIB Constraints

There are no constraints on this MIB.

SNMP-VACM-MIB

The SNMP-VACM-MIB contains objects to manage the View-Based Access Control Model (VACM) for SNMP clients and managers. This MIB was released as RFC 2575, *View-Based Access Control Model (VACM) for the Simple Network Management Protocol (SNMP)*.

The MODULE-IDENTITY for the SNMP-VACM-MIB is snmpVacmMIB, and its top-level OID is 1.3.6.1.6.3.16 (iso.org.dod.internet.snmpv2.snmpModules.snmpVacmMIB).

MIB Constraints

There are no constraints on this MIB.

SNMPv2-MIB

The SNMPv2-MIB contains objects to manage SNMPv2 entities on the router. This MIB was released as RFC 1907,Management Information Base for Version 2 of the Simple Network Management Protocol (SNMPv2).

The MODULE-IDENTITY for the SNMPv2-MIB is snmpMIB, and its top-level OIDs are 1.3.6.1.6.3.1 (iso.org.dod.internet.snmpv2.snmpModules.snmpMIB) and 1.3.6.1.2.1.1 (iso.org.dod.internet.mgmt.mib-2.system).

MIB Constraints

There are no constraints on this MIB.

TCP-MIB

The TCP-MIB contains objects to manage the Transmission Control Protocol (TCP) on the router. This MIB was derived from RFC 2012, SNMPv2 Management Information Base for the Transmission Control Protocol Using SMIv2.

The MODULE-IDENTITY for the TCP-MIB is tcpMIB, and its top-level OIDs are 1.3.6.1.2.1.49 (iso.org.dod.internet.mgmt.mib-2.tcpMIB) and 1.3.6.1.2.1.6 (iso.org.dod.internet.mgmt.mib-2.tcp).

MIB Constraints

There are no constraints on this MIB.

UDP-MIB

The UDP-MIB contains objects to manage the User Datagram Protocol (UDP) on the router. This MIB was released as RFC 2013, SNMPv2 Management Information Base for the User Datagram Protocol Using SMIv2.

The MODULE-IDENTITY for the UDP-MIB is udpMIB, and its top-level OIDs are 1.3.6.1.2.1.50 (iso.org.dod.internet.mgmt.mib-2.udpMIB) and 1.3.6.1.2.1.7 (iso.org.dod.internet.mgmt.mib-2.udp).

MIB Constraints

There are no constraints on this MIB.