Microsoft®

user's guide.

Microsoft® Broadband Networking
Wired Base Station | MN-100

◇ **Important**
Do not plug a phone jack (RJ-11) into any Ethernet (RJ-45) port on your base station. Doing so might damage the device. You must use twisted pair cables with RJ-45 connectors that conform to FCC standards in the device's Ethernet ports.

◇ **Important**
Ne branchez pas une ligne téléphonique dans aucuns des port de réseau (RJ45).

▽ **Caution**
For use with UL Listed, CSA and GS approved personal computers.

Not intended for use in machinery, medical, or industrial applications.

For indoor use only.

Use only the AC Adapter provided with the unit (Part Number: X08-86975).

▽ **Avertissement**
N'utiliser qu'avec des composantes homologuées UL, CSA ou TUV.

Ne pas utiliser ce dispositif dans une application industrielle ou médicale.

N'utiliser qu'à l'intérieur.

N'utiliser qu'avec le bloc d'alimentation fourni avec cet appareil (No de modéle: X08-86975).

contents.

1 | introduction.

Introducing the Broadband Networking Wired Base Station

Congratulations on your purchase of the Microsoft® Broadband Networking Wired Base Station. You can use your base station to share an Internet connection, files, printers, and other devices, and to play multiplayer games with other computers on an Ethernet network. This chapter describes your base station and explains its connections.

Box Contents

⚠ **Important**
Install the Setup software before you connect the base station. The Setup Wizard guides you through the process of connecting and configuring your base station.

Check that you have the following items:

**Setup CD-ROM
Install This First!**

Wired Base Station
(MN-100)

***User's Guide* and
Start Here Guide**

Ethernet Cable

Base Station Stand
(Detachable)

Blank Floppy Disk

Power Supply
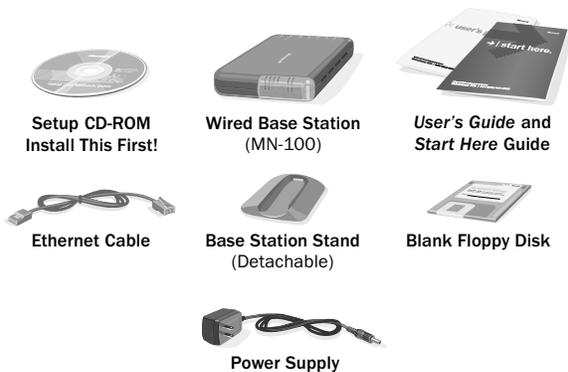
Your Base Station and Its Connections

The base station connects to a computer and to a DSL or cable modem with Ethernet cables. It then serves as the central point for your wired network and shares your high-speed Internet connection with all the computers on the network. The base station provides a number of security features, including a built-in firewall, Network Address Translation (NAT), and access control lists. Security is especially important when an "always-on" Internet connection is shared among computers on a home or small office network.

You can connect up to four Ethernet devices directly to the Broadband Networking Wired Base Station, giving them secure, shared access to the Internet and the network. By connecting Ethernet hubs or switches to the base station, you can add even more wired connections.

If you set up the base station by using the Typical Setup method, your network will resemble the following diagram.

Active Internet Connection

Ethernet Connection
Use the provided blue Ethernet cable to connect the base station to your first computer.

Broadband Modem
(DSL or Cable)

Wired Base Station

First Computer*
This computer was originally connected to your modem. Installing the software on this computer configures the base station.

Second Computer
You can connect additional computers to the base station. Each computer you add to your network requires an Ethernet network adapter. (Notebook adapter shown here.)
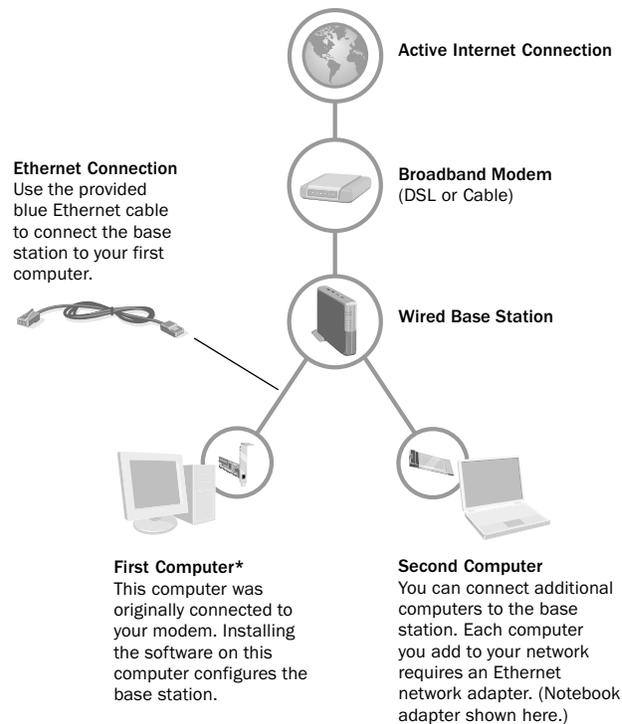
*   To connect to the base station, the first computer requires an installed Ethernet adapter. (PCI adapter shown here.)

There are also other ways to set up your base station. For an overview of the most common setup scenarios, see Chapter 2. For detailed setup instructions, see Chapter 3.

About Your Base Station

The diagrams on the next two pages show the front and back of the base station, and the location of all ports, controls, and indicator lights.

Because the base station must be physically connected to a power outlet and to your DSL or cable modem, it is best to place the base station near them. You can position the base station horizontally or vertically by using the provided stand.

Indicator lights display the status of the Power and To Modem ports

Indicator lights display the status of the four Ethernet ports on the back of the base station

Optional Stand
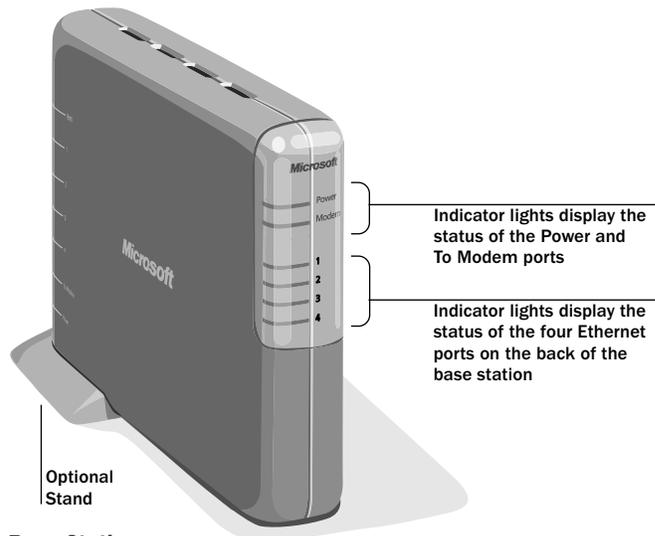
Base Station
(Front View)

The front of the base station has six indicator lights. After the base station is connected, these lights will be on, off, or blinking, indicating the following states.

Light	Status	The Base Station Is:
Power	Off	Not receiving power.
	Orange	Receiving power.
	Blinking orange and green	Resetting or upgrading firmware.
Modem	Off	Not connected.
	Solid green	Connected to the network.
	Blinking green	Detecting activity on the network.
Link/ Activity (Ports 1-4)	Off	Not connected.
	Solid green	Connected to the network.
	Blinking green	Detecting activity on the network.

The back of the base station contains four numbered Ethernet ports, a To Modem port, a Power port, and a Reset button.

Reset Button

Ethernet ports 1-4, which correspond to the status indicator lights on the front of the base station

To Modem port, which connects to your modem with an Ethernet cable

Power Port

Base Station
(Back View)
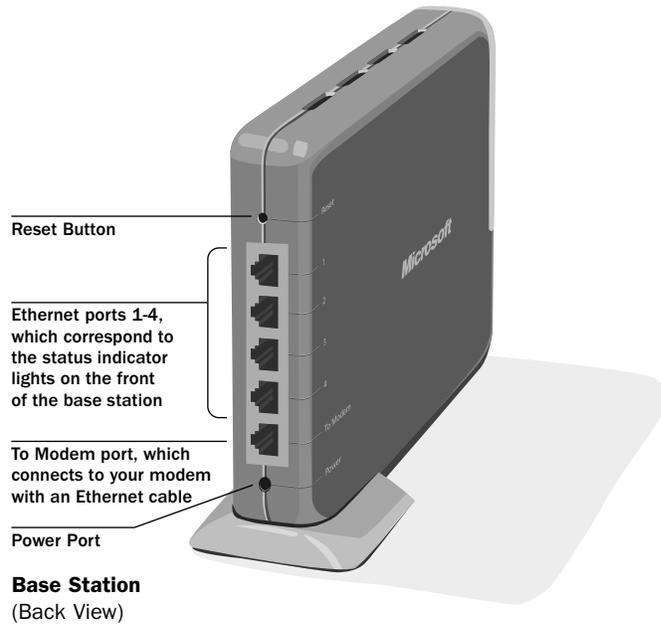
Attaching and Detaching the Base Station Stand

You can position the base station horizontally or vertically. To position it vertically, use the detachable stand that is included in the box.

Attaching the stand

1. Hold the base station and the stand as shown in the diagram.

2. Insert the two rectangular hooks on the stand into the two rectangular openings on the bottom of the base station, and then slide the stand toward the center of the base station.
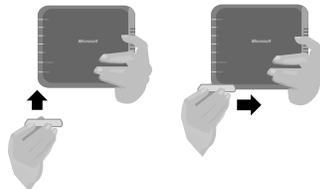
Detaching the stand

Slide the stand away from the center of the base station.

Resetting the Base Station

You can reset the base station to correct connectivity problems.

1. Use a pointed object to briefly depress the Reset button on the back of the base station.

2. Release the button as soon as the green Power indicator light becomes orange.

The Power indicator light becomes green again when the reset is complete.
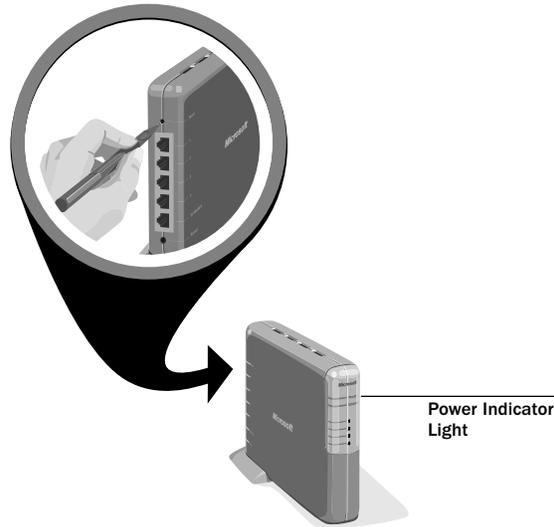
Power Indicator Light

Restoring the Factory Default Settings

You can restore the factory default settings to the base station if, for example, you forget your base station password. However, to restore your Internet connection, you will need to re-enter your Internet service provider settings and port settings.

1. Use a pointed object to depress the Reset button on the back of the base station.

2. Hold the Reset button down until the Power indicator light alternately blinks green and orange.

After you release the Reset button, the Power indicator light becomes orange and then becomes green again when the reset is complete. This process takes about 60 seconds.

About Ethernet Connections

Ethernet is the most commonly used wired network protocol, with connection speeds of 10 Mbps, 100 Mbps, or higher. Your base station will transmit data at either 10 or 100 Mbps. The base station's auto-negotiation feature automatically determines the rate of your network connections and uses the fastest speed available.

As you set up your network, keep in mind that power outlets, fluorescent lights, power supplies, and coiled or extra-long cables can interfere with Ethernet transmission and also produce interference.

Use Ethernet cables to connect your base station to devices on your network. Any Ethernet-compatible network device will have one or more Ethernet ports. Some examples of network devices are:

- Routers, gateways, or base stations, such as the Microsoft Broadband Networking Wired Base Station

- Broadband modems

- Computers with Ethernet adapters

- Ethernet switches and hubs

Network components are connected to one another by Ethernet cables. An Ethernet cable resembles a phone cord, but has larger connectors at each end. To determine whether a cable is an Ethernet or phone cable, you can count the number of wires or contacts visible in the connector at either end of the cable. Ethernet (RJ-45) connectors and cables contain eight wires, and phone (RJ-11) connectors contain either four or six wires.

RJ-45 Ethernet
(8 wires)

RJ-11 Telephone
(4 or 6 wires)
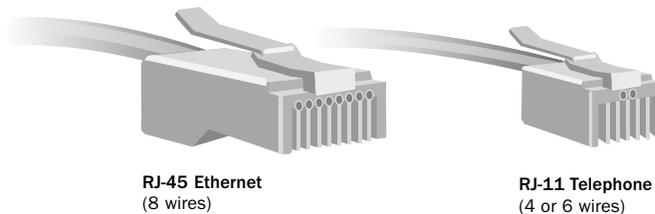
Straight-Through and Crossover Cables

Data is sent and received through specific wires within an Ethernet cable. Depending on the arrangement of its sending and receiving wires, an Ethernet cable is either a "straight-through" type or a "crossover" type. The following diagram demonstrates how to differentiate between the two types.

Straight-Through Ethernet Cable

❶ ② ③ ④ ⑤ ⑥ ⑦ ⑧

❶ ② ③ ④ ⑤ ⑥ ⑦ ⑧

In a straight-through cable, the order of the colored wires is the same at both ends.

Crossover Ethernet Cable

❶ ② ③ ④ ⑤ ⑥ ⑦ ⑧

③ ⑥ ❶ ⑦ ⑧ ② ④ ⑤

In a crossover cable, the order of the colored wires is different at both ends.
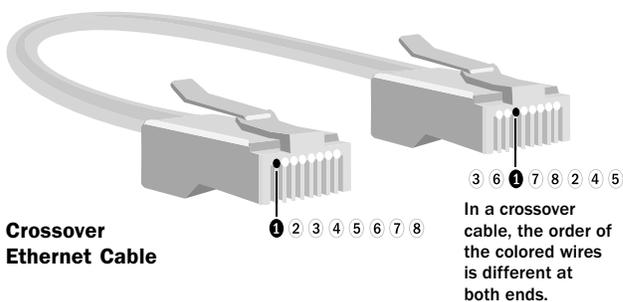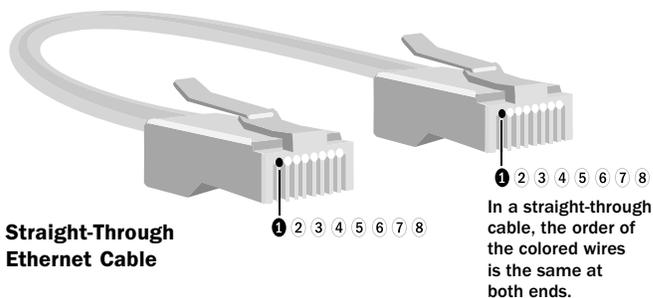
Connecting to Broadband Modems

When you connect your base station to a broadband modem, it is important to use either the cable that came with your modem or the same type of cable. Many modems use a crossover cable to connect to the network. If you are unsure about the type of Ethernet cable to use, see the documentation for your broadband modem.
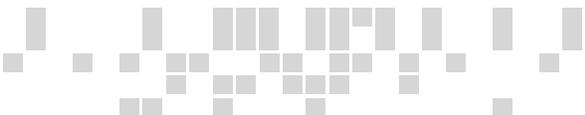
2 | **planning.**

Planning Your Network

You can use the Microsoft® Broadband Networking Wired Base Station as the central point for a wired network to share your high-speed Internet connection with other computers on the network. This chapter will help you locate the specific setup instructions for your network configuration.

Which Setup Best Matches Your Network?

The following scenarios describe some common ways to use the base station. Select the option that best matches your networking goals.

Option A:
I want to create a wired network that shares my high-speed Internet connection with other computers.

If your computers meet all of the following conditions, see the Typical Setup method in Chapter 3 to set up the base station.

- ▢ You have one computer (first computer) that is connected to a broadband modem with an Ethernet cable and has an active Internet connection.

- ▢ This computer is running one of the following operating systems: Microsoft Windows® 98, Windows 98 SE, Windows Me, or Windows XP.*

- ▢ This computer is not connected to any other computers or networks.

*If your first computer is running Windows 2000, see Option B.

Option B:
I want to configure the base station on a computer that is running Windows 2000.

The Setup Wizard will not configure the base station on a computer that is running Windows 2000. If you are running Windows 2000 and your network scenario matches the Typical Setup, do one of the following:

- ▢ Configure the base station on a computer that is running Windows 98, Windows 98 SE, Windows Me, or Windows XP. If you are also installing a Microsoft Broadband Networking adapter, you can configure your adapter on the Windows 2000-based computer.

□ Configure the base station manually, instead of running the Setup Wizard. For setup instructions, see "Configuring the Base Station" in Chapter 6.

Option C:
I want to add the base station to my existing network.

If any of your computers is currently connected to a network, you can remove the computers from the network and connect them to the base station individually, or you might be able to connect the entire network to the base station. For instructions on connecting the base station to an existing Ethernet network, to a HomePNA or Power Line Communications (PLC) network, or to a computer that is on a domain, see "Other Ways to Set Up Your Base Station" in Chapter 3.

Option D:
I have already connected the base station and have not yet installed the software.

If you have already connected the base station and have not yet installed the Setup software, see "Other Ways to Set Up Your Base Station" in Chapter 3.

Option E:
I want to set up the base station without an active Internet connection.

The Setup Wizard can automatically configure the base station for you if your computer has an active Internet connection. It is highly recommended that you establish a broadband Internet connection before configuring the base station.

If you choose to configure the base station without an active broadband Internet connection, you can still use the Setup Wizard. When the wizard attempts to detect your Internet connection, you can choose to continue (and enter your Internet settings manually) or quit (and rerun the Setup Wizard when you establish an active Internet connection).

To enter your Internet settings manually, you will need to know your connection type (DHCP, PPoE, or static IP address) and the settings associated with it. If you don't know this information, ask your Internet service provider (ISP).

Option F:
I want to connect a base station to a Macintosh or other non-Windows-based computer.

The Setup Wizard will not configure the base station on a non-Windows-based computer. If you don't have a Windows-based computer available, you can configure the base station manually. For setup instructions, see "Configuring the Base Station" in Chapter 6.

3 | **setting up.**

Installing, Connecting, and Configuring Your Wired Base Station

Your Microsoft® Broadband Networking Wired Base Station can be set up in various ways, depending on how your existing network is configured. The instructions in this chapter will guide you through the process of setting up your base station.

Typical Setup

Follow the detailed instructions beginning on the next page if your existing network configuration matches all of the following conditions:

- ▫ You have one computer (first computer) that is connected to a broadband modem with an Ethernet cable and has an active Internet connection.

- ▫ This computer is running one of the following operating systems: Microsoft Windows® 98, Windows 98 SE, Windows Me, or Windows XP.

- ▫ This computer is not connected to any other computers or networks.

After you set up your base station by using the Typical Setup method, your network will resemble the following diagram.

Active Internet Connection

Ethernet Connection
Use the provided blue Ethernet cable to connect the base station to your first computer.

Broadband Modem
(DSL or Cable)

Wired Base Station

First Computer*
This computer was originally connected to your modem. Installing the software on this computer configures the base station.

Second Computer
You can connect additional computers to the base station. Each computer you add to your network requires an Ethernet adapter. (Notebook adapter shown here.)
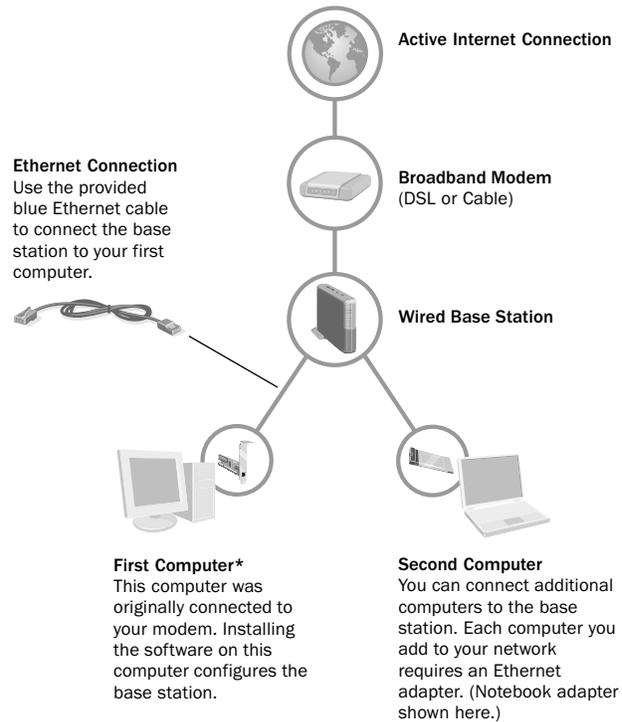
* To connect to the base station, the first computer requires an installed Ethernet adapter. (PCI adapter shown here.)

Take the following items to the computer that is connected to your broadband modem with an Ethernet cable.

- ▫ Setup CD-ROM

- ▫ Broadband Networking Wired Base Station

- ▫ Blue Ethernet cable (If the included cable is too short, you can use any longer, straight-through Ethernet cable.)

- ▫ Power supply (Use only the AC adapter included in the box.)

- ▫ Blank floppy disk

- ▫ This *User's Guide* and the *Start Here* guide

Pre-Setup Checklist

Before you begin Setup, check the following:

☐ Are you a member of the Administrator group?

On computers running Windows XP, you must be logged on as a user with administrator privileges to run the Setup Wizard and make changes to network settings. If you are not logged on as an administrator, click **Start**, click **Log Off**, press CTRL+ALT+DELETE, and then log on by using an administrator's name and password.

☐ Are you running any firewall or Internet connection sharing software on your computers?

Disable all firewall and Internet connection sharing software. Your base station will provide its own firewall and Internet connection sharing features.

☐ Do you have a Point-to-Point Protocol over Ethernet (PPPoE) Internet connection or a static Internet Protocol (IP) address?

With these types of Internet connections, the Setup Wizard will prompt you to enter information—for a PPPoE connection, your user name, password, and service name; for a static IP address, the IP, subnet, and ISP gateway addresses. If you know you have one of these types of connections, gather this information beforehand.

Step 1: Install the Software

1. Insert the Setup CD-ROM into the CD-ROM drive of the first computer. If the Setup Wizard does not start automatically after a few seconds, click **My Computer**, double-click the drive that contains your Setup CD-ROM, and then double-click **Setup** or **Setup.exe**.

2. Follow the instructions in the Setup Wizard to install the software and set up the base station on the computer that is attached to your DSL or cable modem. When the wizard asks which device you are setting up, select the base station.

Note
During setup, you might be prompted to restart your computer.

Note
The Setup Wizard can automatically detect a Microsoft MSN modem and bypass some modem configuration steps.

3. Continue following the instructions in the Setup Wizard. If you have a question, click **Help** on any page.

Have a question about Setup? Click Help.

Step 2: Connect the Base Station

1. Position the base station close to your modem and computer, and near the center of your intended network area. If you want to position the base station vertically, attach the stand.

2. When the wizard asks you to connect the base station to the modem, unplug the modem Ethernet cable from the back of your computer, and then plug it into the port labeled **To Modem** on the back of the base station.

3. Plug one end of the blue Ethernet cable that came with your base station into the Ethernet port labeled **1** on the back of the base station, and then plug the other end into the Ethernet port on the back of your computer.

4. Plug one end of the power supply that came with your base station into the **Power** port on the back of the base station, and then plug the other end into an electrical outlet. The power indicator light on the front of the base station should go on.

⬦ **Important**

Use the modem's original Ethernet cable to connect to the base station. Use the provided blue Ethernet cable to connect the first computer to the base station. If the provided cable is too short, you can use any longer, straight-through Ethernet cable.

Your base station setup should now resemble the following diagram.

First Computer

Base Station

Existing Broadband Modem

Existing Ethernet Cable

Power Port

Blue Ethernet Cable (Included in Box)

To Power Supply
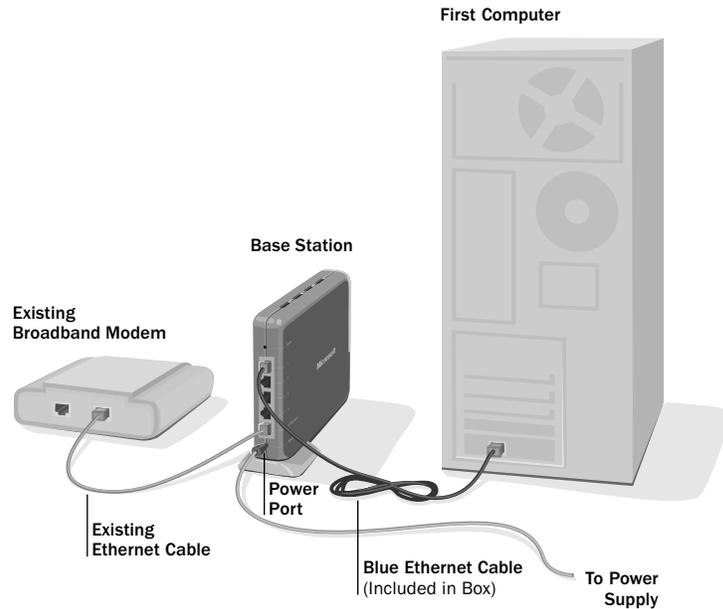
Step 3: Configure the Base Station

1. Continue following the instructions in the Setup Wizard to configure your base station.

2. When you reach the end of the Setup Wizard, click **Finish**.

3. Remove the Setup CD-ROM from the CD-ROM drive, and remove the floppy disk that contains your network settings (if used) from the floppy disk drive. You can use the same CD-ROM and floppy disk to set up additional computers.

Microsoft Broadband Networking Setup

Microsoft Broadband Networking Setup

Microsoft Broadband Networking Setup

Setup Complete

This computer is ready to use in your network. You may continue and either:

• Set up another computer for your network.

  Take the network setup floppy disk you created to the computer. Run Microsoft Broadband Networking Setup on that computer.

• Check the network status using the Broadband Network Utility.

  ☑ Start the Broadband Network Utility

< Back   Finish   Cancel   Help

Have a question about Setup? Click Help.

Step 4: Test Your Network

To confirm that your network is working properly, do the following:

▫ Ensure that your connections are working properly by viewing the status of your network in the Broadband Network Utility. To learn more about the Broadband Network Utility, see Chapter 5.

▫ Test your Internet connection by opening your Web browser and visiting a Web site, such as http://www.microsoft.com.

If you are having network problems or you cannot connect to the Internet through your broadband modem, see "Network and Internet Problems" in Chapter 7.

Other Ways to Set Up Your Base Station

In addition to the Typical Setup method, there are other ways to set up the base station, depending on your computer and network characteristics and the results you want.

If any of your computers are currently connected to a network, you can remove the computers from the network and connect them to your base station individually, or you might be able to connect the entire network to the base station. You can connect several types of existing networks to the base station, as described in the following sections.

If you are connecting an existing network to the base station, disable all Internet connection sharing or firewall software before you install the Broadband Networking Setup software. The base station replaces your existing firewall.

I have already connected my base station and have not yet installed the software.

If you connected the base station before running the Setup Wizard, the wizard might not be able to access your Internet settings. In this case, set up your base station by doing the following:

1. Disconnect the base station, and then reconnect your modem and computer in their original configuration.

2. Ensure that your Internet connection is working.

3. Insert the Broadband Networking Setup CD-ROM into your CD-ROM drive, and then follow the instructions in the Setup Wizard.

   If the wizard does not start automatically after a few seconds, click **My Computer**, double-click the drive that contains your Setup CD-ROM, and then double-click **Setup** or **Setup.exe**.

If you do not want to use the Setup software, you can also configure the base station manually. For more information about this option, see "Configuring the Base Station" in Chapter 6.

I want to add my base station to an existing Ethernet network that already has a hub or switch.

If your computers are networked together through crossover Ethernet cables or direct parallel, serial, or USB connections, disconnect them. Then use straight-through Ethernet cables (including the provided blue cable) to connect each computer to the base station. If any of the computers does not have an Ethernet adapter, you will need to connect one.

You do not need to turn off your computer before you plug in the base station.

To connect an existing Ethernet hub or switch to the base station

1. Choose one of the computers on the network to set up first, and follow the Typical Setup method (described at the beginning of this chapter).

2. When the Setup Wizard prompts you to connect your base station, unplug the modem Ethernet cable from the hub or switch and plug it into the port labeled **To Modem** on the back of the base station. The other end remains plugged into the modem.

3. Plug one end of the blue Ethernet cable into the Ethernet port labeled **1** on the back of the base station, and plug the other end into the uplink port on your hub or switch.

   Some uplink ports on hubs have directional switches. If your base station is not detected after you connect it to the uplink port of the hub, move the directional switch to the opposite position and try your connection again.

4. Follow the rest of the instructions in the Setup Wizard.

An alternate connection method is to use a crossover Ethernet cable to connect the base station to an Ethernet port (rather than the uplink port) on the hub or switch.

Connecting a Home Phone Line (HomePNA) or Power Line (PLC) Network to the Base Station

You can connect a HomePNA network to your Broadband Networking Wired Base Station by using a HomePNA-to-Ethernet or PLC-to-Ethernet adapter. For more information, see the documentation that came with your HomePNA or PLC networking device or contact the manufacturer's support services.

If Your Computer Is on a Domain

If any of the computers that you want to network is already a member of a domain—for example, if you have a notebook computer that is on a domain at your office and you want to connect it to your home network—the Setup Wizard detects this and skips the file-sharing and printer-sharing sections of setup. You will not be able to share files and printers with other computers on the network, but you will be able to access your computer's domain when you return to work.

It is possible to switch to a workgroup after setup to access files on your network. However, you will then have to switch back to the domain to access your office network. For more information, see Broadband Network Utility Help. For more information about domains and workgroups for file and printer sharing, see Chapter 4.

If your computer is a member of a domain, do not change your file-sharing or printer-sharing setup while you are setting up the Broadband Networking Wired Base Station.

Expanding Your Network

You can connect up to four Ethernet devices directly to the Microsoft Broadband Networking Wired Base Station, and you can connect even more devices by connecting Ethernet hubs or switches to the base station. To connect an Ethernet hub or switch to the base station, see "I want to connect my base station to an existing Ethernet network" in this chapter.

You can add a computer or other device to the network through an Ethernet connection if it has an IEEE 802.3-compliant Ethernet adapter, an available Ethernet port, and an Ethernet cable to connect the computer to the base station. To determine whether your device needs a straight-through or crossover Ethernet cable to connect to the base station, see the documentation that came with your device.

To connect an Ethernet device to the base station, connect the Ethernet cable from your device to Ethernet port 2, 3, or 4 on the back of the base station.

4 | network tasks.

Using Your Network

After setting up your wired network, you can perform common networking tasks, such as making files and printers available to other computers, and playing multiplayer games. When you need to check network settings or monitor devices connected to your network, you can use the Microsoft® Broadband Network Utility.

This chapter describes how to:

- Log on to your workgroup.
- Perform common networking tasks.
- Secure your network.

Log On to Your Workgroup

After starting your computer, you must always log on to your network to access shared files, printers, and other resources.

If your computer is running an operating system that displays the Cancel button, do not click **Cancel** during the logon process, even if you decide to leave your password blank. Doing so will prevent you from accessing shared files and printers on the network. Make sure that your workgroup name is visible in the logon screen, type your password, and then click **OK**.

After you log on, you can perform certain networking functions, such as accessing the Internet or opening shared files from Microsoft Windows® Explorer. You do not need to open the Broadband Network Utility to perform these tasks.
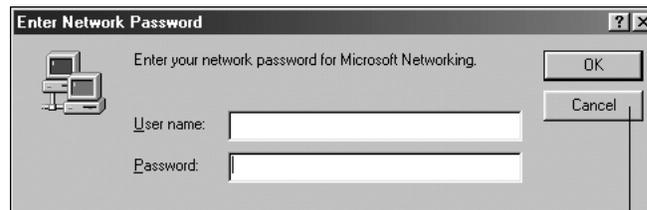
Do Not Click Cancel

To log off and log back on to your network

1. Click **Start**.

2. Click **Log Off**. (Or, in Microsoft Windows 2000, click **Shut Down**, make sure "Log Off" appears on the menu, and then click **OK**.)

3. Log on to your network.

After you log on to your network, you can perform certain network functions, such as opening shared files from Windows Explorer.

Perform Common Networking Tasks

The information in this section will help you get started with the following tasks:

- Allowing access to an Internet connection

- Allowing access to files and folders

- Allowing access to printers

- Sharing other peripheral devices

- Reading e-mail messages on your network

- Playing games on your network and on the Internet

Allowing Access to an Internet Connection

◇ **Important**
Before you proceed, check with your Internet service provider about its policy regarding Internet sharing.

With a base station (gateway or router) on your network and a connection to the Internet through a DSL or cable modem, the other computers on your network can share that Internet connection by using Internet Connection Sharing (ICS).

The procedure for accessing the Internet is the same whether your Internet connection is shared through a base station (gateway or router) or through ICS in Windows XP. In either case, each computer on the network needs to have a Web browser, such as Microsoft Internet Explorer.

About Internet Connection Sharing (ICS)

Internet Connection Sharing is a feature found in Windows 98 SE, Windows Me, Windows 2000, and Windows XP that allows computers on a network to access the Internet through a single connection. If you use a Windows–based computer as your Internet access point (or ICS host), that computer must be turned on and you must be logged on to it for the other computers in your network to connect to the Internet.

For more information, look up "Internet Connection Sharing" in Windows Help.

To access the Internet from each computer on a network

1. Make sure that you have a Web browser (such as Microsoft Internet Explorer) installed on each computer that is connected to your network.

2. On any of the networked computers, open the Web browser.

3. Search for the Web site you want, or enter the address in the Address bar.

Note that the rate at which you are able to send and receive data over the Internet is highly dependent on many factors. Adding another user to your Internet connection typically reduces the speed of data transfer, but you are unlikely to notice the difference.

Allowing Access to Files and Folders

The information in this section provides general guidance for a few basic file-sharing tasks. For more detailed instructions and information about sharing files and folders, see Windows Help. To access Windows Help, click **Start**, and then click **Help** (or **Help and Support** in Windows XP).

To make it easy to share files and folders, all of your networked computers should be in the same workgroup. For more information, look up "workgroup" in Windows Help.

Sharing files and folders is a two-step process. You will need to:

1. Make the files and folders available to the network.

2. Use Windows (Network Neighborhood, My Network Places, or Windows Explorer) to access the shared files and folders.

To make your files and folders available to the network

While setting up your broadband network, you might have chosen to share all of your files and folders with the network. If you decide that you want to share only some of your files and folders with the network, you can use Microsoft Windows to specify which files and folders to share.

You can share an entire drive with the network, or you can share specific folders. Let's say that you store photographs of your children in a folder named "Kids" on your computer, and you want to make the photographs available to your network. To do so, you would share only the Kids folder and not the other folders on your computer.

Only the computer users on your network will have access to the files you share. At times, you might want to prevent users, such as your children, from accessing particular folders and the files they contain. If you want to increase the security of your shared files, you can assign permissions and passwords to your files and folders. For more information, look up "permission" and "access control" in Windows Help. (In Windows Me, look up "controlling access.")

Although you can share files, printers, and other devices on your network, you cannot share software programs, such as Microsoft Word or Microsoft Excel. If each computer on the network has those programs installed, you can share the files that you create within those programs.

For a computer's files and folders to be available to the network, the computer must be turned on and logged on to the network. Also, if the computer is turned on but in sleep mode, it will not be accessible from the network. For more information, look up "power options" in Windows XP Help, or "power management" in Windows Me, Windows 2000, and Windows 98 Help.

To access and organize your files

Windows Explorer displays the hierarchical structure of files, folders, and drives on your computer. By using Windows Explorer, you can copy, move, rename, and search for files and folders. For example, you can open a folder that contains a file that you want to copy or move, and then drag the file to another folder or drive.

To open Windows Explorer, click **Start**, point to **All Programs** (or **Programs**, depending on your version of Windows), point to **Accessories**, and then click **Windows Explorer**.

You can use My Network Places (or Network Neighborhood, in Windows 2000 and Windows 98) to view all of the shared files and folders on your network.

My Network Places/Network Neighborhood presents a view of the network similar to the view of your computer presented by Windows Explorer. Use My Network Places/Network Neighborhood when you:

- Want to see all the resources available on the network.

- Already know where the resource that you want is located.

- Want to copy files and folders from one network location to another.

To open My Network Places, click **Start**, and then click **My Network Places**.

To open Network Neighborhood (in Windows 2000 and Windows 98), double-click **Network Neighborhood** on your desktop.

Before files or folders can be shared on your network, you will need to do the following:

- Make the file, folder, or drive available to the network.

- Use **My Network Places** or **Network Neighborhood** to view and access shared files and folders.

For a computer's files and folders to be available to the network, the computer must be turned on. If the computer is in sleep mode, it will not be accessible from the network. For more information, type "power options" in the **Search** box in Windows Help.

To open a file stored on another computer on the network

To complete this task, you must have the program on the local computer that was used to create the file. For example, if you want to open a file whose file name extension is .xls, you must have Microsoft Excel on your computer.

1. Open My Network Places or Network Neighborhood. (See the earlier instructions on how to open these windows.)

2. Double-click the name of the computer that has the file that you want to open.

3. Locate the file that you want to open.

4. Double-click the file.

To copy a file from your computer to another place on the network

You need to open only one window -- either Windows Explorer, My Network Place, or Network Neighborhood -- to complete this task. Your computer and the computer you want to copy the file to will both appear in the same window.

1. Open Windows Explorer, My Network Places, or Network Neighborhood. (See the earlier instructions on how to open these windows.)

2. On your computer, locate the file that you want to copy to another computer on the network.

3. Click to highlight the file.

4. On the **Edit** menu, click **Copy**.

5. Click the destination folder on the other computer. (You might need to scroll through the window to find the folder that you want).

6. On the **Edit** menu, click **Paste**.

Allowing Access to Printers

By using Windows, you can print documents on a printer that is attached to another computer on your network.

The following procedures provide general guidance for a few basic printer-sharing tasks. The steps that you need to take to complete these tasks will vary depending on the version of Windows installed on your computer. For complete instructions and information about sharing printers, type "printer sharing" in the **Search** box in Windows Help.

There is a difference between a "network printer" and a "local printer" that you share on a network. A network printer connects directly to the network, rather than to a particular computer, and can be used by anyone on the network. Most offices have network printers that are stored in copy rooms accessed by many

employees. A local printer, on the other hand, attaches to a specific computer, but can be shared with other computers on the network. You will most likely be using local printers with the Broadband Network Utility.

Before you can use a printer that is attached to another computer on your network, you will need to do the following:

□ Make the printer available to the network (this is also known as sharing a printer).

□ Run the **Add Printer Wizard** on each computer that you want to print from. This Installs the printer drivers on each networked computer that will use the shared printer.

The procedures for sharing a printer and installing drivers differ depending on your version of Windows. For more detailed instructions, look up "sharing printers" in Windows Help.

To print to a printer that is attached to another computer on the network

1. Open the document that you want to print, such as a document in Microsoft Word.

2. On the **File** menu, click **Print**.

3. In the **Print** dialog box, select the shared printer from the list of printers.

4. Click **OK**.

Sharing Other Peripheral Devices

In addition to sharing most printers, you can share storage devices—such as hard drives, CD-ROM drives, and Zip drives—on your network. In general, any kind of drive represented by a drive letter (such as D:\) can be shared.

Storage devices that are not assigned a drive letter (such as tape drives) cannot be shared. Tape backups of your computer must be done from the computer that is attached to the tape drive.

In general, scanners, cameras, and CD-ROM burners cannot be shared with your network.

Reading E-Mail Messages

You can access your e-mail messages from each networked computer the same way that you would access e-mail messages without a network (assuming that you have an Internet connection). Open your e-mail program, or, if you have a Web-based e-mail account, sign in to your account through your Internet browser.

Keep in mind the following: If you download e-mail messages from your e-mail account to one computer, those messages will not be accessible from the other computers on your network. Likewise, if you share an account with another person, and he or she

downloads mail from the shared account to one computer on the network, you will not see that mail when you access the account from another computer.

To illustrate this point, let's say you share a postal mailbox at your home with your spouse. If you come home first and take the letters out of the mailbox, they will no longer be inside the mailbox when your spouse comes home later and checks for mail.

If you want your e-mail messages to remain available to all users of your network at any time, you should not download the messages to one computer. (However, you should delete old messages from your e-mail account on a regular basis, so that you don't exceed the storage space given to you by your e-mail provider.)

Playing Games on Your Network and on the Internet

Many of the most popular games now have multiplayer capability, allowing two or more players to compete by using a local network. With network-enabled games, you can use your networked computers to play games with friends and family members.

Most games come with documentation that explains all you need to know to configure your network for multiplayer gaming. However, the following steps might help you prepare for playing games over the network:

- If you have purchased a multiplayer game, be sure to install it on each computer on the network that will be used for playing games.

- If you are playing a Web-based game, you might also be required to pay user fees or download game files to your computer. Be sure to follow the directions provided on the Web site.

- Make sure that the network protocols necessary to run the games that you want are installed on each computer on your network. For more information, see the documentation that came with your games.

- If you have problems connecting to a Web-based game, you might need to configure the base station to work with the ports that your game uses. For more information, see "Port Forwarding" in Chapter 6.

For information about playing games on the Internet, and for other game-related information, visit http://www.microsoft.com/broadbandnetworking/.

Secure Your Network

Protecting the data and programs on your network computers from security threats, such as computer viruses and hackers, is very important. The following sections provide general information about steps you can take to protect your network.

Protect Your Network from Computer Viruses

Even with a base station (gateway or router) installed, your network is still vulnerable to viruses.

To avoid having a problem with viruses on your network, consider the following suggestions:

- Educate yourself about how viruses are commonly spread so that you do not spread one yourself.

  - Do not load a program from an untrustworthy source on one of your network computers. E-mail attachments from people you don't know or files from the Internet or online bulletin boards are particularly risky.

  - Never open e-mail attachments that you are not expecting.

  - Scan all floppy disks before copying or opening files from them, or before starting your computer from them.

- Install an antivirus program on each computer on your network and use it regularly to check your computers for viruses. Remember to update the antivirus program on a regular basis.

- Learn the common signs of viruses: unusual messages that appear on your screen, decreased system performance, missing data, and inability to access your hard drive. If you notice any of these problems on your computer, run your antivirus software immediately to minimize the chances of losing data.

Protect Your Network from Hackers

The Microsoft Broadband Networking Wired Base Station helps establish a security layer between your network computers and the Internet. The security mechanisms provided by the base station include a firewall and Network Address Translation (NAT).

Important
Because Windows XP Internet Connection Firewall (ICF) will interfere with file and printer sharing, do not enable ICF on virtual private network (VPN) connections or on client computers.

A firewall is a barrier that helps protect your network from unauthorized visitors. Like an actual firewall built to help prevent fire from spreading between adjoining buildings, computer firewalls help prevent unauthorized communication between an individual computer or group of networked computers and the Internet.

The firewall specifies what information can be communicated from the computers on your network to the Internet, and from the Internet to the computers on your network.

NAT hides the IP addresses of the individual computers on a network from the Internet so that only the router's IP address is visible on the Internet. Hiding these addresses provides another layer of protection against hackers trying to access the computers on your network.

5 | **monitoring.**

The Broadband Network Utility

The Microsoft® Broadband Network Utility is automatically installed on your computer when you install the Setup software. Use it to check the status of your network or change your network settings. The Broadband Network Utility also shows the devices currently connected on your network.

This chapter describes how to:

- View computer, network connection, and Internet connection status.

- View and change network settings.

- Update network software, drivers, and firmware.

To open the Broadband Network Utility, do one of the following:

- Double-click the **Broadband Network Utility** icon ![icon] in the Windows notification area of the tray.

- Click **Start**, point to **Programs**, and then click **Microsoft Broadband Network Utility**.
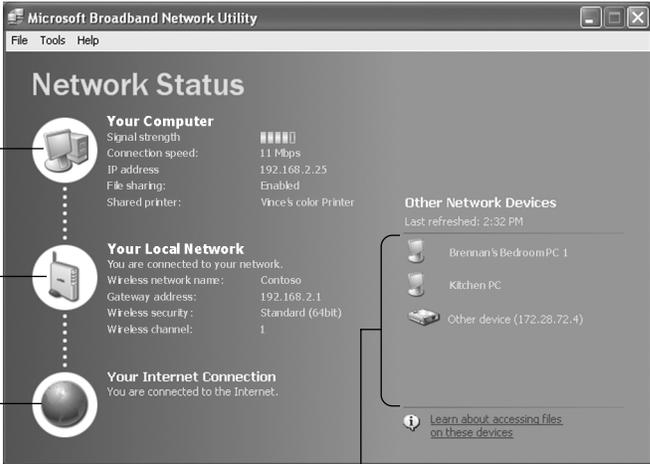
Your Computer Status

Your Network Status

Your Internet Connection Status

Microsoft Broadband Network Utility

File   Tools   Help

Network Status

Your Computer
Signal strength
Connection speed: 11 Mbps
IP address   192.168.2.25
File sharing: Enabled
Shared printer: Vince's color Printer

Your Local Network
You are connected to your network.
Wireless network name: Contoso
Gateway address: 192.168.2.1
Wireless security: Standard (64bit)
Wireless channel: 1

Your Internet Connection
You are connected to the Internet.

Other Network Devices
Last refreshed: 2:32 PM

Brennan's Bedroom PC 1

Kitchen PC

Other device (172.28.72.4)

Learn about accessing files on these devices

Status of all computers and devices in your workgroup

The following sections describe how to interpret status information about your network and perform common tasks by using the Broadband Network Utility.

For more detailed information about any of these tasks, see Broadband Network Utility Help.

To Open Broadband Network Utility Help

1. Open the Broadband Network Utility.

2. On the **Help** menu, click **Microsoft Broadband Network Utility Help**.

View the Status of Your Computer

This area of the Broadband Network Utility displays information about the computer that you are currently using. If you cannot access the Internet, or your network is not available, use the troubleshooting link to go directly to the list of related topics. For other network problems, on the **Help** menu, click **Microsoft Broadband Network Utility,** double-click **Troubleshooting**, and then click the topic that you want.

View the Status of Your Network Connection

This area of the Broadband Network Utility displays information about your network connection. If there is a problem with your connection, on the **Help** menu, click **Microsoft Broadband Network Utility,** double-click **Troubleshooting**, and then click the file that you want.

You can also view information about the status of your network connection by resting the pointer on the **Broadband Network Utility** icon in the Windows notification area of your taskbar or tray.

**Broadband Network
Utility Icon**

View the Status of Your Broadband Internet Connection

This area of the Broadband Network Utility lets you know whether you are currently connected to the Internet. If there is a problem with your Internet connection, on the **Help** menu, click **Microsoft Broadband Network Utility,** double-click **Troubleshooting**, and then click the file that you want.

View the Status of Other Network Devices

This area of the Broadband Network Utility displays information about all the computers and devices in your workgroup.

To refresh the network device list

□ Right-click any icon in the network device list, and then click **Refresh**.

To remove an inactive device from the network device list

□ Right-click the dimmed icon for the device, and then click **Remove from List.**

View and Change Network Settings

You can view and change your base station settings from the Broadband Network Utility. If you have a Microsoft adapter, you can also view and change its settings in the Broadband Network Utility.

To view and change base station settings

1. On the **Tools** menu, click **Base Station Management Tool**.

2. Type the base station password. (The default password is **admin**.)

To view and change adapter settings

□ On the **Tools** menu, click **Computer Settings.**

Customize the Broadband Network Utility

You can customize the way you view and use the Broadband Network Utility.

To customize the Broadband Network Utility

□ On the **Tools** menu, click **Options.**

Update Software, Drivers, and Firmware

Occasionally, Microsoft might provide upgrades to the Broadband Network Utility software, network drivers, or firmware on the Microsoft Broadband Networking Web site. When an upgrade is available, you will automatically be notified. After you log on to a networked computer, a message will appear in the notification area of your desktop with a link to the Microsoft Broadband Networking Web site.

To update network software, drivers, or firmware

1. Open the Broadband Network Utility.

2. On the **Help** menu, click **Check for Updates Online.**

3. Follow the instructions on the Microsoft Broadband Networking Web site to download the most current software, drivers, or firmware.
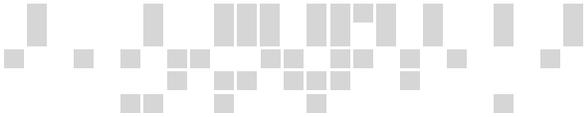
6 | **configuring.**

Customizing the Base Station

The Base Station Management Tool is a Web-based utility that you can use to manage network settings and customize security options on the Microsoft® Broadband Networking Wired Base Station.

You can establish many base station settings when you run the Setup Wizard. However, if you want to change a setting, such as your base station password, or if you have special network requirements (for example, if you want to establish a Web server on your network), you can use the Base Station Management Tool to configure the necessary settings.

If you do not run the Setup Wizard when you set up your network, you must use the Base Station Management Tool to configure your network settings.

This chapter explains how to perform the following tasks:

- Open the Base Station Management Tool and view the current configuration of your base station.

- Configure the base station with the settings provided by your Internet service provider (ISP) so that your networked computers can connect to the Internet.

- Manage network time settings, base station password, and firmware upgrades.

- Create a backup file of the base station settings.

- Customize security features, such as firewall settings, media access control (MAC) filtering, and client filtering.

- Change the base station configuration from routing mode to bridging mode.

- Limit access to the Internet or to particular applications on one or more of your networked computers by setting up client filtering.

- Set up the network to allow unrestricted access to the Internet from one computer by establishing a virtual demilitarized zone (DMZ).

- Configure port forwarding to run applications with special network requirements.

Opening the Base Station Management Tool

You can open the Base Station Management Tool from the Microsoft Broadband Network Utility or open it directly from a Web browser, such as Microsoft Internet Explorer 5 or later, or Netscape Navigator 4.7 or later.

To open the Base Station Management Tool

1. In the Broadband Network Utility, on the Tools menu, click **Base Station Management Tool**.
-or-
Open your Web browser, and then enter the base station IP address in the address field. By default, this address is http://192.168.2.1. However, you can change this address in the Base Station Management Tool.

2. To log on, type the base station password that you created when you ran the Setup Wizard. The base station password is case sensitive. If you did not run the Setup Wizard, use the default base station password, **admin**.

If you do not remember the base station password that you set when you ran the Setup Wizard, you will need to restore the factory default settings on the base station and use the default base station password, **admin**. When you restore the original settings, you lose your ISP settings and must reconfigure these settings from the **Wide Area Network** page in the Base Station Management Tool.

For information about restoring factory default settings by using the Reset button on the base station, see page 42.

Logging Off

It is important to log off the Base Station Management Tool after you have finished using it. Logging off protects the configuration of your base station so that unauthorized users cannot access and change your settings. Logging off also ensures that you can open the Base Station Management Tool from another computer if you need to.

To log off the Base Station Management Tool

▫ On any page of the Base Station Management Tool, click **Log Off**.

Navigating the Base Station Management Tool

After you log on, the **Home** page of the Base Station Management Tool opens. You can use the menu in the left pane to navigate to the other pages of the Base Station Management Tool.

The following table lists the menu items in the Base Station Management Tool and describes the tasks that you can perform from the pages that those menu items open.

Menu item	Tasks
Home	View current network settings and activity. For more information, see page 37.
Management	Reset the base station, back up and restore base station settings, upgrade firmware, establish time settings, and change the base station password. For more information, see page 41.
Local Area Network	Enable the Dynamic Host Configuration Protocol (DHCP) server on your base station and set the IP address range and lease time. For more information, see page 49.
Wide Area Network	Specify and configure the type of Internet connection that your base station uses. For more information, see page 51.
Security	Configure a variety of specialized security functions, including: • Firewall • Port forwarding, including virtual servers and special applications • Client filtering • MAC filtering For more information, see "Security Settings" on page 54.

You can also view the base station log from the Security section. For more information, see page 62.

If you need help at any time, click the **Help** button available on each page of the Base Station Management Tool.

Configuring the Base Station

Typically, when you run the Setup Wizard, you can establish the settings required for your base station to connect to the Internet. If you completed the Setup Wizard, you only need to use the Base Station Management Tool when you want to modify your network settings.

You must use the Base Station Management Tool to establish the initial settings if any of the following are true:

□ You did not run the Setup Wizard when you connected your network hardware and installed the network software.

□ You are trying to configure the base station from a computer running Microsoft Windows® 2000 or from a computer not running Windows (for example, a Macintosh).

□ You want to set the base station to bridging mode to extend the capabilities of an existing wired network.

If any of these situations apply to you, you must initially configure the base station from the Base Station Management Tool.

To configure the base station in routing mode from the Base Station Management Tool

1. Connect the base station to a computer. For information about how to do this, see Chapter 3.

2. On the computer connected to the base station, open your Web browser, and then enter **192.168.2.1** in the address field.

3. At the logon prompt, enter your password. The default password is **admin**.

4. On the **Management** menu, click **Change Password**. To change your password, follow the directions on page 48.

5. Click **Wide Area Network**. On the **Wide Area Network** page, enter the settings provided by your ISP.

Using the Base Station as a Bridge

If you already have a functioning network in your home or office, you can use the base station to expand network connectivity. This is called bridging, because the base station acts as a bridge between two networks or segments of a network.

Before you change the base station to bridging mode, make sure that the following conditions are true:

☐ A device on your network, such as your modem, is providing router capabilities, or a device on your network is providing a Network Address Translation (NAT) service.

☐ There is an existing DHCP server on your network.

☐ All devices on your network use static (fixed) IP addresses.

To configure the base station as a bridge

1. Connect the base station to a computer on your network. For information about how to do this, see "Working with Existing Networks" in Chapter 3.

2. On the computer connected to the base station, open your Web browser, and then enter **192.168.2.1** in the address field.

3. At the logon prompt, enter your password. The default password is **admin**.

4. On the **Management** menu, click **Change Password**. To change your password, follow the directions on page 48.

5. On the **Security** menu, click **Network Mode**.

6. Select the **Bridging Mode** check box, and then click **Yes** to confirm your selection. When you switch from routing mode to bridging mode, the base station resets. While the reset is in progress, the power light on the base station blinks and then turns orange. When the light is solid green, the reset is complete.

7. After the reset is complete, turn off the computer and the base station. Remove the cable from the base station **Ethernet** port and insert it into the **To Modem** port. Leave the other end of the cable connected to the **Ethernet** port of the computer.

9. Turn on the base station and restart your computer.

Home Page

You can view current base station and Internet connection settings from the **Home** page of the Base Station Management Tool. The following sections describe these settings.

Wide Area Network

The wide area network (WAN) settings provide a summary of the Internet settings provided by your ISP. The settings that appear will vary depending on whether your ISP account provides a static (fixed) IP address, a dynamic Internet connection, or a Point-to-Point Protocol over Ethernet (PPPoE) connection. If your Internet connection is disabled, the WAN settings will be unavailable.

The following table describes the WAN settings and how to modify them.

Setting	Description	Notes
Broadband connection	Appears as Connecting, Connected, Disconnecting, or Disconnected.	If the Base Station Management Tool shows that your broadband connection is disconnected when you expect it to be connected and your ISP provides a dynamic Internet connection, try clicking **Release** and then **Renew** to change the base station IP address. If you have a PPPoE connection, try clicking **Disconnect** and then **Connect**. You can also try resetting the base station and your broadband modem. If you complete these steps and the Broadband Connection is still disconnected, contact your ISP for assistance.
WAN IP address You	Shows the IP address provided by your ISP.	This is the external (public) IP address that connects your network to the Internet. If your ISP provides you an IP address dynamically (by using a DHCP server), this address might change periodically. can click the **Release** button and then the **Renew** button to get a new IP address. Releasing your IP address is a good idea if you are having trouble accessing the Internet and you have determined that it is not a problem with the computer. If renewing the IP address does not resolve the problem, contact your ISP for assistance.

WAN settings *(continued)*

Setting	Description	Notes
Subnet mask	Your ISP establishes the WAN subnet mask.	If you are using a static Internet connection, you can change the subnet mask for your wide area network, but you should use the subnet mask provided by your ISP. The subnet mask does not appear when you are using a PPPoE Internet connection.
Default gateway	The IP address that the base station uses to send data from your network to the Internet.	The gateway setting is automatically generated when you have a dynamic or PPPoE connection. If you have a static (fixed) IP address, your ISP should provide the gateway setting, and you can enter the setting on the Wide Area Network page of the Base Station Management Tool. If you have a dynamic connection and your Gateway setting is blank, you should click **Release** and then **Renew**.
Primary Domain Name System (DNS) and Secondary DNS	Your ISP provides the DNS addresses.	In some cases, these settings might be automatically filled in. Otherwise, you can enter them on the Wide Area Network page of the Base Station Management Tool.

Local Area Network

The Local Area Network (LAN) settings relate to your local network—that is, how the base station is configured in relation to the devices on your network.

The following table describes the LAN settings and how to modify them.

Setting	Description	Notes
Local IP address	The default IP address of your base station is 192.168.2.1.	You can change the local IP address on the Local Area Network page of the Base Station Management Tool, but this is not recommended.
Subnet mask	The subnet mask for your local network is 255.255.255.0.	You cannot change the subnet mask of your LAN.
DHCP server	Appears as Enabled or Disabled.	You can change this setting on the Local Area Network page of the Base Station Management Tool.
Firewall	Appears as Enabled or Disabled.	You can change this setting in the Security section of the Base Station Management Tool.

DHCP Client List

When a DHCP server is enabled on a network, each device (also called a client, which can be a desktop computer, notebook computer, or another connected device) leases an IP address for a specified period of time. The DHCP client list shows all the clients that have an active lease on an IP address, including the IP address and MAC address of each client. The list includes any device with an active lease, even if that device is no longer actively connected to the network. A client is removed from the DHCP client list when its lease has expired. The network can support up to 253 clients at one time.

You can specify the IP address lease time from the **Local Area Network** page of the Base Station Management Tool. For information about how to do this, see page 49.

The DHCP client list is relevant to your network only if you have the DHCP server enabled on the base station. For information about how to enable or disable the DHCP server, see page 50.

Base Station Information

You can view current network status in the Base Station Management Tool, under **Network Information**. The following table describes this network information.

Setting	Description	Notes
Runtime code version and Boot code version	These settings show the version numbers of your firmware.	When you check for firmware upgrades at www.microsoft.com/ broadbandnetworking/ you should download the version on the Web only if it is later than the version shown here.
LAN MAC address	This is the MAC address of the base station.	For information about MAC addresses, see page 52.
MAC address	This is the MAC address that your ISP sees.	For information about MAC addresses, see page 52.
Serial number	This is the serial number of your base station.	If you need to call Product Support Services for assistance, you might need to provide the serial number.

Management Settings

When you want to change the settings related to the management of your base station (for example, resetting the base station, backing up or restoring settings, establishing time settings, or changing the password), use the **Management** menu in the Base Station Management Tool. The following sections describe how to perform management-related tasks.

Reset the Base Station

You can reset the base station when you experience any of the following problems:

When you reset the base station, you are forcing it to reinitialize and restart all of its functions. The base station settings will not change when you reset the base station.

To reset the base station

1. Open the Base Station Management Tool, and then click **Management.**

2. On the **Management** menu, click **Reset**.

3. On the **Reset Base Station** page, click **Reset**. While the reset is in progress, the power light on the base station blinks and then turns orange. When the light is solid green, the reset is complete.

If you want to open the Base Station Management Tool after the reset is complete, enter your base station password on the **Logon** page. Do not attempt to log on until the reset is complete and the power light on the base station is solid green.

Note
You can also reset the base station by using the reset button on the base station itself. For information about how to perform a hardware reset, see Chapter 1.

Restore Factory Default Settings

You can restore the base station to its factory default settings if absolutely necessary. When you restore factory default settings, you clear any special base station configurations that you have established, and you will need to reconfigure your base station settings or restore these settings from a backup file.

You should restore the original factory default settings only under the following circumstances:

▫ You are experiencing serious problems with your base station, and resetting the base station does not fix the problem.

▫ You cannot remember your base station password.

If you cannot remember your base station password, you will not be able to open the Base Station Management Tool. In this situation, you must restore the factory default settings from the base station, and then use the default password **admin** to log on to the Base Station Management Tool and reconfigure your settings.

To restore factory default settings

1. Open the Base Station Management Tool, and then click **Management.**

2. On the **Management** menu, click **Back Up and Restore**.

3. Under **Restore Factory Default Settings**, click **Restore Factory Default Settings**. While the original factory default settings are being restored, the power light on the base station blinks and then turns orange. When the light is solid green, the settings have been restored.

If you want to open the Base Station Management Tool after the settings are restored, enter **admin** as the password on the **Logon** page. Do not attempt to log on to the base station until the settings are restored and the power light on the base station is solid green.

After you restore the factory default settings, you should navigate to each page of the Base Station Management Tool and reestablish the network settings you want, or restore the base station settings by using a backup file. For information about creating a backup file of your settings, see the following section.

Be sure to establish your unique base station password as soon as possible after restoring the factory default settings to prevent unauthorized users from logging on. For information about changing the base station password, see page 48.

Back Up Base Station Settings

You can back up all your base station settings from the Base Station Management Tool. The backup can include settings that you established when you completed the Setup Wizard and the settings that you modified from the Base Station Management Tool.

It is a good idea to create a backup file after you have the base station set up and operating normally. If for some reason the base station malfunctions, you can restore the factory default settings to the base station, and then use the backup file to reconfigure your base station and resume normal operations.

It is recommended that you back up settings whenever you change settings, such as your base station password.

To back up base station settings

1. Open the Base Station Management Tool, and then click **Management.**

2. On the **Management** menu, click **Back Up and Restore**.

3. Click **Back Up Settings.**

4. If you receive a message asking you whether to open or save the file, click **Save**.

5. Type a name for the file that contains your base station settings (or use the default name Config.bin), browse to the folder where you want to save the file, and then click **Save**.

Restore Base Station Settings from a Backup

You can restore settings from a backup file at any time. This capability is particularly useful if the base station malfunctions and you must restore the factory default settings. Instead of manually reconfiguring each of your network settings from the Base Station Management Tool, you can restore all of your original settings from the backup file.

To restore base station settings from a backup file

1. On the computer where you saved the backup file of your base station settings, open the Base Station Management Tool.

2. Enter the current base station password. If you have just restored the factory default settings to the base station, the password will be **admin**.

3. On the **Management** menu, click **Back Up and Restore**.

4. Under **Restore Base Station Settings from a Backup**, type the path and name of the backup settings file, or click **Browse** to search for the file that contains your network settings.

5. Click **Restore Settings**. While the settings are being restored, the power light on the base station blinks and then turns orange. When the light is solid green, the settings have been restored.

If you want to open the Base Station Management Tool after the settings are restored, enter your base station password on the Logon page. Do not attempt to log on until the settings are restored and the power light on the base station is solid green.

Upgrade Base Station Firmware

Occasionally, Microsoft may provide upgrades to the base station firmware to improve the performance of your base station. You can upgrade the firmware from the Base Station Management Tool.

You can perform a firmware upgrade from any of your network computers, but it is recommended that you use a computer with a wired (Ethernet) connection to the base station.

During an upgrade, all users connected to the network will lose network functionality.

To upgrade the base station firmware

1. Open the Base Station Management Tool, and then click **Management.**

2. On the **Management** menu, click **Firmware Upgrade**.

3. Follow the directions on the screen to upgrade your firmware. While the firmware is being saved to your base station, the power light on the base station blinks and then turns orange. When the light is solid green, the update is complete. If the upgrade fails, the power light will continue to blink slowly until you successfully upgrade the firmware. In this situation, you can try to upgrade the firmware again, or you can reset the base station.

If you want to open the Base Station Management Tool after a successful firmware update, enter your base station password on the **Logon** page. Do not attempt to log on until the firmware upgrade is complete and the power light on the base station is solid green.

Certain programs do not allow pop-up windows from Web browsers. If you have one of these programs installed on your computer, you might experience problems when you click the **Microsoft Broadband Networking Web site** link on the **Upgrade Firmware** page. If you do experience problems, you can open the Microsoft Broadband Networking site by entering http://www.microsoft.com/broadbandnetworking/ in the address box of your Web browser and browsing to the update page, or by turning off the software that prevents pop-up windows.

For information about how to upgrade network software and drivers from the Broadband Network Utility, see Broadband Network Utility Help.

Establish Base Station Time Zone

The base station uses the date and time for client filtering and to time-stamp entries to the base station log.

The base station system clock is set to the Pacific time zone by default. You can change the base station time zone from the Base Station Management Tool.

To change the base station time zone

1. Open the Base Station Management Tool, and then click **Management**.

2. On the **Management** menu, click **Set Time**.

3. Under **Base Station Time Zone**, in the drop-down list, click the time zone you want.

4. Select the **Adjust automatically for daylight saving time** check box if you want the base station to adjust for daylight-saving time.

5. If you selected the **Adjust automatically for daylight saving time** check box, type the date that you want daylight-saving time to start and the date that you want daylight-saving time to end. You must update these dates each year to correspond with daylight-saving time.

6. Click **Update Time Settings** to ensure that the changes that you made are saved.

Synchronize Time to Internet Time Server

The base station automatically attempts to synchronize with one of a set of Simple Network Time Protocol (SNTP) servers when it is connected to the Internet. If you want to synchronize the base station to a specific SNTP server, you can do so from the Base Station Management Tool. Before you can set the SNTP server, you must identify the IP address for the server that you want to use.

To locate an SNTP server

1. Open your Web browser, and go to your favorite search engine (for example, http://www.msn.com).

2. Enter **Time synchronization on the Internet** as a search term.

3. Review the search results, and browse to the SNTP server site that you want to use.

4. Write down the IP address for the SNTP server that you have accessed.

To synchronize the base station with an SNTP server

1. Open the Base Station Management Tool, and then click **Management.**

2. On the **Management** menu, click **Time Settings**.

3. Under **Synchronize Time to Internet Time Server**, type the IP address for the specific SNTP server that you want to use, and then click **Add**.

4. Repeat step 3 for any additional backup SNTP servers that you want to specify.

Change the Base Station Password

Access to the Base Station Management Tool is password protected so that only users who know the base station password can change your network configuration. If you ran the Setup Wizard, you were prompted to establish a password. This is your base station password. If you did not run the Setup Wizard, your default password is **admin**. You can change the base station password from the Base Station Management Tool.

It is a good idea to change your password every two to three months, or more frequently if you are concerned that an unauthorized person has administrative access to the base station.

If at any point you restore the factory default settings for the base station, the default password **admin** is also restored. You can use this password to access the base station, and then create a new password at the earliest opportunity.

When you change your base station password, be sure to update your backup file.

To change the base station password

1. Open the Base Station Management Tool, and then click **Management**.

2. On the **Management** menu, click **Change Password**.

3. In the **Current password** box, type your current password.

4. In the **New password** box, type a new password. The base station password can contain 3–16 alphanumeric characters and is case sensitive.

5. In the **Retype new password** box, retype the new password. Do not use the **Copy** and **Paste** commands to add the new password to the **Retype new password** box. If you did not type your password correctly in the **New Password box**, you will not know what your password is when you paste it into the **Retype new password** box.

6. If you want, in the **Log out inactive user in** box, type a time interval. After the specified time interval elapses without activity, you will need to log on to the Base Station Management Tool again in order to view or change settings.

7. Click **Apply** to save the new password.

Be sure to store your password in a safe place. If you forget or misplace your password and cannot log on to the Base Station Management Tool, you can restore the base station to the factory default settings from the base station itself, and then use the default password **admin** to open the Base Station Management Tool. For more information about restoring factory default settings on the base station,

Local Area Network Settings

You can configure settings for your local network on the **Local Area Network** page of the Base Station Management Tool. This configuration includes the following:

- Changing the IP address of your base station and viewing the subnet mask assigned to your local network.

- Enabling or disabling a DHCP server on the base station.

- Setting the IP address range and lease time for the DHCP server.

- Entering the local domain name for the DHCP server if necessary.

Before you configure your local network, take some time to learn about the options available. The following sections describe each of the local area network settings.

IP Address and Subnet Mask

The default IP address of your local network is 192.168.2.1. This address is reserved for private local networks, and it is not visible to the Internet.

You do not need to change the IP address unless you have a specific reason to do so—for example, if your modem IP address overlaps the base station IP address. If you want to change the IP address of your base station, be sure to change it to another nonroutable (private) IP address.

The IP addresses assigned to the computers on your local network by the DHCP server are derived from the base station IP address. If you change the base station IP address, the DHCP IP address range will also change.

The subnet mask for your local network is 255.255.255.0. You cannot change the subnet mask assigned to your local network.

To modify the base station IP address

1. Open the Base Station Management Tool, and then click **Local Area Network**.

2. Type a new IP address for the base station.

3. Click **Apply** to save the changes.

DHCP Server

The base station DHCP server allocates IP addresses to the computers on your local network from a specific range of IP addresses. Each time a computer on your network requests an IP address, it receives one within the specified IP address range. Typically, the DHCP server will assign the same IP address to a client computer.

The base station provides a default IP address range for the DHCP server to use. If you want, you can select a specified IP address range when you enable the DHCP server.

To enable the DHCP server on the base station

1. Open the Base Station Management Tool, and then click **Local Area Network**.

2. If it is not already selected, select the **Enabled** check box to enable the DHCP server on the base station.

3. If you do not want to use the IP address pool specified by the DHCP server, type a starting IP address and an ending IP address for the pool. Do not include the base station IP address in the IP address pool. For example, if you are using the default base station IP address (192.168.2.1), the address range must be between 192.168.2.2 and 192.168.2.254.

4. Select a lease time for the assigned IP addresses. The default time is two hours.

5. Type a local domain name if your ISP provided one for you.

6. Click **Apply** to save your changes.

Wide Area Network Settings

The wide area network (WAN) settings on your network depend on your ISP account. ISPs provide broadband customers with one of three different types of Internet connections:

- Dynamic

- Static

- PPPoE

The Setup Wizard helps you configure your Internet connection. If you did not run the Setup Wizard, the Broadband Networking Wired Base Station selects a dynamic connection by default. If you have a static Internet connection or a PPPoE connection, you can change the WAN setting from the **Wide Area Network** page of the Base Station Management Tool.

You also have the option to disable your network Internet connection, if necessary.

The following sections describe each type of Internet connection and how to configure your base station for that option.

Dynamic Internet Connection

If your ISP provides a DHCP server, you should select a dynamic Internet connection for the WAN. This connection enables your ISP to assign the IP address to your base station dynamically, based on the IP addresses available in the ISP's subnet.

When you select a dynamic Internet connection, you might be required to enter the host name and the DNS addresses, if your ISP provided this information.

To establish a dynamic Internet connection

1. Open the Base Station Management Tool, and then click **Wide Area Network**.

2. Under **Internet Connection Type**, click **Dynamic**.

3. Specify a host name if your ISP provided one to you.

4. Specify a MAC address, and click **Clone MAC Address**, if necessary. For information about this option, see the following section.

5. Specify the DNS primary and secondary addresses, if your ISP provided you with this information and it has not been obtained automatically.

6. Click **Connect** to save the WAN settings.

MAC Addresses

A MAC address is a unique numerical identifier for a hardware device, such as a base station or adapter. Your base station has two MAC addresses, one for the local area network and one for the wide area network. Each network adapter that you use also has a MAC address that is assigned at the time of manufacture and printed on the label.

Some ISPs record the MAC address of the adapter that you use when you first connect to the Internet. Depending on your ISP account, you might experience problems if you later use the base station's default MAC address to connect to the Internet.

One way to avoid this problem is to clone the MAC address of the adapter installed in the computer where you initially connected to the Internet. When you clone the adapter MAC address, it replaces the base station WAN MAC address, and so each device on your network, including the base station, appears to have that MAC address.

To clone a MAC address

1. Open the Base Station Management Tool, and then click **Wide Area Network**.

2. In the **MAC address** box, type the MAC address of the adapter installed in the computer that is connected to your base station. The MAC address appears on the label on the underside of your adapter.

3. Click **Clone MAC address**.

It is a good idea to record the MAC address of the adapter that you clone, so that if you lose your settings or no longer have the adapter, you do not lose your ability to connect to the Internet.

Static Internet Connection

If your ISP account provides a static (fixed) IP address, you should configure the WAN settings on your base station for a static Internet connection.

To establish a static Internet connection

1. Open the Base Station Management Tool, and then click **Wide Area Network**.

2. Under **Internet Connection Type**, click **Static**.

3. Under **Static Connection**, type the information provided by your ISP, including the IP address, subnet mask, default gateway IP address, and DNS addresses (if provided).

4. Click **Apply** to save the WAN settings.

PPPoE Internet Connection

If your ISP uses a PPPoE connection, you should configure the WAN settings on your base station for a PPPoE connection.

A PPPoE Internet connection functions like a dial-up connection in that your user name and password are passed to the ISP for authentication to establish an Internet connection. This interaction happens automatically when the base station is turned on.

Unlike a dial-up connection, a PPPoE Internet connection is persistent unless any of the following occurs: you disable the connection; the base station is turned off or loses power; or you specify a maximum idle time, and this time elapses.

To establish a PPPoE Internet connection

1. Open the Base Station Management Tool, and then click **Wide Area Network**.

2. Under **Internet Connection Type**, click **PPPoE**.

3. Under **Point-to-Point Protocol over Ethernet (PPPoE),** type your user name and password.

4. Type a service name if your ISP supplied it.

5. Type a maximum idle time, if your ISP instructs you to. You will be disconnected from the Internet if the time that you specify elapses without activity.

6. Type the DNS primary and secondary addresses, if your ISP provided you with this information.

7. Click **Apply** to save the WAN settings.

Disabled Connection

You can disable your Internet connection at any time. You might want to disable your Internet connection in the following situations:

- When you suspect that an unauthorized individual is accessing your network.

- When you want to limit your children's access to the Internet.

- When you want to limit the exposure of your local network to the WAN.

Disabling your Internet connection does not affect your Internet connection settings in any way. When you reestablish your connection, your original settings are intact.

To disable the Internet connection

1. Open the Base Station Management Tool, and then click **Wide Area Network**.

2. Under **Internet Connection Type**, click **Disabled**.

3. Click **Apply** to disable your Internet connection**.**

Security Settings

The Broadband Networking Wired Base Station is configured to protect your network from the most common hacker attacks and other security risks. If necessary, you can change the default base station settings or establish special services from the **Security** section of the Base Station Management Tool.

The following sections describe the security features of the base station and how to customize them.

Be aware that changing security settings might affect whether the computers on your LAN are able to connect to the LAN and Internet. You should not change the default security settings unless you are absolutely clear about your objective in doing so.

Firewall Settings

The Broadband Networking Wired Base Station provides a firewall to protect your network against malicious transmissions. Just as the name implies, a firewall acts as a barrier or buffer zone between your local network and the Internet. It checks data packets that are being transmitted to your network and discards any suspicious data.

The firewall is enabled by default, but you can choose to disable it from the Base Station Management Tool. Do not disable the firewall unless you have a good reason to do so.

To change the firewall settings

1. Open the Base Station Management Tool, and then click **Security**.

2. On the **Security** menu, click **Firewall Settings**.

3. Do one of the following:

   □ To enable the firewall, select the **Enable the integrated firewall** check box.

   □ To disable the firewall, clear the **Enable the integrated firewall** check box.

4. Click **Apply** to save your changes.

Block Ping Commands

You can configure the firewall to discard network ping commands. A ping command is like a short conversation between a device on the WAN and your base station. When a device on the WAN sends a ping command, the base station responds.

When you block ping commands, you are telling the base station not to respond to a ping initiated from the WAN. This security mechanism hides your network from hackers who might be pinging random IP addresses to see where they get a response. A response

verifies your network location, and a hacker can then use this information to send malicious communications to your network.

In general, it is a good idea to discard ping commands sent from the WAN. The only circumstances in which blocking ping commands might present a problem are:

▫ When your ISP needs to ping your network to ensure that the connection is still valid.

▫ When you or another person needs to check your Internet connection from an external network. For example, you might want to do this to make sure that you can access your Web server.

▫ When you are playing games on the Internet, and other players need to verify your network location and connection speed.

To block ping commands

1. Open the Base Station Management Tool, and then click **Security**.

2. On the **Security** menu, click **Firewall Settings**.

3. Select the **Discard pings** check box.

4. Click **Apply** to save your changes.

Network Mode

You have the option to use the base station for routing services or as a bridge between two networks. The Broadband Networking Wired Base Station is set to routing mode by default.

When you change the base station to bridging mode, you disable Network Address Translation (NAT), which is an important feature of your network. When NAT is enabled, you can use the single IP address supplied by your ISP to connect multiple computers to the Internet. Ordinarily, if you wanted to connect multiple computers, you would need to arrange additional addresses (for example, by purchasing additional accounts). NAT enables multiple clients to share a single connection to the Internet.

If you choose to use the base station as a bridge between two networks or segments of a network, make sure that another device on your network (such as a base station, gateway, or router) is providing NAT service. If you do not have a NAT service on your network, you should lease an IP address for each computer on your network. Be aware that each of these IP addresses will be exposed to the Internet.

To change the base station network mode

1. Open the Base Station Management Tool, and then click **Security.**

2. On the **Security** menu, click **Network Mode**.

3. Select the **Bridging Mode check box**.

4. Click **Apply** to save your changes.

Port Forwarding

You can configure the ports on your base station to establish virtual servers or run applications with special network requirements on your network. This is called port forwarding. To understand how port forwarding works, you must first understand ports and their role in data transmission.

About Ports

Information passes from the Internet to computers on your network across ports. In any network communication, there is an outbound (destination) port and an inbound (source) port. These ports are used in conjunction with the source and destination IP addresses to establish a connection between two networked computers.

There are many different types of data transmitted across a network, and certain types of data must pass out of certain ports. The data type is recognized by the protocol, or rules, that it follows. For example, the e-mail messages that you send might follow one type of protocol, whereas the games that you play might follow another protocol. Typically, the data protocol determines the ports to which the data is passed.

The Broadband Networking Wired Base Station opens the ports for certain applications automatically when a client on your local network transmits data to the WAN. This enables transmission of some of the more common data sent to and from the Internet, such as e-mail messages and Web browser data.

To run applications with special network requirements or to establish a virtual server, however, you might need to change the port configuration on the base station. You can configure, or forward, ports from the Base Station Management Tool.

Application-Triggered Port Forwarding

Some applications, such as Internet games and videoconferencing, require multiple ports for data transmission. File Transfer Protocol (FTP) data, for example, is sent from your computer to one port and returns to another port. These multiple port transmissions might cause problems when NAT is enabled on your base station, because the NAT service anticipates that data sent to one port will return to the same port.

The Broadband Networking Wired Base Station has already been configured to accommodate some common application protocols that require multiple ports, including FTP, Simple Mail Transfer Protocol (SMTP), and Post Office Protocol 3 (POP3).

To configure port forwarding for other applications that require multiple ports, you must specify the outbound (destination) port to which data following a particular protocol will be sent, and the inbound (source) port or ports to which related data will return. Essentially, you are telling the base station how to direct traffic across the networks.

The inbound ports that you specify will open only when data is sent to the corresponding outbound port. These ports will close again after a certain amount of time has elapsed with no data sent to the inbound port.

You can set ranges of ports, multiple ports, and combinations of single and multiple ports for the inbound ports.

You can configure the base station to accommodate up to 20 applications. To identify the protocol that an application uses and the ports to which the data should be sent, see the documentation for that application.

To establish application-triggered port forwarding

1. Open the Base Station Management Tool, and then click **Security**.

2. On the **Security** menu, click **Port Forwarding**, and then click **Set up application-triggered port forwarding**.

3. In the **Description** box, type a description of the application that you want to enable.

4. In the **Outbound port** box, type the number of the outbound port. The outbound port should be one number from 0 through 65535. To determine which port the application uses, consult the documentation for the application.

5. In the **Trigger type** drop-down list, click the trigger type. The trigger type should be specified in the documentation for the application.

6. In the **Inbound port(s)** box, type the inbound port. The inbound port can be a single port or a comma-separated list of ports or port ranges. For example, you could type **4-25**, or **243**, or **10, 24-50, 74**. You are limited to 256 characters.

7. In the **Public type** drop-down list, click the public type. The public type should be specified in the documentation for the application.

8. Select the **Enable** check box.

9. Click **Apply** to save the changes you have made.

If an application does not function correctly after you enable multiple ports, check the documentation for the application to verify that you are enabling the correct ports to open. If you have set the correct ports to open and the application still does not function properly, you might need to establish a virtual demilitarized zone (DMZ) on one of the client computers on your network to run the application. For information about establishing a DMZ, see page 59.

Persistent Port Forwarding

When you host a server on your network—for example, a Web or FTP server—you must configure the base station to perform persistent port forwarding.

Persistent port forwarding is similar to application-triggered port forwarding in that you are opening inbound ports to allow particular types of data or data requests to be sent from the Internet to one of the networked computers. The difference is that you are opening these inbound ports permanently, rather than configuring them to open only when there is data sent to an outbound port. In addition, you are directing the data sent to that port to a particular computer on your local network.

For example, if you set up a Web server on one of the computers on your network, you must direct unsolicited requests sent to Transmission Control Protocol (TCP) Port 80, which handles Hypertext Transfer Protocol (HTTP) or Web data, to that computer. An unsolicited request is any data communication that is not initiated by a computer on your local network.

Although not required, it is recommended that you have a static (fixed) IP address to host any type of server on your network.

To establish persistent port forwarding, you will need the following information:

▫ The IP address of the server computer on your local network. To determine the IP address assigned to the computer that you will use as a server, check the DHCP client list on the Home page of the Base Station Management Tool.

▫ The inbound and private port numbers and protocol that correspond to the type of data that your server handles.

Some of the common TCP inbound ports include:

▫ HTTP Port 80

▫ FTP Port 21

▫ Telnet Port 23

▫ POP3 Port 110

To configure persistent port forwarding

1. Open the Base Station Management Tool, and then click **Security**.

2. On the **Security** menu, click **Port Forwarding**, and then click **Set up persistent port forwarding**.

3. In the **Description** box, type a description of the server field. (This step is optional.)

4. In the **Inbound port** box, type the inbound port to which data packets sent from the Internet to the server will be passed. The inbound port can be a single port or a comma-separated list of ports or port ranges. For example, you could type **4-25**, or **243**, or **10, 24-50, 74**. You are limited to 256 characters.

5. In the **Type** box, select the protocol (UDP or TCP) for the port.

6. In the **Private IP address** box, type the private IP address of the client computer that is hosting the server.

7. In the **Private port** boxes, type the private port on the server that the data will be sent to. To identify the private port number, consult the documentation for your server software.

8. Click **Apply** to save the changes you have made.

Virtual Demilitarized Zone

In certain situations, you might want to set up a virtual demilitarized zone (DMZ) on one of the clients on your network. When you establish a DMZ, you essentially open all inbound ports and direct the base station to forward certain inbound data packets (those that are not in response to a transmission initiated by a LAN client and not handled through application-triggered or persistent port forwarding) to a particular computer on your LAN. This computer becomes the DMZ host.

A DMZ host is useful for experimenting with new games on the Internet or for setting up a server on your network before you know which ports to open for that server.

A DMZ, however, should be used only in very specific and finite situations. The computer that hosts the DMZ is fully exposed to the Internet, and is thus susceptible to malicious attacks and unauthorized access. Because the computer is a virtual DMZ behind the base station, as opposed to a real DMZ out on the Internet, it has access to the other computers on your LAN. If a hacker were to upload a virus to the virtual DMZ, the virus could spread to all the computers on your network.

Because the virtual DMZ that you establish is behind the base station NAT, the IP address for the DMZ is not public. This means that the DMZ can resolve most, but not all, connection problems.

To establish a virtual DMZ

1. Open the Base Station Management Tool, and then click **Security**.

2. On the **Security** menu, click **Virtual DMZ (Demilitarized Zone).**

3. Select the **Enable** check box.

4. In the text box, type the IP address assigned to the computer that will host the virtual DMZ. To determine the IP address, see the DHCP client list on the **Home** page of the Base Station Management Tool.

5. Click **Apply** to save the changes you have made.

MAC Filtering

You can increase the security on your network by using MAC filtering. MAC filtering enables you to filter Internet access for local clients based on the MAC address of the adapter that the clients use.

If you want to use MAC filtering, the first step is to enable connection control.

Connection Control

You can use connection control to control which wired clients will be able to connect to the base station and have access to the Internet and all network resources.

When a wired client cannot connect to the base station, it can communicate with other clients on the wired local network, but it cannot:

- Connect to the Internet.
- Communicate with wireless clients on the network.

To enable connection control

1. Open the Base Station Management Tool, and then click **Security**.

2. On the **Security** menu, click **MAC Filtering.**

3. Select the **Enable connection control** check box.

4. If you do not want unspecified clients to connect to the base station, in the drop-down list box, click **Deny.** In this case, any client whose MAC address is not listed in the **MAC Address** table will not be able to connect to the base station or access the Internet.

5. If you clicked **Deny** in step 4, in the MAC Address table, specify the MAC address of any clients that you want to connect to the base station, and then select the **Allow Connection** check box.

6. Click **Apply** to save your changes.

When you enable connection control, be sure you do not prohibit your own computer from connecting to the base station. If you deny unspecified MAC addresses from connecting, enter the MAC address of your adapter into the MAC Address table and select the **connection control** check box.

If you do block your own access to the base station, you must restore the factory default settings by using the reset button on the base station itself, and then reconfigure the base station. For information about how to do this, see page 42.

For more information about MAC filtering options, see Broadband Network Utility Help.

Client Filtering

You can use client filtering to control the Internet access of each client on your network. This feature is particularly useful if, for example, you want to restrict the time that your children spend surfing the Web.

To configure client filtering, you must have the following information:

- The private IP address assigned to the client computer. To determine the IP address assigned to the client computer, check the DHCP client list on the Home page of the Base Station Management Tool.

- The ports for the type of application data to which you want to control access.

For example, if you want to control Web browsing, specify TCP Port 80 on client 192.168.2.*XX*.

It is recommended that you assign static IP addresses to each of the client devices whose access to the Internet you want to control.

To enable client filtering

1. Open the Base Station Management Tool, and then click **Security**.

2. On the **Security** menu, click **Client Filtering**.

3. In the appropriate box, type the IP address of the client device whose access to the Internet you want to control.

4. In the **Outbound port(s)** boxes, type the outbound port protocol and port number for the data that you want to control.

5. In the appropriate boxes, specify the date and time range when you want to block access to this data. If you want to filter access on a particular day, for example, every Sunday, enter the same time and the same date for the start and end period. If you want to block access all the time, click **Always**.

6. Select the **Block** check box, and then click **Apply** to save the client filtering.

Base Station Log

You can access the base station log for your network from the **Security** section of the Base Station Management Tool. This log records general base station activity and time stamps each log file entry. If you have any concerns about unusual activity on your network, review the base station log.

The base station log can maintain up to 256 lines of data. When the base station log reaches maximum capacity, the base station deletes the oldest log entries.

To view the base station log

1. Open the Base Station Management Tool, and then click **Security**.

2. On the **Security** menu, click **Base Station Log**.
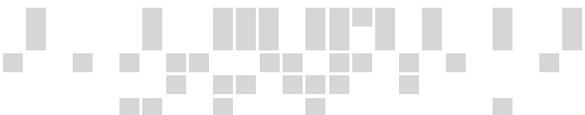
7 | troubleshooting.

Basic Troubleshooting

This chapter will help you solve installation and setup problems with your Microsoft® Broadband Networking WIred Base Station. Problems are covered for the following areas:

▫ Setup and Hardware Problems

▫ Network and Internet Problems

▫ File and Printer Sharing Problems

If the problem you are experiencing is not covered in this chapter, you can find more troubleshooting information in Broadband Network Utility Help, or on the Microsoft Broadband Networking Web site at http://www.microsoft.com/broadbandnetworking/.

Setup and Hardware Problems

This section will help you solve problems you might encounter while running the Setup Wizard or connecting your new networking hardware.

My computer is not detecting my base station, or my base station is not working correctly.

▫ Make sure that the cables in your network are securely connected to the correct ports and your network card is properly seated in the correct slot.

  Check all of the following connections: power cables, cables between the adapter and the network, and cables between the network and the broadband modem.

  Ethernet cables closely resemble standard residential telephone cables. However, the RJ-45 connectors on Ethernet cables are larger than the RJ-11 connectors on telephone cables. Although a standard residential telephone connector can be inserted into an Ethernet port, the port will not function and the cable might damage your Ethernet device.

▫ Make sure the Link LEDs are illuminated for each connected Ethernet port. If they are not illuminated, try a different Ethernet cable or a different network port.

▫ Determine which Microsoft Windows® operating system is installed on your computer.

  If you are using Windows 2000, you cannot automatically configure your base station by using the Setup Wizard. A

Windows 2000-based computer can access the base station, but you will need to configure the base station settings manually. For more information, see Chapter 6.

I'm having problems running the Setup Wizard.

▫ Verify that your computer conforms to the minimum system requirements for the Microsoft Broadband Networking Wired Base Station.

When you run the Setup Wizard by using the Typical Setup Method, the Broadband Network Utility is installed automatically. If your computer does not meet the minimum system requirements, the software might not install fully or at all.

I'm getting an error message during installation or setup

▫ Follow the instructions in the error message to try to solve the problem. The following table contains more information about the error messages that can appear, including possible causes and solutions for the errors.

Problem	Troubleshoot
Setup was unable to detect your base station	Possible causes for this error include loose cable connections, the wrong type of Ethernet cable (straight-through versus crossover), cables connected to the wrong ports, or the base station not receiving power. If none of these is the cause, try restoring your base station to factory defaults.
Setup was unable to detect a connection to the internet	Possible causes for this error include your broadband modem not being turned on, not working, or not having an active Internet connection. If you have other computers already connected to your network, verify that these computers can still access the Internet correctly.

My broadband modem has a built-in NAT that conflicts with my Microsoft Broadband Networking Wired Base Station.

▫ Turn off Network Address Translation (NAT) on the modem.

If you have more than one component that is running NAT on your network, some of your programs will not connect to the Internet, some features in certain programs might not work, and some components might appear as unavailable in the Broadband Network Utility. For instructions for turning off NAT on your modem, see the documentation for your modem.

I am having problems upgrading or restoring my base station firmware.

You can use the Base Station Management Tool to upgrade the firmware in your base station or restore a previously saved copy of your firmware. If you have a problem upgrading or restoring your base station firmware, the power LED will flash orange and green. This can be caused by a corrupted file or by restoring the wrong file to the base station. Try these options in the following order; you might not need to do all of them.

- Reset the base station by depressing the reset button for a short time. After the base station has been reset, try using the base station again. For instructions on resetting the base station, see "Resetting the Base Station" in Chapter 1.

- Upgrade or restore the base station again. If the file you are using did not work successfully the first time, you can use the Base Station Management Tool to reinstall the firmware upgrade. If it does not work correctly the second time, try the next option.

- Download a new copy of the firmware, and try upgrading the base station with the new file. The file you originally used might be corrupted or incomplete. For instructions for downloading an upgrade to your firmware, see "Upgrade Base Station Firmware" in Chapter 6.

- Restore the base station's factory default settings. Doing so will return the firmware to the originally installed version, removing any updates that you have installed. After the factory default settings have been restored, you can try updating or restoring the firmware. For instructions, see "Restoring the Factory Default Settings" in Chapter 1.

My modem supports both USB and Ethernet connections.

The base station is designed specifically for use with an external DSL or cable modem that has an active Internet connection. The base station supports only broadband modems that use Ethernet connections. If you have a modem with both USB and Ethernet connections, use the Ethernet connection to connect the modem to the base station.

If you are switching your modem from a USB connection to an Ethernet connection, use the Ethernet cable that came with your modem. If you do not have the cable, see your modem documentation or contact your Internet service provider to determine whether you need a straight-through or crossover Ethernet cable to connect the modem to the base station.

Network and Internet Problems

This section will help you solve common networking and Internet problems when you integrate the Microsoft Broadband Networking Wired Base Station with a new or existing network.

The base station is designed for the Setup Wizard to run before the hardware is installed; otherwise, the wizard might not correctly configure your network settings. If you connected the base station first, see "Other Ways to Set Up Your Base Station" in Chapter 3.

If you replaced your previous router with the Microsoft base station, make sure that you disabled all of your previous network settings and removed all unnecessary cabling. When possible, use the same cables to reconnect your computer to the network. Doing so can help prevent connectivity problems.

My local network isn't working.

If you are having problems connecting to other computers on your local network, try the following:

- Verify that the base station is plugged into a power source.

- Verify that the correct cables are securely connected to the correct ports, and that each connected port has an active Link or Status light.

If you are having problems with file or printer sharing, see "File and Printer Sharing Problems" in this chapter.

My network is slow.

- Try decreasing the number of computers that are simultaneously accessing your network.

   Your network has a limited amount of bandwidth for transmitting data. As more computers access your network at the same time, the bandwidth must be split up between all computers. By reducing the number of computers accessing your network, you can increase the bandwidth available to each computer.

   You might find that you need more bandwidth to use all of your computers on the network. If your connection is still too slow, you can contact your Internet service provider (ISP) to verify that there are no problems with your connection or to inquire about upgrading to a faster connection.

My computer can't find my workgroup.

- Check the name of the workgroup on another computer on the network.

   The workgroup name is on the **Advanced Network Settings** page, which you can open from the **Customize Your Network** page in the Broadband Network Utility.

If your computer can't find your workgroup, it might be looking for the workgroup by using the wrong name or you might be logged on to a domain. You cannot be logged on to a domain and a workgroup at the same time.

I get all the way through setup and it says it was successful, but the network does not work.

☐ If you cannot access the Internet, open the Broadband Network Utility and check the status of the connection between the base station and the modem. For more troubleshooting information about this problem, see Broadband Network Utility Help.

☐ If you cannot access shared files or folders, make sure that you have been given access to the files or folders. For more information about sharing files and folders and verifying sharing privileges, see Chapter 4.

☐ If you cannot print to a network printer, make sure that the printer has been made available to the network. For more information about making a printer available to the network and verifying the network availability of a printer, see Chapter 4 and Windows Help.

My existing network used to work, and now it doesn't.

☐ Check the installation instructions to make sure that you used the correct cables, particularly if you are adding the base station to an Ethernet network that has a hub or switch.

☐ Check that no cables were accidentally disconnected from other parts of your network during the installation process.

☐ Verify that the network settings on all of the computers are correct.

☐ Verify that the base station settings match the settings required by your Internet service provider (ISP). For information about configuring your base station network settings, see "Local Area Network Settings" in Chapter 6.

My computer can't find the Internet.

☐ Try accessing the Internet from another computer on the network. If the second computer can access the Internet, the problem might be with the first computer's network settings. If the second computer also cannot access the Internet, the problem might be with your base station or Internet service provider (ISP).

☐ Check the IP address on another computer in the network.

The IP address is on the **Advanced Network Settings** screen, which you can access from the **Customize Your Network** screen in the Broadband Network Utility.

If your computer can't find the Internet, it might be looking for the wrong IP address. Although the IP address may have been correct previously, if you changed ISPs, all of the IP addresses in your network changed as well. For the correct IP address, see the documentation that was provided by your ISP.

▫ Check the status of the connection to the base station and to the Internet in the Broadband Network Utility.

If you are still unable to resolve the problem, see Broadband Network Utility Help.

File and Printer Sharing Problems

This section will help you solve common installation and setup problems with sharing files and printers on your network. If you installed your network hardware by using the Setup Wizard, file and printer sharing might have automatically been configured for you, depending upon your network configuration.

To learn how to add or share files and printers over your network, see Chapter 4 and Windows Help.

I cannot access shared files over my network.

To share files between computers on your network, all computers must belong to the same workgroup. Check the workgroup names on each computer by using the following instructions.

Windows XP:

1. Click **Start**, and then click **Control Panel**.

2. Double-click **System**, and then click the **Computer Name** tab.

Windows 2000:

1. Click **Start**, point to **Settings**, and then click **Control Panel**.

2. Double-click **System**.

3. Click the **Network Identification** tab.

Windows 98, Windows 98 SE, and Windows Me:

1. Click **Start**, point to **Settings**, and then click **Control Panel**.

2. Double-click **Network**, and then click the **Identification** tab.

If you need to change your workgroup name on a computer, click **Change**, and then type the correct workgroup name. After restarting your computer and joining the new workgroup, try sharing or accessing shared files again.

My printer is connected directly to my computer and is not being recognized by other computers on my network.

- Check to make sure that the printer is turned on.

- Verify that the cable connecting the printer and the computer is securely attached.

- Try printing by using the self-test feature built into your printer. Each printer's self-test feature is slightly different. See your printer documentation for specific instructions.

  If the printer self-test does not work, see your printer troubleshooting documentation for more information.

  If the printer self-test works correctly, the problem might be with your network connection or with your printer drivers.

- Check to make sure all computers on the network have the proper printer driver installed.

  You can install the printer driver by opening the Printers page in the Control Panel. If Windows prompts you for a driver disk, use the driver disk that came with your printer. For more information about configuring your printer, see Windows Help.

- Verify that all network cables between the computers and the printer are securely connected.

  You can check to see whether the network recognizes a connection by inspecting the link lights associated with the Ethernet ports on your hardware. When the cable is connected successfully, the link light should be illuminated.

  If one of your network cables is connected to a network port that does not have an illuminated link light, there might be a problem with the cable itself. Try using a different Ethernet cable to make the connection.

My printer is connected directly to my network, and I cannot access the printer from the computers on my network.

- Check to make sure that the printer is turned on.

- Verify that all network cables between the computers and the printer are securely connected.

  You can check to see whether the network recognizes a connection by inspecting the link lights associated with the Ethernet ports on your hardware. When the cable is connected successfully, the link light should be illuminated.

  If one of your network cables is connected to a network port that does not have an illuminated link light, there might be a problem with the Ethernet port or the cable itself. Try using a different Ethernet cable to make the connection.

□ Try printing by using the self-test feature built into your printer. Each printer's self-test feature is slightly different. See your printer documentation for specific instructions.

If the printer self-test does not work, see your printer troubleshooting documentation for more information.

If the printer self-test works correctly, the problem might be with your network connection or with your printer drivers.

□ Check to make sure that all computers on the network have the proper printer driver installed.

You can install the printer driver by opening the Printers page in the Control Panel. If Windows prompts you for a driver disk, use the driver that came with your printer. For more information about configuring your printer, see Windows Help.

My networked printer is visible on the network, but it does not print.

□ Try resetting the printer. See your printer documentation for instructions.

□ If you are troubleshooting a printer that is connected directly to the network, try printing a test page by using the printer's diagnostic features. If the test page prints correctly, the problem might be in the network or the printer networking settings.

□ Check the program from which you are trying to print to ensure that printing is enabled and the correct printer is selected.

reference.

Getting Help

Visit Us on the Web
Please visit our Web site at
http://www.microsoft.com/broadbandnetworking/

Click Help in the Broadband Network Utility
Click **Help** in the Microsoft® Broadband Network Utility for detailed
troubleshooting information.

Technical Support

Product Name:
Microsoft® Broadband Networking Wired Base Station

Support Information Online:
http://support.microsoft.com/directory/productsupportoption.asp

In Canada, visit http://www.microsoft.ca/support/

Online Support:
Work with a Microsoft Support Professional over the Internet.
Submit your issue online:
http://support.microsoft.com/directory/onlinesr.asp

Phone Support:
Toll-free support for U.S. customers: (800) 936-3900. For customers
in Canada: (800) 668-7975. These numbers are only for support
of Microsoft Broadband Networking products. Please do not use
these phone numbers for support of other Microsoft products.

TTY Users:
Microsoft text telephone (TTY/TDD) services are available at
(425) 635-4948 in Washington state or (800) 892-5234
elsewhere in the United States. Call (905) 568-9641 in Canada.

Worldwide:
The support terms listed here are available in the United States
and Canada only.

Support outside the United States and Canada may vary.
For regional contact details, please visit
http://support.microsoft.com/default.aspx?scid=/international.aspx?

Conditions:
Microsoft's support services are subject to then-current prices,
terms, and conditions, which are subject to change without notice.

Regulatory Information

United States Radio and TV Interference Regulations

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

The Microsoft hardware device(s) that accompanies this software can radiate radio frequency (RF) energy. If not installed and used in strict accordance with the instructions given in the printed documentation and software Help file, the device may cause harmful interference with other radio-communications devices (for example AM/FM radios, televisions, baby monitors, cordless phones, etc.). Any cable that is connected to the device must be a shielded cable that is properly grounded. There is, however, no guarantee that RF interference will not occur in a particular installation.

Your Microsoft hardware device has been tested, and it complies with the limits for a Class B digital device in accordance with the specifications in Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful RF interference in a residential installation.

To determine if your hardware device is causing interference to other radio-communications devices, disconnect the device from your computer. If the interference stops, it was probably caused by the device. If the interference continues after you disconnect the hardware device, turn the computer off and then on again. If the interference stopped when the computer was off, check to see if one of the input/output (I/O) devices or one of the computer's internal accessory boards is causing the problem. Disconnect the I/O devices one at a time and see if the interference stops.

If this hardware device does cause interference, try the following measures to correct it:

- Relocate the antenna of the other radio-communications device (for example AM/FM Radios, televisions, baby monitors, cordless phones, etc.) until the interference stops.

- Move the hardware device farther away from the radio or TV, or move it to one side or the other of the radio or TV.

- Plug the computer into a different power outlet so that the hardware device and radio or TV are on different circuits controlled by different circuit breakers or fuses.

- If necessary, ask your computer dealer or an experienced radio-TV technician for more suggestions. You may find helpful information in the booklet "The Interference Handbook" (1995), published by the FCC. The booklet is available from the FCC at 1-888-CALL FCC or at http://www.fcc.gov/cib/Publications/tvibook.html.

Note

Any changes or modifications not expressly approved by Microsoft could void the user's authority to operate this device.

For use with UL Listed and GS approved personal computers.

Not intended for use in machinery or industrial applications.

Tested to comply with FCC standards. For home and office use. Model Number: MN-100, MN-110, MN-120, MN-130, MN-150, MN-500, MN-510, MN-520.

Microsoft Corporation
One Microsoft Way
Redmond, WA 98052-6399.
(800) 426-9400 (United States)
(800) 933-4750 (Canada)

Canadian Radio Communication Regulations

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

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

Limited Warranty

PLEASE READ THIS MANUFACTURER'S GUARANTEE CAREFULLY TO UNDERSTAND YOUR RIGHTS AND OBLIGATIONS

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Technical Specifications

Wired Base Station

Standards	IEEE 802.3 Ethernet; IEEE 802.3u Fast Ethernet; TCP/IP; NAT; DHCP; UDP; FTP; PPPoE; PPTP; L2TP; HTTP; DNS; IPSec/VPN Pass-through; UPnP; Xbox;
Ports	**LAN:** ▫ Four 10/100 Mbps Switched Ethernet/IEEE 802.3 ports ▫ RJ-45 connectors ▫ UTP/STP Cat 3 or better cabling required for 10Base-T operation ▫ UTP/STP Cat 5 or better required for 100Base-TX operation **To Modem:** ▫ One 10 Mbps Ethernet/IEEE 802.3 port ▫ RJ-45 Connector ▫ UTP/STP Cat 3 or better cabling required for 10Base-T operation
Data rate	10 and 100 Mbps, full and half duplex
Indicators	**LAN (Ports 1-4):** Link/Activity LED for each port **To Modem:** Link/Activity LED **Power:** Power/Reset dual color LED
Power	12 V @ 350 mA (Power adapter: 12 V DC @ 500 mA)
Operating Temperature	0 to 40 °C
Storage Temperature	-25 to 60 °C
Humidity	10 to 95 percent non-condensing
Emissions	FCC Part 15 Class B compliant; Canada ICES-003
Safety	UL 60950 / CSA-C22.2 No 60950
Physical Dimensions	1.2" x 5.3" x 6.8" (30.5 x 134.6 x 172.7 mm)
Weight	9.93 oz (281.4g) without power adapter

System Requirements

To use the Microsoft Broadband Networking Wired Base Station:

- Computer with Ethernet network adapter

- External broadband (cable, DSL, or other) modem with Ethernet port (not compatible with dial-up modems)

- Microsoft Internet Explorer 5.0 or Netscape Navigator 4.7 or later to view and use Base Station Management Tool

- Available 120V AC power outlet

Additional requirements for using the Microsoft Broadband Networking setup wizard and Network Utility:

- Microsoft Internet Explorer 5.0 or later; setup will install Internet Explorer 6.0 browser components if needed, but will not displace your primary browser.

- 28MB of available hard-disk space if you already have Internet Explorer 5.5 or 6.0; 132 MB of available hard-disk space if you are installing Internet Explorer for the first time.

- 4x or faster CD-ROM drive

- VGA or higher-resolution monitor

Recommended:

- Microsoft Mouse or compatible pointing device

- 3.5" high-density disk drive

glossary.

This glossary contains common terms for wired and wireless networking.

100Base-T Also known as "Fast Ethernet," an Ethernet cable standard with a data transfer rate of up to 100 Mbps.

10Base-T An older Ethernet cable standard with a data transfer rate of up to 10 Mbps.

802.11, 802.11b A family of IEEE-defined specifications for wireless networks. Includes the 802.11b standard, which supports high-speed (up to 11 Mbps) wireless data transmission. Microsoft® Broadband Networking wireless products comply with the 802.11b standard.

802.3 The IEEE-defined specification that describes the characteristics of Ethernet connections.

access point See **wireless access point**.

ad hoc network A solely wireless computer-to-computer network. Unlike an infrastructure network, an ad hoc network does not include a central base station, router, or gateway.

adapter See network adapter.

base station A device (also known as a router or gateway) that acts as a central point for networked devices, receives transmitted messages, and forwards them. Microsoft Broadband Networking base stations can link many computers on a single network, and can share a secure Internet connection with wired and wireless devices.

broadband connection A high-speed connection, typically 256 Kbps or faster. Broadband services include cable modems and DSL.

broadband modem A device that enables a broadband connection to access the Internet. The two most common types of broadband modems are cable modems, which rely upon cable television infrastructure, and DSL modems, which rely upon telephone lines operating at DSL speeds.

cable modem See **broadband modem**.

CAT 5 cable Abbreviation for "Category 5 cable." A type of Ethernet cable that has a maximum data rate of 100 Mbps.

client Any computer or program that connects to, or requests the services of, another computer or program on a network. For a local area network or the Internet, a client is a computer that uses shared network resources provided by a server.

client/server network	A network of two or more computers that rely upon a central server to mediate the connections or provide additional system resources. This dependence upon a server differentiates a client/server network from a peer-to-peer network.
computer name	A name that uniquely identifies a computer on the network so that all its shared resources can be accessed by other computers on the network. One computer's name cannot be the same as any other computer or domain name on the network.
crossover cable	See **Ethernet cable**.
DHCP	Acronym for "Dynamic Host Configuration Protocol." A TCP/IP protocol that automatically assigns temporary IP addresses to computers on a local area network. Microsoft Broadband Networking base stations support the use of DHCP which, combined with ICS, allows you to share one Internet connection with multiple computers on a network.
dial-up connection	An Internet connection of limited duration that uses a public telephone network rather than a dedicated circuit or some other type of private network. The Microsoft Broadband Networking hardware does not support the use of a dial-up connection to the Internet.
DNS	Acronym for "Domain Name System." A data query service chiefly used on the Internet for translating host names into Internet addresses. The DNS database maps DNS domain names to IP addresses, so that users can locate computers and services through user-friendly names.
domain	In a networked computer environment, a collection of computers that share a common domain database and security policy. A domain is administered as a unit with common rules and procedures, and each domain has a unique name.
driver	Within a networking context, mediates communication between a computer and a network adapter installed on that computer.
DSL	Acronym for "Digital Subscriber Line." A constant, high-speed digital connection to the Internet that uses standard copper telephone wires.
DSL modem	See **broadband modem**.
duplex	A mode of connection; full-duplex transmission allows for the simultaneous transfer of information between the sender and the receiver. Half-duplex transmission allows for the transfer of information in only one direction at a time.
dynamic IP address	The IP address assigned (using the DHCP protocol) to a device that requires it. A dynamic IP address can also be assigned to a router by an ISP.

encryption	The process of encoding data to prevent unauthorized access, especially during transmission. Microsoft wireless hardware relies upon encryption to ensure that data transmissions cannot be accessed by users outside the network. Also see **WEP**.
Ethernet	A networking standard that uses cables to provide network access.
Ethernet cable	A type of cable that facilitates network communications.
firewall	A security system that protects a network from external threats, such as hacker attacks, originating outside the network. A hardware firewall is a connection routing device with specific data-checking settings, that protects all of the devices connected to it. The Microsoft Broadband Networking Base Station includes a hardware firewall. A software firewall resides on a single computer, protecting that computer from external threats. See Microsoft Windows® XP Help for more information about the Internet Connection software firewall.
firmware	Software information stored in non-volatile memory on a device.
gateway	See **base station**.
gateway address	The IP address used when making a connection outside your immediate network.
host name	The DNS name of a device on a network, used to simplify the process of locating computers on a network.
hub	A device with multiple ports that serves as a central connection point for communication lines from all devices on a network. When data arrives at one port, it is copied to the other ports.
ICS	Acronym for "Internet Connection Sharing." A software feature in Microsoft Windows that allows computers on a network to access online services through a single Internet connection. Microsoft Broadband Networking hardware replaces software ICS.
infrastructure network	A network configuration in which wireless devices connect to an existing network.
Internet domain	See **domain**.
IP address	Acronym for "Internet Protocol" address. IP is the protocol within TCP/IP that is used to send data between computers over the Internet. An IP address is an assigned number used to identify a computer that is connected to a network through TCP/IP. An IP address consists of four numbers (each of which can be no greater than 255) separated by periods, such as 192.168.1.1.
ISP	Acronym for "Internet Service Provider." A company that provides individuals or companies access to the Internet.

LAN	Acronym for "local area network." A group of computers and other devices dispersed over a relatively limited area (for example, a building) and connected by a communications link that enables any device to interact with any other on the network.
MAC address	Acronym for "media access control" address. The address that is used for communication between network adapters on the same subnet. Each network adapter is manufactured with its own unique MAC address.
Mbps	Abbreviation of "megabits per second." A unit of bandwidth measurement that defines the speed at which information can be transferred through a network or Ethernet cable. One megabyte is roughly equivalent to eight megabits.
modem	A device that facilitates the transmission and reception of information between computers.
NAT	Acronym for "network address translation." The process of converting between IP addresses used within a private network and Internet IP addresses. NAT enables all of the computers on a network to share one IP address. The Microsoft Broadband Networking Base Station supports NAT, which provides an extra layer of network security by masking the actual IP addresses of the computers using a base station.
network	A collection of two or more computers that are connected to each other through wired or wireless means. These computers can share access to the Internet and the use of files, printers, and other equipment.
network adapter	Also known as a "network interface card" (NIC). An expansion card or other device used to provide network access to a computer, printer, or other device.
PC Card	A peripheral that adds memory, mass storage, modem capability, or other networking services to portable computers.
peer-to-peer network	Also known as a computer-to-computer network. A network of two or more computers that communicate without using a central server. This lack of reliance upon a server differentiates a peer-to-peer network from a client/server network.
Plug and Play	A set of specifications that allows a computer to automatically detect and configure various peripheral devices, such as monitors, modems, and printers.
port	A physical connection through which data is transferred between a computer and other devices (such as a printer, monitor, or modem), a network, or another computer. Also, a software channel for network communications.

PPPoE Acronym for "Point-to-Point Protocol over Ethernet." A specification for connecting users on an Ethernet network to the Internet by using a broadband connection (typically through a DSL modem). Microsoft Broadband Networking hardware supports PPPoE for connections that require it.

protocol A set of rules that computers use to communicate with each other over a network.

RJ-11 connector An attachment used to join a telephone line to a device such as a modem.

RJ-45 connector An attachment found on the ends of all Ethernet cables.

router See **base station**.

server A computer that provides shared resources, such as storage space or processing power, to network users.

shared folder A folder on a computer that has been made available for other people to use on a network.

shared printer A printer connected to a computer that has been made available for other people to use on a network.

sharing To make the resources associated with one computer available to users of other computers on a network.

SSID Acronym for "Service Set Identifier," also known as a "wireless network name." An SSID value uniquely identifies your network and is case sensitive.

static IP address A permanent Internet address of a computer (assigned by an ISP).

straight-through cable See **Ethernet cable**.

subnet A distinct network that forms part of a larger computer network. Subnets are connected through routers and can use a shared network address to connect to the Internet.

subnet mask Determines whether two computers on a network can communicate with each other directly. Similar in form to an IP address and typically provided by an ISP. An example of a subnet mask value is 255.255.0.0.

switch A central device that functions similarly to a hub, forwarding packets to specific ports rather than broadcasting every packet to every port. A switch is more efficient when used within a high volume network.

TCP/IP Acronym for "Transmission Control Protocol/Internet Protocol." A networking protocol that allows computers to communicate across interconnected networks and the Internet. Every computer on the Internet communicates using TCP/IP.

USB	Acronym for "universal serial bus." A hardware standard for easily connecting peripherals to a computer system.
USB adapter	A device that connects to a USB port; the Microsoft Broadband Networking Wireless USB Adapter is a type of USB adapter.
USB connector	The end of the USB cable that is plugged into a USB port.
USB port	A rectangular slot in a computer into which a USB connector is inserted.
WAN	Acronym for "wide area network." A geographically widespread network that might include many linked local area networks (LANs).
WEP	Acronym for "Wired Equivalent Privacy," also known as "Wireless Security." A wireless network encryption mechanism that protects data transmitted over wireless networks. If you are operating a wireless network, it is strongly recommended that you enable WEP.
Wi-Fi	A commonly used term to mean the wireless 802.11b standard.
wireless access point	A device that exchanges data between wireless computers and wired computers on a network.
wireless network name	See **SSID**.
WLAN	Acronym for "wireless local area network." A network that exclusively relies upon wireless technology for the device connections.
workgroup	A group of users working on a common project and sharing computer files, typically over a LAN. A user who has a home network that is not being controlled by a domain controller can be a member of a workgroup.

My Network Settings

Use this page to record your network settings.

Workgroup or domain name: _____

Base station password: _____

Wide Area Network (WAN) Settings

Complete this section only if your network has a base station (gateway or router). You can obtain this information from your Internet service provider (ISP). Your ISP might not require all of the settings listed below.

Dynamic IP (DHCP) Settings

Complete this section only if your ISP uses a DHCP connection.

Host name (optional): _____

Adapter MAC address (optional): _____

Static IP Address Settings

Complete this section only if your ISP has assigned you a specific IP address.

Static IP address: _____

Subnet mask: _____

IP gateway address: _____

Primary DNS server: _____

Secondary DNS server: _____

PPPoE Settings

Complete this section only if your ISP uses PPPoE with your DSL connection.

User name: _____

Password: _____

Service name (optional): _____

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www.microsoft.com/broadbandnetworking