



Installation of the Cisco DVB CAR100

This chapter provides information on how to install the Cisco DVB CAR100 cable access router. It includes the following sections:

- Minimum Installation Requirements of the Subscriber's PC
- Installing the Cisco DVB CAR100
- Configuring the Subscriber's PC
- Cisco DVB CAR100 Startup Sequence

The following paragraphs describe the cable modem installation procedure that the subscriber typically performs. This information is here to give a comprehensive picture of the installation of the Cisco DVB CAR100 at the subscriber premises and the configuration program for the Cisco DVB CAR100 at the cable service provider premises.



Note

Cisco recommends that you connect a maximum of 20 PCs to one Cisco DVB CAR100-LAN.

The Cisco DVB CAR100 package includes:

- A power supply (AC adapter)
- A country-specific power cable
- *Quick Start Guide for the Cisco DVB CAR100 Cable Access Router*

Minimum Installation Requirements—Subscriber PC

The requirements are different for the Cisco DVB CAR100-PC and the Cisco DVB CAR100-LAN.

Cisco DVB CAR100-PC

The minimum requirements for installing the Cisco DVB CAR100-PC at the subscriber are:

- Personal computer equipped with an Ethernet network adapter
- Crossover Ethernet cable
- Coaxial cable for the connection between the wall outlet and the cable modem
- HFC cable network connection
- Dedicated data wall outlet. If this is not available, a splitter with an integrated filter and a coaxial cable with F-connector (male at both ends) will be needed.

**Note**

It is the subscriber's responsibility to ensure that the PC is equipped with an Ethernet network adapter.

CAR100-LAN

The minimum requirements for installing the Cisco DVB CAR100-LAN are:

- Up to 20 PCs with Ethernet connectivity
- Ethernet hub
- Straight-through Ethernet cabling
- Coaxial cable for the connection between the wall outlet and the cable modem
- HFC cable network connection
- Dedicated data wall outlet. If this is not available, a splitter with an integrated filter and a coaxial cable with F-connector (male at both ends) will be needed.

**Note**

Before upgrading from the DVB CAR100-PC to the CAR100-LAN, make sure you have the necessary number of CAR100-LAN licenses.

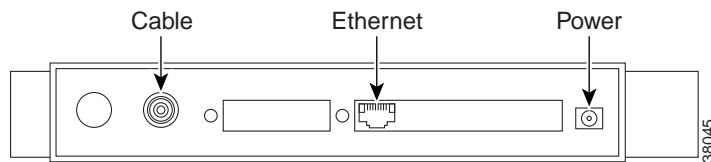
**Note**

In addition to ensuring the PCs have Ethernet connectivity, it is the subscriber's responsibility to ensure the hub is correctly connected.

Rear view

Figure 2-1 shows the rear view of the Cisco DVB CAR100 with all the connectors available.

Figure 2-1 Rear View of the Cisco DVB CAR100

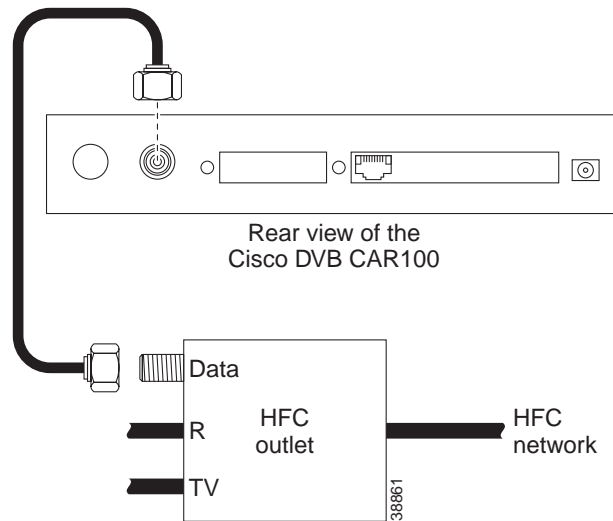


Installing the Cisco DVB CAR100

The Cisco DVB CAR100 is installed at the subscriber's premises. To install the Cisco DVB CAR100:

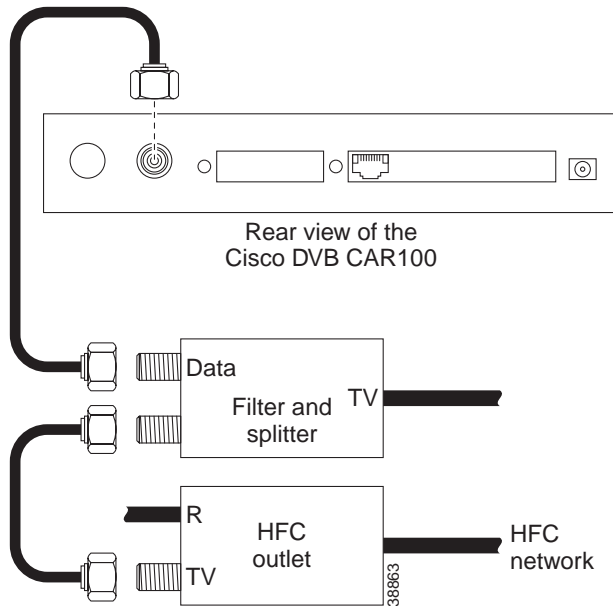
- Step 1** Connect the coaxial cable from the cable modem to the wall outlet. Use a shielded coaxial cable. If the wall outlet is prepared for bidirectional transmission, connect the cable modem as shown in Figure 2-2.

Figure 2-2 *Connecting the Cisco DVB CAR100 to Wall Outlets Prepared for Bidirectional Transmission*



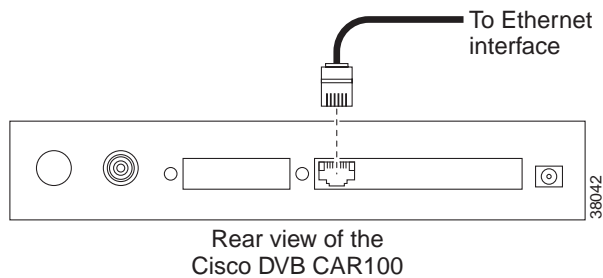
If the wall outlet is **not prepared** for bidirectional transmission, you will need extra cables and a filter and splitter (not included in the delivery) as illustrated in Figure 2-3.

Figure 2-3 Connecting the Cisco DVB CAR100 to Wall Outlets Not Prepared for Bidirectional Transmission



Step 2 Connect a 10BaseT Ethernet cable to the cable modem as shown in Figure 2-4.

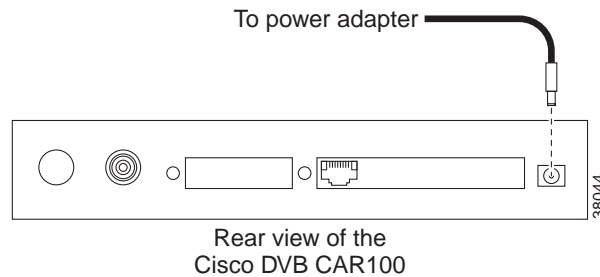
Figure 2-4 Connecting a 10BaseT Ethernet cable to the Cisco DVB CAR100



For the Cisco DVB CAR100-PC, the Ethernet cable is connected directly to a PC using a Class 5, RJ-45, **crossover**, shielded Ethernet cable.

For the Cisco DVB CAR100-LAN, the Ethernet cable is connected to a hub using a Class 5, RJ-45 **straight-through** shielded Ethernet cable.

Step 3 Connect the DC power adapter to the cable modem as shown in Figure 2-5.

Figure 2-5 Connecting the DC Power Cable to the Cisco DVB CAR100**Step 4** Connect the power adapter to the mains.

The Cisco DVB CAR100 has now been installed and the Master LED on the front of the cable modem will start blinking (amber) while the Cable LED on the rear side of the Cisco DVB CAR100 will be green.

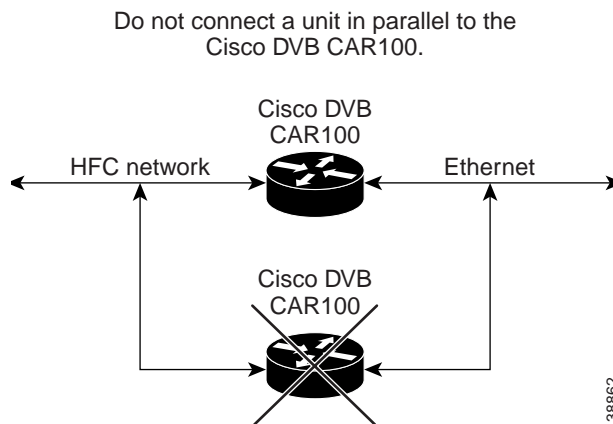
The Cisco DVB CAR100 starts the sign-on procedure automatically after power on.

**Tips**

Cisco recommends advising subscribers to leave the Cisco DVB CAR100 on at all times. This will ensure it is always available for software upgrades and other management tasks.

**Note**

The Cisco DVB CAR100 functions as a stub router and is therefore unable to operate with another CAR100 connected in parallel between the cable and the Ethernet.

Figure 2-6 Multiple Cisco DVB CAR100s Cannot be Connected in Parallel

Configuring the Subscriber's PC

After the Cisco DVB CAR100 is installed, it is typically the subscriber's responsibility to configure the TCP/IP protocol and set the IP address, subnet mask, and gateway in the connected PCs, based on information supplied by the service provider.

You can change the default private IP address and local subnet for the Cisco DVB CAR100's Ethernet interface prior to installation.

Basic instructions for Windows 95 and Windows 98 are included in the *"Cisco DVB CAR100 Cable Access Router Hardware Installation Guide"*.

The Cisco DVB CAR100-LAN will be connected to a hub. For information on how to do this, refer to the documentation supplied with that device.

CAR100 Startup Sequence

When you have connected and powered up the Cisco DVB CAR100 according to the instructions above, it will automatically initiate the sign-on procedure. After it has successfully signed on, it will stay on-line until the power supply is turned off.

Here is an overview of the startup sequence initiated when the Cisco DVB CAR100 connects to the HFC network.



Note

The Cisco DVB CAR100 uses the last saved settings each time it powers up—it does not revert to the factory defaults. This means that if Network Address Translation (NAT) was turned off last time the cable modem was shut down, it will still be off the next time you sign on.

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- Step 1** The DVB CAR100 performs a frequency scan to find a valid downstream frequency.
For further information see the "Setting Downstream Channel Frequencies" section on page 4-6.
 - Step 2** Having found a valid downstream frequency, the Cisco DVB CAR100 signs on using its factory-configured MAC address and requests an IP address from your BOOTP or DHCP server by issuing a BOOTP request.
 - Step 3** Using its MAC address, the Cisco DVB CAR100 is granted access to the HFC network.
 - Step 4** A BOOTP server connected to the network assigns the IP address, subnet mask and default gateway to the HFC interface of the cable modem.
 - Step 5** The DVB CAR100's internal clock is synchronized with the headend unit using Simple Network Time Protocol (SNTP) if your network is connected to an SNTP server.
 - Step 6** The factory default setting for Network Address Translation (NAT) is ON, while the IP address and subnet mask of the Ethernet side of the Cisco DVB CAR100 are set to their default values (unless other values were defined the last time the cable modem was shut down—see the note above).
 - Step 7** The factory default settings for downstream multicast is ON, while for upstream transmissions it is OFF (unless other values were defined the last time the cable modem was shut down—see the note above).
 - Step 8** The service provider can change these settings using SNMP and a MIB browser.

For more information, see the "Introducing the Cisco Cable DVB/DAVIC Management Program" section on page 3-1.

The first sign-on procedure might take up to 20 minutes because the Cisco DVB CAR100 has to find a valid downstream channel frequency. After this frequency is found, it is written in the memory of the unit and is available for the next sign-on procedure. For more information, see the "Setting Downstream Channel Frequencies" section on page 4-6.

**Tips**

If the Cisco DVB CAR100 is powered off, it should remain off for at least 10 minutes before being restarted. If the unit is powered on within 10 minutes, it is possible it will fail to reestablish communication with the service provider's headend unit. If this occurs, power the unit off again, and leave it off for at least 10 minutes. Then power on the Cisco DVB CAR100 again and communication with the service provider's headend unit should be reestablished as normal.

**Tips**

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- To verify if the sign-on has been successful, check if the Master LED on top of the Cisco DVB CAR100 has turned green.
 - If the LED on top of the cable modem does not turn green, check that the coaxial cable is correctly connected to the wall outlet.
 - If the Master LED still does not turn green, refer to the “If the Cisco DVB CAR100 is powered off, it should remain off for at least 10 minutes before being restarting. If the unit is powered on within 10 minutes, it is possible it will fail to re-establish communication with the service provider's head-end unit. If this occurs, power the unit off again, and leave it off for at least 10 minutes. Then power on the Cisco DVB CAR100 again and communication with the service provider's head-end unit should be re-established as normal.” section on page 6-2.

