February 2008

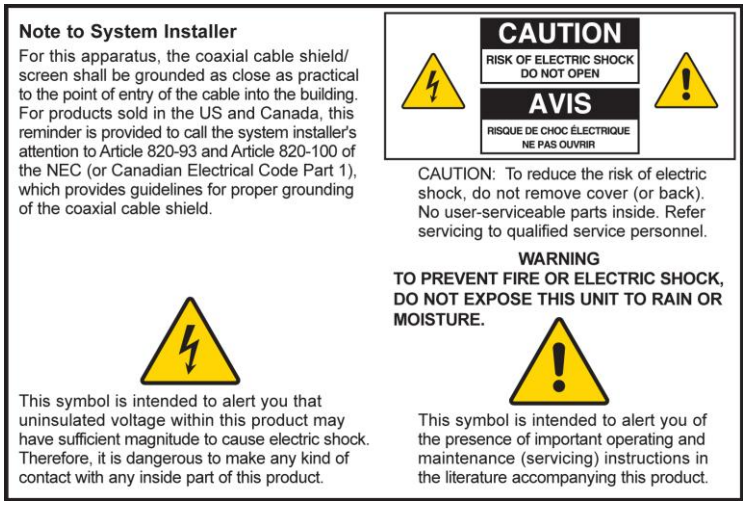
Cisco Model DPC2607 and EPC2607 Channel-Bonded EMTA User Guide

In This Document

IMPORTANT SAFETY INSTRUCTIONS

Notice to Installers

The servicing instructions in this notice are for use by qualified service personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions, unless you are qualified to do so.



20070112 SysInstaller 820 English

Notice à l'attention des installateurs de réseaux câblés

Les instructions relatives aux interventions d'entretien, fournies dans la présente notice, s'adressent exclusivement au personnel technique qualifié. Pour réduire les risques de chocs électriques, n'effectuer aucune intervention autre que celles décrites dans le mode d'emploi et les instructions relatives au fonctionnement, à moins que vous ne soyez qualifié pour ce faire.

20070112 SysInstaller 820 French

Mitteilung für CATV-Techniker

Die in dieser Mitteilung aufgeführten Wartungsanweisungen sind ausschließlich für qualifiziertes Fachpersonal bestimmt. Um die Gefahr eines elektrischen Schlags zu reduzieren, sollten Sie keine Wartungsarbeiten durchführen, die nicht ausdrücklich in der Bedienungsanleitung aufgeführt sind, außer Sie sind zur Durchführung solcher Arbeiten qualifiziert.

Mitteilung an den Systemtechniker

Für dieses Gerät muss der Koaxialkabelschutz/ Schirm so nahe wie möglich am Eintrittspunkt des Kabels in das Gebäude geerdet werden Dieser Erinnerungshinweis liegt den in den USA oder Kanada verkauften Produkten bei. Er soll den Systemtechniker auf Paragraph 820-93 und Paragraph 820-100 der US-Elektrovorschrift NEC (oder der kanadischen Elektrovorschrift Canadian Electrical Code Teil 1) aufmerksam machen, in denen die Richtlinien für die ordnungsgemäße Erdung des Koaxial-kabelschirms festgehalten sind.

Dieses Symbol weist den Benutzer auf das Vorhandensein von nicht isolierten gefährlichen Spannungen im Gerät hin, die Stromschläge verursachen können. Ein Kontakt mit den internen Teilen dieses Produktes ist mit Gefahren verbunden.

ACHTUNG: Zur Vermeidung eines Stromschlags darf die Abdeckung (bzw. die Geräterückwand) nicht entfernt werden. Das Gerät enthält keine vom Benutzer wartbaren Teile. Wartungsarbeiten dürfen nur von qualifiziertem Fachpersonal durchgeführt werden.

WARNUNG

DAS GERÄT NICHT REGEN ODER FEUCHTIGKEIT AUSSETZEN, UM STROMSCHLAG ODER DURCH EINEN KURZSCHLUSS VERURSACHTEN BRAND ZU VERMEIDEN.

Dieses Symbol weist den Benutzer darauf hin, dass die mit diesem Produkt gelieferte Dokumentation wichtige Betriebs- und Wartungsanweisungen für das Gerät enthält.

20070112 SysInstaller 820 German

Aviso a los instaladores de sistemas CATV

Las instrucciones de reparación contenidas en el presente aviso son para uso exclusivo por parte de personal de mantenimiento cualificado. Con el fin de reducir el riesgo de descarga eléctrica, no realice ninguna otra operación de reparación distinta a las contenidas en las instrucciones de funcionamiento, a menos que posea la cualificación necesaria para hacerlo.

Nota para el instalador del sistema

En lo que se refiere a este aparato, el blindaje del cable coaxial debe conectarse a tierra lo más cerca posible al punto por el cual el cable entra en el edificio. En el caso de los productos vendidos en los EE. UU. y Canadá, el presente aviso se suministra para llamar la atención del instalador del sistema sobre los Artículos 820-93 y 820-100 del NEC (o Código Eléctrico de Canadá, Parte 1), que proporcionan directrices para una correcta conexión a tierra del blindaje del cable coaxial.

Este símbolo tiene como fin advertirle de que una tensión sin aislamiento en el interior de este producto podría ser de una magnitud suficiente como para provocar una descarga eléctrica. Por consiguiente, resulta peligroso realizar cualquier tipo de contacto con alguno de los componentes internos de este producto.

ATENCIÓN: con el fin de reducir el riesgo de descarga eléctrica, no retire la tapa (ni la parte posterior). No existen en el interior componentes que puedan ser reparados por el usuario. Encargue su revisión a personal de mantenimiento cualificado.

ADVERTENCIA

PARA EVITAR EL RIESGO DE INCENDIO O DESCARGA ELÉCTRICA, NO EXPONGA LA UNIDAD A LA LLUVIA O A LA HUMEDAD.

Este símbolo tiene como fin alertarle de la presencia de importantes instrucciones de operación y mantenimiento (revisión) contenidas en la literatura que acompaña al producto.

20070112 SysInstaller 820 Spanish

Read These Instructions

Keep These Instructions

Heed All Warnings

Follow All Instructions

Power Source Warning

A label on this product indicates the correct power source for this product. Operate this product only from an electrical outlet with the voltage and frequency indicated on the product label. If you are uncertain of the type of power supply to your home or business, consult your service provider or your local power company.

The AC inlet on the unit must remain accessible and operable at all times.

Ground the Product

WARNING:

Avoid electric shock and fire hazard! Do not defeat the safety purpose of the polarized or grounding-type plug. A polarized plug has two blades with one wider than the other. A grounding-type plug has two blades and a third grounding prong. The wide blade or the third prong is provided for your safety. If the provided plug does not fit into your outlet, consult an electrician for replacement of the obsolete outlet.

If this product connects to coaxial cable wiring, be sure the cable system is grounded (earthed). Grounding provides some protection against voltage surges and built-up static charges.

Protect the Product from Lightning

For added protection, unplug this apparatus during lightning storms or when unused for long periods of time. In addition to disconnecting the AC power from the wall outlet, disconnect the signal inputs.

Verify the Power Source from the On/Off Power Light

When the on/off power light is not illuminated, the apparatus may still be connected to the power source. The light goes out when the apparatus is turned off, regardless of whether it is still plugged into an AC power source.

Eliminate AC Mains Overloads

WARNING:

Avoid electric shock and fire hazard! Do not overload AC mains, outlets, extension cords, or integral convenience receptacles. For products that require battery power or other power sources to operate them, refer to the operating instructions for those products.

Prevent Power Cord Damage

Protect the power cord from being walked on or pinched, particularly at plugs, convenience receptacles, and the point where the cord exits from the apparatus.

Provide Ventilation and Select a Location

- Do not block any ventilation openings. Install in accordance with the manufacturer's instructions.
- Do not place this apparatus on a bed, sofa, rug, or similar surface.
- Do not place this apparatus on an unstable surface.
- Do not install near any heat sources such as radiators, heat registers, stoves, or other apparatus (including amplifiers) that produce heat.
- Do not install this apparatus in an enclosure, such as a bookcase or rack, unless the installation provides proper ventilation.
- Do not place entertainment devices (such as VCRs or DVDs), lamps, books, vases with liquids, or other objects on top of this product.

Protect from Exposure to Moisture and Foreign Objects

Do not use this apparatus near water.

WARNING:

Avoid electric shock and fire hazard! Do not expose this product to liquids, rain, or moisture.

WARNING:

Avoid electric shock and fire hazard! Unplug this product before cleaning. Clean only with a dry cloth. Do not use a liquid cleaner or an aerosol cleaner. Do not use a magnetic/static cleaning device (dust remover) to clean this product.

WARNING:

Avoid electric shock and fire hazard! Never push objects through the openings in this product. Foreign objects can cause electrical shorts that can result in electric shock or fire.

Accessories Warning

WARNING:

Avoid electric shock and fire hazard! Only use attachments/accessories specified by your service provider or the manufacturer.

Service Warnings

WARNING:

Avoid electric shock! Do not open the cover of this product. Opening or removing the cover may expose you to dangerous voltages. If you open the cover, your warranty will be void. This product contains no user-serviceable parts. Refer all servicing to qualified service personnel.

Servicing is required when the apparatus has been damaged in any way, such as a power-supply cord or plug is damaged, liquid has been spilled or objects have fallen into the apparatus, the apparatus has been exposed to rain or moisture, does not operate normally, or has been dropped.

Check Product Safety

Upon completion of any service or repairs to this product, the service technician must perform safety checks to determine that this product is in proper operating condition.

Protect the Product When Moving It

Always disconnect the power source when moving the apparatus or connecting or disconnecting cables.

WARNING:

Avoid personal injury and damage to this product! Use only with the cart, stand, tripod, bracket, or table specified by the manufacturer or sold with the apparatus. When a cart is used, use caution when moving the cart / apparatus combination to avoid injury from tip-over.

20070802 Modem Cable w/out Battery

FCC Compliance

United States FCC Compliance

This device has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against such interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy. If not installed and used in accordance with the instructions, it may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment OFF and ON, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the cable company or an experienced radio/television technician for help.

Any changes or modifications not expressly approved by Cisco Systems, Inc., could void the user's authority to operate the equipment.

The information shown in the FCC Declaration of Conformity paragraph below is a requirement of the FCC and is intended to supply you with information regarding the FCC approval of this device. *The phone numbers listed are for FCC-related questions only and not intended for questions regarding the connection or operation for this device. Please contact your cable service provider for any questions you may have regarding the operation or installation of this device.*

FC Declaration of Conformity

This device complies with Part 15 of FCC Rules. Operation is subject to the following two conditions: 1) the device may not cause harmful interference, and 2) the device must accept any interference received, including interference that may cause undesired operation.

Cisco Model DPC2607 or EPC2607
Channel-Bonded EMTA
Model: DPC2607 and EPC2607
Manufactured by:
Cisco Systems, Inc.
5030 Sugarloaf Parkway
Lawrenceville, Georgia 30044 USA
Telephone: 678-277-1120

Canada EMI Regulation

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la class B est conforme à la norme NMB-003 du Canada.

20060628 FCC Standard

EU Certification

This product conforms to the following European directives:

CE -2006/95/EC

-2004/108/EC

Introducing the DPC2607 and EPC2607

Welcome to the exciting world of high-speed Internet access and high-quality digital telephone services. You have acquired one of the fastest cable modems available on the market today. Your new Cisco Model DPC2607 or Model EPC2607 Channel-Bonded Embedded Media Terminal Adapter (EMTA) offers high-end performance and superb reliability with data rates up to three times that of conventional DOCSIS® (DPC2607) and EuroDOCSIS™ (EPC2607) cable modems along with two lines of dependable digital telephone service. With your new DPC2607 or EPC2607, your Internet enjoyment, home and business communications, and personal and business productivity will surely soar.

This guide provides procedures and recommendations for placing, installing, configuring, operating, and troubleshooting your DPC2607 or EPC2607 cable modem for high-speed Internet or digital telephone service for your home or office. Refer to the appropriate section in this guide for the specific information you need for your situation. Contact your service provider for more information about subscribing to these services.

Benefits and Features

Your new DPC2607 or EPC2607 offers the following outstanding benefits and features:

Home Networking

- Provides a high-speed broadband Internet connection that energizes your online experience and helps enable trouble-free downloading and sharing files and photos with your family and friends
- Includes bridged Gigabit Ethernet (GigE) and 10/100BASE-T auto-sensing/ auto-MDIX Ethernet ports and a USB 2.0 data port for high-speed data services to other devices
- Supports up to 64 users (1 USB port and up to 63 users on user-supplied Ethernet hubs)
- Allows you to attach multiple devices in your home or office to the cable modem for high-speed networking and sharing of files and folders without first copying them onto a CD or diskette

Performance

- Includes DOCSIS 3.0 style downstream channel bonding using three independent tuners
- Offers interoperability with the following specifications to deliver high-end performance and reliability:
  - DPC2607: DOCSIS 3.0 compatibility and backward compatibility for operation in DOCSIS 2.0, 1.1, and DOCSIS 1.0 networks
  - EPC2607: EuroDOCSIS 3.0 compatibility and backward compatibility for operation in EuroDOCSIS 2.0, 1.1, and EuroDOCSIS 1.0 networks
- Contains an EMTA supporting two-line voice services
- Includes two RJ-11 telephony ports for connecting conventional telephones or fax machines

Design and Function

- Includes the WebWizard graphical user interface for simple setup
- Features Plug and Play operation for easy set up and installation
- LED status indicators on the front panel provide an informative and easy-to-understand display that indicates the cable modem status and real-time data transmission activity
- Uses an attractive compact design and a versatile orientation to lie flat on the desktop or mount easily on the wall

Management

- Allows automatic software upgrades by your service provider

What's In the Carton?

When you receive your cable modem, you should check the equipment and accessories to verify that each item is in the carton and that each item is undamaged. The carton contains the following items:

One Cisco Model DPC2607 or EPC2607 Cable Modem

One AC power adapter with power cord

One USB cable

One Ethernet cable (CAT5/RJ-45)

One CD-ROM containing the user's guide and the USB drivers

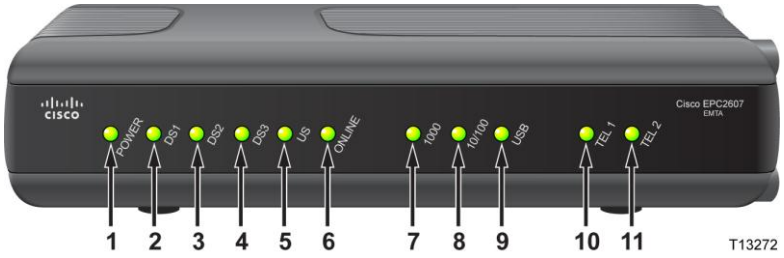
If any of these items are missing or damaged, please contact your service provider for assistance.

Notes:

- You need a cable signal splitter and additional standard RF coaxial cables if you want to connect a VCR, a Digital Home Communications Terminal (DHCT), a set-top converter, or a TV to the same cable connection as your wireless home gateway.
- Cables and other equipment needed for telephone service must be purchased separately. Contact your service provider to inquire about the equipment and cables you need for telephone service.

Front Panel Description

The front panel of your cable modem provides LED status indicators that show how well and at what state your cable modem is operating. See ***Front Panel LED Status Indicator Functions*** (on page 48) for more information on front-panel LED status indicator functions.



1 **POWER— ON** to indicate that AC power is being applied

2 **DS1 (Downstream 1)—** Indicates the status of the primary downstream channel. During normal operation this LED is always **ON**

3 **DS2 (Downstream 2)—** Indicates the status of a second downstream channel. During normal operation this LED is always **ON**. When **ON**, this LED confirms that channel bonding is active

4 **DS3 (Downstream 3)—** Indicates the status of a third downstream channel. During normal operation this LED is always **ON** if three channels are used for channel bonding

Note: If the DS2 and DS3 LEDs are **OFF** and the ONLINE LED is **ON**, this indicates that channel bonding is not active

5 **US** (Upstream)**—** Indicates the status of the connection for sending data. **ON** during normal operation

6 **ONLINE— ON** when the cable modem is registered on the network and fully operational

7 **1000— ON** to indicate that a Gigabit Ethernet carrier is present and blinks to indicate that Ethernet data is being transferred between the PC and the cable modem

8 **10/100— ON** to indicate that a 10/100BASE-T Ethernet carrier is present and blinks to indicate that Ethernet data is being transferred between the PC and the cable modem

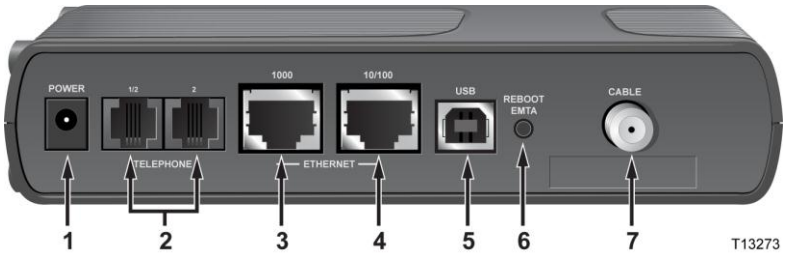
9 **USB— ON** to indicate that a USB carrier is present and blinks to indicate that USB data is being transferred between the PC and the cable modem

10 **TEL 1— ON** when telephony service is enabled. Blinks when line 1 is in use

11 **TEL 2—ON** when telephony service is enabled. Blinks when line 2 is in use

Back Panel Description

The following illustration shows the description and function of the back panel components on the DPC2607 and EPC2607.



Important: Do not connect your PC to *both* the Ethernet and USB ports at the same time. Your modem will not function properly if both the Ethernet and USB ports are connected to your PC at the same time.

1 **POWER—**Connects the cable modem to the DC output of the AC power adapter that is provided with your cable modem. Only use the AC power adapter and power cord that is provided with your cable modem

> **CAUTION:**
>
> **Avoid damage to your equipment. Only use the AC power adapter that is provided with your cable modem.**

2 **TELEPHONE (1/2 and 2)—**RJ-11 telephone ports connect to home telephone wiring to conventional telephones or fax machines

3 **ETHERNET 1000—**RJ-45 Ethernet port connects to the GigE or 10/1000BASE-T Ethernet port on your PC or your home network for a gigabit Ethernet connection

4 **ETHERNET 10/100—**RJ-45 Ethernet port connects to the 10/100BASE-T or GigE port on your PC or your home network for a 10/100BASE-T Ethernet connection

5 **USB—**USB 2.0 port connects to the USB port on your PC

6 **REBOOT EMTA—**Pressing this switch reboots the EMTA. Pressing this switch for more than three seconds resets the device to factory default values and reboots the EMTA

> **CAUTION:**
>
> **The Reboot EMTA button is for maintenance purposes only. Do not use unless instructed to do so by your service provider. Doing so may cause you to lose any cable modem settings you have selected.**

7 **CABLE**–F-Connector connects to an active signal from your service provider

Where Is the Best Location for My Cable Modem?

The ideal location for your cable modem is where it has access to outlets and other devices. Think about the layout of your home or office, and consult with your service provider to select the best location for your cable modem. Read this user's guide thoroughly before you decide where to place your cable modem.

Consider these recommendations:

- Position your PC and cable modem so that they are located near an AC power outlet.
- Position your PC and cable modem so that they are located near *both* an existing cable input connection and an existing telephone outlet to eliminate the need to install additional cable or telephone outlets. There should be plenty of room to guide the cables away from the modem and the PC without straining or crimping them.
- Airflow around the cable modem should not be restricted.
- Choose a location that protects the cable modem from accidental disturbance or harm.

What Are the System Requirements for Internet Service?

To help ensure that your cable modem operates efficiently for high-speed Internet service, verify that all of the Internet devices on your system meet or exceed the following minimum hardware and software requirements.

Note: You will also need an active cable input line and an Internet connection.

Minimum System Requirements for a PC

- A PC with a Pentium MMX 133 processor or greater
- 32 MB of RAM
- Web browsing software
- CD-ROM drive

Minimum System Requirements for Macintosh

- MAC OS 7.5 or later
- 32 MB of RAM

System Requirements for an Ethernet Connection

- A PC with Microsoft Windows 95 operating system (or later) with TCP/IP protocol installed, or an Apple Macintosh computer with TCP/IP protocol installed
- An active 10, 10/100, or 10/100/1000BASE-T Ethernet network interface card (NIC) installed

System Requirements for a USB Connection

- A PC with Microsoft Windows 2000, XP, or Vista operating system
- A master USB port installed in your PC

How Do I Set Up My High-Speed Internet Access Account?

Before you can use your cable modem, you need to have a high-speed Internet access account. If you do not have a high-speed Internet access account, you need to set up an account with your local service provider. Choose one of the two options in this section.

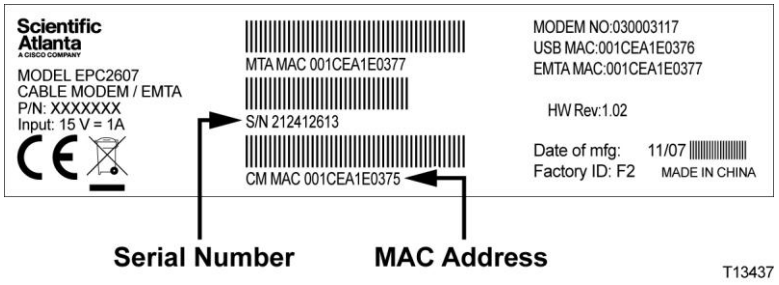
I Do Not Have a High-Speed Internet Access Account

If you do *not* have a high-speed Internet access account, your service provider will set up your account and become your Internet Service Provider (ISP). Internet access enables you to send and receive e-mail, access the World Wide Web, and receive other Internet services.

You will need to give your service provider the following information:

- The serial number of the modem
- The Media Access Control (MAC) address of the modem

These numbers appear on a bar code label located on the cable modem. The serial number consists of a series of alphanumeric characters preceded by **S/N**. The MAC address consists of a series of alphanumeric characters preceded by **CM MAC**. The following illustration shows a sample bar code label.



Write down these numbers in the space provided here.

Serial Number _____

MAC Address _____

I Already Have an Existing High-Speed Internet Access Account

If you have an existing high-speed Internet access account, you must give your service provider the serial number and the MAC address of the cable modem. Refer to the serial number and MAC address information listed previously in this section.

Note: You may not be able to continue to use your existing e-mail account with your cable modem. Contact your service provider for more information.

How Do I Connect My Devices to Use the Internet?

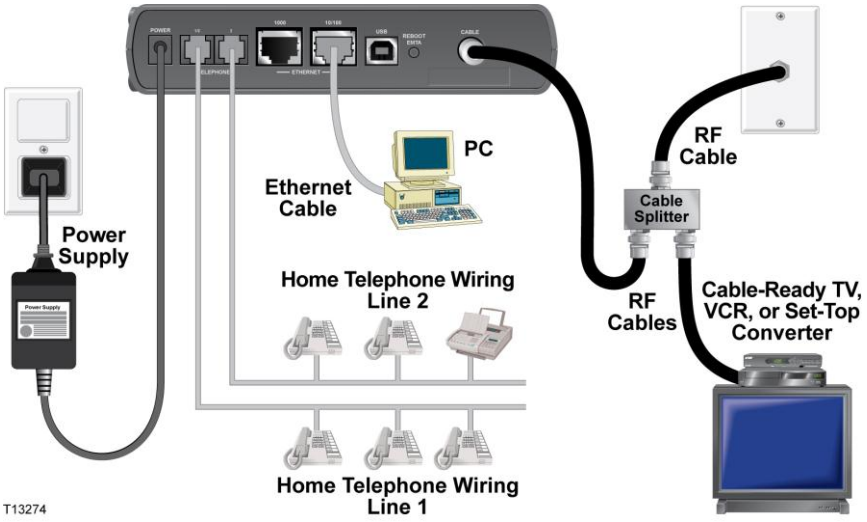
You can use your cable modem to access the Internet, and you can share that Internet connection with other Internet devices in your home or office. Sharing one connection among many devices is called networking.

Connecting and Installing Internet Devices

You must connect and install your cable modem to access the Internet. Professional installation may be available. Contact your local service provider for further assistance.

To connect devices

The following diagram illustrates one of the various networking options that are available to you.



Connecting the Modem for High-Speed Data Service

WARNING:

To avoid personal injury or damage to your equipment, follow these steps in the exact order shown.

1. Power off your PC and unplug it from the power source.
2. Connect your PC to *either* the **ETHERNET** port *or* the **USB** port using the appropriate data cable. Do *not* connect your PC to *both* the Ethernet and USB ports at the same time. You can connect two separate PCs to the cable modem at the same time by connecting one PC to the Ethernet port and one PC to the USB port.

3 Connect the active RF coaxial cable to the **CABLE** connector. Use an optional cable signal splitter to add a TV, a DHCT or set-top converter, or a VCR.

4 Insert the AC power cord into the **POWER** connector on the back of the cable modem, and then plug the cord into an AC power source.

5 Plug in and power on your networked devices including your PC. The cable modem will then begin an automatic search to locate and sign on to the broadband data network. This process may take up to 5 minutes. The modem will be ready for use when the **ONLINE** LED status indicator on the front panel stops blinking and illuminates continuously.

6 The next step in setting up your cable modem is to configure your Internet devices for Internet access. Choose one of the following options:

- If you want to use Ethernet connections, you must configure the TCP/IP protocol. To configure the TCP/IP protocol, go to ***How Do I Configure TCP/IP Protocol?*** (on page 20).
- If you want to use USB connections, you must install the USB drivers. To install the USB Drivers for USB, go to ***How Do I Install USB Drivers?*** (on page 23).

How Do I Configure TCP/IP Protocol?

To configure TCP/IP protocol, you need to have an Ethernet Network Interface Card (NIC) with TCP/IP communications protocol installed on your system. TCP/IP is a communications protocol used to access the Internet. This section contains instructions for configuring TCP/IP on your Internet devices to operate with the cable modem in Microsoft Windows or Macintosh environments.

Configuring TCP/IP on Your Internet Devices

TCP/IP protocol in a Microsoft Windows environment is different for each operating system. Follow the appropriate instructions in this section for your operating system.

Configuring TCP/IP on Windows 95, 98, 98SE, or ME Systems

1. Click **Start**, select **Settings**, and choose **Control Panel**.
2. Double-click the **Network** icon in the Control Panel window.
3. Read the list of installed network components under the **Configuration** tab to verify that your PC contains the TCP/IP protocol/Ethernet adapter.
4. Is TCP/IP protocol listed in the installed network components list?
   - If **yes**, go to step 7.
   - If **no**, click **Add**, click **Protocol**, click **Add**, and then go to step 5.
5. Click **Microsoft** in the Manufacturers list.
6. Click **TCP/IP** in the Network Protocols list, and then click **OK**.
7. Click the **TCP/IP Ethernet Adapter** protocol, and then choose **Properties**.
8. Click the **IP Address** tab, and then select **Obtain an IP address automatically**.
9. Click the **Gateway** tab and verify that these fields are empty. If they are not empty, highlight and delete all information from the fields.
10. Click the **DNS Configuration** tab, and then select **Disable DNS**.
11. Click **OK**.
12. Click **OK** when the system finishes copying the files, and then close all networking windows.
13. Click **YES** to restart your computer when the System Settings Change dialog box opens. The computer restarts. The TCP/IP protocol is now configured on your PC, and your Ethernet devices are ready for use.
14. Try to access the Internet. If you cannot access the Internet, go to ***Having Difficulty?*** (on page 45). If you still cannot access the Internet, contact your service provider for further assistance.

Configuring TCP/IP on Windows 2000 Systems

1. Click **Start**, select **Settings**, and choose **Network and Dial-up Connections**.
2. Double-click the **Local Area Connection** icon in the Network and Dial-up Connections window.
3. Click **Properties** in the Local Area Connection Status window.
4. Click **Internet Protocol (TCP/IP)** in the Local Area Connection Properties window, and then click **Properties**.
5. Select both **Obtain an IP address automatically** and **Obtain DNS server address automatically** in the Internet Protocol (TCP/IP) Properties window, and then click **OK**.
6. Click **Yes** to restart your computer when the Local Network window opens. The computer restarts. The TCP/IP protocol is now configured on your PC, and your Ethernet devices are ready for use.
7. Try to access the Internet. If you cannot access the Internet, go to ***Having Difficulty?*** (on page 45). If you still cannot access the Internet, contact your service provider for further assistance.

Configuring TCP/IP on Windows XP Systems

1. Click **Start**, and depending on your Start menu setup, choose one of the following options:
   - If you are using the Windows XP Default Start Menu, select **Connect to**, choose **Show all connections**, and then go to step 2.
   - If you are using the Windows XP Classic Start Menu, select **Settings**, choose **Network Connections**, click **Local Area Connection**, and then go to step 3.
2. Double-click the **Local Area Connection** icon in the LAN or High-Speed Internet section of the Network Connections window.
3. Click **Properties** in the Local Area Connection Status window.
4. Click **Internet Protocol (TCP/IP)**, and then click **Properties** in the Local Area Connection Properties window.
5. Select both **Obtain an IP address automatically** and **Obtain DNS server address automatically** in the Internet Protocol (TCP/IP) Properties window, and then click **OK**.
6. Click **Yes** to restart your computer when the Local Network window opens. The computer restarts. The TCP/IP protocol is now configured on your PC, and your Ethernet devices are ready for use.
7. Try to access the Internet. If you cannot access the Internet, go to ***Having Difficulty?*** (on page 45). If you still cannot access the Internet, contact your service provider for further assistance.

Configuring TCP/IP on Macintosh Systems

1. Click the **Apple** icon in the upper-left corner of the Finder. Scroll down to **Control Panels**, and then click **TCP/IP**.
2. Click **Edit** on the Finder at the top of the screen. Scroll down to the bottom of the menu, and then click **User Mode**.
3. Click **Advanced** in the User Mode window, and then click **OK**.
4. Click the Up/Down selector arrows located to the right of the Connect Via section of the TCP/IP window, and then click **Using DHCP Server**.
5. Click **Options** in the TCP/IP window, and then click **Active** in the TCP/IP Options window.

   Note: Make sure that the **Load only when needed option** is *unchecked*.
6. Verify that the **Use 802.3** option located in the upper-right corner of the TCP/IP window is unchecked. If there is a check mark in the option, uncheck the option, and then click **Info** in the lower-left corner.
7. Is there a Hardware Address listed in this window?
   - If **yes**, click **OK**. To close the TCP/IP Control Panel window, click **File**, and then scroll down to click **Close**. You have completed this procedure.
   - If **no**, you must power off your Macintosh.
8. With the power off, simultaneously press and hold down the **Command (Apple)**, **Option**, **P**, and **R** keys on your keyboard. Keeping those keys pressed down, power on your Macintosh but do not release these keys until you hear the Apple chime at least three times, then release the keys and let the computer restart.
9. When your computer fully reboots, repeat steps 1 through 7 to verify that all TCP/IP settings are correct. If your computer still does not have a Hardware Address, contact your authorized Apple dealer or Apple technical support center for further assistance.

How Do I Install USB Drivers?

To install USB drivers, your PC must be equipped with a USB network interface and a Microsoft Windows 2000 or XP operating system. This section contains instructions for installing the USB drivers for the cable modem.

Note: If you are not using the USB interface, skip this section.

Installing USB Drivers

The USB driver installation procedures are different for each operating system. Follow the appropriate instructions in this section for your operating system.

Installing USB Drivers on Windows 2000 Systems

1. Insert the **USB Cable Modem Driver Installation Disk** into the CD-ROM drive of your PC.
2. Wait until the **POWER** and **ONLINE** LED status indicators on the front panel of the cable modem illuminate solid green.
3. Click **Next** in the Found New Hardware Wizard window.
4. Select **Search for a suitable driver for my device (recommended)** in the Found New Hardware Wizard window, and then click **Next**.
5. Select **CD-ROM drives** in the Found New Hardware Wizard window, and then click **Next**.
6. Click **Next** in the Found New Hardware Wizard window. The system searches for the driver file for your hardware device.
7. After the system finds the USB driver, the Digital Signature Not Found window opens and displays a confirmation message to continue the installation.
8. Click **Yes** to continue the installation. The Found New Hardware Wizard window reopens with a message that the installation is complete.
9. Click **Finish** to close the Found New Hardware Wizard window. The USB drivers are installed on your PC, and your USB devices are ready for use.
10. Try to access the Internet. If you cannot access the Internet, go to ***Having Difficulty?*** (on page 45). If you still cannot access the Internet, contact your service provider for further assistance.

Installing USB Drivers on Windows XP Systems

1. Insert the **USB Cable Modem Driver Installation Disk** into the CD-ROM drive of your PC.
2. Wait until the **POWER** and **ONLINE** LED status indicators on the front panel of the cable modem illuminate solid green.
3. Select **Install from a list or specific location (Advanced)** in the Found New Hardware Wizard window, and then click **Next**.

4 Select **Search removable media (floppy, CD-ROM)** in the Found New Hardware Wizard window, and then click **Next**.

5 Click **Continue Anyway** in the Hardware Installation window to continue the installation. The Found New Hardware Wizard window reopens with a message that the installation has finished.

6 Click **Finish** to close the Found New Hardware Wizard window. The USB drivers are installed on your PC, and your USB devices are ready for use.

7 Try to access the Internet. If you cannot access the Internet, go to ***Having Difficulty?*** (on page 45). If you still cannot access the Internet, contact your service provider for further assistance.

How Do I Mount the Modem on a Wall? (Optional)

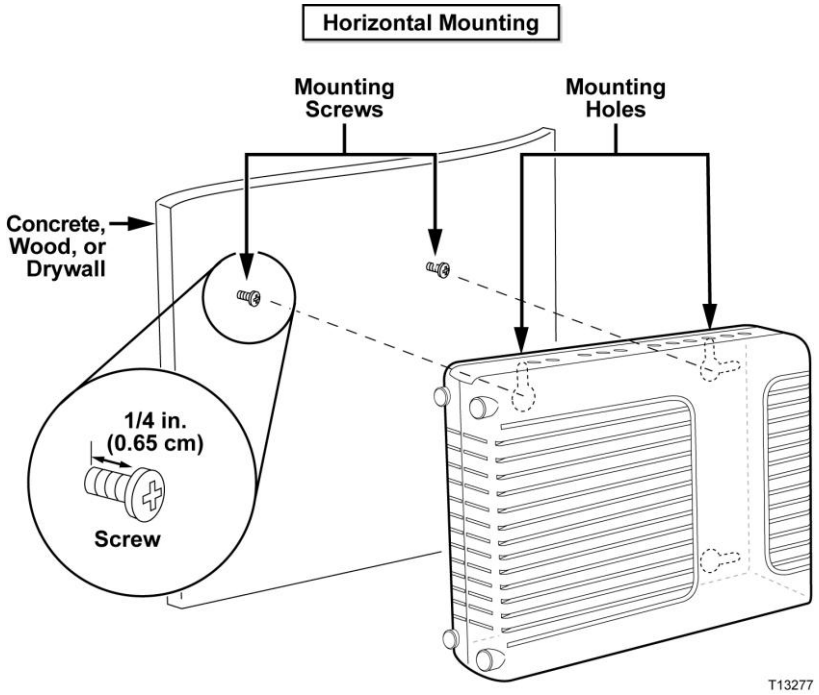
You can mount the cable modem on a wall using two wall anchors, two screws, and the mounting slots located on the unit. The modem can be horizontally mounted.

Before You Begin

Before you begin, choose an appropriate mounting place. The wall can be made of cement, wood, or drywall. The mounting location should be free of obstructions on all sides, and the cables should be able to easily reach the cable modem without strain. Leave sufficient clearance between the bottom of the cable modem and any flooring or shelving underneath to allow access to cabling. In addition, leave enough slack in all cables so that the cable modem can be removed for any required maintenance without disconnecting the cables. Also, verify that you have the following items:

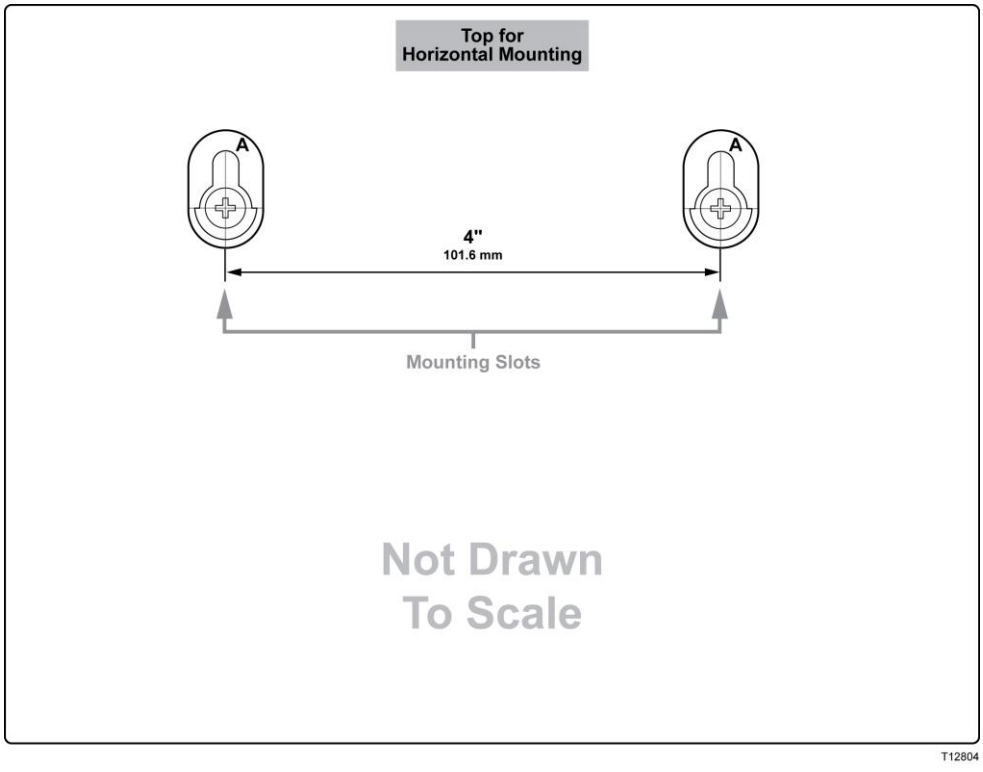
- Two wall anchors for #8 x 1 inch screws
- Two #8 x1 inch pan head sheet metal screws
- Drill with a 3/16-in. wood or masonry bit, as appropriate for the wall composition
- A copy of the wall-mounting illustrations shown on the following pages

Mount the modem as shown in the following illustration.



Location and Dimensions of the Wall-Mounting Slots

The following illustration shows the location and dimensions of the wall-mounting slots on the bottom of the modem. Use the information on this page as a guide for mounting your modem to the wall.



What Are the Requirements for Ethernet Network Devices?

How Many Ethernet Network Devices Can I Connect?

The cable modem can support several Ethernet network devices using external Ethernet hubs that must be purchased separately.

The theoretical maximum number of Ethernet network devices supported by the cable modem is 63. However, under normal circumstances, the number of devices connected should be a much lower number.

Contact your service provider for more information on the maximum number of Ethernet network devices to connect to your cable modem to maintain optimal network performance.

What Are the Wiring Requirements for Ethernet Networking?

A number of factors can impact the practical limit of the network. Although the cable modem is designed to support several Ethernet network devices, it is important to view the characteristics of the entire network and not just each individual node.

The theoretical distance between two 10/100BASE-T CAT-5 Ethernet hubs is 382 feet (100 meters). Contact your service provider or consult the documentation for your Ethernet network devices for more information.

Note: We recommend that you use CAT-5 Ethernet cables.

Do I Need to Configure the TCP/IP Protocol on My Computer?

For you to use Ethernet network devices on your network, you must have the TCP/IP protocol properly configured on your PC. Refer to ***How Do I Configure TCP/IP Protocol?*** (on page 20), for detailed information on configuring the TCP/IP protocol.

How Do I Select and Place Ethernet Network Devices?

You can use a large variety of Ethernet network devices with your cable modem. These include NIC cards, hubs, bridges, etc. Contact your service provider or consult the documentation for your Ethernet network devices for more information on configuring Ethernet network devices.

Where Is the Best Location for My Ethernet Network Devices?

You should work with your service provider to choose the best location for your Ethernet network devices. Consider these recommendations:

- Location of two-way cable outlets
- Distance of the Ethernet network devices from the cable modem
- Location of computers and other equipment from AC power outlets
- Ease of running Ethernet cable to the Ethernet network devices

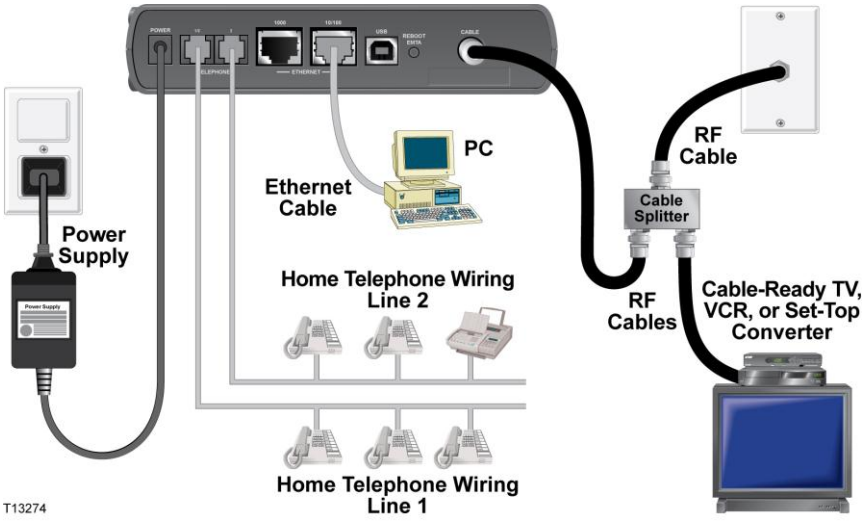
Now that you have selected a location for your Ethernet network devices, the next step is to place and connect your Ethernet network devices. Go to ***How Do I Connect Ethernet Network Devices?*** (on page 29).

How Do I Connect Ethernet Network Devices?

Connecting Ethernet Devices

You must connect your Ethernet devices for use with the cable modem. Professional installation may be available. Contact your local service provider for further assistance.

The following diagram illustrates one of the various Ethernet network connection options that are available to you.



WARNING:

Hazardous electrical voltages can be present on any connected wiring. Ethernet wiring and connections must be properly insulated to prevent electrical shock. Disconnect power from the cable modem before attempting to connect to any device.

To avoid personal injury, follow the connection steps in the exact order shown.

CAUTION:

To prevent possible damage to the equipment, disconnect any other service before connecting your cable modem to other devices.

Read the warnings and caution on this page. Then, follow the installation procedures later in this guide to help ensure proper cable modem operation when connecting Ethernet network devices.

1. Select locations for Ethernet network devices. For more information, see ***How Do I Select and Place Ethernet Network Devices?*** (on page 28).
2. Connect the Ethernet port on the cable modem to your PC.

3 Connect additional Ethernet network devices by connecting an Ethernet hub or router to the cable modem.

4 Connect the active RF coaxial cable to the **CABLE** connector on the back of the cable modem. Use an optional cable signal splitter to add a TV, a DHCT or set-top converter, or a VCR.

5 After all connections are complete, insert the AC power cord into the **POWER** connector on the back of the cable modem, and then plug the cord into an AC power source.

6 The cable modem begins an automatic search to locate and sign on to the network. In some unusual circumstances, this process may take up to 5 minutes. The cable modem is ready for use when the **ONLINE** LED status indicator on the front panel stops blinking and illuminates continuously.

7 Verify that all Ethernet network devices are working properly.

Note: You will not be able to check the front panel LED status indicator on the cable modem until after one or more Ethernet network devices are connected to the cable modem.

What Are the Requirements for USB Network Devices?

How Many USB Devices Can I Connect?

You can connect one PC or other USB device to the USB port on the EMTA.

What Are the Wiring Requirements?

We recommend that you use the USB 1.1 cable provided with your modem.

Do I Need to Install USB Drivers on My Computer?

To use USB network devices, you must have the correct USB drivers installed on your PC. Refer to ***How Do I Install USB Drivers?*** (on page 23), for information on installing USB drivers.

How Do I Select and Place USB Network Devices?

You can use a large variety of USB network devices with your cable modem. These include desktop computers, laptop computers, devices with USB ports, and USB adapters.

Contact your service provider or consult the documentation for your USB network devices for more information on selecting USB network devices.

Where Is the Best Location for My USB Network Devices?

You should work with your service provider to choose the best location for your USB network devices. Consider these recommendations:

- Location of two-way coaxial cable outlets
- Distance of the USB network devices from the cable modem
- Location of computers and other equipment from AC power outlets
- Ease of running USB cable to the USB network devices

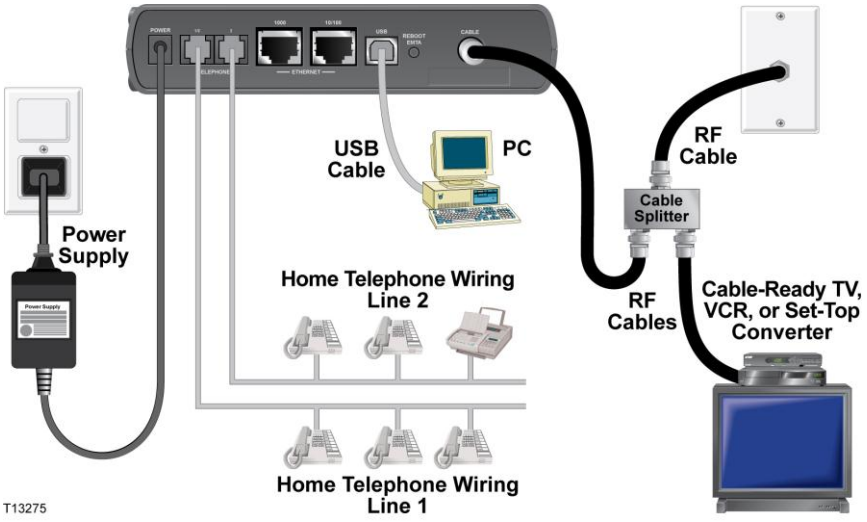
Now that you have selected a location for your USB network devices, the next step is to place and connect your USB network devices. Go to ***How Do I Connect USB Network Devices?*** (on page 33).

How Do I Connect USB Network Devices?

Connecting USB Devices

You must connect your USB devices for use with your cable modem. Professional installation may be available. Contact your local service provider for further assistance.

The following diagram illustrates one of the various USB network connection options that are available to you.



WARNING:

Hazardous electrical voltages can be present on any connected wiring. USB wiring and connections must be properly insulated to prevent electrical shock. Disconnect power from the cable modem before attempting to connect to any device.

To avoid personal injury, follow these steps in the exact order shown.

CAUTION:

To prevent possible damage to the equipment, disconnect any other service before connecting your cable modem to other devices.

Read the warnings and caution on this page. Then, follow the subsequent installation procedures to help ensure proper cable modem operation when connecting USB network devices.

Note: Verify that you have installed the USB drivers on your PC before continuing with these instructions. See ***How Do I Install USB Drivers?*** (on page 23), for more information on installing the USB drivers.

1. Select locations for USB network devices. For more information, see ***How Do I Select and Place USB Network Devices?*** (on page 32).
2. Connect the USB port on the cable modem to your computer.
3. Connect one or more USB network device to the cable modem.

   Note: If you want to connect more than one USB network device to the cable modem or to your computer, you will need to purchase and install a USB hub.
4. Connect the active RF coaxial cable to the **CABLE** connector on the back of the cable modem. Use an optional cable signal splitter to add a TV, a DHCT or set-top converter, or a VCR.
5. After all connections are complete, insert the AC power cord into the **POWER** connector on the back of the cable modem, and then plug the cord into an AC power source.
6. The cable modem begins an automatic search to locate and sign on to the network. This process may take up to 5 minutes. The cable modem is ready for use when the **ONLINE** LED status indicator on the front panel stops blinking and illuminates continuously.
7. Verify that all USB devices are working properly.

   Note: You will not be able to check the front panel LED status indicator on the cable modem until after at least one USB network device is connected and operating on the network.

How Do I Troubleshoot My Internet Service Installation?

How Do I Renew the IP Address on My PC?

If your PC cannot access the Internet after the cable modem is online, it is possible that your PC did not renew its IP address. Follow the appropriate instructions in this section for your operating system to renew the IP address on your PC.

Renewing the IP address on Windows 95, 98, 98SE, and ME Systems

1. Click **Start**, and then click **Run** to open the Run window.
2. Type **winipcfg** in the Open field, and click **OK** to execute the winipcfg command. The IP Configuration window opens.
3. Click the down arrow to the right of the top field, and select the Ethernet adapter that is installed on your PC. The IP Configuration window displays the Ethernet adapter information.
4. Click **Release**, and then click **Renew**. The IP Configuration window displays a new IP address.
5. Click **OK** to close the IP Configuration window, you have completed this procedure.

   Note: If you cannot access the Internet, contact your service provider for further assistance.

Renewing the IP Address on Windows NT, 2000, or XP Systems

1. Click **Start**, and then click **Run**. The Run window opens.
2. Type **cmd** in the Open field and click **OK**. A window with a command prompt opens.
3. Type **ipconfig/release** at the C:/ prompt and press **Enter**. The system releases the IP address.
4. Type **ipconfig/renew** at the C:/ prompt and press **Enter**. The system displays a new IP address.
5. Click the **X** in the upper-right corner of the window to close the Command Prompt window. You have completed this procedure.

   Note: If you cannot access the Internet, contact your service provider for further assistance.

Renewing the IP Address on Macintosh Systems

1. Close all open programs.
2. Open your **Preferences** folder.
3. Drag the **tcp/ip preferences** file to the Trash.
4. Close all open windows and empty the Trash.

5 Restart your computer.

6 As your computer starts, simultaneously press and hold down the **Command (Apple)**, **Option**, **P**, and **R** keys on your keyboard. Keeping those keys pressed down, power on your Macintosh but do not release these keys until you hear the Apple chime at least three times; then, release the keys and let the computer restart.

7 When your computer fully reboots, click the **Apple** icon in the upper-left corner of the Finder. Scroll down to **Control Panels**, and then click **TCP/IP**.

8 Click **Edit** on the Finder at the top of the screen. Scroll down to the bottom of the menu, and then click **User Mode**.

9 Click **Advanced** in the User Mode window, and then click **OK**.

10 Click the Up/Down selector arrows located to the right of the Connect Via section of the TCP/IP window, and then click **Using DHCP Server**.

11 Click **Options** in the TCP/IP window, and then click **Active** in the TCP/IP Options window.

Note: In some cases, the **Load only when needed** option does not appear. If it appears, select the option. A check mark appears in the option.

12 Verify that the **Use 802.3** option located in the upper-right corner of the TCP/IP window is not selected. If there is a check mark in the option, select the option to clear the check mark, and then click **Info** in the lower-left corner.

13 Is there a Hardware Address listed in this window?

- If **yes**, click **OK**. To close the TCP/IP Control Panel window, click **File**, and then scroll down to click **Close**.
- If **no**, repeat these instructions from step 6.

14 Reboot your computer.

How Do I Use My Modem for Telephone Service?

Contacting Your Local Service Provider

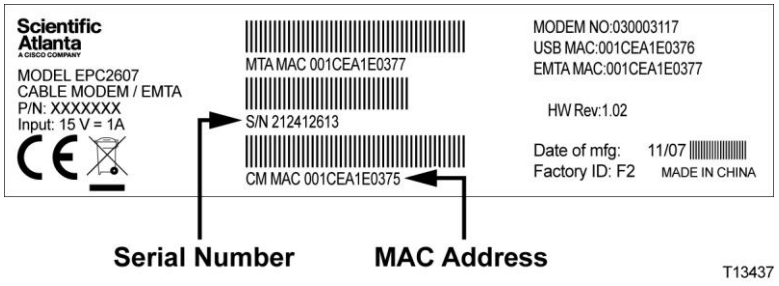
You need to set up a telephone account with your local service provider to use your cable modem for telephone service. When you contact your service provider, verify the following conditions:

- Does the service to your home support two-way, DOCSIS-compatible cable modem access? If your service provider does not provide two-way service, this modem will not be able to communicate with your service provider's Internet access and telephone services.
- Can you transfer your existing telephone numbers from another telephony service provider to your current telephony service provider? In some areas, you may be able to transfer your existing telephone numbers, or your cable telephony service provider will assign a new telephone number for each current or additional active telephone line. Discuss these options with your telephony service provider.

You will need to give your service provider the following information:

- The serial number of the modem
- The Media Access Control (MAC) address of the modem

These numbers appear on a bar code label located on the cable modem. The serial number consists of a series of alphanumeric characters preceded by **S/N**. The MAC address consists of a series of alphanumeric characters preceded by **CM MAC**. The following illustration shows a sample bar code label.



Write down these numbers in the space provided here.

Serial Number _____

MAC Address _____

Where Do I Place My Modem for Telephone Service?

Where Is the Best Location for My Modem?

When choosing a location for your modem, consider the following recommendations:

- Choose a location close to your computer if you will also use the cable modem for high-speed Internet service.
- Choose a location that is near an existing RF coaxial connection to eliminate the need for an additional RF coaxial outlet.
- Choose a location for the cable modem that is adjacent to your telephone equipment if you are using only one or two pieces of telephone equipment.

  Note: If you are using the cable modem to provide service to several telephones, a professional installer can connect the cable modem to your existing home telephone wiring. To minimize changes to the home telephone wiring, you may want to locate the cable modem near an existing telephone outlet. See ***How Do I Install the Modem for Telephone Service?*** (on page 40), for further instructions.
- Choose a location that is relatively protected from accidental disturbance or harm, such as a closet, basement, or other protected area.
- Choose a location so that there is plenty of room to guide the cables away from the modem without straining or crimping them.
- Airflow around the cable modem should not be restricted.
- Read this user's guide thoroughly before installing the cable modem.

What Are the Requirements for Telephone Service?

This section provides hardware and software requirements for using your cable modem for telephone service.

Number of Telephone Devices

The RJ-11 telephone-style connectors on the cable modem can each provide telephone service to multiple telephones, fax machines, and analog modems.

The maximum number of telephone devices connected to each RJ-11 port is limited by the total Ringing Load of the telephone devices that are connected. Many telephone devices are marked with a Ringer Equivalent Number (REN). Each telephone port on the cable modem can support up to a 5 REN load.

The sum of the REN load on all of the telephone devices attached to each port must not exceed 5 REN.

Telephone Device Types

You can use telephone devices that are not labeled with a REN number, but the maximum number of attached telephone devices cannot be accurately calculated. With telephone devices that are not labeled, each device should be connected and the ring signal should be tested before adding more devices. If too many telephone devices are attached and the ring signal can no longer be heard, telephone devices should be removed until the ring signal works properly.

Telephones, fax machines, and other telephone devices should use the center 2 pins of the RJ-11 connectors to connect to the cable modem telephone ports. Some telephones use other pins on the RJ-11 connectors and require adapters in order to work.

Dialing Requirements

All your telephones should be set to use DTMF dialing. Pulse dialing is typically not enabled by your local provider.

Telephone Wiring Requirements

The cable modem supports interior telephone wiring. The maximum distance from the unit to the most distant telephone device must not exceed 1000 feet (300 meters). Use 26-gauge twisted-pair, or larger, telephone wiring.

Important: Connection to an existing or a new permanently installed home telephone wiring network must be done by a qualified installer.

How Do I Install the Modem for Telephone Service?

The cable modem can be used to provide telephone service for one or two telephone lines. This section describes how to connect a single telephone, fax machine, analog telephone modem, or other telephone device to each telephone port on the cable modem.

Important: Connecting the cable modem permanently to the installed home telephone wiring is not covered by this document.

Installing the Modem to Provide Telephone Service

Heed the following warnings, and then follow the subsequent installation procedures in this section to help ensure proper cable modem installation and configuration for providing telephone service.

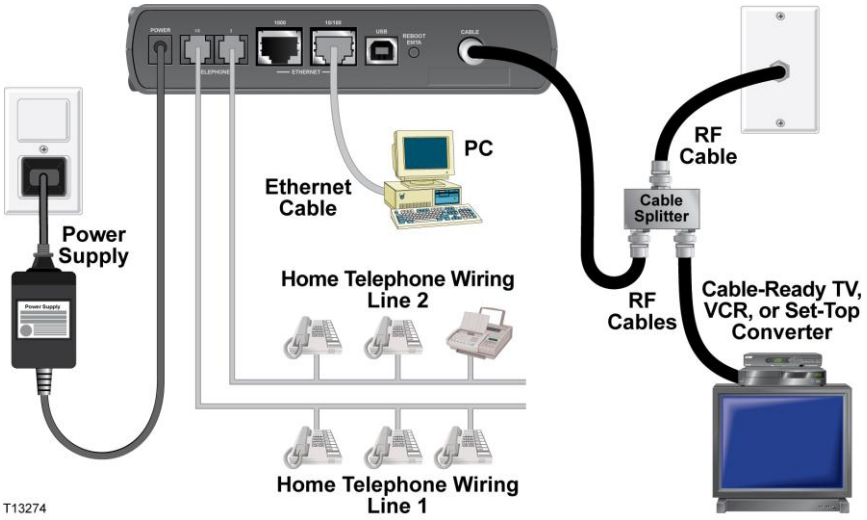
WARNING:

- **To avoid personal injury, follow the installation instructions in the exact order shown.**
- **Telephone connections to an installed home telephone wiring network must be done by a qualified installer. The cable telephone service provider may offer professional installation and connection to the home telephone wiring network. A fee may be charged for this service.**
- **Hazardous electrical voltages can exist on the telephone ports on the cable modem and can be present on any connected wiring. Telephone wiring and connections must be properly insulated to prevent electrical shock. Disconnect power from the cable modem before attempting to connect to any device.**
- **To prevent possible damage to equipment, disconnect any other telephone service before connecting your cable modem to the same wires.**

Note: Professional installation may be available. Contact your service provider for further assistance.

Installation Diagram

The following diagram illustrates one of the various connection options that are available to you.



To install the cable modem for telephone service

1 Connect a telephone, fax machine, or analog modem to each of the appropriate RJ-11 ports on the cable modem.

Notes:

- The cable modem provides one line of telephone service on each of the RJ-11 connectors.
- Service must be set up and enabled by the telephone service provider.
- The two center conductors (pins 3 and 4) on the RJ-11 connector provide electrical connections to directly attached telephone devices or to a permanently installed in-home telephone wiring network.
- The telephone port labeled Line 1 also supports multi-line telephone devices. Line 1 is supported on pins 3 and 4, and Line 2 is supported on pins 2 and 5.
- The use of telephones that require electrical connections to other RJ-11 pins requires an adapter.

2 After all telephone connections are complete, insert the AC power cord into the power connector on the back of the cable modem, and then plug the cord into an AC power source.

3 Connect the active RF coaxial cable to the **CABLE** connector on the back of the cable modem. The cable modem begins an automatic search to locate and sign on to the network that provides the telephone service. This process may take up to 5 minutes. The modem will be ready for use when the **ONLINE** LED status indicator on the front panel stops blinking and illuminates continuously

Note: Use an optional cable signal splitter to add a TV, a DHCT or set-top converter, or a VCR.

4 Test your telephone service by lifting the receiver of each attached telephone to verify that the dial tone can be heard and that you can make and receive telephone calls. This process may take several minutes.

Notes:

- The **TEL 1** and **TEL 2** LED status indicators on the front panel of the cable modem *illuminate* when telephony service is enabled.
- The **TEL 1** or the **TEL 2** LED status indicators on the front panel of the cable modem *blink* when the attached device is "off the hook."

Telephone Service Frequently Asked Questions

This section provides answers to frequently asked questions regarding cable modem telephone service. For issues regarding cable modem Internet service, see ***How Do I Troubleshoot My Internet Service Installation?*** (on page 35)

Frequently Asked Questions

Q. What if I don't subscribe to telephone service from my cable operator, can I still use the cable modem to make and receive phone calls?

A. No. Telephone service is enabled for each telephone port on the cable modem by the cable telephony service provider. Contact your cable telephony service provider to get telephone service through the cable modem.

Q. How do I arrange for installation?

A. Professional installation from your cable telephony service provider may be provided. A professional installer can connect the telephone service to your existing telephone wiring in your home or install new wiring if needed. Professional installation also helps ensure proper cable connection to the modem and to your PC, and helps ensure proper configuration of all hardware and software settings. Contact your cable telephony service provider for more information about installation.

Q. Can I use my existing phone number with the cable modem?

A. Telephone numbers are portable in some areas. Contact your telephone service provider for more information about using an existing telephone number.

Q. Do I automatically receive high-speed Internet service with the cable modem?

A. Your cable modem may be used to provide telephone service, high-speed Internet service, or both services. Your cable service provider enables Internet service. Contact your cable service provider for more information if you are not currently subscribing to Internet service.

Q. How many telephones can I connect?

A. The RJ-11 telephone-style connectors on the cable modem can each provide telephone service to multiple telephones, fax machines, and analog modems. The maximum number of telephone devices connected to each RJ-11 port is limited by the total Ringing Load of the telephone devices that are connected. Many telephone devices are marked with a Ringer Equivalent Number (REN). Each telephone port on the cable modem can support up to a 5 REN load. The sum of the REN load on all of the telephone devices attached to each port must not exceed 5 REN.

Q. Can I surf the Internet and make telephone calls at the same time?

A. Absolutely. Telephone service is provided separately from Internet data services. Internet surfing and other data services do not affect the quality of your telephone calls. If these services are enabled by your cable service provider, you can make telephone calls and surf the net at the same time.

Having Difficulty?

Frequently Asked Questions

Q. What if I don't subscribe to cable TV?

A. If cable TV is available in your area, data service may be made available with or without subscribing to cable TV service. Contact your local cable service provider for complete information on cable services, including high-speed Internet access.

Q. How do I arrange for installation?

A. Call your service provider to inquire about professional installation. A professional installation helps ensure proper cable connection to the modem and to your PC, and it helps ensure the proper configuration of all hardware and software settings. Contact your cable telephony service provider for more information about installation.

Q. How does the cable modem connect to my computer?

A. The cable modem connects to the USB port or to the 10/100BASE-T Ethernet port on your PC. If you want to use an Ethernet interface, Ethernet cards available from your local PC or office supply retailer, or from your service provider.

Q. After my cable modem is connected, how do I access the Internet?

A. Your local service provider becomes your Internet Service Provider (ISP). They offer a wide range of services including e-mail, chat, news, and information services. Your service provider will provide the software you will need.

Q. Can I watch TV and surf the Internet at the same time?

A. Absolutely. If you subscribe to cable television service, you can watch TV and use your cable modem at the same time by connecting your TV and your cable modem to the cable network using an optional cable signal splitter.

Q. Can I run more than one device on the modem?

A. Yes. A single cable modem will theoretically support up to 63 Ethernet devices utilizing user-supplied Ethernet hubs or routers that you can purchase at your local PC or office supply retailer. Another user at your location can simultaneously connect to the USB port on the cable modem. Contact your service provider for further assistance.

Common Troubleshooting Issues

I don't understand the front panel status indicators

See ***Front Panel LED Status Indicator Functions*** (on page 48) for more detailed information on front panel LED status indicator operation and function.

The cable modem does not register an Ethernet connection

- Verify that your computer has an Ethernet card and that the Ethernet driver software is properly installed. If you purchase and install an Ethernet card, follow the installation instructions very carefully.
- Verify the status of the front panel status indicator lights.

The cable modem does not register an Ethernet connection after connecting to a hub

If you are connecting multiple PCs to the cable modem, you should first connect the modem to the uplink port of the hub using the correct crossover cable. The LINK LED of the hub will illuminate continuously.

The cable modem does not register a cable connection

- The modem works with a standard 75-ohm RF coaxial cable. If you are using a different cable, your cable modem will not function properly. Contact your cable service provider to determine whether you are using the correct cable.
- Your NIC card or USB interface may be malfunctioning. Refer to the troubleshooting information in the NIC or USB documentation.

Tips for Improved Performance

Check and Correct

If your cable modem does not perform as expected, the following tips may help. If you need further assistance, contact your service provider.

- Verify that the plug to your cable modem AC power is properly inserted into an electrical outlet.
- Verify that your cable modem AC power cord is not plugged into an electrical outlet that is controlled by a wall switch. If a wall switch controls the electrical outlet, make sure the switch is in the **ON** position.
- Verify that the **POWER** and **ONLINE** LED status indicators on the front panel of your cable modem are illuminated.
- Verify that your cable service is active and that it supports two-way service.
- Verify that all cables are properly connected, and that you are using the correct cables.
- Verify that your TCP/IP is properly installed and configured if you are using the Ethernet connection.
- Verify that you have followed the procedures in ***How Do I Install USB Drivers?*** (on page 23), if you are using the USB connection.
- Verify that you have called your service provider and given them the serial number and MAC address of your cable modem.
- If you are using a cable signal splitter so that you can connect the cable modem to other devices, remove the splitter and reconnect the cables so that the cable modem is connected directly to the cable input. If the cable modem now functions properly, the cable signal splitter may be defective and may need to be replaced.
- For best performance over an Ethernet connection, your PC should be equipped with a 10/100BASE-T network interface card.

Front Panel LED Status Indicator Functions

Initial Power Up, Calibration, and Registration

The following chart illustrates the sequence of steps and the corresponding appearance of the cable modem front panel LED status indicators during power up, calibration, and registration on the network. Use this chart to troubleshoot the power up, calibration, and registration process of your cable modem.

Note: After the cable modem completes Step 10 (Registering with Call Agent), the modem proceeds immediately to Normal Operations. See ***Normal Operations*** (on page 49).

Front Panel LED Status Indicators During Initial Power Up, Calibration, and Registration

Step →		1	2	3	4	5	6	7	8	9	10
Front Panel LED		**Power Up**	**Self Test**	**Downstream Scan**	**Downstream Signal Lock**	**Ranging**	**Requesting IP Address**	**Registering**	**MTA DHCP**	**MTA TFTP**	**Registering with Call Agent**
1	**POWER**	On	On	On	On	On	On	On	On	On	On
2	**DS1**	Off	On 1 sec	Blinking	On	On	On	On	On	On	On
3	**DS2**	Off	On 1 sec	Off	Off	Off	Off	Off	On	On	On
4	**DS3**	Off	On 1 sec	Off	Off	Off	Off	Off	On	On	On
5	**US**	Off	On 1 sec	Off	Off	Blinking	On	On	On	On	On
6	**ONLINE**	On	On 1 sec	Off	Off	Off	Off	Blinking	On	On	On
7	**1000**	Off	On 1 sec	Off - When no devices are connected to the GigE port On - When devices are connected to the GigE port Blinks - When data activity is present					On	On	On
8	**10/100**	Off	On 1 sec	Off - When no devices are connected to the 10/100 Ethernet port On - When devices are connected to the 10/100 Ethernet port Blinks - When data activity is present					On	On	On
9	**USB**	Off	On 1 sec	Off - When no devices are connected to the USB port On - When devices are connected to the USB port Blinks - When data activity is present					On	On	On
10	**TEL 1**	Off	On	Off	Off	Off	Off	Off	Blinking	Off	Blinking
11	**TEL 2**	Off	On	Off	Off	Off	Off	Off	Off	Blinking	Blinking

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Normal Operations

The following chart illustrates the appearance of the LED status indicators on the front panel of the cable modem during normal operations.

Front Panel LED Status Indicators During Normal Operations		
Front Panel Indicator		**Normal Operations**
1	**POWER**	On
2	**DS1**	On
3	**DS2**	On– When wideband operation is enabled on that channel Off – When wideband operation is not available on that channel
4	**DS3**	On– When wideband operation is enabled on that channel Off – When wideband operation is not available on that channel
5	**US**	On
6	**ONLINE**	On
7	**1000**	On – When a device is connected to the GigE port and no data is being sent to or from the modem Blinks – When a GigE device is connected and data is being transferred between the consumer premise equipment (CPE) and the cable modem Off – When no device is connected to the GigE port
8	**10/100**	On – When a device is connected to the Ethernet port and no data is being sent to or from the modem Blinks – When an Ethernet device is connected and data is being transferred between the CPE and the cable modem Off – When no device is connected to the Ethernet port
9	**USB**	On – When a device is connected to the USB port and no data is being sent to or from the modem Blinks – When a USB device is connected and data is being transferred between the CPE and the cable modem Off – When no device is connected to the USB port
10	**TEL1**	■ On – When telephony service is enabled ■ Blinks – When line 1 is in use
11	**TEL2**	■ On – When telephony service is enabled ■ Blinks – When line 2 is in use

For Information

If You Have Questions

If you have technical questions, call Cisco Services for assistance. Follow the menu options to speak with a service engineer.

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