



MIB Specifications

This chapter describes each Management Information Base (MIB) on the Cisco RFGW-10. Each description lists any constraints on how the MIB or its object identifiers (OIDs) are implemented on the Cisco RFGW-10.

Unless noted otherwise, the Cisco RFGW-10 implementation of a MIB follows the standard MIB that has been defined. Any MIB table or object not listed in the tables is implemented as defined in the standard MIB definition.



Note

Not all MIBs included in a Cisco IOS or IOS-XE software release are fully supported by the Cisco RFGW-10. Some MIBs are not supported at all. Other MIBs might work, but they have not been tested on the Cisco RFGW-10. 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 RFGW-10 platform.

Overview of MIB Support

Support for a particular MIB is included as part of the Cisco IOS or IOS-XE software release. Each version of the Cisco IOS or IOS-XE 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 or IOS-XE 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 or IOS-XE software release does not imply that the MIB is fully supported on the Cisco RFGW-10. 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As a general rule, deprecated objects and MIBs should not be used, because they have been replaced by other, more functional objects and MIBs.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 or IOS-XE software image and the Cisco IOS or IOS-XE software release being used.

Table 3-1 lists the MIBs that are included in Cisco IOS Release 12.2(44) SQ for Cisco RFGW-10. 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 RFGW-10 in Cisco IOS Release 12.2(44)SQ.

Cisco RFGW-10 in Cisco IOS Release 12.2(44)SQ	Revision
CISCO-BULK-FILE-MIB	
CISCO-CDP-MIB	
CISCO-CLASS-BASED-QOS-MIB	
CISCO-CONFIG-COPY-MIB	
CISCO-CONFIG-MAN-MIB	
CISCO-ENTITY-EXT-MIB	
CISCO-ENTITY-FRU-CONTROL-MIB	
CISCO-ENTITY-SENSOR-MIB	
CISCO-ENVMON-MIB	
CISCO-FLASH-MIB	
CISCO-FTP-CLIENT-MIB	
CISCO-IMAGE-MIB	
CISCO-L2L3-INTERFACE-CONFIG-MIB	
CISCO-LAG-MIB	
CISCO-MAC-NOTIFICATION-MIB	
CISCO-PAGP-MIB	
CISCO-PING-MIB	
CISCO-PORT-SECURITY-MIB	
CISCO-PORT-STORM-CONTROL-MIB	
CISCO-PRIVATE-VLAN-MIB	
CISCO-PROCESS-MIB	
CISCO-RF-MIB	
CISCO-RTTMON-MIB	
CISCO-STP-EXTENSIONS-MIB	
CISCO-SYSLOG-MIB	
CISCO-VLAN-MEMBERSHIP-MIB	
CISCO-VTP-MIB	
DOCS-CABLE-DEVICE-MIB	9908190000Z
DOCS-IF-M-CMTS-MIB	200511160000Z

Table 3-1 Included MIBs on Cisco RFGW-10 in Cisco IOS Release 12.2(44)SQ.

Cisco RFGW-10 in Cisco IOS Release 12.2(44)SQ	Revision
DOCS-IF-MIB	200212200000Z
DTI-MIB	200606280000Z
ENTITY-MIB	9912070000Z
ETHERLIKE-MIB	
IEEE8021-PAE-MIB	
IEEE8023-LAG-MIB	
IF-MIB	9611031355Z
RMON-MIB	
SCTE-HMS-MPEG-MIB	200706051200Z
SCTE-HMS-QAM-MIB	200708231200Z
SMON-MIB	
SNMP-COMMUNITY-MIB	200003060000Z
SNMP-FRAMEWORK-MIB	9901190000Z
SNMP-MPD-MIB	9905041636Z
SNMP-NOTIFICATION-MIB	9808040000Z
SNMP-PROXY-MIB	
SNMP-TARGET-MIB	9808040000Z
SNMP-USM-MIB	9901200000Z
SNMPv2-MIB	9511090000Z
SNMP-VACM-MIB	9901200000Z
TCP-MIB	
UDP-MIB	

Table 3-2 Included MIBs on Cisco RFGW-10 in Cisco IOS Release IOS-XE 3.2.0SQ

Cisco RFGW-10 in Cisco IOS-XE Release IOS-XE 3.2.0SQ	Revision
DOCS-DRF-MIB	200812090000Z

Table 3-3 Included MIBs on Cisco RFGW-10 in Cisco IOS Release IOS-XE 3.3.0SQ

Cisco RFGW-10 in Cisco IOS-XE Release IOS-XE 3.3.0SQ	Revision
SCTE-HMS-MPEG-MIB	200810031700Z

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.

DOCS-CABLE-DEVICE-MIB

The DOCS-CABLE-DEVICE-MIB contains objects to configure and monitor DOCSIS-compliant Cisco RFGW-10 platforms. 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

[Table 3-4](#) lists the constraint on DOCS-CABLE-DEVICE-MIB.

Table 3-4 DOCS-CABLE-DEVICE-MIB Constraints

MIB Object	Notes
docsDevEventTable	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.
<ul style="list-style-type: none">docsDevBase	This group of objects is not supported on the Cisco RFGW-10
<ul style="list-style-type: none">docsDevSoftware	This group of objects is not supported on the Cisco RFGW-10.
<ul style="list-style-type: none">docsDevCpeIpMax	
<ul style="list-style-type: none">docsDevServer	This group of objects is not supported on the Cisco RFGW-10.
<ul style="list-style-type: none">docsDevNmAccess	This group of objects is not supported on the Cisco RFGW-10.
<ul style="list-style-type: none">docsDevFilter	This group of objects is not supported on the Cisco RFGW-10.
<ul style="list-style-type: none">docsDevCpe	This group of objects is not supported on the Cisco RFGW-10.

DOCS-DRF-MIB

This MIB module contains the management objects for the management of the Downstream RF Interface specification. Copyright 1999-2008 Cable Television Laboratories, Inc. All rights reserved.

Version: 200812090000Z

Starting Cisco IOS Release 15.0(2)SQ, the DOCS-DRF-MIB is used to configure Downstream External Physical Interface (DEPI) on the Cisco RFGW-10. Querying these tables displays the QAM interfaces and channels for the Cisco RFGW-10 DS-384 line card.

MIB Objects

Table 3-5 lists the tables and objects.

Table 3-5 DOCS-DRF-MIB Tables and Objects

Object	Description
docsDrfDownstreamTable	Contains extensions for the DOCSIS RFI Downstream docsIfDownstreamChannelTable.
docsDrfDownstreamCapabilitiesTable	Contains the QAM channel capabilities for the Downstream Interface PHY parameters.
docsDrfGroupDependencyTable	This table describes the rules that identify groups of QAM channels with PHY parameters dependencies. A PHY parameter dependency group means that a set to a QAM channel parameter may affect the value of other QAM Channels in the group. This module refers to TSID group as a PHY dependency Group. This table uses the ENTITY-MIB physical component structure to allows the managed system to describe the QAM channels' PHY parameters dependencies. Examples of PHY dependencies could be usage of adjacent frequencies, or QAM channels of RF ports restricted, or same interleaver value, modulation and J.83 Annex value. Additional details and rules describe the PHY parameter dependency is indicated in docsDrfGroupDependencyType.
docsDrfChannelBlockTable	This table configure attributes of block channels and Controls channel Block Tests. A channel block is an ENTITY-MIB containment of PhysicalClass 'module' that represent an RF connector.

Related Features

The DOCS-DRF-MIB object is associated with the *M-CMTS DEPI* feature.

DOCS-IF-M-CMTS-MIB

The DOCS-IF-M-CMTS-MIB provides functionality to configure and manage the External PHY interface (DEPI) of the M-CMTS Architecture that is the PHY interface of Cisco RFGW-10 Router.

MIB Constraints

The objects of docsIfMCmtsBaseGroup and docsIfMCmtsCoreGroup are not supported. [Table 3-6](#) lists the constraints on DOCS-IF-M-CMTS-MIB:

Table 3-6 DOCS-IF-M-CMTS-MIB Constraints

MIB Object	Notes
docsIfMCmtsEqamDownstreamTable	
<ul style="list-style-type: none"> docsIfMCmtsEqamDownstreamDeviceConfigPhyParamLock 	Supported values are: <ul style="list-style-type: none"> 0x0 0xFF
<ul style="list-style-type: none"> docsIfMCmtsEqamDownstreamAllocationType 	Supports only docsisOnly(1).
<ul style="list-style-type: none"> docsIfMCmtsEqamDownstreamAllocationTimeOut 	Supports only 0 as value.
<ul style="list-style-type: none"> docsIfMCmtsEqamDownstreamDRRPAdvertizing 	Supports only false as value.
docsIfMCmtsEqamGlobCfgDownBandwidth	Read-only.
docsIfMCmtsEqamGlobCfgDownSymbolRateM	Read-only.
docsIfMCmtsEqamGlobCfgDownTable	Read-write.
docsIfMCmtsEqamGlobCfgDownSymbolRateN	Read-only.
docsIfMCmtsChannelBlockTable	
<ul style="list-style-type: none"> docsIfMCmtsChannelBlockCfgNumberChannels 	Supported values are: <ul style="list-style-type: none"> 1 2 4
<ul style="list-style-type: none"> docsIfMCmtsChannelBlockTestType 	Supported value are: <ul style="list-style-type: none"> noTest(1) offOthersNormal(2) allOff(3) onOthersOff(4) cwOnOthersOff(5)

DOCS-IF-MIB

The DOCS-IF-MIB contains objects to configure and monitor the radio frequency (RF) interfaces on DOCSIS-compliant Cisco RFGW-10 platforms. 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).

MIB Constraints

Table 3-7 lists the constraint on DOCS-IF-MIB:

Table 3-7 DOCS-IF-MIB Constraints

MIB Object	Notes
docsIfBase	Only docsIfDownstreamChannelTable is supported.
docsIfCm	Not supported.
docsIfCmts	Not supported.
docsIfDownChannelWidth	Supported values are: <ul style="list-style-type: none"> 8000000 6000000.
docsIfDownChannelModulation	Supported values are: <ul style="list-style-type: none"> qam64(3) qam256(4)
docsIfDownChannelInterleave	Supported values are: <ul style="list-style-type: none"> taps8Increment16(3) taps16Increment8(4) taps32Increment4(5) taps64Increment2(6) taps128Increment1(7)

DTI-MIB

The DTI-MIB supports the Cisco RFGW-10 with the following MIB attributes and values:

- dtiProtocolEntityType—Refer to Table 3-8.
- dtiPathTraceabilityTable—Refer to Table 3-9.
- entPhysicalTable—Refer to the following tables:
 - Table 3-10—entPhysicalTable Entries for the Cisco DTI Card
 - Table 3-11—entPhysicalTable Entries for Cisco DTI Ports
 - Table 3-12—entAliasMappingTable Entries for DTI Interfaces

Table 3-8 dtiProtocolEntityType Entries

MIB Attribute	Value	Notes
dtiProtocolEntityType	root(1), server(2), client(3)	
dtiProtocolClientClockType	ituI(1), ituII(2), ituIII(3), st3(4), dtiClock(5)	

Table 3-8 *dtiProtocolEntityType Entries*

MIB Attribute	Value	Notes
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), ntp4(3), gps(4)	Current TOD source for DTI connection
dtiProtocolServerToDValue	String	Value of TOD in format DDDDDD.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 3-9 *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	

Table 3-9 *dtiPathTraceabilityTable Entries*

MIB Attribute	Value	Notes
dtiPathTraceabilityRootServerProtVersion		DTI version
dtiPathTraceabilityServerProtVersion		DTI protocol version

MIB Constraints

There are no constraints on this MIB.

ENTITY-MIB

The ENTITY-MIB represents physical and logical entities (components) in the Cisco RFGW-10 and allows 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 Cisco RFGW-10. 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 Cisco RFGW-10 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 12.2(44)SQ are included in [Table 3-13](#).

MIB Constraints

[Table 3-10](#) lists the constraints on ENTITY-MIB:

Table 3-10 *entPhysicalTable Entries for the DTI Line Card in Cisco IOS Release 12.2(33)SQ*

MIB Attribute	Value	Notes
entPhysicalIndex	Physical index	Set by Entity MIB when instance is created
entPhysicalDescr	Timing Clock card (2 DTI ports)	
entPhysicalVendorType	cevRfgwDtcc	Cisco IOS Release 12.2(44)SQ
entPhysicalContainedIn	Corresponding chassis index	
entPhysicalClass	<i>module</i>	
entPhysicalParentRelPos	A number denotes where the TCC w/ DTI card locates.	
entPhysicalName	Linecard(slot slot#)	
entPhysicalHardwareRev	Hardware revision	Read from EEPROM

Table 3-10 *entPhysicalTable Entries for the DTI Line Card in Cisco IOS Release 12.2(33)SQ*

MIB Attribute	Value	Notes
entPhysicalFirmwareRev	Firmware revision	Read from EEPROM
entPhysicalSoftwareRev	Software revision	Read from EEPROM
entPhysicalSerialNum	N/A	Read from EEPROM
entPhysicalMfgName	Cisco	
entPhysicalModelName	RFGW-TCC1	
entPhysicalAlias		Null by default, can be set.
entPhysicalAssetID		Null by default, can be set.
entPhysicalIsFRU	TRUE(1)	

Table 3-11 *entPhysicalTable Entries for the DTI Ports in Cisco IOS Release 12.2(44)SQ*

MIB Attribute	Value	Notes
entPhysicalIndex	Physical index	Set when the port is enabled.
entPhysicalDescr		
entPhysicalVendorType	cevPortDti	Cisco IOS Release 12.2(44)SQ
entPhysicalContainedIn	DTI card physical index	e.g. Ge containedin SFP module
entPhysicalClass	Port(10)	
entPhysicalParentRelPos	0	A number given when DTI is enabled, increasing from 0.
entPhysicalName		
entPhysicalHardwareRev	N/A	
entPhysicalFirmwareRev	N/A	
entPhysicalSerialNum	N/A	
entPhysicalMfgname	Cisco	
entPhysicalModelname	N/A	
entPhysicalAlias	NA	
entPhysicalAssetID	NA	
entPhysicalIsFRU	False(2)	

Table 3-12 *entAliasMappingTable Entries for DTI interfaces*

MIB Attribute	Value	Notes
entAliasLogicalIndexOrZero	0	
entAliasMappingIdentifier	ifIndex.<ifIndex#>	

Table 3-13 **ENTITY-MIB Constraints Prior to Cisco IOS Release 12.2(44)SQ**

MIB Object	Notes
entPhysicalTable	
<ul style="list-style-type: none"> entPhysicalFirmwareRev entPhysicalAlias entPhysicalAssetID entPhysicalSoftwareRev 	<ul style="list-style-type: none"> Not implemented. Not implemented. Not implemented.
<ul style="list-style-type: none"> entPhysicalHardwareRev entPhysicalModelName entPhysicalSerialNumber entPhysicalHardwareRev entPhysicalModelName entPhysicalSerialNumber 	<ul style="list-style-type: none"> Supports the Cisco Unique Device Identifier (UDI). Contains the Version Identifier (VID). Supports the Cisco Unique Device Identifier (UDI). Contains the orderable Product Identifier (PID). Supports the Cisco unique device Identifier (UDI). Contains the hardware Serial Number (SN). <p>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.</p>
<ul style="list-style-type: none"> entPhysicalIsFRU entPhysicalDescr entPhysicalContainedIn 	<p>This object accurately displays the location of the FastEthernet network management port on the active PRE-1 module.</p>
entLPMappingTable	Not implemented.

Table 3-13 ENTITY-MIB Constraints Prior to Cisco IOS Release 12.2(44)SQ (continued)

MIB Object	Notes
entAliasMappingTable	<ul style="list-style-type: none"> On Cisco RFGW-10, this table does not contain entries for the TCC+ cards. On Cisco RFGW-10 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(44)SQ 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.

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.

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-22](#) 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 ENTITY-MIB 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 Cisco RFGW-10:

- entPhysicalTable—Describes each physical component (entity) in the Cisco RFGW-10. 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.

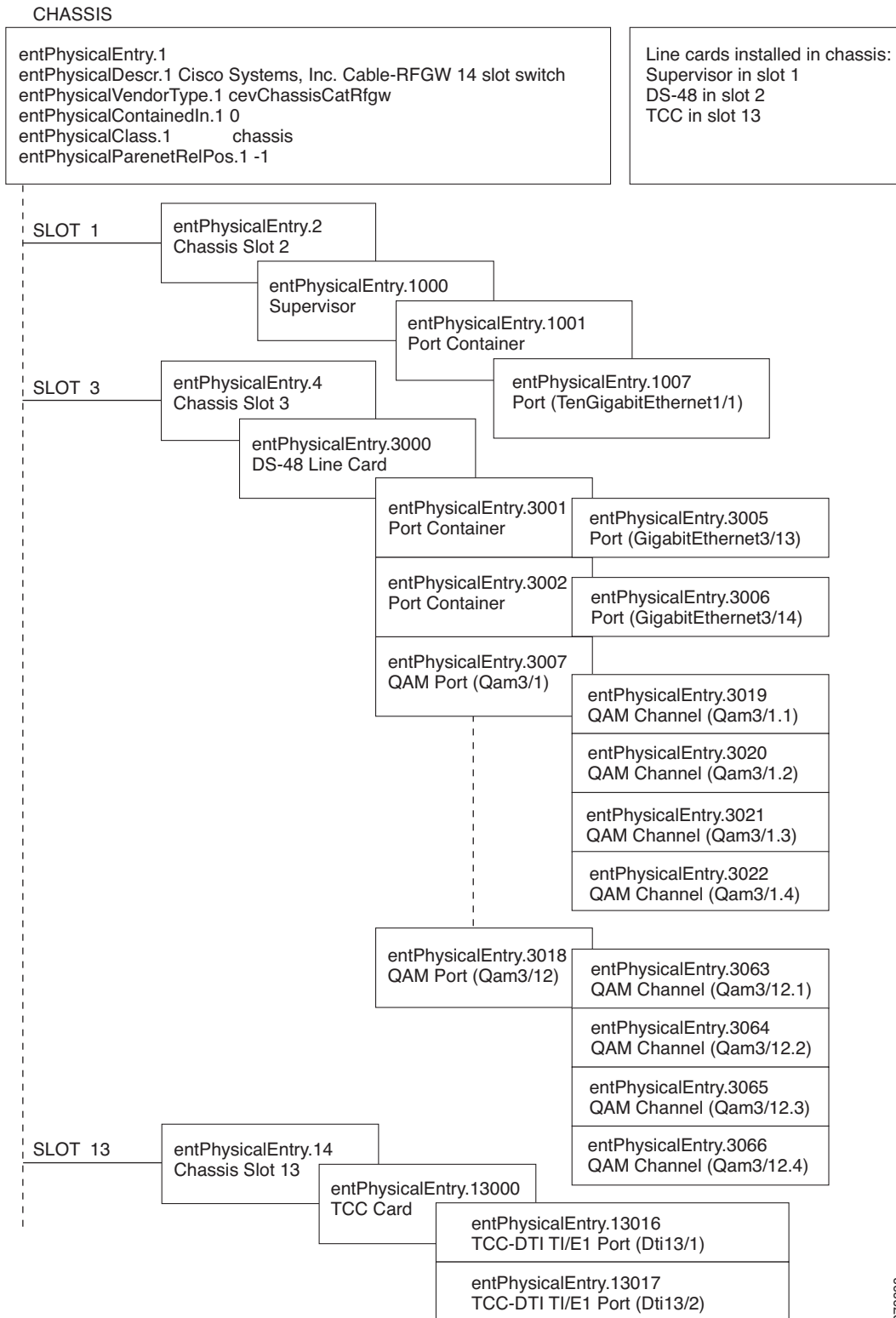
In Cisco IOS Release 12.2(44)SQ releass, the entAliasMappingTable also shows the mapping of physical upstream connectors to logical upstream interface when virtual interfaces are configured on the Cisco RFGW-10 cable interface line cards. This support also changed the parent-child relationships of cable interface line cards and their ports. For more information, see the [“Chassis Slot Layout” section on page 3-15](#).

- 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 Cisco RFGW-10, 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).

[Figure 3-1](#) shows an overview of the arrangement of objects in a Cisco RFGW-10, with one Fast Ethernet line card and two cable interface line cards.

Figure 3-1 ENTITY-MIB for Cisco RFGW-10 Chassis

Chassis Slot Layout

Table 3-14 provides information about the entities contained in chassis slots on the Cisco RFGW-10.

Table 3-14 Cisco RFGW-10 Chassis Slot Contents

Entity	Can Contain	Notes
Slots 1 to 10	One full-size line card per slot.	<p>For chassis slot containers:</p> <ul style="list-style-type: none"> 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. <p>The Cisco RFGW-10 supports only full-size line cards in chassis slots:</p> <ul style="list-style-type: none"> 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).

IF-MIB

The IF-MIB describes the attributes of physical and logical interfaces. The Cisco RFGW-10 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(44)SQ release, the Cisco RFGW-10 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.

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

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 3-15 lists the IF-MIB constraints and notes.

Table 3-15 IF-MIB Constraints

MIB Object	Notes
ifXEntryTable	
<ul style="list-style-type: none"> ifAlias 	
IfTable	
<ul style="list-style-type: none"> ifDescr 	<p>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.</p> <p>Note that ifDescr supports Virtual Interfaces only in Cisco IOS Release 12.2(44)SQ and later releases. Also see the ENTITY-MIB for entAliasMappingTable support.</p>
<ul style="list-style-type: none"> ifType 	<p>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.</p>
<ul style="list-style-type: none"> ifInOctets ifOutOctets ifSpeed 	<p>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.</p>
<ul style="list-style-type: none"> ifInUcastPkts ifOutMulticast ifHCInUcastPkts ifHCInBroadcastPkts ifHCOOutUcastPkts ifInUnknownProtos 	<p>These objects count both data packets and MAC-layer request packets from cable modems on an upstream, so as to conform to RFC 2670.</p>

SCTE-HMS-MPEG-MIB

This MIB module is for representing MPEG equipment present in the headend and is supported by a SNMP agent. It defines both the MPEG input and output MIB objects for managing MPEG input and output transport streams, programs and elementary streams.

It provides both input and output related statistics, as well as program mapping and video session information. All the tables, except mpegProgramMappingTable and mpegVideoSessionTable, capture and store the information related to active transport streams only. Optional MIB objects have default values defined in this MIB file.

Version: 200810031700Z

MIB Objects

The following table lists the tables and objects.

Table 3-16 *SCTE-HMS-MPEG-MIB Tables and Objects*

Object	Description
mpegInputTSTable	Specifies the attributes of video sessions or SPTSs.
mpegInputProgTable	Describes the PSI of each incoming program.
mpegProgESTable	Provides information about the elementary streams in a program.
mpegInputStatsTable	Indicates the stream statistics, SPTS or MPTS.
mpegInputUdpOriginationTable	Specifies the UDP unicast or multicast flows of an input transport stream.
mpegInsertPacketTable	Describes the packet insertion information. Typical packets that are inserted at the RF output of a device are PSI, PSIP, and CVCT MPEG packets. These packets have their own PID. This table may be empty if the video device does not support packet insertion or do not have any packet insertion configured.
mpegOutputStatsTable	Specifies the diagnostic statistics objects for the outputs transport stream of an MPEG device.
mpegOutputTSTable	Specifies the attributes of an outgoing transport stream SPTS or MPTS.
mpegOutputProgTable	Describes the PSI of each outgoing program.
mpegOutputProgElemStatsTable	Provides information about the statistics associated with the elementary streams of an MPEG program.
mpegOutputUdpDestinationTable	Specifies the UDP unicast or multicast of the output transport stream this entry references.
mpegProgramMappingTable	Describes the program mappings such as the input destination to the output destination for every program active in the device.
mpegVideoSessionTable	Stores the video session information. The session may be VOD, SDV or DB type. It captures logical information about a video stream, such as source and destination addresses, UDP port, and also ties it with its direct mapping of input and output programs.
mpegVideoSessionPtrTable	Provides a quick reference of the program mapping and input and output transport stream connection information associated with a video Session.
mpegInputTSOutputSessionTable	Specifies the list of output session indexes that the Input transport stream entry.

mpegInputTSTable

The mpegInputTSTable specifies the attributes of an incoming video session or SPTS.

The following table lists the MIB objects in mpegInputTSTable.

Table 3-17 *MIB Objects in mpegInputTSTable*

MIB Objects	Description
mpegInputTSIndex	Indicates table index.
mpegInputTSType	Indicates the type of stream. Supported streams are: <ul style="list-style-type: none"> • spts(1) • mpts(2)
mpegInputTSConnectionType	Indicates the type of input flow of the stream. The value udp indicates unicast or multicast udp origination flows.
mpegInputTSConnection	Specifies the start of the data source table that feeds the input stream.
mpegInputTSActiveConnection	Specifies the instance of the data source that feeds the input stream.
mpegInputTSPsiDetected	Indicates whether PSI is detected or not.
mpegInputTSStartTime	Indicates the time MPEG device started receiving the stream (the time the entry was added to the table).
mpegInputTSResourceAllocated	Indicates whether all resources have been allocated for the stream (true) or not (false).
mpegInputTSNumPrograms	Indicates the number of programs in the input transport stream.
mpegInputTSRate	Indicates the data rate of the incoming program or SPTS.
mpegInputTSMMaxRate	Indicates the maximum data rate of the incoming VBR stream.
mpegInputTSPatVersion	Indicates the PAT version of the transport stream.
mpegInputTSCatVersion	Not supported. Indicates the CAT version number of transport stream. Set to zero.
mpegInputTSNitPid	Indicates the NIT PID of the input transport stream.
mpegInputTSNumEmms	Indicates the number of EMMs in the input stream. The default value, 9999, indicates that the QAM does not support encryption.
mpegInputTSTSID	Indicates the input TSID of the transport stream. A valid TSID is 16 bits. If TSID is not supported all 32-bits are set to 1.
mpegInputTSLock	Indicates whether the device is locked or not to the physical input. Currently this object is set to notLocked(2). Other supported values are: <ul style="list-style-type: none"> • locked(1) • intermittent(3) • notIp(4) • notMonitored(5)

mpegInputProgTable

The mpegInputProgTable describes the PSI of each incoming program. Each table entry is identified by ifIndex, mpegInputTSIndex, and mpegInputProgIndex.

The following table lists the MIB objects in mpegInputProgTable:

Table 3-18 MIB Objects in mpegInputProgTable

MIB Objects	Description
mpegInputProgIndex	Specifies the third index of MIB table. The index should uniquely identify a program given a transport stream index.
mpegInputProgNo	Specifies the identifier of the program present in the transport stream of the incoming video stream. This information is contained in the PAT table.
mpegInputProgPmtVersion	Specifies the PMT version of the program.
mpegInputProgPmtPid	Specifies the PMT PID of the program.
mpegInputProgPcrPid	Specifies PCR PID of the program.
mpegInputProgEcmPid	Specifies ECM PID of the program.
mpegInputProgNumElems	Specifies the number of elementary streams in the program. For the current implementation, it is 0.
mpegInputProgNumEcms	Specifies the number of ECMs for the program. The default value, 9999, indicates that the QAM does not support encryption.
mpegInputProgCaDescr	Not supported. Specifies the CA descriptor for the program. If the program does not have an associated CA descriptor, this object has a zero-length string (current implementation). Conditional access descriptor is used to specify system-wide conditional access management information (EMMS) and elementary stream-specific information (ECMs). If any elementary stream is scrambled, a CA descriptor is present for the program containing that elementary stream.
mpegInputProgScte35Descr	Not supported. Specifies the SCTE 35 descriptor. If not present, a zero-length string is returned. For the current implementation, it is a zero-length string.
mpegInputProgScte18Descr	Not supported. Specifies the SCTE 18 descriptor. If not present, a zero-length string is returned. For the current implementation, it is a zero-length string.

mpegProgESTable

The mpegProgESTable contains information about the elementary streams in a program. This table is optional for devices that do not decode and store information such as the video server, encoder, or satellite or if mpegInputTSTransportType is pass-through type for the transport stream.

Each entry in the table is identified by ifIndex, mpegInputTSIndex, mpegInputProgIndex, and mpegProgElemStreamIndex.

The following table lists MIB objects for mpegProgESTable.

Table 3-19 *MIB Objects in mpegProgESTable*

MIB Objects	Description
mpegProgESIndex	Specifies the Table index.
mpegProgESPID	Specifies the PID for each transport stream packet that carries the program element.
mpegProgESType	Specifies the type of elementary stream (video, audio, or data) of the incoming video session received from the video server. Supported values are: <ul style="list-style-type: none"> • video(1) • audio(2) • data(3)
mpegProgESCaDescr	Specifies the CA descriptor associated with the elementary stream. If there is no CA descriptor for the elementary stream, this object has a zero-length string.
mpegProgESScte35Descr	Specifies the SCTE 35 descriptor. Returns a zero-length string if it is not supported or is not present. For the current implementation, it is zero-length string.
mpegProgESScte18Descr	Specifies the SCTE 18 descriptor. Returns a zero-length string if it is not supported or is not present. For the current implementation, it is zero-length string.

mpegInputStatsTable

The mpegInputStatsTable contains stream statistics for SPTS or MPTS. Each table entry is identified by ifIndex and mpegInputTSIndex.

The following table lists MIB objects for mpegStatsStreamTable.

Table 3-20 *MIB Objects in mpegInputStatsTable*

MIB Objects	Description
mpegInputStatsPcrJitter	Specifies the jitter difference between the actual value of the PCR and its expected value in nanoseconds.
mpegInputStatsMaxPacketJitter	Specifies the measurement of the maximum variation in arrival time or delay between the individual packets in milliseconds.
mpegInputStatsPcrPackets	Specifies the number of MPEG transport packets, having PCR, received for the stream.
mpegInputStatsNonPcrPackets	Specifies the number of MPEG transport packets, without PCR, received for the stream.
mpegInputStatsUnexpectedPackets	Specifies the number of transport packets for which PIDs are not expected.

Table 3-20 MIB Objects in *mpegInputStatsTable* (continued)

MIB Objects	Description
mpegInputStatsContinuityErrors	Specifies the number of continuity counter errors. Transport packets have continuity counters. Successive packets have contiguous values in the continuity counter. Continuity counter error occurs when the successive packets do not have contiguous value and discontinuity indicator is not set.
mpegInputStatsSyncLossPackets	Specifies the number of MPEG packets with missing sync byte per stream. When a sync byte is missing in a MPEG packet this value is incremented.
mpegInputStatsPcrIntervalExceeds	Specifies the number of times that the interval between two successive PCR packets for any program in a transport stream exceeds 100 milliseconds.

mpegInputUdpOriginationTable

The *mpegInputUdpOriginationTable* specifies the UDP unicast and multicast flows of an input transport stream. For unicast streams, it represents the UDP port and optionally destination IP address of the input TS origination UDP IP flow. For multicast streams, it represents the set of SSM multicast groups of the input TS origination UDP IP flow.

The following table lists the MIB objects for *mpegInputUdpOriginationTable*.

Table 3-21 MIB Objects in *mpegInputUdpOriginationTable*

MIB Objects	Description
mpegInputUdpOriginationIndex	Specifies the UDP transport stream origination information.
mpegInputUdpOriginationId	Specifies each UDP IP flow associated with the input transport stream UDP origination.
mpegInputUdpOriginationIfIndex	Specifies the interface index where the UDP flow is received.
mpegInputUdpOriginationInetAddrType	Specifies the address associated with the input transport stream origination UDP IP flow.
mpegInputUdpOriginationSrcInetAddr	Specifies the source multicast IP address of the UDP IP flow for multicast transport streams. For unicast UDP IP flows, either the IP source address of the IP flow or all zeros address of known or irrelevant input transport streams are specified.
mpegInputUdpOriginationDestInetAddr	Specifies the group address of the SSM origination input for multicast transport streams. For unicast UDP IP flows, either the IP destination address of the UDP flow or all zeros address for known or irrelevant input transport streams are specified.
mpegInputUdpOriginationDestPort	Specifies the UDP destination port of the UDP IP flow of the input transport stream.

Table 3-21 *MIB Objects in mpegInputUdpOriginationTable (continued)*

MIB Objects	Description
mpegInputUdpOriginationActive	Specifies the activation state of the UDP flow. The value “true” for a UDP flow data stream indicates it is being sensed or buffered for the input transport stream independently of the flow being used by a video session. For multicast UDP origination flow, the value “true” indicates the UDP flow was successfully joined.
mpegInputUdpOriginationPacketsDetected	Specifies whether the UDP flow packets are being detected.
mpegInputUdpOriginationRank	Specifies the Rank priority used to determine the UDP flow selected for the input transport stream processing and the video session alignments.
mpegInputUdpOriginationInputTSIndex	Specifies the association with the mpegInputTSIndex object.

mpegInsertPacketTable

The mpegInsertPacketTable describes packet insertion information. A packet inserted at the RF output of a QAM is PSI, PSIP, or CVCT MPEG packet. Each packet has a unique PID.

This table is empty if the packet insertion is not supported or packet insertion is not configured on the video device.

The following table lists MIB objects for mpegInsertPacketTable.

Table 3-22 MIB Objects in mpegInsertPacketTable

MIB Objects	Description
mpegInsertPacketIndex	Specifies the index of the list of packets inserted into all MPEG stream.
mpegInsertPacketListId	Specifies the reference number of packets inserted into MPEG stream.
mpegInsertPacketImmediateExecution	Indicates initialization of packet insertion. Always set to true.
mpegInsertPacketStartTime	Specifies Unix epoch start time for insertions (if Immediate Execution is false).
mpegInsertPacketRepeat	Specifies whether the insert packet is one-time or repetitive.
mpegInsertPacketContinuousFlag	Indicates if the packets are sent periodically.
mpegInsertPacketRate	Specifies the insertion rate for the packet list.
mpegInsertPacketDeviceIfIndex	Specifies the IfIndex of the output device interface where the packet is inserted.

mpegOutputStatsTable

The mpegOutputStatsTable specifies the diagnostic statistics objects for the RF outputs of an MPEG device designated by ifIndex and entPhysicalIndex.

The following table lists the MIB objects for mpegOutputStatsTable.

Table 3-23 MIB Objects in mpegOutputStatsTable

MIB Objects	Description
mpegOutputStatsDroppedPackets	Specifies the number of MPEG packets dropped on this output.
mpegOutputStatsFifoOverflow	Specifies the number of FIFO overflows on this output.
mpegOutputStatsFifoUnderflow	Specifies the number of FIFO underflows on this output.
mpegOutputStatsDataRate	Specifies the Data rate (bps) for the content on this output.
mpegOutputStatsAvailableBandwidth	Specifies the unused bandwidth on this port.
mpegOutputStatsChannelUtilization	Specifies the current utilization of a channel defined as (measured data rate / total bandwidth) * 100. Returns -1 (default) as value if not applicable.
mpegOutputStatsTotalPackets	Specifies the total number of packets sent out for the transport stream for the current the output stream.

mpegOutputTSTable

The mpegoutputTSTable specifies the attributes of an outgoing transport stream SPTS or MPTS.

The following table lists MIB objects for mpegOutputTSTable.

Table 3-24 *MIB Objects in mpegOutputTSTable*

MIB Objects	Description
mpegOutputTSIndex	Specifies the table index.
mpegOutputTSType	Specifies the type of stream: <ul style="list-style-type: none"> spts(1) mpts(2)
mpegOutputTSConnectionType	Specifies the type of output flow of the stream. <ul style="list-style-type: none"> qam indicates a QAM output for the stream. udp indicates if it is either a unicast or multicast udp destination flow for the stream.
mpegOutputTSConnection	Specifies a reference to the instance of the output connection for the output stream. <ul style="list-style-type: none"> Connection type qam—contains the ifIndex of the identifier of the QAM channel of the output stream Connection type udp—contains the pointer to the UDP destination table used for the output stream.
mpegOutputTSNumPrograms	Specifies the number of programs in the output transport stream.
mpegOutputTSTSID	Specifies the TSID of the output transport stream.
mpegOutputTSNitPid	Not supported. Specifies the NIT PID of the outgoing transport stream. Default value is 65535.
mpegOutputTSCaPid	Not supported. Specifies the CA PID of the outgoing transport stream. Default value is 65535.
mpegOutputTSCatInsertRate	Not supported. Specifies the CAT insertion rate, expressed in tables/ms. Default value is zero.
mpegOutputTSPatInsertRate	Specifies the PAT insertion rate, expressed in tables/ms.
mpegOutputTSPmtInsertRate	Specifies the PMT insertion rate, expressed in tables/ms.
mpegOutputTSStartTime	Specifies the time the MPEG device started transmitting the output stream.

mpegOutputProgTable

The mpegOutputProgTable describes the PSI of each outgoing program. Each table entity is identified by ifIndex, mpegOutputTSIndex, and mpegOutputProgIndex.

The following table lists MIB objects for mpegOutputProgTable.

Table 3-25 *MIB Objects in mpegOutputProgTable*

MIB Objects	Description
mpegOutputProgIndex	Specifies the table index for output program.
mpegOutputProgNo	Specifies the identifier of the program present in the transport stream of the outgoing program.
mpegOutputProgPmtVersion	Specifies the PMT version of the outgoing program.
mpegOutputProgPmtPid	Specifies the PMT PID of the outgoing program.
mpegOutputProgPcrPid	Specifies the PCR PID of the outgoing program.
mpegOutputProgEcmPid	Not supported. Specifies the ECM PID of the outgoing program. Default value is 65535.
mpegOutputProgNumElems	Specifies the number of elementary streams in the outgoing program.
mpegOutputProgNumEcms	Specifies the number of ECMs for the outgoing program. The default value, 9999, indicates that the QAM does not support encryption. For the current implementation, the value is 9999.
mpegOutputProgCaDescr	Not supported. Specifies the Conditional Access (CA) descriptor for this program. CA descriptor is used to specify the system-wide conditional access management information (EMMS) and elementary stream-specific information (ECMs). If an elementary stream is scrambled, a CA descriptor for the program contains the elementary stream information. If the outgoing program does not have an associated CA descriptor, this object has a zero-length string. For the current implementation, the value is zero-length string.
mpegOutputProgScte35Descr	Not supported. Specifies the SCTE 35 descriptor in the outgoing program. Returns a zero-length string if it is not supported/not present. For the current implementation, it is zero-length string.
mpegOutputProgScte18Descr	Not supported. Specifies the SCTE 18 descriptor. Returns a zero-length string if it is not supported/not present. For the current implementation, it is zero-length string.

mpegOutputProgElemStatsTable

The mpegOutputProgElemStatsTable contains information associated with the elementary streams of an MPEG program.

This table is optional if mpegInputTSTransportType is pass-through type for the transport stream.

Each table entity is identified by ifIndex, mpegOutputTSIndex, mpegOutputProgIndex, and mpegOutputProgElemStatsIndex.

The following table lists the MIB objects for mpegOutputProgElemStatsTable

Table 3-26 *MIB Objects in mpegOutputProgElemStatsTable*

MIB Objects	Description
mpegOutputProgElemStatsIndex	Specifies the table index.
mpegOutputProgElemStatsPid	Specifies the PID of output program elementary stream.
mpegOutputProgElemStatsElemType	Specifies the type of elementary stream (video, audio, or data) of the program. For devices, such as QAM, that do not report exact stream type due to scalability issues, this object is set to unknown. Supported values are: <ul style="list-style-type: none"> unknown(6) video(1) audio(2) data(3) scte18(4) scte35(5)
mpegOutputProgElemStatsDataRate	Specifies the data rate of the elementary stream. Return -1 if not supported. For the current implementation, the value is -1.

mpegOutputUdpDestinationTable

The mpegOutputUdpDestiantionTable specifies the UDP unicast or multicast of the output transport stream this entry references. For unicast it represents the UDP port and optionally, the destination IP address of the output transport stream destination UDP IP flow. For multicast streams, it represents the set of SSM multicast groups of the output transport stream destination UDP IP flow.

The following table lists the MIB objects for the mpegOutputUdpDestiantionTable.

Table 3-27 *mpegOutputUdpDestiantionTable*

MIB Object	Description
mpegOutputUdpDestinationIndex	Specifies the unique identifier of the UDP output transport stream destination information.
mpegOutputUdpDestinationId	Specifies the unique identifier of each UDP IP flow associated with the output transport stream UDP destination.
mpegOutputUdpDestinationIfIndex	Specifies the interface index where the UDP flow is sent.

Table 3-27 *mpegOutputUdpDestiantionTable (continued)*

MIB Object	Description
mpegOutputUdpDestinationInetAddrType	Specifies the address type associated with the output transport stream destination UDP IP flow.
mpegOutputUdpDestinationSrcInetAddr	Specifies the source specific multicast (SSM) IP address of the UDP IP flow for multicast transport streams. For unicast UDP IP flow, either the IP source address of the IP flow or all zeros address for known or irrelevant destination transport streams are specified.
mpegOutputUdpDestinationDestInetAddr	Specifies the group address of the SSM destination output transport stream for multicast transport streams. For unicast UDP IP flow, either the IP source address of the IP flow or all zeros address for known or irrelevant destination transport streams are specified.
mpegOutputUdpDestinationDestPort	Specifies the UDP port of the UDP IP flow of the output transport stream.
mpegOutputUdpDestinationOutputTSIndex	Specifies the association with mpegOutputTSIndex entry.

mpegProgramMappingTable

The mpegProgramMappingTable describes program mappings between the input destination and the output destination for every active program in the QAM. The objects of each entry should be read-only for a session-based QAM and read-write for a table-based QAM.


Note

Cisco RFGW-10 supports up to 32 programs per QAM, and up to 32 PIDs per program.


Note

Cisco RFGW-10 supports read-only for a session/table-based QAM.

The following table lists MIB objects for mpegProgramMappingTable.

Table 3-28 *MIB Objects in mpegProgramMappingTable*

MIB Objects	Description
mpegProgramMappingIndex	Specifies the table index.
mpegProgramMappingOutputProgIndex	Specifies the mpegOutputProgIndex of the corresponding entry in mpegOutputProgTable for a given output program.
mpegProgramMappingOutputTSIndex	Specifies the mpegOutputTSIndex of the corresponding entry in mpegOutputProgTable for a given output program.
mpegProgramMappingInputProgIndex	Specifies the value of mpegInputProgIndex for the corresponding entry in mpegInputProgTable for a given input program.
mpegProgramMappingInputTSIndex	Specifies the value of mpegInputTSIndex of the entry in mpegInputProgTable for a given input program.

mpegVideoSessionTable

The mpegVideoSessionTable stores the video session information. The session type is VOD, SDV or DB type. A session captures logical information such as source and destination addresses, and UDP port for a video stream and also ties this information with direct mapping of input and output programs.



Note

The mpegVideoSessionTable captures video sessions provisioned by both session-based and table-based methods.

The following table lists MIB objects for mpegVideoSessionTable.

Table 3-29 *MIB Objects in mpegVideoSessionTable*

MIB Objects	Description
mpegVideoSessionIndex	Specifies the table index.
mpegVideoSessionPhyMappingIndex	Specifies the mpegProgramMappingIndex of the corresponding mpegProgrammingMappingEntry which contains physical mapping between the input and output program.
mpegVideoSessionPIDRemap	Specifies if a session has PID remapping. A value “true” indicates session has PID remapping.
mpegVideoSessionMode	Indicates if a transport stream is associated with a multiplexed session or is pass-through. For pass-through type of transport stream, all elementary stream level information is optional.
mpegVideoSessionState	Specifies the state of a session. Supported values are: <ul style="list-style-type: none"> active(1): Indicates in-use. provisioned(2): Indicates not-in-use
mpegVideoSessionProvMethod	Specifies the type of session, it can be QAM table-based or session-based.
mpegVideoSessionEncryptionType	Indicates the encryption algorithm of the session.
mpegVideoSessionEncryptionInfo	Indicates a reference to the information associated to the session encryption algorithm.
mpegVideoSessionBitRate	Indicates a session throughput (bps).
mpegVideoSessionSessionID	Specifies the session ID associated with the stream in the case of a session-based QAM. This is not applicable to a table-based QAM. This ID may be used by NMS system to uniquely identify an input program to output program mapping.
mpegVideoSessionSelectedInput	Specifies a reference to the input flow currently used in the video session.
mpegVideoSessionSelectedOutput	Specifies a reference to the output flow currently used in the video session.

mpegVideoSessionPtrTable

The mpegVideoSessionPtrTable provides a quick reference of the program mapping and input and output transport stream connection information associated with a video session.

The following table lists the MIB objects for mpegVideoSessionPtrTable.

Table 3-30 *mpegVideoSessionPtrTable*

MIB Object	Description
mpegVideoSessionPtrInputProgIndex	Indicates the input program index value of the video session.
mpegVideoSessionPtrInputTSIndex	Indicates the input transport stream index value of the video session.
mpegVideoSessionPtrInputTSConnType	Indicates the input transport stream connection type value of the video session.
mpegVideoSessionPtrInputTSConnection	Indicates the input transport stream connection value of the video session.
mpegVideoSessionPtrOutputProgIndex	Indicates the output program index value of the video session.
mpegVideoSessionPtrOutputTSIndex	Indicates the output transport stream index value of the video session.
mpegVideoSessionPtrOutputConnType	Indicates the output transport stream connection type value of the video session.
mpegVideoSessionPtrOutputTSConnection	Indicates the output transport stream connection value of the video session.
mpegVideoSessionPtrStatus	Indicates the status of the sessions. Only active sessions are reported.

mpegInputTSOutputSessionTable

The mpegInputTSOutputSessionTable specifies the list of output session indexes that the input transport stream entry. For unicast sessions, this table points to just one output session. For multicast sessions, it points to all the output sessions using this internally replicated input transport stream.

The following table lists the MIB objects for mpegInputTSOutputSessionTable.

Table 3-31 *mpegInputTSOutputSessionTable*

MIB Object	Description
mpegInputTSOutputSessionCreateTime	Indicates the creation time of the session.

MIB Constraints

The following table lists the constraints that the router places on objects in the SCTE-HMS-MPEG-MIB.

Table 3-32 SCTE-HMS-MPEG-MIB Constraints

MIB Object	Notes
mpegInputTSCatVersion	Not supported, always returns 0.
mpegInputTSNitPid	Not supported, always returns 65535.
mpegInputProgEcmPid	Not supported, always returns 65535.
mpegOutputProgEcmPid	Not supported, always returns 65535.
mpegInputTSNumEmms	Not supported, always returns 9999.
mpegInputProgNumEcms	Not supported, always returns 9999.
mpegOutputProgNumEcms	Not supported, always returns 9999.
mpegInputProgCaDescr	Not supported, always returns zero-length string.
mpegInputProgScte35Descr	Not supported, always returns zero-length string.
mpegInputProgScte18Descr	Not supported, always returns zero-length string.
mpegProgElemStreamDescr	Not supported, always returns zero-length string.
mpegProgESScte35Descr	Not supported, always returns zero-length string.
mpegProgESScte18Descr	Not supported, always returns zero-length string.
mpegOutputProgCaDescr	Not supported, always returns zero-length string.
mpegOutputProgScte35Descr	Not supported, always returns zero-length string.
mpegOutputProgScte18Descr	Not supported, always returns zero-length string.
mpegInsertPacketStartTime	Not supported.
mpegOutputStatsChannelUtilization	Not supported, always returns -1.
mpegOutputTSCatInsertRate	Not supported.
mpegOutputProgElemStatsDataRate	No supported, always returns -1.
mpegInputProgNo	Read-only.
mpegOutputProgNo	Read-only.
mpegOutputProgElemStatsPid	Read-only.

SCTE-HMS-QAM-MIB

The SCTE-HMS-QAM-MIB module is for representing Edge QAM equipment present in the headend (or indoor) and is supported by a SNMP agent. It defines QAM channel related configuration MIB objects associated with physical and logical characteristics of QAM channel.

The SCTE-HMS-QAM-MIB contains three read only tables:

- rfQamChannelTable
- rfQamChannelCommonTable
- rfQamConfigTable

rfQamChannelTable

The rfQamChannelTable describes the configuration and attributes of each QAM channel designated by ifIndex.

Table 3-33 lists the Configuration and Attributes of QAM Channel.

Table 3-33 Configuration and Attributes of QAM Channels

MIB Objects	Description
rfQamChannelFrequency	Specifies the center frequency of the QAM channel. (Hertz)
rfQamChannelModulationFormat	Specifies the modulation format of the QAM channel. Supported values are: <ul style="list-style-type: none">qam64(1)qam128(2)qam256(3)qam512(4)qam1024(5)
rfQamChannelInterleaverLevel	Specifies the interleaver level for FEC coding. This object is ignored when the AnnexMode has the value 'annexA' or 'annexC'. Supported values are: <ul style="list-style-type: none">level1(1)level2(2)

Table 3-33 Configuration and Attributes of QAM Channels (continued)

MIB Objects	Description
rfQamChannelInterleaverMode	<p>Specifies the interleaving depth or operation mode of the interleaver.</p> <p>When the rfQamChannelInterleaverLevel is set to <i>level1</i>, a single interleaving depth is supported(fecI128J1).</p> <p>When the rfQamChannelInterleaverLevel is set to <i>level2</i>, all the other interleaving depths are also supported.</p> <p>This object is ignored when AnnexMode has the value <i>annexA</i> or <i>annexC</i>. Supported values are:</p> <ul style="list-style-type: none"> fecI128J1(1) fecI128J2(2) fecI64J2(3) fecI128J3(4) fecI32J4(5) fecI128J4(6) fecI16J8(7) fecI128J5(8) fecI8J16(9) fecI128J6(10) fecI128J7(12) fecI128J8(14)
rfQamChannelPower	<p>The output power of the QAM channel. If the QAM is muted, this object is set to 0. Supported value is:</p> <p>(0 42.72) dBmV</p>
rfQamChannelSquelch	<p>Indicates whether the QAM port is muted or not.Supported values are:</p> <ul style="list-style-type: none"> unmuted(1) muted(2)
rfQamChannelContWaveMode	<p>Indicates whether Continuous Wave mode is enabled or not for output. Supported values are:</p> <ul style="list-style-type: none"> cwmOff(1) cwmOn(2)
rfQamChannelAnnexMode	<p>Specifies the ITU-T standard supported by the QAM channel. Supported values are:</p> <ul style="list-style-type: none"> annexA(1) annexB(2) annexC(3) other(4)

rfQamChannelCommonTable

The rfQamChannelCommonTable describes QAM channel output bandwidth and utilization information.

Table 3-34 lists MIB objects and description for rfQamChannelCommonTable.

Table 3-34 MIB Objects in rfQamChannelCommonTable

MIB Objects	Description
rfQamChannelOutputBw	Specifies QAM channel output bandwidth or capacity.
rfQamChannelUtilization	Specifies the utilization of the QAM channel in percentage.

rfQamConfigTable

The rfQamConfigTable contains the following parameters:

- IP addresses configuration for the QAM channels.
- Program number range associated with QAM channels.
- UDP port range (optional).

Configuring these parameters is necessary when performing session-based provisioning. A session-based provisioning request must conform to the configurations in this table. The QAM channels within a QAM device may be partitioned to support multiple UDP, QAM, or ProgramNo ranges. You can also use this table to show the reserve UDP ports or program numbers for special purpose. The table entries are identified through rfQamConfigIndex.

Table 3-35 lists MIB objects for rfQamConfigTable.

Table 3-35 MIB Objects in rfQamConfigTable

MIB Objects	Description
rfQamConfigIndex	Specifies table index.
rfQamConfigEntPhyIndex	Contains entPhyIndex of RF linecard or 0 if there are no RF linecards. QAM channels are global to the QAM device. An RF linecard contains a number of RF/QAM channels.
rfQamConfigQamChannelIdMin	QAMChannelId maybe within a LC or global depending on rfQamConfigQamEntPhyIndex.
rfQamConfigQamChannelIdMax	QAMChannelId maybe within a LC or global depending on rfQamConfigQamEntPhyIndex.
rfQamConfigIPAddrType	Specifies the type of the program destination address as defined by inetAddressType. The default value is 1 for ipv4(1).
rfQamConfigIPAddr	Specifies the IP address of the QAM channel.
rfQamConfigUdpPortRangeMin	Specifies the lowest UDP port of the UDP port range that can be used on the QAM channel.
rfQamConfigUdpPortRangeMax	Specifies the highest UDP port within the UDP port range that can be used on the QAM channel.

Table 3-35 MIB Objects in rfQamConfigTable

MIB Objects	Description
rfQamConfigOutputProgNoMin	Specifies the lowest MPEG output program number that can be used on the QAM channel. The default value is 1.
rfQamConfigOutputProgNoMax	Specifies the highest MPEG output program number that can be used on the QAM channel. The value ranges from 1 to 65535.

MIB Constraints

There are no constraints for 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-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 Cisco RFGW-10. 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.