



Configuring the Cisco DVB CAR100

This chapter describes the basic steps for configuring the Cisco DVB CAR100:

- Getting Started
- Setting Community String Passwords
- Enabling the Cisco DVB CAR100-LAN
- Interfaces to the Cisco DVB CAR100
- Setting a Public IP Address
- Enabling and Disabling IP Multicast
- Switching NAT On and Off
- Setting Downstream Channel Frequencies
- Performing a Software Upgrade

The Cisco DVB CAR100 is configured using an SNMP agent and the Cisco Cable DVB/DAVIC Management Program. The SNMP agent included with the Cisco DVB CAR100 has also been verified with the following MIB browsers:

- HP OpenView for Windows NNM Release B.06.00
- HP OpenView for Windows NNM Release B.06.01

Using these tools, you can view and change settings for each Cisco DVB CAR100 and monitor the data traffic and user profiles.



Tips

Configuration can either be done remotely via the HFC network or you can connect a management PC directly to the Cisco DVB CAR100 using a standard Ethernet cable. This allows you to preconfigure the cable modems prior to installation.

Getting Started

The Cisco DVB CAR100 is configured using the Cisco Cable DVB/DAVIC Management Program installed on your management PC, or another MIB browser.



Note

Note that your management PC must be connected to the same LAN as your BOOTP server.



Note

To take advantage of the time and date MIBs requires connecting to an SNTP server. This is an option and not a pre-requisite for using the Cisco DVB CAR100.

To start configuring the Cisco DVB CAR100:

Step 1 Ensure your management PC is connected to the cable modem via the HFC cable interface.



Note

You can also connect a management PC directly to the Cisco DVB CAR100 by plugging a standard Ethernet cable into the cable modem's Ethernet socket and the other end into your management PC's Ethernet adapter. Remember that the default Ethernet IP address is 192.168.128.2 and that you must be on the same subnet mask as the cable modem for, example, 192.168.128.10

Step 2 Ensure you have the IP addresses of the cable modems you want to configure.

These are supplied by your BOOTP or DHCP server.

Step 3 Open the Cisco Cable DVB/DAVIC Management Program, click **New** in the **Network Devices** menu and enter the **Name** (optional), **IP address**, and **Community** of the cable modem to which you want to connect. Click **OK**. The details you have just entered will now appear in the top frame of the browser window.



Note

In the **Options** menu, you can select whether to view the MIB labels as they are defined in the MIB or have them converted to text. This manual uses the text format.

Step 4 Now select the cable modem you have just entered and click **Get All** (F5) from the **Value** menu.

All data and variables will now be retrieved from that specific cable modem.



Timesaver

Use scripting if you want to address a group of cable modems at one time. However, this cannot be done using the Cable DVB/DAVIC Management Program.



Tips

Double-clicking on a variable in the description column will open a dialog box where new values can be entered, including a description of that parameter. Alternatively, you can highlight a parameter and select **Show Properties** from the **Value** menu.

Setting Community String Passwords

Three security levels for community strings are available:

Community Type	Location	Function	Default Setting
Read community	rcm System	Used to read the current cable modem settings	public
Write community	rcm System	Used to read and change the current cable modem settings	private
Software upgrade community	rcm System	Used to perform a software upgrade to the cable modem	default



Note

It is important to synchronize the passwords in the MIB browser with those in the MIB file of the Cisco DVB CAR100. Note that community strings (passwords) are case sensitive.



Tips

The community strings “public” and “private” are default access passwords defined in the SNMP standard. Cisco recommends changing the default passwords to prevent the Cisco DVB CAR100 from being accidentally reconfigured. Passwords can contain up to 128 alphanumeric characters. Depending on the number of cable modems involved, you can save time by dividing them into groups with different passwords for each.



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.

Enabling the Cisco DVB CAR100-LAN

The Cisco DVB CAR100 can be configured to support a single PC (called the Cisco DVB CAR100-PC) or up to 20 PCs (called the Cisco DVB CAR100-LAN). The default setting is the single PC version. To change this setting to the LAN version:

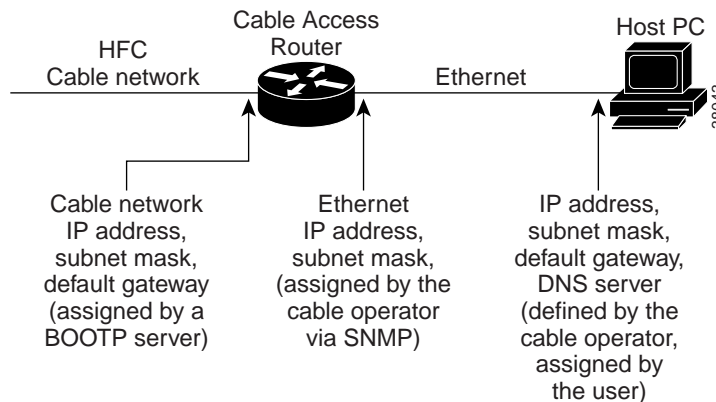
- Step 1 Address the Cisco DVB CAR100 you want to reconfigure.
- Step 2 Open the **Software** group of MIBs
- Step 3 Double-click **rcmSwType**.
- Step 4 In the Properties window, select the **LAN** value.
- Step 5 Click **Set**.

The change will first become active after performing a **saveSettings**. For instructions on how to do this, see the section “System” in Chapter 5, “Management Information Base”

Interfaces to the Cisco DVB CAR100

Figure 4-1 gives an overview of the different communication parameters (IP addresses, subnet mask, and gateway) for the Cisco DVB CAR100 and the subscriber’s computer.

Figure 4-1 Communication Parameters for the Cisco DVB CAR100



Cisco DVB CAR100 and HFC Interface

Each Cisco DVB CAR100 includes a BOOTP client and arrives preconfigured with a unique MAC address. This address is also printed on a sticker affixed to the bottom of each cable modem and is included with the documentation accompanying the Cisco DVB CAR100. During the sign-on process, the BOOTP client automatically sends a request to the service provider’s BOOTP or DHCP server, quoting the MAC address. In return, it is assigned a unique IP address, a subnet mask, and a default gateway. These communication parameters are subsequently used for all data traffic to and from the HFC network.

Cisco DVB CAR100 and Ethernet Interface

To enable the Cisco DVB CAR100-PC to communicate with the subscriber’s PCs or, in the instance of the Cisco DVB CAR100-LAN, the hub, it uses a default, factory-installed Ethernet IP address (192.168.128.2) and subnet mask.

You can also change the default private IP address and subnet mask for all data traffic to PCs connected to the Ethernet. For more information, see the section “Changing Cisco DVB CAR100 Settings” in Chapter 3, “Cisco Cable DVB/DAVIC Management Program”.

PC to Ethernet Interface

The subscriber’s PC must be configured with a private IP address, subnet mask, default gateway (the Cisco DVB CAR100) and the address of a DNS server defined by the service provider. Subscribers cannot change the default Ethernet interface IP address and subnet mask—this can only be done by the service provider.

By default, the CAR100 supports Network Address Translation (NAT) at port level. This means all IP addresses on the connected PCs are private and cannot be *reached* by the outside world. NAT can be switched off using SNM (see the section “Switching NAT On and Off” section on page 4).



Note It is the responsibility of the service provider to ensure that globally available IP addresses are assigned correctly.



Note With NAT switched on, the Cisco DVB CAR100-LAN supports up to eight public IP addresses on the subscriber’s PCs. These are set up by the service provider at the subscriber’s request.



Note The Cisco DVB CAR100-LAN only supports one subnet. This means all PCs connected via a hub to the Cisco DVB CAR100-LAN must be configured to be on the same subnet. The default value for the subnet can be changed by the service provider.

Setting a Public IP Address

With NAT switched on (default), you can configure up to 8 public IP addresses on the subscriber’s PC. These public IP addresses will be available on the HFC network and might, for example, be used as a web server on one of the subscriber’s PCs.

To set a public IP address:

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- Step 1** Address the desired cable modem.
 - Step 2** In the section IP, click **NAPT** and then double-click one of the eight IP addresses. Enter the global IP address and click **Set**.
 - Step 3** To activate the changes you have made, click **rcm System** and then double-click the variable **Settings**. In the dialog box that appears, select **saveSettings** from the pull-down menu and click **Set**. This will write the new settings to Cisco DVB CAR100’s Flash memory.



Note The public IP address must be on the same subnet as all other IP addresses on the Ethernet side of the cable modem. Only one subnet is supported.

Enabling and Disabling IP Multicast

The Cisco DVB CAR100 supports downstream and upstream IP multicasts. These settings are configured in the Interfaces MIB group in the Downstream and Upstream subgroups, respectively.

Downstream IP multicast is enabled by default, while upstream IP multicast is disabled by default.

To change these settings:

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- Step 1** Select the relevant subgroup under **Interfaces>DVB>Downstream** or **Upstream**.

- Step 2 Double-click the Multicast MIB.
 - Step 3 Select a new value in the **Properties** window.
 - Step 4 Click **Set**.
- Changes take effect immediately.
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Switching NAT On and Off

The Cisco DVB CAR100 supports NAT at port level and the factory default setting is **On**. To switch NAT off:

- Step 1 Address the desired cable modem.
 - Step 2 In the **IP** section, click **NAPT** and double-click **Status**.
 - Step 3 Set to **off** (1).
 - Step 4 Save settings to activate the change.
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Caution

Switching off NAT will make all the private IP addresses of the PCs connected to the Cisco DVB CAR100 publicly available on the HFC network interface side of the cable modem.



Note

If NAT is disabled, please note that you must not use the same subnet on the Ethernet side for two or more cable modems.

Setting Downstream Channel Frequencies

General

The first time a Cisco DVB CAR100 signs on, it will search for a valid downstream frequency (this can take up to 20 minutes). When it finds a valid downstream frequency, it is written into the cable modem's Flash memory.



Tips

To view these values using the Cisco Cable DVB/DAVIC Management Program, see **Interfaces>DVB>Downstream>Programmed Freq** and **Default Fre 1 .. 4**.

The Cisco DVB CAR100 uses a "hit list" of five frequencies that it has successfully connected to in the past. These five programmable frequencies are checked first each time the cable modem starts up. If the Cisco DVB CAR100 does not find a valid INA, the Cisco DVB CAR100 begins checking the other downstream frequencies, while at factory-determined interleaved intervals checking the "hit list" again.

Table 4-1 shows the order and series of frequencies checked by the Cisco DVB CAR100 during sign-on.

Table 4-1 Order and Series of Frequencies During Sign-On

Step	Downstream Frequencies checked
1	Programmed Freq (DvbDsDefaultFreqP) <ul style="list-style-type: none"> • Default: 554 MHz
2 .. 5	Default Freq 1 .. 4 (DvbDsDefaultFreq1..4) <ul style="list-style-type: none"> • Default 1: 682 MHz • Default 2: 578 MHz • Default 3: 770 MHz • Default 4: 290 MHz
6	Scans 306 MHz to 862 MHz in step sizes of 8 MHz
7	Scans a number of VHF channels from 171 MHz to 227 MHz in step sizes of 1 MHz, specifically: 171, 178 to 179, 179.75, 186 to 187, 187.75, 194 to 195, 195.75, 202 to 203, 203.75, 210 to 211, 211.75, 218 to 219, 219.75, 226 to 227
8	Scans 234 MHz to 250 MHz in a step of 16 MHz
9	Scans 118 MHz to 300 MHz in step sizes of 1 MHz
9	Scans 301 MHz to 862 MHz in step sizes of 1 MHz
10	Scans 301.25 MHz to 862 MHz in step sizes of 1 MHz
11	Scans 301.5 MHz to 862 MHz in step sizes of 1 MHz
12	Scans 301.75 MHz to 862 MHz in step sizes of 1 MHz

To change the default values for the five "hit list" frequencies:

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- Step 1** Start your MIB browser.
- Step 2** Address the desired Cisco DVB CAR100 using its IP address.
- Step 3** Find the **Downstream** group of MIBs in **Interfaces>DVB** and click either: **Programmed Freq (rcmDvbDsDefaultFreqP)** or **Default Freq 1 .. 4 (rcmDvbDsDefaultFreq1..4)**.
- Step 4** Enter the new value (in Hertz) and confirm your selection by clicking **Set**.
The new settings will become operational after a **SaveSettings** is done.
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Performing a Software Upgrade

The software for the Cisco DVB CAR100 is stored in two Flash memories. The first contains the original factory-installed software, while the second can be updated with new software. If a problem occurs during an update, the Cisco DVB CAR100 typically reverts to the factory-installed software until a new version is downloaded successfully.

The software of the Cisco DVB CAR100 is downloaded using the Trivial File Transfer Protocol (TFTP) and activated via SNMP using your MIB browser.

To perform a software upgrade:

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- Step 1** If necessary, install a TFTP program on the management PC you want to use for the software upgrade. The management PC must be connected to the backbone of your HFC network where the units to be upgraded are installed.
 - Step 2** Copy the new software file to the root directory of the TFTP server program.
 - Step 3** Start the Cisco Cable DVB/DAVIC Management Program or MIB browser.
 - Step 4** Double-click on the Cisco DVB CAR100 you want to upgrade (or use the **Edit** command in the **Network Devices** menu and enter the relevant device's IP address). Check that the **Community** password matches the password defined for the **Software Upgrade Community** (**rcmSwUpgradeCommunity**) password in the **System (rcmSoftware)** section of your MIB browser. The factory default is **default**.



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.

- Step 5** Enter the **Software** section (**rcmSoftware**).
- Step 6** Click **Server (rcmSwServer)**.
- Step 7** Enter the IP address of the TFTP server to be used for the upgrade and click **Set**.
- Step 8** Click **Filename (rcmSwFilename)**.
- Step 9** Enter the TFTP filename (*.bin), and if necessary a path, and click **Set**.
- Step 10** Set **Admin status (rcmSwAdminStatus)** to **upgradeNow** and click **Set**.
This causes the Cisco DVB CAR100 to load the new software file—the status line of the TFTP servers will show a confirmation message.



Tips

To verify if the software upgrade has been successful, check that the value for **Upgrade version (rcmSwUpgradeVer)** in **rcm Software** matches the version you have just uploaded.

- Step 11** Reset the **Community** password back to the current read or write community password for the unit.
- Step 12** Now reset the cable modem by opening the section **rcm System** and clicking **Reset now**. In the Properties box that appears, select **reset (2)** from the pull-down menu and click **Set**.



Caution

Do not use the reset command within the first few minutes after initiating a software download. This can cause configuration conflicts. If the network is heavily loaded, Cisco recommends waiting even longer.



Tips

A power failure during a software upgrade can damage the new software image, **Image 2**. The Cisco DVB CAR100 will automatically revert to **Image 1** if **Image 2** is damaged. Simply start the download procedure again.
