BLACK BOX®

NETWORK SERVICES

Broadband Router

FEDERAL COMMUNICATIONS COMMISSION
AND
INDUSTRY CANADA
RADIO FREQUENCY INTERFERENCE STATEMENTS

This equipment generates, uses, and can radiate radio-frequency energy, and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio communication. It has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart B of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference when the equipment is operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be necessary to correct the interference.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This digital apparatus does not exceed the Class A limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of Industry Canada.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique publié par Industrie Canada.

NORMAS OFICIALES MEXICANAS (NOM)
ELECTRICAL SAFETY STATEMENT

INSTRUCCIONES DE SEGURIDAD

1. Todas las instrucciones de seguridad y operación deberán ser leídas antes de que el aparato eléctrico sea operado.

2. Las instrucciones de seguridad y operación deberán ser guardadas para referencia futura.

3. Todas las advertencias en el aparato eléctrico y en sus instrucciones de operación deben ser respetadas.

4. Todas las instrucciones de operación y uso deben ser seguidas.

5. El aparato eléctrico no deberá ser usado cerca del agua—por ejemplo, cerca de la tina de baño, lavabo, sótano mojado o cerca de una alberca, etc..

6. El aparato eléctrico debe ser usado únicamente con carritos o pedestales que sean recomendados por el fabricante.

7. El aparato eléctrico debe ser montado a la pared o al techo sólo como sea recomendado por el fabricante.

8. Servicio—El usuario no debe intentar dar servicio al equipo eléctrico más allá a lo descrito en las instrucciones de operación. Todo otro servicio deberá ser referido a personal de servicio calificado.

9. El aparato eléctrico debe ser situado de tal manera que su posición no interfiera su uso. La colocación del aparato eléctrico sobre una cama, sofá, alfombra o superficie similar puede bloquea la ventilación, no se debe colocar en libreros o gabinetes que impidan el flujo de aire por los orificios de ventilación.

10. El equipo eléctrico deber ser situado fuera del alcance de fuentes de calor como radiadores, registros de calor, estufas u otros aparatos (incluyendo amplificadores) que producen calor.

11. El aparato eléctrico deberá ser connectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.

12. Precaución debe ser tomada de tal manera que la tierra fisica y la polarización del equipo no sea eliminada.

13. Los cables de la fuente de poder deben ser guiados de tal manera que no sean pisados ni pellizcados por objetos colocados sobre o contra ellos, poniendo particular atención a los contactos y receptáculos donde salen del aparato.

14. El equipo eléctrico debe ser limpiado únicamente de acuerdo a las recomendaciones del fabricante.

15. En caso de existir, una antena externa deberá ser localizada lejos de las lineas de energia.

16. El cable de corriente deberá ser desconectado del cuando el equipo no sea usado por un largo periodo de tiempo.

17. Cuidado debe ser tomado de tal manera que objectos liquidos no sean derramados sobre la cubierta u orificios de ventilación.

18. Servicio por personal calificado deberá ser provisto cuando:

    A: El cable de poder o el contacto ha sido dañado; u

    B: Objectos han caído o líquido ha sido derramado dentro del aparato; o

    C: El aparato ha sido expuesto a la lluvia; o

    D: El aparato parece no operar normalmente o muestra un cambio en su desempeño; o

    E: El aparato ha sido tirado o su cubierta ha sido dañada.

TRADEMARKS

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Linux is a registered trademark of Linus Torvalds.

Mac and Macintosh are registered trademarks of Apple Computer, Inc.

Netscape and Netscape Navigator are registered trademarks of Netscape Communications Corporation.

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Contents

Contents (continued)

Quick-Start Guide

NOTE

This quick-start guide covers only the most common situations. Please refer to the rest of this users' manual if your network uses any of the following: (1) an existing router, (2) an existing DHCP server, or (3) PCs using fixed (static) IP addresses.

Before You Begin

PACKAGE CONTENTS

Your package should include the following:

- The Broadband Router,

- An AC power adapter,

- A Documentation/Printer Port Driver CD, and

- This users' manual.

If anything is missing or damaged, return the package to its place of purchase.

SYSTEM REQUIREMENTS

- A broadband modem

- PC(s) with the TCP/IP protocol installed

- Category 5 Ethernet cables with RJ-45 connectors

Step 1: Hardware Installation

1. Make sure that the Broadband Router is powered OFF before starting the installation. Leave your DSL/cable modem connected to its wall socket (phone line or cable outlet); however, make sure you disconnect the DSL/cable modem from your PC.

2. Use Category 5 Ethernet cables to connect the following:

   - Up to four PCs to the four LAN ports on the Broadband Router.

     and/or

   - A hub/switch to one of the LAN ports on the router.

See Figure Q-1 below.
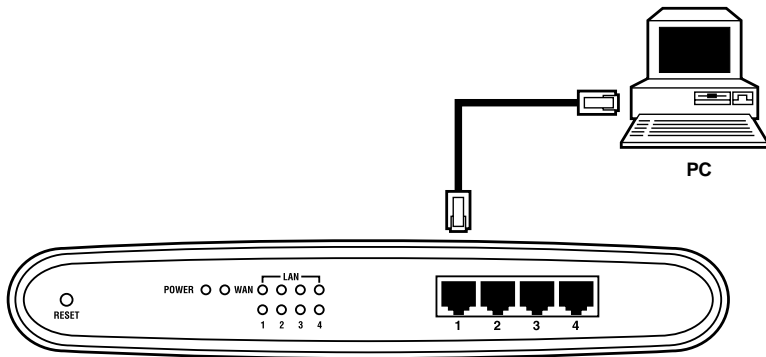
Figure Q-1. Connecting a PC to the Broadband Router.

3. Connect your DSL/cable modem to the Broadband Router's WAN port using the Ethernet cable that you unplugged in step 1. (See Figure Q-2 on the next page.) If no cable was supplied with your modem, use straight-through Ethernet cable.

NOTE

An ISDN terminal adapter (TA) or dial-up modem may be connected to the Broadband Router as an alternate method of Internet access. Please refer to Section 6.4 **for directions on using/configuring this type of connection.**

4. Connect the power adapter to the Router. Use only the power adapter provided.

5. (*Optional*) If you intend to use the Router's print server functions, connect the parallel cable of the printer to the printer port on the Router before powering on the Router. (See Figure Q-2 on the next page.)
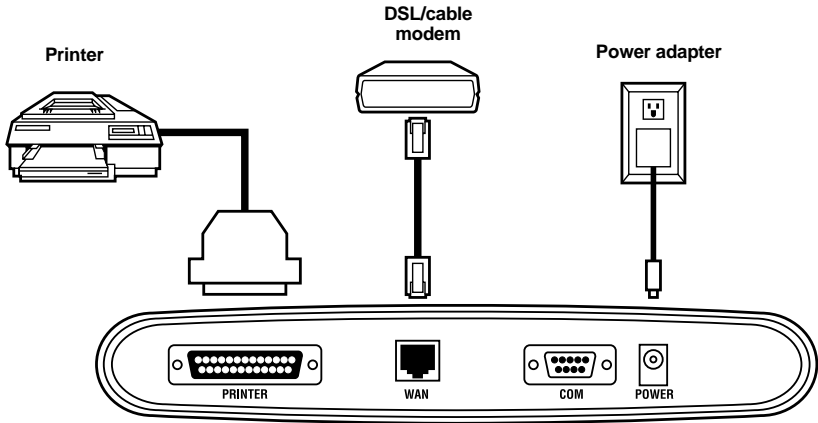
Figure Q-2. Connecting the modem, power adapter, and optional printer to the Broadband Router.

6. Power ON the Broadband Router.

Step 2: Internet Connection Configuration

If your Internet Service Provider (ISP) assigns your IP address properly for the Broadband Router to act as a plug-and-play device, it does not require additional configuration.

1. Perform TCP/IP Setup for each PC as described in the PC Setup section on page 13. Remember to restart each PC when finished.

2. Start your Web browser. In the Address box, enter the following:

```
http://192.168.2.1
```

3. Press **Enter**. You will be prompted for a password. Do not enter a password; just press **Enter**. You will see the Broadband Router Status screen.

4. Select **Simple Setup** from the left-side menu. Follow the prompts to change the password, set the time zone, and choose the appropriate Internet connection type.

If additional configuration is desired, select the **Advanced Setup** link from the left-side menu to configure firewall parameters, the DMZ host, virtual servers, and special applications that support multi-player online games.

Step 3: Print Server Setup (Optional)

1. Make sure that the printer is connected to the parallel port on the Router. Both the printer and the Router are powered ON.

2. Insert the supplied CD-ROM into your CD-ROM drive. If the setup program does not start automatically, run **SETUP** from the root folder on the CD-ROM.

3. Consult the rest of this manual for step-by-step installation and configuration instructions specific to your operating system.

4. Repeat the procedure for each PC that will share the printer.

Tips and Troubleshooting

CONNECTION CONFIGURATION FOR DSL SERVICE USERS

Most DSL service providers supply users with a dynamic IP address, but require that a valid username and password be entered first. This method is known as PPP over Ethernet (PPPoE).

NOTE

If your service provider currently requires you to use separate PPPoE client software, discontinue use of this software. Complete the following procedure to configure the Broadband Router to negotiate the PPPoE logon to your service provider's network.

1. Connect to the Router's configuration interface by entering `http://192.168.2.1` and pressing **Enter**.

2. You will see the Broadband Router Status screen. Select **Simple Setup** from the left-side menu. Choose **WAN** from the expanded menu.

3. Select **PPPoE** and press **Enter**.

4. Enter the username and password exactly as provided by your DSL service provider. Leave the service name field blank and press **Enter**.

5. Wait approximately ten seconds, then click the **Status** link in the left-side menu.

6. On the Broadband Router Status page, check the Internet Connection Status section for the field labeled **Cable/DSL**. Make sure that the status says **Connected**.

   • If it says **Connected**, you have successfully obtained an IP address from your DSL service provider. You may proceed with using the Router and Internet service as desired.

   • If it says **Disconnected**, go to the next step.

7. Power OFF the DSL modem and the Broadband Router.

8. Power ON the DSL modem and the Broadband Router.

9. Connect to the Broadband Router's configuration interface by entering `http://192.168.2.1` and pressing **Enter**.

10. On the Broadband Router Status page, check the Internet Connection Status section for the field labeled **Cable/DSL**. Make sure that the status says **Connected**.

    • If it says **Connected**, you have successfully obtained an IP address from your DSL service provider. You may proceed with using the router and Internet service as desired.

    • If it says **Disconnected**, go to the next step.

11. Troubleshooting:

    • Make sure that the DSL modem is securely connected to the Router. The modem should be powered ON and functioning properly.

    • Make sure that the username and password entered are accurate. (Verify with your DSL service provider, if necessary.)

    • Upgrade the Broadband Router's firmware to the latest version available.

CONNECTION CONFIGURATION FOR @HOME CABLE MODEM SERVICE USERS

1. Obtain your exact Host Name from @Home or your Windows Network Control Panel.

2. Connect to the Broadband Router's configuration interface by entering `http://192.168.2.1` and pressing **Enter**.

3. You will see the Broadband Router Status screen. Select **Simple Setup** from the left-side menu. Choose **WAN** from the expanded menu.

4. Select **Dynamic IP Address** and press **Enter**.

5. Enter the Host Name you were provided by @Home and press **Enter**.

6. Wait approximately ten seconds, then click the **Status** link in the left-side menu.

7. On the Broadband Router Status page, check the Internet Connection Status section for the field labeled **Cable/DSL**. Make sure that the status says **Connected**.

   • If it says **Connected**, you have successfully obtained an IP address from the @Home service. You may proceed with using the Router and Internet service as desired.

   • If it says **Disconnected**, go to the next step.

8. Select **Simple Setup** from the left-side menu and choose **WAN** from the expanded menu.

9. Select **Dynamic IP Address** and press **Enter**.

10. Press the **Clone MAC Address** button.

11. Press **Enter**.

12. Wait approximately ten seconds, then click the **Status** link in the left-side menu.

13. On the Broadband Router Status page, check the Internet Connection Status section for the field labeled **Cable/DSL**. Make sure that the status says **Connected**.

   • If it says **Connected**, you have successfully obtained an IP address from the @Home service. You may proceed with using the Router and Internet service as desired.

   • If it says **Disconnected**, go to the next step.

14. Troubleshooting:

   • Make sure that the cable modem is securely connected to the Router. The modem should be powered ON and functioning properly.

   • Make sure that the Host Name entered is accurate. (Verify with @Home, if necessary.)

• Upgrade the Broadband Router's firmware to the latest version available.

PC SETUP —WINDOWS® 95/98/98SE/ME

TCP/IP Setup

1. Right-click on the Network Neighborhood icon on your desktop. Select **Properties**.

2. Select the **TCP/IP->Ethernet Adapter** entry.

3. Make sure that **Obtain an IP Address Automatically** is selected. The Broadband Router's DHCP server will provide an IP address for the PC.

4. Press **OK** twice, then restart your PC, even if no changes were made.

INTERNET ACCESS

1. Select **Start Menu**->**Settings**->**Control Panel**->**Internet Options**.

2. Select the **Connections** tab and press the **Setup** button.

3. Select **I want to set up an Internet connection manually**, or **I want to connect through a Local Area Network (LAN)**. Select **Next**.

4. Select **I connect through a Local Area Network (LAN)**. Select **Next**.

5. Uncheck all boxes on the Local Area Network Internet Configuration screen and select **Next**.

6. Follow the remaining prompts until the program has finished.

1. Specifications

WAN Interface: (1) RJ-45 10BASE-T port, (1) DB9 port for PSTN/ISDN connections

LAN Interface: (4) RJ-45 10BASE-T/100BASE-TX ports

Printer Interface: (1) DB25 parallel printer port

Management: Web management interface

Advanced Features: Dynamic IP Address Configuration—DHCP, DNS; Firewall—Client privileges, hacker prevention and logging, NAT; Virtual Private Network—PPTP, L2TP, IPSec; Backup Internet Connection—Dial-on-demand via secondary WAN port; Print Server

Internet Standards: ARP (RFC 826); IP (RFC 791); ICMP (RFC 792); USP (RFC 768); TCP (RFC 793); Telnet (RFC 854–859), MD5 (RFC 1321); BOOTP Extension (RFC 1497); PPP LCP Extension (RFC 1570); PPPoE (RFC 2516); NAT (RFC 1631); PPP (RFC 1661); HTML (RFC 1866); HTTP (RFC 1945); CHAP (RFC 1944); DHCP (RFC 2131); PPTP (RFC 2637)

Indicators: (10) LEDs: (1) Power, (1) WAN Link, (4) Port Link Activity, (4) Port Speed 10/100

Power: Input Power: 12 VDC, 1 amp

Maximum Current: 0.40 A RMS maximum @ 110 V, 0.4 A RMS maximum @ 240 V

Power Consumption: 6.5 watts maximum @ 100–240 VAC

Heat Dissipation: 144 BTU/hour maximum @ 100–240 VAC

Size: 2"H x 8"W x 4.5"D (5.1 x 20.3 x 11.4 cm)

Weight: 12.08 oz. (342 g)

2. Introduction

2.1 Description

The Broadband Router is a gateway device designed to share Internet access, provide security, and to network multiple devices for a variety of users.

The Broadband Router provides the following wide array of advanced features:

- Instant Internet sharing

- Firewall security

- Simultaneous Web access for up to 253 PCs

- Built-in 10/100-Mbps switch

- Integrated print server

- Works with PC or Mac® computers

2.2 What the Package Includes

- The Broadband Router,

- (1) power adapter,

- (1) Installation CD,

- (1) Category 5 twisted-pair fast Ethernet cable, and

- This users' manual.

2.3 What You Need to Supply

Before proceeding with the Broadband Router's installation, please be sure you have the following:

- A computer with an Ethernet network card installed.

- Your Windows CD (if your computer is running Windows 95, 98, or Me).

- An Internet connection through a cable or DSL modem, or an external dial-up or ISDN modem.

- An additional Ethernet network cable.

- A Web browser, such as Internet Explorer® or Netscape Navigator®.

3. Hardware Setup

1. Connecting computers: Connect computers directly to the Broadband Router on ports 1–4 on the front panel (see Figure 3-1). If you have more than four computers to plug in, connect the Router to a hub or a switch and connect additional computers to that device.
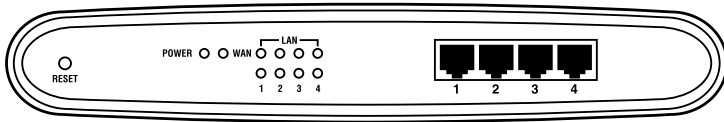
Figure 3-1. The front panel.

The ports on the Router support automatic MDI/MDI-X. This means that you can use standard straight-through Ethernet cables to connect these ports to PCs or servers (with installed Ethernet network interface cards), or to any other networking device such as an Ethernet hub or switch.

2. Connecting a cable modem or DSL modem: Connect your cable or DSL modem to the WAN port on the rear panel using the included Ethernet cable.
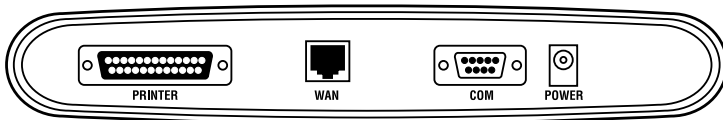
Figure 3-2. The rear panel.

3. Connecting a dial-up modem: If you use an external dial-up modem or ISDN modem, connect it to the COM port on the rear panel.

4. Connecting a printer: If you have a printer that you want to share between computers, connect it to the printer port on the rear panel using a standard parallel printer cable.

5. Power: Plug the AC power adapter into the Router's power jack on the rear panel.

Indicator LEDs

The Broadband Router's front panel provides indicator LEDs for easy monitoring. Table 3-1 describes the function of each LED.

Table 3-1. LED functions.

LED	Condition	Status
Power	Steadily on, Green	The Router is receiving power.
WAN	Steadily on, Green	The WAN port has established a valid network connection.
	Flashing, Green	The WAN port is transmitting or receiving data.
Link/Act (ports 1–4)	Steadily on, Green	The indicated LAN port has established a valid network connection.
	Flashing, Green	The indicated LAN port is transmitting or receiving data.
10/100	Steadily on, Amber	The indicated LAN port is operating at 100 Mbps.
	Off	The indicated LAN port is operating at 10 Mbps.

4. Configuring Your PC

This chapter provides configuration instructions for Windows® 95, 98, Me, 2000, and Windows NT® 4.0. Please be sure that you are following the proper instruction set for your operating system.

4.1 Configuring Your PC with Windows 95/98/Me

You may find that the instructions here do not exactly match your version of Windows. This is because these steps and screen shots were created from Windows 98. Windows 95 and Windows Millennium Edition are very similar, but not identical, to Windows 98.

4.1.1 STEP 1: CONFIGURE TCP/IP SETTINGS

After you have completed the hardware setup (see **Chapter 3**), you need to configure your computer to connect to your Broadband Router. You'll need to determine how your Internet Service Provider (ISP) issues your IP address. Many ISPs issue these numbers automatically using a networking technology known as Dynamic Host Control Protocol (DHCP). Other ISPs will specify your IP address and associated numbers, which you must enter manually. This is also known as a static IP address. How your ISP assigns your IP address determines how you will configure your computer.

Follow these steps.

1. From the Windows desktop, select the **Start** button. Choose **Settings**, then **Control Panel**.
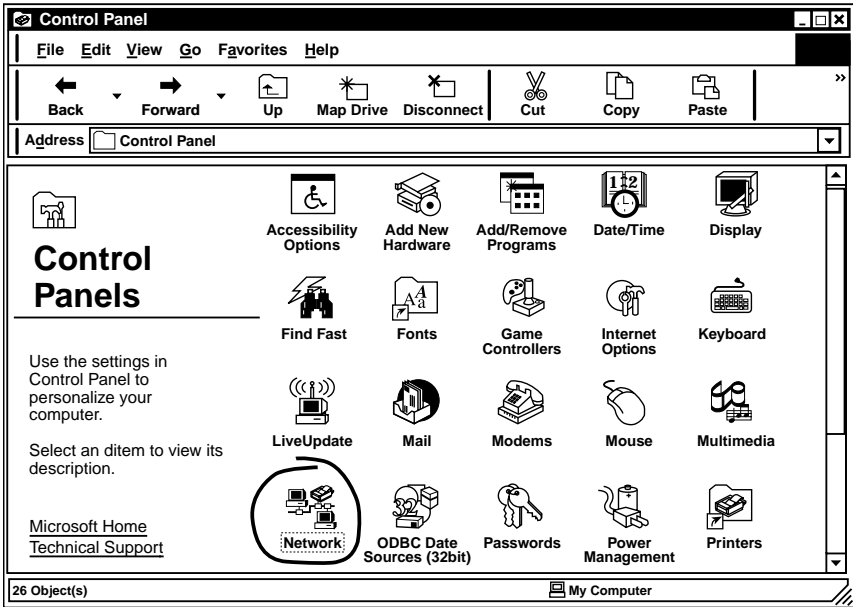

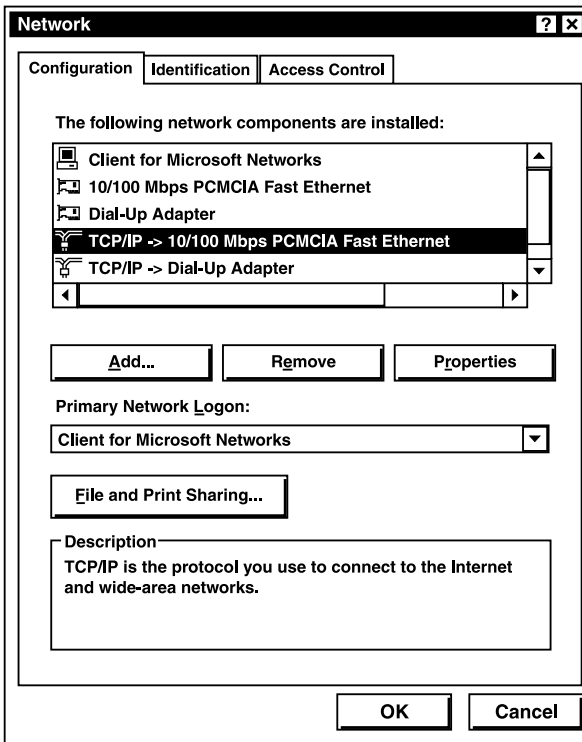**Figure 4-1. Settings, Control Panel tab.**

2. From **Control Panel**, double-click the **Network** icon.
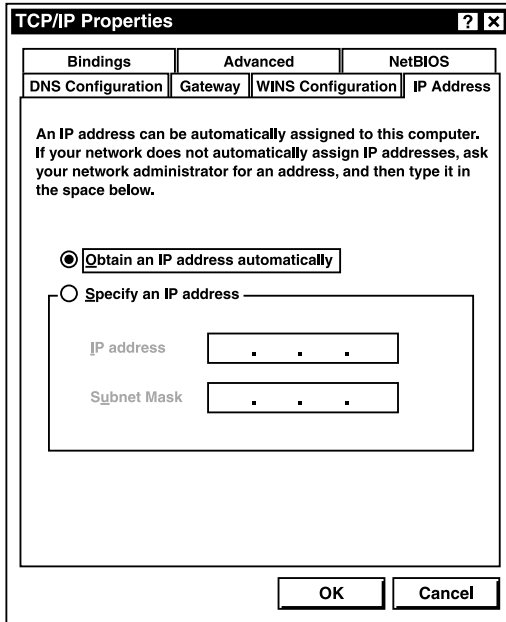

Figure 4-2. Control Panel, Network icon.

3. In the **Network** window, under the **Configuration** tab, double-click the **TCP/IP** entry that is listed with your network card.

Figure 4-3. Network window, Configuration tab, TCP/IP entry.

4. Select the **IP Address** tab.

TCP/IP Properties   ? ✕

Bindings	Advanced	NetBIOS
DNS Configuration	Gateway	WINS Configuration	IP Address

An IP address can be automatically assigned to this computer. If your network does not automatically assign IP addresses, ask your network administrator for an address, and then type it in the space below.

◉ Obtain an IP address automatically

○ Specify an IP address

IP address   .   .   .

Subnet Mask   .   .   .

OK   Cancel

Figure 4-4. TCP/IP Properties menu, IP Address tab.

If **Obtain an IP address automatically** is already selected, your computer is already configured for DHCP. Record the IP address and subnet mask in the spaces provided on page 26 (under TCP/IP Configuration Setting). Press **Cancel** to close each window, and skip to **Section 4.1.2**.

If **Specify an IP address** is selected, type in the IP address and subnet mask. Then press **OK**. Record the IP address and subnet mask in the spaces provided on page 26 (under TCP/IP Configuration Setting).

5. Select the **Gateway** tab and record the numbers listed under **Installed gateways**. Then press **OK**.
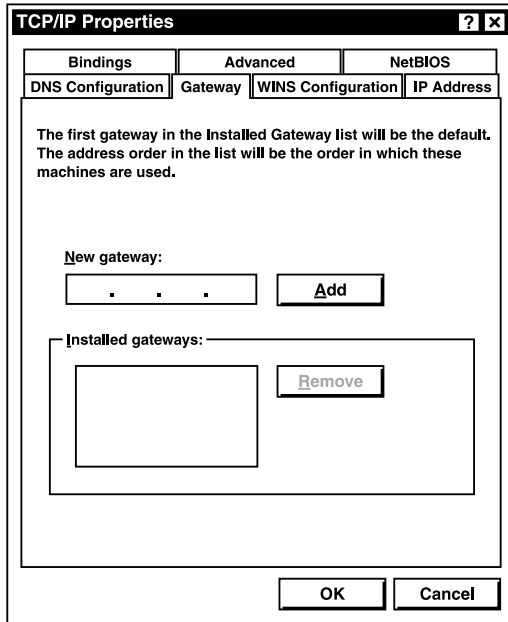
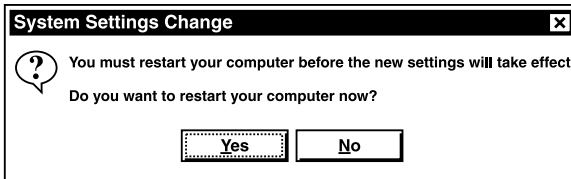**Figure 4-5. TCP/IP Properties menu, Gateway tab.**

6. Select the **DNS Configuration** tab. Locate the DNS servers listed under **DNS Server Search Order**. Record the listed addresses on the next page (under TCP/IP Configuration Setting).
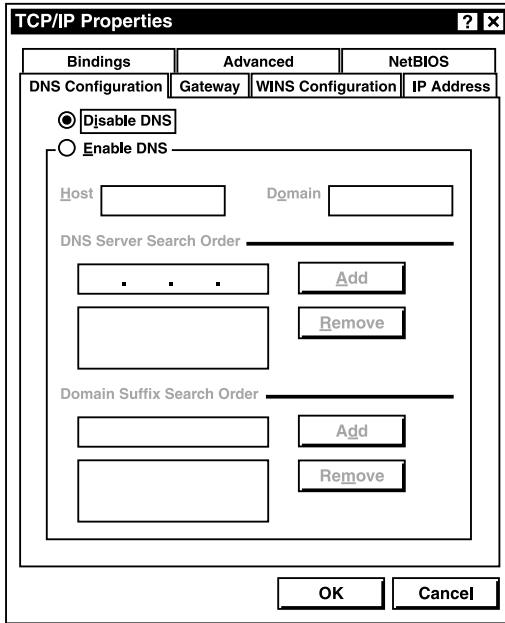
Figure 4-6. TCP/IP Properties menu, DNS Configuration tab.

7. After writing down your settings, re-check all addresses to make sure you have recorded them correctly. Select the **IP Address** tab and then select **Obtain an IP address automatically**. Click **OK**. Select the **Gateway** tab and re-check the installed gateways. Select **OK**. Finally, select the **DNS Configuration** tab and select **Disable DNS**. Select **OK**.

8. Windows may need your Windows 95/98/Me CD to copy some files. After it finishes copying, it will prompt you to restart your system. Press **Yes**. Your computer will shut down and restart.

```
┌─────────────────────────────────────────────────────────────────┐
│ System Settings Change                                        ☒ │
├─────────────────────────────────────────────────────────────────┤
│  ╭───╮                                                           │
│  │ ? │   You must restart your computer before the new settings will take effect. │
│  ╰───╯                                                           │
│          Do you want to restart your computer now?               │
│                                                                  │
│                  ┌───────────┐   ┌───────────┐                   │
│                  │    Yes    │   │    No     │                   │
│                  └───────────┘   └───────────┘                   │
└─────────────────────────────────────────────────────────────────┘
```

Figure 4-7. System Settings Change screen.

TCP/IP CONFIGURATION SETTING

IP Address ____.____.____.____
Subnet Mask ____.____.____.____
Primary DNS Server ____.____.____.____
Secondary DNS Server ____.____.____.____
Default Gateway ____.____.____.____
Host Name _____

4.1.2 STEP 2: DISABLE PROXY SERVER

You will need to verify that the proxy feature of your Web browser (also known as "HTTP Proxy") is disabled. This will enable your Web browser to view the configuration pages inside your Broadband Router. Determine whether you're using Internet Explorer or Netscape Navigator, and follow the appropriate steps.

Internet Explorer

1. Open Internet Explorer® and press the **Stop** button. Select **Tools**, then **Internet Options**.
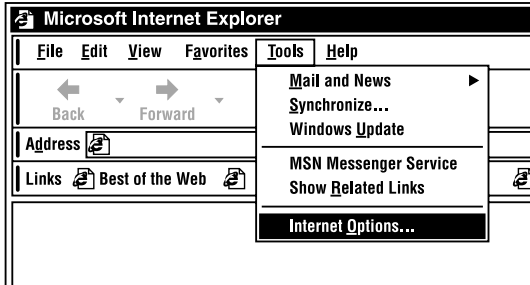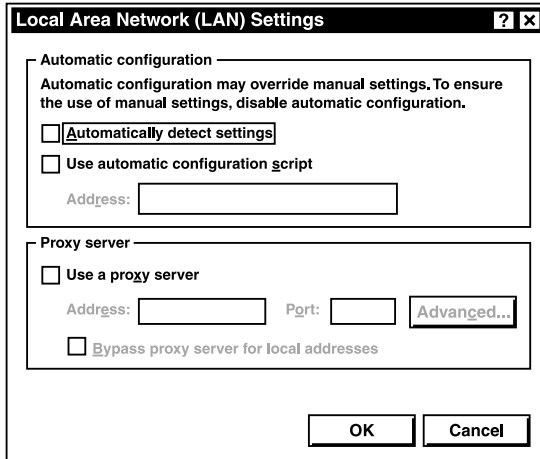

Figure 4-8. Microsoft® Internet Explorer screen, Internet Options tab.

2. In the **Internet Options** window, select the **Connections** tab. Press the **LAN Settings** button.
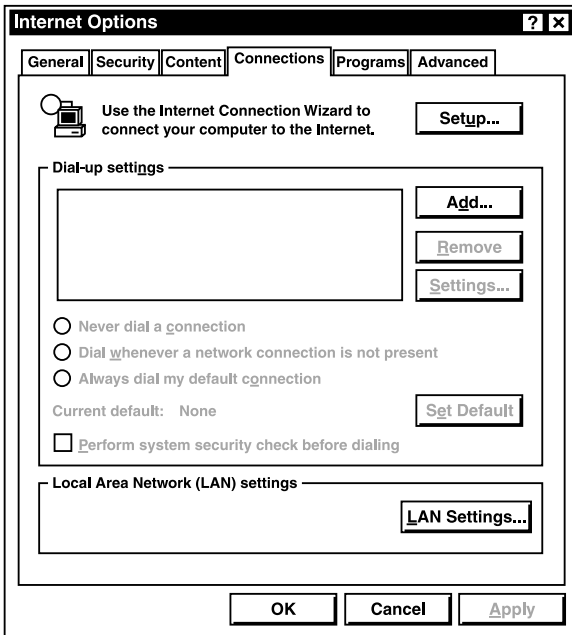
Figure 4-9. Connections tab, LAN Settings button.
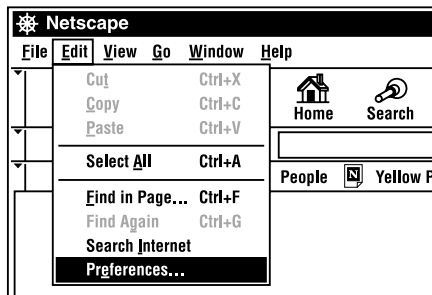
3. Clear all of the check boxes.

Figure 4-10. Clearing the check boxes.

4. Click **OK**, and then click **OK** again to close the **Internet Options** window.

Netscape Navigator

1. Open Netscape and press the **Stop** button. Select **Edit**, then **Preferences**.

Figure 4-11. Edit menu, Preferences option.

2. In the **Preferences** window, under **Category**, double-click **Advanced**, then click on **Proxies**. Select **Direct connection to the Internet**. Press **OK**.
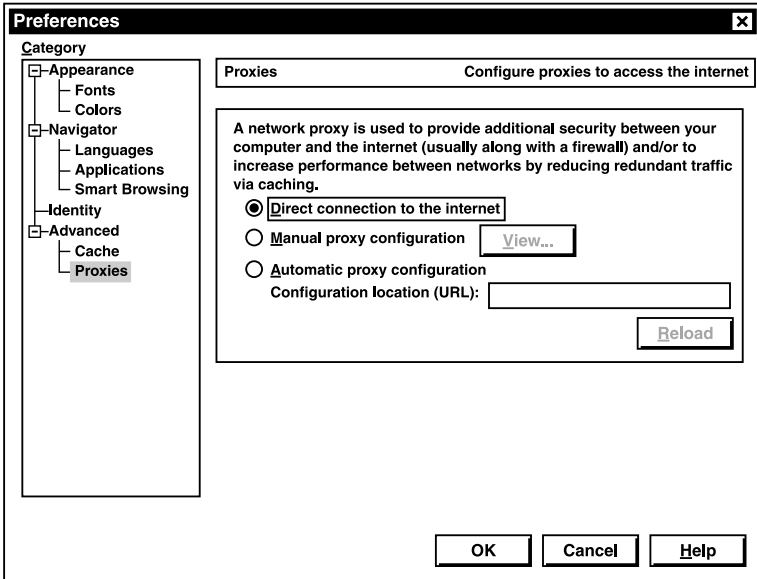
Figure 4-12. Selecting Direct Connection to the Internet.

3. Repeat these steps for each Windows 95/98/Me computer connected to your Broadband Router.

4.1.3 STEP 3: OBTAIN IP SETTINGS FROM YOUR BROADBAND ROUTER

Now that you have configured your computer to connect to your Broadband Router, it needs to obtain new network settings. By releasing any old IP settings and renewing them with settings from your Broadband Router, you will also verify that you have configured your computer correctly.

1. From the Windows desktop, select **Start**, then **Run**.

Figure 4-13. Run option.

2. Type **WINIPCFG** and press **OK**. It may take a minute or two for the **IP Configuration** window to appear.
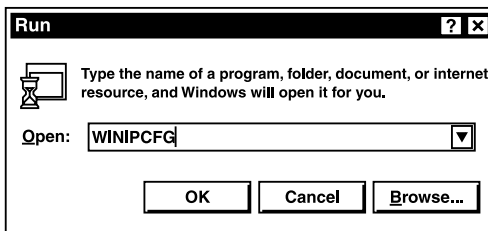
Figure 4-14. Run window.

3. From the drop-down menu, select your network card. Press **Release**, then **Renew**. Verify that your IP address is now 192.168.2.*xxx*, your subnet mask is 255.255.255.0 and your default gateway is 192.168. 2.1. These values confirm that your Broadband Router is functioning. Press **OK** to close the IP Configuration window.
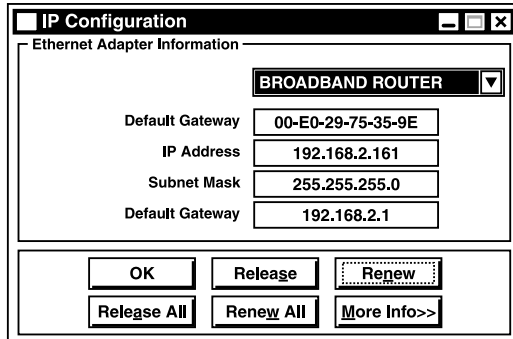
Figure 4-15. IP Configuration window.

Now that your computer is configured to connect to your Broadband Router, please go to **Chapter 6**.

4.2 Configuring Your PC with Windows 2000

4.2.1 STEP 1: CONFIGURE TCP/IP SETTINGS

After you have completed the hardware setup (see **Chapter 3**), you need to configure your computer to connect to your Broadband Router. You'll need to determine how your ISP issues your IP address. Many ISPs issue these numbers automatically, using a networking technology known as Dynamic Host Control Protocol (DHCP). Other ISPs will specify your IP address and associated numbers, which you must enter manually. This is also known as a static IP address. How your ISP assigns your IP address determines how you will configure your computer.

Follow these steps.

1. From the Windows desktop, select the **Start** button. Choose **Settings**, then **Control Panel**.
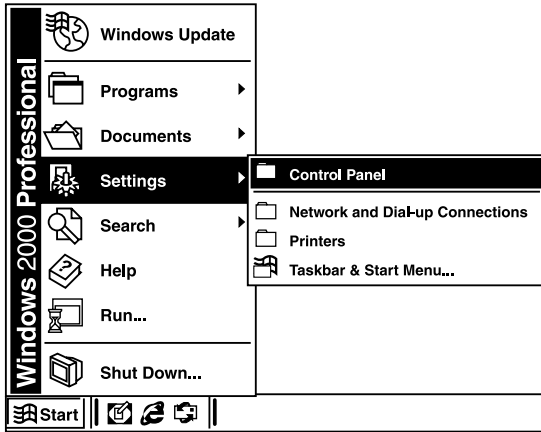
Figure 4-16. Control panel.

2. Double-click the **Network and Dial-Up Connections** icon.
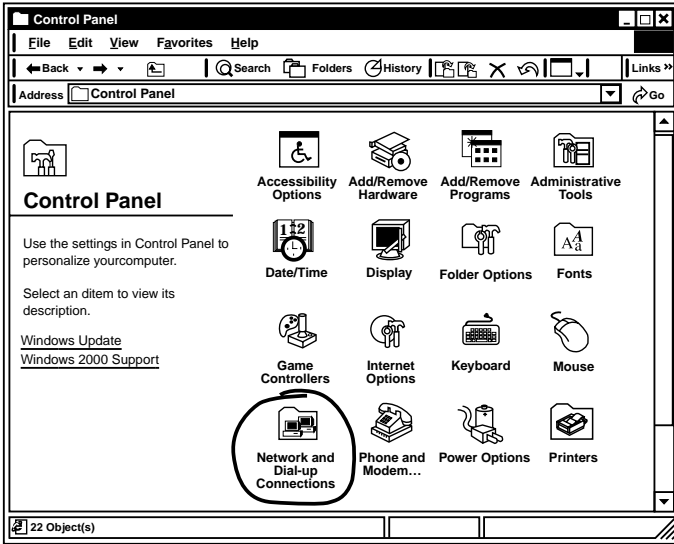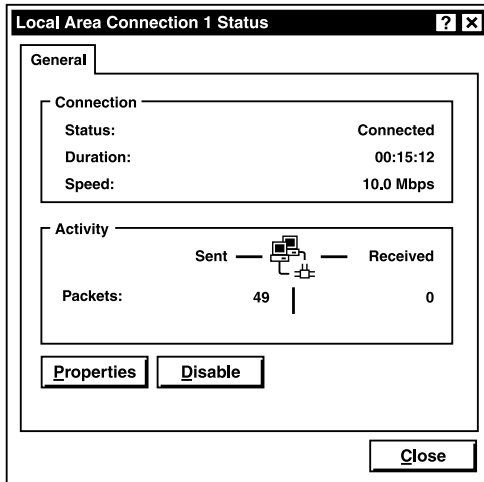

Figure 4-17. Network and Dial-Up Connections icon.

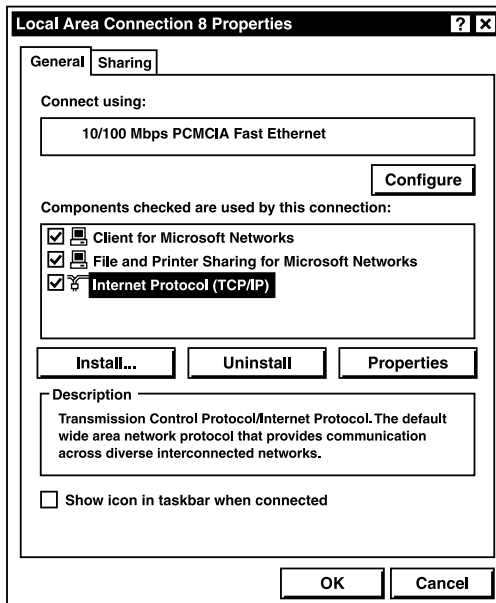3. Double-click the icon that corresponds to the connection to your Broadband Router.
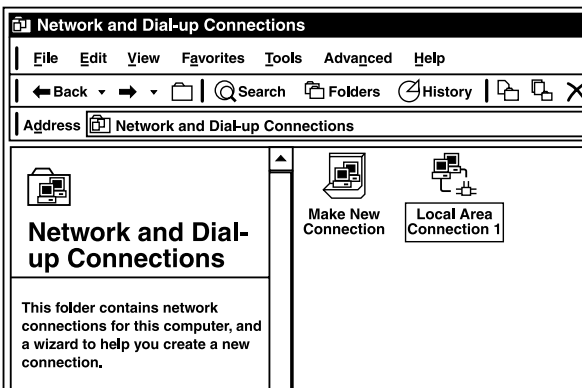
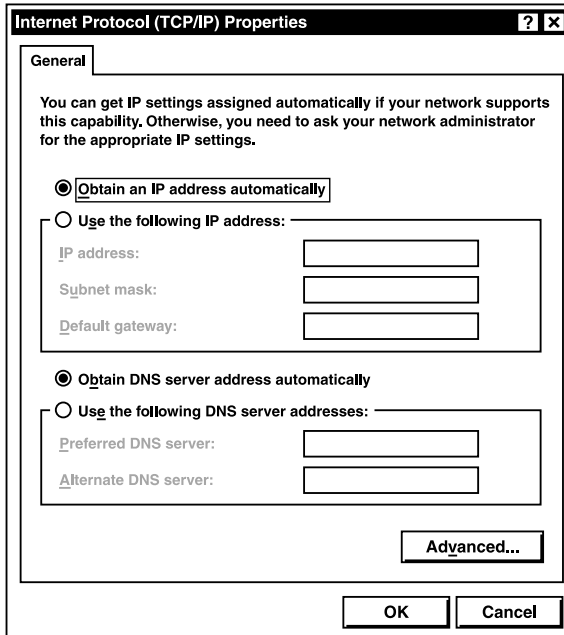**Figure 4-18. Local Area Connection 1 icon.**

4. Select **Properties**.

Figure 4-19. Properties.

5. Double-click **Internet Protocol (TCP/IP)**.

Figure 4-20. Internet Protocol TCP/IP.

6. All the information that you need to record is on the **Internet Protocol (TCP/IP) Properties** dialog box. Use the spaces below (under TCP/IP Configuration Setting) to record the information.

Figure 4-21. Internet Protocol (TCP/IP) Properties box.

Obtain an IP address automatically and **Obtain DNS server address automatically** are already selected by default. Your computer is already configured for DHCP. Press **Cancel** to close each window, and go to **Section 4.2.2**.

TCP/IP Configuration Setting

IP Address ____.____.____.____
Subnet Mask ____.____.____.____
Primary DNS Server ____.____.____.____
Secondary DNS Server ____.____.____.____
Default Gateway ____.____.____.____
Host Name _____

4.2.2 S**TEP** **2:** D**ISABLE** P**ROXY** S**ERVER**

You will need to verify that the proxy feature of your Web browser (also known as "HTTP Proxy") is disabled. This will enable your Web browser to view the configuration pages inside your Broadband Router. Determine whether you're using Internet Explorer or Netscape Navigator, and follow the appropriate steps.
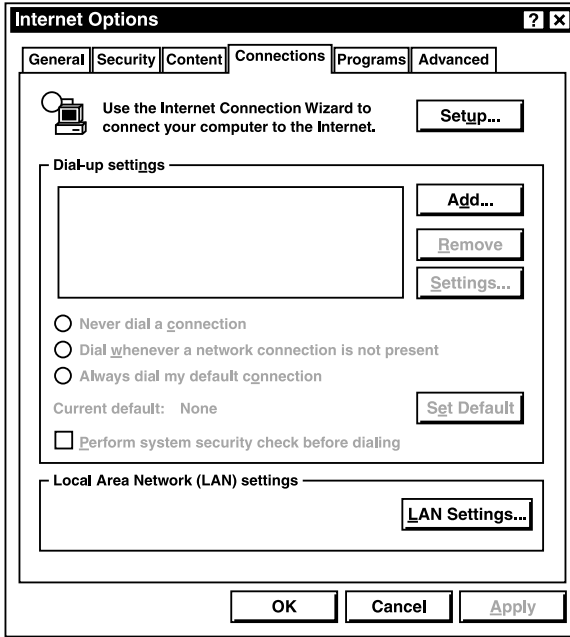
Internet Explorer

1. Open Internet Explorer and press the **Stop** button. Select **Tools**, then **Internet Options**.
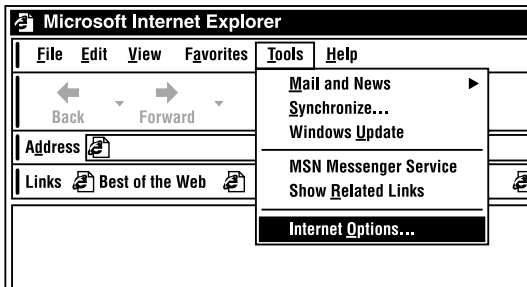
Figure 4-22. Microsoft Internet Explorer screen, Internet Options tab.

2. In the **Internet Options** window, select the **Connections** tab. Press the **LAN Settings** button.

Figure 4-23. Connections tab, LAN Settings button.

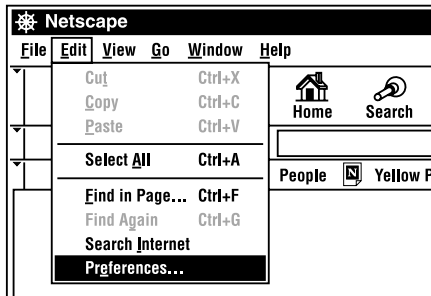3. Clear all of the check boxes.
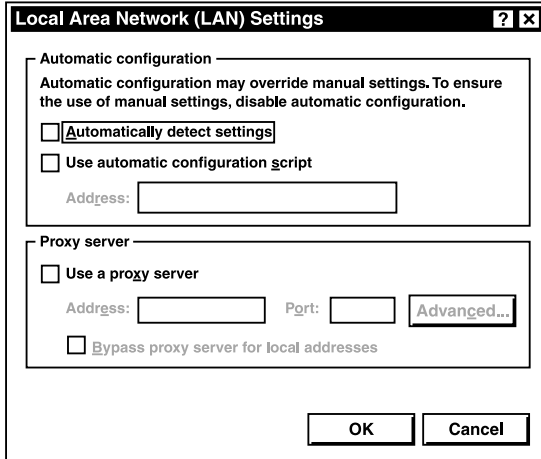
Figure 4-24. Clearing the check boxes.

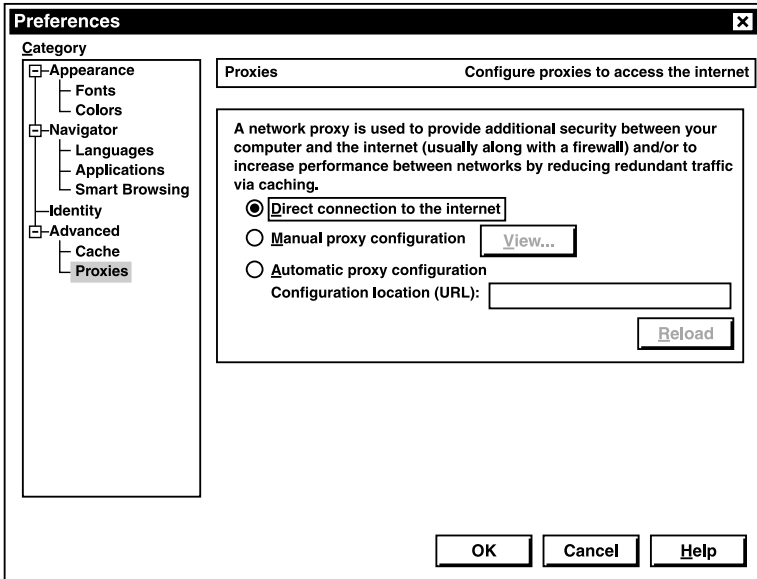4. Click **OK**, and then click **OK** again to close the **Internet Options** window.

Netscape Navigator

1. Open Netscape® and press the **Stop** button. Select **Edit**, then **Preferences**.

Figure 4-25. Edit menu, Preferences option.

2. In the **Preferences** window, under **Category**, double-click **Advanced**, then click on **Proxies**. Select **Direct connection to the Internet**. Press **OK**.


Figure 4-26. Selecting Direct Connection to the Internet.

3. Repeat these steps for each Windows 2000 computer connected to your Broadband Router.

### 4.2.3 STEP 3: OBTAIN IP SETTINGS FROM YOUR BROADBAND ROUTER

Now that you have configured your computer to connect to your Broadband Router, it needs to obtain new network settings. By releasing any old IP settings and renewing them with settings from your Broadband Router, you will also verify that you have configured your computer correctly.

1. From the Windows desktop, press the **Start** button, then **Programs**, then **Accessories**, then **Command Prompt**.
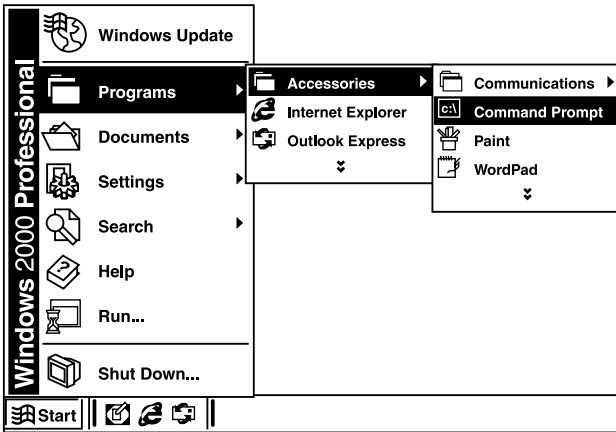
Figure 4-27. Command Prompt.

2. In the **Command Prompt** window, type **IPCONFIG /RELEASE**. Press **Enter**.
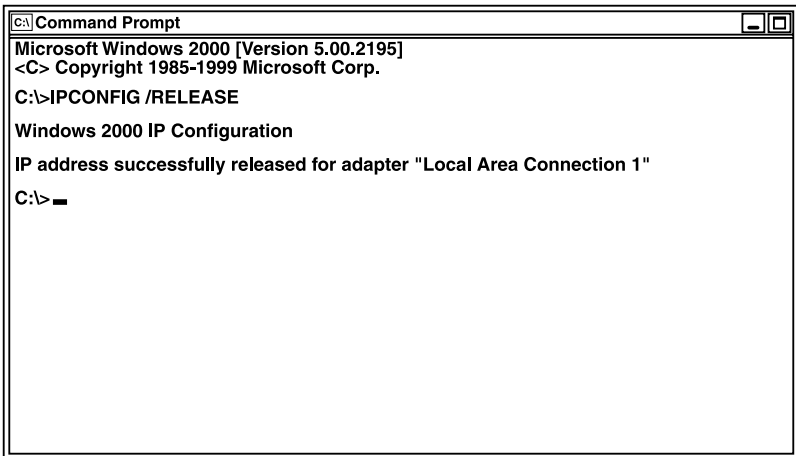
Figure 4-28. IPCONFIG/RELEASE option.

3. Type **IPCONFIG /RENEW** and press **Enter**. Verify that your IP address is now **192.168.2.xxx** (2–255), your subnet mask is **255.255.255.0**, and your default gateway is **192.168.2.1**. These values confirm that your Broadband Router is functioning.

```
C:\ Command Prompt                                                    _ □

Microsoft Windows 2000 [Version 5.00.2195]
<C> Copyright 1985-1999 Microsoft Corp.

C:\>IPCONFIG /RELEASE

Windows 2000 IP Configuration

IP address successfully released for adapter "Local Area Connection 1"

C:\>IPCONFIG /RENEW

Windows 2000 IP Configuration

Ethernet adapter Local Area Connection 1:

        Connection-specific DNS Suffix....:
        IP Address......................................: 192.168.2.125
        Subnet Mask....................................: 255.255.255.0
        Default Gateway..............................: 192.168.2.1
C:\>
```

Figure 4-29. IPCONFIG/RENEW option.

4. Type **EXIT**. Press **Enter** to close the **Command Prompt** window.

Now that your computer is configured to connect to your Broadband Router, Gateway, please go to **Chapter 6**.

4.3 Configuring Your PC with Windows NT 4.0

4.3.1 STEP 1: CONFIGURE TCP/IP SETTINGS

After you have completed the hardware setup (see **Chapter 3**), you need to configure your computer to connect to your Broadband Router. You'll need to determine how your Internet Service Provider (ISP) issues your IP address. Many ISPs issue these numbers automatically using a networking technology known as Dynamic Host Control Protocol (DHCP). Other ISPs will specify your IP address and associated numbers, which you must enter manually. This is also known as a static IP address. How your ISP assigns your IP address determines how you will configure your computer.

Follow these steps.

1. From the Windows desktop, select **Start**, then **Settings**, then **Control Panel**.
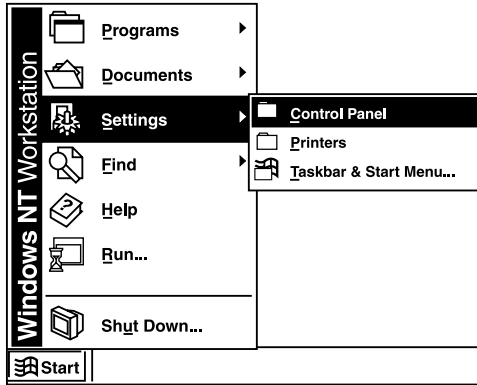

Figure 4-30. Settings, Control Panel tab.

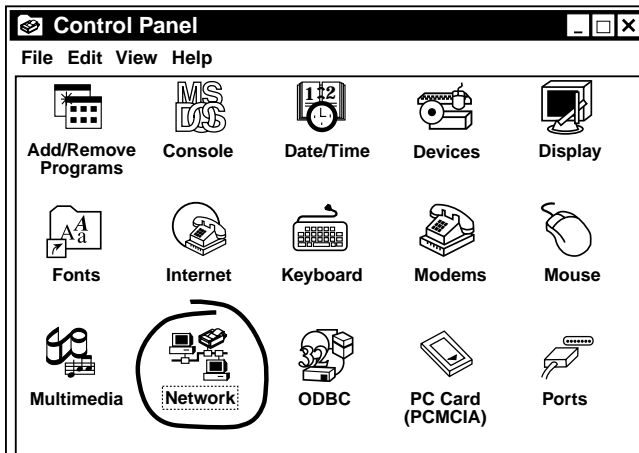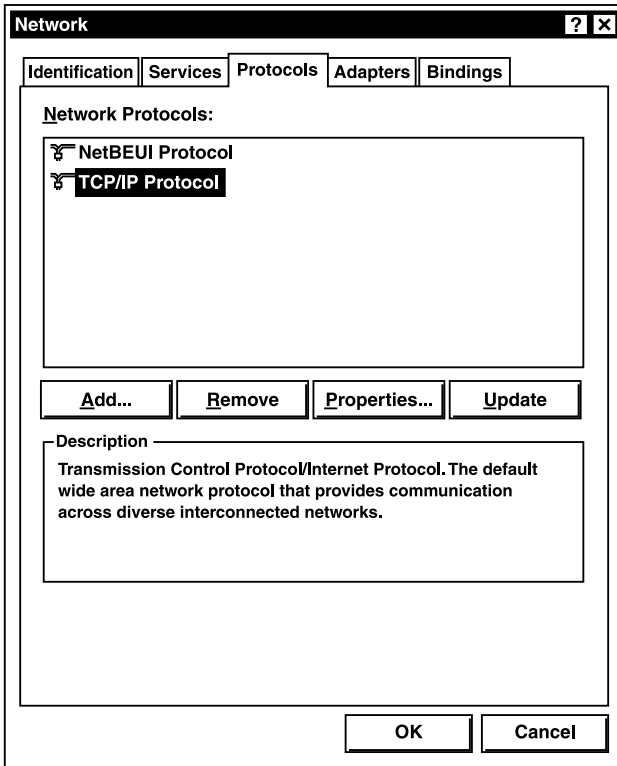2. From the **Control Panel**, double-click the **Network** icon.

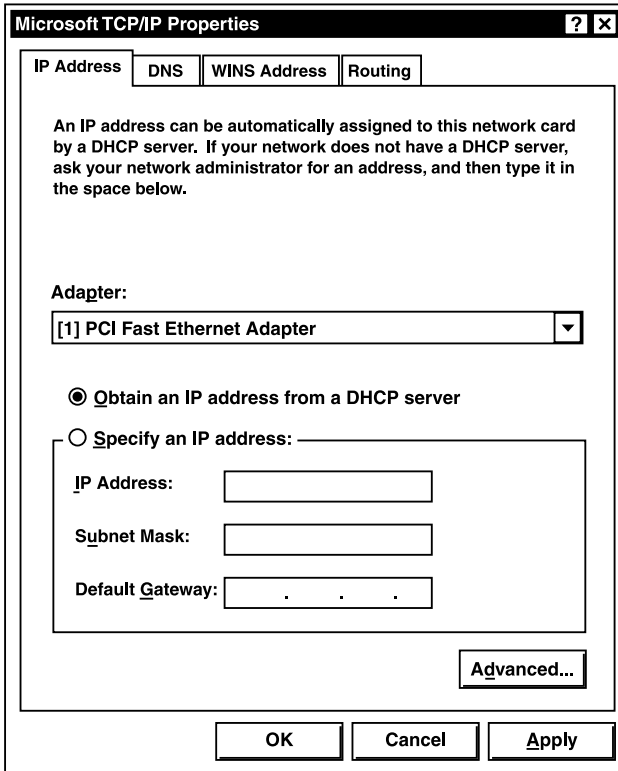

Figure 4-31. Control panel, Network icon.

3. Select the **Protocols** tab.

```
Network                                              ? ✕
  Identification │ Services │ Protocols │ Adapters │ Bindings
    Network Protocols:

      ⊻  NetBEUI Protocol
      ⊻  TCP/IP Protocol




      ┌─────────┐ ┌─────────┐ ┌──────────┐ ┌────────┐
      │ Add...  │ │ Remove  │ │Properties│ │ Update │
      └─────────┘ └─────────┘ └──────────┘ └────────┘
    ┌─ Description ──────────────────────────────────┐
    │ Transmission Control Protocol/Internet Protocol.│
    │ The default wide area network protocol that     │
    │ provides communication across diverse           │
    │ interconnected networks.                        │
    │                                                 │
    └─────────────────────────────────────────────────┘


                          ┌──────┐     ┌────────┐
                          │  OK  │     │ Cancel │
                          └──────┘     └────────┘
```

Figure 4-32. Protocols tab.

4. Double-click **TCP/IP Protocol**.

5. Select the **IP Address** tab.

```
Microsoft TCP/IP Properties                              ? X

 IP Address   DNS    WINS Address   Routing

     An IP address can be automatically assigned to this network card
     by a DHCP server.  If your network does not have a DHCP server,
     ask your network administrator for an address, and then type it in
     the space below.


     Adapter:

     [1] PCI Fast Ethernet Adapter                            ▼

        ● Obtain an IP address from a DHCP server
        ○ Specify an IP address:

          IP Address:         [                    ]

          Subnet Mask:        [                    ]

          Default Gateway:    [   .    .    .      ]


                                              Advanced...

              OK          Cancel          Apply
```

Figure 4-33. TCP/IP Protocol, IP Address tab.

6. In the **Adapter** drop-down list, be sure your Ethernet adapter is selected.

   Obtain an IP address from a DHCP server should already be selected. Your computer is already configured for DHCP. Record these values in the space provided on page 46 (under TCP/IP Configuration Setting). Press **Cancel** to close each window, and skip to **Section 4.3.2**.

7. In the **TCP/IP Properties** dialog box, click the **IP Address** tab to locate your IP address, subnet mask, and default gateway. Record these values in the space provided on page 46 (under TCP/IP Configuration Setting).

8. Select the **DNS** tab to see the primary and secondary DNS servers. Record these values in the appropriate spaces on the next page (under TCP/IP Configuration Setting).
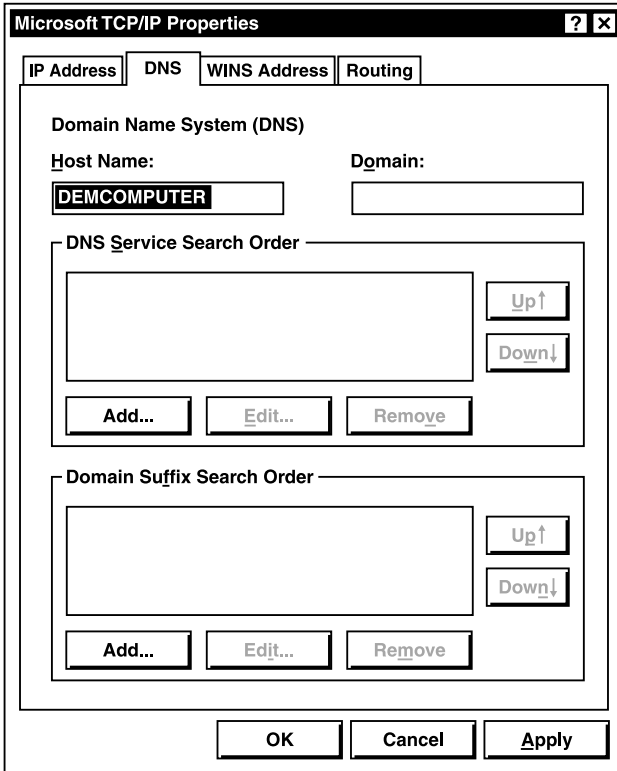
Figure 4-34. TCP/IP Properties screen, DNS tab.

9. After writing down your IP settings, re-check them. Click the **IP Address** tab. Make sure **Obtain an IP address from a DHCP server** is selected, and press **OK**. Press **OK** again to close the **TCP/IP Properties** window.

10. Windows may copy some files. After it finishes copying, it will then prompt you to restart your system. Press **Yes**. Your computer will shut down and restart.

TCP/IP Configuration Setting

IP Address ____.____.____.____
Subnet Mask ____.____.____.____
Primary DNS Server ____.____.____.____
Secondary DNS Server ____.____.____.____
Default Gateway ____.____.____.____
Host Name _____

4.3.2 STEP 2: DISABLE PROXY SERVER

You will need to verify that the proxy feature of your Web browser (also known as "HTTP Proxy") is disabled. This will enable your Web browser to view the configuration pages inside your Broadband Router. Determine whether you're using Internet Explorer or Netscape Navigator, and follow the appropriate steps.

Internet Explorer

1. Open Internet Explorer and press the **Stop** button. Select **Tools**, then **Internet Options**.
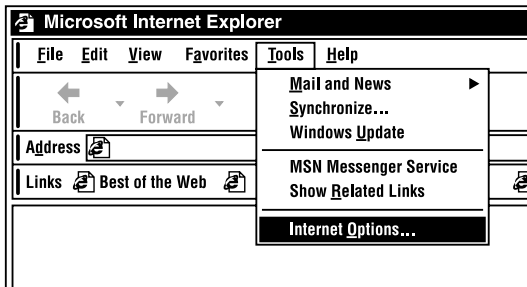
Figure 4-35. Microsoft Internet Explorer screen, Internet Options tab.

2. In the **Internet Options** window, select the **Connections** tab. Press the **LAN Settings** button.
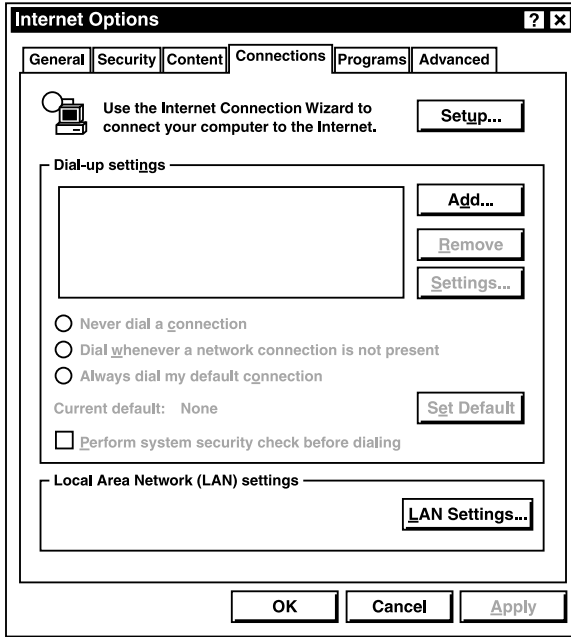
Figure 4-36. Connections tab, LAN Settings button.

3. Clear all of the check boxes.
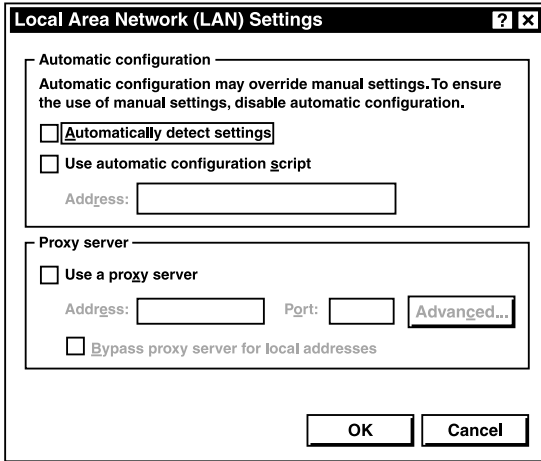
Figure 4-37. Clearing the check boxes.

4. Click **OK**, and then click **OK** again to close the **Internet Options** window.

Netscape Navigator

1. Open Netscape and press the **Stop** button. Select **Edit**, then **Preferences**.
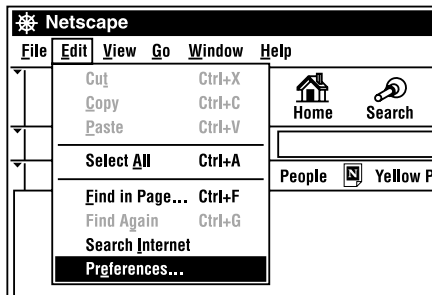
Figure 4-38. Edit menu, Preferences option.

2. In the **Preferences** window, under **Category**, double-click **Advanced**, then click on **Proxies**. Select **Direct connection to the Internet**. Press **OK**.
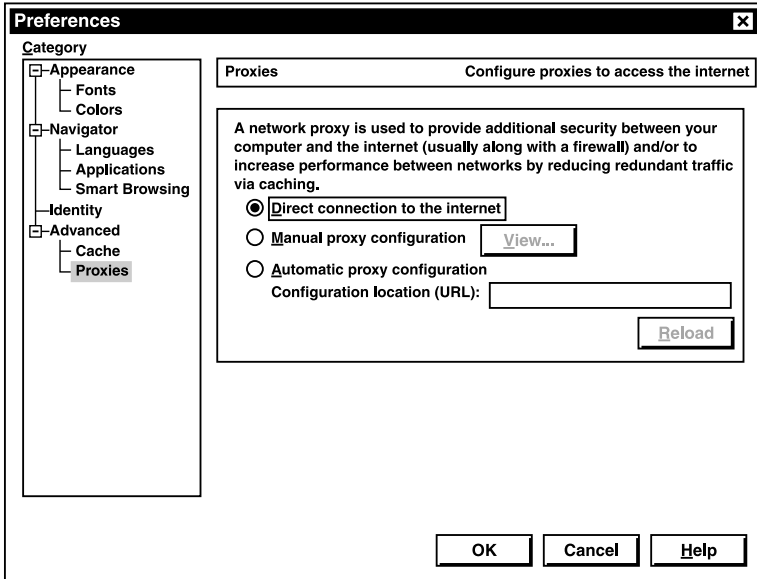
Figure 4-39. Selecting Direct Connection to the Internet.

3. Repeat these steps for each Windows NT computer connected to your Broadband Router.

4.3.3 STEP 3: OBTAIN IP SETTINGS FROM YOUR BROADBAND ROUTER

Now that you have configured your computer to connect to your Broadband Router, it needs to obtain new network settings. By releasing any old IP settings and renewing them with settings from your Broadband Router, you will also verify that you have configured your computer correctly.

1. From the Windows desktop, press the **Start** button, then **Programs**, then **Command Prompt**.
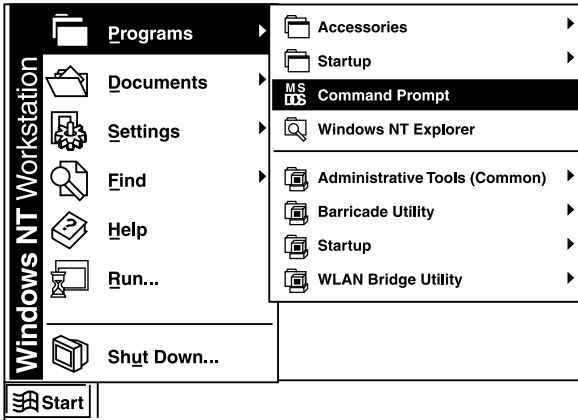
Figure 4-40. Command Prompt.

2. In the **Command Prompt** window, type **IPCONFIG/RELEASE**. Press **Enter**.
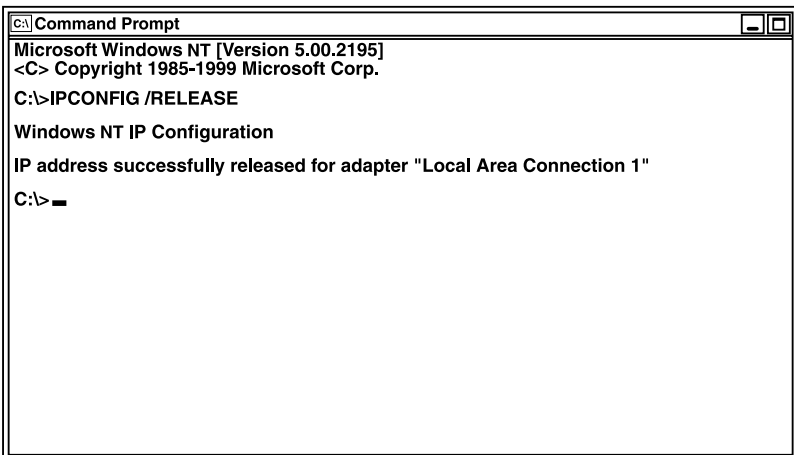
Figure 4-41. IPCONFIG/RELEASE option.

3. Type **IPCONFIG/RENEW** and press **Enter**. Verify that your IP address is now **192.168.2.***xxx*, your subnet mask is **255.255.255.0**, and your default gateway is **192.168.2.1**. These values confirm that your Broadband Router is functioning.

4. Type **EXIT**. Press **Enter** to close the **Command Prompt** window.

Now that your computer is configured to connect to your Broadband Router, please go to **Chapter 6**.

5. Configuring Your Macintosh® Computer

You may find that the instructions here do not exactly match your screen. This is because these steps and screen shots were created using Mac OS 8.5. Mac OS 7.x and above are all very similar, but may not be identical to Mac OS 8.5.

5.1 Step 1: Configure TCP/IP Settings

After you have completed the hardware setup (see **Chapter 3**), you need to configure your computer to connect to your Broadband Router. You'll need to determine how your Internet Service Provider (ISP) issues your IP address. Many ISPs issue these numbers automatically using a networking technology known as Dynamic Host Control Protocol (DHCP). Other ISPs will specify your IP address and associated numbers, which you must enter manually. This is also known as a static IP address. How your ISP assigns your IP address determines how you will configure your computer.

Follow these steps.

1. Pull down the Apple Menu. Select **Control Panels**, then **TCP/IP**.
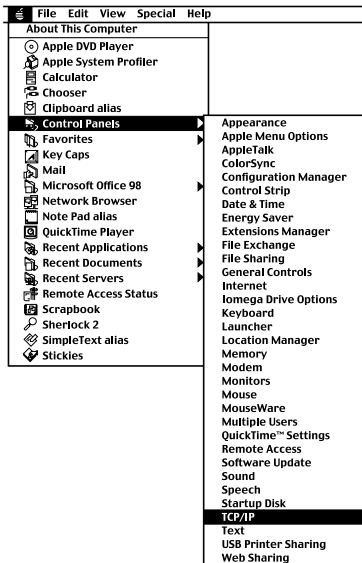
Figure 5-1. Apple menu, Control Panels, TCP/IP option.

2. In the TCP/IP dialog box, make sure that **Ethernet** is selected in the **Connect via** field.
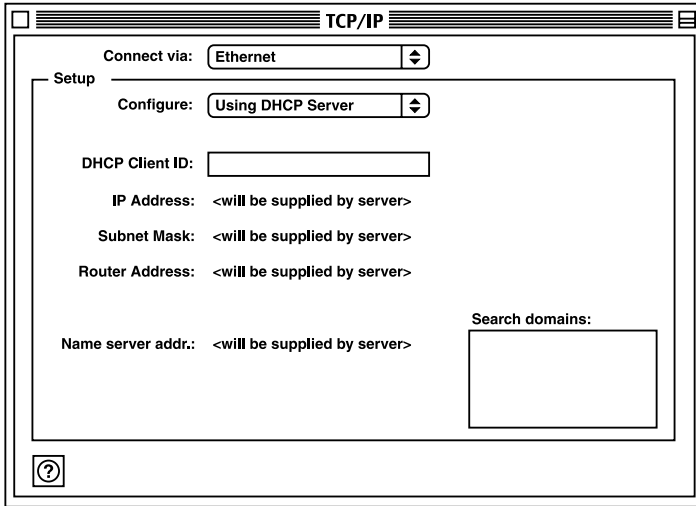
Figure 5-2. TCP/IP screen.

Using DHCP Server should already be selected in the **Configure** field. (If it's not, select it now.) Your computer is already configured for DHCP.

All the information that you need to record is on the **TCP/IP** dialog box. Use the space on the next page (under TCP/IP Configuration Setting) to record the information.

3. Close the TCP/IP dialog box, and skip to **Section 5.2**.

4. Another box will appear asking whether you want to save your TCP/IP settings. Click **Save**.

Save changes to the current configuration?

Saving the changes may interrupt any TCP/IP services currently established.

Don't Save   Cancel   Save
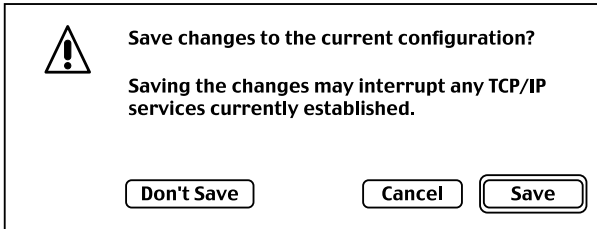
Figure 5-3. Save changes screen.

TCP/IP Configuration Setting

IP Address ____.____.____.____
Subnet Mask ____.____.____.____
Router Address ____.____.____.____
Name Server Address ____.____.____.____

5.2 Step 2: Disable Proxy Server

You will need to verify that the proxy feature of your Web browser (also known as "HTTP Proxy") is disabled. This will enable your Web browser to view the configuration pages inside your Broadband Router. Determine whether you're using Internet Explorer or Netscape Navigator, and follow the appropriate steps.

Internet Explorer

1. Open Internet Explorer and press the **Stop** button. Select **Edit**, then **Preferences**.
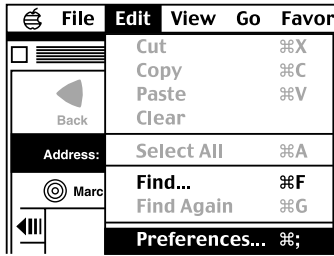
Figure 5-4. Edit, Preferences.

2. In the **Internet Explorer Preferences** window, under **Network**, select **Proxies**.
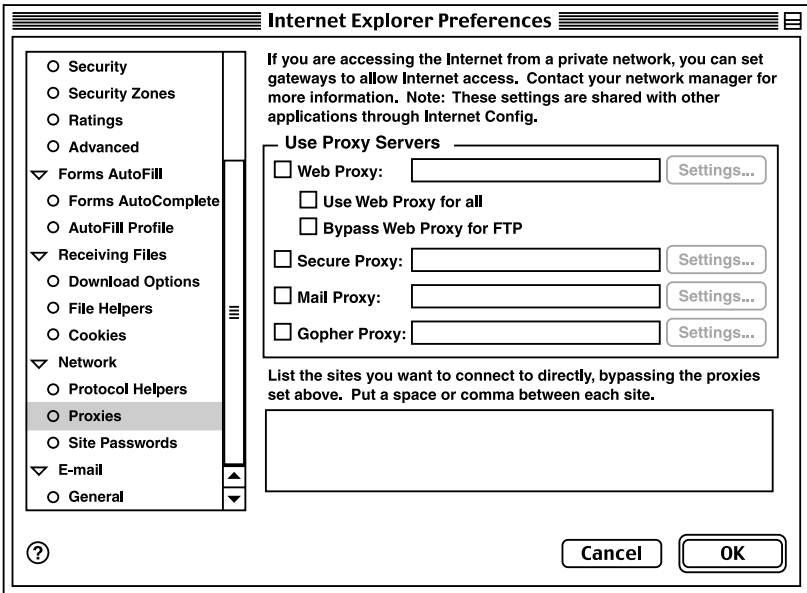
Figure 5-5. Preferences, Network, Proxies.

3. Uncheck all check boxes and press **OK**.

Netscape Navigator

1. Open Netscape and press the **Stop** button. Select **Edit**, then **Preferences**.
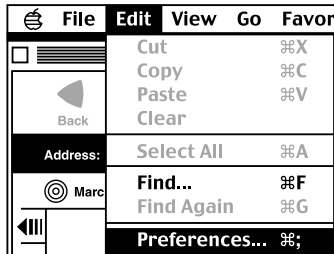
Figure 5-6. Edit menu, Preferences option.

2. In the **Preferences** dialog box, in the left-hand column labeled **Category**, select **Advanced**. Under the **Advanced** category, select **Proxies**.
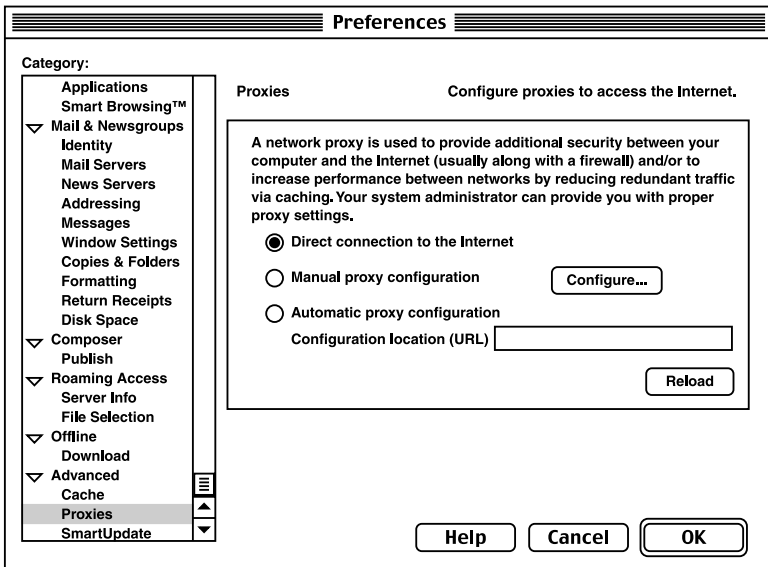
Figure 5-7. Proxies option.

3. Select **Direct Connection to the Internet** and press **OK**.

5.3 Step 3: Obtain IP Settings from Your Broadband Router

Now that you have configured your computer to connect to your Broadband Router, it needs to obtain new network settings. By releasing any old IP settings and renewing them with settings from your Broadband Router, you will also verify that you have configured your computer correctly.

1. Pull down the Apple Menu. Select **Control Panels**, then **TCP/IP**.

File Edit View Special Help	
About This Computer	
⊙ Apple DVD Player	
🖉 Apple System Profiler	
🖩 Calculator	
🖳 Chooser	
🗐 Clipboard alias	
🖏 **Control Panels** ▶	Appearance
🗒 Favorites ▶	Apple Menu Options
◰ Key Caps	AppleTalk
🗞 Mail	ColorSync
🗒 Microsoft Office 98 ▶	Configuration Manager
🖥 Network Browser	Control Strip
Note Pad alias	Date & Time
🖳 QuickTime Player	Energy Saver
🖉 Recent Applications ▶	Extensions Manager
🗍 Recent Documents ▶	File Exchange
🖥 Recent Servers ▶	File Sharing
🖧 Remote Access Status	General Controls
🖾 Scrapbook	Internet
🔍 Sherlock 2	Iomega Drive Options
🖉 SimpleText alias	Keyboard
🖉 Stickies	Launcher
	Location Manager
	Memory
	Modem
	Monitors
	Mouse
	MouseWare
	Multiple Users
	QuickTime™ Settings
	Remote Access
	Software Update
	Sound
	Speech
	Startup Disk
	TCP/IP
	Text
	USB Printer Sharing
	Web Sharing

Figure 5-8. Apple menu, Control Panels, TCP/IP.

2. In the **TCP/IP** window, your new settings will be shown. Verify that your IP address is now **192.168.2.*xxx*** your subnet mask is **255.255.255.0**, and your Router Address is **192.168.2.1**. These values confirm that your Broadband Router is functioning.
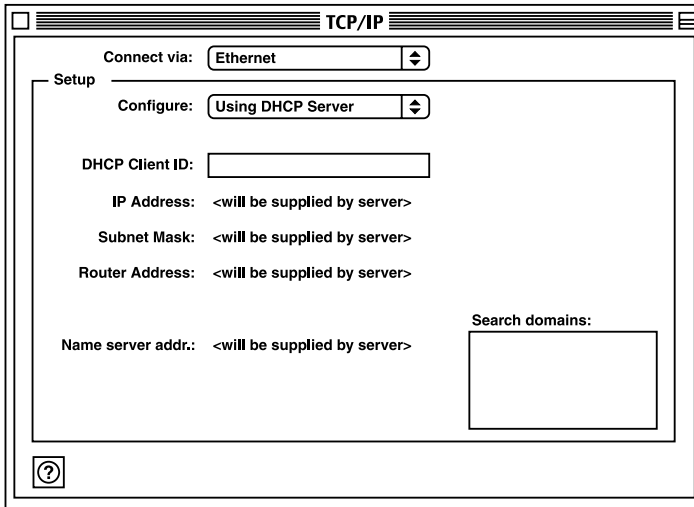
Figure 5-9. TCP/IP screen.

3. Close the **TCP/IP** window.

Now that your computer is configured to connect to your Broadband Router, please go to **Chapter 6**.

6. Configuring Your Broadband Router

Now that you have successfully configured your computer and retrieved your new network settings from your Broadband Router, you are ready to configure the Router's settings for your LAN.

1. Open your Web browser (Internet Explorer or Netscape Navigator®) and press the **Stop** button.

2. In the **Address** field type `http://192.168.2.1` and press **Enter**.

```
┌─────────────────────────────────────────┐
│ ▱ Microsoft Internet Explorer            │
│   File  Edit  View  Favorites  Tools  Help│
│   ← Back  ▾  ➡  ▾  ⊗  ▯  ⌂ | ◯ Search    │
│   Address  ▱ http://192.168.2.1          │
│                                          │
│                                          │
│                                          │
│                                          │
└─────────────────────────────────────────┘
```
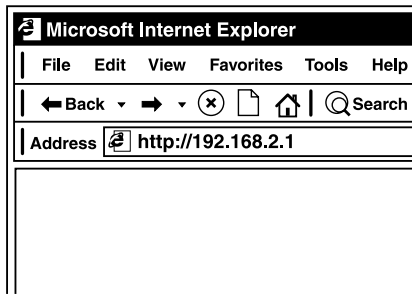
Figure 6-1. Internet Explorer screen, Address field.

3. The Broadband Router login screen will appear. Leave the Password field empty and press **Login**. There is no password by default. For security reasons, you should assign a password as soon as possible. Note that the password login is case-sensitive.
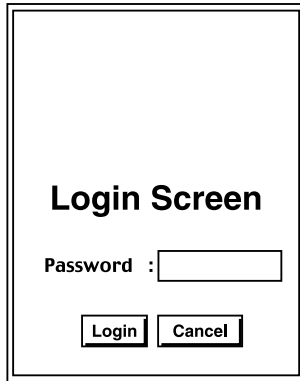
Figure 6-2. Login screen.

4. On the main page of the Broadband Router Web console, select **Setup**.
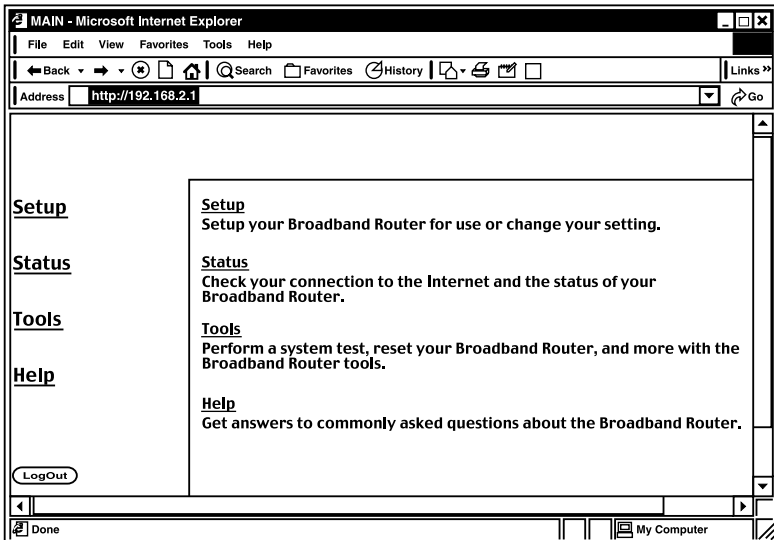
Figure 6-3. Main page.

5. The Broadband Router's automated setup process will take you through each step for setting up your Router. Press **Enter** to start the process.
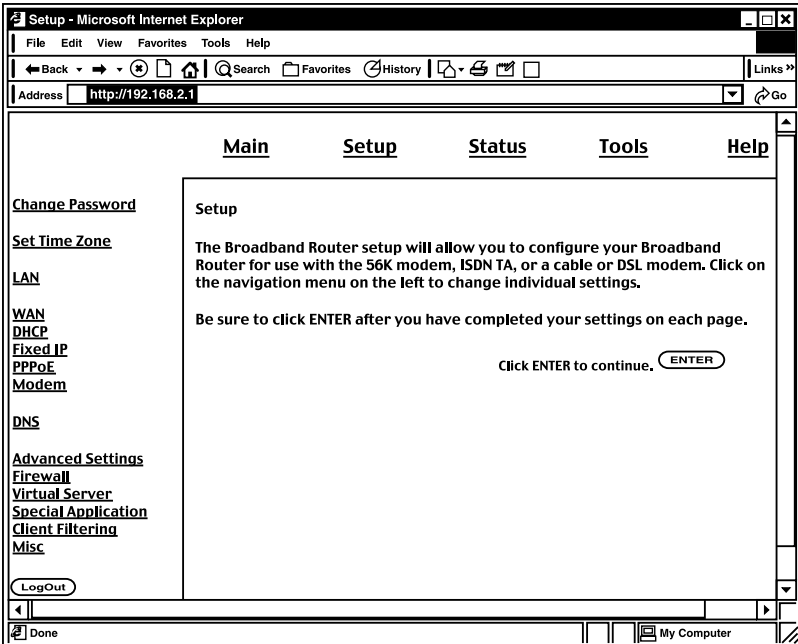
Figure 6-4. Setup screen.

Using a password can protect your Broadband Router from unauthorized changes. Not using a password can easily leave your Router—and your network—open to security risks. We recommend using a password for the security of your network. If you use a password, write it down and keep it in a safe place, or make sure you can remember it.

6. In the **Change Password** screen, enter your current password in the **Current Password** field. If you have not yet set a password, leave it blank. Choose a password for your Broadband Router and enter it in the next two fields, **New Password** and **Re-Enter Password for Verification**.
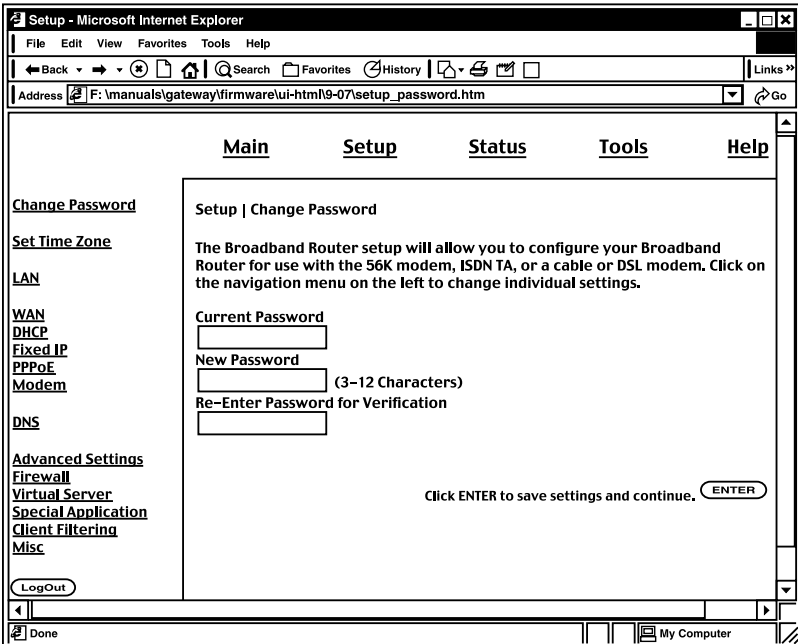
Figure 6-5. Change Password screen.

7. Press **Enter** when finished.

8. Select your time zone from the list and press **Enter**.

Figure 6-6. Time Zone screen.

9. The LAN screen is where you configure the LAN (Local Area Network) settings of your Broadband Router. These settings will only be visible to your local network and not to the Internet.

10. In most applications, you should not change the IP address from the default (192.168.2.1). However, if you are installing your Broadband Router into an existing network, you may need to change it to match your current addressing scheme.

Figure 6-7. IP address screen.

By using the Broadband Router's built-in DHCP (Dynamic Host Control Protocol) server, you are allowing the Router to handle all the IP addressing on your Local Area Network (LAN). This can save a lot of the time and hassle of administrating your network. If you have a server on your network that requires a static IP address, you may still use the DHCP server and manually assign a static IP address to your server. We recommend leaving the DHCP Server **Enabled**.

11. In most applications, you should leave the DHCP Server **Enabled**. If you prefer to handle all the IP addressing on your network yourself, select **Disabled**.

Main   **Setup**   **Status**   **Tools**

Change Password

Set Time Zone

LAN

WAN
DHCP
Fixed IP
PPPoE
Modem

DNS

Advanced Settings
Firewall
Virtual Server
Special Application
Client Filtering
Misc

LogOut

Setup | LAN

IP Address   : [   ].[   ].[   ].[   ]

IP Subnet Mask   : 255.255.255.0

DHCP Server   : ⦿ Enabled ○ Disabled

Lease Time (sec)   : [Forever ▾]

IP Address Pool

Start IP   : [   ].[   ].[   ].[   ]

End IP   : [   ].[   ].[   ].[   ]

Domain Name   : [   ]

Click ENTER to save settings and continue. (ENTER)

Figure 6-8. DHCP Server screen.

12. There is usually no need to change the IP address pool. If you change the pool range, make sure the first three octets match the Broadband Router's IP address (that is, **192.168.2.xxx** through **192.168.2.yyy**).

A Domain Name Server (DNS) is like an index of names and Web addresses. If you type a Web address into your browser, such as *www.blackbox.com*, a DNS server will find that name in its index and find the matching IP address. Most ISPs provide a DNS server for speed and convenience. Since you are connecting to the Internet with dynamic IP settings, it is likely that your DNS servers are also provided dynamically.

13. Press **Enter** when finished.

    The LAN side of your Broadband Router is now configured. But you must still configure it to connect to the Internet. There are four different general configurations for high-speed Internet connections. You need to know about your Internet connection to determine which configuration to use. You found out most of what you need to know when you recorded your IP settings in earlier steps. Here are some guidelines to determine which configuration you should use:

    • If you connect to the Internet using a cable modem, your ISP probably uses DHCP to issue an IP address to you. If you use a cable modem or you know you use a dynamic IP address, please go to **Section 6.1**.

    • If you connect to the Internet using a DSL modem, your ISP probably requires you to manually enter your TCP/IP settings. If you have a DSL connection or if you know you use a static IP address, please go to **Section 6.2**.

    • If you connect to the Internet using a DSL modem and you use a login name and password, your ISP uses PPPoE. If your ISP requires a login name and a password or you know your ISP uses PPPoE, please go to **Section 6.3**.

    • To configure your Broadband Router for dialup on demand, please go to **Section 6.4**.

    • See **Chapter 8** for a list of common configurations for popular ISPs.

6.1 Configuring Your Broadband Router for a Dynamic IP Address

1. Select **Dynamic IP Address**, and press **More Configuration**.

Main**Setup****Status****Tools****Help**

Change Password

Set Time Zone

LAN

WAN
DHCP
Fixed IP
PPPoE
Modem

DNS

Advanced Settings
Firewall
Virtual Server
Special Application
Client Filtering
Misc

LogOut

Setup | WAN
Choose Internet Connection Type
Type   Usage

⦿ Dynamic IP Address   Obtain an IP address automatically.

◯ Static IP Address   ISP assigns you a static IP address.

◯ PPP over Ethernet   Some ISPs require the use of PPPoE to connect to their services.

◯ Dial–up on Demand   Use an external modem to connect to the Internet.

More Configuration

Figure 6-9. Dynamic IP Address, More Configuration option.

2. If you have a host name provided by your ISP (for example, CX-1234-56789) enter it in the **Host Name** field.

Main   Setup   Status   Tools   Help

Change Password   Setup | WAN | Dynamic IP Address

Set Time Zone   Host Name

LAN

WAN   MAC Address
DHCP
Fixed IP
PPPoE
Modem   Clone MAC Address

DNS
                         Click ENTER to save settings and continue.   ENTER
Advanced Settings
Firewall
Virtual Server
Special Application
Client Filtering
Misc

LogOut

Figure 6-10. Host Name field.

The @Home network usually requires your computer to have a **Host Name** to obtain an IP address from their network.

3. If you need to "clone" the MAC Address from your network card, click **Clone MAC Address**. The MAC Address field will display the new address.

Some ISPs register the MAC Address of your network card. A MAC (Media Access Control) Address is a unique identification number (in hexadecimal digits) given to each networking device. Once registered, the ISP's server will check to make sure that the MAC address they have registered matches the one connecting to their servers. If it does not match, you cannot connect. The Broadband Router's MAC Address will not be the same as your network card's address, so you may need the Router to "clone" the address from your network card. Then the ISP will find a MAC Address that matches the one they have recorded.

4. Press **Enter** when finished.

5. If you are connecting to the Internet with a dynamic IP address, you probably do not need to enter anything on the DNS Settings page. However, if there is a DNS server that you would rather use, enter the DNS server addresses in the spaces provided.
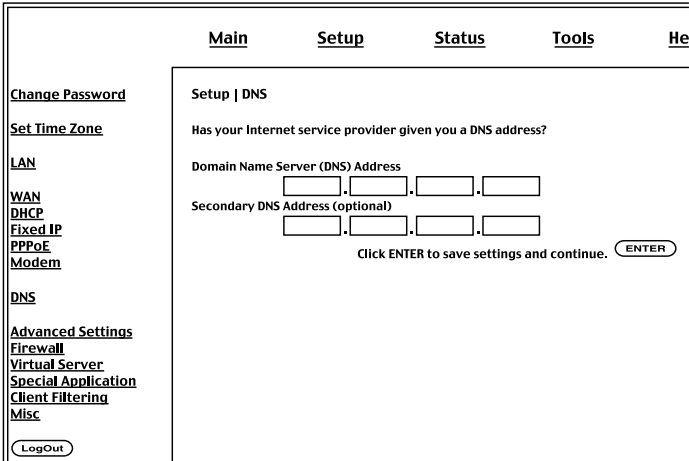
Figure 6-11. DNS Addresses.

A Domain Name Server (DNS) is like an index of names and Web addresses. If you type a Web address into your browser, such as *www.blackbox.com*, a DNS server will find that name in its index and find the matching IP address. Most ISPs provide a DNS server for speed and convenience. Since you are connecting to the Internet with dynamic IP settings, it is likely that your DNS servers are also provided dynamically.

6. Press **Enter** when finished.

7. Restart your cable modem by removing the power, waiting a few seconds, and then reconnecting it.

   Many ISPs use modems that automatically configure themselves. Sometimes connection information is stored on the modem and needs to be updated. You may need to shut down and restart your modem after you have configured your Broadband Router.

Configuration is now complete and your Broadband Router is now connected to the Internet. There are also some advanced configuration options that may be configured, but we do not recommend making any changes to these options unless you need to.

6.2 Configuring Your Broadband Router for a Static IP Address

1. Select **Static IP Address**, and press **More Configuration**.

| | Main | Setup | Status | Tools | Help |

Change Password

Set Time Zone

LAN

WAN
DHCP
Fixed IP
PPPoE
Modem

DNS

Advanced Settings
Firewall
Virtual Server
Special Application
Client Filtering
Misc

LogOut

Setup | WAN
Choose Internet Connection Type
Type   Usage

○ Dynamic IP Address   Obtain an IP address automatically.

◉ Static IP Address   ISP assigns you a static IP address.

○ PPP over Ethernet   Some ISPs require the use of PPPoE to connect to their services

○ Dial–up on Demand   Use an external modem to connect to the Internet.

More Configuration

Figure 6-12. Static IP Address, More Configuration.

2. Enter the IP address, subnet mask, and gateway address (provided to you by your ISP) in the appropriate fields. You recorded these numbers earlier when you configured your computer to connect to the Broadband Router.

	Main	**Setup**	**Status**	**Tools**	**Help**

Change Password

Set Time Zone

LAN

WAN
DHCP
Fixed IP
PPPoE
Modem

DNS

Advanced Settings
Firewall
Virtual Server
Special Application
Client Filtering
Misc

LogOut

Setup | WAN | Fixed IP

Has your Internet Service Provider given you an IP address and Gateway address?

IP address assigned by your ISP [   ] . [   ] . [   ] . [   ]

Subnet Mask [   ] . [   ] . [   ] . [   ]

ISP Gateway Address [   ] . [   ] . [   ] . [   ]

Click ENTER to save settings and continue. ENTER

Figure 6-13. Entering the IP address, subnet mask, and gateway address.

3. Press **Enter** when finished.

4. Enter the DNS server addresses in the spaces provided.

Figure 6-14. DNS Addresses.

A Domain Name Server (DNS) is like an index of names and Web addresses. If you type a Web address into your browser, such as *www.blackbox.com*, a DNS server will find that name in its index and find the matching IP address. Most ISPs provide a DNS server for speed and convenience. Since you are connecting to the Internet with static IP settings, it is likely that your ISP also provided DNS server addresses.

5. Press **Enter** when finished.

6. Restart your DSL modem by removing the power, waiting a few seconds, and then reconnecting it.

   Many ISPs use modems that provide auto-configuration. Sometimes connection information is stored on the modem and needs to be updated. You may need to shut down and restart your modem after you have configured your Broadband Router.

Configuration is now complete and your Broadband Router is now connected to the Internet. There are also some advanced configuration options that may be configured, but we do not recommend making any changes to these options unless you need to.

6.3 Configuring Your Broadband Router for PPPoE

1. Select **PPP over Ethernet**, and press **More Configuration**.

	Main	Setup	Status	Tools	Help

Change Password

Set Time Zone

LAN

WAN
DHCP
Fixed IP
PPPoE
Modem

DNS

Advanced Settings
Firewall
Virtual Server
Special Application
Client Filtering
Misc

(LogOut)

Setup | WAN
Choose Internet Connection Type

Type	Usage
○ Dynamic IP Address	Obtain an IP address automatically.
○ Static IP Address	ISP assigns you a static IP address.
◉ PPP over Ethernet	Some ISPs require the use of PPPoE to connect to their service
○ Dial–up on Demand	Use an external modem to connect to the Internet.

[More Configuration]

Figure 6-15. PPP over Ethernet option.

2. Enter the User Name and Password required by your ISP in the appropriate fields. Enter the password again for verification in the **Please retype your password** field.

Main   Setup   Status   Tools   Hel

Change Password

Set Time Zone

LAN

WAN
DHCP
Fixed IP
PPPoE
Modem

DNS

Advanced Settings
Firewall
Virtual Server
Special Application
Client Filtering
Misc

LogOut

Setup | WAN | PPPoE

If your Internet Service Provider requires the use of PPPoE, enter the information below

Use PPPoE Authentication

User Name

Password

Please retype your password

Service Name

Maximum Idle Time   (seconds)   ☐ Auto-recon

Connect   Disconnect

Click ENTER to save settings and continue. ENTER

Figure 6-16. Enter user name and password.

3. If your ISP has provided you with a service name, enter it in the **Service Name** field. (Otherwise, leave it blank.)

4. Press **Enter** when finished.

5. If you are connecting to the Internet through PPPoE, you probably do not need to enter anything on the DNS settings page. However, if there is another DNS server that you would rather use, enter the DNS server addresses in the spaces provided.

Figure 6-17. DNS Addresses.

A Domain Name Server (DNS) is like an index of names and Web addresses. If you type a Web address into your browser, such as *www.blackbox.com*, a DNS server will find that name in its index and find the matching IP address. Most ISPs provide a DNS server for speed and convenience. Since you are connecting to the Internet with dynamic IP settings, it is likely that your DNS servers are also provided dynamically.

6. Press **Enter** when finished.

7. Restart your DSL modem by removing the power, waiting a few seconds, and then reconnecting it.

Many ISPs use modems that provide auto-configuration. Sometimes connection information is stored on the modem and needs to be updated. You may need to shut down and restart your modem after you have configured your Broadband Router.

Configuration is now complete and your Broadband Router is now connected to the Internet. There are also some advanced configuration options that may be configured, but we do not recommend making any changes to these options unless you need to.

6.4 Configuring Your Broadband Router for Dial-Up on Demand

1. Select **Dial-up on Demand**, and press **More Configuration**.

Figure 6-18. Dial-up on Demand, More Configuration.

2. If the serial port is used for primary Internet access, then check the item **Check if you only use a dial-up modem to connect to the Internet**. (See Figure 6-19.) If not checked, then this connection will only be used for backup access if the primary WAN link fails.

Figure 6-19. Check If You Only Use a Dial-Up Modem to Connect to the Internet option.

3. Enter your ISP account user name and password in the **Dial-Up Account Information** field.

4. Enter the **Modem Initialization String** provided by your modem manufacturer. The following is a sample initialization string.

   ATQ1S0=1&D0&K0&W as defined below:

   Q1: Inhibit result codes to DTE

   S0=1: Auto-answer on first ring

   D0: Don't care DTR

K0: Disables DTE/DCE flow control

W: Write command to modem memory

5. In the **Maximum Idle Time** field, enter the maximum idle time for the Broadband Router (in seconds).

6. If you are assigned a dynamic IP address every time you dial up, select **NO** for **Has your Internet Service Provider given you an IP address?** However, if your ISP has assigned a fixed IP address for you to use, select **YES** for this item and enter the IP address and subnet mask.

7. If your ISP has given you a secondary phone number, or if you have a secondary Internet service account, then fill in the relevant fields under the **Secondary Dial-up** fields.

7. Configuring Your Computer for the Broadband Router Print Server

If you are not connecting your printer to your Broadband Router, skip this chapter.

NOTE

The Broadband Router Print Server does not support Macintosh printing.

With the Broadband Router's built-in print server, you can connect your printer to the Router and print from any computer on your network. Each computer needs to have a "client" installed that will communicate with the Router's print server. UNIX® and Linux® operating systems have a print client already installed. If you are running Windows 95, 98, ME, 2000, or NT, you must use the Broadband Router Print Server Monitor as your print client.

7.1 Configuring Your Computer for the Router's Print Server for Windows 95/98/Me/2000 and Windows NT

7.1.1 STEP 1: INSTALLING THE BROADBAND ROUTER'S PRINT SERVER MONITOR

You must first install the software that will allow your programs to print to the printer attached to the Broadband Router.
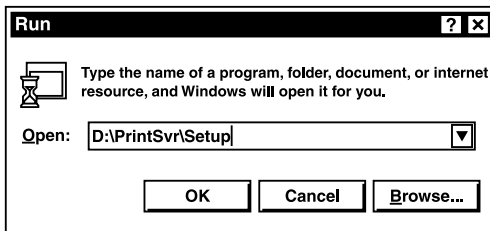
1. Insert the Installation CD into your CD-ROM drive.

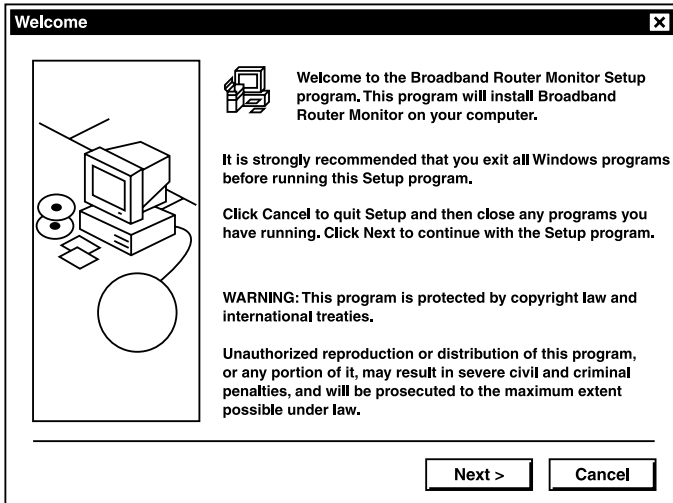2. Press **Start** and **Run**.

Figure 7-1. Start, Run option.
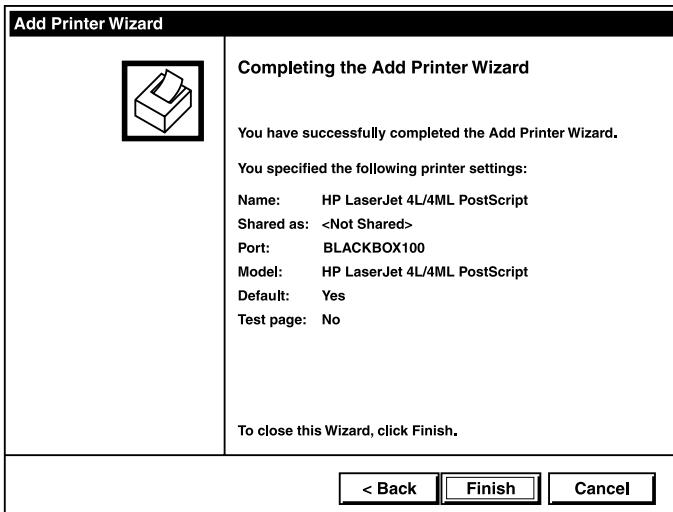
3. Type `D:\PrintSvr\Setup` and press **OK**.

Figure 7-2. Run screen.

4. InstallShield will guide you through the installation process. Press **Next** for each window.

Figure 7-3. InstallShield Welcome screen.

5. Press **Finish** when complete.

Figure 7-4. Add Printer Wizard screen.

6. Windows must reboot for the changes to take place. When asked if you want to reboot now, select **Yes** and press **OK**.
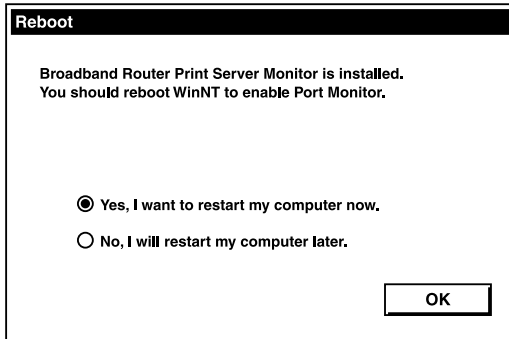
Figure 7-5. Reboot screen.

7.1.2 STEP 2: CONFIGURING THE BROADBAND ROUTER'S PRINT SERVER MONITOR

Now that the software is installed, it must be configured to work properly.

1. Select **Start**, then **Settings**, then **Printers**.

Figure 7-6. Start, Settings, Printers.

2. Double-click **Add Printer**.

Figure 7-7. Printers screen, Add Printers option.
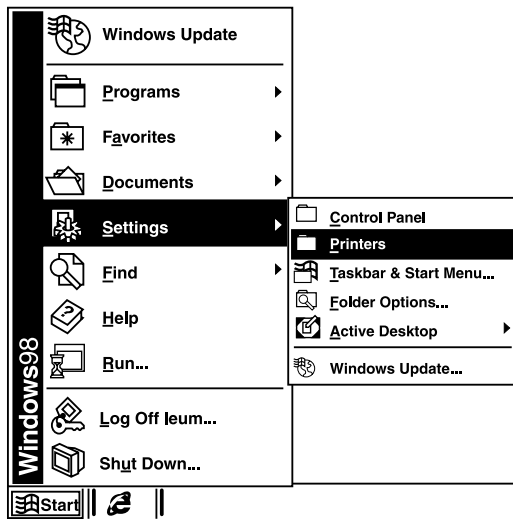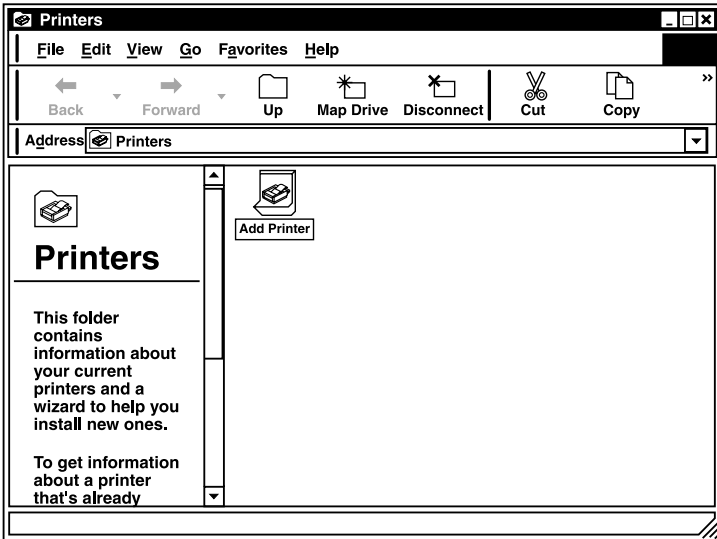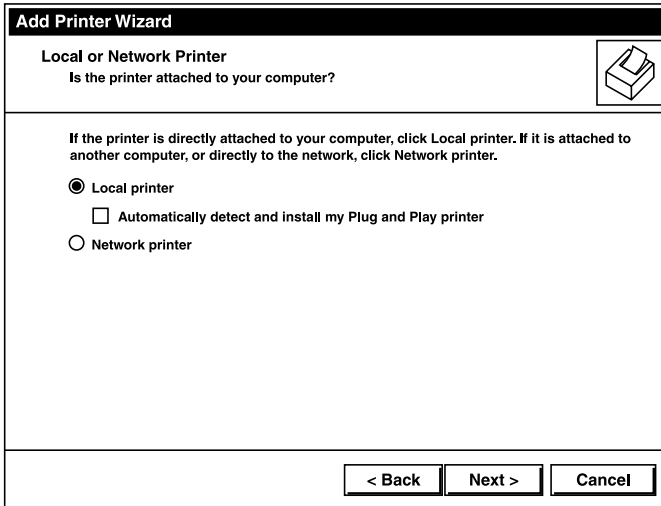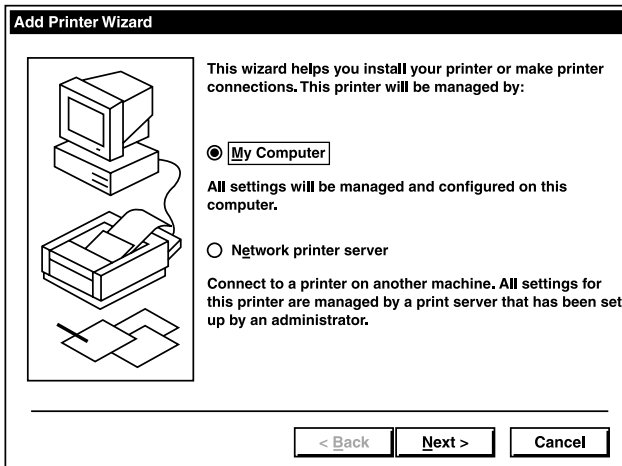
3. Follow the screen prompts to add your printer as a **Local printer** for Windows 95/98/Me/2000 (see Figure 7-8) or as a printer managed by **My Computer** for Windows NT (see Figure 7-9).

Add Printer Wizard

Local or Network Printer
Is the printer attached to your computer?

If the printer is directly attached to your computer, click Local printer. If it is attached to another computer, or directly to the network, click Network printer.

● Local printer

☐ Automatically detect and install my Plug and Play printer

○ Network printer

< Back | Next > | Cancel

Figure 7-8. Add Printer Wizard, Local Printer option.

Add Printer Wizard

This wizard helps you install your printer or make printer connections. This printer will be managed by:

● My Computer

All settings will be managed and configured on this computer.

○ Network printer server

Connect to a printer on another machine. All settings for this printer are managed by a print server that has been set up by an administrator.

< Back | Next > | Cancel

Figure 7-9. Add Printer Wizard, My Computer option.

4. From the list of manufacturers and printers in the next window, select the printer you have attached to the Broadband Router.

Add Printer Wizard

Select the Printer Port
Computers communicate with printers through ports.

Select the port you want your printer to use. If the port is not listed, you can create a new port.

◉ Use the following port:

Port	Description	Printer	▲
COM4:	Serial Port		
FILE:	Print to File		
c:\adobe\ac...	PDF Port	Acrobat Distiller	
BLACKBOX100	Broadband Router		▼

◀ ▶

Note: Most computers use the LPT1: port to communicate with a local printer.
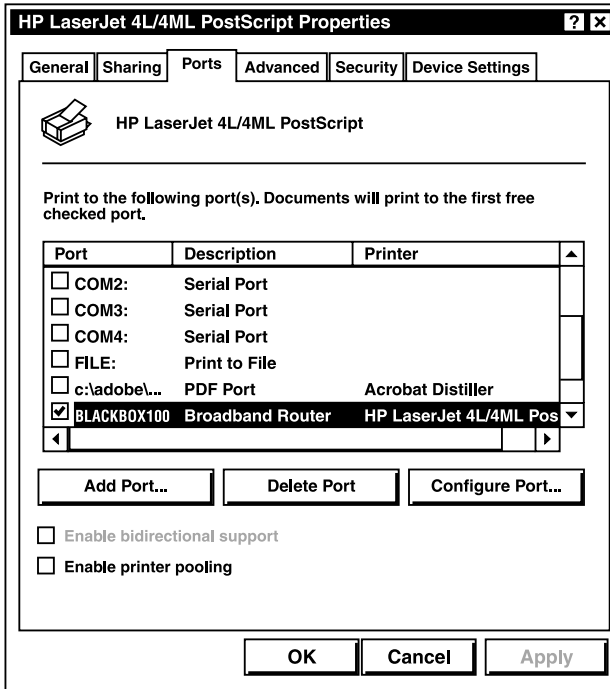
○ Create a new port:
Type: ▼

< Back   Next >   Cancel

Figure 7-10. Add Printer Wizard, Select the Printer Port option.

5. Select the Broadband Router's Print Server Monitor (the default port name is BLACKBOX100) and press **Configure Port**.

Figure 7-11. Configure Port option.

6. Enter the Broadband Router's IP address in the **IP address** field (the default is **192.168.2.1**) and press **OK**.

Figure 7-12. Enter IP Address.

7. You will be asked if you want to print a test page. Select **Yes** to make sure that your printer is configured correctly.

8. Your printer will now appear in the **Printers** window. Your computer is configured to print via the Broadband Router Print Server. Repeat these steps on each computer connected to the Router.

7.2 Configure the Network Printer in UNIX Systems

Follow the traditional configuration procedure on UNIX platforms to set up the Broadband Router print server. The printer name is "lpt1."

8. Common Configurations for Popular ISPs

WAN Types	Characteristics	Popular ISPs
Dynamic IP (Clone MAC)	Cable modem ISP, non-hostname based. Need to clone MAC in the Router's DHCP page.	MediaOne, RoadRunner, Optimum Online, Time Warner, Charter, Adelphia
Dynamic IP (Hostname)	Cable ISP, requires hostname to authenticate (for example, CX213818-B). Enter the hostname in the Router's DHCP page exactly as it appears in your documentation.	@Home Network, Cogoco, ComCast, Cox, Excite, Rogers, Shaw, Insight, Videotron, SCV MaxOnline
PPPoE (DSL)	Usually special software installed on PC, MacPOET/ WinPOET, EnterNet 300. The Broadband Router has this software built in; however, it is removeable. You will need to enter the account name and password that your ISP gave you in the PPPoE page of the gateway. Leave the service name blank unless your ISP requires it.	Bell, Century Tel, Citizens, Primus, Prodigy, Snet, Sprint FC, Verizon, First World, Brightnet, Earthlink, Ameritech, Covad, Mindspring, Sympatico DSL, USwest, SingNet Broadband, SingTel Magix, Pacific Internet Broadband

WAN Types	Characteristics	Popular ISPs
Static (DSL)	DSL modem, always on. Need to enter *all* IP information from the ISP in the Router's "Fixed IP" section.	CableSpeed, Cnet, Direct Link, Drizzle, DSL Extreme, Earthlink Wireless, Fast Point, Flashcom, GTE-WhirlWind, Heavenet, HSA Corp, I-55, InterAccess, LinkLine, Mission, Nauticom, NAS, Omitel, Onterra, Phatpipe, Rhythms, Speakeasy, Sterling, XO, Zyan
Static (Cable)	Cable modem, always on. ISP assigns specific IP information which needs to be entered on the Router's "Fixed IP" page.	Cox Cable, Sprint, US Cable, Cable-Cable

Appendix. Troubleshooting

A.1 Calling Black Box

If you determine that your Broadband Router is malfunctioning, do not attempt to alter or repair it. Contact Black Box at 724-746-5500. The problem might be solvable over the phone.

Before you do, make a record of the history of the problem. We will be able to provide more efficient and accurate assistance if you have a complete description, including:

- The nature and duration of the problem.

- When the problem occurs.

- The components involved in the problem.

- Any particular application that, when used, appears to create the problem or make it worse.

A.2 Shipping and Packaging

If you need to transport or ship your Broadband Router:

- Package it carefully. We recommend that you use the original container.

- If you are shipping the Broadband Router for repair, make sure you include everything that came in the original package. Before you ship, contact Black Box to get a Return Authorization (RA) number