



HomeConnect™ Cable Modem External with USB Getting Started Guide

<http://www.3com.com/>

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**3Com Corporation
3800 Golf Rd.
Rolling Meadows, IL
60008**

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BEFORE YOU BEGIN

Introduction

You have just purchased a modem featuring a pioneering new technology, making Internet access possible at speeds previously only imagined. This external cable modem is one part of a comprehensive communications system that utilizes the cable television network to deliver high-speed data to your computer. Data is requested and sent over the cable television network at burst rates of up to 38 megabits per second (Mbps)*. This chapter explains how to prepare your computer system for cable modem installation.

** Actual speeds will vary depending on computer hardware, applications, service offered by your cable service provider, and network traffic.*

Cable Modem Features

- Cable line bandwidth allows user data rates of up to 38 megabits per second (Mbps)*, faster than 56K analog modems, ISDN, or ADSL.
- Two-way design means that the cable modem both sends and receives data over the cable line.
- Plug-and-play USB operation ensures easy setup and installation.
- DOCSIS-compliance ensures interoperability with cable suppliers.
- 3Com's extensive technical support organization provides you with the quick answers you need to get up and running.



** NOTE: Please note that the following factors affect the speeds you may experience: (1) your computer equipment and configuration, including the speed of your processor, the amount of RAM on your system, and your available*

hard disk space; (2) applications running simultaneously with the modem which use varying amounts of your computer's resources; (3) the capacity of the Internet service you order from your provider; (4) the level of network traffic, which varies depending on when and where you go online.

Contacting Your Local Cable Service Provider

In order to use your cable modem, you need to set up an Internet access account with your local cable service provider.

Before contacting your provider to set up an account, have the following information handy:

- The modem's serial number. The serial number appears on the white bar code label on the back of the modem and consists of 10 characters preceded by the text "SN=". In the following example label image, the serial number is 6LZ1377410.
- Media Access Control (MAC) address. The MAC address appears on the white bar code label on the back of the modem and consists of 12 characters preceded by the text "EA = ". In the following example label image, the MAC address is 00104B377410. Write both of these numbers in the following blanks for future reference.



Serial number: SN= _____

MAC address: EA = _____

You should now contact your local cable service provider and verify that:

- **The cable service to your home supports two-way cable modem access.** If your cable service provider does not provide two-way service, this modem will not

be able to communicate with your cable service provider's Internet access service. You should immediately consult your cable service provider and place of purchase to determine the proper 3Com® cable modem to use. You can also visit the following URL for additional information:

<http://www.3com.com/cablemodem>

- **You have a cable line near your PC and it has been prepared for cable modem service.** If you do not have a cable line in your home that supports two-way cable modem access, or if your current cable connection is not conveniently located near your computer, your cable service provider can install one. If you use your current cable line for cable television access, your cable service provider can also install an additional line for use with your cable modem.
- **Your cable service provider has set up your cable Internet access account.** Your cable service provider will set up an Internet access account that will allow you to send and receive e-mail, access the World Wide Web, and receive other Internet services. This account must be set up before you can use your cable modem.

Preparing Your Workspace

- Position your computer so that it is located near the wall cable outlet.
- Position the cable modem so that it is located near the computer and the wall cable outlet. There should be plenty of room to guide the cables away from the modem without crimping them.
- Do not restrict the airflow around the modem.
- Ensure that the temperature in the room where the cable modem will be operating is between 0 and 40°C (32 and 104°F). Relative humidity should be between 5% and 90%, non-condensing.
- Familiarize yourself with all of the materials supplied with the modem. Please read these installation instructions thoroughly before installing the modem.



CAUTION: *Your cable service provider will provide a cable connection. Do not attempt any rewiring without first contacting your cable service provider.*

You Will Need These Items

Supplied

- Cable modem
- Cable modem power adapter
- Ethernet cable
- USB cable
- This *Getting Started Guide*
- The Cable *Connections*TM CD, which contains:
 - The software drivers necessary for installation using the USB port
 - Valuable free software products

See "Using the Cable *Connections* CD" for more information.

Also Needed

- To use the cable modem's *USB* port:
 - A PC running Windows[®] 98, Windows 2000, or Windows Me operating system. The USB setup does not support the Macintosh[®] operating system.
 - An active USB port on your computer.
- To use the cable modem's *Ethernet* port:
 - A PC running Windows 95 (or later), or a Macintosh computer running System 7.6 (or later).
 - An active Ethernet port on your computer.
 - TCP/IP protocol installed. See the following chapter for more information on installing the TCP/IP protocol.
- Windows 95/98/2000/Me CD or diskettes.
- An active two-way cable line.
- An adjustable wrench for securing the cable line to the modem.

2

USB INSTALLATION

Deciding Which Installation Process to Use

The 3Com® HomeConnect™ cable modem allows you to connect to the Internet using either the USB port or the Ethernet port. Be sure to follow the instructions provided for the port that you want to use.

Using the USB port to connect to the Internet allows you to install the cable modem more quickly and easily than connecting to the Internet using the Ethernet port, because you do not need to install a network interface card (NIC). USB, however, only allows you to connect one computer to the cable modem.

Using the Ethernet port allows you to use a hub to connect multiple computers to the cable modem. To do this, you may need to obtain additional IP addresses from your cable service provider.



CAUTION: *You cannot use the USB and Ethernet connections simultaneously. Therefore, you should not have the USB cable and the Ethernet cable plugged into the cable modem at the same time. Having the USB and Ethernet cables plugged into the cable modem at the same time might prevent you from accessing the Internet.*

See Chapter 3 "Ethernet Installation" to set up the Ethernet connection.

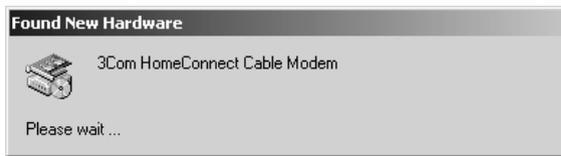
Using USB with the Windows 98 Operating System

To use the USB port with Windows 98:

- 1 Power on the computer.
- 2 Use the illustration on page 27 as a guide to make the following connections:
 - a Connect the cable line to the cable modem's CATV cable connector. Be careful not to bend the wire in the

center of the cable line when you connect it to the cable modem. After hand-tightening the CATV cable connector, use the adjustable wrench to firmly tighten it. Be careful not to over-tighten the connector or you may damage either the connector or the cable modem. If you plan to have the cable line connected to a television as well as the cable modem, you will need a cable line splitter (not included).

- b** Connect the USB cable line to the cable modem's USB port and to the USB port on the computer.
- c** Plug the cable modem's power adapter into a wall outlet or surge protector and into the cable modem's power jack.



Windows detects the cable modem. The Found New Hardware screen appears.

- 3** When the Add New Hardware Wizard screen appears, insert the Cable *Connections* CD into the computer's CD-ROM drive.



- 4 Click *Next*.



- 5 Select *Search for the best driver for your device. (Recommended)* and click *Next*.



- 6 Check the *CD-ROM drive* check box and click *Next* to search for the necessary driver files.



- 7 If Windows finds an updated driver, select *The updated driver (Recommended) 3Com HomeConnect Cable Modem External with USB* and click *Next*.

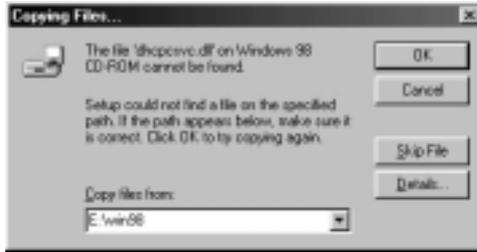


- 8 Click *Next*. The computer automatically copies the necessary driver files from the CD.

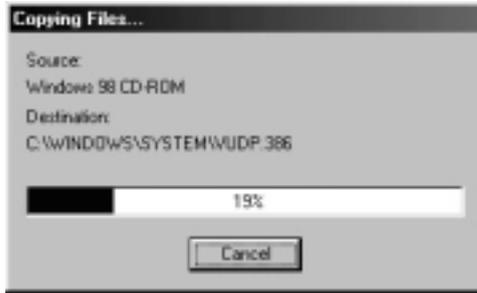
The computer finishes copying the driver files and prompts you to insert the Windows 98 CD into the CD-ROM drive.



- 9 Insert the Windows 98 CD and click *OK*. If the Copying Files dialog box appears, make sure that you have inserted the correct CD and that you have pointed it to the correct path. In the following example, the path is E:\win98, where E represents the CD-ROM drive. If necessary, replace the E with the letter of your CD-ROM drive. After you point the Add New Hardware Wizard to the correct path, click *OK*.



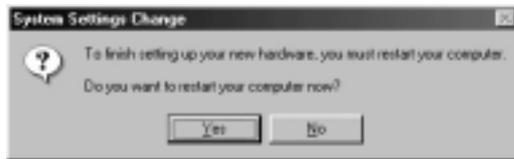
The computer automatically copies the necessary system files.



- 10 Click *Finish* after the computer has copied the necessary files.



The System Settings Change dialog box opens.



- 11 Click **Yes** to restart the computer.
- 12 Verify that the cable modem is operating properly. When the modem is operating properly, the cable modem *Link Status* and *Power* LEDs are lighted a solid green.



If you are powering up the cable modem for the first time, allow 15 minutes for this process to finish. See "Cable

Modem Operation” for a more in-depth description of the front panel LED indicators.

Using the Cable *Connections*™ CD

The included Cable *Connections* CD contains the software drivers necessary for installation using the USB port and valuable free software products.

After you have completed the entire USB installation process for the cable modem, you can install the Cable *Connections* CD. Installing the Cable *Connections* CD gives you access to the free software products.

To install the Cable *Connections* CD, follow the instructions on the CD sleeve.

Uninstalling the Cable Modem (Windows 98 Operating System Only)

To uninstall the cable modem:

- 1 Disconnect the USB cable from the computer and the cable modem.
- 2 Close all open applications.
- 3 Click Windows *Start* and select *Settings*.
- 4 Click *Control Panel*.
- 5 Double-click *Add/Remove Programs*.

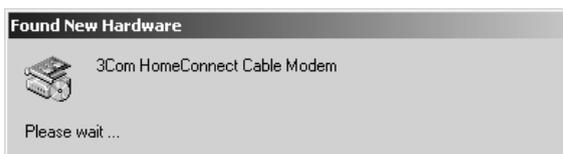


- 6 Select *3Com HomeConnect Cable Modem External with USB*. Make sure you have selected the software you want to delete. If you accidentally select the wrong software and click *Add/Remove*, Windows deletes the software and you will have to re-install it.
- 7 Click *Add/Remove*. The system removes the 3Com HomeConnect Cable Modem software.
- 8 The system prompts you to restart the computer. Click *Yes*.
- 9 Click *Windows Start*, then click *Shut Down*.
- 10 Select *Restart the Computer* and click *Yes* to restart the computer.

Using USB with the Windows 2000 Operating System

To use the USB port with Windows 2000:

- 1 Power on the computer.
- 2 Use the illustration on page 27 as a guide to make the following connections:
 - a Connect the cable line to the cable modem's CATV cable connector. Be careful not to bend the wire in the center of the cable line when you connect it to the cable modem. After hand-tightening the CATV cable connector, use the adjustable wrench to firmly tighten it. Be careful not to over-tighten the connector or you may damage either the connector or the cable modem. If you plan to have the cable line connected to a television as well as the cable modem, you will need a cable line splitter (not included).
 - b Connect the USB cable line to the cable modem's USB port and to the computer's USB port.
 - c Plug the cable modem's power adapter into a wall outlet or surge protector and into the cable modem's power jack. The Found New Hardware screen appears.





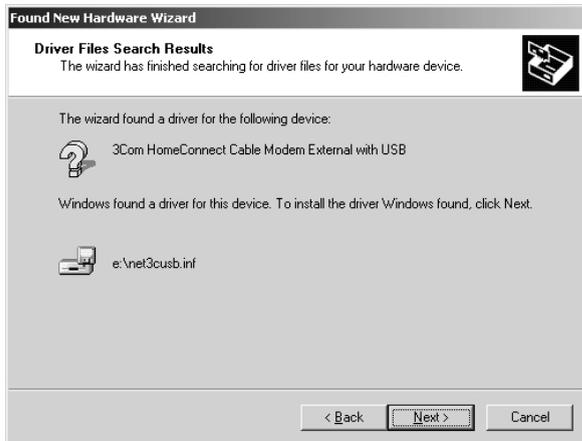
- 3 The Found New Hardware Wizard screen appears. Insert the included Cable *Connections* CD into the CD-ROM drive and Click *Next*.



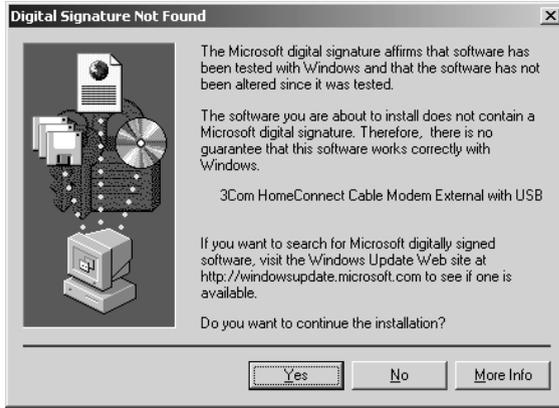
- 4 Select *Search for a suitable driver for my device (recommended)* and click *Next*.



- 5 Check the *CD-ROM drives* check box and click *Next* to search for the necessary driver files.



- 6 The Found New Hardware Wizard displays the search results. Click *Next* to install the driver files for the cable modem.



- 7 If the Digital Signature Not Found screen appears, click *Yes* to continue the driver installation.



- 8 The Found New Hardware Wizard completes the driver installation. Click *Finish* to close the Found New Hardware Wizard.
- 9 Verify that the cable modem is operating properly. When the modem is operating properly, the cable modem *Link Status* and *Power* LEDs are lighted solid green.



If you are powering up the cable modem for the first time, allow 15 minutes for this process to finish. See "Cable Modem Operation" for a more in-depth description of the front panel LED indicators.

Using the Cable *Connections* CD

The included Cable *Connections* CD contains the software drivers necessary for installation using the USB port and valuable free software products.

After you have completed the entire USB installation process for the cable modem, you can install the Cable *Connections* CD. Installing the Cable *Connections* CD gives you access to the free software products.

To install the Cable *Connections* CD, follow the instructions on the CD sleeve.

Uninstalling the Cable Modem (Windows 2000 Operating System Only)

To uninstall the cable modem:

- 1 Disconnect the USB cable from the computer and the cable modem.
- 2 Close all open applications.
- 3 Click Windows *Start* and select *Settings*.
- 4 Click *Control Panel*.
- 5 Double-click *Add/Remove Programs*.



- 6 Select *3Com HomeConnect Cable Modem External with USB*. Make sure you have selected the software you want to delete. If you accidentally select the wrong software and click *Change/Remove*, Windows deletes the software and you will have to re-install it.
- 7 Click *Change/Remove*. The system removes the 3Com HomeConnect Cable Modem software.
- 8 The system prompts you to restart the computer. Click *Yes*.
- 9 Click *Windows Start*, then click *Shut Down*.
- 10 Select *Restart the Computer* and click *Yes* to restart the computer.

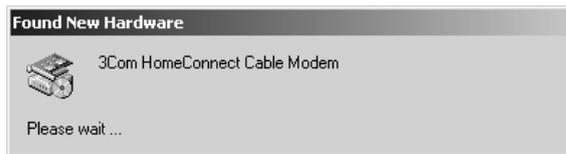
Using USB with the Windows Me Operating System

To use the USB port with Windows Me:

- 1 Power on the computer.
- 2 Use the illustration on page 27 as a guide to make the following connections:
 - a Connect the cable line to the cable modem's CATV cable connector. Be careful not to bend the wire in the center of the cable line when you connect it to the cable modem. After hand-tightening the CATV cable connector, use the adjustable wrench to firmly tighten it. Be careful not to over-tighten the connector or you may

damage either the connector or the cable modem. If you plan to have the cable line connected to a television as well as the cable modem, you will need a cable line splitter (not included).

- b Connect the USB cable line to the cable modem's USB port and to the USB port on the computer.
- c Plug the cable modem's power adapter into a wall outlet or surge protector and into the cable modem's power jack.



Windows detects the cable modem. The Found New Hardware screen appears.

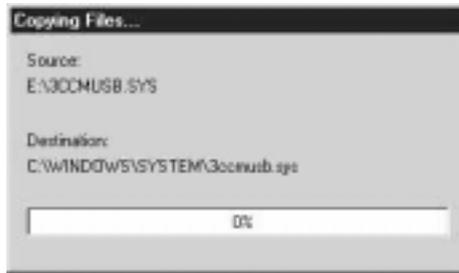
- 3 When the Add New Hardware Wizard screen appears, insert the Cable *Connections* CD into the computer's CD-ROM drive.



- 4 Select *Automatic search for a better driver (Recommended)* and click *Next*.



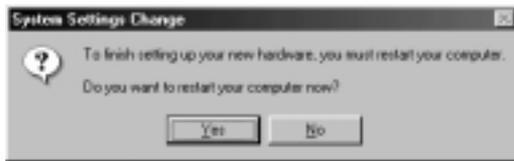
- 5 The computer automatically copies the necessary driver files from the CD.



- 6 Click *Finish* after the computer has copied the necessary files.



The System Settings Change dialog box opens.



- 7 Click Yes to restart the computer.
- 8 Verify that the cable modem is operating properly. When the modem is operating properly, the cable modem *Link Status* and *Power* LEDs are lighted a solid green.



If you are powering up the cable modem for the first time, allow 15 minutes for this process to finish. See "Cable Modem Operation" for a more in-depth description of the front panel LED indicators.

Uninstalling the Cable Modem (Windows Me Operating System Only)

To uninstall the cable modem:

- 1 Close all open applications.
- 2 Click Windows *Start* and select *Settings*.
- 3 Click *Control Panel*.
- 4 Double-click *Add/Remove Programs*.



- 5 Select *3Com HomeConnect Cable Modem External with USB*. Make sure you have selected the software you want to delete. If you accidentally select the wrong software and click *Add/Remove*, Windows deletes the software and you will have to re-install it.
- 6 Click *Add/Remove*. The system removes the 3Com HomeConnect Cable Modem software.
- 7 The system prompts you to restart the computer. Click *Yes*.
- 8 Click Windows *Start*, then click *Shut Down*.
- 9 Select *Restart the Computer* and click *Yes* to restart the computer.

Using the Cable *Connections* CD

The included Cable *Connections* CD contains the software drivers necessary for installation using the USB port and valuable free software products.

After you have completed the entire USB installation process for the cable modem, you can install the Cable *Connections* CD. Installing the Cable *Connections* CD gives you access to the free software products.

To install the Cable *Connections* CD, follow the instructions on the CD sleeve.

Troubleshooting the USB Installation

I cannot access my e-mail or Internet service.

- Check all connections. Make sure the cable line is securely connected to the cable jack on the back of the modem. Verify that the USB cable is securely plugged into both the modem and the computer. Make sure the power adapter is properly plugged into both the modem and a wall outlet or surge protector. If the cable modem is properly connected, the Cable Modem Power and Link Status indicator lights on the front of the modem should all be a solid color.
- Power cycle the cable modem by unplugging the power adapter from its electrical outlet and then plugging it back into the outlet. Then try reconnecting to your cable service provider.
- Power off the computer. Power cycle the computer by unplugging the computer from its electrical outlet and then plugging it back into the outlet. Then try reconnecting to your cable service provider.
- Call your cable service provider to verify that their service is two-way. This modem is designed for use with two-way cable plants.
- If you are using a cable line splitter so that you can connect the cable modem and a television at the same time, try removing the splitter and reconnecting the cables so that the cable modem is connected directly to

the cable wall jack. Then try reconnecting to your cable service provider.

- If you use the Windows 98 operating system, verify that you have fewer than five TCP/IP bindings. Click *Windows Start*, select *Settings*, and click *Control Panel*. Double-click *Network* and count the number of TCP/IP bindings listed. You cannot have more than five TCP/IP bindings for the cable modem to operate. You must remove enough TCP/IP bindings so that you have no more than five TCP/IP bindings. After you remove the extra bindings, uninstall the cable modem. Reboot the computer and re-install the cable modem, following the instructions in this guide.
- Release and renew the computer's IP address.

To release and renew the IP address for the Windows 95/98/Me operating systems:

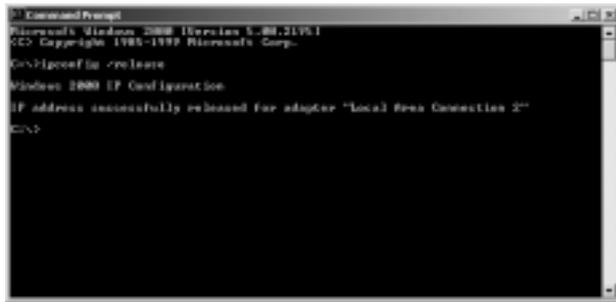
- a Click *Windows Start* and click *Run*.
- b Type **winipcfg** in the Open field and click *OK*. The IP Configuration screen appears.



- c In the Ethernet Adapter Information group area, click the drop down arrow and select *3Com HomeConnect Cable Modem*.
- d Click *Release*. The IP address changes to *0.0.0.0*.
- e Click *Renew* to refresh the IP address. The refreshed address may or may not be the same as the original IP address.

To release and renew the IP address for the Windows 2000 operating system:

- a Click Windows *Start* and select *Programs*, then *Accessories*.
- b Click *Command Prompt*.
- c At the command prompt (C:\), type **ipconfig /release** and press the *Enter* key (notice that there is a space between *ipconfig* and */release*).



```
C:\> ipconfig /release

Microsoft Windows [Version 5.00.2195.1]
(C) Copyright 1985-1999 Microsoft Corp.

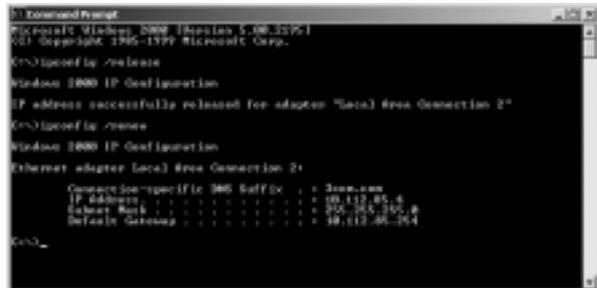
C:\> ipconfig /release

Windows 2000 IP Configuration

IP address successfully released for adapter "Local Area Connection 2"

C:\>
```

- d After the system releases the IP address, at the command prompt type **ipconfig /renew** and press the *Enter* key (notice that there is a space between *ipconfig* and */renew*).



```
C:\> ipconfig /renew

Windows 2000 IP Configuration

IP address successfully released for adapter "Local Area Connection 2"

C:\> ipconfig /renew

Windows 2000 IP Configuration

Ethernet adapter Local Area Connection 2:

    Connection-specific IPv4 Address... : 3000.com
    IP Address. . . . . : 10.112.85.4
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 10.112.85.1

C:\>
```

- e Exit the Command Prompt screen to return to the Windows desktop.

The Data Rate LED is not illuminated.

Verify that the USB cable is plugged into the computer and into the cable modem.

The Cable Status LED never stops blinking.

The signal from your cable service provider's equipment may be too weak or the cable line may not be properly attached to the modem. If the cable line is properly connected to the modem, call your cable service provider to verify whether a weak signal is the problem.

All four of the LEDs on the front of my cable modem are lighted and blinking.

Call your cable service provider or 3Com's technical support for assistance.

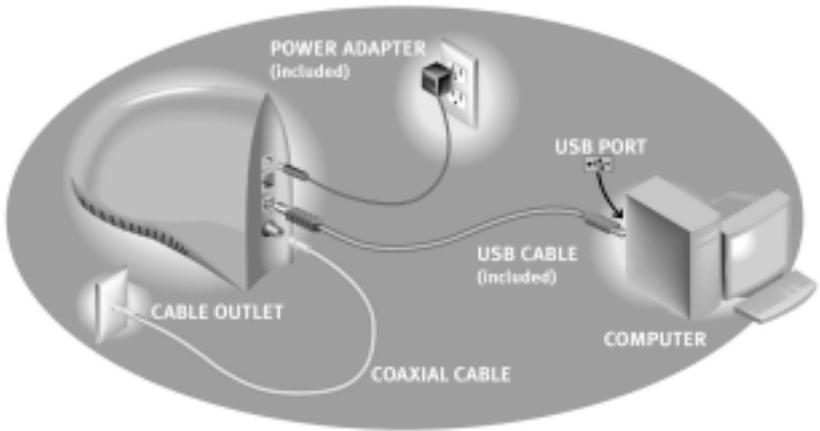
All of the LEDs on the front of my modem look right, but I still cannot access the Internet.

- If the Power, Link Status, and Data Rate LEDs are lighted, the cable modem is operating properly. Try shutting down the computer and then turning it back on. This will cause the computer to re-establish communications with your cable service provider's computer.
- Power cycle the cable modem by removing the power adapter from its outlet and then plugging it back into the outlet. Then try reconnecting to your cable service provider.
- Verify that you have installed TCP/IP properly (for Windows 95, 98SE, and Me: *winipcfg*; for Windows 2000: *ipconfig*), and that the TCP/IP parameters provided by your cable service provider are correct for your computer.
- If you are using a cable line splitter so that you can connect the cable modem and a television at the same time, try removing the splitter and reconnecting the cables so that the cable modem is connected directly to the cable wall jack. Then try reconnecting to your cable service provider.

The power on my modem goes on and off sporadically. The Link Status light never stops blinking.

You may be using the wrong power adapter. Check that the power adapter you are using is the one that came with the cable modem.

USB Connection Illustration





3

ETHERNET INSTALLATION

Deciding Which Installation Process to Use

The 3Com® HomeConnect™ cable modem allows you to connect to the Internet using either the USB port or the Ethernet port. Be sure to follow the instructions provided for the port that you want to use.

Using the USB port to connect to the Internet allows you to install the cable modem more quickly and easily than connecting to the Internet using the Ethernet port, because you do not need to install a network interface card (NIC). USB, however, only allows you to use one Internet protocol (IP) address per cable modem.

Using the Ethernet port allows you to use a hub to connect multiple computers to the cable modem, and you can use multiple IP addresses from your cable service provider.



CAUTION: *You cannot use the USB and Ethernet connections simultaneously. Therefore, you should not have the USB cable and the Ethernet cable plugged into the cable modem at the same time. Having the USB and Ethernet cables plugged into the cable modem at the same time might prevent you from accessing the Internet.*

See Chapter 2 "USB Installation" to set up the USB connection.

Setting Up the Computer to Use an Ethernet Connection

You can use the Ethernet port to connect to the Internet with the following operating systems: Windows 95, Windows 98, Windows 2000, Windows Me, or Macintosh 7.6 (or later).

Configuring the TCP/IP Protocol



If you are using a Macintosh computer, turn to the instructions on page 33.

Configuring the TCP/IP Protocol on a Windows PC

You need to have an Ethernet network interface card (NIC) and the TCP/IP communications protocol installed on your system before you install the cable modem. Follow these instructions to verify that TCP/IP is installed and configured correctly.

For the Windows 95/98 Operating Systems

- 1 Right-click the Network Neighborhood icon on the Windows desktop and click *Properties*.
- 2 A list of installed network components appears. Look for an entry named *TCP/IP*. This entry may be followed by an arrow and a description of the NIC hardware device installed in the computer.

Windows 95/98 TCP/IP Binding



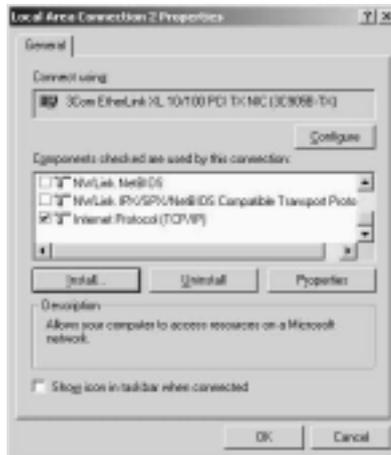
If a similar entry is present, you can now connect the cable modem. Go to "Connecting the Cable Modem" for the instructions. However, if a similar entry is *not* present, complete the following steps.

- 1 Click *Add...*
- 2 Click *Protocol*, and then click *Add...*
- 3 Click *Microsoft* in the *Manufacturers:* list and then select *TCP/IP* in the *Network Protocols:* list.
- 4 Click *OK*.

For the Windows 2000 Operating System

- 1 Right-click the My Network Places icon on the Windows desktop.
- 2 Right-click on *Local Area Connection* and click *Properties*.
- 3 A list of installed network components appears. Look for an entry named *TCP/IP*.

Windows 2000 TCP/IP Binding



If a similar entry is present, you can now connect the cable modem. Go to "Connecting the Cable Modem" for the

instructions. However, if a similar entry is *not* present, complete the following steps.

- 1 Scroll to the Internet Protocol (TCP/IP) option. Click to place a check mark in the Internet Protocol check box.
- 2 Click *OK*.

For the Windows Me Operating System

- 1 Right-click the My Network Places icon on the Windows desktop.
- 2 Click *Properties*.
- 3 A list of installed network components appears. Look for an entry named *TCP/IP*.

Windows Me TCP/IP Binding



If a similar entry is present, you can now connect the cable modem. Go to "Connecting the Cable Modem" for the

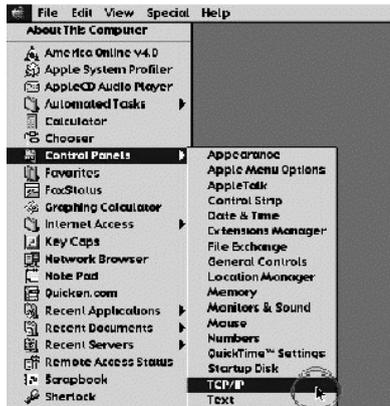
instructions. However, if a similar entry is *not* present, complete the following steps.

- 1 Click *Add*.
- 2 Select *Protocol* in the Select Network Component Type dialog box. The Select Network Protocol dialog box appears.
- 3 Select *TCP/IP* from the Network Protocols list.
- 4 Click *OK*.

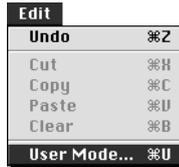
Configuring the TCP/IP Protocol on a Macintosh

You need to make sure the TCP/IP communications protocol and an Ethernet device are installed on the computer before you install the cable modem. Many Macintosh computers have Ethernet devices installed at the factory.

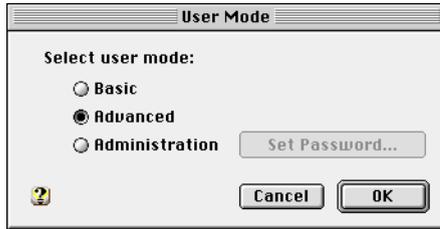
- 1 Click the Apple® icon in the upper left corner of the Finder. Scroll down to *Control Panels*, and click *TCP/IP*.



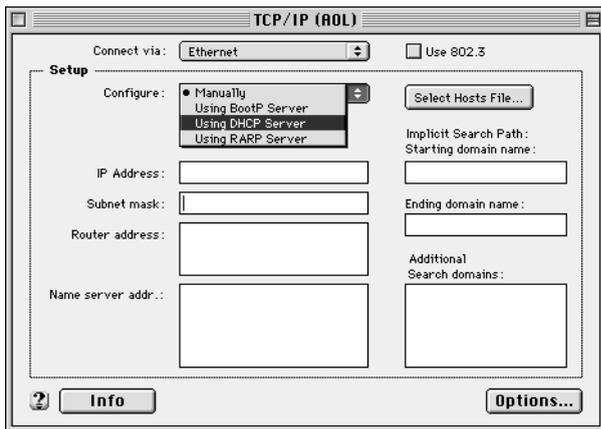
- Click *Edit* on the Finder (gray bar) at the top of the screen. Scroll down to the bottom of the menu and click *User Mode*.



- Click *Advanced* then click *OK*.



- Click the Up/Down selector arrows (to the right of *Configure*) and select *Using DHCP Server*.

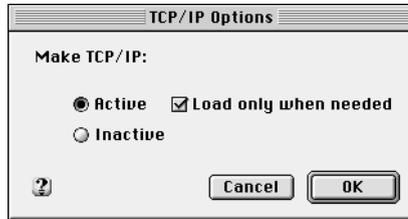


- Click *Options*. Then click *Active*.

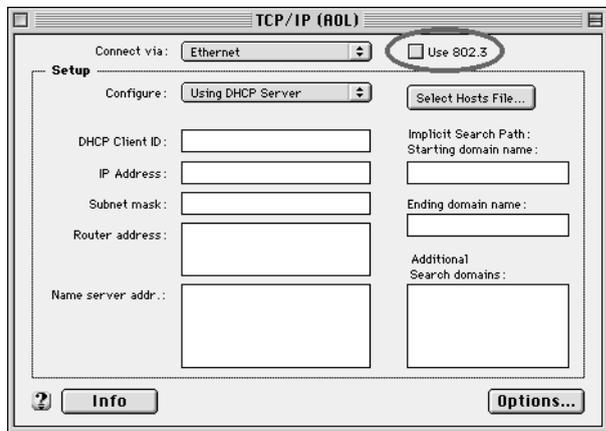


In some cases, the Load only when needed check box does not appear. If it is visible, click the box. A check mark appears in the box.

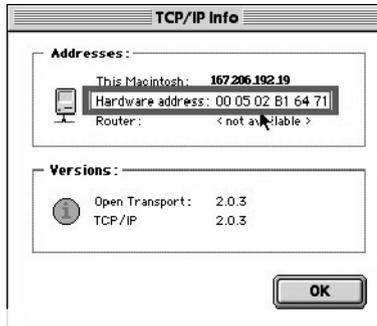
- 6 Click *OK*.



- 7 Verify that the Use 802.3 box is unchecked (circled in the following image). If there is a check mark in the box, click it to remove the check mark. Then click *Info* in the lower left corner.



- 8 Verify that there is a hardware address listed in the TCP/IP Info screen.



If there is, click *OK* and close the TCP/IP Control Panel (click *File* and scroll down to click *Close*).

If there is no hardware address listed in the TCP/IP Info screen, you must reset the computer's Parameter RAM. To do this, power off the Macintosh. With the power off, simultaneously press and hold down the Command (Apple), Option, P, and R keys on the keyboard. Keeping those keys pressed, power on the Macintosh.

When the computer starts, you will hear the Apple chime. Keep the keys pressed for at least three chimes, then release the keys and allow the computer to start up. When fully rebooted, ensure that all TCP/IP settings match those in the preceding instructions. If the computer still does not have a Hardware Address, please contact your local Apple authorized dealer or Apple support.

Connecting the Cable Modem

- 1 Power off the computer.
- 2 Use the illustration on page 42 as a guide to make the following connections:
 - Connect the cable line to the cable modem's CATV cable connector. Be careful not to bend the wire in the center of the cable line when you connect it to the cable modem. After hand-tightening the CATV cable connector, use your adjustable wrench to firmly tighten it. Be careful not to over-tighten the connector or you may damage either the connector or the cable modem. If you plan to have the cable

line connected to a television as well as to the cable modem, you will need a cable line splitter (not included).

- Plug the cable modem's power adapter into a wall outlet or surge protector and into the cable modem's power jack.
 - Plug one end of the RJ-45 network cable into the cable modem's Ethernet port and the other end into the existing NIC.
- 3** Verify that the cable modem starts up and initializes properly. When the cable modem is operating properly, the cable modem Link Status and Power LEDs are lighted a solid green.



If you are powering up the cable modem for the first time, allow 15 minutes for this process to finish. See "Cable Modem Operation" for a more in-depth description of the front panel LED indicators.

- 4** Power on the computer. When installation is complete, your setup should resemble the diagram on page 42.

Using the **Cable Connections CD**

You do not need to install the included *Cable Connections* CD to use the Ethernet port on the cable modem. You will, however, want to discover the valuable free software products included on the CD.

To install the *Cable Connections* CD, follow the instructions on the CD sleeve.

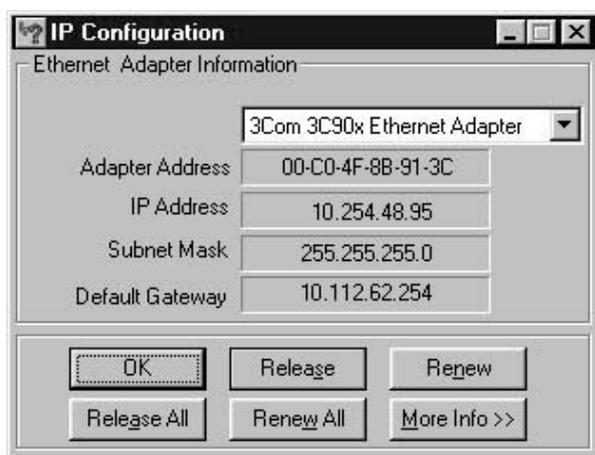
Troubleshooting the Ethernet Installation

I cannot access my e-mail or Internet service.

- Check all connections. Make sure the cable line is securely connected to the cable jack on the back of the modem. Verify that the RJ-45 cable is securely plugged into both the modem and the network interface card. Make sure the power adapter is properly plugged into the modem and into a wall outlet or surge protector. If the cable modem is properly connected, the Cable Modem Power, Cable Modem Status, and Link Status indicator lights on the front of the modem should all be a solid color.
- Power cycle the cable modem by unplugging the power jack from its electrical outlet and then plugging it back into the outlet. Then try reconnecting to your cable service provider.
- Call your cable service provider to verify that their service is two-way. This modem is designed for use with two-way cable plants.
- The network interface card or USB network interface may be malfunctioning. Refer to its documentation for troubleshooting information.
- If you are using a cable line splitter so that you can connect the cable modem and a television at the same time, try removing the splitter and reconnecting the cables so that the cable modem is connected directly to the cable wall jack. Then try reconnecting to your cable service provider.
- Check for a resource conflict. To do this, right-click the My Computer icon on the Windows desktop. Then click *Properties*. Click the Device Manager tab and look for a yellow exclamation point or red X over the NIC in the Network adapters field. If you see either, you have an IRQ conflict. Refer to the manufacturer's documentation that came with your network interface card.
- Make sure that TCP/IP is the default protocol in use by your computer.
- Release and renew the computer's IP address.

To release and renew the IP address for the Windows 95/98/Me operating systems:

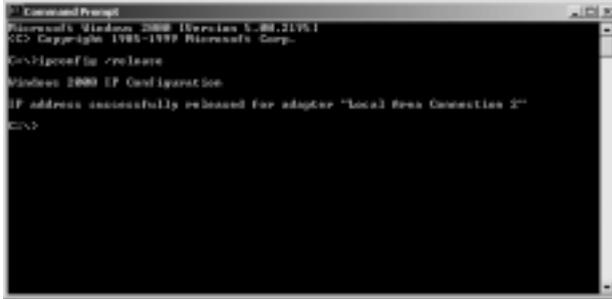
- a Click Windows *Start* and click *Run*.
- b Type **wiipcfg** in the Open field and click *OK*. The IP Configuration screen appears.



- c In the Ethernet Adapter Information group area, click the drop down arrow and select the Ethernet adapter.
- d Click *Release*. The IP address changes to *0.0.0.0*.
- e Click *Renew* to refresh the IP address. The refreshed address may or may not be the same as the original IP address.

To release and renew the IP address for the Windows 2000 operating system:

- a Click Windows *Start* and select *Programs*, then *Accessories*.
- b Click *Command Prompt*.
- c At the command prompt (C:\), type **ipconfig /release** and press the *Enter* key (notice that there is a space between *ipconfig* and */release*).



```

C:\> ipconfig /renew

Microsoft Windows [Version 5.00.2195.1]
(c) Copyright 1995-1999 Microsoft Corp.

C:\> ipconfig /renew

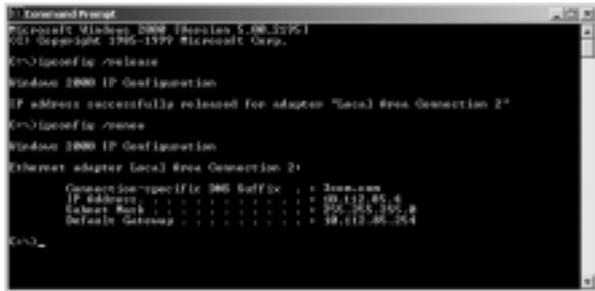
Windows 2000 IP Configuration

IP address successfully released for adapter "Local Area Connection 2"

C:\>

```

- d After the system releases the IP address, at the command prompt type **ipconfig /renew** and press the *Enter* key (notice that there is a space between *ipconfig* and */renew*).



```

C:\> ipconfig /renew

Microsoft Windows [Version 5.00.2195.1]
(c) Copyright 1995-1999 Microsoft Corp.

C:\> ipconfig /renew

Windows 2000 IP Configuration

IP address successfully released for adapter "Local Area Connection 2"

C:\> ipconfig /renew

Windows 2000 IP Configuration

Ethernet adapter Local Area Connection 2:

    Connection-specific IPv6 Address . . . . . : 2001:::
    IP Address . . . . . : 192.168.0.4
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.0.254

C:\>

```

- e Exit the Command Prompt screen to return to the Windows desktop.

The Data Rate LED is not illuminated.

Verify that the Ethernet cable is plugged into the computer and into the cable modem.

The Cable Status LED never stops blinking.

The signal from your cable service provider's equipment may be too weak or the cable line may not be properly attached to the modem. If the cable line is properly connected to the modem, call your cable service provider to verify whether or not a weak signal is the problem.

All four of the LEDs on the front of my cable modem are lighted and blinking.

Call your cable service provider or 3Com's technical support for assistance.

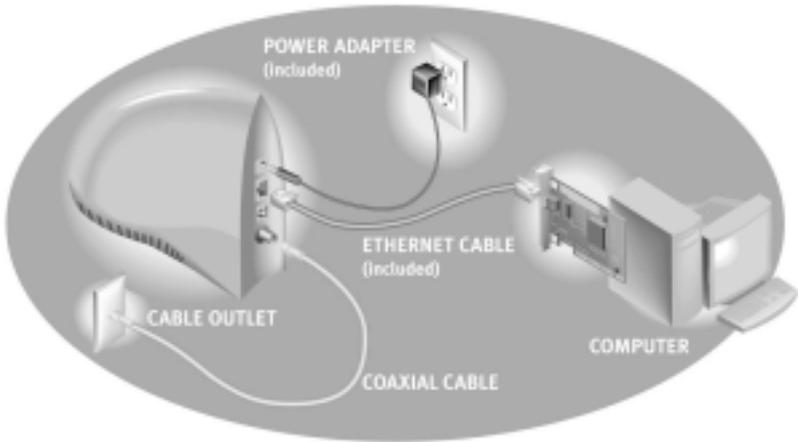
All of the LEDs on the front of my modem look right, but I still cannot access the Internet.

- If the Power, Link Status LEDs, and Data Rate LEDs are lighted, the cable modem is operating properly. Try shutting down the computer and then turning it back on. This causes the computer to re-establish communications with your cable service provider's computer.
- Power cycle the cable modem by removing the power adapter from its outlet and then plugging it back into the outlet. Then try reconnecting to your cable service provider.
- Verify that you have installed TCP/IP properly, and that the TCP/IP parameters provided by your cable service provider are correct for your computer.
- If you are using a cable line splitter so that you can connect the cable modem and a television at the same time, try removing the splitter and reconnecting the cables so that the cable modem is connected directly to the cable wall jack. Then try reconnecting to your cable service provider.

The power on my modem goes on and off sporadically. The Link Status light never stops blinking.

You may be using the wrong power adapter. Check that the power adapter you are using is the one that came with the cable modem.

Ethernet Connection Illustration



4

CABLE MODEM OPERATION

When the cable modem is properly installed and the power adapter is connected to AC power, the modem automatically scans for the active cable modem channel from your cable service provider's server. When the front panel LEDs indicate the modem is connected to the server, all you have to do is launch your Internet browser or e-mail software, and you are ready to work online.

Interpreting The Cable Modem's LEDs

Here is a quick overview of the LEDs on the front of the modem and what they can tell you about the performance of the modem and the condition of the connection.

LEDs on the Front of the Modem

- **Power** - Indicates power is applied to the cable modem. This light is solid green when the modem is on. You will also hear an audio notification once power is applied.



- **Link Status** - This LED indicates the cable modem's connection status between the cable modem and your cable service provider. It blinks steadily until the modem has established a connection. Once a connection is established, the LED is lighted solid green. You will also hear an audio notification once a connection is established.



- **Data Rate** - This LED indicates the cable modem's connection status between the cable modem and your computer. When illuminated but not blinking, this LED indicates that the cable modem is connected to the computer. The LED blinks when data is being transmitted over the cable network.



data rate

- **Multifunction** - Your cable service provider determines the function of this LED. Depending on how your cable service provider uses this LED, there may or may not be an audio notification associated with this LED.



multifunction

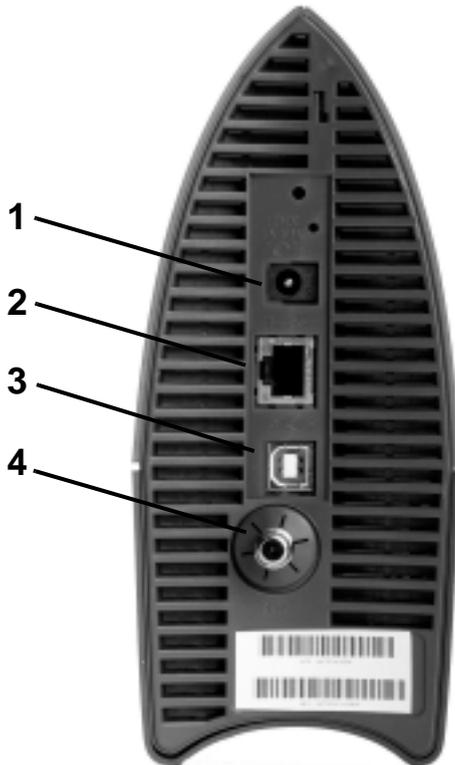
The LED on the back of the cable modem (located near the power jack) is a status LED. The following chart explains how to interpret its activity:

LED on the Back of the Modem

LED STATE	REPEATING	DESCRIPTION
SHORT OFF, LONG ORANGE	YES	Startup, power on self test
ORANGE	NO	Failed power on self test
SHORT OFF, SHORT ORANGE	YES	Downstream hunt
LONG ORANGE, SHORT GREEN	YES	Acquisition in process
SHORT OFF, SHORT GREEN	YES	Offline/not authorized for service
GREEN	NO	Fully operational state

Connectors and Switches on the Back of the Cable Modem

- 1 Power Jack:** This is where you plug in the power adapter that came with the cable modem. Remember to use *only* the power adapter that came with the cable modem. Other power adapters might have voltages that are not correct for your particular cable modem. Using a power adapter with the wrong voltage can damage the cable modem.
- 2 Ethernet Port:** This is where you plug the included RJ-45 Ethernet cable. The other end connects to the RJ-45 jack on the NIC.
- 3 USB Port:** This is where you plug the included USB cable. The other end connects to the USB port on the computer.
- 4 Cable RF Connector:** This is where you connect the coaxial cable that leads to the splitter or the cable wall jack.



5

THE 3COM CABLE MODEM CONNECTION CENTER

Accessing the Home Page

You can use the 3Com Cable Modem Connection Center Web-based software to view information about your cable modem and to customize some of the cable modem's features.



NOTE: You can find the two most popular browsers, Netscape Navigator and Microsoft's Internet Explorer, on the Cable Connections CD included with the cable modem.

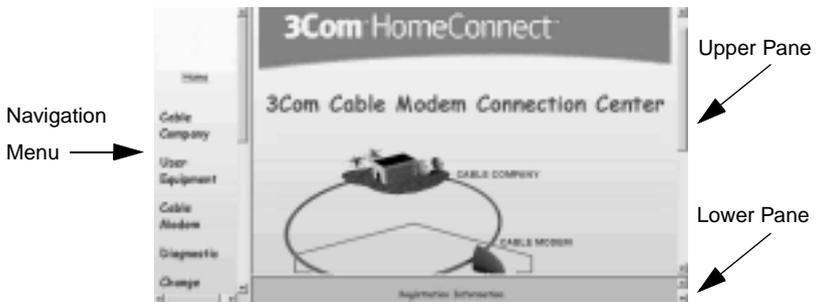
To access the Connection Center's home page, open your Web browser and point it to the following URL:

<http://3comcablemodem>

Or:

<http://192.168.100.1>

The following home page appears:



To find information about a particular feature, click the link on the navigation menu or click the object on the upper pane of the home page.

Username and Password

The Cable Company, User Equipment, Cable Modem, and Diagnostic links require a username and password.

The default username is *User*. The default password is *Password*. To change the password, click the Change Password link in the navigation menu.

Registration Indicators

Scroll down in the lower pane of the home page to view the registration information indicators. The indicator colors identify the cable modem's registration status for each registration function.

- Green—Function successful.
- Yellow—Function being tested.
- Red—Function failed.

Overview of the Connection Center's Pages

Cable Company

This page displays information needed by your cable service provider.

User Equipment

This page allows you to view information about your computer's connection to the Internet. If you have multiple computers connected to your cable modem via a hub, the information about each one is shown on this page.

To disable Internet access for one or all of your computers, place a check in the Disable Internet Access check box next to any computer for which you wish to block Internet access. Leaving the check box unchecked allows *always* on two-way Internet access.



Cable Modem

This page displays manufacturer information, such as the version number of your cable modem's software, and opens links on the navigation menu for the following:

Information

The following options appear when you click the Information link:

- **Registration Information**—This page displays your cable modem's initialization status.
- **Operational Information**—This page displays information needed by your cable service provider.
- **IP Information**—This page displays information about how your cable modem connects to the Internet, and displays your cable modem's IP address.

RF Connection

This page displays information about how your cable modem is transferring data back and forth between the Internet and the cable modem.

Configuration

The following options appear when you click the Configuration link:

- **Volume & URL**—Use this page to adjust the volume of the sounds your modem makes. This does not affect the volume settings for your computer. Select one of the radio button options or move the volume selection bar to the volume of your choice. Click *Test* to test the volume setting.

You can also use this page to customize the name of the URL you use to connect to `http://3comcablemodem`. Be sure to choose something that is easy for you to remember. Type in your custom URL name and click *Submit*.



- **File Upload**—Use this page to change the sounds your cable modem makes. These sounds are created by files with a wav extension. For example, *init22.wav* is the default sound your cable modem makes when it first initializes during installation.

Before you can use the file upload page to add a different sound to your cable modem, you must have other wav files available on your computer. The new wav files can be on your hard drive, or on a floppy disk or CD.



The cable modem has a limited amount of memory available for you to store wav files. The total size in bytes for all of your cable modem's wav files is approximately 300,000 bytes. You can delete unwanted wav files to make space for new ones. To delete a wav file from the cable modem, place a check in the appropriate Select check box and click Delete.

Select	File Name	Size (bytes)
<input type="checkbox"/>	arr022wav	69138
<input type="checkbox"/>	arr023wav	23508
<input type="checkbox"/>	arr024wav	47608
<input type="checkbox"/>	conn022wav	10342
Free Space:		62492

To upload a new wav file:

- a** Type the name of the new wav file into the Add new file: (in wav format) field, or click *Browse* to find the file.
- b** Click *Add*. The file is added to the list of available wav files.

- **Event Select**—Use this page to select the sounds you wish the cable modem to make when each event in the *Events* list happens. Click the drop down arrow next to the event to associate a sound with it. Select *none* from the drop down list if you wish the cable modem to remain silent during an event.



Diagnostic

This page displays information needed by your cable service provider.

Change Password

Use this page to change your username and password. The default username is *User*. The default password is *Password*.



SUPPORT RESOURCES

Support Resources

If you need help operating the cable modem, see “Troubleshooting the USB Installation” and “Troubleshooting the Ethernet Installation.” If you need further help, refer to the following resources.

World Wide Web

Visit our online support home page:

<http://consumer.3com.com/cable/>

You can send a message to technical support by clicking *Contact Us* in the “Site Tools” section of this Web site.

90-Day Free Installation Support

3Com offers free installation support for this product for 90 days after purchase. Please call the following toll-free number:

888 877 5040

After the 90-day limit, refer to our regular technical support hotline.

Technical Support Hotline

Technical questions about 3Com cable modems can also be answered by technical support representatives. Regular telephone charges apply. Service is available 7:00 a.m. - 11:00 p.m. CST Monday through Sunday.

847 262 2550

If You Are Still Having Problems

- Review this manual.
- Call or visit your modem dealer. They may be able to assist you.

- If your dealer cannot help you, contact 3Com Technical Support. When you call, specify the modem's serial number (found on the modem and on the outside of the box) and the software being used.

If You Need to Return the Modem to Us

Contact 3Com Customer Support. If the support representative determines that you need to return the modem, you will receive a USO (User Service Order) number. You must have a USO number before returning the modem to us. Ship the unit, postage paid, in a strong box made of corrugated cardboard with plenty of packing material. **DO NOT** send the modem back in the original box. Send **ONLY** the modem (**NOT** manuals, diskettes, etc.). Include your USO number, name, and address on the shipping label as well as inside the package. If possible, send the package via a courier capable of tracking the progress of the shipment. Ship to the following address:

3Com
USO # _____
Dock 15
1800 W. Central Ave.
Mount Prospect, IL 60056



REGULATORY INFORMATION AND LIMITED WARRANTY

Manufacturers Declaration of Conformity

FCC Declaration of Conformity

We declare under our sole responsibility that the

3Com HomeConnect Cable Modem External with USB

To which this declaration relates, is in conformity with the following standards or other normative documents:

- ANSI C63.4-1992 Methods of Measurement
- Federal Communications Commission 47 CFR Part 15, subpart B
 - 15.107 (e) Class B Conducted Limits
 - 15.109 (g) Class B Radiated Emissions Limits

3Com Corporation
3800 Golf Road
Rolling Meadows, IL 60008
U.S.A.

Telephone: (847) 262-5000

FCC Class B Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) this device may not cause harmful electromagnetic interference, and
- (2) this device must accept any interference received including interference that may cause undesired operations.

FCC Notice: Radio and Television Interference

Note: This equipment 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 harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, 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 dealer or an experienced radio/TV technician for help.

The user may find the following information prepared by the Federal Communications Commission helpful: The CIB Interference Handbook and The CIB Telephone Interference Bulletin.

These documents are available on the Internet through the FCC Compliance and Interference Bureau Home Page at <http://www.fcc.gov/cib> listed under documents. Select CIB Interference Handbook or CIB Telephone Interference Bulletin.

CAUTION: CHANGES OR MODIFICATIONS NOT EXPRESSLY APPROVED BY THE PARTY RESPONSIBLE FOR COMPLIANCE COULD VOID THE USER'S AUTHORITY TO OPERATE THIS EQUIPMENT

C-UL/UL Listing:

This Information Technology Equipment is C-UL and UL listed for both the Canadian and US markets respectively.

Canadian Notice:

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the interference-causing equipment standard entitled Digital Apparatus, ICES-003 of Industry Canada.

Cet appareil numérique respecte les limites de bruits radio-électriques applicables aux appareils numériques de la Classe B prescrites dans la norme sur le matériel brouilleur: Appareils Numériques, NMB-003 édictée par l'Industrie Canada.

Your warranty and repair service center is:

Centre de garantie et de service après vente:

Keating Technologies
Royal Crest Court, Suite 120
Markham, ONT L3R 9X4

Users should ensure for their own protection that the electrical ground connections of the power utility, telephone lines, and internal metallic water pipe system, if present, are connected together. This precaution may be particularly important in rural areas.

CAUTION: Users should not attempt to make electrical ground connections by themselves, but should contact the appropriate inspection authority or an electrician, as appropriate.

INTERNATIONAL DECLARATION OF CONFORMITY

Electromagnetic Compatibility

This equipment was tested and found to conform to the Council Directive 89/336/EEC for electromagnetic compatibility. Conformity with this Directive is based upon compliance with the following harmonized standards:

CISPR 22:1997 Limits and Methods of Measurements of Radio Interference. This equipment conforms to the Class B limits.

AS/NZS3548 Australian/New Zealand Limits and Methods of Measurement of Information Technology equipment. This equipment conforms to the Class B limits.

EN 50082-1: 1995 Electromagnetic Compatibility Generic Immunity Standard.

VCCI, Class 2

CNS 13438: 1997, Class B

Safety (Low Voltage Directive)

This equipment was tested and found to conform to the Council Directive 72/23/EEC for safety of electrical equipment. Conformity with this Directive is based upon compliance with the following harmonized standard:

IEC 60950 (1991) Second Edition with Amdts. No. 1(1992), 2(1993), 3(1995) and 4(1996) Safety of Information Technology Equipment Including Electrical Business Equipment; EN60950 (1992) with Amdts. 1,2,3,4 and 11, and with National Differences as specified in the Test Report.

TS001 and AS/NZS3260 Australian/ New Zealand standard for Safety of Information technology equipment Including Electrical Business Equipment.

Special Notes:

Japan

この装置は、情報処理装置等電波障害自主規制協議会（VCCI）の基準に基づくクラスB情報技術装置です。この装置は、家庭環境で使用することを目的としていますが、この装置がラジオやテレビジョン受信機に近接して使用されると、受信障害を引き起こすことがあります。
取扱説明書に従って正しい取り扱いをして下さい。

Translation:

This is a Class B product based on the standard of the Voluntary Control Council for Interference from Information Technology Equipment (VCCI). If this is used near a radio or television receiver in a domestic environment, it may cause radio interference. Install and use the equipment according to the instruction manual.

Performance Specifications

This equipment has a bit-error rate (BER) less than 10^{-8} when the signal-to-noise ratio (SNR) is 23.5 dB or greater when operating in 64 QAM mode, and when the SNR is 30.0 dB or greater when operating in 256 QAM mode.

Export Notices

- Unlawful to export from the US or Canada without an approved US Department of Commerce export license.
- The hardware contained in this product contains encryption software which may not be exported or transferred from the US or Canada without an approved US Department of Commerce export license.

License Agreement

You agree that you will not export or re-export the Software or accompanying documentation (or any copies thereof) or any products utilizing the Software or such documentation in violation of any applicable laws or regulations of the United States or the country in which you obtained them.

The software covered by this agreement may contain strong data encryption code that cannot be exported

outside of the U.S. or Canada. You agree that you will not export/re-export, either physically or electronically, the encryption software or accompanying documentation (or copies thereof) or any products utilizing the encryption software or such documentation without obtaining written authorization from the U.S. Department of Commerce.

3Com Corporation Limited Warranty

Hardware

3Com warrants to the end user ("Customer") that this hardware product will be free from defects in workmanship and materials, under normal use and service, for the following length of time from the date of purchase from 3Com or its authorized reseller: five (5) years.

3Com's sole obligation under this express warranty shall be, at 3Com's option and expense, to repair the defective product or part, deliver to Customer an equivalent product or part to replace the defective item, or if neither of the two foregoing options is reasonably available, 3Com may, in its sole discretion, refund to Customer the purchase price paid for the defective product. All products that are replaced will become the property of 3Com. Replacement products may be new or reconditioned. 3Com warrants any replaced or repaired product or part for ninety (90) days from shipment, or the remainder of the initial warranty period, whichever is longer.

Software

3Com warrants to Customer that each software program licensed from it will perform in substantial conformance to its program specifications, for a period of ninety (90) days from the date of purchase from 3Com or its authorized reseller. 3Com warrants the media containing software against failure during the warranty period. No updates are provided. 3Com's sole obligation under this express warranty shall be, at 3Com's option and expense, to refund the purchase price paid by Customer for any defective software product, or to replace any defective media with software which substantially conforms to applicable 3Com

published specifications. Customer assumes responsibility for the selection of the appropriate applications program and associated reference materials. 3Com makes no warranty or representation that its software products will meet Customer's requirements or work in combination with any hardware or applications software products provided by third parties, that the operation of the software products will be uninterrupted or error free, or that all defects in the software products will be corrected. For any third party products listed in the 3Com software product documentation or specifications as being compatible, 3Com will make reasonable efforts to provide compatibility, except where the non-compatibility is caused by a "bug" or defect in the third party's product or from use of the software product not in accordance with 3Com's published specifications or user manual.

THIS 3COM PRODUCT MAY INCLUDE OR BE BUNDLED WITH THIRD PARTY SOFTWARE, THE USE OF WHICH IS GOVERNED BY A SEPARATE END USER LICENSE AGREEMENT. THIS 3COM WARRANTY DOES NOT APPLY TO SUCH THIRD PARTY SOFTWARE. FOR THE APPLICABLE WARRANTY, PLEASE REFER TO THE END USER LICENSE AGREEMENT GOVERNING THE USE OF SUCH SOFTWARE.

Year 2000 Warranty

In addition to the Hardware Warranty and Software Warranty stated above, 3Com warrants that each product sold or licensed to Customer on and after January 1, 1998 that is date sensitive will continue performing properly with regard to such date data on and after January 1, 2000, provided that all other products used by Customer in connection or combination with the 3Com product, including hardware, software, and firmware, accurately exchange date data with the 3Com product, with the exception of those products identified at 3Com's Web site,

<http://www.3com.com/products/yr2000.html>

as not meeting this standard. If it appears that any product that is stated to meet this standard does not perform properly with regard to such date data on and after January 1, 2000, and Customer notifies 3Com before the later of

April 1, 2000, or ninety (90) days after purchase of the product from 3Com or its authorized reseller, 3Com shall, at its option and expense, provide a software update which would effect the proper performance of such product, repair such product, deliver to Customer an equivalent product to replace such product, or if none of the foregoing is feasible, refund to Customer the purchase price paid for such product.

Any software update or replaced or repaired product will carry a Year 2000 Warranty for ninety (90) days after purchase or until April 1, 2000, whichever is later.

Obtaining Warranty Service

Customer must contact a 3Com Corporate Service Center or an Authorized 3Com Service Center within the applicable warranty period to obtain warranty service authorization. Dated proof of purchase from 3Com or its authorized reseller may be required. Products returned to 3Com's Corporate Service Center must be pre-authorized by 3Com with a User Service Order (USO) number marked on the outside of the package, and sent prepaid and packaged appropriately for safe shipment, and it is recommended that they be insured or sent by a method that provides for tracking of the package. The repaired or replaced item will be shipped to Customer, at 3Com's expense, not later than thirty (30) days after 3Com receives the defective product.

In the United States:

3Com
USO # _____
Dock 15
1800 W. Central Ave.
Mount Prospect, IL 60056

In Canada:

Keating Technologies
USO # _____
25 Royal Crest Court, Suite 120
Markham, Ontario L3R 9X4

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Governing Law

This Limited Warranty shall be governed by the laws of the State of California, U.S.A. excluding its conflicts of laws principles and excluding the United Nations Convention on Contracts for the International Sale of Goods.