Microsoft

user's guide.

Microsoft® Broadband Networking

Wireless Adapter | MN-510/MN-520

Caution

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

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

Do not use onboard an aircraft or in hazardous locations such as gas stations or other explosive environment.
For indoor use only.

Device should be located at least 5 cm (2 inches) away from any human body in order to minimize RF exposure.

Avertissement

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

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

Ne pas utiliser dans un avion ou en présence de vapeur explosive (station-service).

N'utiliser qu'à l'intérieur.

Ce dispositif doit être à plus de 5 cm (2 pouces) de toute personne sinon l'utilisateur devrait limiter le temps d'exposition.

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1 | introduction.

Introduction to the Microsoft Wireless Adapters

Congratulations on the purchase of your Microsoft® Broadband Networking Wireless USB Adapter or Microsoft Broadband Networking Wireless Notebook Adapter! A Microsoft wireless adapter connects to a universal serial bus (USB) port or inserts into a PCMCIA slot on your computer. This allows your computer to share an Internet connection, files, printers, and other devices with other computers on a wireless network. This chapter describes your wireless adapter and explains its connections.

Your box contains the following:

Setup CD-ROM Install This First!

Wireless USB Adapter

or

User's Guide and *Start Here* Guide

Wireless Notebook Adapter

Microsoft wireless adapters can be connected to wireless networks in several different ways. For an overview of setup methods, see Chapter 2. For installation instructions, see Chapter 3.

The Wireless USB Adapter

The Microsoft Wireless USB Adapter has a USB cable, an adjustable antenna, and two green indicator lights (one for power and one for wireless status) on the top.

Antenna

USB Cable

USB Connector

Wireless Status Light

Power Light
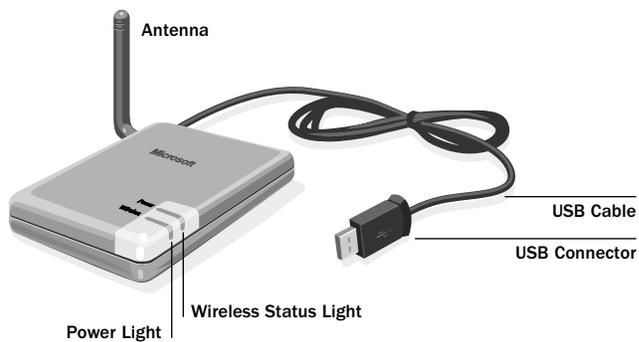
The USB adapter plugs into a USB port on your computer. USB ports are rectangular and about a half inch wide. They may be located on the back or front of the computer.
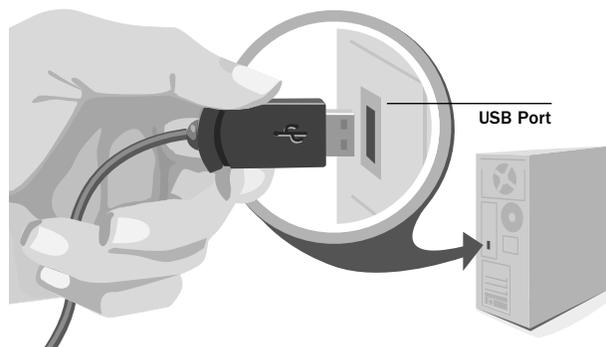
USB Port

The USB adapter has no internal power source, so it must connect to a high-powered (500 mA) USB port. In general, the ports on your computer are high-powered, whereas many USB ports on USB hubs, keyboards, or monitors are not high-powered.

After the USB network adapter is connected, its indicator lights will be on, off, or blinking, indicating the following states.

Light	On	Off	Blinking
Power	receiving power from USB port	not receiving power	(not applicable)
Wireless status	radio enabled	radio disabled	wireless data being sent or received

When placing and positioning your adapter and antenna, you should take wireless network range, coverage, and interference factors into account. For a discussion of these factors, see "Understanding Wireless Connections" in this chapter.

The Wireless Notebook Adapter

The Microsoft Wireless Notebook Adapter is a credit card-shaped device that fits into the PCMCIA slot on a laptop or other computer. The PCMCIA slot is typically located on the side of the computer.

Wireless Status Light
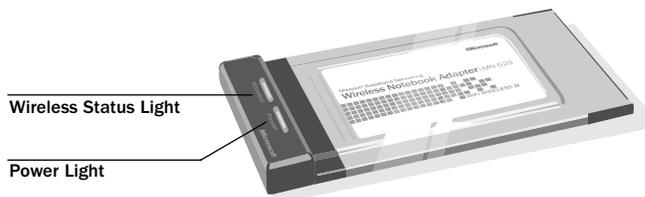
Power Light

When the adapter is inserted, the two indicator lights on the end of the card will either be on, off, or blinking, indicating the following states:

Light	On	Off	Blinking
Power	receiving power from host computer	not receiving power	(not applicable)
Wireless status	radio enabled	radio disabled	wireless data being sent or received

Wireless network range, coverage, and interference factors may affect the performance of your wireless adapter. For a discussion of these factors, see "Recommendations for Best Wireless Performance" in this chapter.

Understanding Wireless Connections

Your adapter uses a wireless protocol called IEEE 802.11b, or Wi-Fi (wireless-fidelity), which works by radio transmission. Although wireless transmission speed is usually faster than broadband connection speed, it is slower than Ethernet.

Wi-Fi radio waves travel in all directions, and can transmit through walls and floors. Wireless transmission can theoretically cover up to 1,000 square feet and occur at speeds of up to 11 megabits per second (Mbps), but actual network range and data throughput rate will be less, depending on several factors.

Recommendations for Best Wireless Performance

The following information will help you achieve the best wireless range, coverage, and transmission rate from your wireless devices:

⬦ Important
Do not rely on radio transmission limitations to secure your network. Enable wireless security (WEP) to protect your network from unwanted access. For more information, see "Understanding Wireless Security (WEP)" in this chapter.

- Radio signals can travel farther outside of buildings, and the best performance is when wireless components are in direct line of sight to one another.

- Putting wireless components in high places helps avoid physical obstacles and provides better coverage to upper stories of buildings.

- Building construction such as metal framing, UV window film, metallic paint, and concrete or masonry walls and floors will reduce radio signal strength. Try to avoid putting wireless components next to walls, fireplaces, or other large, solid objects; or next to large metal objects such as computer cases, monitors, and appliances.

- Wireless signal range, speed, and strength can be affected by interference from neighboring wireless networks and devices. Electro-magnetic devices such as televisions, radios, microwave ovens, and cordless phones, especially those with frequencies in the 2.4 GHz range, may also interfere with wireless transmission.

- Standing or sitting too close to wireless equipment can also affect radio signal quality.

Adjusting the Antennas

You can adjust the wireless antennas for the best radio reception. Start with the antenna pointing straight up, and adjust the antenna if wireless reception is poor. Certain areas, such as directly below the antenna, get relatively poor reception. Pointing the antenna toward another wireless component does not improve reception. The antennas should not be placed next to large pieces of metal, because this can cause interference.

Wireless Range Table

The following table shows the interaction between wireless coverage area and transmission speed for Microsoft wireless components under typical installation circumstances.

Data Rate	Open Environment	Closed Environment
11 Mbps	up to 900 feet	up to 160 feet
5.5 Mbps	up to 1300 feet	up to 200 feet
2 or 1 Mbps	up to 1500 feet	up to 300 feet

Understanding Wireless Security (WEP)

Anyone within wireless range who knows your wireless network name will be able to access the network and any data that is being transmitted over it, unless you enable wireless security. Microsoft wireless components use wireless security called Wireless Equivalent Privacy (WEP) to prevent unauthorized users from accessing your network. A network key—called a WEP key—encrypts, or codes, data so that it is readable only by other computers that have the key. The WEP key is stored on each networked computer, so that data can be encrypted and decrypted as it is transmitted over the network.

It is recommended that you enable WEP on your wireless network. If you connect your adapter to a Microsoft infrastructure network that has WEP enabled, the Setup Wizard can determine the network's WEP key and apply it to your adapter.

If setup cannot determine the WEP key, or you are connecting to a non-Microsoft infrastructure network, you can find the WEP key in the Broadband Network Utility or other network utility program, and enter it manually during setup.

For an ad hoc network, you can set the WEP key in the Broadband Network Utility after setting up each adapter. Make sure that every computer on the network uses the same WEP key.

For more information about WEP and security, see "Secure Your Network" in Chapter 5.

2 | planning.

Wireless Adapter Setup Options

The easiest and fastest way to set up your Microsoft® Broadband Networking Wireless USB Adapter or Microsoft Broadband Networking Wireless Notebook Adapter is by the setup method described in the *Start Here* guide or the "Typical Setup Method" in Chapter 3 of this manual. The Setup Wizard leads you through the adapter installation, connection, and configuration process.

If you are connecting to a wireless network through a Microsoft Broadband Networking Wireless Base Station or other base station, gateway, or router, make sure the base station is installed and your Internet and wireless connections are working correctly through the base station before you set up your adapter. If you are connecting to a base station, your finished adapter setup will resemble the following diagram.

Active Internet Connection

Broadband Modem
(DSL or Cable)

Wireless Base Station

First Computer
Wireless USB
Adapter shown

Second Computer
Wireless Notebook
Adapter shown
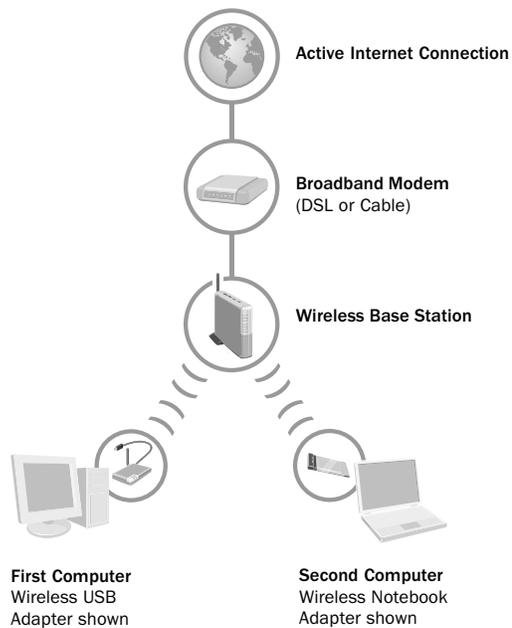
You can use the typical setup method described in the *Start Here* guide or Chapter 3 of this manual on a computer that:

- Is running Microsoft Windows® XP, Windows Millennium Edition, Windows 2000, or Windows 98.

- Is not currently connected to any other networks or the Internet.

- Has an available USB port or PCMCIA slot.

If you have a different computer configuration or if you want a different setup method, see "Adapter Connection Options" in this chapter.

Types of Wireless Networks

A Microsoft wireless adapter can connect to a wireless network by accessing a central wireless access point, gateway, or router, such as a Microsoft Wireless Base Station. Connecting to a network through a central point is called infrastructure mode. This type of network is often used when a broadband Internet connection will be shared among computers, or when there are more than two devices on a wireless network.

A wireless adapter can also join a computer-to-computer network by connecting directly to wireless adapters that are installed on other computers. Connecting directly to other computers without a central point is called ad hoc mode. This type of network is often used when only two devices are being connected, when there is no sharing of a broadband Internet connection, or when the connection to another computer is intended to be temporary.

Comparison of Infrastructure and Ad Hoc Networks

Each of these types of networks has different characteristics that fit different needs. The following sections discuss these network types to help you determine your best adapter setup option.

Security

Most wireless base stations and routers, such as the Microsoft Wireless Base Station, include a built-in firewall and network address translation (NAT), which provide security for your broadband Internet connection. This security is especially important when an "always-on" broadband Internet connection is shared among computers on a home or small-office network. When a base station is installed between your Internet connection and your computers, intruders from the Internet cannot detect your computers, so they cannot access your files or data.

Computers on an ad hoc network may be able to share an Internet connection that is set up on one of the computers. However, firewall and NAT security is not built in and must be configured on the computer that is sharing the Internet connection. For more information about security, see "Securing Your Network" in Chapter 5.

Connectivity

On an infrastructure network, any computer on the network can access the base station and share a broadband Internet connection regardless of the state of the other computers on the network. Only the base station must be turned on and operating properly for a computer to access the Internet.

On an ad hoc network, any two computers that are turned on and operating properly can access each other, regardless of the state of other devices on the network. For computers on the network to be able to access the Internet, the computer sharing the Internet connection must be turned on and operating properly.

Ease of Setup

Setting up and configuring a base station may be more complex and time consuming than setting up a computer-to-computer connection. However, to permanently connect each computer to the network, you only need to set up one connection, one time.

Ad hoc connections between wireless computers are easy and quick to establish. Wi Fi–compatible wireless adapters can detect and join any other wireless devices within range. However, ad hoc connections must be reestablished individually every time the computers connect.

Stability

On an infrastructure network, the basic structure of the network stays the same regardless of how many or what types of devices are added to it. The network's central point remains in one place, and Internet and wireless network settings do not change.

On an ad hoc network, network characteristics, such as the number of nodes, location of network components, and Internet connectivity, may change as computers join or leave the network. Ad hoc networks are often intended to be temporary.

Central Management Capability

On an infrastructure network, you can control access to the wireless network through the base station and restrict access to only certain computers.

On an ad hoc network, any computer that has the network name can join the network, unless you enable wireless security (also known as Wired Equivalent Privacy, or WEP).

Connecting to Other Networks

On infrastructure networks, you can connect other wired or wireless networks to the base station, allowing a computer to access computers on other networks through the base station.

On ad hoc networks, a computer can access only one wireless network at a time. To access an Ethernet network, the computer needs an Ethernet card and cabling.

Adapter Connection Options

You can use the Setup Wizard and the setup instructions in
Chapter 3 to connect Microsoft wireless adapters in several
different ways. You can join an infrastructure or ad hoc network, or
connect to Microsoft or non-Microsoft wireless components.

Connect to a Microsoft Wireless Base Station

If you have already set up a Microsoft Wireless Base Station as the
central point of a wireless network, you can use the typical setup
method in Chapter 3 to connect to it, as shown in the following
diagram. This makes for an easy, seamless setup experience,
because the Setup Wizard can read the wireless network settings
from the floppy disk that was created during base station setup,
and can apply those settings to configure your adapter.

Active Internet Connection

Broadband Modem
(DSL or Cable)

Wireless Base Station

First Computer
Wireless USB
Adapter shown

Second Computer
Wireless Notebook
Adapter shown
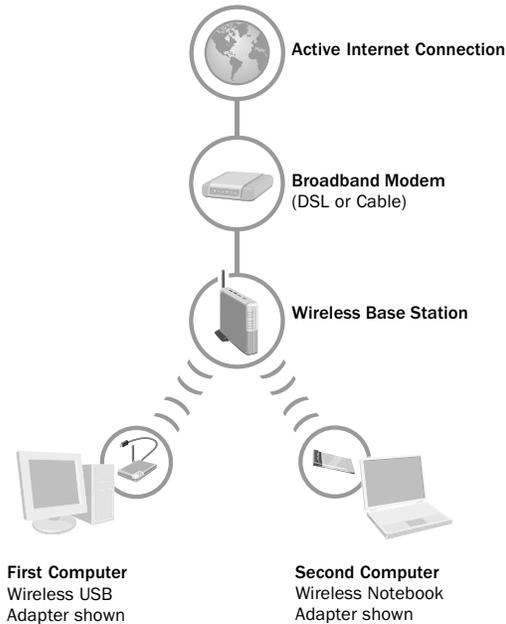
Connect to Other Microsoft Wireless Adapters

You can also use the typical setup method in Chapter 3 to set up two Microsoft wireless adapters, or to connect to another wireless adapter, to create an ad hoc network. The following diagram shows an ad hoc wireless setup.

First Computer   **Second Computer**

If you share an Internet connection through a Windows XP–based computer, be sure to address security and connectivity issues for the shared Internet connection.

Connect to a Non-Microsoft Wireless Network

You can connect a Microsoft wireless adapter to an infrastructure network that uses a non-Microsoft router, gateway, or wireless access point as its central point. You can also connect to Wi-Fi compatible, non-Microsoft adapters in ad hoc mode. You may need to choose or enter some wireless network settings manually during setup. For instructions, see page 16.

Microsoft wireless adapters will not work on Macintosh or other computers that are not running Windows.

Set Up Previously Networked Computers

You can disconnect your computers from an existing network and install a wireless adapter on each computer. For instructions, see page 16.

Set Up a Base Station Through a Wireless Adapter

You can use a Microsoft wireless adapter to configure a Microsoft Wireless Base Station and set up an infrastructure network. This is useful when you cannot set up the base station through an Ethernet connection. You will need additional wireless adapters to connect additional computer to the base station. For setup instructions, see page 17.

Set Up the Adapter Through Windows Plug and Play

If you connected your adapter before running the Setup Wizard, or if you do not want to use the Setup Wizard, you can set up your adapter drivers through Windows Plug and Play by using the New Hardware Wizard. For instructions, see page 17.

Important
Configuring a wireless base station through a wireless adapter is not recommended, because your Internet and network settings are vulnerable to wireless eavesdropping during setup. It is recommended that you use an Ethernet connection to set up a wireless base station, and then switch to a wireless connection if desired.

Determining Your Network Settings

If your system matches the configuration described at the beginning of this chapter and you are connecting to a Microsoft wireless network, the Setup Wizard can detect your settings automatically and use them to set up your adapter. However, if your system configuration or chosen setup option requires you to enter your Internet, wireless network, or workgroup settings manually, the following instructions will help you locate them. You can record this information on the inside back cover of this *User's Guide* for future reference.

To determine your workgroup name in Windows XP or Windows 2000

1. Click **Start**, then click **Control Panel**, and then double-click **System**.

2. For Windows XP, click the **Computer Name** tab.
   For Windows 2000, click the **Network Identification** tab.

To determine your workgroup name in Windows 98

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

2. Double-click **Network**, and then double-click **Locating your network workgroup**.

To determine your Internet settings

Your Internet settings may include such information as dynamic or static IP address, username, password, primary and secondary DNS, and default gateway. To determine these:

- Use your modem's utility program if you have one.

- Call your Internet service provider or locate the documentation they sent you when you signed up for DSL or cable service.

- Before starting setup or disconnecting your modem, you can use the Windows Network or Network Connections control panel to determine the settings. For more information, see Windows Help.

To determine your wireless network settings

- If you are connecting to a Microsoft wireless network, use the Broadband Network Utility to determine your wireless network name, channel, and WEP security key (if set).

- If you have a non-Microsoft wireless network, use your network utility program to determine the settings.

3 | setup.

Installing, Connecting, and Configuring Your Wireless Adapter

This chapter will guide you through the installation of the Microsoft® Broadband Networking Wireless USB Adapter or the Microsoft Broadband Networking Wireless Notebook Adapter.

Typical Setup Method

The typical way to set up your wireless adapter is to:

Step 1: Install the software.

Step 2: Connect the adapter.

Step 3: Test your network.

After you set up your adapter, your configuration will resemble the following diagram. Your adapter plugs in to the USB port or inserts into the PCMCIA slot on your computer to give the computer wireless networking capability.

First Computer   **Second Computer**

You can use this setup method on a computer that

- Is running Microsoft Windows® XP, Windows Millennium Edition, Windows 2000, Windows 98 SE or Windows 98

- Is not currently connected to any other networks or the Internet

- Has an available USB port or PCMCIA slot.

If you have a different computer configuration, or want a different setup method, see Chapter 2 to choose a setup option.

It is important to follow the setup steps in the exact order given. Install the software first, and then connect the adapter. This takes advantage of the software's ability to read settings from a previous setup and use them to configure your adapter.

If you are connecting to a wireless network through a wireless base station, router, or gateway, make sure the base station is installed and your Internet and wireless connections are working correctly through the base station **before** you set up your adapter. In this setup method, you will install the adapter on a different computer than the one that is connected to the base station.

Step 1: Install the Software

1. Take the following items to the computer that you want to network:

- The Microsoft Broadband Networking Setup CD-ROM

- The Microsoft Wireless USB Adapter or Microsoft Wireless Notebook Adapter

- These installation instructions

- If you have one, the floppy disk, printout, or written record of network settings that you created during the setup of previous computers on the network

2. Insert the Microsoft Broadband Networking Setup CD-ROM into the CD-ROM drive. The Setup program should start automatically after a few seconds. If it does not, on the Microsoft Windows® desktop (or the **Start** menu, depending on your operating system), click **My Computer**, double-click the drive that contains your Setup CD-ROM, and then double-click **Setup** or **Setup.exe**. The Welcome screen should appear.

3. Follow the instructions in the Setup program, choosing to set up the USB or notebook wireless adapter.

When you are prompted, choose whether you are connecting the wireless adapter to a base station (infrastructure mode), or connecting to another wireless adapter to set up an ad hoc network. For more information on these options, see "Types of Wireless Networks" in Chapter 2.

If you have a floppy disk of network settings that you saved from the setup of another computer on the network, insert the disk when prompted. If you do not have this disk, you may need to select your wireless network name (SSID) and WEP key during setup.

Step 2: Connect the Adapter

1. When the software instructs you to connect your wireless adapter, do one of the following:

- **If you have a USB adapter**, connect the adapter cable to an available, powered USB port on your computer.
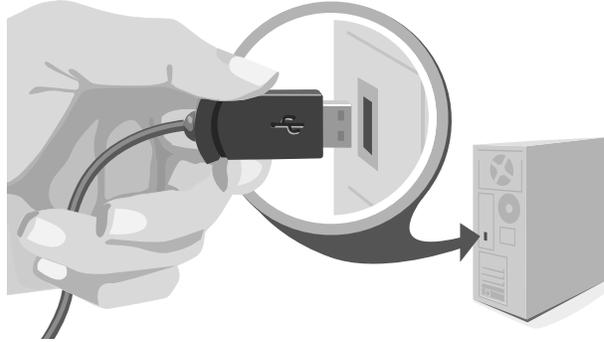
- **If you have a Notebook adapter**, insert it into the PC Card (PCMCIA) slot on your computer.
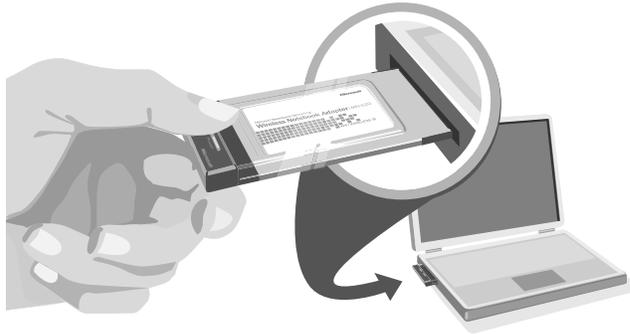
2. Continue following the instructions in the Setup Wizard to configure your adapter.

3. Click **Finish** to exit the Setup Wizard and start the Broadband Network Utility.

4. Remove the Setup CD-ROM and the floppy disk (if used) from the disk drives. Keep them to use for setting up additional computers.

Note
If your modem has an Ethernet connection, it is recommended that you connect it to a base station to share your Internet connection. If you share an Internet connection through a Windows XP–based computer instead of through a base station, be sure to address security and connectivity issues for the shared Internet connection.

Note
You can leave your computers on while you disconnect your network and connect your adapters.

Step 3: Test Your Network

1. View the status of your network in the Broadband Network Utility. Ensure that you can see your computer and the other computers on your wireless network on the status screen.

2. If your broadband Internet connection is being shared through your wireless network, open your Web browser and try accessing a Web site such as www.microsoft.com. If your network is working properly, you will be able to access the Internet from he computer you just set up.

Connecting to Non-Microsoft Wireless Networks

To add a Microsoft wireless adapter to a non-Microsoft wireless network, run the Setup Wizard as instructed in this chapter. Choose to connect your adapter to another networking device (such as a non-Microsoft wireless access point) or to another computer (that has a non-Microsoft wireless adapter), rather than to a Microsoft base station.

After connecting your adapter as instructed, select the SSID, wireless channel, and WEP encryption key (if used) of the wireless network you want to connect to. To determine these settings, refer to your network documentation or utility program.

Setting Up Previously Networked Computers

You can disconnect your computers from an existing network and install a Broadband Networking Wireless USB Adapter or Broadband Networking Wireless Notebook Adapter on each computer. After disconnecting the computers, run the Setup Wizard on each computer as instructed in this chapter.

Keep in mind that wireless transmission speeds, although faster than most broadband Internet connections, are still slower than Ethernet networks. Depending on how you use your computers, you may want to keep them connected to an Ethernet network.

If Your Computers Are on a Domain

If your computer is already a member of a domain—for example, if you have a laptop that is on a domain at work, and you want to connect it to your home wireless network—the Setup Wizard will detect this and skip the file-sharing and printer-sharing sections of setup. You will not be able to share files and printers with other computers on the wireless 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 wireless network. However, you will then have to switch back to the domain to access your work network. For more information, see your Broadband Network Utility Help.

Using a Wireless Adapter to Configure a Wireless Base Station

You can configure a Microsoft Broadband Networking Wireless Base Station wirelessly by installing a Microsoft wireless adapter on the computer that was originally connected to your broadband modem, and configuring the base station through this adapter. (Your modem must connect to the base station through an Ethernet cable.)

Configuring a wireless base station through a wireless adapter is not recommended, because your Internet and network settings are vulnerable to wireless eavesdropping during setup. Also, the Setup Wizard will be unable to detect your Internet settings and you will have to enter these manually. For these reasons, it is recommended that you set up the base station through an Ethernet connection.

If you do decide to set up your base station wirelessly, follow these instructions:

1. Make sure you know your Internet settings. Then, disconnect your computer from your modem.

2. Run the Setup Wizard and choose the base station option.

3. Choose to continue when the Internet is not detected.

The Setup Wizard will direct you when and how to connect and configure your base station and adapter. For more information on setting up a base station, see your base station documentation.

If You Connected the Hardware First

If you connect your wireless adapter before running the Setup Wizard, Windows Plug and Play will display the New Hardware Wizard, Add New Hardware Wizard, or Found New Hardware Wizard (depending on your operating system).

If you want to use the Broadband Networking Wireless Setup Wizard to install your adapter, you can cancel the New Hardware Wizard, disconnect your adapter, and then run the Setup Wizard before reconnecting the adapter.

If you want to use the New Hardware Wizard to install your adapter, see "Installing Adapters Through Plug and Play" in this chapter.

Installing Adapters Through Plug and Play

You can install your adapter by using the Windows New Hardware Wizard, Add New Hardware Wizard, or Found New Hardware Wizard (depending on your operating system).

If you want to use the New Hardware Wizard to install your adapter, insert the Microsoft Wireless Setup CD-ROM into your CD-ROM drive, and in the New Hardware Wizard, specify the CD-ROM drive as the location to search for a driver.

After the wireless adapter drivers are installed, you can join available wireless networks. For instructions on connecting to wireless networks, see "Connect to Other Wireless Networks" in Chapter 4. You will still need to install the Microsoft wireless software to be able to use the Broadband Network Utility or Help.

For more information about Plug and Play, see Windows Help.

4 | **networking.**

Using Your Network

After setting up your wireless network, you can perform common networking tasks, such as making printers and files available to other computers, and playing multiplayer games.

This chapter provides information about:

- Logging on to your network.
- 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.
- Connecting to other wireless networks.

Logging on to Your Network

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

If you have Microsoft® Windows® 98, Microsoft Windows 98 SE or Microsoft Windows Millennium Edition, do not click **Cancel** during the logon process, even if you decide to leave your password blank. Type your user name, type your password (or leave it blank), and then click **OK**.
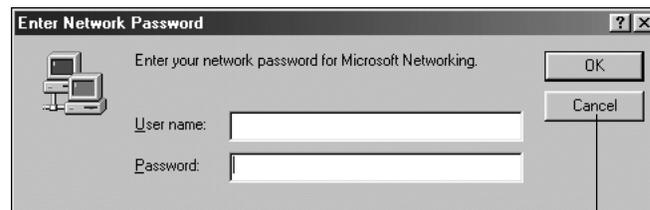
Enter Network Password	? X
Enter your network password for Microsoft Networking.	OK
User name:	Cancel
Password:	

Do Not Click Cancel

If you are already in the process of using Windows, and you haven't logged on to your network, you can log off and then log back on.

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 in the drop-down box, and then click **OK**.)

3. Log on to your network as instructed on the previous page.

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

Allowing Access to an Internet Connection

If you have the Microsoft Broadband Networking Wireless Base Station and a broadband connection to the Internet, the other computers on your network can share that original Internet connection. Internet sharing is automatically configured by the setup wizard when you install the base station.

If you do not have a base station, you can configure one of your computers to share its Internet connection, provided you have Microsoft Windows XP, Microsoft Windows 2000, Microsoft Windows Millennium Edition, or Microsoft Windows 98 Second Edition.

These versions of Windows include a feature called Internet Connection Sharing, which allows computers on a network to access online services through a single Internet connection.

If you use your Windows–based computer as your Internet access point (or Internet Connection Sharing host), you must leave that computer turned on for the other computers in your network to connect to the Internet. Also, to share your Internet connection through Internet Connection Sharing, you must take additional steps after installing your Wireless Network Adapter.

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

The procedure for accessing the Internet is the same regardless of whether your Internet connection is shared through a Base Station or through Internet Connection Sharing in Windows.

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 that 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 may have chosen to share all of your files and folders with the network. If you decide that you only want to share 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. In this case, you would share the Kids folder, and not share the other folders on your computer.

Only the computer users on your network will have access to the files you share. At times, you may want to prevent users, such as your children or your roommates, 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 Microsoft Windows Millennium Edition, look up "controlling access.")

Although you can share files, printers, and other devices on your network, you cannot share software products such as Microsoft Word or Microsoft Excel. Each computer on the network must have those programs installed, and then 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 into 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 Microsoft Windows 98 Help.

To access and organize your files

Windows Explorer displays the hierarchical structure of files, folders, and drives on your computer. 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**. (In some versions of Windows, you can skip the **Accessories** step.) For more information about using Windows Explorer, see Windows Help.

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

My Network Places presents a view of the network similar to the view of your computer presented by Windows Explorer. Use My Network Places 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.

To open a file stored on another computer on the network

In order to complete this procedure, you must have on your local computer the type of program (such as Microsoft Word or Microsoft Excel) that was used to create the type of file you're trying to open. For example, if you want to open an .xls file, you must already have Microsoft Excel installed on the computer from which you're opening the file.

1. Open My Network Places or Network Neighborhood.

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 elsewhere on the network

1. Open Windows Explorer, My Network Places, or Network Neighborhood. Your computer and the other computer to which you want to copy a file will appear in the same window.

2. On your computer (which is often represented by drive letter C:), locate the file that you want to copy.

3. Click to highlight the file.

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

5. Click the destination folder on the other computer (which is usually represented by a drive letter other than C:). You may need to scroll through the window to find the folder you want.

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

Allowing Access to Printers

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. For complete instructions and information about sharing printers, see Windows Help.

Note that there is a difference between a "network printer" and a local printer that you share with your network. A network printer is connected directly to a network, rather than being attached to a particular computer. The type of printer that you are likely to use with the Broadband Network Utility is a local printer that is attached to a specific computer and can be shared with the other computers on your network.

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).

- Install the printer drivers on each networked computer that will use the shared printer.

- Run the Add Printer Wizard on each computer that you want to print from.

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

Note
Some printer drivers are not designed for sharing printers. For more information, see the documentation that came with your printer.

To print to a shared 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**.

For more detailed instructions, look up "printers" in Windows Help.

About Sharing Other Peripheral Devices

In addition to most printers, you can share storage devices—such as hard drives, CD-ROM drives, and Zip drives—on your network.

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. Scanners, Web cameras, and CD-ROM burners cannot be shared with other computers on your network.

About Reading E-Mail Messages on a Network

You can access your e-mail messages from each networked computer the same way that you would access your 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 Web 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 the Network and 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 check list 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.

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

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

- If you have a base station, router, or gateway, make sure that it is configured to work with the ports that your game uses.

For information about playing games on the Web, and for other game-related information, see the following Web site: http://www.microsoft.com/broadbandnetworking/.

Connecting to Other Wireless Networks

Many places, such as offices, hotels, and airports, provide wireless networks that you can access from a portable computer while you're away from your own home or office.

If your operating system is Windows XP and you have a Microsoft Broadband Networking Wireless USB Adapter or Microsoft Broadband Networking Wireless Notebook Adapter, you can connect to other wireless networks, assuming that you have the necessary permissions and passwords for those networks.

If you do not have Windows XP, you can use the Broadband Network Utility to connect to other wireless networks. For more information, see "View and Change Network Settings" in Chapter 5.

For example, if you are traveling and have brought your laptop computer for a flight (with the Microsoft Wireless Notebook Adapter), you can automatically switch to the airport's wireless network.

To connect to an available wireless network

1. In the Windows notification area (the area on the taskbar to the right of the taskbar buttons), right-click the Wireless Network Connection icon, and then click **View Available Wireless Networks**.

Wireless Network
Connection Icon

2. In **Connect to Wireless Network**, under **Available Networks**, click the wireless network that you want to connect to.

3. If wireless security (also known as Wired Equivalent Privacy, or WEP) is enabled on the network you are joining, type the key in the Network Key field. (A network administrator, or the person who set up the local-area network, should have the key that you need for this field.)

4. Click **Connect**.

5. To configure additional wireless network connection settings, or if you are having difficulty making a connection to the wireless network that you selected, click **Advanced**, and then configure the settings on the **Wireless Networks** tab.

5 | monitor.

The Broadband Network Utility

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

- Secure your network.

Note
The information displayed in the main window of the Broadband Network Utility may vary depending on your network configuration.

To open the Broadband Network Utility

- Click **Start**, point to **Programs**, and then click **Broadband Network Utility**.
  -or-

- Double-click the Broadband Network Utility icon ⊞ in the notification area of your desktop.

Your computer status

Your network status
(This page will look different
if your network does not use
a base station.)

Your Internet
connection status
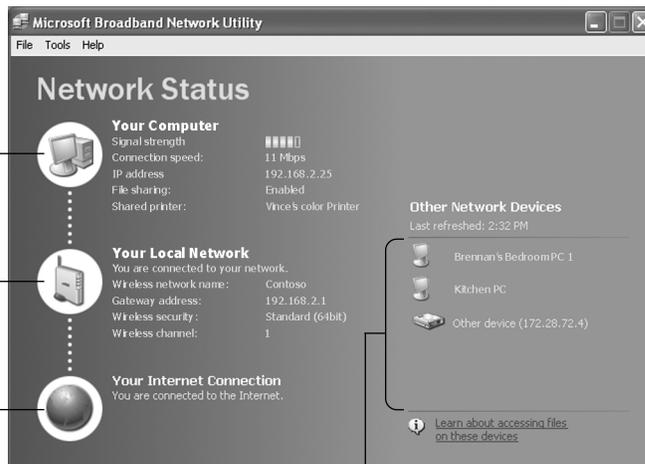
Status of all computers and
devices in your workgroup

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

If you requre more information on the status settings provided in the Broadband Network Utility, 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 there is a problem with your computer, on the **Help** menu of the Broadband Network Utility, click **Microsoft Broadband Network Utility Help.** In the left pane of the Help window, 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, such as the workgroup name.

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.

View the Status of Your Internet Connection

This area of the Broadband Network Utility indicates whether you are currently connected to the Internet.

View the Status of Other Network Devices

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

To refresh the network device list

- Right-click the icon for the active devices in the network device list, and then click **Refresh list**.

To remove an inactive device from the network device list

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

View and Change Network Settings

You can view network settings from the Broadband Network Utility. On computers running Windows 2000 or Windows XP, you must be logged in as an administrator to change network settings.

To view network settings

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

There are three types of settings that you can view and change from the **Computer Settings** dialog box:

- **Adapter settings**. These are the settings that you see when you first open the **Computer Settings** dialog box. On the **Adapter** tab, you can change the adapter that you are currently using. You can also view the IP address for your computer and local network and the default gateway IP address.

- **Wireless settings**. On the **Wireless** tab, you can change network modes and view or change the network name (SSID), wireless channel, and data rate.

- **Encryption settings.** On the **Encryption** tab, you can turn wireless security (WEP) on or off, change the encryption strength, and create or change your WEP keys.

Update Network Software, Drivers, and Firmware

Occasionally, Microsoft may 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.

You can also check for upgrades on the Web site from the Broadband Network Utility.

To upgrade network software, drivers, or firmware

1. Open the Broadband Network Utility.

2. On the **Help** menu, click **Update**.

3. Follow the instructions on the Web site to download the most current software, drivers, or firmware.

Secure Your Network

Protecting the data and programs on your network computers from security threats, such as eavesdroppers, 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 Unauthorized Access

Because wireless networks use radio signals, it is possible for other wireless network devices outside your immediate area to pick up the signals and either connect to your network or capture the network traffic. To help prevent unauthorized connections or the possibility of eavesdroppers listening in on your network traffic, do the following:

- If you have a base station, router, or gateway, position it away from windows and toward the center of your home. This decreases the strength of the signal outside your home.

- Enable 128-bit wireless security (WEP) on your network when you run the Setup Wizard. Encryption scrambles the data so that it is decipherable only with the information necessary to decrypt it. If you did not enable wireless security when you ran the Setup Wizard, you can do so from the Broadband Network Utility.

Protect Your Network from Computer Viruses

To avoid having a problem with viruses on your network, follow these suggestions:

- 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 program immediately to minimize the chances of losing data.

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

    - Do not load a program from an untrusted source onto one of your network computers.

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

    - Use your antivirus software to scan all floppy disks before copying or opening files from them, or before starting your computer from them.

Protect Your Network from Hackers

If you have not already done so, consider purchasing the Broadband Networking Wireless Base Station (sold separately) to establish a security layer between your network computers and the Internet. The security mechanisms provided by the Broadband Networking Wireless Base Station include:

- Network Address Translation (NAT)
- Firewall

Network address translation hides the IP addresses of the computers on a network from the Internet so that only the base station's IP address is visible. Hiding network IP addresses provides another layer of protection against hackers trying to access the computers on your network.

A firewall is a barrier that helps protect your network from outside intruders. Like an actual firewall built to prevent fire from spreading between adjoining buildings, computer firewalls help prevent the spread of 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.

Note
You should not enable Windows XP Internet Connection Firewall (ICF) on virtual private network (VPN) connections or on client computers because ICF will interfere with file and printer sharing.

If you do not have the Microsoft Broadband Networking Wireless Base Station installed on your network and you are running Microsoft Windows® XP on your computer, you may want to consider using the firewall provided with your Windows XP operating system. For information about how to use your Windows firewall services, see Windows Help.

6 | troubleshooting.

Basic Troubleshooting

This chapter will help you solve the most common installation and setup problems that you may have with the Microsoft® Broadband Networking Wireless USB Adapter or Microsoft Broadband Networking Wireless Notebook Adapter. Issues are covered for the following areas:

- Software

- Hardware

- Networks

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

Software

This section will help you solve the most common installation and setup problems for the software that came with your Microsoft Broadband Networking wireless adapter.

I'm having problems running the Broadband Network Utility Setup Wizard.

- Verify that your computer conforms with the minimum system requirements for a Microsoft Wireless USB Adapter or Microsoft Wireless Notebook Adapter.

  During a typical installation, the Broadband Network Utility is automatically installed when you set up your network; however, if you do not have the minimum system requirements, the software may not install fully or at all. If you are using a computer that is running Microsoft Windows® 2000, the Broadband Network Utility must be installed for WEP support. If WEP is not supported on one of the computers, then the network and other devices on the network cannot communicate with the computer that does not support WEP.

- Turn off any virus detection software.

- Make sure that you are installing the software before installing the hardware.

For more information about the Broadband Network Utility, see Chapter 5.

I'm getting an error message during installation or setup.

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

Error message	Details
Setup was unable to detect your network adapter	Make sure that cable connections are securely fastened and cards are properly seated, the adapter is receiving power, and is connected to a powered Universal Serial Bus (USB) port. If none of the above fix the problem, try connecting the adapter to another USB port or seating the PC Card in another slot if available. **Action:** Click Help in the error message screen.
Setup was unable to detect a connection to the Internet	Make sure that your broadband modem is turned on and working. **Action:** Click Help in the error message screen.
Setup was unable to detect any available wireless networks	Make sure that the devices on your network have the same wireless network name (SSID), the same Wireless Encryption Protocol (WEP) security key, and are using the same channel. **Action:** Click Help in the error message screen.

Hardware

This section will help you solve the most common installation and setup problems for the Microsoft wireless adapters.

I'm having problems installing my Microsoft wireless adapter or my computer is not detecting it.

- Make sure the wireless cards are properly seated in the correct slots. See Chapter 1 and Chapter 3 for more information.

My installed Microsoft wireless adapter is not recognized.

- Make sure the cable connections are not loose, the cards are properly seated, and the adapter is receiving power and is connected to a powered USB port.

- Determine what version of the Windows operating system is installed on your computer.

- If you are installing a USB adapter or a PC notebook adapter, remove the adapter or card from the computer and then reattach the adapter to the computer.

- Try connecting the adapter to another USB port or seating the PC Card in another slot if available.

My wireless adapter cannot detect a wireless network.

- Verify that your broadband modem is turned on and working.

- Verify that the devices on your network have the same wireless network name (SSID), have the same wireless security (WEP) key, and are using the same channel.

- Verify that physical barriers and other forms of interference are limited.

  Physical barriers between the computer and a wireless router or hub, and interference from microwave ovens and other wireless devices—including cordless phones in the 2.4 GHz range and neighboring wireless networks—can affect the signals that are transmitted between the wireless router or hub and a wireless adapter or PC Card.

For more information about the Microsoft wireless adapters, see Chapter 1 and Chapter 3.

Networks

This section will help you solve the most common network installation and setup problems for a Microsoft wireless adapter on a network.

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

- If you cannot access the Internet, open the Broadband Network Utility and check the status of your connections. For more troubleshooting information about this problem, see Broadband Network Utility Help.

- If you cannot access files or folders on another computer that have been made available to the network, make sure that you are logged on to your computer and the network, and that the files or folders have been made available to you. For more information about making files and folders available to the network and how to verify access privileges, see Chapter 4. For more troubleshooting information about this problem, see Broadband Network Utility Help.

- 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, see Chapter 4. For more troubleshooting information about this problem, see Broadband Network Utility Help.

- If you cannot use your e-mail application in the same way as you did before installing the adapter and the Broadband Network Utility, make sure that your POP3 and news settings in your e-mail application are correct.

  In your e-mail application, verify that you are using a full Internet designation, such as pop3.email.msn.com, for your mail client rather than a local designation, such as mail. For more information about obtaining a full Internet designation for your ISP, see the documentation that you received from your ISP. For more troubleshooting information about this problem, see Broadband Network Utility Help.

My network isn't working.

- Verify that the correct cables and cards are securely fastened and seated in the correct ports and slots.

- Verify that you have the correct network and workgroup settings.

  Incorrect network and workgroup settings will inhibit networked computers from communicating properly. For example, a computer may try to detect a network by using the wrong name or by using a different communication protocol than all of the other computers on the network.

My wireless network connection works occasionally.

- Make sure that your computer is within range of the router and that there is no interference from other wireless devices.

  Transmitted signals are affected by interference from other wireless devices—including 2.4 GHz cordless phones, microwave ovens, and neighboring wireless networks. Move the other devices as needed, and refrain from using them while you are on the network.

My shared Internet connection is slow.

Factors that affect shared Internet connection speed:

- The number of computers that are sharing the connection

- The range between your computer and the wireless router or hub

- Interference from other wireless devices

For additional help, see Broadband Network Utility Help and the Reference chapter of this guide.

reference.

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 Wireless USB Adapter or Wireless Notebook Adapter
Support Info 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 in the U.S. Call (905) 568-9641 in Canada.
Worldwide:	The support terms listed here are available in the United States only. Support outside the United States may vary. Please visit http://support.microsoft.com/ default.aspx?scid=/international.aspx? for regional contact details.
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 Online User's Guide, 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.

In addition, the following models have been approved under FCC certification rather than under the FCC Declaration of Conformity Process:

MN-500, FCC ID: HEDACC300568;

MN-510, FCC ID: HEDACCWN330168;

MN-520, FCC ID: HEDACC3501D68

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

Canadian Radiocommunication Regulations

This Class B digital apparatus complies with Canadian ICES-003

The term ''IC:'' before the certification/registration number only signifies that the Industry Canada technical specifications were met.

Cet appareil numérique de la classe B est conforme aux normes NMB-003 du Canada.

L'expression «IC:» avant le numéro d'homologation/enregistrement signifie seulement que les spécifications techniques d'Industrie Canada ont été respectées.

Limited Warranty

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

MANUFACTURER'S GUARANTEE AND LIMITATION OF LIABILITY

NOTE: The following guarantee is not restricted to any territory and does not affect any statutory rights that you may have.

The term "Hardware Device" means the enclosed Microsoft Hardware Device. This Manufacturer's Guarantee does not cover your data, or any separate software, whether or not packaged or included with the Hardware Device.

MICROSOFT GUARANTEE. Microsoft guarantees (this "Guarantee") that on the day you receive the Hardware Device and for the next two (2) years thereafter (a) the Hardware Device will be substantially free from defects in materials and workmanship, and (b) any support services provided by Microsoft will be substantially as described in applicable written materials provided to you by Microsoft, and Microsoft support engineers will use reasonable efforts, care and skill to solve any problem issues. In the event that the Hardware Device fails to comply with this Guarantee, Microsoft shall either, at Microsoft's option, (a) repair or replace the Hardware Device or (b) return the price you paid for the Hardware Device (if any), provided that you return the Hardware Device to Microsoft with a copy of your receipt of purchase. You may exercise this remedy without charge, except that you are responsible for any expenses you may incur. This Guarantee is void if failure of the Hardware Device results from any accident, abuse or misapplication. Any replacement Hardware Device shall be guaranteed for the remainder of the original Guarantee period or thirty (30) days, whichever is longer. Microsoft shall not be liable for any loss or damage that you could have reasonably avoided, for example, by backing up your software and files regularly.

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REGISTRATION. You need not return the registration card for this Guarantee to be effective.

BENEFICIARY. To the extent allowed by applicable law, this Guarantee is only made to you, the first user of the Hardware Device, and there are no third party beneficiaries of this Guarantee. It is not intended for and does not apply to anyone else (except as required by law).

GOVERNING LAW. If you acquired the Hardware Device in the United States of America, the laws of the State of Washington, U.S.A., apply to this agreement. If you acquired this Hardware Device in the European Union, Iceland, Norway or Switzerland then local laws apply. If you acquired this product in Canada, except where expressly prohibited by local laws, the laws in force in the Province of Ontario, Canada apply to this agreement and each of the parties hereto irrevocably attorns to the jurisdiction of the courts of the Province of Ontario and further agrees to commence any litigation which may arise hereunder in the courts located in the Judicial District of York, Province of Ontario.

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Limited Warranty Continued

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Technical Specifications

Wireless Adapters

Standards	IEEE 802.11b, Wi-Fi compliant. **USB Adapter:** USB 1.1
Host Interface	**USB Adapter:** Full speed USB compatible High-Powered Port **Notebook Adapter:** PC Card Type II slot Extended
Data Rate	1, 2, 5.5, 11 Mbps, with Auto-fallback support
Modulation	CCK, DBPSK, DQPSK

Range

Data Rate	Open Environment	Closed Environment
11 Mbps	up to 900 feet	up to 160 feet
5.5 Mbps	up to 1300 feet	up to 200 feet
2.0 or 1 Mbps	up to 1500 feet	up to 300 feet

Please see the Microsoft Broadband Networking Web site for the latest data: www.microsoft.com/broadbandnetworking/.

Frequency Range	ISM Band (2.400 to 2.4835 GHz)
Channels	1-11 United States, Canada Approved for use only in the United States and Canada.
Wireless Security (WEP)	Off, 64-bit, and 128-bit
Indicators	Wireless Activity LED, Power LED
Transmit Power	Greater than +15 dBm; less than +17 dBm
Operating Temperature	0 to 40 deg C
Storage Temperature	-20 to 60 deg C
Humidity	10 to 95 percent non-condensing
Emissions	FCC Part 15 Class B; Canada RSS-210
Safety	UL
Physical Dimensions	**USB Adapter:** 2.6" x 3.4" x 0.6" (66 x 86.4 x 15.2 mm) **Notebook Adapter:** 2.1" x 4.5" x 0.3" (53.3 x 114.3 x 7.6 mm)
Weight	**USB Adapter:** 3.7 oz (104.5 g) including cable **Notebook Adapter:** 1.42 oz (40.2 g)

System Requirements

To use the Microsoft Broadband Networking Wireless USB or Notebook Adapter:

- Microsoft Wireless Base Station (sold separately) or other 802.11b/Wi-Fi device or network

To use the Microsoft Broadband Networking Wireless USB Adapter:

- Personal computer with an available USB 1.0 or higher, full-speed compliant high power port

To use the Microsoft Broadband Networking Wireless Notebook Adapter:

- Personal computer with an available Type II Extended PC Card 16-bit slot

Additional requirements for using the Microsoft Broadband Networking Setup Wizard and Microsoft Broadband Network Utility:

- Personal computer with processor running Microsoft Windows 98, Windows 98 SE, Windows Millennium Edition (Windows Me), Windows 2000* Professional, Windows XP Professional, or Windows XP Home Edition operating system
- 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
- 28 MB 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
  *Setup features and functionality are limited on Windows 2000

Recommended:

- Personal computer with Ethernet network adapter for easiest Base Station setup
- Microsoft Mouse or compatible pointing device
- 3.5" high-density disk drive

Not all ISPs allow you to share a broadband connection. Please check with your ISP.

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 only allows for the transfer of information in 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 a wireless access point (such as a base station) instead of connecting to each other directly.
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	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 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 or 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 (if applicable):

Wireless Settings

Record the information used to configure a computer for wireless access to your network here. All computers accessing your network with a wireless connection need to use the same wireless settings.

Wireless network name (SSID):

Wireless security (WEP) key:

Wireless channel (ad-hoc networks only):

Wide Area Network 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 may 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):

Microsoft

www.microsoft.com/broadbandnetworking