CHAPTER **5**

Management Information Base

The Cisco Cable DVB/DAVIC Management Program uses a number of MIB files to manage the Cisco DVB CAR100. This chapter lists these MIBs, explaining each parameter, the possible values and default settings.

The Cisco Cable DVB/DAVIC Management Program presents the Cisco DVB CAR100 MIBs in three groups. The first group (System, Interfaces Table, IP, IP Address Table, IP Route Table, IP Net to Media Table, ICMP Table, UDP and UDP Table) is found by expanding the MIB tree down through: **ISO>Org>Dod>Internet>Management>MIB-2**. Of these, only the Interfaces Table is relevant for the Cisco DVB CAR100 and this information is therefore included in the description of SNMP traps.

The second group is found by expanding the MIB tree down through: **ISO>Org>Dod>Internet>Management>Private>Enterprises>2942(2942)>RCM>Objects**. It includes:

- System

- Software

- Hardware

- Event

    - Event Table

- Interfaces

    - DVB

    - DVB Connections

    - DVB Downstream

    - DVB Upstream

    - DVB Niu MAC

- Ethernet

    - Ethernet RX/TX

- IP

    - Route Table

    - Net to Media Table

    - NAPT

    - Static Route Table

    - Trap

- Interface Table

- DHCP Server

  - DHCP Server Reserved Table

  - DHCP Server Lease Table

- C

  - C-Table

The third group contains EuroModem parameters that have yet to be standardized. For this reason these are called "experimental", indicating changes can be forthcoming. They are found by expanding the MIB tree down through:
ISO>Org>Dod>Internet>Management>Private>Enterprises>2942(2942)>RCM>Objects>rcm Experimental>dvb Device>dvb Niu>dvb Niu MIBobjects and include:

- DVB NIU System

  - DVB NIU Static IP Table

- DVB NIU Software

  - DVB NIU Software Version Table

- DVB NIU DHCP

  - DVB NIU DHCP Table

- DVB NIU Event

  - DVB NIU Event Control Table

  - DVB NIU Event Table

Note   All the MIBs needed to use the Cisco DVB CAR100 are included in the **rcm.mib** file supplied with the Cisco Cable DVB/DAVIC Management Program. The latest version of the file can also be downloaded from the Cisco web site. To extend the information and options provided by this application it can be useful to add the **RFC1213.mib**, **RFC2571.mib**, **RFC2851.mib** and the **rcmeeu.mib** (EuroModem MIB) to the database of MIB files referenced by the program.

Click **Options>Options>MIB Files...>Add**[browse to relevant MIB files]>**OK.**

System

Table 5-1   System MIBs

Parameter	MIB	Description
MIB version	*rcmMibVersion*	Shows the MIB version used by the Cisco DVB CAR100. This is a read-only field.
Reset Now	*rcmResetNow*	This field can have three states: • **ready** (1) • **reset** (2) • **terminate** (13) After selecting **reset** (2), the Cisco DVB CAR100 will return to **ready** (1). To end the DVB interface, set the parameter to **terminate** (13). This option is included to enable you to remotely turn off a Cisco DVB CAR100, which can be useful if, for example, the unit is creating "noise" upstream. After using **terminate** (13), access using the DVB interface will not be possible until the next reset (that is, a power reset). **Note** If you intend to terminate a subscriber's cable modem connection, Cisco recommends informing the subscriber first: advise the subscriber not to turn it on again and explain how you plan to resolve the issue. After a **reset**, parameters revert to their last saved values.
Host Name	*rcmHostname*	This field contains the network name of the cable modem. To change the name, enter a new name (up to 128 characters), and then press **Set**.
Mac Address	*rcmMacAddress*	This field shows the Ethernet MAC address of the cable modem at the Ethernet interface. This is a read-only field.
IP Address	*rcmIpAddress*	This is the IP address for the Ethernet connection to the Cisco DVB CAR100. To change the address, enter a new one and press **Set**. Default: 192.168.128.2. Active after **saveSettings**.

Parameter	MIB	Description
Net Mask	*rcmNetmask*	This is the IP subnet mask of the Ethernet side of the cable modem. To change the mask, enter a new one and press **Set**. Default: 255.255.255.0. Active after **saveSettings**.
Gateway	*rcmGateway*	This is the default gateway of the Cisco DVB CAR100, and must be placed on the cable side. If set to 0.0.0.0, the Cisco DVB CAR100 software will make a qualified guess. BOOT-P overrules the address. Changes will be active after **saveSettings**.
Reset Count	*rcmResetCount*	This field shows how often a reset has been performed since it was last reset to the factory-default settings. Read-only field.
Read Community	*rcmReadCommunity*	In this field, enter the same community name as set in the MIB browser application to enable read access to the Cisco DVB CAR100. Allows access by *get*, *get-next,* and *get-bulk* (SNMP commands). To change the community name, type in the new name. Default: **public**. Max. 128 characters.
Write Community	*rcmWriteCommunity*	In this field, enter the same community name as set in the MIB browser application to enable write access to the cable modem. Allows access by *set, get*, *get-next,* and *get-bulk (*SNMP commands). To change the community, type in the new community name. Default: **private**. Max. 128 characters.

Parameter	MIB	Description
Date and Time	*rcmDateandTime*	Shows system data if SNTP is enabled (that is, your network is connected to an SNTP server). The format is YYYY-MM-DD,HH,MM:SS:S
		If your network is not connected to an SNTP server, this MIB might not appear.
		Cisco recommends synchronizing the date and time of the Cisco DVB CAR100 with your management PC.
		This MIB can be from 18 to 22 characters.
		Read-only field.
Uptime	*rcmUpTime*	This field shows the time (in hundreds of seconds) since the cable modem was re initialized the last time.
		Read-only field.
Serial Number	*rcmSerialNo*	This field shows the serial number of the cable modem.
		Read-only field.
Network Manager IP Address	*rcmNmIpAddress*	This is the network manager's IP address where traps are sent if implemented. If set to 0.0.0.0, traps are turned off.
		Default: **0.0.0.0**.
Settings	*rcmSettings*	In this field, you can set and read settings from the Cisco DVB CAR100's Flash memory or set it back to the default factory settings.
		Values available:
		• **ready** (1)
		• **readSettings** (2)—read settings from Flash memory
		• **saveSettings** (3)—write settings to Flash memory
		• **factory defaults** (4)—return to factory defaults
		If you want to save changes to Flash memory, set this parameter to **saveSettings** (3). After changing this parameter, the cable modem automatically performs a reset, and then sets this parameter to **ready** (1) again.
		Default: **ready** (1).

Parameter	MIB	Description
LED State	*rcmLedState*	This indicates the status of the main and cable LEDs. Apart from **ready** (5), the settings that can only be read using a direct Ethernet connection are: • **terminated-all-leds-off** (0) • **power-up** (1) • **frequency-search-started** (2) • **sending-bootp-request** (4) • **ready** (5) • **resetting** (6) • **frequency-search-started-again** (11) Note that the **frequency-search-started** (2) and **frequency-search-started-again** (11) have the same LED blink pattern. During **power-up** (1) and **resetting** (2) the cable modem might not respond.
Software Update Community	*rcmSwUpdateCommunity*	The software update community string is a password to protect against accidental software upgrade. This password must be matched to get write access to software upgrades. ⚠️ **Caution** If you change the software upgrade password from the factory default (that is, **default**) and then lose or forget the new password, there is no backdoor solution. You will have effectively rendered the Cisco DVB CAR100 unconfigurable. This password can also be used to set/get the read and write passwords. Default: **default**.
rcm Eth BOOTP	*rcmEthBOOTP*	When set to **on**, the Cisco DVB CAR100 uses BOOT-P to configure the Ethernet interface. Changes will be active after **saveSettings**. Default: **off**.

Parameter	MIB	Description
rcm DHCPMode	*rcmDHCPMode*	The Cisco DVB CAR100 offers three options: • **DHCP-server** • **DHCP-relay** • **Static configuration** When set to **DHCP-server**, the Cisco DVB CAR100 acts as a DHCP server. Use the **rcmDHCPServer** group to configure the Cisco DVB CAR100's DHCP-server. When set to **DHCP-relay**, the Cisco DVB CAR100 forwards DHCP-messages from its Ethernet to the INA, and turns off NAPT. **Note** It is necessary to manually configure the address of the DNS server in the PC(s) connected to the Cisco DVB CAR100. Default: **DHCP-server** Changes will be active after **saveSettings**.
rcm DHCPOption 82	*rcmDHCPOption82*	Two options: • **on** • **off** When set to **on**, the relay agent will process and add option 82. Relay agent information. Default: **off** Changes will be active after **saveSettings**.
rcm IPAddress	*rcmIPAddress*	This is the IP address of the DHCP-forwarding server. The broadcast address is 255.255.255.255. Default: **255.255.255.255** Changes will be active after **saveSettings**.
rcm Dvb IPAddress	*rcmDvbIPAddress*	This is the static DVB IP address of the Cisco DVB CAR100, and is used when **rcmDvbBOOTP** is set to **off**. Changes will be active after **saveSettings**.
rcm Dvb Netmask	*rcmDvbNetmask*	This is the static DVB IP subnet mask of the Cisco DVB CAR100, and is used when **rcmDvbBOOTP** is set to **off**. Changes will be active after **saveSettings**.
rcm Dvb BOOTP	*rcmDvBOOTP*	When set to **on**, the Cisco DVB CAR100 uses BOOT-P to configure the DVB interface. Default: **on** Changes will be active after saveSettings.

Parameter	MIB	Description
rcm Operation Mode	*rcmOperationMode*	This is the operation mode of the modem. Set to **router** for routing only and **bridge** for bridging only. Default: **router** Changes will be active after **saveSettings**.
rcm SNTPServer	*rcmSNTPServer*	This is the address of SNTP-server that will be used if no SNTP-server address is given by BOOT-P. Set to **0.0.0.0** to deactivate. Changes will be active after **saveSettings**.

Caution   If you change the software upgrade password from the factory default (that is, **default**) and then lose or forget the new password, there is no backdoor solution. You will have effectively rendered the Cisco DVB CAR100 unconfigurable.

Software

The following table shows the commands available for upgrading the Cisco DVB CAR100's software and information about software versions.

Note   To perform a software upgrade, you must address the cable modem using an extra security password, see "Setting Community String Passwords" on page 4 of Chapter 4, "Configuring the Cisco DVB CAR100".

For step-by-step instructions see the "Performing a Software Upgrade" section on page 4-10.

Table 5-2   Software MIBs

Parameter	MIB	Description
Server	*rcmSwServer*	This field shows the IP address of the TFTP server used for software upgrades. Default: **0.0.0.0**.
Filename	*rcmSwFilename*	In this field, enter the name of the file you want to download with TFTP, and include the path to the file if necessary. Max. 128 characters.

Parameter	MIB	Description
Admin status	*rcmSwAdminStatus*	In this field, you can force the cable modem to upgrade the software image from a connected TFTP server.
		This field has the following values:
		- **upgradeNow** (1): The cable modem starts a TFTP software image download using **rcmSwServer** and **rcmSwFilename**.
		- **allowSwUpgrade** (2): Having received a software image successfully, the cable modem sets its state to **allowSwUpgrade**.
		- **ignoreSwUpgrade**(3): If the software upgrade failed, the cable modem is set to this state.
		- **copyUpgradeToFallBack**(4): If this value is selected when upgrade is running, the Cisco DVB CAR100 will copy the upgrade to the fall-back software version.
		You can only set the state **upgradeNow** (1) and **copyUpgradeToFallBack**(4).
		Use the value for **rcmSwCommunity** as the community string to set this value.
		Default value: **allowSwUpgrade**.
Fallback version	*rcmSwFallBackVer*	This field shows the software fallback version (Image 1) if an upgrade fails.
		Read-only field.
		Max. 128 characters.
Upgrade version	*rcmSwUpgradeVer*	This field shows the software version of the latest upgrade (Image 2). If the upgrade has been successful, this field will show the new running version after the next reboot.
		Read-only field.
		Max. 128 characters.
Running version	*rcmSwRunningVer*	This field shows the software version currently being used.
		Read-only field.
rcm Sw Running Date	*rcmSwRunning Date*	Date of software currently running.
Software Bootload Version	*rcmSwBootloadVer*	This is the version of the bootloader currently being used in the Cisco DVB CAR100. Other information such as a time stamp for the bootloader might be included.
		Read-only field.

Parameter	MIB	Description
Software Type	*rcmSwType*	Use this MIB to define whether the Cisco DVB CAR100 runs as a single PC version (Cisco DVB CAR100-PC) or if it is LAN-enabled (Cisco DVB CAR100-LAN).
		Select one of the following:
		• **lan**
		• **one-pc**
		Click **Set**.
		Changes to this field will become active after you have performed a **saveSettings** and rebooted the cable modem.
		Note Before upgrading from the Cisco DVB CAR100-PC to the Cisco DVB CAR100-LAN, make sure you have a Cisco DVB CAR100-LAN license for each cable modem being upgraded.
Rcm Sw Running Build Date	*rcmSwRunningBuild Date*	Date of the software currently being used.

Hardware

Table 5-3   Hardware MIBs

Parameter	MIB	Description
CPU Type	*rcmHwCPUType*	This indicates which CPU is being used in the Cisco DVB CAR100.
		Read-only field.
CPU Partnum	*rcmHwCPUPartnum*	This indicates the CPU's part number read from the Internal Memory Map Register (IMMR).
		This information can be relevant for software upgrades of the Cisco DVB CAR100.
		Read-only field.
CPU Masknum	*rcmHwCPUMasknum*	This is another variable of the CPU read from the Internal Memory Map Register (IMMR).
		It can be relevant for software upgrades of the Cisco DVB CAR100.
		Read-only field.
rcm HW FLASH Type	*rcmHwFLASHType*	Flash type.

Event

Table 5-4   Event MIBs

Parameter	MIB	Description
Memory Policy	*rcmEventMemPol*	The Memory Policy field offers three options for what the device should do when out of memory: • **wrap** (1)—Wrap around: events will be overwritten in chronological order when the event log is full. • **stop** (2)—Stops events being logged when the log is full • **oneHour** (3)—Items older than one hour will be overwritten; a conditional form of **wrap** (1). • **clear**—Clears the event table (4) Default: wrap (1).

Event Table

Table 5-5   List of Event Table MIBs

Event Type	*rcmEventType*	Events are classified into three groups: • **error** (1) • **warning** (2) • **information** (3)
Event Time	*rcmEventTime*	The system time when the event occurred.
Event Code	*rcmEventCode*	The code number of the event.

Event Description	*rcmEventDescription*	An implementation-dependent description of the event that activated this log entry. These include:
		illegal snmpset attempt, wrong community name—Appears when using an existing snmpset but the wrong community name.
		SNMP terminating DVB-interface and turning off master and cable LEDs—Appears when using snmpset to terminate the cable modem.
		Initiating download procedure—This message can be followed after some time by one or more of the following:
		Filename error... downloaded aborted,
		Invalid tftp host address,
		tftp_get failed,
		Downloaded file OK
		The last message means the file has been downloaded, checked, accepted, and burned to Flash memory. You will also receive this message when you successfully copy software Image 2 over software Image 1 (i.e. perform a fallback image upgrade).
Time and Date	*rcmEventTimeAnd Date*	The system time and date when the event occurred.

Interfaces

This section describes the DVB parameters, connections, downstream and upstream commands and the Ethernet interface indices.

DVB

Table 5-6   DVB MIBs

Parameter	MIB	Description
Firmware version	*rcmDvbFwVer*	This field shows the firmware version of the Cisco DVB CAR100.
		Read-only field.
Mode	*rcmDvbMode*	Use this field to set the Cisco DVB CAR100 to unidirectional and bidirectional mode.
		• **one-way** (1)—Not currently supported
		• **two-way** (2)—Bidirectional, with return channel
		For some Cisco DVB CAR100s, this value cannot be changed.

Parameter	MIB	Description
High State	*rcmDvbHighState*	This field shows that the MAC protocol has signed on. • **ready (1)** • **not ready (2)** Read-only field.
Low State	*rcmDvbLowState*	This field shows the DVB Low State Level (QAM) and Forward Error Correction (FEC) Lock after having found a valid downstream. • **ready (1)** • **not ready (2)** Read-only field.

DVB Connections

Table 5-7   DVB Connection MIBs

Parameter	MIB	Description
Max. connections	*rcmDvbConMax*	This field shows the maximum number of possible connections for this unit. Always shows 5. Read-only field.

DVB Downstream

Table 5-8   DVB Downstream MIBs

Parameter	MIB	Description
QAM Lock	*rcmDvbDsQamLock*	This field shows the modulation lock status: • **locked (1)** • **unlocked (2)** Read-only field.
FEC Lock	*rcmDvbDsFecLock*	This field shows the Forward Error Correction (FEC) lock status: • **locked (1)** • **unlocked (2)** This field must show locked. Otherwise the cable modem does not work. Read-only field.
Uncorrectable RS Errors	*rcmDvbDsUnCorrectRs*	This field shows the number of uncorrectable Reed Solomon errors in the downstream. Read-only field.

Parameter	MIB	Description
Correctable RS Errors	*rcmDvbDsCorrectRs*	This field shows that the number of corrected Reed Solomon errors in the downstream. Read-only field.
MAC messages received	*rcmDvbDsMacMessRx*	This field shows the MAC messages received Read-only field.
Downstream Input Level	*rcmDvbDsInputLevel*	Estimated input level in 0.1 dB microvolt. Read-only field.
Downstream SNR Estimate	*rcmDvbDsInputLevel*	Estimated Signal Noise Ratio estimate in 0.1 dB Read-only field.
Frequency	*rcmDvbDsFrequency*	This field shows the downstream frequency in Hz. This frequency is found during the startup procedure of the unit and programmed in the memory. For more information, see the "Setting Downstream Channel Frequencies" section on page 4-8. Read-only field.
QAM Mode	*rcmDvbDsQAMMode*	This field shows the QAM mode. The following values will appear: • **qpsk (2)** • **qam8 (3)** • **qam16 (4)** • **qam32 (5)** • **qam64 (6)** • **qam128 (7)** • **qam256 (8)** The only QAM modes that the Cisco DVB CAR100 uses are **qpsk** (2) and **qam64** (6). Read-only field.
Symbol rate	*rcmDvbDsSymbolRate*	This field shows the downstream symbol rate in Kbaud. Read-only field.
Default Freq 1	*rcmDvbDsDefaultFreq1*	Here you can set the second auto programmed downstream frequency (in Hz) the cable modem will look for after start-up. The change will be active after **saveSettings**. For more information, see the "Setting Downstream Channel Frequencies" section on page 4-8. Default: **682 000 000 Hz**.

Parameter	MIB	Description
Default Freq 2	*rcmDvbDsDefaultFreq2*	Here you can set the third auto programmed downstream frequency (in Hz) the cable modem will look for after startup. The change will be active after **saveSettings**. For more information, see the "Setting Downstream Channel Frequencies" section on page 4-8. Default: **578 000 000 Hz**.
Default Freq 3	*rcmDvbDsDefaultFreq3*	Here you can set the fourth auto programmed downstream frequency (in Hz) the cable modem will look for after startup. The change will be active after **saveSettings**. For more information, see the "Setting Downstream Channel Frequencies" section on page 4-8. Default: **770 000 000 Hz**.
Default Freq 4	*rcmDvbDsDefaultFreq4*	Here you can set the fifth auto-programmed downstream frequency (in Hz) the cable modem will look for after start-up. The change will be active after **saveSettings**. For more information, see the "Setting Downstream Channel Frequencies" section on page 4-8. Default: **290 000 000 Hz**.
Programmed Freq P	*rcmDvbDsDefaultFreqP*	This is the first auto-programmed downstream frequency (in Hz) the cable modem will look for after start-up. The change will be active after **saveSettings**. For more information, see the "Setting Downstream Channel Frequencies" section on page 4-8. Default: **554 000 000 Hz**.

Downstream MultiCast	*rcmDvbDsMultiCast*	To enable downstream multicast on the DVB interface, set this field to **enable** (1).
		
		Two options are available:
		  • **enable (1)**
		  • **disable (2)**
		
		Changing this field will have effect before resetting.
		
		Default: **enable**.

Parameter	MIB	Description
Downstream Threshold	*rcmDvbDsThreshold*	This is the threshold value for the Cisco DVB CAR100 to sign on. If downstream power level is below this, the cable modem will not connect to the headend.
		The unit used is 0.1 dB relative to 1 microvolt.
		The range is 0 to 500.
		Default: **350**.
Allowed Symbol Rates	*rcmDvbDsAllowed SymbolRates*	This MIB allows you to exclude two specific symbol rates, and three options are therefore available:
		• **exclude -6875** (1)
		• **exclude -6900** (2)
		• **all** (3)
		Default: **all**.
		Changes are active after a **saveSettings**.

DVB Upstream

Table 5-9   DVB Upstream MIBs

Parameter	MIB	Description
Frequency	*rcmDvbUpFrequency*	This field shows the upstream frequency in Hz. This frequency is controlled by the Cisco DVB CAR100 and can be changed there.
		Read-only field.
Output Level	*rcmDvbUpOutputLevel*	Output level in 0.1 * dB relative to 1E-06 V.
		Unit: 0.1 * dB re 1E-06 V
Multicast	*rcmDvbUpMulticast*	To enable upstream multicast on the DVB interface, set this field to **enable** (1).
		Two options are available:
		• **enable** (1)
		• **disable** (2)
		Changing this field will have effect before resetting.
		Default: **disable**.

DVB Niu MAC

The DVB Network Interface Unit (Niu) MAC table records the frequency with which the Cisco DVB CAR100 adjusts its performance to optimize its connection with the headend. High values can indicate operating problems.

Table 5-10   rcm DVB Niu MAC MIBs

Parameter	MIB	Description
rcm Dvb Mac Time Rangings	*rcmDvbMacTimeRangings*	Time rangings received.
rcm Dvb Mac Power Calibrations	*rcmDvbMacPowerCalibrations*	Power calibrations received.
rcm Dvb Mac Releases	*rcmDvbMacReleases*	Releases received.

Ethernet

Table 5-11   Ethernet MIBs

Parameter	MIB	Description
Speed	*rcmEthSpeed*	This field shows the Ethernet speed in megabits per second (Mbps). Default value: **10 Mbps**. Read-only field.
State	*rcmEthState*	This field shows the current Ethernet state • **ready (1)** • **other (2)** Read-only field.

Ethernet RX/TX

Table 5-12   Ethernet RX/TX MIBs

Parameter	MIB	Description
RX OK	*rcmEthRx0k*	This field shows the number of bytes received without errors on the Ethernet interface. Read-only field.
RX Errors	*rcmEthRxError*	This field shows the number of Ethernet frames received with errors on the Ethernet interface Read-only field.
TX Bytes	*rcmEthTx*	This field shows the number of bytes sent from the Ethernet interface. Read-only field.

IP

In this section of the MIB are:

- Route Table—The IP routing table contains an entry for each route presently known to this entity. In this section, you can view the destination IP addresses of a route and routing metrics.

- Net to Media table—IP translation table to physical addresses for the Ethernet interface toward connected PCs.

- NAPT—Network Address Translation at port level (NAPT) table containing IP address translation as a security feature toward the connected PCs.

- Static Route Table—Read-only and not dynamically updated as it is currently static.

- Trap—the table of MIBs relating to SNMP traps.

- Interface Table

Route Table

Table 5-13   Route Table MIBs

Parameter	MIB	Description
Destination	*rcmIpRouteDest*	The destination IP address of this route. An entry with a value of **0.0.0.0** is considered a default route. Multiple routes to a single destination can appear in the table, but access to such multiple entries is dependent on the table-access mechanisms defined by the network management protocol being used.
Interface Index	*rcmIpRouteIfIndex*	The index value that uniquely identifies the local interface through which the next hop of this route should be reached. The interface identified by a particular value of this index is the same interface identified by the same value of **ifIndex** (read-only).
Metric 1	*rcmIpRouteMetric1*	The primary routing metric for this route. The semantics of this metric are determined by the routing protocol specified in the route's **rcmIpRouteProto** value. If this metric is not used, its value should be set to **-1** (read-only).
Metric 2	*rcmIpRouteMetric2*	An alternate routing metric for this route. The semantics of this metric are determined by the routing protocol specified in the route's **rcmIpRouteProto** value. If this metric is not used, its value should be set to **-1** (read-only).
Metric 3	*rcmIpRouteMetric3*	An alternate routing metric for this route. The semantics of this metric are determined by the routing protocol specified in the route's **rcmIpRouteProto** value. If this metric is not used, its value should be set to **-1** (read-only).

Parameter	MIB	Description
Metric 4	*rcmIpRouteMetric4*	An alternate routing metric for this route. The semantics of this metric are determined by the routing protocol specified in the route's **rcmIpRouteProto** value. If this metric is not used, its value should be set to **-1** (read-only).
Next Hop	*rcmIpRouteNextHop*	The IP address of the next hop of this route. In the case of a route bound to an interface realized via a broadcast media, the value of this field is the agent's IP address on that interface (read-only).
Type	*rcmIpRouteType*	Possible values: • **other** (1)—None of the following • **invalid** (2)—An invalidated route / route to **direct** • **direct** (3)—Connected (sub) network • **indirect** (4)—Route to a non-local host/network/subnetwork The type of route. Note that the values **direct** (3) and **indirect** (4) refer to the notion of direct and indirect routing in the IP architecture. Setting this object to the value **invalid** (2) invalidates the corresponding entry in the **rcmIpRouteTable** object. That is, it effectively disassociates the destination identified with that entry from the route identified with said entry. It is an implementation-specific matter as to whether the agent removes an invalidated entry from the table. Accordingly, management stations must be prepared to receive from agents tabular information that corresponds to entries not currently in use. Proper interpretation of such entries requires examination of the relevant **rcmIpRouteType** object. Read-only field.

Parameter	MIB	Description
Protocol	*rcmIpRouteProto*	Possible values: • **other** (1)—None of the following • **local** (2)—Non-protocol information, e.g. manually configured entries • **netmgt** (3)—Set via a network management protocol • **icmp** (4)—Obtained via ICMP, e.g. redirect • The following values are all gateway routing protocols: **egp** (5), **ggp** (6), **hello** (7), **rip** (8), **is-is** (9), **es-is** (10), **ciscoIgrp** (11), **bbnSpfIgp** (12), **ospf** (13), **bgp** (14) This indicates the routing mechanism by which this route was learned. Inclusion of values for gateway routing protocols is not intended to imply that hosts should support those protocols. Read-only field.
Age	*rcmIpRouteAge*	The number of seconds since this route was last updated or otherwise determined to be correct. Note that no semantics of *too old* can be implied except through knowledge of the routing protocol by which the route was learned. Read-only field.
Mask	*rcmIpRouteMask*	Indicates the mask to be connected (using a logical AND) to the destination address before being compared to the value in the **rcmIpRouteDest** field. For those systems that do not support arbitrary subnet masks, an agent constructs the value of the **rcmIpRouteMask** by determining whether the value of the correspondent **rcmIpRouteDest** field belong to a class A, B, or C network, and then using one of: **Mask** **Network** 255.0.0.0 class A 255.255.0.0 class B 255.255.255.0 class C If the value of the **rcmIpRouteDest** is **0.0.0.0** (a default route), then the mask value is also **0.0.0.0**. It should be noted that all IP routing subsystems implicitly use this mechanism. Read-only field.

Parameter	MIB	Description
Metric 5	*rcmIpRouteMetric5*	An alternate routing metric for this route. The semantics of this metric are determined by the routing protocol specified in the route's **rcmIpRouteProto** value. If this metric is not used, its value should be set to **-1**. Read-only field.
Information	*rcmIpRouteInfo*	A reference to MIB definitions specific to the particular routing protocol responsible for this route, as determined by the value specified in the route's **rcmIpRouteProto** value. If this information is not present, its value should be set to the OBJECT IDENTIFIER (**0 0**), which is a syntactically valid object identifier, and any conformant implementation of ASN.1 and BER must be able to generate and recognize this value. Read-only field.

Net to Media Table

IP address translation is used on the Ethernet side of the Cisco DVB CAR100 toward connected PCs.

It maps IP addresses to physical addresses and contains the IP address to physical address (MAC address) equivalences.

Table 5-14   Net to Media Table MIBs

Parameter	MIB	Description
Table	*rcmIpNetTo MediaTable*	The IP address translation table used for mapping IP addresses to physical addresses.
Entry	*rcmIpNetTo MediaEntry*	Each entry contains one **IpAddress** to physical address equivalence.
Interface Index	*rcmIpNetTo MediaIfIndex*	The interface on which this entry's equivalence is effective. The interface identified by a particular value of this index is the same interface identified by the same value of **ifIndex** (Integer).
Physical Address	*rcmIpNetTo MediaPhys Address*	The media-dependent physical address (Integer).

Parameter	MIB	Description
Net Address	*rcmIpNetTo MediaNet Address*	The IP address corresponding to the media-dependent physical address (Integer).
Type	*rcmIpNetTo MediaType*	The type of mapping. Possible values: • **other** (1) • **invalid** (2)—None of the following • **dynamic** (3)—An invalidated mapping • **static** (4) Setting this object to the value **invalid** (2) invalidates the corresponding entry in the **rcmIpNetToMediaTable**. It is an implementation-specific matter as to whether the agent removes an invalidated entry from the table. Accordingly, management stations must be prepared to receive from agents tabular information corresponding to entries not currently in use. Proper interpretation of such entries requires examination of the relevant **rcmIpNetToMediaType** object.

NAPT

Use these commands to set up public IP addresses for the addressed cable modem. Up to eight public IP addresses can be set up for each cable modem.

Note Make sure the headend is correctly set up to support public IP addresses on the cable modems, either by turning NAPT off in the headend or by making a corresponding routing entry to the cable modem.

Table 5-15   NAT MIBs

Parameter	MIB	Description
Status	*rcmIpNaptStatus*	In this field you can set NAPT to the following: • **on** (1) • **off** (2) When set to **on** (1), public IP addresses are allowed on the Ethernet side of the cable modem. Default: **on**. Changes are active after **saveSettings**.
IP 1	*rcmIpNaptIP1*	Enter the first public IP address which is allowed in this cable modem. The public IP address must be on the same subnet as all other IP addresses on the Ethernet side of the cable modem. To undo the public IP address, enter 0.0.0.0 as the IP address. Default: **0.0.0.0**. Changes are active after **saveSettings**.
IP 2 ... 8	*rcmIpNaptIP2 ... 8*	Enter the respective IP addresses—up to eight public IP addresses can be set up. The public IP address used as such must be on the same subnet as all other IP addresses on the Ethernet side of the cable modem. To undo the public IP address, enter 0.0.0.0 as the IP address. Default: **0.0.0.0**. Changes are active after **saveSettings**.

Protocols Tested with NAPT Forwarding

The following protocols have been verified for NAPT forwarding:

- SNMP
- TFTP
- FTP
- Web/HTML
- Telnet
- DNS
- TCP/UDP traffic that does not carry a source or destination IP address in the application data stream, with the exception of IP multicast.

Static Route Table

Table 5-16   IP Static Route Table

Parameter	MIB	Description
Route Index	*rcmIpStaticRoute Index*	Index
Active	*rcmIpStaticRoute Active*	Set to **yes** (1) to activate this route or set to **no** (0) to de-activate this route.
Destination	*rcmIpStaticRouteDest*	The destination IP address of this **StaticRoute**. An entry with a value of 0.0.0.0 is considered a default **StaticRoute**. Multiple **StaticRoutes** to a single destination can appear in the table, but access to such multiple entries is dependent on the table-access mechanisms defined by the network management protocol in use.
Mask	*rcmIpStaticRoute Mask*	Indicate the mask to be logical-ANDed with the destination address before being compared to the value in the **rcmIpStaticRouteDest** field. For those systems that do not support arbitrary subnet masks, an agent constructs the value of the **rcmIpStaticRouteMask** by determining whether the value of the correspondent **rcmIpStaticRouteDest** field belong to a class-A, B, or C network, and then using one of: • mask network • 255.0.0.0 class-A • 255.255.0.0 class-B • 255.255.255.0 class-C If the value of the **rcmIpStaticRouteDest** is **0.0.0.0** (a default StaticRoute), then the mask value is also **0.0.0.0**. It should be noted that all IP routing subsystems implicitly use this mechanism.
Gateway	*rcmIpStaticRoute Gateway*	The IP address of the next hop of this **StaticRoute**. (In the case of a **StaticRoute** bound to an interface which is realized via a broadcast media, the value of this field is the agent's IP address on that interface.)

Trap

Table 5-17   Table of Trap MIBs

Parameter	MIB	Description
Trap Rate	*rcmIpTrapRate*	Maximum allowed number of SNMP traps to send within **rcmIpTrapTime**. If set to **0** then trap rate is unlimited.

Trap Time	*rcmIpTrapTime*	Time in hundredths of a second for sending maximum **rcmIpTrapMaxNo** SNMP traps. If set to **0** then trap time is unlimited.
Trap Auth Fail	*rcmIpTrapAuthFail*	Enables or disables the Authentication failure trap.
Trap Sent	*rcmIpTrapSent*	Number of traps sent.
Trap Stopped	*rcmIpTrapStopped*	Traps that were not sent, due to trap rate or other configuration.

Interface Table

The following MIBs are found by expanding the MIB tree down through: **ISO>Org>Dod>Internet> Management>MIB-2** and provide more detailed information on traps sent by the Cisco DVB CAR100**.**

Table 5-18   List of MIBs in System Interfaces Table

Parameter	MIB	Description
Interface Index	*ifIndex*	A unique value for each interface. Its value ranges between 1 and the value of **ifNumber**. The value for each interface must remain constant at least from one re-initialization of the entity's network management system to the next re-initialization.
Description	*ifDescr*	A textual string containing information about the interface. This string should include the name of the manufacturer, the product name and the version of the hardware interface. Length: 0 to 255 characters
Type	*ifType*	The type of interface, distinguished according to the physical/link protocol(s) immediately `below' the network layer in the protocol stack.
Physical Address	*ifPhysAddress*	The interface's address at the protocol layer immediately `below' the network layer in the protocol stack. For interfaces which do not have such an address (e.g., a serial line), this object should contain an octet string of zero length.
Operational Status	*ifOperStatus*	The current operational state of the interface. The **testing** (3) state indicates that no operational packets can be passed.

DHCP Server

Table 5-19   Table of MIBs for DHCP Server

Parameter	MIB	Description
rcm DHCPSvr Lease Duration	*rcmDHCPSvrLease Duration*	Lease duration for the Cisco DVB CAR100's DHCP-server. Unit: seconds Default value: **7200** Changes will be active after **saveSettings**.
rcm DHCPSvr Grace Period	*rcmDHCPSvrGrace Period*	Grace period for the Cisco DVB CAR100's DHCP-server. Unit: seconds Default value: **1200** Changes will be active after **saveSettings**.
rcm DHCPSvr Ping Response Time	*rcmDHCPSvrPing ResponseTime*	Ping response time for the Cisco DVB CAR100's DHCP-server. Unit: milliseconds Default value: **2000** Changes will be active after **saveSettings**.
rcm DHCPSvr DOMAIN NAME	*rcmDHCPSvr DOMAIN-NAME*	DHCP-server's domain name. Changes will be active after **saveSettings**.
rcm DHCPSvr DOMAIN IP	*rcmDHCPSvr DOMAIN-IP*	DHCP-server's domain IP address. Changes will be active after **saveSettings**.

DHCP Server Reserved Table

Table 5-20   DHCP Server Reserved Table MIBs

Parameter	MIB	Description
rcm DHCPSvr Res Index	*rcmDHCPSvrResIndex*	DHCP-server reserved lease table index.
rcm DHCPSvr Res State	*rcmDHCPSvrResState*	Reserved lease state one of: off(0) on(1) Default value: off Changes will be active after **saveSettings**

rcm DHCPSvr Res Ip Addr	*rcmDHCPSvrResIpAddr*	Reserved lease IP-address. Changes will be active after **saveSettings**.
rcm DHCPSvr Res Mac Addr	*rcmDHCPSvrResMacAddr*	Reserved lease MAC-address. Length: 6 bytes Hint: 1x: Changes will be active after **saveSettings**.

DHCP Server Lease Table

Table 5-21   DHCP Server Lease Table MIBs

Parameter	MIB	Description
rcm DHCPSvr Lease Index	*rcmDHCPSvr LeaseIndex*	DHCP-server lease table index.
rcm DHCPSvr Lease State	*rcmDHCPSvr LeaseState*	The lease state can be one of the following: • **empty (0)** • **used (1)** • **used_before (2)** • **not-allowed (3)** • **lease-check (4)** • **lease-offered (5)**
rcm DHCPSvr Lease Ip Addr	*rcmDHCPSvr LeaseIpAddr*	The lease IP-address. Changes will be active after **saveSettings**.
rcm DHCPSvr Lease Mac Addr	*rcmDHCPSvr LeaseMacAddr*	Reserved lease MAC-address. Length: 6 bytes Hint: 1x: Changes will be active after **saveSettings**.
rcm DHCPSvr Lease Time Assigned	*rcmDHCPSvr LeaseTime Assigned*	The system time this lease was assigned. Units: Seconds
rcm DHCPSvr Lease Time Elapsed	*rcmDHCPSvr LeaseTime Elapsed*	The amount of time this lease has been assigned. Units: Seconds

C

The "C" group is for intended for internal Cisco use. In the event of a unit failure, the Cisco DVB CAR100 will attempt to write information to its memory. Typically this data can be viewed, saved, or deleted. The data is stored in the **C-Table**.

Table 5-22   "C" MIBs

Parameter	MIB	Description
C-Action	*rcmC-Action*	Returns **ready** [or full which indicates the c-memory is full]. Set **delete** to erase current c-info. Set **save** to save current info as c-info.
C-Counter 1	*rcmC-Counter1*	The reserved lease state is either: • off(0) • on(1) Default value: off Changes will be active after **saveSettings**
rcm C-Dvb Niu Dbg Command 1	*rcmC-DvbNiu DbgCommand1*	Dummy **DvbNiuDbgCommand1**, active after setting **DvbNiuDbgCommand2**. Has an implementation-specific function. Resets to 0 when modem boots.
rcm C-Dvb Niu Dbg Command 2	*rcmC-DvbNiu DbgCommand2*	Dummy **DvbNiuDbgCommand2**. Has implementation-specific function. Resets to 0 when modem boots.
rcm C-Special Dbg Command	*rcmC-Special DbgCommand*	This is a dummy **SpecialDbgCommand** that has an implementation-dependent function. Returns always **0** when read. Some implementations may not support all commands listed. Set to **ready** for more help. • **dhcp-server-stats** • **eth-stats** • **platform-stats** • **mac-protocol-stats** • **mid-layer-stats** • **data-link-stats** • **channel-link-stats** • **general-stats** • **ready**
rcm C-Log Buffer Size	*rcmC-Log BufferSize*	Log buffer size.
rcm C-Log File Name	*rcmC-LogFile Name*	Log file name. Length: 0 to 128 characters
rcm C-Tftp Address	*rcmC-Tftp Address*	IP address for the FTTP server used for dump of log data buffer.

rcm C-Viewer Address	*rcmC-Viewer Address*	IP address for online log viewer.
rcm C-Viewer Port	*rcmC-Viewer Port*	User Datagram Protocol (UDP) port for online log viewer.
rcm C-Output Control	*rcmC-Output Control*	Log output control. Choose between: • **dump-log-data-buffer** • **stop-online-log** • **start-online-log** • **ready**
rcm C-Online State	*rcmC-Online State*	Online log state. Possible readings: • **idle**
rcm C-On Dump State	*rcmC-OnDump State*	Online dump state. Possible readings: • **idle**
rcm C-Build By	*rcmC-BuildBy*	Initials of software builder. Length: 0 to 128 characters
rcm C-Build On	*rcmC-BuildOn*	The computer used for building this software. Length: 0 to 128 characters

C-Table

The **C-Table**, which is managed using **rcm C-Action,** contains any information recorded by the Cisco DVB CAR100 in the event of a system failure.

Table 5-23   C-Table MIBs

Parameter	MIB	Description
C-Action	*rcmC-Action*	Double-click on rcmC-Action to access the following options: • **ready** (1) • **full** (2) • **delete** (3) • **save** (4) Default: **ready** (1).
C-Counter 1	*rcmC-Counter1*	Counter 1
C Table	*rcmC-Table*	Features four lists of C-info (see below).
C Index	*rcmC-Index*	Shows the line number.
C Info 1	*rcmC-Info1*	C-information 1. Length: 0 to 200 characters
C Info 2	*rcmC-Info2*	C-information 2. Length: 0 to 200 characters

C Info 3	*rcmC-Info3*	C-information 3.
		Length: 0 to 200 characters
C Info 4	*rcmC-Info4*	C-information 4.
		Length: 0 to 200 characters

Tips To view all C-info use the command:
snmpwalk -v1 1.2.3.4 public .1.3.6.1.4.1.2942.3.1.10
To view first C-info:
snmpwalk -v1 1.2.3.4 public .1.3.6.1.4.1.2942.3.1.10.2.1.2

The remaining MIBs for the Cisco DVB CAR100 can be found by expanding the tree structure and following the path: **rcm Experimental > dvbDevice > dvbNiu > dvbNiuMIBobjects > dvbNiuSystems**.

DVB NIU System

Table 5-24   DVB NIU System MIBs

Parameter	MIB	Description
dvb Niu Mib Version	*dvbNiuMib Version*	The MIB version number.
		(e.g. **draft-ietf-ipcdn-dvbnetint-mib-01.txt**)
		Length: 0 to 255 characters
		Hint: 255a
dvb Niu Serial Num	*dvbNiuSerial Num*	This is the serial number of the equipment. It should identify the manufacturer, model and revision of the equipment**.**
		(e.g. **222222M-001DFE-22**)
		Length: 0 to 255 characters
		Hint: 255a
dvb Niu Reset Now	*dvbNiuReset Now*	When this object is set to **resetNow** it will cause a hardware reset followed by sign on. When read this object returns **ready**.
		Two possible settings:
		• **ready**
		• **resetNow**
dvb Niu Reset Counts	*dvbNiuReset Counts*	This counts the number of system resets since the last power on.
dvb Niu Date And Time	*dvbNiuDateAnd Time*	The date and time. See RFC1903
		Length: 8 or 11 bytes
		Hint: 2d-1d-1d,1d:1d:1d.1d,1a1d:1d

dvb Niu Oper Status	*dvbNiuOper Status*	The operational status of the NIU. • **provisioning**—the NIU is currently provisioning. • **running**—the NIU has at least one operating connection. • **stopped**—the NIU has no operating connection. • **failed**—the NIU has experienced a failure which prevents further operation. • **other**—used for any case that is not explicitly identified
dvb Niu Modemtype	*dvbNiuModem type*	The EuroModem class to which the NIU belongs as specified in ECCA EuroModem Specification version 1.0

dvb Niu Config Set	*dvbNiuConfig Set*	This object is used to manage the configuration of the NIU. The following can be used to set the object:
		• **storeConfig**—stores the current configuration to non-volatile storage. This action changes configuration status to **localSaved**.
		• **readConfig**—retrieves the configuration held in non-volatile storage. This action changes configuration status to **local**
		• **setFactory**—sets the current configuration to factory default. This excludes static assigned IP addresses. This action changes configuration status to **factoryDefault**
		• **local**—the configuration is unchanged since being retrieved from non volatile storage. When changed it becomes **localUnsaved**
		• **localUnsaved**—the configuration has changed and requires storing. When stored it becomes **localSaved**
		• **localSaved**—the current configuration has been saved since being retrieved from non-volatile storage
		• **factoryDefault**—the current configuration is the factory default and requires saving. Once saved it becomes **localSaved**. If modified it becomes **localUnsaved**
dvb Niu Impl Set	*dvbNiuImplSet*	This object when read identifies which optional groups have been implemented. Implemented groups have their bit set. The bits represent the following:
		• **dhcp**—dvbNiuDhcp group
		• **ipFilters**—dvbNiuIpFilter group
		• **ethFilters**—dvbNiuEthFileter group
		• **addrTransNat**—dvbNiuNat group
		• **addrTransNapt**—dvbNiuNapt group

DVB NIU Static IP Table

Table 5-25   DVB NIU Static IP Table MIBs

Parameter	MIB	Description
dvb Niu Static Ip Addr Type	*dvbNiuStaticIp AddrType*	The type of IP address assigned to the interface: • **dns** (domain name server) • **IPv6** • **IPv4** • **unknown**
dvb Niu Static Ip Addr	*dvbNiuStaticIp Addr*	The IP address assigned to the interface. Length: 1 to 64 characters
dvb Niu Static Ip Mask Type	*dvbNiuStaticIp MaskType*	The type of IP address expressed by the mask. • **dns** (domain name server) • **IPv6** • **IPv4** • **unknown**
dvb Niu Static Ip Mask	*dvbNiuStaticIp Mask*	The IP subnet mask for the interface. Length: 0 to 255 characters
dvb Niu Static Ip Status	*dvbNiuStaticIp Status*	This controls and reflects the status of the row. Rows can be created by using both **createAndGo** and **createAndWait**. Rows can be modified/deleted ONLY if the SNMP set request destination IP address is NOT assigned by the row being modified/deleted unless. Possible values: • **destroy** • **createAndWait** • **createAndGo** • **notReady** • **notInService** • **active**

DVB NIU Software

Table 5-26   DVB NIU Software MIBs

Parameter	MIB	Description
dvb Niu Sw Server Addr Type	*dvbNiuSw ServerAddrType*	The type of address used for the TFTP server. • **dns (domain name server)** • **IPv6** • **IPv4** • **unknown**
dvb Niu Sw Server	*dvbNiuSw Server*	This is the IP address of the TFTP server used for software updates. Length: 0 to 255 characters.
dvb Niu Sw Filename	*dvbNiuSwFile name*	This is the filename (including the path) for the software image that is to be downloaded. Length: 0 to 500 characters

dvb Niu Sw Download Slot	*dvbNiuSwDownloadSlot*	This identifies the image slot into which the software is to be downloaded. You can manually select this slot.
		Slot 0 is a special case which is used to identify a direct to RAM download, which should only be used for diagnostic purposes.
		By default this object points to the first empty slot. If there are no empty slots it will point to the first backup image.
		Range: 0 to 100
dvb Niu Sw Admin Status	*dvbNiuSwAdminStatus*	This will administer the software upgrade and provide status of its progress.
		• **InitiateUpgrade**—This is the only admin selectable value and initiates the upgrade.
		• **ContactingTFTPServer**—The TFTP server is being contacted.
		• **DownloadInProgress**—The image is currently being downloaded to the Niu.
		• **TFTPFailure**—There was a failure at the TFTP layer while downloading.
		• **BadImage**—The downloaded software image failed an integrity check.
		• **BadHardware**—The downloaded software image is not suitable for the hardware platform
		• **DownloadSuccessful**—The download of the software image was successful
		• **Idle**—No attempt to download software has been made since the last reset

DVB NIU Software Version Table

Table 5-27   DVB NIU Software Version Table MIBs

Parameter	MIB	Description
dvb Niu Sw Version	*dvbNiuSwVersion*	The version of the software located in the slot. This is a manufacturer-dependant string.
		Length: 0 to 255 characters
		Hint: 255a

dvb Niu Sw State	*dvbNiuSwState*	The execution state of the software in the slot. • If the software is currently executing the state will be **executing**. • If the software tried to execute but failed it will be **failed**. • If the software is not in use then it will be **none**.
dvb Niu Sw Action	*dvbNiuSw Action*	When the NIU is initializing, this identifies which software image should be used. • **boot**—Identifies that this software should be used at initialization. There must be one software version with this action and there must be only one. • **backup**—This is used to identify a software version to use in the event that the boot version fails. Multiple software versions may have this action. In this case they will be tried in slot order. • **none**—This is used to identify a software version that is not used at initialization. • **emptySlot**—Identifies the slot as containing no software. If this is applied to a slot that currently contains a software image the image will be erased and not identified in the slot.
dvb Niu Sw DateTime	*dvbNiuSwDate Time*	The date and time when the software update was performed.

DVB NIU DHCP

DVB NIU DHCP Table

Table 5-28   DVB NIU DHCP Table MIBs

Parameter	MIB	Description
dvb Niu Dhcp Server Addr Type	*dvbNiuDhcp ServerAddrType*	The type of IP address for the DHCP server. • **dns** (domain name server) • **IPv6** • **IPv4** • **unknown**

dvb Niu Dhcp Server	*dvbNiuDhcp Server*	The IP address of the DHCP/BOOTP server to be used for DHCP/BOOTP requests destined for, or received by, the interface.
		This server MUST be accessible through the HFC interface.
		The broadcast IP address must be used when the IP address is to be unspecified or the interface is the HFC interface.
		Length: 0 to 255 characters
dvb Niu Dhcp Relay	*dvbNiuDhcp Relay*	This is used to select whether the NIU will relay DHCP/BootP requests received from this interface to the HFC interface. This option is ignored for the HFC interface.
		• **enabled**—Relay DHCP/BootP as per RFCs 951,1542, 2131
		• **disabled**—Discard DHCP/BootP
dvb Niu Dhcp Req If	*dvbNiuDhcp ReqIf*	This is used to select whether the NIU will request an IP address by DHCP/BootP for this interface via the HFC interface. If this is disabled then there must be an entry in the static IP table for this interface.
		• **enabled**—Request address by DHCP/BootP
		• **disabled** —Use static IP address assignment
dvb Niu Dhcp Ser Type	*dvbNiuDhcpSer Type*	This is used to identify whether the specified server for the interface is the primary server or a backup. In the event that the primary server does not respond, the backup server is used.
		While there can be only one primary server for an interface, there can be multiple backup servers. The backup servers use the values **dvbNiuDhcpRelay** and **dvbNiuDhcpReqIf** specified for the primary server for the interface if a primary server is present - otherwise the values are as defined for the backup server row.
		The order in which backup servers are tried is implied by the value of **dvbNiuDhcpIndex**, lowest first. This field is not applicable for the HFC interface.

dvb Niu Dhcp State	*dvbNiuDhcp State*	This is the status for DHCP for this interface. • **idle**—No DHCP request has been made • **waitingForDHCPoffer**—Waiting for DHCP offer • **waitingForDHCPack**—Waiting for DHCP ack • **assigned**—IP address for I/F assigned by DHCP.
dvb Niu Dhcp Status	*dvbNiuDhcp Status*	Controls and reflects the status of rows in this table. Rows in this table may be created by either the **createAndGo** or **createAndWait** paradigms. There is no restriction on changing values in a row of this table while the row is active. Possible values: • **destroy** • **createAndWait** • **createAndGo** • **notReady** • **notInService** • **active**

DVB NIU Event

Table 5-29   DVB NIU Event MIBs

Parameter	MIB	Description
dvb Niu Event Policy	*dvbNiuEvent Policy*	Here you can define the event log policy: • **wrap**—When full the log wraps • **stop**—Stop event logging when full • **oneHour**—Clear the log at the start of every hour • **clearNow**—Clears the event log and the previous policy is restored. The default value at the initial startup is **wrap**.
dvb Niu Event Table Max Size	*dvbNiuEvent TableMaxSize*	The maximum number of entries the event log may hold. Range: 1 to 2147483647

DVB NIU Event Control Table

Table 5-30   DVB NIU Event Control Table MIBs

Parameter	MIB	Description
dvb Niu Event Control Policy	*dvbNiuEvent ControlPolicy*	This table defines the action to be taken for the defined event priorities. A row will exist for each priority: • **emergency** • **alert** • **critical** • **error** • **warning** • **notice** • **information** • **debug** The priority level that is controlled by this entry. These are ordered from most (**emergency**) to least (**debug**) critical. Each event with a NIU has a particular priority level associated with it (as defined by the vendor). During normal operation, no event more critical than **notice**(6) should be generated. Events between **warning** and **emergency** should be generated at appropriate levels of problems (e.g. emergency when the box is about to crash).
dvb Niu Event Control Action	*dvbNiuEvent ControlAction*	A bit field is used to identify the action to be taken for the event priority. Actions can be: • **table**—Place the event in the event table; • **trap**—Issue an SNMP trap

DVB NIU Event Table

Table 5-31   DVB NIU Event Table MIBs

Parameter	MIB	Description
dvb Niu Event Type	*dvbNiuEvent Type*	This is the priority of the event.
dvb Niu Event Date Time	*dvbNiuEvent DateTime*	This is the date and time the event occurred.
dvb Niu Event Description	*dvbNiuEvent Description*	This is a vendor specific textual description of the event.

dvb Niu Event Code	*dvbNiuEvent Code*	This is the event code which uniquely identifies the event. The event codes should be in the form *tppxxxxx* where:
		"*t*" identifies who allocated the event identifier:
		• d =dvb,
		• v = vendor
		"*pp*" identifies the priority:
		• em = emergency
		• al = alert
		• cr = critical
		• er = error
		• wa = warning
		• no = notice
		• in = information
		• de = debug
		"*xxxxx*" is the event identifier made up of five characters.
dvb Niu Event Status	*dvbNiuEvent Status*	There are six possible settings:
		• **destroy**
		• **createAndWait**
		• **createAndGo**
		• **notReady**
		• **notInService**
		• **active**
		However this MIB can only be used to delete individual events and therefore the only valid management operation is **destroy**, which causes the event to be deleted.
		When read this object should always return **active**.