WebRamp 361i Reference

For Windows and Macintosh

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Technical Support

Technical support is available by mail, fax, e-mail, or phone, during the hours 6 AM to 5 PM, Pacific Standard Time (U.S.). Before you contact Technical Support, please check the *WebRamp 361i Reference* for more information.

Mail: Technical Support, Ramp Networks, 3100 De La Cruz Boulevard, Santa Clara, CA 95054, U.S.A.

Fax: 1(408)988-6363, attention Technical Support

E-mail: support@rampnet.com

Phone: 1(408)988-5353

When you request support, be sure to include your WebRamp serial number, your name, company name, street address, email address, and phone number.

Ramp Networks, Inc.
3100 De La Cruz Boulevard
Santa Clara, CA 95054
U.S.A.

Safety Precautions

- Read and follow all warnings and instructions included with this product.

- Do not block the ventilation openings on the WebRamp. Do not expose the WebRamp (even if unplugged) to an environment that exceeds temperature and humidity specifications.

- Do not place cords or cables where they may be walked on or tripped over.

- Be sure to comply with any applicable local safety standards or regulations.

- General-purpose cables are provided with this product. Any cables or other requirements mandated by local authority are your responsibility.

- Never touch telephone wires or terminals unless the line has been disconnected.

- Avoid using telephone equipment or installing the product during an electrical storm.

- Never install telephone jacks, lines, network cables, this product, or power connections in wet locations.

FCC Notice

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

- Reorient or relocate the receiving antenna

- Increase the separation between the equipment and receiver

- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected

- Consult the dealer or an experienced radio/TV technician for help

ramp
NETWORKS

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DECLARATION OF CONFORMITY WITH FCC RULES
FOR ELECTROMAGNETIC COMPATIBILITY

Ramp Networks, Inc.
3100 De La Cruz Boulevard
Santa Clara, CA 95054

Declare under our sole responsibility that the product:

WebRamp 361i

to which this declaration relates complies with Part 15 of the FCC Rules. Operation is subject to the following 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.

Elie Habib
Vice President
Engineering Project Management
Ramp Networks, Inc.
November 22, 1999

Warranty and Software License

Your Ramp Networks product is covered by a Limited Warranty. Ramp Networks warrants that the product that you have purchased from Ramp Networks or from an authorized reseller is free from defects in materials or workmanship for one year from the date of purchase. Ramp Networks warrants its software for 90 days from the date of purchase and warrants that the software will execute its programming instructions when properly installed on the computer for which it is intended, and that the media upon which the software is recorded will be free from defects in materials and workmanship under normal use.

During the Limited Warranty period, Ramp Networks will repair or replace the product with the same or a similar model, which may be a remanufactured unit, at Ramp Networks' option, without charge for either parts or labor. Replacement parts assume the remaining warranty of the parts they replace. The sole remedy for software shall be to return the media to Ramp Networks for replacement. This Limited Warranty extends only to the original purchaser and is non-transferable.

What is NOT covered by this Limited Warranty:

- Unauthorized modification or misuse.

- Operation outside of the environmental specifications for the product.

- Damage due to lightning, "Acts of God," elements of nature, failure or fluctuation of electrical power, fire, theft, add-on items, or attachments.

- Damage from repair or replacement of warranteed parts by anyone other than Ramp Networks or a Ramp Networks authorized service provider.

- Third-party software applications shipped with the WebRamp.

In order to make a claim under this warranty, you must comply with the following procedure:

- Contact Ramp Networks Customer Support within the warranty period to obtain a Return Materials Authorization ("RMA") number.

- Return the defective product and proof of purchase, shipping prepaid, to Ramp Networks with the RMA number prominently displayed on the outside of the package.

If you are located outside of the United States or Canada, please contact your reseller in order to arrange for warranty service.

THE ABOVE WARRANTIES ARE MADE BY RAMP NETWORKS ALONE, AND THEY ARE THE ONLY WARRANTIES MADE BY ANYONE REGARDING THE ENCLOSED PRODUCT. RAMP NETWORKS AND ITS LICENSOR(S) MAKE NO OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING WITHOUT LIMITATION THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, REGARDING THE ENCLOSED PRODUCT. EXCEPT AS OTHERWISE EXPRESSLY PROVIDED ABOVE, RAMP NETWORKS AND ITS LICENSOR(S) DO NOT WARRANT, GUARANTEE, OR MAKE ANY REPRESENTATION REGARDING THE USE OR THE RESULTS OF THE USE OF THE PRODUCT IN TERMS OF ITS CORRECTNESS, ACCURACY, RELIABILITY, CURRENTNESS, OR OTHERWISE. THE ENTIRE RISK AS TO THE RESULTS AND PERFORMANCE OF THE PRODUCT IS ASSUMED BY YOU. THE EXCLUSION OF IMPLIED

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About This Reference

The *WebRamp 361i Reference* complements the WebRamp 361i Installation Card, providing detailed information about installation, features and capabilities, and troubleshooting and diagnostics.

The information in this book addresses both Windows and Macintosh users, and system differences are noted in text. Unless otherwise noted, Windows refers to Windows 95, Windows 98, and Windows NT 4.0.

What's in This Reference

This reference contains twelve chapters, four appendixes, and a glossary.

Chapter 1, "Before You Begin," gives a brief overview of the WebRamp 361i, tells you what's included in the WebRamp box, and what you need to set up your WebRamp.

Chapter 2, "Setting Up a New Network," provides detailed information about setting up the WebRamp with your computer. This chapter tells you how to set up a new network using your WebRamp.

Chapter 3, "Adding the WebRamp to an Existing Network," tells you how to add the WebRamp to your existing network to give all your employees Internet access from their own computers.

Chapter 4, "Setting Up Additional Modems for Internet Access," tells you how to add more modems to the WebRamp to increase the speed of your Internet access.

Chapter 5, "WebRamp Security Features," gives an overview of the levels of security provided by the WebRamp.

Chapter 6, "Access Controls," provides information about ways to manage access to your network.

Chapter 7, "Connecting to Another Office," tells you how to connect the network you created with your WebRamp in Chapter 2 to a network at a branch office.

Chapter 8, "Connecting to Two Locations Simultaneously," tells you how you can set up your network so that employees in different locations can communicate with each other and access the Internet.

Chapter 9, "Creating a Virtual Private Network," tells you how you can set up your network so that employees in different locations can communicate with each other and access the Internet.

Chapter 10, "Adding Telecommuting to Your LAN," tells you how to set up your WebRamp to allow users who work from home or are traveling to access your network.

Chapter 11, "Using the WebRamp's Advanced Options," gives information about using the advanced features of the WebRamp.

Chapter 12, "Troubleshooting," provides information you can use to diagnose and solve problems you are having connecting to the Internet. The information in this chapter can help you identify the problem, the cause of the problem, and how to fix the problem.

Appendix A contains a table that shows the default settings of the WebRamp.

Appendix B provides information on upgrading the WebRamp's firmware and modems.

Appendix C provides information on recovering the WebRamp's IP address.

Appendix D tells you how to set up your Windows computers and the WebRamp to access Network Neighborhood.

The Glossary defines terms used in this reference.

Technical Support

You can reach the Technical Support group at Ramp Networks by phone, e-mail, fax, or mail. The hours are 6 AM to 5 PM, Pacific Standard Time (U.S.).

Here are the ways you can reach Technical Support.

- Web site: **www.rampnet.com/support**

- Mailing address: Technical Support, Ramp Networks, 3100 De La Cruz Blvd., Santa Clara, CA 95054, U.S.A.

- Fax: 1(408)988-6363, attention Technical Support

- E-mail: support@rampnet.com

- Phone: 1(408)988-5353

When you request support, please provide the serial number of your WebRamp 361i, your name, your company name, street address, and phone number.

Conventions

The following table explains the conventions used throughout this document.

Typeface	Description	Example
Italics	Manual titles or special emphasis.	*WebRamp 361i Reference*
Bold italics	Placeholders where you provide the necessary information.	***OfficeA***
Boldface	Buttons, checkboxes, or items that you can choose from screens, menus, or dialog boxes.	Click **OK** to restart

Before You Begin

This chapter provides a brief overview of the WebRamp 361i, and tells you what you need before you can set up the WebRamp and use it to connect to the Internet.

About the WebRamp 361i

The WebRamp 361i is an integrated analog router and four-port 10/100 Ethernet hub, with two 56k V.90-compatible internal modems. Simply put, the WebRamp is a device that lets you set up a network of computers that can simultaneously access the Internet and a branch office using ordinary phone lines. With your WebRamp you can do the following:

• Set up a network of Windows, Macintosh, and other TCP/IP-based computers for your small business or home office. See Chapter 2, "Setting Up a New Network" for information about setting up a new network.

• Add the WebRamp to your existing network to give everyone in your office Internet Access. See Chapter 3, "Adding the WebRamp to an Existing Network" for information about setting up the WebRamp to work with your existing network.

• Add additional modems to increase performance. As your business or demand for Internet access grows, you can increase your Internet access speed by setting up the second internal modem in your WebRamp or by adding an external modem. See Chapter 4, "Setting Up Additional Modems for Internet Access" for information about adding modems.

- Protect your network and limit Internet access. Use the built-in security features on your WebRamp to protect your LAN from WAN computers, restrict access to the WAN and setup your passwords. See Chapter 5, "WebRamp Security Features," for information about maintaining the integrity of your setup information.

- Manage access to your network and WebRamp. You can decide which Internet capabilities you provide to the people on your network and if your WebRamp can be configured remotely. See Chapter 6, "Access Controls," for information on managing your network.

- Connect to a branch office. You can configure your network to communicate with another office, allowing staff located at different sites to access the same company files and servers. Chapter 7, "Connecting to Another Office," tells you how to connect the computers in your office to a branch office.

- Connect to a branch office and the Internet simultaneously. You may want to connect to a branch office and provide Internet access to all employees. See Chapter 8, "Connecting to Two Locations Simultaneously," for information about configuring your WebRamp to simultaneously access both a branch office and the Internet.

- Connect private networks securely over the Internet. You can set up your network so that employees in different locations can communicate with each other and access the Internet. See Chapter 9, "Creating a Virtual Private Network," for information about the WebRamp's VPN client and VPN pass-through features.

- Set up the WebRamp so telecommuters can access the network. You may have people who work from home or travel frequently and need access to the network. Chapter 10, "Adding Telecommuting to Your LAN," tells you how to set up your WebRamp so employees can dial into your network.

- Use the WebRamp's advanced features to set up local servers, security features, filtering options, and so on. See Chapter 11, "Using the WebRamp's Advanced Options," for more information about fine-tuning your WebRamp.

What the WebRamp Includes

The following items are included in the WebRamp box:

- WebRamp 361i

- Power supply

- Ethernet crossover cable to connect to an external 10BaseT or 10/100 hub

- WebRamp 361i Installation Card
- WebRamp CD

The WebRamp CD includes all of the documents and software you'll need to set up and use your WebRamp. You can run the CD on any Windows or Macintosh computer that has a CD drive. Here are the contents of the CD:

- EasyStart application. You use EasyStart to set up your Windows computer to work with the WebRamp. (See Chapter 2 for information about setting up your Macintosh.) After checking your computer for an Ethernet driver, EasyStart sets up all of the network protocols and network addresses so that your computer can connect to the WebRamp and the Internet.
- Netscape Communicator. This web browser is included in case you need one.
- TFTP server. A Windows version of this application is included for you to back up and restore configuration information to and from the WebRamp. You can also use this application to download the new software that runs on the WebRamp.

NOTE – If you are using a Macintosh computer, you can download a Macintosh version of TFTP server software from web sites such as www.shareware.com.

- WebRamp Finder (filename WRFinder) utility. You use this utility to change or set the IP address of the WebRamp. After setup, you can use WebRamp Finder if you need to set the WebRamp's default IP address or search for other WebRamps on your network.

What You Need

Before you set up your WebRamp to connect to the Internet, you should know that there are two types of Internet accounts you can get from your ISP:

- single user account (single IP address)
- static LAN account (multiple IP addresses)

With a single user account, you receive one IP address from the ISP. When you use this kind of account, the Internet only knows this single address for your office—it doesn't recognize the difference between a single user using an IP address and an entire office using a single IP address. This means that your LAN (Local Area Network) is hidden from the view of your ISP and the Internet. You

can use any IP address range you want, because they are only "known" by the WebRamp on the LAN side; on the WAN side, the ISP and the Internet don't see them.

Using a single IP address can be fine for a small office. However, if your office grows and you need to set up, for example, several computers that are accessible by Internet users, you probably will need to get multiple IP addresses that the Internet recognizes. This means you need a static LAN account from your ISP. This kind of account can cost more than a single IP address account; check with your ISP to get more information.

In addition to having the WebRamp, the computer that you choose to configure the WebRamp must meet certain requirements. This section discusses what you need to set up the WebRamp using a Window and Macintosh computer.

NOTE – The installation process requires a web browser. If you do not have one, the WebRamp CD includes Netscape Communicator.

Windows Requirements

- a Windows 95, Windows 98, or Windows NT 4.0 computer that has an Ethernet (10BaseT or 10/100) network card installed
- TCP/IP network protocol installed for each computer
- 16 MB of RAM (32 MB recommended)
- a standard phone line
- a dial-up Internet account (PPP)

Macintosh Requirements

- a 68030 Macintosh computer (PowerPC recommended) running system software version 7.5.3 or later that has an Ethernet (10BaseT or 10/100) network card installed
- Open Transport 1.1.2 (or higher) or MacTCP 2.0.6 installed for each computer
- 16 MB of RAM (32 MB recommended)
- a standard phone line
- a dial-up Internet account (PPP)

Setting Up a New Network

This chapter describes all of the steps you need to set up your WebRamp in a new local area network and use it to connect to the Internet.

See "What You Need" in Chapter 1 to see what items you need to have before you can set up the WebRamp.

Setting Up the WebRamp in a New LAN

Imagine you work in a small business that has several computers, a modem, and a dial-up Internet (PPP) account with an Internet service provider (ISP). No local area network (LAN) exists: everyone works on individual computers that are not connected to a server. (A **local area network**, or **LAN**, is a network that connects computers and other devices, such as printers, under some common control.) Only one computer uses the modem and the Internet account, and everyone who needs to get on the Internet has to take turns to use that computer.

You want to install the WebRamp and create a LAN so that everyone can use their own computers to get to the Internet and share information. This section describes what you need to do to install the WebRamp in this situation.

The ISP Information You Need

When you received your Internet account, your ISP should have given you the following information:

• a user name

- a password
- an access phone number
- Domain Name System (DNS) server addresses (optional)

You'll need these items during the installation process. If your ISP uses a log-in script when you use your Internet account, you'll need to provide the script as well. The setup program included with the WebRamp has online help for providing scripts.

Setting Up Your Hardware

To begin the installation process, you need to connect the WebRamp to one of your Windows 98, Windows 95, Windows NT, or Macintosh computers and the modem. Figure 2-1 shows how to connect the hardware together.

Figure 2-1   Connecting the WebRamp
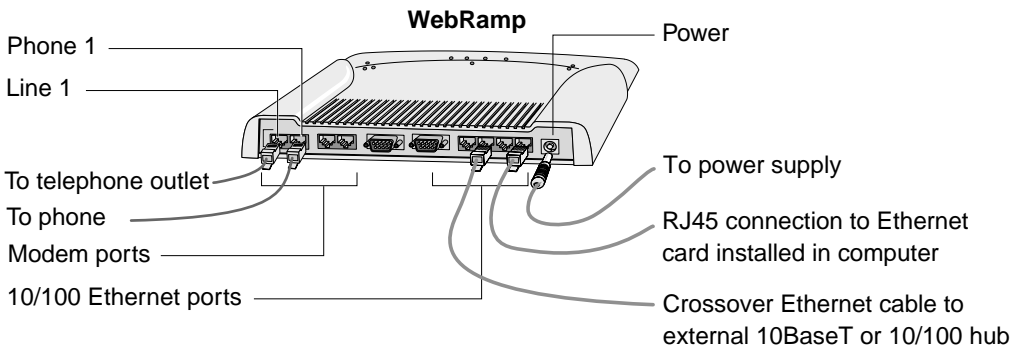
Note: each computer must have a 10BaseT or 10/100 Ethernet card and TCP/IP installed

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NOTE – You can use any Ethernet port on the WebRamp to connect a computer, or to connect a 10BaseT or 10/100 hub. You must use the supplied crossover Ethernet cable when connecting to an external hub. Modem Port 1 is recommended for connecting the phone line.

After you've connected the WebRamp to the computer and the modem, turn on the power to each one in this order:

1. WebRamp

2. computer

The Ethernet port light on the WebRamp should turn on (green if 10MB or amber if 100MB network) after a few seconds.

Setting Up Your Computer

The EasyStart application, included on the WebRamp CD, checks for a network card driver, the presence of TCP/IP, and sets certain TCP/IP settings on computers running Windows 95, Windows 98, or Windows NT. If you are setting up your WebRamp with a Macintosh computer, you must perform these tasks manually, as described in "Setting Up a Macintosh Computer" later in this chapter.

NOTE – The EasyStart application checks whether TCP/IP is installed on your computer. If EasyStart tells you that TCP/IP is not present, you then need to use the Windows 95, Windows 98, or Windows NT CD to install TCP/IP on your computer. (You should have the Windows 95, Windows 98, or Windows NT CD available while you use EasyStart.)

Setting Up a Windows Computer With EasyStart

EasyStart sets up your Windows computer to work with the WebRamp, checking the Ethernet network card driver and making sure that TCP/IP is present. If you do not have a browser, you can use EasyStart to install Netscape Communicator on your computer.

NOTE – You must exit all browsers before running EasyStart.

Here are the steps to use EasyStart:

1. Insert the WebRamp CD into the CD drive of your computer.

2. From the **Start** menu on the Windows desktop, choose **Run**.

3. In the Run dialog box, type

   *CD-drive-letter***:\wrsetup.exe**

   For example, if the CD drive in your computer is drive D, then you type this:

   d:\wrsetup.exe

The CD opening screen appears. Click **EasyStart**, and then click **Next** in the Welcome screen for EasyStart.

Another screen (Figure 2-2) appears, showing the Express Setup option already selected. (For this process you want to use WebRamp's Express Setup, which uses the default settings. Custom Setup allows you to set a static IP address.)

Figure 2-2   EasyStart setup options
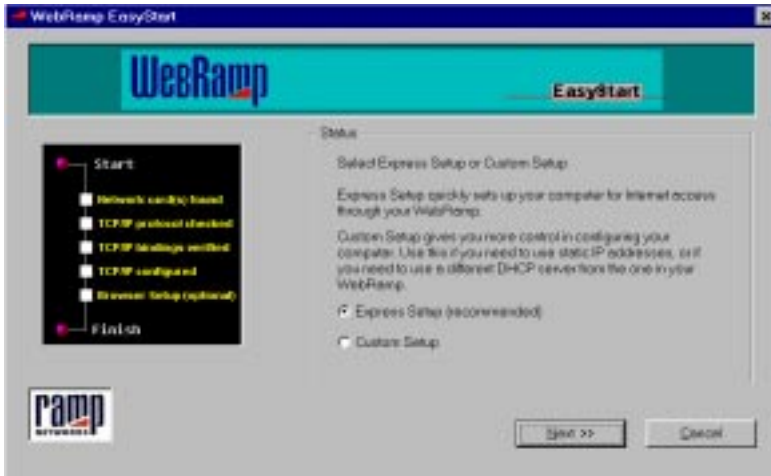
4. Click **Next**.

    EasyStart checks your computer for a network card driver and for the presence of TCP/IP. It also sets the TCP/IP information so that your computer is ready to use with the WebRamp.

    If TCP/IP is not present on your computer, EasyStart tells you what you need to do to install it from your Windows 95, Windows 98, or Windows NT CD.

5. Click **Next** when EasyStart offers to install Netscape Communicator if you do not want to install a browser. If you need to install a browser, click **Install Browser.**

    Figure 2-3 shows the browser installation screen of EasyStart.

NOTE – Your computer must have a browser installed in order for you to set up the WebRamp. If you need a browser, Netscape Communicator is included on the WebRamp CD.

Figure 2-3   Browser installation screen
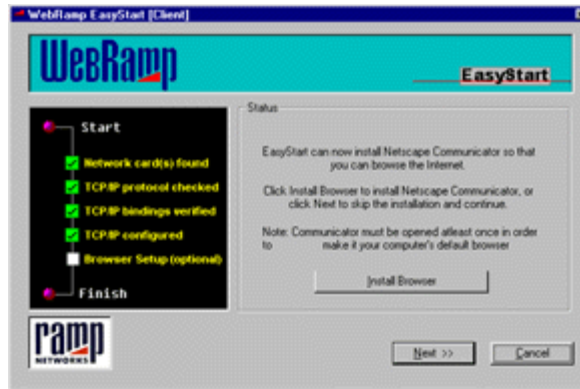
After clicking **Install Browser,** follow these steps:

• Follow the Communicator installation instructions.

  • Open Communicator at least once in order to use it as your default browser.

  • Close the browser.

• Click **Next** to continue using EasyStart.

• (Windows 95) If requested to by EasyStart, restart your computer.

The WebRamp DHCP Verifier screen, shown in Figure 2-4, now appears. The DHCP Verifier screen shows you a summary of your computer's TCP settings.

Figure 2-4   WebRamp DHCP Verifier screen
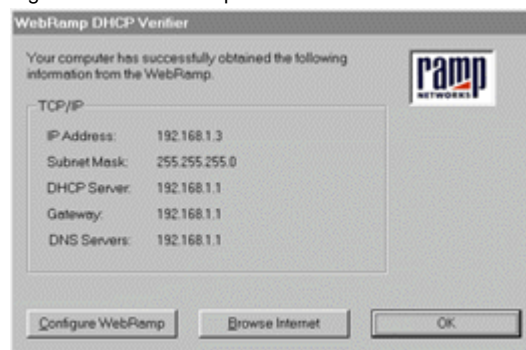
You're now ready to set up your WebRamp.

6. In the DHCP Verifier screen, click **Configure WebRamp.**

The browser opens and displays the WebRamp Setup page, which is shown in Figure 2-5 in "Setting Up the WebRamp," later in this chapter. This section provides details about adding information to the WebRamp Setup page.

Setting Up a Windows Computer Without EasyStart

Although Ramp Networks recommends that you use EasyStart, you can manually set the TCP/IP settings on your Windows computer so that it works with the WebRamp. You can do this if your WebRamp CD is unavailable or if EasyStart fails to detect your network driver. (If TCP/IP isn't present on your computer, you must install it from your Windows 95, Windows 98, or Windows NT CD.) Verify that the power to your WebRamp is on, and then follow these steps:

NOTE – Your computer must have a browser installed in order for you to set up the WebRamp. If you need a browser, Netscape Communicator is included on the WebRamp CD.

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1. From the Start menu, choose **Settings,** and then choose **Control Panel.**

2. In the Control Panel window, double-click **Network.**

3. In the Network window, click **TCP/IP,** and then click **Properties.**

4. In the TCP/IP Properties window, verify that the **Obtain an IP Address Automatically** radio button is selected. Click **OK.**

5. Open your browser and type **webramp.ramphome.com** or **192.168.1.1** in the URL line. The WebRamp Setup page, shown in Figure 2-5, appears.

Go to "Setting Up the WebRamp" later in this chapter for details about adding information to the WebRamp Setup page.

Setting Up a Macintosh Computer

You must manually configure the TCP/IP settings to use your Macintosh with the WebRamp. (If TCP/IP isn't present on your computer, you must install it from the Mac OS CD.) Verify that the power to your WebRamp is on, and then follow these steps:

NOTE – Your computer must have a browser installed in order for you set up the WebRamp. If you need a browser, Netscape Communicator is included on the WebRamp CD.

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1. From the Apple menu, choose **Control Panel,** and then choose **TCP/IP** to open the TCP/IP control panel. (Depending on your version of system software, there may be some slight differences in the appearance of the TCP/IP control panel. The differences don't affect the setup process.)

2. From the Connect Via drop-down menu, choose **Ethernet.**

3. From the Configure drop-down menu, choose **Using DHCP Server.**

4. Click the Close box, and then click **Save.**

5. Restart the computer.

6. Open your browser and type **webramp.ramphome.com** or **192.168.1.1** in the URL line. The WebRamp Setup page, shown later in Figure 2-5, appears.

Go to "Setting Up the WebRamp" later in this chapter for details about adding information to the WebRamp Setup page.

Setting Up the WebRamp

Your computer is now set up and ready for use with the WebRamp. Follow these steps to set up your WebRamp to work with your computer and modem.

1. In the WebRamp Setup page, shown in Figure 2-5, click **Express Internet.**

Figure 2-5   WebRamp Setup page
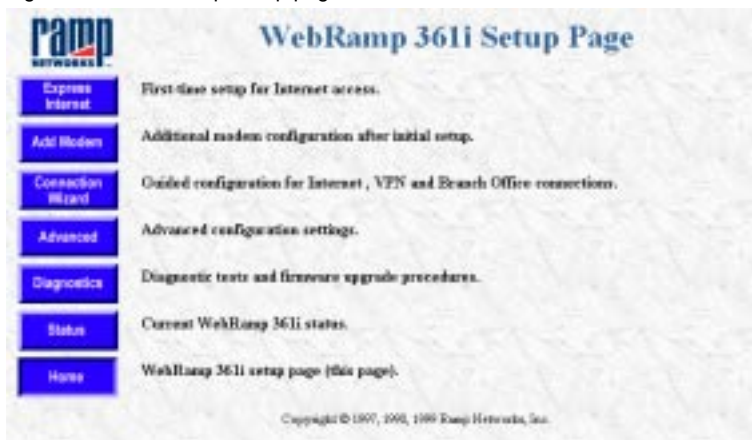
2. In the Express Internet page that appears, enter the following information in the fields provided:

   • ISP Name. Entering the name of your ISP is for your reference only.

   • ISP Phone Number. This is the access number for your ISP.

   • User Name. This is the account name that your ISP provided for you.

   • Password. This is the password you use when you connect to your ISP.

   • Login script. Sometimes, an ISP requires the use of a login script in order to connect. If this is your situation, click **Yes.**

After you enter the information on this page, click **Next**.

The WebRamp attempts to connect to your ISP. (During this process, the WebRamp is negotiating the DNS address from your ISP. If your ISP doesn't provide the DNS address dynamically, you must obtain the address from the ISP and then enter it in the DNS dialog box.) Upon connection, the WebRamp displays a message telling you it successfully connected. The WebRamp then takes you to the Registration Page.

NOTE – Be sure to register your WebRamp to get support from Ramp Networks. After you enter your registration information and click **Register** on this page, the WebRamp sends the information to Ramp Networks.

You are now finished setting up your WebRamp to work with your computer and your modem. Later, whenever you open the browser on this computer, the WebRamp automatically connects you to the Internet.

NOTE – If you need to get to the WebRamp Setup page at a later time, type **webramp.ramphome.com** or **192.168.1.1** in the URL line of your browser.

Adding Other Computers

With your WebRamp setup complete, you're ready to connect the rest of the computers in your office to use the WebRamp. Doing this allows all of the computers in your office to share the modem and the Internet account.

Just like the first computer, the rest of the computers need to have Ethernet network cards and TCP/IP installed. Here are the steps to set up each of the other computers:

1. With Figure 2-1 as your guide, connect each computer to the WebRamp using Ethernet cables.

2. Turn on the power to the computer.

3. (Windows) If you are adding a Windows computer to your network, follow the steps in "Setting Up a Windows Computer With EasyStart," given earlier in this chapter. When you complete the steps, restart the computer if requested by EasyStart, and then click **Browse Internet** in the DHCP Verifier screen that appears.

   (Macintosh) If you are adding a Macintosh computer to your network, follow steps 1-5 in "Setting Up a Macintosh Computer," given earlier in this chapter. When you complete the steps, open your browser.

The computer should connect to the Internet, through the WebRamp and the new network you just created.

NOTE – You don't need to do any additional configuration of the WebRamp when you add more computers.

Connecting Additional Hubs

Sometimes, the four 10/100 Ethernet ports on your WebRamp are just not enough. If your office expands and you add more computers, you may need to add more ports to give those new computers Internet access.

To do this, you need to attach a standard 10BaseT or 10/100 Ethernet hub to the WebRamp. A *hub* is a device that provides additional Ethernet ports to your network. With these ports, you can attach even more computers to your network. Figure 2-6 shows how to connect the hub to one of the Ethernet ports on your WebRamp. Be sure to use the supplied crossover cable to connect your hub to the WebRamp.

Figure 2-6   Connecting a hub
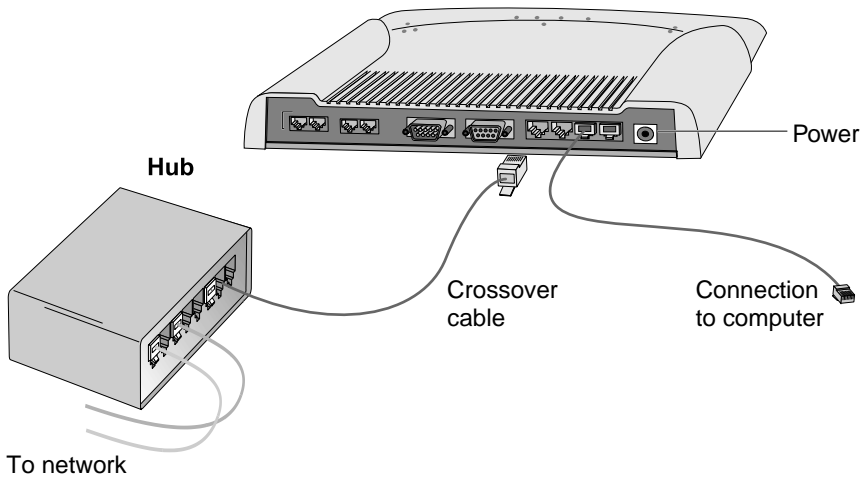
Hub

Power

Crossover cable

Connection to computer

To network

NOTE – If the connection is made correctly, the LED for the appropriate Ethernet port on the WebRamp is lit.

Adding the WebRamp to an Existing Network

This chapter describes how you can set up the WebRamp to work with your existing network for Internet access. If you are using the WebRamp to set up a new network, see Chapter 2, "Setting Up a New Network."

With this chapter you can provide all the computers on your network with Internet access using just one of the internal modems and one Internet account. For example, you may work in an office where all the computers are connected over the network to a server, but not everyone has Internet access. You can set up the WebRamp to work with your network, so that everyone can access the Internet from their own computer. (See Chapter 1, "Before You Begin" for a description of what you'll need before you can begin the installation.)

NOTE – To set up the WebRamp in an existing network, you should know how to obtain an unused IP address and your network's subnet mask values. If you don't, talk to a technical consultant before proceeding with the steps in this chapter.

This chapter tells you how to set up the WebRamp in the following types of networks:

- static IP address network
- dynamic IP address network

Basic Types of Networks

There are three basic types of networks:

- TCP/IP-based static IP address networks
- TCP/IP-based dynamic IP address networks
- non-TCP/IP networks, such as Novell-IPX networks

An **IP address** is a unique 32-bit number format for a specific TCP/IP computer on the Internet. A **static IP address** is one that has been permanently assigned to a specific computer on the network. A **dynamic IP address** is one that is assigned to the computer when it restarts: this means that a computer does not have a fixed address, but rather a server on the network assigns it an address when it requests one. The server uses the Dynamic Host Configuration Protocol (DHCP) to make the assignments, and is known as a **DHCP server**. A **non-TCP/IP network** is one in which the computers share file servers and printers using IPX or other protocols.

What does all this mean to you? To install the WebRamp, you need to know what kind of network you have. If you don't know, consult someone who can tell you what kind of network you have. On a non-TCP/IP network, your computers must have Ethernet network cards and TCP/IP installed. Then follow the installation instructions given either in Chapter 2 or on the Installation Card for setting up the WebRamp on a new network.

Setting Up the WebRamp in a Static IP Address Network

The process of setting up the WebRamp on a static network is easy, if you plan ahead. There are a few things to do before you start the setup:

- Obtain an unassigned IP address. (This address is for the WebRamp—because your computers were already part of your network, they have assigned static IP addresses.)

- Your static network uses a range of IP addresses, with each used address assigned to one of the computers or devices on the network. One easy way to find an unused address is to look at the address used by the last computer or device that was added to the network. The next address above that one is probably available for you to use.

- Obtain the values of your network's subnet mask.

- Disconnect one of the Windows or Macintosh computers already on the network.

Now, connect the computer to the Ethernet port of your WebRamp, as shown in Figure 2-1. (See "Setting Up Your Hardware" in Chapter 2 for more information.)

Setting Up a Windows Computer in a Static IP Address Network Using EasyStart

You're ready to use the EasyStart application to set up your Windows computer in a static IP address network. EasyStart sets up your computer to work with the WebRamp, checking the network card driver and making sure that TCP/IP is present. If you do not have a browser, you can use EasyStart to install Netscape Communicator on your computer. (If the WebRamp CD is unavailable, see "Setting Up the WebRamp in a Static IP Address Network Without EasyStart," later in this chapter.

NOTE – You must exit all browsers before running EasyStart.

Here are the steps to use EasyStart:

1. Insert the WebRamp CD into the CD drive of your computer.

2. From the **Start** menu on the Windows desktop, choose **Run**.

3. In the Run dialog box, type

   *CD-drive-letter***:\wrsetup.exe**

   For example, if the CD drive in your computer is drive D, then you type this:

   d:\wrsetup.exe

   Click **EasyStart**. The Welcome screen for EasyStart appears, showing the Express Setup option already selected.

4. Choose the **Custom Setup** option and click **Next**.

   EasyStart checks your computer for a network card driver and for the presence of TCP/IP. It also sets the TCP/IP information, checking and verifying that your computer is ready to use with the WebRamp. If TCP/IP is not present on your computer, EasyStart tells you what you need to do to install it from your Windows 95, Windows 98, or Windows NT CD.

As shown in Figure 3-1, a screen appears, asking you to choose the IP Address assignment mode you want to use with your network.

Figure 3-1   Options for assigning IP addresses

5. Choose **Static IP Addresses** and click **Next.**

    EasyStart now attempts to contact the WebRamp.

6. After ensuring that the computer is connected to the WebRamp and that the WebRamp is turned on, click **Set IP Address**.

    Now EasyStart asks you to set the IP address of the WebRamp, as shown in Figure 3-2.

Figure 3-2   Setting the IP address in EasyStart

7. Enter the unused IP address that you chose earlier (see "Setting Up the WebRamp in a Static IP Address Network" earlier in this chapter), as well as the values of your network's subnet mask.

   This address becomes the WebRamp's LAN IP address, and acts as your network's gateway address and Domain Name System (DNS) address. A screen appears, telling you that EasyStart has successfully set the IP address for your WebRamp.

8. Click **Next.**

9. If you do not want to install a browser, click **Next** when EasyStart offers to install Netscape Communicator. If you need to install a browser, click **Install Browser.**

Refer to Figure 2-3 in Chapter 2 to see the browser installation screen of EasyStart. Follow these steps if you need to install a browser:

- Follow the Communicator installation instructions.
- Open Communicator at least once in order to use it as your default browser.
- Close the browser.

EasyStart closes.

Setting the Gateway and DNS Addresses

The next step in the setup process is to set the gateway address and the Domain Name System (DNS) address of your computer. You use the WebRamp's IP address for both settings. Here are the steps to do this:

1. From the Start menu on the Windows 95, Windows 98, or Windows NT desktop, choose **Settings,** then **Control Panel,** and then double-click the **Network** icon.

2. In the Network window, click the **Configuration tab,** choose **TCP/IP,** and then click the **Properties** button. The TCP/IP Properties window appears.

NOTE – For Windows users, the next step may vary according to the Windows software and setup you are using.

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3. Choose the following tabs and change these settings:

- **Gateway.** Enter the WebRamp's IP address as the gateway address. (Macintosh users enter this information in the Router Address field.)

- **DNS Configuration.** Choose **Enable DNS**, and enter the WebRamp's IP address as the DNS address. (Macintosh users enter this information in the Name Server Address field.)

4. Click **OK** in the TCP/IP Properties window, and click **OK** in the Network window.

   Click the **Close** box and then click **Save.**

5. Restart your computer.

   Your computer is now set up and you are ready to set up the WebRamp.

Setting Up the WebRamp in a Static IP Address Network Without EasyStart

Ramp Networks recommends that you use EasyStart to set up your WebRamp and Windows computer in a static IP address network. However, you can complete the process manually by using the WebRamp Finder utility on the WebRamp CD. The WebRamp comes with a default IP address of 192.168.1.1. To change the IP address of the WebRamp, you can use any computer on the network. Follow these steps:

NOTE – Although the steps in this section tell how to set up the WebRamp in a static IP address network with a Windows computer, the process is similar for Macintosh computers.

1. Insert the WebRamp CD in the CD drive of one of the Windows computers on the network.

2. Open the WebRamp Finder utility.

   From the Start menu of the Windows desktop, choose **Run**. In the Run dialog box, type

   *CD-drive-letter***:\util\wrfinder.exe**

   For example, if the CD drive is drive D, you type

   d:\util\wrfinder.exe

The WebRamp Finder window opens.

3. From the Configure menu, choose **Set IP Address**.

Figure 3-3 shows the screen that appears.

Figure 3-3   Setting the IP address in WebRamp Finder
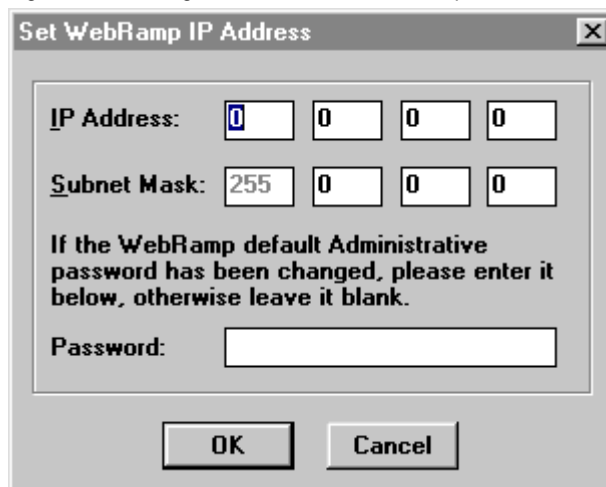
Enter the unused IP address you chose previously (see "Setting Up the WebRamp in a Static IP Address Network," earlier in this chapter), as well as the values of your network's subnet mask.

As shown in Figure 3-4, a message appears, telling you that WebRamp Finder has set the IP address of the WebRamp.

Figure 3-4   After WebRamp Finder sets the IP address

4. Click OK and then set the Gateway and DNS addresses. See "Setting the Gateway and DNS Addresses" earlier in this chapter.

Using the New IP Address to Set Up the WebRamp

With the new IP address, you can set up your WebRamp to work on your static network. Here are the steps:

1. Open the browser.

2. In the URL line, enter the WebRamp's IP address. For example, if you assigned the IP address of 204.25.1.2, enter that address in the Location line or URL line of your browser. The WebRamp Setup page appears.

3. Click **Express Internet.** The Express Internet page then appears.

4. In the fields provided on the Express Internet page, enter the following information:

   • ISP Name. Entering the name of your ISP is for your reference only.

   • ISP Phone Number. This is the access number for your ISP.

   • User Name. This is the account name that your ISP provided for you.

   • Password. This is the password you use when you connect to your ISP.

   • Login script. Sometimes, an ISP requires the use of a login script in order to connect. Click the radio button that applies to your situation.

   After you enter the information on this page, click **Next**.

The WebRamp attempts to contact your ISP. Upon connection, the WebRamp displays a message telling you it successfully connected. The WebRamp then takes you to the Registration Page.

NOTE – Be sure to register your WebRamp to get support from Ramp Networks. After you enter your registration information and click **Register** on this page, the WebRamp sends the information to Ramp Networks.

You are now finished with setting up your WebRamp to work with your computer and your modem. Later, whenever you open the browser on this computer, the WebRamp automatically connects you to the Internet. You're now ready to connect the WebRamp to your static network.

Completing the Static IP Address Network With Your WebRamp

Because you are using static IP addresses, you must also disable the DHCP Server. To disable the DHCP Server, follow these steps:

1. From the WebRamp Setup page, click **Advanced.**

2. From the Advanced Options page, click **Local Configuration.**

3. From the Local Configuration page, click **DHCP Server.**

4. Click the **Disable** button to disable the DHCP Server.

You can now add the WebRamp to the rest of the network by following these steps:

1. Connect Ethernet Port 1 on the WebRamp to a spare port on the hub of your network.

NOTE – If the connection is made correctly, the LED for the appropriate Ethernet port on the WebRamp is lit.

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2. For each of the additional computers in your network, follow the steps described in "Setting the Gateway and DNS Addresses" earlier in this chapter.

3. On each additional computer, open the browser to test the connection to the Internet.

    You can enter any URL (for example, **www.rampnet.com**) in the browser to verify you have access to the Internet. If you need to install a browser, the WebRamp CD provides Netscape Communicator for installation.

The WebRamp is now completely installed on your static IP address network.

Setting Up the WebRamp in a Dynamic IP Address Network

As described earlier, in a dynamic IP address network a server assigns addresses to devices on the network *as needed*. A server using the Dynamic Host Configuration Protocol (DHCP) makes the address assignments whenever the computer requests an address, usually at startup.

The WebRamp has a built-in DHCP server. Ramp Networks recommends using the DHCP server in the WebRamp because using it makes setup for Internet access fast and easy. To use the WebRamp's DHCP server instead of the one already on your network, disable the network's DHCP server and follow the instructions in "Setting Up the WebRamp in a New LAN," earlier in this chapter. (To disable your DHCP server, see the server's documentation for more information.) If you decide to use the existing DHCP server in your network, you may be concerned that introducing the WebRamp to your network might cause problems. To avoid problems, be sure to disable the WebRamp's DHCP server. See "DHCP Server Configuration" in Chapter 11 for information about disabling the WebRamp's DHCP server.

This section describes all of the steps to set up the WebRamp in a dynamic network, while continuing to use your existing DHCP server. The setup process essentially covers these simple tasks:

• assigning an IP address for the WebRamp

• telling the DHCP server to "protect" the address, so that the server doesn't reassign it to another device on the network later

• setting up the WebRamp to work on the network

After you finish the setup process, your network continues to use your existing DHCP server to assign addresses dynamically.

NOTE – To do the steps described in this section, you should have experience working with your DHCP server. If not, consult the documentation that came with your server.

Setting Up the Existing DHCP Server

To work with the WebRamp, the DHCP server needs to know what address to use for the WebRamp and that it should "protect" that address, making certain that the address is not available for reassigning later. On the DHCP server for your network, follow these steps:

1. Open the configuration area of your server.

2. Locate an unassigned address and exclude it from availability.

3. Use this address as the setting for the gateway and DNS (Domain Name Server). The WebRamp will be the gateway and DNS server.

4. Restart all of the computers connected to the network.

The DHCP server is now set up to work with your WebRamp.

Setting the WebRamp's IP Address Using WebRamp Finder

To change the IP address of the WebRamp, you can use any computer on the network. Follow these steps:

1. Insert the WebRamp CD in the CD drive of the computer.

2. Open the WebRamp Finder utility.

   From the Start menu of the Windows desktop, choose **Run**. In the Run dialog box, type

   CD-drive-letter:**\util\wrfinder.exe**

   For example, if the CD drive is drive D, you type

   d:\util\wrfinder.exe

   The WebRamp Finder window opens.

3. From the Configure menu, choose **Set IP Address**.

   Figure 3-5 shows the screen that appears.

Figure 3-5   Setting the IP address in WebRamp Finder
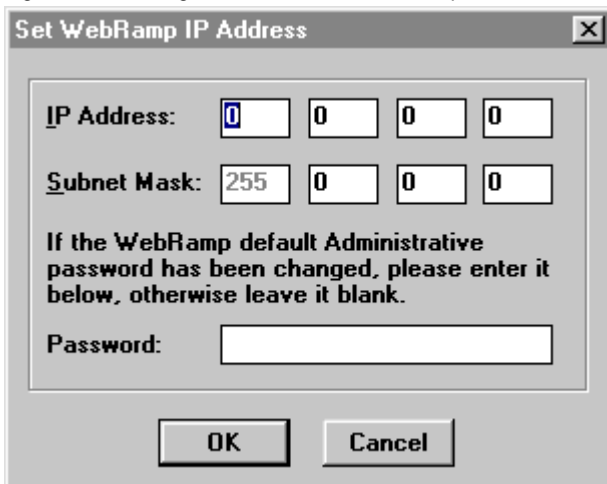
Enter the protected address you used for the gateway and DNS settings.

As shown in Figure 3-6, a message appears, telling you that WebRamp Finder has set the IP address of the WebRamp.

Figure 3-6   After WebRamp Finder sets the IP address

You are ready to set up the WebRamp to work with your dynamic network.

Connecting the WebRamp to the Rest of the Network

You are ready to connect the WebRamp to the network hub. Here are the steps:

1. Connect the supplied crossover Ethernet cable to an open port on the network hub.

2. Attach the other end of the cable to any available port on the WebRamp.

NOTE – If the connection is made correctly, the LED for the appropriate Ethernet port on the WebRamp is lit.

Figure 2-6, shown in Chapter 2, shows how to connect the cables to the WebRamp and the hub.

Setting Up the WebRamp for Internet Access

You can use the browser on the computer to set up the WebRamp to work on your dynamic network.

NOTE – If there is no browser on the computer, you can install a copy of Netscape Communicator from the WebRamp CD.

Here are the steps to connect the WebRamp to your ISP account:

1. Open the browser.

2. In the URL line, enter the IP address that you assigned to the WebRamp. For example, if you assigned the IP address of 204.25.1.2, enter that address in the Location line or URL line of your browser. The WebRamp Setup page appears.

3. Click **Express Internet.**

    The Express Internet page then appears.

4. In the fields provided on the Express Internet page, enter the following information:

    • ISP Name. Entering the name of your ISP is for your reference only.

    • ISP Phone Number. This is the access number for your ISP.

    • User Name. This is the account name that your ISP provided for you.

    • Password. This is the password you use when you connect to your ISP.

    • Login script. Sometimes, an ISP requires the use of a login script in order to connect. Click the radio button that applies to your situation.

    After you enter the information on this page, click **Next**.

The WebRamp attempts to contact your ISP. Upon connection, the WebRamp displays a message telling you it successfully connected. The WebRamp then takes you to the Registration Page.

NOTE – Be sure to register your WebRamp to get support from Ramp Networks. On the Registration page, you can enter registration information. After you click **Register** on this page, the WebRamp sends the information to Ramp Networks.

You have now completed the setup of your WebRamp on your dynamic network. Later if you open the browser on any computer on the network, the WebRamp automatically connects you to the Internet.

4

Setting Up Additional Modems for Internet Access

This chapter shows you how to set up additional modems to the WebRamp to increase the speed of your Internet access. The WebRamp 361i comes with two internal modems, and has a serial port so that you can add an external modem as well. When you follow the instructions for setting up another modem given in this chapter, you are building on the network setup you created earlier in Chapter 2 or Chapter 3. After providing an overview of how you can use additional modems in your office, this chapter shows you how to add the modems, select the modem-bonding method, and then decide on how the WebRamp uses the modems.

The WebRamp provides the ability to "bond" the modems: **bonding** is the technique of combining the modem lines into a single, high-speed line. With more modems, you can browse on the Internet up to three times faster—which is important if you are viewing web pages with lots of graphics or if several users want to access the Internet.

NOTE – For simplicity, this reference and the user interface of the WebRamp use the term *bonding* to mean the process of "combining" the modems and the phone lines. Thus, "bonding" here applies to both Multilink PPP and Connection Optimized Link Technology, two technologies that are defined later in this chapter.

Think of a highway and cars in traffic. Using one WebRamp and one modem is similar to a single-lane highway. As long as there isn't much traffic, the small size of the road is fine. However, as traffic increases, either the road has to be

expanded to support the additional cars, or there needs to be alternate routes for the traffic go through. You can increase your Internet access capabilities in similar ways. Like adding lanes to a road, you can add modems to your WebRamp and connect them to a single ISP account that bonds them together. Or, like establishing alternate routes to avoid traffic jams, you can add modems, but use additional ISP accounts.

You can use the additional modems either dynamically or simultaneously. Using the additional modems dynamically means that as the demand for Internet access increases, the WebRamp uses the additional modems as necessary. Using them simultaneously means that the WebRamp uses all of the available modems—regardless of demand—for Internet access.

Deciding to Add More Modems

Imagine that almost everyone in your company is going to the Internet now through the WebRamp. When they're all on the Internet downloading files or viewing graphics-filled web sites, your access may be slow. What can you do to speed up your Internet access easily? Do you have to get an ISDN line or special equipment?

With the WebRamp, you can use up to three modems and use the analog phone technology you're already used to. The WebRamp 361i includes two internal modems, and you can add an external modem for even greater capacity. More modems mean more speed: each modem contributes its line to the overall Internet access capacity of the WebRamp. Figure 4-1 shows three examples of using the WebRamp for Internet access.

Figure 4-1   Three possible examples of Internet access
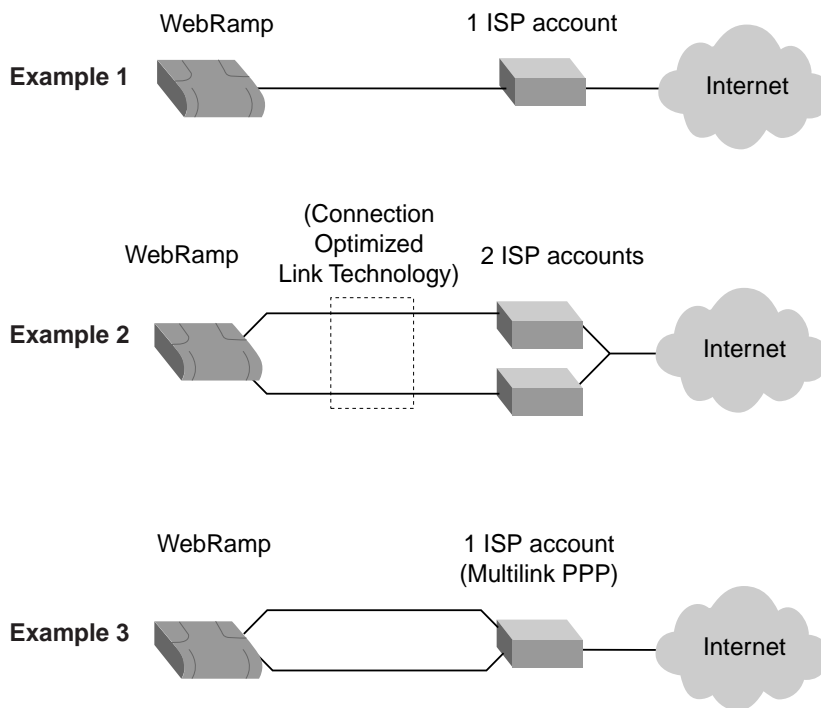
Figure 4-1 shows the following examples:

*   The first example shows the WebRamp connected to the Internet using one of the internal modems and one Internet account. This is the setup you had when you first installed the WebRamp to your computer.

*   The second example shows the WebRamp connected to the Internet using both internal modems and two ISP accounts. The modems in this scenario are combined using Connection Optimized Link Technology, a proprietary technology of Ramp Networks.

*   The third example shows the WebRamp connected to the Internet using both internal modems and one special ISP account that supports Multilink PPP, a modem-bonding method. Contact your ISP to see if it supports Multilink PPP.

These are examples only. There are other variations on these examples, depending on how many modems and ISP accounts you have. The following section describes the two modem-bonding methods.

Modem Bonding

When you add more modems, you need to decide how the WebRamp will bond the modems together. Bonding combines the modem lines into a single, high-speed line. The WebRamp provides two methods of modem bonding:

• Using a separate Internet account for each modem, which is a method called Connection Optimized Link Technology

• Using one Internet account for all of your modems, which is a method called Multilink Point-to-Point Protocol (also known as Multilink PPP)

Simply put, both of these methods combine your modems and phone lines together, increasing the speed and capacity of your network's Internet access. You don't need to worry about the technical details of how each method works, but you do need to consider some factors as you decide which method to use.

Using Modems Bonded to One Internet Account

An industry standard, **Multilink PPP** is a modem-bonding technique that distributes a single Internet account across multiple modems. All modem connections are associated to the same IP address. Because you use the same IP address, you only need one Internet account.

However, not all ISPs support this method on analog modems. In addition, among those that do, some ISPs offer support for only two-modem bonding. So, before you can use Multilink PPP, you need to find out if your ISP supports it and, if they do, how many modems you can bond together.

To use Multilink PPP, make certain you have the following items, and then follow the instructions provided in "Adding the Second Internal Modem" in this chapter:

• a phone line for each modem

• modem cables

• Multilink PPP account for analog modems from your ISP

• an external modem (optional)

If your ISP does not support Multilink PPP, you should use Connection Optimized Link Technology. See "Using a Separate Account for Each Modem" in this chapter for more information on this method.

Using a Separate Account for Each Modem

Ramp Networks developed and patented a method called Connection Optimized Link Technology that uses a separate Internet account for each modem. You can use this method with any ISP, as long as you have separate accounts. You can even use different ISPs or modems of different speeds and still use the modems together. To the users in your office, there will be no discernible difference.

This method provides a lot of flexibility: for example, if two of the computers in your office have Internet accounts, you can continue to use both of them. You only need to attach the modems to the WebRamp and make the appropriate setting choices to bond the modems and the Internet accounts.

To use separate accounts for each modem, make certain you have the following items and then follow the instructions provided in "Adding the Second Internal Modem" in this chapter:

- modem cables
- a separate Internet account for each modem
- an external modem (optional)

If you decide to use only one Internet account, see "Using Modems Bonded to One Internet Account" in this chapter for more information.

Deciding Between Simultaneous or Dynamic Modem Use

Before you add modems and bond them, you need to decide how the WebRamp will use them. You have two options, which work with both bonding methods:

- simultaneous, where the WebRamp uses all available modem lines, regardless of demand
- dynamic, where the WebRamp only engages the modem lines it needs, and brings up or brings down the other lines when Internet access demand increases or decreases

Think back to the highway example given in the beginning of this chapter. Simultaneous use of the modems is similar to having multiple lanes on the highway. You can use any of them, but all lanes are always available. Dynamic use of the modems means that the WebRamp is like a traffic officer, directing traffic to other routes when the main highway is congested.

Simultaneous use provides the fastest possible access to the Internet when there are few users. The modems are bonded together, so large files can speed through. Dynamic use means that the WebRamp only uses the modems and Internet accounts according to need. When there is little demand, the WebRamp may only use one modem and not use the others.

Why does the WebRamp give you a choice? You need to consider how the users in our office use the Internet and how much you spend on local phone calls. Are they accessing the Internet constantly, or do they use it occasionally? Constant use probably requires using the modems simultaneously. Occasional use, where users may go to graphics-intensive sites sometimes, probably means you should choose dynamic use of the modems.

Adding the Second Internal Modem

Here are the steps to set up the WebRamp's second internal modem. You should have set up your WebRamp and your network as described in Chapter 2 or Chapter 3. See Chapter 2, "Setting Up a New Network**"** and Chapter 3, "Adding the WebRamp to an Existing Network" for more information. To add an external modem, see the following section, "Adding an External Modem."

1. With your browser open to the WebRamp Setup Page, click **Add Modem**.

    The Add Modem page appears, presenting the current configuration. The current configured connections are shown in the pull-down menu.

2. From the menu, select the Internet connection and then click **Next**.

    The Modem Bonding Options page appears.

3. Select the type of modem bonding you want the WebRamp to use. (See "Modem Bonding" in this chapter for more information.)

    • **Use a Separate Account for Each Modem**

    This option uses Connection Optimized Link Technology, which requires that each modem uses a separate Internet account. No special ISP support is required.

    • **Use the Same Account for All Modems**

    This option uses the Multilink PPP technology. Remember that, to use the same Internet account for all modems, your ISP must support Multilink PPP.

4. Select the method to bring up a modem connection:

- **Dynamically.** This method causes the WebRamp to activate any additional modems as the demand for Internet access increases.

- **Simultaneously.** This method causes the WebRamp to always use all of the modems at the same time, regardless of the number of users accessing the Internet.

Click **Next**.

5. From the pull-down menu on the Modem Selection page, select the modem you want to add and click **Next**.

6. On the Modem Configuration page, select the speaker volume level of the internal modem. You can also select whether you want outgoing voice calls to have priority over data calls and set the dialing mode to tone or pulse.

7. Next, depending on the modem-bonding method you selected, do the following.

- If you selected Dynamically: In the Account Information page, provide the ISP account information

- If you selected Simultaneously: In the Multilink Configuration page, confirm the phone number of the ISP account. Do not change this number unless your ISP has given you a different number for your second modem.

8. Click **Next**.

After the WebRamp sets up the second internal modem, you see a screen telling you that the modem was added successfully.

You have now set up the second internal modem to increase the WebRamp's Internet access capacity.

NOTE – Chapter 11, "Using the WebRamp's Advanced Options" provides additional information on the advanced options with your modem-bonding choice. For example, you can fine-tune the settings that the WebRamp uses to dynamically bring up the modems. Be aware, though, that the use of these advanced options depends greatly on your particular situation.

Adding an External Modem

Follow these steps to add an external modem to your WebRamp. You should have set up your WebRamp and your network as described in Chapter 2 or Chapter 3, and you should have added the second internal modem as described in the previous section. See Chapter 2, "Setting Up a New Network" and Chapter 3, "Adding the WebRamp to an Existing Network" for more information.

NOTE – Some Macintosh modems require a cable adapter to connect to the WebRamp. If you need an adapter, contact the Technical Support group at Ramp Networks at (408) 988-5353.

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1. Connect the modem to the Modem 3 port.

2. With your browser open to the WebRamp Setup Page, click **Add Modem**.

   The Add Modem page appears, presenting the current configuration. The current configured connections are shown in the pull-down menu.

3. From the menu, select the Internet connection and then click **Next**.

   The Modem Bonding Options page appears.

4. Select the type of modem bonding you want the WebRamp to use. (See "Modem Bonding" in this chapter for more information.)

   • **Use a Separate Account for Each Modem**

   This option uses Connection Optimized Link Technology, which requires that each modem uses a separate Internet account. No special ISP support is required.

   • **Use the Same Account for All Modems**

   This option uses the Multilink PPP technology. Remember that, to use the same Internet account for all modems, your ISP must support Multilink PPP.

5. Select the method to bring up a modem connection:

   • **Dynamically.** This method causes the WebRamp to activate any additional modems as the demand for Internet access increases.

   • **Simultaneously.** This method causes the WebRamp to always use all of the modems at the same time, regardless of the number of users accessing the Internet.

   Click **Next**.

6. From the pull-down menu on the Modem Selection page, choose Modem 3 and then click **Next**.

7. On the Modem Configuration page, provide the name of the modem manufacturer and the modem speed. Then click **Next**.

   If your modem is not listed in the menu, choose **Other** and, if necessary, enter the modem initialization string provided by your modem manufacturer. If you are using an ISDN modem, choose **Standard Modem.** If you have trouble connecting, choose **Other** and then enter the modem initialization string provided by your manufacturer.

8. Next, depending on the modem-bonding method you selected, do the following:

   • If you selected Dynamically: In the account Information page, provide the ISP account information.

   • If you selected Simultaneously: In the Multilink Configuration page, confirm the phone number of the ISP account. Do not change this number unless your ISP has given you a different number for your second modem.

9. Click **Next**.

   After the WebRamp sets up the additional modem, you see a screen telling you that the modem was added successfully.

NOTE – Chapter 11, "Using the WebRamp's Advanced Options" provides additional information on the advanced options with your modem-bonding choice. For example, you can fine-tune the settings that the WebRamp uses to dynamically bring up the modems. Be aware, though, that the use of these advanced options depends greatly on you particular situation.

WebRamp Security Features

In chapters 2 and 3 you used the WebRamp to set up a network that connected the computers in your office and allowed users access to the Internet. With this type of connection, you may not have been too concerned with security. If you plan to use your WebRamp to expand your network to include offices outside your LAN, for example, by setting up a branch office connection, it's important to learn about the security features provided by the WebRamp.

This chapter provides an overview of the WebRamp's security features, and discusses how you can use those features to protect your network.

Protecting Your WebRamp

If you configured and are responsible for maintaining the integrity of your WebRamp's setup information, you should set up password protection. One of the security features that the WebRamp provides is the password feature. By using a password, you prevent unauthorized access to the WebRamp setup information, specifically the WebRamp's graphical user interface and the Command Line Interface.

In the Local Configuration page, click **Administrative Password** to get to the Password Configuration page. There, you can change the default password that comes with the WebRamp to one of your own. The WebRamp's default password is **password.**

NOTE – A password must contain a minimum of eight characters.

WARNING – Make certain to keep the password in a safe place. Doing this will protect it and allow you to refer to it later in case you forget it. If you lose your password, you must send the WebRamp back to Ramp Networks to have it reset to the default password.

Once the password is changed, you must enter the new password to make any changes to the WebRamp's configuration. Figure 5-1 shows the Username and Password Required dialog box.

Figure 5-1   Username and Password Required dialog box
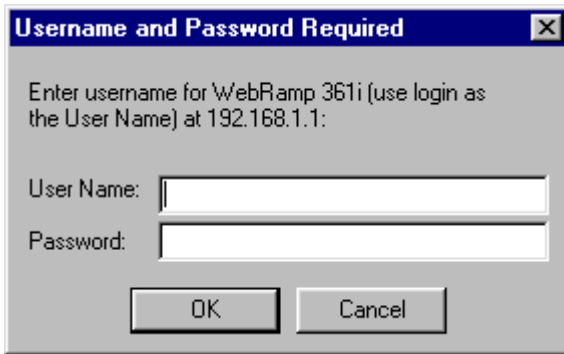
NOTE – The default user name is **login,** which you cannot change.

Password protection also applies to the WebRamp's configuration for users connecting remotely from a branch office, the Internet, or by telecommuting.

If you are connecting to the WebRamp using Telnet or from the Internet, the administrative user login name is **login,** and the default password is **password.**

For added security, you can block all outside access to your WebRamp's configuration with WebRamp Access Controls. You can also block all incoming calls to prevent remote users from dialing in to the WebRamp. See "Access Controls" in Chapter 6 for more information restricting WAN access to your WebRamp.

Protecting Your LAN From WAN Computers

The WebRamp provides several ways for you to protect your network from unauthorized access from outside sources.

Built-In Security

When you use the Internet connection on the WebRamp, there is a built-in security feature that protects your computers on the local LAN. When the WebRamp is connected to the Internet, it drops, by default, all connection attempts from computers on the Internet to the WebRamp's LAN. The WebRamp only allows data associated with an existing connection through the WebRamp to pass from the Internet to the LAN. An example of data that the WebRamp would allow would be a reply to a Web page request from a computer on the WebRamp's LAN. So if you want to make a computer on the LAN accessible from the Internet, you must configure the Local Servers, Internet Applications, or Visible Computers features, but you should consider the security implications when doing so. Local servers allow access from the Internet to one computer for one service, for example, a Web server. A visible computer, which is less secure, allows access from the Internet to all services available on one computer. For more information, see "Local Servers," and "Internet Applications" in Chapter 11. Also see "Visible Computers and Local Servers" in this chapter and "Setting Up Visible Computers" in Chapter 11.

You can also limit all WAN activity by enabling or disabling a particular connection and using access controls.

Filters

The WebRamp provides a number of filters that you can use to make your branch office connections more secure. Each filter selectively screens out information, protecting your LAN and preventing certain local information from entering and leaving your LAN through the WebRamp.

The WebRamp provides IP, IPX, and bridge filters. See "Filters" in Chapter 11 for more information about setting filter parameters.

Security for Dial-In Connections

If you decide to set up your WebRamp for telecommuter access, the WebRamp provides a couple of ways to authenticate users dialing in to your network.

- The telecommuter database keeps track of the names and passwords of users who have access to your LAN through telecommuting. Before the WebRamp accepts an incoming call from a telecommuter, the database must authenticate the caller's name and password.

- You can specify a callback option so the WebRamp calls the dial-in user back at a specific phone number before allowing access to your network. You specify the phone number at setup, and it's stored in the telecommuter database.

For more information about the telecommuter database and callback options, see "Adding Telecommuting to Your LAN."

Restricting Access to the WAN

You can use the User Access Controls feature to limit Internet access for the users on your LAN. For example, say your business requires a high level of confidentiality. You need Internet access to deal with customers, but most of your employees don't. With access controls, you can selectively choose which employees have Internet access. While this is more a management than a security tool, it does help you set some controls for how information travels outside your LAN.

For branch office connections, you can use filters to limit access to the WAN. See "Filters" in this chapter for more information.

Additional Security Considerations

When you set up your WebRamp and network, there are a couple of other things to think about if you are concerned with security.

Visible Computers and Local Servers

A visible computer is a computer on your network that's visible to the Internet. When you set up a visible computer on your LAN, Internet traffic uses the WebRamp's local WAN IP address as its destination. Any new requests from the Internet are forwarded by the WebRamp to the visible computer, making it vulnerable to unauthorized access. However, the other computers on your LAN are not visible to the Internet and are protected by the WebRamp's built-in security. See "Built-In Security" for more information.

NOTE – Because of the potential security risk associated with visible computers, you should not keep confidential or company-sensitive data on a visible computer. Also avoid running a server, such as a Telnet server, that might compromise the LAN.

A local server is a computer on your network that you dedicate to manage certain tasks, for example, a mail server. A local server differs from a visible computer in that when you set up a local server on your LAN, you choose the type of incoming traffic that server will accept from the Internet. For example, if you set up a mail server, the WebRamp accepts and diverts all e-mail requests to that server. Other incoming Internet traffic is rejected. A local server is vulnerable to unauthorized access because it allows external Internet users to access a service running on the LAN.

Password Protection

As discussed in previous sections, the WebRamp's Administrative Password feature allows you to change the WebRamp's default password, and Ramp Networks strongly recommends that you do so.

When you change the password, you can access the WebRamp's setup information from any computer. However, the time-out interval for that IP address is five minutes. Your access, from that IP address, expires after five minutes of inactivity.

6

Access Controls

Access controls provide a way for you to limit and manage access to the Internet, to your LAN, and to your WebRamp. With the WebRamp's access controls, you can decide which Internet features the users on your LAN can access and whether to allow WAN access to the WebRamp.

This chapter provides overview information about how access controls are implemented with the WebRamp. This chapter also provides examples that show how to set both WebRamp and user access controls. Detailed information about the user interface is provided in the section "Access Controls" in Chapter 10.

Managing User Access to the Internet

When you first set up your network and Internet access with the WebRamp, everyone connected to the network received access to all the available Internet resources. With user access controls, you can decide which Internet resources the users on your LAN can access.

On the User Access Controls page, you can enable and disable user access controls, view the users connected to your network, and set and modify the Internet access permissions on an individual user basis. Figure 6-1 shows the User Access Controls page.

Figure 6-1   User Access Controls page

Identifying Users on the LAN

The WebRamp has an internal table called the *User Access Controls* table. All users, up to 75, currently connected to the LAN are listed in this table, which provides the following information:

- index (a number identifying a user in the table)
- user name
- IP address
- MAC address
- Allowed applications

The WebRamp searches for and identifies users on the LAN at the Ethernet level, by MAC address. Users currently connected to the LAN are listed in the table, which is sorted by IP address. You can modify an entry to give it a unique user name, or you can identify users by IP address.

Applying User Access Controls

When you first enable user access controls, all Internet access for all users is blocked. You must choose which resources to make accessible.

User access controls allow you to specify access for the following Internet resources:

- Web

- E-mail

- Telnet

- Other (includes real audio, chat, and so on)

User access controls do not apply to telecommuters. Telecommuters have access to all the Internet resources available on your network. You can, however, block telecommuter access to the network using WebRamp access controls. See "Managing Access to the WebRamp" for more information.

NOTE – You should allow access to all applications for visible computers and local servers.

Modifying User Access

You can make modifications to individuals or to a range of users. For example, perhaps you want to provide e-mail and Web access to the administrative staff in your office. You simply enter the index numbers for the range of IP addresses for those users and choose the applications allowed.

NOTE – When you modify a user's Internet access, you identify that user by IP address. However, all changes are bound to the user by the MAC address, so even if the IP address changes, the access controls you applied remain with that user.

Setting Default User Access

You can use access controls to set default settings for unlisted users, that is, users not currently connected to your LAN who don't appear in the User Access Controls table. For example, you might use temporary help who need to connect to your network periodically only to check e-mail. You can set your default access controls so that all unlisted users have access to e-mail only.

Adding and Deleting Users

The information in the User Access Controls table is updated automatically each time you click Refresh on the User Access Controls page. However, if you have hosts behind other LAN routers, that information won't appear in the table because the refresh doesn't cross routers. You must add those users to the table manually if you want to apply access controls. To add users to the table manually, you enter the MAC address of the router and then the IP address of the computer.

You must also manually delete information about hosts behind other LAN routers, because that information remains in the table even when users are no longer connected to the network.

You can also delete users if you exceed the limit of 75 that can be listed in the table. That user then becomes unlisted and has the same access controls as other unlisted users.

Managing Access to the WebRamp

The WebRamp Access Controls feature allows you to manage calls to and from your network and restrict access to the WebRamp's configuration information from outside your LAN.

Incoming and Outgoing Calls

By default, the WebRamp accepts incoming and allows outgoing calls. If you want to change these settings, you can do so by deselecting the appropriate checkbox or checkboxes on the WebRamp Access Controls page. Blocking incoming calls prevents a remote user or remote router from dialing in to the WebRamp. When you block outgoing calls, the WebRamp cannot dial out to the Internet or a remote location.

NOTE – Changing these settings can affect your telecommuter and branch office connections.

Remote Configuration

By default, the WebRamp allows you to access the configuration information remotely through Telnet or a Web browser. If you want to block remote access to the WebRamp's configuration information, you can do so by deselecting the appropriate checkbox or checkboxes on the WebRamp Access Controls page.

Monitoring Access to the WebRamp

The WebRamp keeps track of access violation information with the Log Messages feature. If users try to access an application for which they don't have permissions, access is denied and a message appears in the Event Log on the Diagnostics page. You must enable the Log Messages feature to begin tracking access violations.

Setting User Access Controls

This section provides a sample that shows you the steps for setting user access controls.

Follow these steps:

1. From any page, click **Advanced** to reach the Advanced Options page.

2. On the Advanced Options page, click **Local Configuration.**

3. On the Local Configuration page, click **Access Controls.**

4. On the Access Controls page click **User Access Controls.**

5. On the User Access Controls page, click **Enable.**

6. Click **Refresh** to view the users currently connected to your LAN.

NOTE – If there are a lot of users connected to your LAN, it may take a few seconds for the WebRamp to update the information in the table. This is because the WebRamp checks the entire IP address range for new computers on the LAN.

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7. Click **Modify Range** to modify Internet access for a range of users.

8. Enter the starting and ending indexes for the range of users.

9. Click **All Applications** to allow access to all Internet resources for each user in that range, and then click **Apply.**

10. Click **Modify User** to modify the Internet access for an existing user.

11. On the Modify a User Entry page, choose the user to modify and then click **Apply.**

12. Enter the information you wish to change about the user and then click **Apply.**

The information in the table is updated automatically.

Setting WebRamp Access Controls

This section provides a sample that shows you the steps for setting WebRamp access controls.

Follow these steps to change the default WebRamp access control settings:

1. From any page click **Advanced** to reach the Advanced Options page.

2. On the Advanced Options page, click **Local Configuration.**

3. On the Local Configuration page, click **Access Controls.**

4. On the Access Controls page click **WebRamp Access Controls.**

   On the WebRamp Access Controls page there are four checkboxes, already selected by default.
   - Allow Incoming Calls
   - Allow Outgoing Calls
   - Allow Telnet Access to the WebRamp Configuration From the WAN
   - Allow Web Access to the WebRamp Configuration From the WAN

   Click a checkbox to deselect any of the default settings.

5. Deselect **Allow Incoming Calls** to prevent incoming calls to the WebRamp.

6. Deselect **Allow Telnet Access to the WebRamp Configuration From the WAN** to prevent remote Telnet access to the WebRamp's configuration information.

7. Click **Apply.**

Chapter

7

Connecting to Another Office

With your WebRamp, the computers in your office can connect not only to the Internet, but also to other offices. Perhaps Internet access is not as important to you as the ability to connect to another office's network. For example, imagine that your business has two offices, the one you work in and another office across town. Everyday, the people in your office need to send and receive information back and forth to the users in the other office. Wouldn't it be great if you could connect to the network in that office quickly and securely?

In Chapter 2 or Chapter 3, when you configured the WebRamp with Express Internet, it automatically associated the first modem with an Internet account. However, you can set up the WebRamp to connect exclusively to the other office only, without providing Internet access. Doing this connects your entire LAN to the other office's LAN, so that information can go back and forth easily and seamlessly.

This chapter presents the information you need to understand how to set up the WebRamp in your office to connect exclusively to another office. The chapter first presents the concepts behind connecting to another office, a few considerations you should think about before you set up the connection, and then four sample scenarios that show you how to actually make the connection. These instructions use one WebRamp and one modem to connect to a WebRamp in another office. If the office you are connecting to uses a different router, contact the administrator of that office for help in setting up the connection.

For more information on connecting to both the Internet and other offices, see Chapter 8, "Connecting to Two Locations Simultaneously." For information on advanced features, such as filtering, see Chapter 11, "Using the WebRamp's Advanced Options."

NOTE – This chapter and the WebRamp screens use the term *branch office* to mean the other office you're connecting to.

Concepts Behind a Branch Office Connection

Before you start to plan your branch office connection, you need to understand some simple concepts. This section provides an overview of those concepts; later sections in this chapter go into more detail about planning your connection and the actual steps to set it up.

NOTE – If you are already familiar with the concepts of bridging and routing, go to "Sample Branch Office Connections," given later in this chapter, to see the sample connections. You can customize these according to your own situation.

Figure 7-1 shows a basic example of using the WebRamp to connect to a branch office. In this example, the WebRamp and modem connect only to a branch office, instead of connecting to the Internet. Unlike the setup created in Chapter 2 or Chapter 3, this type of connection doesn't need an Internet account. Instead you set up the WebRamps so they securely connect to each other. For example, when a user on your LAN needs information from the branch office, the request goes through the WebRamp, modem, and the Wide Area Network (WAN) to reach the WebRamp at the other office.

Figure 7-1   Overview of a branch office connection
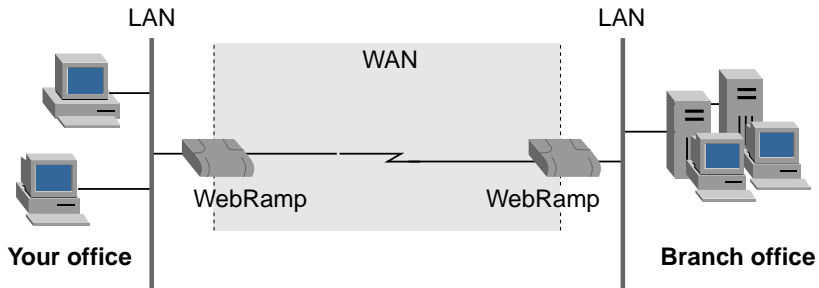
As Figure 7-1 shows, the **WAN** is a network that uses telephone lines and routers to connect your LAN to other LANs. Routers, like the WebRamp, physically connect a LAN to the WAN. This means that technically, the boundary of your LAN ends inside the WebRamp, with the other half of the WebRamp and the modem on the WAN side.

How the data passes through the WAN depends on what kind of method you decide to use. There are two fundamental methods: bridging and routing, both of which are described next.

Introducing Bridging and Routing

This section introduces the concepts of bridging and routing. Detailed examples of each are given later in the chapter.

Bridging sends information between two connected LANs using a unique identifier called a Medium Access Control (MAC) address. (This address has nothing to do with Macintosh computers.) Each computer on the LAN has a network card with a unique MAC address that was assigned by the network card's manufacturer. Because no two network cards have the same MAC address, bridging uses the MAC address to identify each individual computer on your LAN.

To understand the bridging concepts more easily, think of bridging like a postal route. Imagine two neighborhoods in a town, which are connected by a road. The two connected LANs are like the two neighborhoods, and the MAC addresses are like the street addresses of the houses. The mail, like the data sent between the two LANs, travels between the two neighborhoods. The mail carrier matches a street address with the address on the envelope, and delivers the mail to that address, without worrying about which neighborhood the address is in. To the mail carrier, both neighborhoods are part of a single area, with street addresses being the only critical information to find locations in that area. (See "Bridging Requirements" later in this chapter for a list of information you need to have before you set up the connection.)

Bridging has a few features that make it an attractive choice when you're deciding how to connect two offices together. The first is that bridging joins two LANs together in a way that makes them appear as if they were all part of the same LAN for one office. This means that if you had two computers already sharing information with each other in one office, you could literally move one of them to the other office, connect it to that office's LAN, and still maintain the ability to share information without making changes to the computer's configuration. The second feature is that bridging is protocol independent: it

doesn't matter if the network uses different protocols (IP, IPX, AppleTalk, and so on) on the LANs. The computers can all use the same connection in order to communicate with the other office. A third feature is that local network traffic remains on its side of the LAN. Bridging still retains the sense of two independent network segments, and keeps local traffic local to its segment.

Routing sends information between the two connected LANs using network addresses. A separate network address identifies the LAN in each office. Just as MAC addresses have to be unique, network addresses have to be unique so that the WebRamp can decide if the information it sees on the LAN has been sent between two computers on the same LAN or two computers in different offices. These addresses are assigned by the person who set up the network (called a network administrator) and are independent of any hardware (such as a network card or the WebRamp). The administrator assigns a network address to each LAN and one to the WAN connection between the two offices.

Think of the telephone system in your town. The area code part of a phone number identifies the town or area that you are calling. The rest of the numbers provide additional location information that the telephone system uses to route your call. Similarly, a LAN that uses routing relies on the network address of the branch office's router to determine which LAN the computer or device is on, and then uses the host address (which is described in "About Host Addresses" given later in this chapter) to find the computer or device on the branch office's LAN.

Routing has a few features that make it an attractive alternative when you're trying to set up connection between two offices. The first is that routing creates a "separation" between the offices, but it allows communication to occur between them. This separation is due to the fact that each LAN has a unique network address. Another attractive feature of routing is that it is more scalable than bridging: if later you need to connect more than two offices, routing can easily handle this situation, whereas bridging has practical limitations that make connecting more than two offices over the WAN difficult.

If you compare the postal route analogy of bridging with the telephone system analogy of routing, you can see that they are parallel systems to find locations to deliver information. A house may have both a street address and a telephone number associated with it, but each is used by a different system. Similarly, bridging and routing are separate, yet parallel methods.

About Host Addresses

So far, two types of addresses have been covered: MAC addresses and network addresses. There is a third type of address—**host addresses**—that you should also be aware of. Like MAC addresses, host addresses uniquely identify devices on a LAN. Just as bridging uses MAC addresses to identify a specific computer or device on the LAN, routing uses host addresses to do the same thing.

In the IP protocol, a host address is part of the address that is given to your computer. For example, if your computer has a IP address of 192.168.1.2, the last digit—2—is the host address and the 192.168.1 represents the network address. The network address is really written as 192.168.1.0. The 0 is shown as a placeholder that represents any computer connected to the 192.168.1 network. Your WebRamp and any routers connected to the WebRamp use the network address 192.168.1.0 to uniquely identify the LAN your computer is connected to.

When a computer in the branch office needs to communicate with your computer, it sends the information to 192.168.1.2. The router in the branch office sees that the information is sent to the 192.168.1.0 network. Because the WebRamp and the branch office router have been telling each other about networks they are both aware of, the branch office router knows that it can reach the 192.168.1.0 network through the WebRamp in your office. When the WebRamp receives the information, it knows that the information is for a computer on its LAN, and forwards it to 192.168.1.2. The host address—2—is not important to the router until the information reaches its final destination. The router knows that the 2 is the host address because of the subnet mask. Understanding subnet masks is a more advanced topic. Consult a network administrator for an explanation. The default subnet mask in your WebRamp is 255.255.255.0. Figure 7-2 presents a sample branch office connection with addresses for one of the offices.

Figure 7-2   A connection showing the network and host numbers
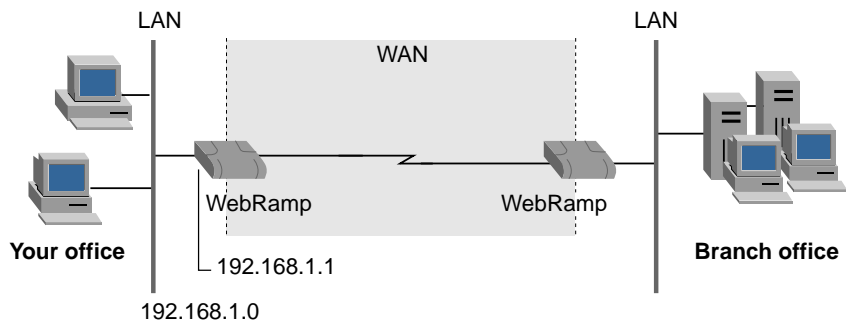
In the IPX protocol, a host address is not part of the address that a user enters. A user only enters the network address and the IPX protocol automatically creates the host address.

As mentioned earlier, in the same way as bridging uses MAC addresses, routing uses host addresses to uniquely identify a computer. Since this is the case, IPX simply uses the MAC address as the host address. Because the MAC address is a unique number that is assigned by the vendor who makes the network card in your computer, IPX just uses it to identify your computer.

Choosing Between Bridging or Routing

Now that you've read an overview of bridging and routing, which do you choose? Both methods have advantages and disadvantages that you need to think about before you make up your mind.

Of the two, bridging is the easiest to set up, but it requires all computers on both LANs to be within the same network address range. This means that, if the network address you're using is 192.168.1.0, then the devices on the LANs would get unique host addresses starting from 1 to 254. Compared to routing, bridging could cause extra traffic on your WAN and on your branch office LAN: because bridging makes it appear that all of the computers are on the same LAN, then data sent to one LAN may be forwarded to the other LAN. For example, imagine that you want to find a printer on your network. When you open Network Neighborhood on your Windows computer (or the Chooser on a Macintosh computer), what actually happens is that your computer sends out a message across both LANs, through the WAN, looking for the printer. If you multiply this extra network activity by the number of computers in your office and the branch office, you can see that the extra network traffic may start to slow down the communication between the two offices.

The ideal situation for bridging is where you are connecting an existing network in one office to a branch office with only a few computers. You would then set up a connection using bridging, and give the few branch office computers TCP/IP addresses in the IP address range of the other office's LAN.

Another situation for bridging is where you have different types of computers, such as Windows, Macintosh, and Novell, on your LAN. If a branch office has a combination of network types and the users need to connect to another office to send and receive information, then bridging is a good choice. Because bridging is

protocol independent, after you set up the connection, the computers can communicate with other computers of the same type without your having to do additional configuration of the WebRamp.

Routing requires a little more planning than bridging. Remember that routing is protocol dependent, so you need to understand how the computers communicate with each other across the network. For example, if you are using Windows and Novell networking in the offices, then you need to understand the routing concepts of IP and IPX before you set up your connection. See "IP Routing Requirements" and "IPX Routing Requirements" for more information.

An ideal situation for routing is where both offices have existing networks that must now be connected. Because the networks use different network addresses, you need to use routing.

Another situation is where you want to build in some limitations on the network traffic—for example, limiting the amount of traffic going between the two offices or on the type of information being sent or received. Routing provides more powerful filtering capabilities than bridging. Using these filters reduces the network traffic on the WAN and increases the security of your information.

Bridging Requirements

As described earlier in this chapter, bridging is the easiest type of connection to set up, and joins the LANs of your office and the branch office seamlessly. If you decide to use bridging, here is the information you should have when you set up the branch office connection:

- number of modems you'll use for the connection
- branch office name
- phone number of each phone line the WebRamp should use for the branch office
- call direction (incoming, outgoing, or both)
- host and network addresses to be used on the connected LAN
- user name (usually set up by the branch office's network administrator)
- password
- authentication type

> **NOTE –** If you are setting up bridging using two WebRamps and you want to use default
> IP addresses, give one WebRamp the default IP address of 192.168.1.1 and
> give the other one 192.168.1.128. The second number will vary according to
> the size of both LANs. Doing this ensures that both LANs are using the same
> IP address range, and that each LAN has enough addresses to accommodate
> any growth.

If you are using DHCP, you also need to change the address range in the DHCP
servers in both offices so that they know which office uses which IP address
range. See "Local Configuration" in Chapter 11 for more information.

IP Routing Requirements

IP routing is the best method to use if you are trying to connect two offices with
existing LANs. Most likely, both LANs have their own IP addresses. With IP
routing, neither will need to change its IP addresses. This method also allows for
future growth: even if you're adding another LAN with an established IP
account, you don't need to change the setup of the connected LANs.

Setting up IP routing can take more planning than bridging, and you need to
gather more information before you begin:

• IP address range of your LAN

• phone number of the branch office to connect to

• user name (usually set up by the branch office's network administrator for
authentication purposes)

• password (usually set up by the branch office's network administrator for
authentication purposes)

• Wide Area Network IP address of your office (called the *local WAN IP
address*)

• WAN IP address of the branch office (called the *remote WAN IP address*)

• domain name of the branch office (called the *remote domain name*)

• DNS server address of the branch office's DNS server (called the *primary
DNS server address*)

• remote router's IP address

After you have this information, the setup is easy if you follow the screens in the
WebRamp.

IPX Routing Requirements

IPX routing is the method you must use if you are trying to connect your office to a branch office that uses a Novell NetWare server. After you set up the connection, your WebRamp uses IPX to send and receive information to the branch office's router.

You must also use the IPX routing method if you want users in your office to have access to Network Neighborhood at the branch office. See Appendix D for information about adding Network Neighborhood capability to an existing branch office connection.

NOTE – If you want users to have access to the Internet and Network Neighborhood at the branch office, you should use the IP/IPX routing method.

IPX routing is similar to IP routing: think of them as two separate phone companies. They provide the same essential service, but the companies use different phone connection equipment, which the user doesn't see. To the user, no matter what phone service is used, the telephone remains the same. This is the same situation with IPX routing and IP routing: the user still uses the same computer on the LAN, but the underlying routing method is different.

Before you set up a branch office connection that uses IPX routing, here is the information you should collect:

- network address of the branch office
- phone number of the branch office that the WebRamp will connect to
- user name (usually set up by the branch office's network administrator)
- password
- local Wide Area Network number (called the *local WAN number*)
- frame type

Unlike the IP addresses used by IP routing, IPX routing uses a different scheme of both letters and numbers. (This numbering system is based on hexadecimal numbers.) The network address format consists of up to eight characters, using numbers or the letters A through F. (The samples given later use four characters, but the WebRamp fills the remaining four places with zeros.) The network administrator of the branch office should be able to tell you what network addresses you should use. The **frame type** tells the WebRamp what kind of frame, which is the media access protocol, IPX is using.

After you gather all of the necessary information, the setup is easy if you follow the screens in the WebRamp.

IP/IPX Routing Requirements

IP/IPX routing combines both IP and IPX routing into one branch office connection. You use this method if you are connecting to a branch office with Internet access and an existing network that uses a Novell NetWare server. This means that the computers in the branch office access both the Novell NetWare server and the Internet. For example, if you want your office to use the Internet access of the branch office and still get access to its IPX server, then you would use IP/IPX routing.

Generally, IP and IPX routing provide the same service, and can coexist on the same LAN. By setting up both for the connection to the remote office, you allow for the future addition of other remote offices that use IP addresses. See "IP Routing Requirements" and "IPX Routing Requirements" given earlier in this chapter for more information on these two methods.

Setting up for IP/IPX routing requires you to have all the information you would need to set up each method individually. Here is the list of items:

- IP address range of your LAN
- IP address of your WebRamp (called the *local IP address*)
- phone number of the branch office router for your WebRamp to connect to
- user name (usually set up by the branch office's network administrator)
- password
- Wide Area Network IP address of your office (called the *local WAN IP address*)
- WAN IP address of the branch office (called the *remote WAN IP address*)
- Remote network address (the IP network address of the branch office LAN)
- domain name of the branch office (called the *remote domain name*)
- DNS server address of the branch office's DNS server (called the *primary DNS server address*)
- IPX network address of the WAN (called the *local WAN network number*)
- IPX network address of the branch office LAN
- frame type

After you gather this information, follow the screens provided by the WebRamp to set up the connection.

Sample Branch Office Connections

This section presents four branch office connections as samples. The way you set up your connection will vary according to your situation, but these samples serve as models of bridging, IP routing, IPX routing, and IP/IPX routing. You don't need to read each one in sequence, but rather, based on what you've read so far, go to the sample for the method you think you will use. Each stand-alone sample uses this basic scenario:

• Your office has several computers.

• You are setting up your WebRamp and one internal modem to connect to a branch office.

• The branch office also uses a WebRamp.

Each sample describes other considerations, specific to the particular method used in the setup. The samples provide the instructions to do these fundamental tasks:

• setting up the LAN in your office

• setting up the WebRamp to connect to the branch office using one internal modem

• adding the other computers to the LAN

Remember that these are samples only. Use them to develop your own setup for the connection.

NOTE – In the samples, words and numbers that appear in ***bold italics*** are placeholders only. If you are actually implementing the sample, you should substitute names and numbers that work for your office and the branch office.

Using Bridging to Set Up a Branch Office Connection

Imagine that you have decided to use bridging to connect to the branch office. You want your LAN to connect seamlessly to the other office: after you make the connection, you want all computers and devices in both offices to become part of a single LAN, as well as all users in both offices to be able to share information and files easily because they're part of the same LAN. (See "Sample Branch Office Connections" for other information about the samples, and "Bridging Requirements" for an overview of bridging.)

NOTE – If you are setting up bridging using two WebRamps and you want to use default IP addresses, give one WebRamp the default IP address of 192.168.1.1 and give the other one 192.168.1.128. The second address will vary according to the size of both LANs. Doing this ensures that both LANs are using the same IP address range, and that each LAN has enough addresses to accommodate any growth.

As you prepare to set up your connection to the branch office, you looked at the branch office's computers and setup. You gathered the information listed in "Bridging Requirements," given earlier in this chapter. You reviewed the setup of both offices and decided to set up the connection using this information:

	Your office *(OfficeA)*	Branch office *(OfficeB)*
Router type	WebRamp	WebRamp
Router's IP address	*192.168.1.1*	*192.168.1.128*
LAN IP address range	*192.168.1.1* to *192.168.1.127*	*192.168.1.128* to *192.168.1.255*
Call Direction	Incoming and Outgoing	Incoming and Outgoing
Phone number	Phone number of *OfficeB*	Phone number of *OfficeA*

Figure 7-3 shows an example of bridging.

Figure 7-3   A bridging example
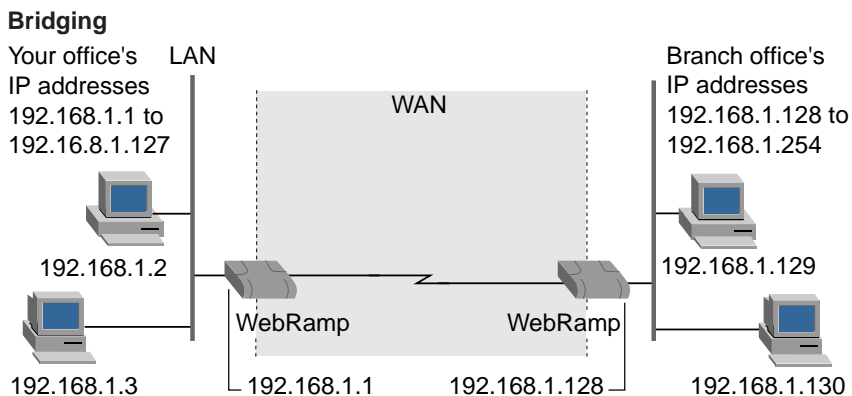
Bridging

Your office's   LAN
IP addresses
192.168.1.1 to
192.16.8.1.127

WAN

Branch office's
IP addresses
192.168.1.128 to
192.168.1.254

192.168.1.2

192.168.1.129

WebRamp   WebRamp

192.168.1.3   192.168.1.1   192.168.1.128   192.168.1.130

To begin, see "Setting Up Your Hardware" in Chapter 2: follow the steps to connect your WebRamp to the modem and one computer. Next, follow the instructions to set up your computer with TCP/IP, as described in "Setting Up a Windows Computer With EasyStart" in Chapter 2.

In the sample, *OfficeA* is the name of your office. *OfficeB* is the name of the branch office you're connecting to. Here are the steps to set up the branch office connection using bridging:

1. Open the browser to the WebRamp Setup Page (or enter the LAN IP address of the WebRamp in the URL line of the browser).

2. Click **Connection Wizard**.

3. The Connection Wizard guides you through the process of setting up either additional Internet connections or branch office connections.

4. Click **Configure**.

   The Configure A New Connection page appears, showing you what connections have been configured so far. The table shows that you have not configured a connection yet.

5. In the Current Unconfigured Connection drop-down menu, select **Branch Office 1** and click **Configure**.

6. On the Modem Selection page, select a modem and click **Next**.

7. On the Modem Configuration page, select the speaker volume level of the internal modem. You can also select whether you want outgoing voice calls to have priority over data calls.

8. On the Call Direction Configuration page, select **Incoming and Outgoing** and click **Next**.

   This option allows either office to establish the connection, and then send and receive information to the other.

9. On the Incoming Call Configuration page, enter the name of the incoming connection as *OfficeB*. Next enter a user name and a password that the branch office's WebRamp should use, and click **Next**.

10. On the Outgoing Call Configuration page, enter the name of the outgoing connection as *OfficeB*, and enter the phone number, user name, and password that your WebRamp should use to access the branch office. Click **Next**.

11. On the Protocol Selection page, select **Bridging** and click **Next**.

You have successfully configured the branch office connection to use bridging.

Next you need to connect and set up the other computers on your LAN. See the section "Adding Other Computers" in Chapter 2 for the steps you should use. If you are using DHCP, you also need to change the DHCP servers in both offices so that they know which office uses which IP address range. The IP address range for the DHCP server for *OfficeA* is 192.168.1.2 to 192.168.1.127. The IP address range for the DHCP server for *OfficeB* is 192.168.1.129 to 192.168.1.254. The IP address of each WebRamp and the address 192.168.1.255 are reserved addresses, and should not be in the address range used by the DHCP servers. See the section "Local Configuration" in Chapter 11 for more information.

You need to repeat this process at the branch office. (Be sure to restart the computers at both offices.) After you complete these steps, all the devices on your LAN can connect to the branch office.

Using IP Routing to Set Up a Branch Office Connection

Imagine that you decide to use IP routing to connect to the branch office. After you make the connection, you want your LAN to join the branch office's LAN, so that all users in both offices can share information and files easily. You select IP routing because you believe that one day, you may add a second branch office

that has an existing LAN. (See "Sample Branch Office Connections" for other information about the samples, and "IP Routing Requirements" for an overview of IP routing.)

You gather the information listed in "IP Routing Requirements," given earlier in this chapter. Because you've decided to use IP routing, you contact the network administrator of the branch office to get more information about that office's LAN. Here is the information you gather:

	Your office *(OfficeA)*	Branch office *(OfficeB*)
Router type	WebRamp	WebRamp
Domain name	*ramphome.com*	*officeB.com*
LAN IP address	*192.168.1.1* to *192.168.1.255*	*200.20.10.1* to *200.20.10.255*
DNS server	*192.168.1.1*	*200.20.10.1*
Call direction	Incoming and Outgoing	Incoming and Outgoing
Phone number	Phone number of *OfficeB*	Phone number of *OfficeA*

Figure 7-4 shows an example of IP routing.

Figure 7-4   An IP routing example

IP routing
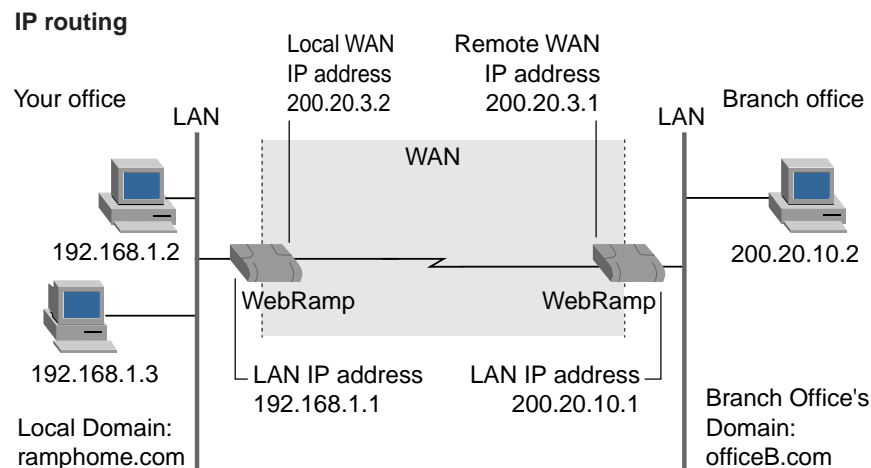
In addition, you have noted this information about the WAN and the remote router LAN IP address:

- The local WAN IP address is ***200.20.3.2***.
- The remote WAN IP address is ***200.20.3.1***.
- The remote router LAN IP address is ***200.20.10.1***.

To begin, see "Setting Up Your Hardware" in Chapter 2: follow the steps to connect your WebRamp to the modem and one computer. Next, follow the instructions to use Easy Start to set up your computer with TCP/IP, as described in "Setting Up a Windows Computer With EasyStart" in Chapter 2.

In the sample, ***OfficeA*** is the name of your office. ***OfficeB*** is the name of the branch office you're connecting to. Here are the steps to set up the branch office connection using IP routing:

1. Open the browser to the WebRamp Setup Page.

2. Click **Connection Wizard**.

    The Connection Wizard guides you through the process of setting up either additional Internet connections or branch office connections.

3. Click **Configure**.

    The Configure A New Connection page appears, showing you what connections have been configured so far. The table shows that you have not configured a connection yet.

4. In the Current Unconfigured Connection drop-down menu, select **Branch Office 1** and click **Configure**.

5. On the Modem Selection page, select a modem and click **Next**.

6. On the Modem Configuration page, select the speaker volume level of the internal modem. You can also select whether you want outgoing voice calls to have priority over data calls.

7. On the Call Direction Configuration page, select **Incoming and Outgoing** and click **Next**.

    This option allows either office to establish the connection, and then send and receive information to the other.

8. On the Incoming Call Configuration page, enter the name of the incoming connection as ***OfficeB***. Next enter a user name and a password that the branch office's WebRamp should use, and click **Next**.

9. On the Outgoing Call Configuration page, enter the name of the outgoing connection as *OfficeB*, and enter the phone number, user name, and password that your WebRamp should use to access the branch office. Click **Next**.

10. On the Protocol Selection page, select **IP Routing** and click **Next**.

11. In the fields of the WAN IP Address Configuration page, enter the information as follows.

    • Local WAN IP Address: *200.20.3.2*

    • Remote WAN IP Address: *200.20.3.1*

    • Remote router LAN IP Address: *200.20.10.1*

    Click **This Connection is the Default Route for My WebRamp** and click **Next**.

12. In the DNS Configuration page, do the following:

    • Enter the remote domain name as *officeb.com*.

    • Click **Use the following DNS server addresses**.

    • Enter as the Primary DNS Server Address *200.20.10.1*.

    Click **Next**.

You have successfully configured the branch office connection to use IP routing.

Next you need to connect and set up the other computers on your LAN. See "Setting Up Your Hardware" in Chapter 2 for the steps you should use. If you are using DHCP, you may need to modify DHCP server information to ensure that the DHCP table range matches the LAN network addresses. See "Local Configuration" in Chapter 11 for more information. You need to repeat this process at the branch office. (Be sure to restart the computers at both offices.) After you complete these steps, all the devices on your LAN can connect to the branch office.

# Using IPX Routing to Set Up a Branch Office Connection

Imagine that you decide to use IPX routing to connect to the branch office. The branch office uses a Novell NetWare Server. After you make the connection, you want your LAN to join the branch office's LAN, so that all users in both offices

can share information and files easily. Because the branch office uses a Novell NetWare server, you probably use IPX routing. (See "Sample Branch Office Connections" for other information about the samples.)

You gather the information listed in "IPX Routing Requirements," given earlier in this chapter. Because you've decided to use IPX routing, you contact the network administrator of the branch office to get more information about that office's LAN. Here is the information you receive:

	Your office *(OfficeA)*	Branch office *(OfficeB*)
Router type	WebRamp	WebRamp
Network address	**ADDE**	**2001**
WAN network address	**2003**	**2003**
Frame type	**LLC 802.2**	**LLC 802.2**
Call direction	Incoming and Outgoing	Incoming and Outgoing
Phone number	Phone number of **OfficeB**	Phone number of **OfficeA**

You do not need TCP/IP on all computers in your office. You only need TCP/IP on the computer that you are using to set up the WebRamp. Figure 7-5 shows an example of IPX routing.

Figure 7-5   An IPX routing example

IPX routing
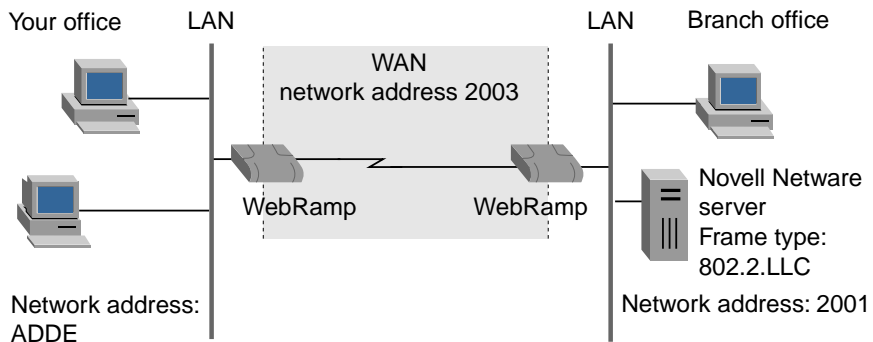
To begin, see "Setting Up Your Hardware" in Chapter 2: follow the steps to connect your WebRamp to the modem and one computer. Next, follow the instructions to use Easy Start to set up your computer with TCP/IP, as described in "Setting Up a Windows Computer With EasyStart" in Chapter 2.

In the sample, *OfficeA* is the name of your office. *OfficeB* is the name of the branch office you're connecting to. Here are the steps to set up the branch office connection using IPX routing:

1. Open the browser to the WebRamp Setup Page.

2. Click **Connection Wizard**.

   The Connection Wizard guides you through the process of setting up either additional Internet connections or branch office connections.

3. Click **Configure**.

   The Configure A New Modem page appears, showing you what connections have been configured so far. The table shows that you have not configured a connection yet.

4. In the Current Unconfigured Connection drop-down menu, select **Branch Office 1** and click **Configure**.

5. On the Modem Selection page, select a modem.

6. On the Modem Configuration page, select the speaker volume level of the internal modem. You can also select whether you want outgoing voice calls to have priority over data calls.

7. In the Call Direction Configuration page, select **Incoming and Outgoing** and click **Next**.

   This option allows either office to establish the connection, and then send and receive information to the other.

8. On the Incoming Call Configuration page, enter the name of the incoming connection as *OfficeB*. Next enter a user name and a password that the branch office's WebRamp should use, and click **Next**.

9. On the Outgoing Call Configuration page, enter the name of the outgoing connection as *OfficeB*, and enter the phone number, user name, and password that your WebRamp should use to access the branch office. Click **Next**.

10. Select **IPX Routing** and click **Next**.

11. On the IPX LAN Configuration page, do the following:

- Select **Use the following frame type and external network number**.

- For the frame type, select *802.2 LLC*.

- For the external network number, enter *ADDE*.

Click **Next**.

12. On the IPX Configuration page, do this:

- For the local WAN network number, enter *2003*.

- Click **Learn about remote file server automatically**.

Click **Next**.

You need to repeat this process at the branch office. After you do, you have successfully configured the branch office connection to use IPX routing.

After you complete these steps, see the administrator's guide that came with your Novell server for instructions on how to install IPX/SPX and the NetWare Client software on each computer on your LAN.

Using IP/IPX Routing to Set Up a Branch Office Connection

Imagine that you decide to use IP/IPX routing to connect to the branch office. Because the branch office uses a Novell NetWare Server, you'll probably use IPX routing, but you want to use IP routing too, because your computers may eventually need Internet access or they may need to use TCP/IP-based applications. (See "Sample Branch Office Connections" for other information about the samples, and "IP Routing Requirements" for an overview of IP routing.)

Because you've decided to use IP/IPX routing, you gather the information listed in "IP/IPX Routing Requirements," given earlier in this chapter. You then contact the network administrator of the branch office to get more information about that office's LAN. Here is the information you gather:

	Your office *(OfficeA)*	Branch office *(OfficeB)*
Router type	WebRamp	WebRamp
Domain name	*ramphome.com*	*officeb.com*
LAN IP address	*192.168.1.1* to *192.168.1.255*	*200.20.10.1* to *200.20.10.255*
DNS server	*192.168.1.1*	*200.20.10.1*
Network address	*ADDE*	*2001*
WAN network address	*2003*	*2003*
Frame type	*LLC 802.2*	*LLC 802.2*
Call direction	Incoming and Outgoing	Incoming and Outgoing
Phone number	Phone number of *OfficeB*	Phone number of *OfficeA*

Figure 7-6 shows an example of IP/IPX routing.

Figure 7-6   An IP/IPX routing example
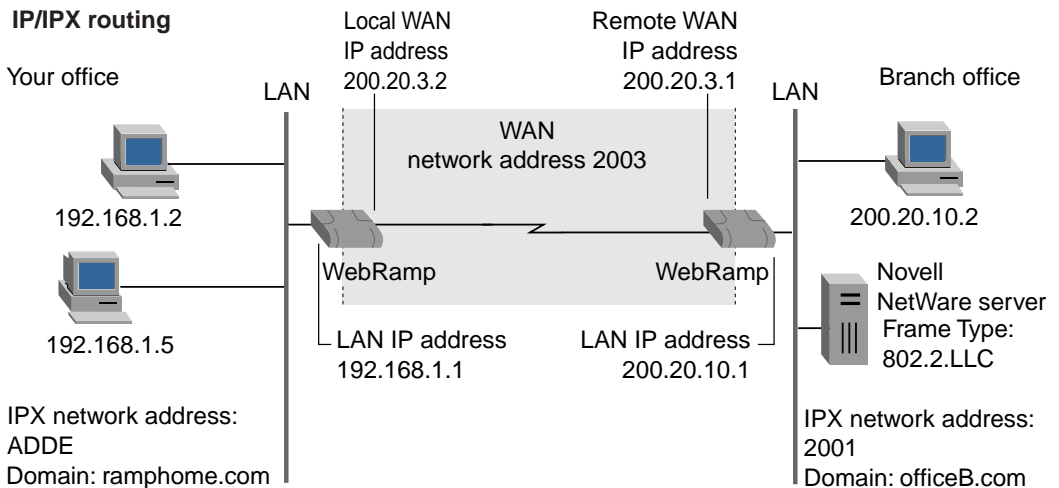
To begin, see "Setting Up Your Hardware" in Chapter 2: follow the steps to connect your WebRamp to the modem and one computer. Next, follow the instructions to use Easy Start to set up your computer with TCP/IP, as described in "Setting Up a Windows Computer With EasyStart" in Chapter 2.

In the sample, *OfficeA* is the name of your office. *OfficeB* is the name of the branch office you're connecting to. Here are the steps to set up the branch office connection using IP/IPX routing:

1. Open the browser to the WebRamp Setup Page.

2. Click **Connection Wizard**.

   The Connection Wizard guides you through the process of setting up either additional Internet connections or branch office connections.

3. Click **Configure**.

   The Configure A New Modem page appears, showing you what connections have been configured so far. The table shows that you have not configured a connection yet.

4. In the Current Unconfigured Connection drop-down menu, select **Branch** In the Call Direction Configuration page, select **Incoming and Outgoing** and click **Next**.

   This option allows either office to establish the connection, and then send and receive information to the other.

5. On the Modem Selection page, select a modem.

6. On the Modem Configuration page, select the speaker volume level of the internal modem. You can also select whether you want outgoing voice calls to have priority over data calls.

7. On the Incoming Call Configuration page, enter the name of the incoming connection as *OfficeB*. Next enter a user name and a password that the branch office's WebRamp should use, and click **Next**.

8. On the Outgoing Call Configuration page, enter the name of the outgoing connection as *OfficeB*, and enter the phone number, user name, and password that your WebRamp should use to access the branch office. Click **Next**.

9. Select **IP/IPX Routing** and click **Next**.

10. In the fields of the WAN IP Address Configuration page, enter the information as follows:

   • Local WAN IP Address: ***200.20.3.2***

   • Remote WAN IP Address: ***200.20.3.1***

   • Remote router LAN IP Address: ***200.20.10.1***

   • Click **This connection is the default route for my WebRamp**.

   Click **Next**.

11. On the DNS Configuration page, do the following:

   • Enter the remote domain name as ***officeb.com***.

   • Click **Use the following DNS server addresses**.

   • Enter as the Primary DNS Server Address ***200.20.10.1.***

   Click **Next**.

12. On the IPX LAN Configuration page, do the following:

   • Select **Use the following frame type and external network number**.

   • For the frame type, select ***802.2 LLC***.

   • For the external network number, enter ***ADDE***.

   Click **Next**.

13. On the IPX Configuration page, do this:

   • For the local WAN network number, enter ***2003***.

   • Click **Learn about remote file server automatically**.

   Click **Next**.

You have successfully configured the branch office connection to use IP/IPX routing.

Next you need to connect and set up the other computers on your LAN. See "Adding Other Computers" in Chapter 2 for the steps you should use. You need to repeat the process described in this section at the branch office. However, you don't need to set up the branch office computers. Instead, see the administrator's guide that came with your Novell server for instructions on how to install IPX/SPX and the NetWare Client software on each computer on your LAN.

NOTE – Because you are using both IP routing and IPX routing, you may need to have TCP/IP, IPX/SPX, and the NetWare Client software on all computers in your office.

Adding Modems to Speed Up a Branch Office Connection

After you set up a branch office connection, it's easy to add a modem to speed up the connection. You can set up the second internal modem or even add an external modem. See the earlier sections in this chapter for information on setting up branch office connection using bridging, IP routing, IPX routing, or IP/IPX routing.

Setting Up the Second Internal Modem

Here are the steps to set up the WebRamp's second internal modem.

1. With your browser open to the WebRamp Setup Page, click **Add Modems**. The current configured connections are shown in the pull-down menu.

2. Choose the branch office connection you want to add the modem to.

3. On the Modem Selection page, select the modem to add to this connection.

4. On the Modem Configuration page, select the speaker volume level of the internal modem. You can also select whether you want outgoing voice calls to have priority over data calls.

5. In a branch office connection, the WebRamp uses Multilink PPP to bond the modems together. On the Multilink Configuration page, enter the phone number the WebRamp should use to connect to the branch office. Click **Next**.

NOTE – If the branch office does not use a WebRamp, its router must be able to support Multilink PPP over analog phone lines.

You have now connected an additional modem to increase the capacity of the WebRamp's branch office connection. This means that you can transfer files more quickly or you can have more users sending or receiving information from the branch office, and not see decreases in access speed. To add an external modem--so that you have three modems for the branch office connection--see the following section.

Setting Up an External Modem

Here are the steps to set up an external modem to use with the WebRamp.

1. Connect the modem to Modem 3 port.

2. With your browser open to the WebRamp Setup Page, click **Add Modems**. The current configured connections are shown in the pull-down menu.

3. Choose the branch office connection you want to add the modem to.

4. On the Modem Selection page, select the modem to add to this connection.

5. On the Modem Configuration page, select a modem and provide the modem configuration information:
   - Modem Manufacturer
   - Maximum Modem Speed
   - Additional Modem Initialization String

   Click **Next**.

6. In a branch office connection, the WebRamp uses Multilink PPP to bond the modems together. On the Multilink Configuration page, enter the phone number the WebRamp should use to connect to the branch office. Click **Next**.

NOTE – If the branch office does not use a WebRamp, its router must be able to support Multilink PPP over analog phone lines.

You have now connected an external modem to increase the capacity of the WebRamp's branch office connection. This means that you can transfer files more quickly or you can have more users sending or receiving information from the branch office, and not see decreases in access speed.

Chapter

8

Connecting to Two Locations Simultaneously

Chapters 2, 3, and 7 described how to connect to either the Internet or a branch office exclusively; they also presented the steps necessary to add modems to the connection. Now, you're ready to use the WebRamp with two or three modems to make simultaneous connections to more than one location.

This chapter provides an overview of how to use your WebRamp and its internal modems to make simultaneous connections to a branch office and either the Internet or another branch office. (Later, you can add an external modem to one of the connections to increase its bandwidth.) This chapter first provides some background information on simultaneous connections, and then offers two samples that you can use as models for your own situation. The first sample describes how to connect to the Internet and a branch office simultaneously, and the second shows how to connect to two branch offices simultaneously.

How the WebRamp Handles Simultaneous Connections

Suppose you want to connect your office to both the Internet and a branch office. You've read the conceptual material in Chapter 2, Chapter 3, and Chapter 7, and you understand how an Internet connection works and how a branch office connection works. But how can you use both types of connections at the same time?

Before you set up the WebRamp to connect to more than one place, you need to understand how it handles simultaneous connections. Because you can add an external modem to work with the WebRamp's two internal modems, you can assign particular modems to connect to certain locations. Figure 8-1 shows three examples of using the WebRamp to connect to the Internet and to branch offices.

Figure 8-1   Three examples of simultaneous connections

Example 1
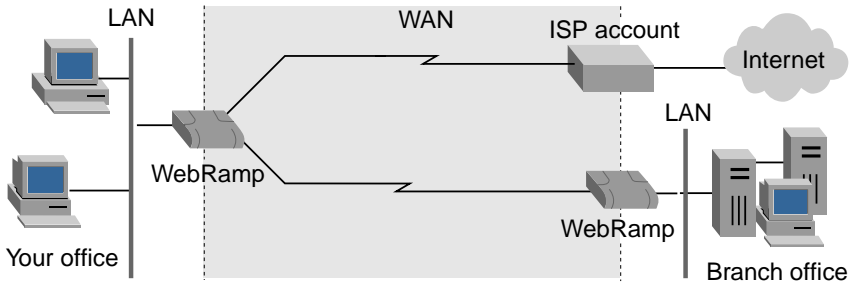
Example 2
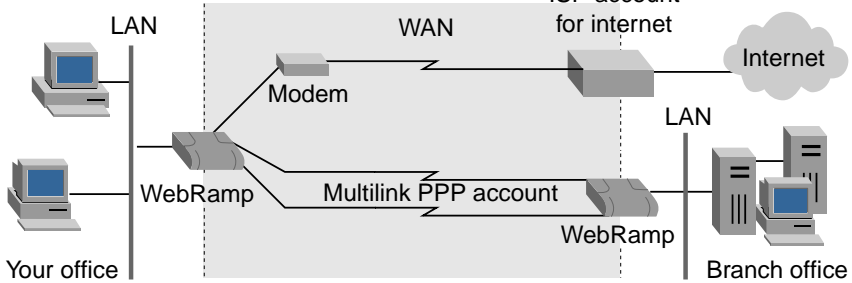
Example 3
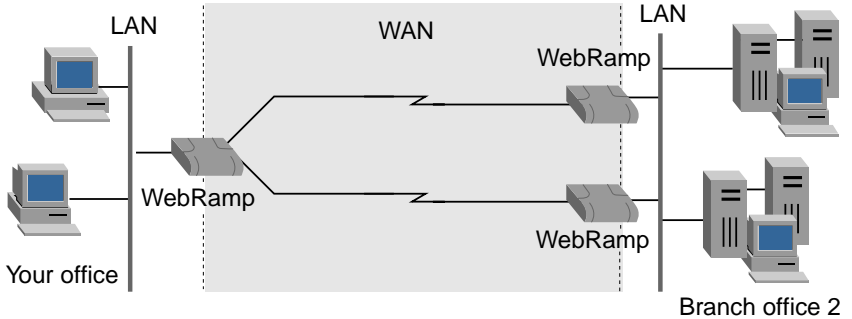
Essentially, setting up connections to several locations is very similar to combining the connections described in Chapters 2, 3, and 7: depending on where the modem is connected to, each connection is based on the same concepts as those chapters. The primary difference shows up in the way that the WebRamp bonds the connection. As "Adding Modems to Speed Up a Branch Office Connection" in Chapter 7 described, the WebRamp uses Multilink PPP when you use two modems to connect to a branch office. This is the situation in Example 2 of Figure 8-1: the two internal modems that connect to the branch office have been bonded using Multilink PPP, while the external modem that goes to the Internet is left separate.

See Chapter 2, Chapter 3, Chapter 4, and Chapter 7 for more information on connecting to the Internet, adding modems, and connecting to a branch office.

Connecting to the Internet and a Branch Office

Chapter 2 and Chapter 3 provided the instructions to connect your WebRamp to the Internet, and Chapter 7 described how to set up a connection between your office and a branch office. This section presents a sample that shows you how to set up a simultaneous connection to the Internet and a branch office. Example 1 of Figure 8-1, given earlier in the chapter, presents an overview of the sample.

NOTE – If you already set up a connection by following the instructions in the earlier chapters, you can reuse it to try out this sample by setting up the additional connection with the Connection Wizard. If you want to configure both connections, you need to clear the existing connection before you set up the Internet and branch office connections. To clear the connection, do the following: from any page in the WebRamp interface, click **Connection Wizard**. On the Connection Wizard page, click **Clear,** and then choose the connection you wish to clear from the drop-down menu. Click **Clear** again. Then you can use the Connection Wizard to set up the Internet and branch office connections.

The sample presented here is based on a single IP address account. (See Chapter 11 for more information about using a multiple IP address account.) The sample uses this basic scenario:

* Your office has several computers.

* You are setting up your WebRamp and its two internal modems to connect to the Internet and a branch office simultaneously.

- The branch office has modems and a WebRamp.

- You also want the branch office to have access to your office's LAN.

NOTE – In this sample, words and numbers that appear in ***bold italics*** are placeholders only. If you are actually implementing the sample, you should substitute names and numbers that work with your office and the branch offices.

You have decided to use IP routing to connect to the branch office and the Internet. As you prepare to set up the connection, you contact the network administrator of the branch office to get more information. Here is the information you gather:

	Your office **(OfficeA)**	Branch office 1 **(OfficeB)**	Internet
Router type	WebRamp	WebRamp	Unknown
Domain name	***ramphome.com***	***officeb.com***	N/A
Network IP address range	***192.168.1.1*** to ***192.168.1.255***	***200.20.1.1*** to ***200.20.1.255***	Dynamic
WebRamp's IP address	***192.168.1.1***	***200.20.1.1***	Unknown
Local WAN IP address	***200.20.3.1***	***200.20.3.2***	Dynamic
Call Direction	Incoming and Outgoing	Incoming and Outgoing	N/A

In addition, you note this information about the two DNS servers your ISP provided.

- IP address of the primary DNS server: ***100.10.1.1***

- IP address of the secondary DNS server: ***100.10.1.2***

To begin, see "Setting Up Your Hardware" in Chapter 2: follow the steps to connect your WebRamp to one computer. Next follow the instructions to use Easy Start to set up your computer with TCP/IP, as described in "Setting Up a Windows Computer With EasyStart" in Chapter 2.

In this sample, ***OfficeA*** is the name of your office. ***OfficeB*** is the name of the office you're connecting to. Here are the steps to set up the simultaneous connection to two branch offices:

1. Open the browser to the WebRamp Setup Page.

2. Click **Connection Wizard**.

    The Connection Wizard guides you through the process of setting up either additional Internet connections or branch office connections.

3. Click **Configure**.

    The Configure A New Connection page appears, showing you what connections have been configured so far. The table shows that you have not configured a connection yet.

4. In the Current Unconfigured Connection drop-down menu, select **Internet Connection**, and click **Configure**.

5. On the Modem Selection page, select **Modem1** and click **Next**.

6. In the Account Information page, provide the following information about the connection:
    • Name of Connection. Enter **ISP1**.
    • Phone number. Enter the phone number you use to connect to your ISP.
    • User Name. Enter the name you use for your Internet account.
    • Password. Enter your password for your Internet account.

    Click **Next**.

7. In the IP Address Configuration page, click **Next**.

8. In the Domain Name Server Configuration page, click **Use the following DNS Server addresses provided by my ISP**.

9. For **Primary DNS Server Address**, enter *100.10.1.1*. For **Secondary DNS Server Address**, enter *100.10.1.2*. Then click **Next**.

    You have completed the setup of the Internet connection, and are now ready to connect the WebRamp to the branch office.

10. Go to the WebRamp Setup Page and click **Connection Wizard**.

11. Click **Configure**.

12. In the Current Unconfigured Connection drop-down menu, select **Branch Office 1**, and click **Configure**.

13. On the Modem Selection page, select **Modem2** and click **Next**.

14. On the Modem Configuration page, select the speaker volume level of the internal modem. You can also select whether you want outgoing voice calls to have priority over data calls.

15. On the Call Direction Configuration page, select **Incoming and Outgoing** and click **Next.**

    This option allows either office to send and receive information to the other.

16. On the Incoming Call Configuration page, enter the name of the incoming connection as *OfficeB*. Next enter a user name and a password for the WebRamp at the branch office, and click **Next**.

17. On the Outgoing Call Configuration page, enter the name of the outgoing connection as *OfficeA*, and enter the phone number, user name, and password that your WebRamp should use. Click **Next**.

18. On the Protocol Selection page, select **IP Routing** and click **Next**.

19. In the fields of the WAN IP Address Configuration page, enter the information as follows:

    • Local WAN IP Address: *200.20.3.2*

    • Remote WAN IP Address: *200.20.3.1*

    • Remote Router LAN IP Address: *200.20.1.0*

    Click **Next**.

20. In the DNS Configuration page, do the following:

    • Enter the remote domain name as *officeb.com*.

    • Click **Automatically obtain the DNS server addresses**.

21. Click **Next**.

    Repeat the steps for the other office.

You have successfully configured a simultaneous connection to the Internet and to a branch office.

Next you need to connect and set up the other computers on your LAN. See "Adding Other Computers" in Chapter 2 for the steps you should use. Then you need to make certain that the WebRamp at the branch office has been set up to use the correct IP address; see the table given at the beginning of the scenario for the IP address. See "Local Configuration" in Chapter 11 for more information. After you complete these steps, all of the devices on your LAN can connect to both the Internet and the branch office.

Connecting to Two Branch Offices Using IP Routing

This section presents a sample that shows you how to connect your office to two branch offices using IP routing. The way you set up your connection will vary according to your situation, but you can use this sample as a model of IP routing in a simultaneous connection. Example 3 in Figure 8-1, given earlier, shows an overview of this sample.

NOTE – If you already set up a connection by following the instructions in the earlier chapters, you can reuse it to try out this sample by setting up the additional connection with the Connection Wizard. If you want to configure both connections, you need to clear the existing connection before you set up the Internet and branch office connections. To clear the connection, do the following: click **Connection Wizard**. On the Connection Wizard page, click **Clear** and then choose the connection you wish to clear from the drop-down menu. Click **Clear** again. Then you can use the Connection Wizard to set up the Internet and branch office connections.

The sample uses this basic scenario:

• Your office has several computers.

• You are setting up your WebRamp and its two internal modems to connect to two branch offices.

• The branch offices have modems and WebRamps.

NOTE – In this sample, words and numbers that appear in ***bold italics*** are placeholders only. If you are actually implementing the sample, you should substitute names and numbers that work with your office and the branch offices.

Because you've decided to use IP routing, you contact the network administrators of the branch offices to get more information. Here is the information you gather:

	Your office *(OfficeA)*	Branch office 1 *(OfficeB)*	Branch office 2 *(OfficeC)*
Router type	WebRamp	WebRamp	WebRamp
Domain name	*ramphome.com*	*officeb.com*	*officec.com*
Network IP address	*192.168.1.1* to *192.168.1.255*	*200.20.1.1* to *200.20.1.255*	*210.21.1.1* to *210.21.1.255*
Local WAN IP address (to OfficeB)	*200.20.2.2*	*200.20.2.1*	
Local WAN IP address (to OfficeC)	*200.20.3.2*		*200.20.3.1*
WebRamp's LAN IP address	*192.168.1.1*	*200.20.1.1*	*210.21.1.1*
Call direction	Incoming and Outgoing	Incoming and Outgoing	Incoming and Outgoing

NOTE – This sample assumes that the WebRamp gets the DNS addresses automatically. If you do not want to do this in your setup, be sure to get the DNS addresses from the network administrators of the branch offices.

To begin, see "Setting Up Your Hardware" in Chapter 2: follow the steps to connect your WebRamp to the modem and one computer. Next follow the instructions to use Easy Start to set up your computer with TCP/IP, as described in "Setting Up a Windows Computer With EasyStart" in Chapter 2.

In this sample, *OfficeA* is the name of your office. *OfficeB* and *OfficeC* are the names of the offices you're connecting to. Here are the steps to set up the simultaneous connection to two branch offices:

1. Open the browser to the WebRamp Setup Page.

2. Click **Connection Wizard**.

   The Connection Wizard guides you through the process of setting up either additional Internet connections or branch office connections.

3. Click **Configure**.

   The Configure A New Connection page appears, showing you what connections have been configured so far. The table shows that you have not configured a connection yet.

4. In the Current Unconfigured Connection drop-down menu, select **Branch Office 1**, and click **Configure**.

5. On the Modem Selection page, select **Modem1** and click **Next**.

6. On the Modem Configuration page, select the speaker volume level of the internal modem. You can also select whether you want outgoing voice calls to have priority over data calls.

7. On the Call Direction Configuration page, select **Incoming and Outgoing** and click **Next.**

   This option allows either office to send and receive information to the other.

8. On the Incoming Call Configuration page, enter the name of the incoming connection as *OfficeB*. Next enter a user name and a password for the router at the branch office, and click **Next**.

9. On the Outgoing Call Configuration page, enter the name of the outgoing connection as *OfficeA*, and enter the phone number, user name, and password that your WebRamp should use. Click **Next**.

10. On the Protocol Selection page, select **IP Routing** and click **Next**.

11. In the fields of the WAN IP Address Configuration page, enter the information as follows.

    • Local WAN IP Address: *200.20.2.2*

    • Remote WAN IP Address: *200.20.2.1*

    • Remote Router LAN IP Address: *200.20.1.0*

    Click **This connection is the default route for my WebRamp** and click **Next**.

NOTE – If you do not want this connection to be your default, do not select this option.

---

12. In the DNS Configuration page, do the following:

    • Enter the remote domain name as ***officeb.com.***

    • Click **Use the Following DNS Server Addresses,** and then enter the DNS addresses of Office B.

    Click **Next**. You are now ready to set up the connection to the second branch office.

13. On the WebRamp Setup Page, click **Connection Wizard**.

14. Click **Configure**.

    The Configure A New Connection page appears, showing you what connections have been configured so far. The table shows that you have configured Modem 1.

15. In the Current Unconfigured Connection drop-down menu, select **Branch Office 2**, and click **Configure**.

16. On the Modem Selection page, select **Modem2** and click **Next**.

17. On the Modem Configuration page, select the speaker volume level of the internal modem. You can also select whether you want outgoing voice calls to have priority over data calls.

18. On the Call Direction Configuration page, select **Incoming and Outgoing** and click **Next**.

    This option allows either office to send and receive information to the other.

19. On the Incoming Call Configuration page, enter the name of the incoming connection as ***OfficeC***. Next enter a user name and a password for the WebRamp at the branch office, and click **Next**.

20. On the Outgoing Call Configuration page, enter the name of the outgoing connection as ***OfficeA***, and enter the phone number, user name, and password that your WebRamp should use. Click **Next**.

21. On the Protocol Selection page, select **IP Routing** and click **Next**.

22. In the fields of the WAN IP Address Configuration page, enter the information as follows.

    • Local WAN IP Address: ***200.20.3.2***

    • Remote WAN IP Address: ***200.20.3.1***

    • Remote Router LAN IP Address: ***200.21.1.0***

    Click **Next**.

NOTE – If you want this connection to be your default, do not select this option in step 11 and click **This connection is the default route for my WebRamp** here.

---

23. In the DNS Configuration page, do the following:

    • Enter the remote domain name as ***officec.com***.

    • Click **Use the Following DNS Server Addresses,** and then enter the DNS addresses of Office C.

    Click **Next**.

You have successfully configured a simultaneous connection to two branch offices using IP routing.

Next you need to connect and set up the other computers on your LAN. See "Adding Other Computers" in Chapter 2 for the steps you should use. After you complete these steps, all of the devices on your LAN can connect to both branch offices. To add modems to increase the speed of your connections, see Chapter 4, "Setting Up Additional Modems for Internet Access," and "Adding Modems to Speed Up a Branch Office Connection" in Chapter 7.

9

Creating a Virtual Private Network

A virtual private network (VPN) is a way to connect private networks securely over the Internet. With a VPN, the connection between locations is made over the Internet through local ISPs. If your office is in a geographically distant location from the other office, the savings on long-distance phone charges can be significant if you're connecting over an analog phone line.

The WebRamp provides both VPN client and VPN pass-through capability.

With the WebRamp's VPN client, all the computers on your network can use the WebRamp to connect to an office in another location over the Internet.

VPN pass-through allows individual Windows computers on your network to connect to networks in different locations using the Windows VPN client feature and the WebRamp's Internet configuration.

This chapter explains the WebRamp's VPN client and VPN pass-through features. See "VPN With the WebRamp Client" and "VPN Pass-Through" for more information.

VPN With the WebRamp Client

If you decide to connect to another office using a VPN, consider the following:

- The VPN configuration depends on the WebRamp's Internet connection to send data. Before you set up a VPN with your WebRamp, you must set up your Internet connection, using either DSL or an external analog modem.

- You can use the WebRamp VPN client to set up one VPN connection to one location.

- There is no client configuration required for any of the computers. When you configure a VPN connection to another office with the WebRamp, all the computers on your network can connect to the remote office over the VPN.

- You can access Internet resources while using the WebRamp's VPN client feature. Resources such as the World Wide Web are still available to you while you are connected to the other office.

- The WebRamp has client-only capability and cannot be configured for an incoming VPN connection. Once the WebRamp client initiates and makes the connection, information can be passed back and forth.

NOTE – The WebRamp can accept incoming calls from telecommuter and branch office connections while a VPN connection is enabled.

How the WebRamp Creates a VPN

A VPN requires an Internet connection, which you can set up using the DSL line or an analog modem. The WebRamp in your office, acting as the client, accesses over the Internet the network behind an NT server in another office.

NOTE – The WebRamp acts as a client only. An NT server with VPN configured is required in the office you are connecting to.

When the WebRamp client initiates a connection, the request goes through the WebRamp, the local ISP, over the Internet, through the other office's local ISP, and then to a Windows NT server in the other office. The WebRamp uses PPTP to encapsulate the data being sent and create a "tunnel" to transmit the data between networks. (PPTP, Point to Point Tunneling Protocol, is the protocol used to send and receive information with a VPN connection.)

NOTE – The WebRamp PPTP client connects to Windows PPTP server software, which comes with Windows NT Server 4.0 and above.

Data transmission is not restricted by different protocols, because PPTP encapsulates both IP, IPX, and NetBEUI data. The WebRamp also encrypts the data, providing security for VPN connections.

NOTE – The WebRamp supports IP and IPX protocols only.

Figure 9-1 shows a network connection over a VPN.

Figure 9-1   Network connection over a VPN
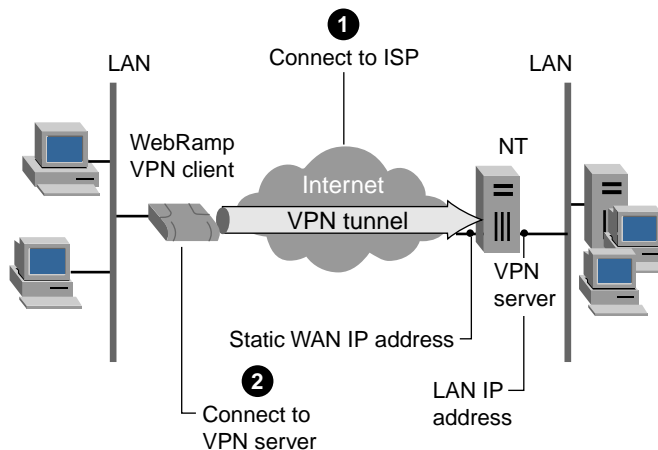
Setting Up a VPN With the WebRamp

The simplest way to set up a VPN connection for the first time with your WebRamp is through the Connection Wizard in the WebRamp setup. (You can also set up a VPN connection through the WebRamp's advanced options. See "VPN Connection" in Chapter 11 for more information.)

This section provides an example that takes you through the setup process using the Connection Wizard and also provides basic information about what you need to set up the NT server in the remote office.

Before you can set up a VPN connection with your WebRamp, you must first set up the WebRamp's Internet connection, using either the DSL line or an analog modem. See Chapter 2, "Setting Up a New Network" for information about setting up an Internet connection with the WebRamp.

The VPN setup process requires some information about the NT server in the other office. Before you start, ask the network administrator in the other office to provide the following information:

• the server's WAN or Internet IP address (the address must be static)

• the server's LAN IP address

- the user name

- the password that will allow you to access the LAN in the other office

---

NOTE – The NT server must be connected to the Internet for the VPN connection to
succeed.

Figure 9-2 shows an example of a WebRamp VPN connection. The steps that
follow show how to set up the connection shown in the figure.

Figure 9-2   An example of a VPN connection

---
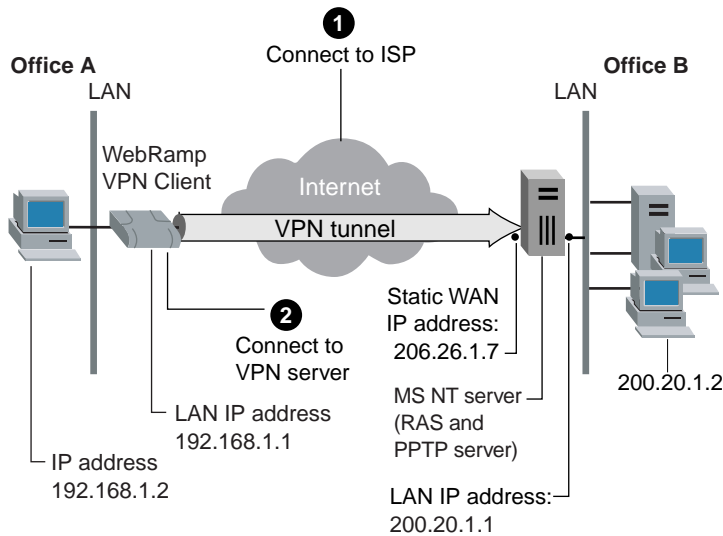
NOTE – In the example below, text that appears in ***bold italic*** indicates a placeholder.
When you set up your own connection, you must substitute that text with your
own information.

Figure 9-3   Connection Wizard page.

In this example, Office A is using the WebRamp client to connect to the NT server in Office B. Both offices have Internet access configured.

1. On the WebRamp Setup page, click **Connection Wizard.**

2. On the Connection Wizard page, click **Configure.**

3. On the Configure a New Connection page, choose **VPN** from the pull-down menu and then click **Configure.**

4. On the VPN Configuration page, enter the following information (the server IP address, the user name, and the password are provided by the network administrator in Office B):

   • In the Name of Connection field, enter Office B.

   • In the VPN Server IP Address field, enter *206.26.1.7* (the remote NT server's Internet address)

   • In the User Name field, enter *User1.*

   • In the Password field, enter your password.

NOTE – The user name and password cannot contain spaces.

   • Confirm your password and then click **Next.**

5. On the VPN Protocol Selection page, click the **IP Routing** radio button and then click **Next.** (You can also choose IPX routing if users need to access a remote IPX service.)

6. On the WAN IP Address Configuration page, enter *200.20.1.1* in the Remote Router LAN IP Address field and then click **Next.**

7. On the DNS Configuration page enter the domain name of Office B. For example, *officeB.com.* This is optional.

8. Choose **Automatically Obtain the DNS Server Addresses** or **Use the Following DNS Server Addresses.** If you choose the latter, you must provide the DNS server information. (These DNS servers can only be used to resolve computer names that end in officeB.com.)

9. Click **Next.**

10. Click **Done.**

NOTE – The VPN connection is enabled once you complete the setup with the Connection Wizard. If you want to disable the connection, go to the VPN Configuration page in the Advanced options. See "VPN Configuration" in Chapter 11 for more information.

To complete your VPN connection, you must also configure a PPTP server on the NT server in the remote network. You can find detailed information about this process from the latest version of the NT Resource Kit, but the basic requirements are an NT server with the following:

• Windows NT Server, version 4.0

• One or more installed network adapters (two or more are usually required: one to connect to the Internet and one or more for the network connections)

• Network protocols (TCP/IP and IPX/SPX) installed and bound to the network adapters for the VPN

• PPTP server installed and configured (comes with Windows NT Server 4.0 and above)

• Static Internet IP address

• RAS with dial-up networking installed and configured

You must also do the following in the Routing and RAS settings:

• In the Routing and RAS VPN interface settings, click **Use This Address** and enter the IP address to use with the connection (the address should be one from the address range shown in the RAS server TCP/IP configuration).

- In the Routing and RAS network configuration settings, under Require Microsoft Encrypted Authentication, verify that the Require Strong Data Encryption checkbox is NOT selected for the VPN interface.

- In the Routing and RAS Admin security settings, verify that the Strong Data Encryption checkbox is NOT selected for the VPN interface.

NOTE – You must add a permanent route on the NT server to the WebRamp's local network. Otherwise, the server does not change its routing table in response to RIP updates and routing will not work.

After you have entered all the setup information required for both the WebRamp and the remote NT server, all the computers on your network can connect to the remote office using the WebRamp client.

You can also access Network Neighborhood in the remote office with a VPN connection. Appendix D, "Accessing Network Neighborhood," provides more information.

To make changes to an existing connection, or to set up a new connection without Connection Wizard, use the Advanced Options of the WebRamp setup. See "VPN Connection" in Chapter 11. That section also provides a review of each of the advanced options available for VPN connections.

VPN Pass-Through

Microsoft provides the capability with Windows 95, Windows 98, and Windows NT operating systems to create a VPN from a computer in one location to an NT server in a remote location. Users in your office may want to use both the Windows VPN feature and WebRamp VPN feature, and it's possible to set up connections with both features on your network.

**NOTE –** You can use both the WebRamp VPN client and Windows VPN client on your network, but Ramp Networks recommends that you do not use both to set up a connection to the same location.


If you have only one or two users who need to connect to a remote location through a VPN, you may want those users to use the Windows VPN client. The WebRamp's VPN pass-through feature allows users on your network to access a

remote server using the WebRamp's Internet configuration. Each Windows computer can have a connection to a different location, and each computer must be configured separately.

NOTE – The NT server in the other office must have a static IP address and be connected to the Internet to create a successful VPN connection.

If you have several people in your office who need access to the same remote location, you should use the WebRamp's VPN client. The WebRamp's VPN connection is transparent to the users on your network, and all users have access to the remote location. See "VPN With the WebRamp Client" for information about setting up a VPN connection with the WebRamp.

Figure 9-4 shows a VPN connection from a Windows client to a remote NT server. The WebRamp's pass-through feature is enabled, which allows information to travel from the Windows client to the remote server using the WebRamp's Internet configuration.

Figure 9-4   VPN pass-through connection
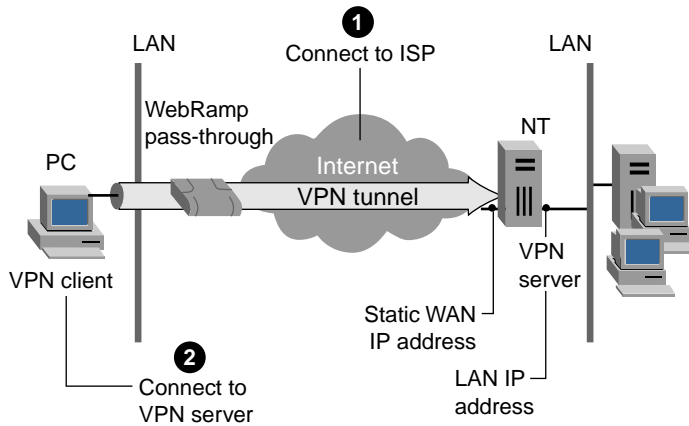
As shown in Figure 9-4, the connection request comes from the Windows VPN client instead of the WebRamp.

NOTE – You do not have access to Internet resources such as the World Wide Web while you are connected to another office using a Windows client and VPN pass-through on the WebRamp.

On the VPN Pass-Through page, which you reach through Local Configuration in the WebRamp setup, you can enable and disable pass-through and view which computers are using a pass-through connection. The VPN Pass-Through page shows the address of the client that initiated the connection and the address of the remote server. Figure 9-5 shows the VPN Pass-Through page.

Figure 9-5   VPN Pass-Through page

10

Adding Telecommuting to Your LAN

Telecommuting is a way for users in remote locations to connect to a private network. With the WebRamp's telecommuting feature, users can dial into your network from any location, provided they have a computer and a modem. If you have employees who do the majority of their work from home or who travel frequently, they can easily stay in touch with the office by telecommuting. When telecommuters dial into your network, their computers become part of your LAN. Any resources available to users on site are also available to telecommuters. For example, if you previously set up connections for the Internet and a branch office, those connections are also available to telecommuters.

This chapter provides an overview of the WebRamp's telecommuting capability and also provides an example that takes you through the steps for setting up a connection for telecommuters.

Setting Up the WebRamp for Telecommuter Access

This section provides an overview of what you need to know when you set up telecommuter access to the WebRamp.

Applying Modems

From previous chapters, you learned that you can use up to three modems with the WebRamp. If most of your employees are telecommuters and need to connect frequently to the network, you may want to dedicate one or more modems for telecommuter access. If only a few employees need sporadic access, you may decide to set up telecommuter access on a modem that's also configured for another type of connection.

With the WebRamp, it's possible to apply the same modem for different connections; for example, you can use one modem for both Internet and telecommuter access. There are several different ways to allocate your modem resources, and how you do it depends on your business requirements.

NOTE – Although it's possible to use the same modem for an Internet connection and telecommuter access, the telecommuter will not be able to access the Internet if this is the only modem dialing to an ISP.

Choosing Protocols

After you choose the modems you want to use for telecommuters, you choose which protocol to use. The WebRamp supports both IP and IPX for telecommuter access, and you can use one or both, depending on your network configuration.

With IP, telecommuters can access the Internet, share files, get e-mail, and access company files.

IPX is supported for telecommuters that need to access information on a Novell NetWare server. In addition, telecommuters can use IPX when accessing information on computers using Windows networking.

NOTE – The remote computer and the computer's dialer must also be configured to use the same protocols. To configure different protocols on your computer, follow the instructions that came with your computer.

Adding Telecommuters

After you've chosen the modems and protocols for telecommuters to use, you can add telecommuters and specify callback options. You can configure the WebRamp for up to 40 telecommuters.

Telecommuter Database

The WebRamp has an internal table called the *telecommuter database*, which keeps track of the names and passwords of the people who have telecommuter access to your LAN. When you add telecommuters, you assign each a unique name and password, which are then added automatically to the telecommuter database. When a telecommuter attempts to connect, the WebRamp searches the telecommuter database for the name and password of the person dialing in. If it finds the user name, it authenticates the user with the password and callback option configured for that user. If it cannot find the name and password or authenticate the user, the call is dropped.

Callback Options

A callback is a way to further authenticate telecommuters after the name and password are verified. When you add telecommuters, you must also choose which callback option to apply. You can enable one of three callback options:

• If you click the No Callback radio button, no callback is required to authenticate the caller. (This is the default.)

• If you click the Callback On the Number Specified By the Caller radio button, the WebRamp calls back the number supplied by the telecommuter. When the telecommuter initiates a connection, the WebRamp receives and drops the call, and then calls the telecommuter back on the number specified. This option provides an easy way for users who are calling long distance to avoid long-distance phone costs. Because the telecommuter provides the callback number, this option is more for convenience than security.

• If you click the Always Callback Using the Following Number radio button, you specify the callback number that the WebRamp uses to authenticate the caller. When a telecommuter tries to connect to your network, the WebRamp drops the call, and calls back on the number you specified. After the WebRamp verifies the user name and password, it uses this number, which is stored in the telecommuter database, to call the telecommuter back.

Security Features

Besides the authentication process that takes place with the telecommuter database and the callback options, the WebRamp also supports two additional authentication protocols: CHAP (Challenge Handshake Authentication Protocol) and PAP (Password Authentication Protocol).

Preparing the User for Telecommuting

After you configure the WebRamp for telecommuting, you must also make sure that the telecommuters have their computers configured properly. Each telecommuter must have the following:

- a Windows 95, Windows 98, or Windows NT 4.0 computer
- TCP/IP and IPX network protocols installed (IPX is necessary only if telecommuters need to access a Novell server)
- 16 MB of RAM (32 MB recommended)
- a modem (any analog or ISDN modem)
- a modem cable
- a standard phone line

Before users can take advantage of the WebRamp's telecommuting feature, they must first create a dial-up connection on their computers. A dial-up connection is similar to an ISP connection, but in this case the WebRamp is the service provider.

The process for creating a dial-up connection depends on the operating system, and you should check the documentation that came with the computer for specifics.

Setting Up a Connection

This section provides an example that shows you the steps for setting up telecommuter access with your WebRamp. The information provided in the steps is for example only; the information you provide for the actual connection will vary.

In this example, there is an Internet connection and a branch office connection. The telecommuter is accessing the resources from these two connections as well as the resources available on the LAN. Figure 10-1 shows an example of a telecommuter connection.

Figure 10-1 Telecommuter connection
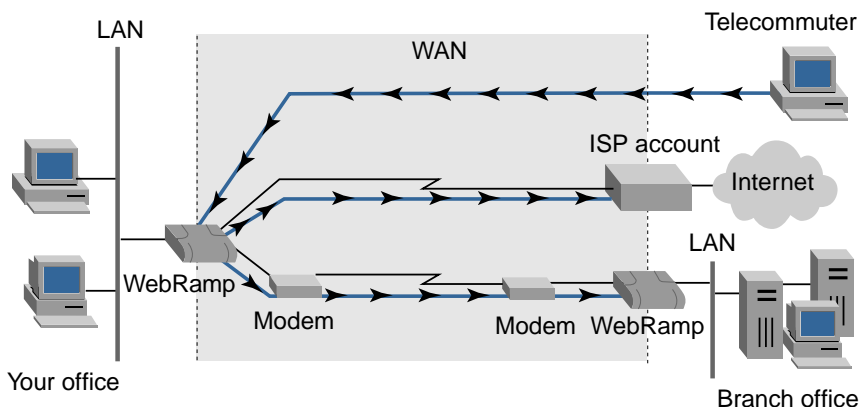
Follow these steps to set up your WebRamp for telecommuting:

1. From any page on the WebRamp interface, click **Advanced.**

2. On the Advanced Options page, click **Telecommuter Configuration.**

3. On the Telecommuter Configuration page, click the **Enable** button to enable telecommuting, and then click **Modem Selection.**

4. On the Modem Selection page, click the checkbox beside the modem to use for telecommuting, and then click **Apply.**

5. On the Telecommuter Configuration page, click **Protocol Configuration.**

6. On the Protocol Configuration page, click **IP Configuration** and then do the following:

   • Click **Enable IP for Telecommuters.**

   • Click **Assign From the DHCP Pool** to have the WebRamp dynamically assign the IP address.

   • Click **Assign the DHCP DNS Server Addresses** to have the WebRamp dynamically assign the DNS address.

   • Click **Apply.**

7. On the Protocol Configuration page, click **IPX Configuration** and then do the following:

    • Click **Enable IPX for Telecommuters.**

    • Enter the IPX network numbers for the telecommuters. You must enter a number in each field.

NOTE – The network number can be one to eight digits in length and must consist of hexadecimal digits (0-9 or a-f). Each network number must be unique within your IPX network. For example, 1a, 2a, and 3a could be valid telecommuter IPX network numbers.

    • Click **Apply.**

8. On the Telecommuter Configuration page, click **Telecommuters.**

9. On the Telecommuters page, click **Add.**

10. On the Add a Telecommuter page enter information in the following fields:

    • Telecommuter User Name (the user name cannot contain any spaces)

    • Password

11. Choose a callback option. If you choose Always Callback Using the Following Number, enter the number in the Callback Phone Number field.

12. Click **Apply.**

To add more telecommuters, repeat steps 8 through 12.

Chapter

11

Using the WebRamp's Advanced Options

If you read the earlier chapters of this reference, you probably have set up the WebRamp on your LAN to do one or two of the following tasks:

- connect to the Internet
- connect to a branch office
- set up VPN connection
- connect to the Internet and a branch office simultaneously
- add telecommuter access to your network
- add modems to speed up your connection
- set up access controls

This chapter describes the WebRamp's advanced features, which are available when you click the Advanced button on the WebRamp Setup Page. If you are unfamiliar with the advanced concepts presented in this chapter, work with a technical consultant who can help you decide which features and settings you should use.

Figure 11-1 shows the Advanced Options page. This page provides an overview of your connections, showing which modems you are using and which connections are enabled. Each of the items on the page is described in more detail later in this chapter.

Figure 11-1 Advanced Options

Fine-Tuning Your WebRamp With Advanced Options

Through the WebRamp's advanced options, you can fine-tune its setup and connections. For example, all of the following advanced features allow you or a technical consultant to modify your WebRamp and its setup:

- Modem Configuration
- Internet Connection
- VPN Connection
- Branch Office Connection
- Telecommuter Configuration
- Local Configuration

Each of these pages is available from the Advanced Options page and is described completely later in this chapter. Local Configuration, in particular, provides other controls for making local servers or computers accessible to outside users, assigning addresses to computers on your LAN, and using domain names instead of IP addresses. This section briefly describes where these controls are; see "Modem Configuration," "Internet Connection," VPN Connection," "Branch Office," "Telecommuter Configuration," and "Local Configuration," in this chapter for more information about all of the advanced options.

Checking the WebRamp's Status With SNMP

To check the current status of the WebRamp, click the Status button. In addition, the WebRamp provides a Simple Network Management Protocol (SNMP) agent that you can set up to monitor the WebRamp's activities. An SNMP manager queries the WebRamp about a set of characteristics and parameters; the SNMP agent supports MIB-2.

A technical consultant can work with you to set up an SNMP manager (such as Hewlett-Packard's OpenView), which is a software package that uses SNMP to report on the WebRamp's activities and status. In the Local Configuration page, click **SNMP** to go to the SNMP Configuration page. See the section "SNMP Configuration" in this chapter for more information.

Making Parts of Your LAN Available to Outside Users

The WebRamp allows you to provide outside users limited access to your LAN. For example, you may want to set up a web server or mail server that users or customers can access, or use a client application such as a game that requires special control connections and data connections, or create "visible" computers that use interactive applications that are completely accessible from the Internet. Before you can provide access, you need to set up a single static IP address, a process that is described next.

Setting Up a Single Static IP Address

There are two parts to providing access to parts of your LAN, such as to a specific server. First, you set up a static IP address for the WebRamp's WAN address. Then you configure the IP address of the WebRamp's server. See "Local Servers" later in this chapter for more information. The WebRamp, in turn, transparently associates this static IP address to the server's IP address. Check to see if your ISP can provide a single static IP address. You can use the WebRamp's advanced options to set the IP address.

See "Setting Up the WebRamp in a Static IP Address Network" in Chapter 3 for the steps to set up the static IP address using WebRamp Finder.

Here are the steps to set up the static IP address through the Advanced Options:

1. In the WebRamp Setup Page, click **Advanced**.

2. In the Advanced Options page, click **Internet**.

3. In the Internet Connection page, click **ISP Options**.

4. In the ISP Options page, click **IP Configuration**.

5. In the ISP IP Configuration page, click **Static** and enter the IP address that your ISP provided.

    This IP address becomes the static IP address.

NOTE – If you have more than one Internet account and used Connection Optimized Link Technology to bond the connections, then you need to enter a static IP address for each connection. To check the WebRamp's local WAN address, in the WebRamp Setup Page, click the **Status** button. On the WebRamp Status page, the address appears next to each connection.

Setting Up Local Servers

As your business grows, you may want to host a web server or a mail server on your LAN. These servers are called **local servers**, and appear to computers on the Internet as if they have the same IP address as your WebRamp's WAN IP address. You must get a static IP address from your ISP for this process. (See "Setting Up a Single Static IP Address" in this chapter for more information on this process.) When your LAN uses local servers, WebRamp forwards requests from the Internet to the correct local server.

You can only use the Local Servers feature with the modem configured for the ISP 1 account. A benefit of the Local Servers feature is that you can use more than one computer as local servers on your LAN. However, each server must be a different type—such as a web server, a mail server, and so on.

Here is an example of how to set up a local server. If your ISP gives you *205.172.1.7* as a static IP address and you want to set up a web server on the computer that uses the IP address *192.168.1.2,* here are the steps to set up the web server:

1. In the WebRamp Setup page, click **Advanced**.

2. Click **Local Configuration**, and then click **Applications**.

3. Click **Local Servers**, and then click **Enable**.

4. Click **Add**.

5. Enter *192.168.1.2* as the IP address, click **Web (HTTP)** in the Server list, and then click **Apply**.

You have now set up a web server on your LAN. To access the web server, a computer on the Internet uses the address *205.172.1.7*, and the WebRamp forwards the request to *192.168.1.2*, the web server's address.

WARNING – Make certain that the computer you are using as the local server has the WebRamp as its default gateway. If you do not do this, the local server will not work.

Also, if you try to set up a local server while Modem 1 is connected to the Internet, you must drop the call before your changes can take effect.

To set up a mail server, you can follow the same steps, but you must change step 5: substitute the IP address of the mail server and then click **Mail (SMTP)** in the Server list. (The pull-down menu shows other services that you can host locally.)

Setting Up Visible Computers

In addition to Local Servers, the WebRamp has another feature called Visible Computers. This feature is similar to, but more generic than the Local Servers feature. It allows all incoming traffic on any of the WebRamp's modems to be forwarded to one specific computer on the LAN. You can use the Visible Computers feature to forward network traffic to a web server or mail server. The Visible Computers feature is different from the Local Servers feature because it forwards all of the incoming traffic (regardless of the type) to only one computer. There are two typical uses of this feature:

• hosting a web site

• allowing some Internet application (like an Internet game or NetMeeting) to work with a particular computer.

Since this feature is enabled for each modem, you can have up to three visible computers on your network. Users on the Internet have to connect to the appropriate modem's IP address to reach the corresponding visible computer.

Here is an example of setting up a visible computer:

1. In the WebRamp Setup page, click **Advanced**.

2. Click **Local Configuration**, and then click **Applications**.

3. Click **Visible Computers.**

4. Click **Visible Computers 1**, **Visible Computers 2**, or **Visible Computers 3**.

5. Click **Enable Access to the Local Computer**.

6. Enter *192.168.1.2* as the IP address, and then click **Apply**.

Clicking one of the checkboxes for Web (HTTP), Telnet, and SNMP allows computers to access your WebRamp from the Internet using one of these methods. If you check one of these, you cannot host a server of the same type on your LAN.

Using Internet Applications and Local Servers

The WebRamp provides the ability to use Internet applications with a local server. This is an advanced feature: you should use it only if you have an in-depth knowledge of how an Internet application uses TCP/IP ports to connect to a server on the Internet.

In general, an Internet application, like CUSeeMe, uses two (or more) TCP/IP connections in order to work properly. One TCP/IP connection is made from a computer on your LAN, through the WebRamp, to a server on the Internet. The second TCP/IP connection (or more) is a separate connection made from the Internet server back to the computer on your LAN. The first connection is for control purposes: for example, to establish and close the CUSeeMe session. The second connection is for data, such as data from a video or chat session. Because both connections are associated with one computer, the WebRamp keeps track of these connections as one Internet application session. The WebRamp only allows one type of Internet application (or local server) to be in use at a time. By default, this feature is enabled for the Internet applications CUSeeMe and Diablo.

Assigning Addresses to Computers on Your LAN

DHCP is the abbreviation for *Dynamic Host Configuration Protocol*. It allows computers on a LAN to automatically obtain network information from a server, called the *DHCP server*. The WebRamp has a built-in DHCP server that can be used to assign IP addresses and other network information to the computers on its LAN.

Here is a list of the information that can be provided by the WebRamp's DHCP server:

- IP address range for computers on the LAN
- Gateway address to be assigned for computers on the LAN
- Primary and secondary DNS server IP addresses
- WINS server IP addresses

If you do not want to use the WebRamp's DHCP server, you must disable it because the WebRamp's DHCP server is enabled by default. You can configure DHCP options through the Local Configuration page. See "DHCP Server Configuration," given later in this chapter, for more information.

NOTE – You can use the EasyStart utility to configure each PC to use DHCP. This utility is provided on the WebRamp CD. The filename is esetup.exe.

Using Domain Names Instead of IP Addresses

DNS is the abbreviation for *Domain Name Service*. DNS allows Internet users to use names like www.rampnet.com instead of IP addresses to find computers on the Internet. The WebRamp uses DNS to find the computers that your browser (or any other Internet application) requests information from. The Internet has many DNS computers (called *DNS servers*) that share names with each other so that you can reach a computer anywhere in the world by just using a name.

Because the WebRamp (and other computers on the Internet) really use an IP address to reach a web site instead of a name, there is a conversion between the name you entered and the IP address. The DNS server does this conversion, which is called a *DNS resolution*. When your WebRamp needs to reach www.rampnet.com, a few things happen:

1. The WebRamp looks in its tables to see if it knows the IP address. If not, it forwards your browser's request to a DNS Server that can resolve the IP Address for that web site.

2. The DNS server responds with the IP address of the www.rampnet.com web site.

3. The WebRamp uses the IP address to get you the web page.

There are two basic ways to configure your WebRamp to use DNS to reach web sites or other Internet resources:

• **Let your Internet Service Provider (ISP) provide it to you automatically.**

   Many ISPs provide the IP address of their preferred DNS server automatically when you connect. If you choose **Automatically Obtain the DNS Server Addresses** when you set up the WebRamp, it will learn the address when you connect to the ISP. You can set up this option when you use the Connection Wizard or when you modify the default server options of the DNS server (see "DNS Server" in this chapter for more information).

• **You enter the DNS Server's IP address yourself.**

   There are many other ISPs that do not provide the DNS server address automatically when you connect. In this case, you need to enter an IP address of a DNS server. The WebRamp uses this address to resolve names it cannot resolve by itself. If you do not enter this address, your computer may not be able to browse on the Internet. You can set up this option when you use the Connection Wizard or when you modify the default server options of the DNS server (see "DNS Server" in this chapter for more information).

For additional information, see "Local DNS Configuration" in this chapter.

Modem Configuration

You use the Modem Configuration page to modify modem values that you set when you configured or added a modem to the WebRamp. There are different configuration pages for Modem 1, Modem 2, and Modem 3.

Modem 1 Configuration

The first internal modem, modem 1, allows you to choose the speaker volume level and whether to give outgoing voice calls preference over data calls.

1. From the Advanced Options page, click **Modem 1.**

2. Choose the speaker volume level of the internal modem. You can also choose whether you want outgoing voice calls to have priority over data calls.

3. Choose the modem dialing mode: Tone or Pulse. Change the dialing mode from tone to pulse only if your phone company does not support tone.

4. Click **Apply.**

Modem 2 Configuration

Say, for example, you work in a small office with only two phone lines. You used Express Internet to configure your Internet connection with modem 1, and then added modem 2 to increase your Internet access speed with modem bonding. With call bumping, you can have increased Internet access speed, but still allow incoming voice calls as needed.

If you clicked the Give Preference to Outgoing Voice Call checkbox, modem 2 interrupts the current data connection when an attached phone is picked up. Because there is still a data connection with modem 1, users don't lose the Internet connection. However, depending on the modem bonding option you chose, there will be some impact to the connection.

• With Connection Optimized Link Technology, some users on the network receive an error message when the data connection is dropped for an outgoing call. This simply means that users must reestablish the TCP connection by clicking reload or browsing to another web site.

• With Multilink PPP, loss of the data connection on modem 2 is mostly transparent to users, but there may be some decrease in Internet access speed.

When you chose the modem bonding method, you also chose the way modems would be used with the connection: Simultaneously or dynamically. This choice affects the way modem 2 comes back to the Internet connection when the voice call is completed.

- **Simultaneously.** If you chose simultaneously and you are using Multilink PPP, the modem comes back to the Internet connection as soon as the voice cal ends. With Connection Optimized Link Technology, the modem comes back at the next TCP connection.

- **Dynamically.** If you chose dynamically, the modem comes back to the Internet connection based on the bonding parameters you set.

To configure the second internal modem, follow these steps:

1. From any page in the WebRamp configuration, click **Advanced.**

2. From the Advanced Options page, click **Modem 2.**

3. On the Modem Configuration page, choose the speaker volume level, whether you want to give priority to outgoing voice calls, and whether to give priority to incoming voice calls.

4. Choose the modem dialing mode: Tone or Pulse. Change the dialing mode from tone to pulse only if your phone company does not support tone.

5. Click **Apply.**

Modem 3 Configuration

The modem 3 configuration page allows you to enter the information for an external modem.

1. From any page in the WebRamp configuration, click **Advanced.**

2. From the Advanced Options page, click **Modem 3.**

3. Enter the following information:

   • Modem Manufacturer. Use the drop-down menu to find the name of your modem's manufacturer. If the name does not appear on the list, choose **Standard Modem** or **Other.** (If you are using an ISDN T/A, choose **Standard Modem.** If you have trouble connecting, choose **Other** and then enter an initialization string, which is provided by the modem manufacturer.)

   • Maximum Modem Speed. Use the drop-down menu to choose the speed of your modem. (For ISDN T/A, choose 115,200 bps or 230,400 bps, depending on your ISDN T/A. If you choose Standard Modem for modem manufacturer and then 230,400 bps for modem speed, you might also need to enter an initialization string.)

NOTE – ISDN T/As typically support only 115,200 bps or they require special configuration before being used at 230,400 bps.

- Additional Modem Initialization String. Some analog modems also require the use of an additional initialization string in case the modem does not connect properly. If so, choose **Other** for Modem Manufacturer and enter an initialization string. You must check the modem documentation or contact the modem manufacturer to get an initialization string.

- Choose the modem dialing mode: Tone or Pulse. Change the dialing mode from tone to pulse only if your phone company does not support tone.

4. Click **Apply.**

Internet Connection

The Internet Connection page lets you disable or enable different configuration information. From the Internet Connection page you can reach the following pages, where you can check and modify your current settings:

- Modem Bonding
- ISP Options
- Filter Selection

Modem Bonding

The Modem Bonding Options page lets you configure your modem bonding information. You can bond up to three modems together to improve Internet access speed. Follow these steps for modem bonding:

1. Click the modems to be used with the Internet connection.

2. Click either **Use a Separate Account for Each Modem (no special ISP support required)** or **Use the Same Account for All Modems (ISP must support Multilink PPP).**

NOTE – If you click **Use the Same Account for All Modems,** your ISP must support Multilink PPP over analog phone lines.

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3. Click either **Simultaneously** or **Dynamically** to bring up the modem connection.

   • *Simultaneously* dials all modems for the Internet connection.

- • *Dynamically* dials the first modem initially and dials additional modems when the first modem has been running at full speed for a pre-determined length of time. The pull-down menus for the second and third modems contain thresholds that you can change at any time.

NOTE – Networks recommends using the default values for bonding parameters.

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4. Click **Apply.** If you have more than one modem configured for your Internet connection, clicking Apply takes you to the Success page. (This page verifies that the modems were bonded successfully, and instructs you to update and verify your modem account information as required.)

5. Click **Next**.

6. On the Internet Connection page, click **ISP Options** to reach the ISP Configuration page, where you can modify your ISP information.

NOTE – The contents of the Success page depends on the modem bonding option (Connection Optimized Link Technology or Multilink PPP) you chose on the Modem Bonding page.

ISP Options

You use the ISP Configuration page to modify the ISP settings used for the Internet connection. From this page you have the following choices:

- • Account Information
- • IP Configuration

- Advanced Configuration
- Login Script

Account Information

You use the Account Information page to modify the ISP account information for the Internet connection. You may want to modify the ISP information, for example, if you change your ISP. After you make your changes, click **Apply.**

IP Configuration

You enter your ISP's IP address assignment information in the IP Configuration page. Follow these steps:

1. Choose the IP address assignment method (**Dynamic** or **Static**) used by your ISP.

    - If your ISP has not provided an IP address, click **Dynamic.**

    - If your ISP has provided an IP address, click **Static** and enter the IP address.

NOTE – If you want to host a web page or set up a mail server (local servers), you must enter a static IP address.

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2. Click **Apply.**

Advanced Configuration

You use the Advanced Configuration page to add advanced options to the Internet connection. From this page you can do the following:

- Select compression options.

    - If your ISP supports VJ (Van Jacobson) header compression, click **Use VJ Header Compression.**

    - If your ISP supports STAC data compression, click **Use STAC Data Compression.**

    The WebRamp supports RFC1974 compliant STAC module.

- Configure the idle time for the connection.

    - If you want your phone line to always be connected, click **Always On**.

NOTE – If you select the **Always On** option, the line will always be connected. Even if the WebRamp restarts or the line is broken due to external reasons, the WebRamp will reconnect the line. To disconnect the line, you must select a different idle time option from the Advanced Configuration page.

- If you want to be connected to the Internet even when the line is idle, click **Do Not Disconnect Even When Idle**.

- If you want to set the length of time the WebRamp stays connected to the Internet after there is no activity, click **Disconnect after an idle time specified below** and enter the number of seconds in the **Idle Time in seconds** field. (The default is 300 seconds.)

- Enter the value for the Maximum Receive Unit (MRU). The default is 1524, and Ramp Networks recommends that you do not change this value unless the ISP's router does not support the default value.

Click **Apply** after you make all your changes.

Login Script

Some ISPs, primarily located outside North America and Canada, require login scripts to enable Internet access. If you need help writing a login script, you can click the Help button on the Login Script page. You should also check with your ISP for information about their login script requirements. When you are ready to enter your login script, follow these steps:

1. Click **Enable Login Script.**

2. Enter the login script and then click **Apply**.

IP Filter Selection

You use the IP Filter Selection page to select the filter set to use with the current Internet connection. The drop-down menu displays the available filters. Select an active filter set and then click **Apply**. The default filter is None. Before you can select the filters, you must configure them as described in "Filters" later in this chapter.

VPN Connection

The VPN Configuration page lets you modify the information you entered when you set up a VPN connection using the Connection Wizard. You can also set up a new VPN through the Advanced Options link. For additional information on setting up your VPN Configuration using the Connection Wizard, see Chapter 9, "Creating a Virtual Private Network."

From the VPN Configuration page you can click the following links to reach pages where you can check, modify, and enable or disable your current settings:

• Account Information

• Protocol Configuration

• Advanced Options

• DNS Configuration

NOTE – You must configure an Internet connection, using either the DSL line or an analog modem, before you configure a VPN connection.

Account Information

On the VPN Account Configuration page, you enter or modify the account information to set up the VPN connection. Enter the appropriate information in the following fields and then click **Apply**.

NOTE – The information you supplied when you set up your VPN connection using Connection Wizard appears on this page.

- Connection Name (this is the name you use to identify the office you are connecting to)

- VPN Server IP Address (the WAN IP address of the NT server in the remote office)

- User Name (provided by the administrator for the remote office)

- Password (provided by the administrator for the remote office)

NOTE – The user name and password cannot contain spaces.

Protocol Configuration

From the Protocol Configuration page you can click the following links to configure your communications protocols:

- IP Configuration

- IPX Configuration

VPN Advanced Configuration

The VPN Advanced Configuration page lets you add advanced options to the VPN connection. From this page you can:

- Add a compression option, which can improve performance on the line.

  - If the remote office supports VJ (Van Jacobson) header compression, click Use **VJ Header compression**.

- Choose idle-time disconnect options.

  - If you always want the VPN connection open when the Internet connection is active, click **Never disconnect the VPN connection while the Internet connection is active**.

  - If you want to determine the length of time the VPN connection remains open after a period of inactivity, click **Disconnect After the Idle Time Specified Below**, and then enter the number of seconds in the **Idle Time in Seconds** field. (The default is 300 seconds.)

- Enter the value for the Maximum Receive Unit (MRU). The default value is 1524.

VPN DNS Server Configuration

The VPN DNS Server Configuration page lets you specify additional DNS server settings:

- Remote Domain Name (optional)

- DNS server information to resolve the remote host names

- Click **Automatically Obtain the DNS Server Address** if the remote office did not provide DNS server addresses

- If the remote office supplied the DNS server addresses, click **Use the Following DNS Server Address** and enter the primary and secondary server addresses.

NOTE – These name servers are used only to resolve names that belong to the domain name specified in the optional **Remote Domain Name** field. Therefore, if you enter *mycompany.com* in this field, requests for *server.mycompany.com* will be sent to the specified DNS servers.

Branch Office

From the Branch Office page you can click the following links to reach pages where you can check, modify, and enable or disable your current settings for each branch office configuration (the number of the branch office you are configuring, 1, 2, or 3, is reflected on each page discussed in this section):

- Modem Bonding
- Account Information

- Protocol Configuration is used to select the protocol for the branch office

- Advanced Options is used to select header compression and modem disconnect options

- DNS Configuration is used configure the DNS information for the branch office

- Login Script is used to configure the login script for connecting to the branch office

Modem Bonding

From the Modem Bonding page you can view, modify, and enable or disable the modem configuration for each branch office. You can combine up to three modems for faster branch office access.

NOTE – Branch office connections only support Multilink PPP for modem bonding.

Follow these steps for modem bonding:

1. Click the modems to be used with the branch office connection.

2. Click either **Simultaneously** or **Dynamically** to bring up the modem connection.

   • *Simultaneously* dials all modems for the branch office connection.

   • *Dynamically* dials the first modem initially and dials additional modems when the first modem has been running at full speed for a pre-determined length of time. The pull-down menus for the second and third modems contain thresholds that you can change at any time.

NOTE – Ramp Networks recommends using the default values for bonding parameters.

3. Click **Apply.** If you have more than one modem configured for your Internet connection, clicking Apply takes you to the Success page.

4. Click **Next** on the Success page to reach the Branch Office page, where you can modify the configuration information.

Account Information

Clicking **Account Information** from the Branch Office page takes you to the Account Configuration page. You can modify the branch office account information from this page.

Enter the appropriate information in the following fields to configure the branch office account:

• Branch Office Name

• Phone Number to Be Used With Modem

• Call Direction (choose direction from the pull-down menu)

• Authentication (choose one from the pull-down menu)

NOTE – The branch office administrator provides the phone number and authentication information.

Enter the appropriate information in the following fields to configure the outgoing and incoming parameters:

• User Name

• Password (provided by the branch office administrator)

When you've entered all the information, click **Apply.**

Protocol Configuration

From the Protocol Configuration page you can click the following links to configure your communications protocols:

• IP Configuration
• IPX Configuration
• Bridging Configuration

IP Configuration

Follow these steps to configure IP for the branch office:

1. Click **Enable IP Routing for This Connection**.

2. Click **Dynamic** if the branch office has not supplied an IP address, or click **Static** and enter the IP address provided by the branch office.

3. Enter a remote network address. (Doing this creates a route to the remote network.)

4. From the pull-down menus, choose an active filter set and RIP direction.

5. Click **Apply**.

IPX Configuration

Follow these steps to configure IPX for the branch office:

1. Click **Enable IPX Routing On This Connection** to enable IPX routing. If you are dialing into a Novell router, also click **Use IPXWAN On This Connection.**

2. Enter the local WAN network number provided by the branch office administrator.

3. If no local servers are present on the LAN and you want the remote router to dial out on SAP requests, click the checkbox.

4. To enable IPX NetBios, click the checkbox.

5. To enable spoofing, click the checkbox and enter the spoofing time.

6. From the pull-down menus, make a selection for RIP Direction and SAP Direction or leave with the default values.

7. Click **Apply**.

Bridging Configuration

Follow these steps to configure bridging for the branch office:

1. Click **Enable Bridging.**

2. To enable spoofing, click the checkbox and enter the spoofing time.

3. From the pull-down menu, choose an active filter set or use the default value.

4. Click **Apply**.

For additional information see "Filters" in this chapter.

Advanced Options

You use the Advanced Configuration page to add advanced options to the branch office connection. From this page you can do the following:

- Select compression options.
  - If your branch office supports VJ (Van Jacobson) header compression, click **Use VJ Header Compression.**
  - If your branch office supports STAC data compression, click **Use STAC Data Compression.**
- Select modem disconnect options.
  - If you always want to be connected to the Internet, click **Do Not Disconnect Even When Idle.**
  - If you want to determine the length of time the WebRamp stays connected to the branch office after a period of inactivity, enter the number of seconds in the **Disconnect After An Idle Time Of** field. (The default is 300 seconds.)
- Enter the value for the Maximum Receive Unit. The default is 1524, and Ramp Networks recommends that you do not change this value unless the branch office's router does not support the default value.

Click **Apply** after you make all your changes.

DNS Configuration

You use the DNS Configuration page to configure the DNS server information for the branch office. Follow these steps:

1. Enter the branch office domain name.

2. Enter the DNS server information to resolve the branch office host names.

   • If the branch office did not provide DNS server addresses, click **Automatically Obtain the DNS Server Address**.

   • If the branch office did supply the DNS server addresses, click **Use the following DNS Server Address** and enter the primary and secondary name server addresses below.

3. Click **Apply.**

Login Script

Some ISPs, primarily located outside North America and Canada, require login scripts to enable Internet access. If you need help writing a login script, you can click the Help button on the Login Script page. You should also check with your ISP for requirements. When you are ready to enter your login script, follow these steps:

1. Click **Enable Login Script.**

2. Enter the login script and then click **Apply.**

Local Configuration

You reach the Local Configuration page from Advanced Options. From the Local Configuration page you click links to reach other pages where you can modify your local network settings, set up filtering, and so on. You have the following choices:

- DNS Server
- DHCP Server
- VPN Pass-Through
- Local IP Address
- Local IPX Configuration
- Filters
- Routing
- SNMP
- Applications
- Admin Password

DNS Server

The DNS Server Configuration page shows whether the DNS server on the WebRamp is currently enabled or disabled. From this page you can click the following links to reach other pages where you can modify your current settings:

- You click the Default Server Options link to reach the Domain Name Server Configuration page where you can modify the default DNS IP addresses for Internet access

- You click the Local DNS Options link to reach the Local DNS Configuration page where you can modify the local domain name, host, and forwarder information

Domain Name Server Configuration

From the Domain Name Server Configuration page you configure the default DNS forwarder's address or addresses, which are typically provided by your ISP. If the WebRamp DNS Server is unable to resolve a name to an IP address, it forwards the request to the DNS server configured on this page.

1. Click **Automatically Obtain the DNS Server Addresses** if the ISP can dynamically supply DNS server IP addresses.

   Click **Use the Following DNS Server Addresses Provided by My ISP** if the ISP or branch office did supply an IP address. Enter the primary and secondary DNS server addresses.

2. Click **Apply**.

Local DNS Configuration

From this page you click the following links to reach other configuration pages:

- Domain Name
- Local Hosts
- Local Forwarders

Domain Name

The WebRamp's default domain name is ramphome.com. You can use the Domain Name page to specify the local domain name. For example, mycompany.com. Enter the local domain name and then click **Apply.**

Local Hosts

You use the Local Hosts page to configure the hosts for the local domain. For example, the WebRamp is Host 1. You can configure up to ten hosts.

- To add a host, click **Add Host**, enter the name of the local host to be added and the IP address, and then click **Apply**.
- To delete a host, click **Delete Host**, enter the name of the local host to be deleted and the IP address, and then click **Apply**.

Local Forwarders

You use the Local Forwarders page to configure additional name server addresses that may be present within the LAN.

- To add additional name servers, enter the primary and secondary name server addresses, and then click **Apply**.

DHCP Server Configuration

The DHCP Server Configuration page summarizes the DHCP settings for the WebRamp. This page shows the current DHCP information and whether DHCP is currently enabled or disabled. Click **Configure** to change any of the settings.

When you restart a computer with DHCP capability, the computer sends a query over the network to the DHCP Server for the above information. The DHCP server assigns one of the IP addresses from the available pool of addresses.

Using DHCP eliminates configuring the settings on each computer manually. If necessary, change the DHCP information and then restart the computers. The DHCP server will assign new information to the computers.

You may want to change the DHCP information for the following reasons:

• You have computers on your LAN that cannot use DHCP. For example, a computer running Windows 3.1 cannot use DHCP. In this case, you would need to reserve or exclude the IP address from the DHCP address range, and assign it to the computer.

• You have an existing network and you do not want to use the DHCP server.

NOTE – If you disable DHCP, you must manually set the IP and DNS addresses as well as the domain name and gateway information on your computers.

To make further DHCP server modifications, click **Configure** on the DHCP Server Configuration page. You can then click the following links to reach other pages where you can make your changes:

- Define New Range
- Show Current Range
- Gateway IP Address
- DNS Parameters
- WINS Addresses

Define New Range

You use the IP Address Range page to specify how many individual computers, up to 254, can automatically receive IP addresses from the WebRamp. Ramp Networks recommends that you use the default values on this page.

- To define a new IP address range for DHCP, enter the starting IP address, the number of IP addresses for your LAN, and then click **Apply**.
- If you have previously defined a new IP address range, click **Default Range** to use the default values (192.168.1.1 through 192.168.1.254). This range depends on the subnet mask values.

Show Current Range

The Address Table page shows the DHCP Address Table, including IP and MAC addresses for each computer with DHCP enabled.

- If AUTO appears with the IP address, it means the IP address is not reserved or excluded and can be assigned
- If FREE appears with the IP address, it means the IP address is not currently assigned
- If USED appears with the IP address, it means the IP address has been previously assigned

You may reserve IP addresses on your network for servers where the IP addresses need to be fixed and known by other computers on the network. This does not affect the computer's ability to access the Internet.

To modify the DHCP Address Table, follow these steps:

1. In the IP Address field, enter the last 3 digits (0 to 254) of the IP address.

2. You then have the following choices:

- Click **Exclude** to exclude an IP address. The IP address is removed from the DHCP Address Table, and must be manually configured on the computer. You may want to exclude or remove an IP address that may conflict with an existing IP address. This function is commonly used to set aside IP addresses for computers that do not support DHCP. (Before a used IP address can be excluded, it must be free.)

- Click **Include** to include an IP address. The IP address is added back into the DHCP Address Table.

- Click **Reserve** to reserve an IP address. Enter the MAC address of the computer and then click **Apply**. You may want to reserve an IP address to set aside the address for devices such as servers, mail hosts or Intranet servers that must have a fixed address for access purposes. The IP address is assigned by the WebRamp's DHCP server. For example, you can reserve an IP address to be used by remote users to check e-mail.

- Click **Free** to free an IP address. You may want to free an IP address that was previously reserved. When an IP address is free, it is placed back into the DHCP Address Table.

NOTE – You cannot free your WebRamp's IP address.

Gateway IP Address

The Gateway IP Address page shows the gateway address of the network. The WebRamp's address is the default address. Make sure the gateway IP address is an unused address on your network. This is the address the DHCP server provides to the computers on your network for Internet access.

Change the gateway IP address only if you have an existing network and need to use another device as the gateway. To change the gateway IP address, enter the IP address and then click **Apply**.

DNS Parameters

You use the DNS Configuration page to configure Domain Name Server addresses. You can use this page if, for example, you switched to a different ISP or your current ISP changed their domain name or domain name servers.

If DNS is enabled, the WebRamp will provide its own DNS address. You can also supply two additional DNS server IP addresses.

You need these server addresses to access the Internet when using names such as *www.mycompany.com*. The DNS Server will resolve this name to an appropriate IP address for communication.

To change the DNS parameters, enter the domain name and domain name server address and then click **Apply**.

WINS Addresses

The WINS Configuration page shows the WINS configuration. Enter the WINS IP addresses for your local network and the optional scope ID. Choose the node type from the pull-down menu and then click **Apply**.

VPN Pass-Through

Microsoft provides the capability with Windows 95 and NT operating systems to create a VPN (virtual private network) from a Windows computer to a remote NT server. VPN pass-through allows you to send information from a Windows VPN client using the WebRamp's Internet configuration. On the WebRamp's VPN Pass-Through page, you can enable and disable pass-through and view who's currently using a pass-through connection.

Figure 11-2 shows a VPN pass-through connection.

Figure 11-2 VPN pass-through connection
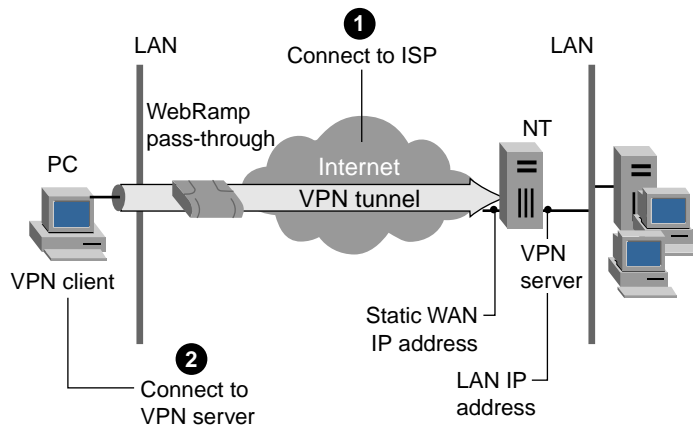
Access Controls

Access controls let you choose which Internet features the users on your LAN have access to. You can also use access controls to restrict access to your network and the WebRamp configuration information. From the Access Controls page, click the links to reach the following pages:

• User Access Controls

• WebRamp Access Controls

• Log Messages

User Access Controls

On the user access controls page you can enable and disable access controls and modify settings. From this page click these links to reach the other pages where you can make modifications:

- Refresh
- Modify Range
- Modify User
- Default
- Add
- Delete

This page also contains the User Access Controls table. This table lists all users, up to 75, currently connected to your LAN. See "Refresh" for more information about the table.

Refresh

When you click Refresh, the WebRamp searches for all the computers currently connected to the LAN by sending out an ARP (Address Resolution Protocol) request. It polls every host address on the network and identifies each computer

by its MAC address. (Depending on the size of your network, this process can take 20 to 30 seconds.) It then lists all the computers in the User Access Controls table, providing the following information:

- Index
- User name
- IP address
- MAC address
- Allowed applications

Modify Range

You use the Modify a Range of Users page to modify the access parameters for a group of users. You enter the starting and ending index numbers to specify the range of users and then click **Apply.**

Modify User

You use the Modify a User Entry page to modify the access parameters for an individual user. Follow these steps:

1. From the pull-down menu, choose the user to modify and then click **Apply.**

2. On Modify a User Entry page, enter the appropriate information, and then click **Apply.**

Default

You use the Default Access page to set the default access parameters for unlisted users, that is, users not currently connected to the LAN who don't appear in the table. By default, unlisted users are blocked from all Internet access.

Add

Users connected to your LAN automatically appear in the User Access Controls table after you click Refresh. However, if you have hosts behind other routers, that information won't appear in the table because the refresh doesn't cross routers, even if the hosts are connected to your network. You must add those users to the table manually if you want to apply access controls.

Delete

If you have hosts behind other routers that you manually add to the User Access Controls table, you must also manually delete this information, because it remains in the table even when those users are no longer connected to the network.

You can also delete users if you exceed the limit of 75 that can be listed in the table. That user then becomes unlisted and has the same access controls as other unlisted users. You can use this to delete IP addresses that appear in the table, but are not on your network.

WebRamp Access Controls

You use the WebRamp Access Controls page to do the following:

• Accept incoming and allow outgoing calls

• Allow access to the WebRamp's configuration information through Telnet and the Internet

By default, all these things are allowed. You can restrict access by deselecting the appropriate checkbox or checkboxes.

Log Messages

The Log Messages page monitors user and WebRamp access violations. The information appears in the Event Log. To begin monitoring access violations, click **Enable.**

Local IP Address

The WebRamp's default local IP address is 192.168.1.1. You use the Local IP
Address Configuration page to change the LAN IP address for the WebRamp. If
your local LAN has an existing IP addressing scheme, then you need to use this
page to configure the local IP address of the WebRamp.

The IP address of a WebRamp is always the WebRamp's LAN address. If you
change the local IP address, you must change the gateway IP address and the
DHCP address range in the DHCP table. (See "DHCP Server Configuration" in
this chapter.)

NOTE – You must restart your computers if you change the WebRamp's IP address.

If you accidentally enter an incorrect IP address, you may need to recover the
WebRamp IP address using WebRamp Finder, a utility provided on the
WebRamp CD. See Appendix C for information on recovering the WebRamp's
IP address.

Local IPX Configuration

You use the Local IPX Configuration page to configure the local IPX LAN.

NOTE – If there is no Netware server present on the LAN, you must configure the We-
bRamp's local IPX network number.

- If you do not know the network numbers, click **Learn Network Numbers
  Automatically From the Server On the LAN,** and then click **Apply**.
- If you do have the IPX configuration information, click **Use the Following
  Frame Types and Network Numbers**, click the **Frame Type**, enter the
  network number, and then click **Apply**.

Filters

From the Filters page you can set up filtering capabilities that determine what information you send and receive on your network. You can use filtering to provide security for your network and to prevent selected local network traffic from leaving your LAN through the WebRamp. The WebRamp supports the following filters:

• **IP filters.** The IP filtering module is composed of one default filter set and two configurable filter sets. After you configure the filter set, you apply it to a connection.

• **IPX filters.** The IPX filtering module allows you to configure SAP filters that you can apply to all IPX connections.

• **Bridging filters.** The bridging filtering module is composed of one default filter set and one configurable filter set. After you configure the filter set, you apply it to a connection.

NOTE – The default bridge filter prevents setting (or changing) the LAN IP address across the bridge.

IP Filter Sets

You configure filters from the IP Filter Sets page that prevent IP spoofing. In IP spoofing, an outside source tries to gain access to your local LAN by pretending to be one of the hosts. The filters prevent this by setting up the following criteria:

- *Reject IP spoofing*: Any incoming packets that have the source address the same as your LAN address are dropped. The local address is determined when the WebRamp LAN address is configured.

- *Allow incoming mail*: All incoming connection requests to TCP port 25 (used by SMTP mail servers) are allowed. All other TCP port requests are denied (including telnet and FTP). This information is set in the Start of Connection field.

- *Allow all other information*: This last rule permits all other incoming information. You set this rule by choosing Ignore from the Filter Based On Protocol pull-down menu.

NOTE – Filtering should be configured by a network administrator who has experience with the TCP/IP protocols and is familiar with IP addressing, ports, and so on.

IP filters may be configured with the help of two custom filter sets. These sets provide up to 16 filters for incoming data and 16 filters for outgoing data. These protocols may be applied on connections that have IP routing enabled.

Follow these steps to view, set, modify, and clear the IP filter set:

1. On the IP Filter Sets page, choose **Default, Custom 1,** or **Custom 2** from the Filter Set pull-down menu.

NOTE – The default filter set is read-only and cannot be modified.

---

2. In the Direction field, click **Incoming** or **Outgoing.**

3. Click **Show** to reach the IP Filter Set Configuration page.

IP Filter Set Configuration

The IP Filter Set Configuration page shows the current IP filter set configuration. The terms Source and Destination are referenced by which filter direction you are working with. Source for outgoing information is referenced from the LAN side. Source for incoming information is referenced from the WAN side of the WebRamp. Also, although the 16 filters are in series, you may enable and configure any number without regard to a particular sequence. Filters are viewed in sequence and disabled filters are skipped.

The two custom filter sets initially do not perform any filtering and can be modified to meet individual requirements. Both Incoming and Outgoing filters are identical. The following descriptions cover both filter directions.

Follow these steps to configure the IP filter set (the steps cover both incoming and outgoing filter setup):

1. Click **Enable This Filter.**

2. In the Action field, click either **Permit** or **Deny.**

   The filter action determines what should be done with matching information. You can either permit (pass) or deny (discard) information.

3. From the pull-down menu in the Filter Based On Protocol field, choose the protocol being carried by the information.

4. From the pull-down menu in the Start of Connection field, choose the start of connection options. Protocol options have prerequisites that must be met to be active. The choices are as follows:

   • Ignore: Does not match depending on TCP start of connection

   • Yes: Matches only the initiating packet in a TCP connection

   • No: Matches any TCP packet except the initiating packet in a TCP connection

5. In the Source IP Address field, enter the source IP address to be checked against the source IP address field of the examined packet.

6. In the Compare Bitmask field, enter the source compare bitmask, used in conjunction with the source IP address, to determine how many bits of the IP address should be compared.

7. In the Destination IP field, enter the destination IP address to be checked against the destination IP address of the examined packet. The destination IP address works the same as the source IP address.

8. In the Compare Bitmask field, enter the destination compare bitmask, used in conjunction with the destination IP address, to determine how many bits of the IP address should be compared.

9. In the Source Port Compare field, choose one of the following from the pull-down menu:

   • Ignore: Allows any port

   • Equal To: Selects a specific port

- Not Equal To: Any port except the Source Port Number

- Greater Than: Any port whose number is higher than the port in the Source Port Number field

- Less Than: Any port whose number is less than the port in the Source Port Number field

NOTE – *Greater than* and *Less than* are used as shown in the following example: If you want to make ports from 20 up available, choose **Greater Than,** and enter **19** in the Source Port Number field. If you want to make any port from 87 to 1 available, choose **Less Than** and enter the number **88** in the Source Port Number field.

10. Enter the Source Port Number.

11. In the Destination Port Compare field, choose one of the following from the pull-down menu (the values are the same as those for Source Port Compare):

- Ignore: Allows any port

- Equal To: Selects a specific port

- Not Equal To: Any port except the Source Port Number

- Greater Than: Any port whose number is higher than the port in the Source Port Number field

- Less Than: Any port whose number is less than the port in the Source Port Number field

12. Enter the Destination Port Number.

13. Click **Apply** to save the filter configuration.

14. Click **Next** to configure the next filter or click **Previous** to click the previous filter.

To clear the current IP filter set, follow these steps:

1. Choose **Custom 1** or **Custom 2** from the Filter Set pull-down menu.

NOTE – The default filter set cannot be modified.

2. In the Direction field, click **Incoming** or **Outgoing.**

3. In the Filter Number field, enter the number of the filter you want to clear.

4. Click the **Show** button to reach the IP Filter Set Configuration page.

5. Click the **Clear** button.

6. Click **Apply** to clear the filter.

IPX Filters

From the IPX Filters page you can add or delete SAP filters. SAP filters specify which LAN services may not be advertised to remote offices. This is a global configuration and applies to all connections that have IPX enabled.

To add SAP filters, follow these steps:

1. Click **Add SAP Filter.**

2. Enter the server name.

3. From the pull-down menu, choose the type of service to be filtered. If you choose Others, you must enter the service type number in the Service Type (Hex) field.

4. Click **Apply.**

To delete SAP filters, follow these steps:

1. Click **Delete SAP Filter.**

2. Enter the server name.

3. From the pull-down menu, choose the type of service to be filtered. If you choose Others, you must enter the service type number in the Service Type (Hex) field.

4. Click **Apply.**

Bridge Filter Sets

You use the Bridging Filter Sets page to configure address, protocol, and other bridging parameters. Bridge filters may be configured with the help of a custom filter set. The filter rules apply only on the bridged connection.

Follow these steps to view, set, modify, and clear the bridge filter set configuration:

1. Choose **Default** or **Custom 1** from the Filter Set pull-down menu.

NOTE – The default filter set cannot be modified.

---

2. In the Direction field, click **Incoming** or **Outgoing.**

3. Click the **Show** button to reach the Bridging Filter Set Configuration page.

Bridging Filter Set Configuration

The Bridging Filter Set Configuration page shows the current bridge filter set configuration. The terms Source and Destination are referenced by which filter direction you are working with. Source for outgoing information is referenced from the LAN side. Source for incoming information is referenced from the WAN side of the WebRamp. Also, although the sixteen filters are in series, you may enable and configure them without regard to a particular sequence. Filters are viewed in sequence and disabled filters are skipped.

The default filter set is read-only and cannot be modified. The custom filter set is not configured for filtering and can be modified to meet individual requirements.

Follow these steps to configure the bridging filter set (the steps cover both incoming and outgoing filter setup):

1. Click **Enable This Filter.**

2. In the Action field, click either **Permit** or **Deny.**

   The filter action determines what should be done with matching information. You can either permit (pass) or deny (discard) information.

3. The bridge filter can be configured for up to 5 different protocols. From the pull-down menu, choose a filter for each protocol.

4. Enter the Source MAC Address that you want to filter.

5. Enter the Destination MAC Address that you want to filter.

6. You can permit or deny the flow of bridge packets, based on the data contents. Enter the values for Generic Data Match Offset in the following fields:

    • Offset

    • Length

    • Value

    • Bit Mask

7. If you want to compare more than one data field, you can create multiple filters and combine them. The WebRamp will match all the combined rules and make the filtering decision. Click **Combine With Next Rule,** if desired.

8. Click **Apply** to save the filter configuration.

9. Click **Next** to configure the next filter.

To clear the current bridge filter set, follow these steps:

1. Choose **Default** or **Custom 1** from the Filter Set pull-down menu.

NOTE – The default filter set cannot be modified.

---

2. In the Direction field, click **Incoming** or **Outgoing.**

3. In the Filter Number field, enter the number of the filter you want to clear.

4. Click the **Show** button to reach the Bridging Filter Set Configuration page.

5. Click the **Clear** button.

6. Click **Apply** to clear the filter.

Routing Table

From the Routing Table page, you can click the following links to reach pages where you can configure routing information for IP and IPX networks:

- IP Routing
- IPX Routing
- IPX Services

IP Routing

The IP Routing page shows the current entries in the routing table. From this page you can click the following links to reach other pages where you can modify the routing information:

WARNING –	Changing the routing information can affect your connection capabilities. You should have experience working with routing tables before modifying the routing information.

- Modify Default Route
- Add Route
- Delete Route

Modify Default Route

You can set the default route of the WebRamp to any of the interfaces: for example, branch office, Internet, and so on. Choose the interface that should be the default route. If you want any other router in your local network to be the default route of the WebRamp, please specify the address of the router. If the Internet connection or any of the branch office interfaces is selected, there is no need to specify the IP address.

- Choose the interface for the default route. The choices are:
  - Local Network: The gateway attached to the same local network as the WebRamp. Specify the IP address of the gateway in the Gateway IP Address field.
  - Internet Connection: The gateway is the Internet Connection
  - Branch Office 1: The gateway is Branch Office 1
  - Branch Office 2: The gateway is Branch Office 2
  - Branch Office 3: The gateway is Branch Office 3

Add Route

From the Add IP Route page, you can add routes to other networks or hosts on any of the interfaces. Choose the type of route to be added and the interface corresponding to the route. Network administrators typically use this page to add a route to the routing table for networks and computers that may be behind other routers on the local network or branch office network.

WARNING – Adding incorrect routing information can affect the connection to a remote network or host. You must have experience working with routing tables before using this option.

Follow these steps to add routes:

1. In the Route Type field, click **Permanent** or **Static** to choose the route type. Permanent routes are stored in nonvolatile memory and maintained until explicitly deleted. Static routes are temporary routes that are stored in volatile memory. The route is deleted when power is turned off to the WebRamp or when the WebRamp is reset.

2. In the Destination field, click **Network** or **Host** to choose the type of destination. All IP routing is destination-oriented: the flow is always toward the recipient.

3. Enter the Destination IP Address of either the receiving network or host on the recipients network.

4. In the Gateway Interface field, choose the gateway interface from the pull-down menu. The Gateway Interface is the next gateway attached to the WebRamp.

5. If you selected Local Network in step 4, enter the gateway IP address. If you selected the Internet connection or a branch office connection, you don't need to enter the gateway IP address.

6. Click **Apply.**

Delete Route

You can use the Delete IP Route page to delete a route from the Routing Table.

1. In the Route Type field click either **Permanent** or **Static.**

2. Enter the destination and gateway IP addresses.

3. Click **Apply.**

IPX Routing

The IPX Routing page shows the current IPX routes. From this page you can click the following links to reach other pages where you can modify your IPX routing information:

- Add IPX Route
- Delete IPX Route

Add IPX Route

You can add routes to other networks on any of the interfaces. The routes you add can be permanent, in which case the routes will remain after restarting. Enter the appropriate information in the following fields to add IPX routes:

- Route Type (click **Permanent** or **Static**)
- Destination Network Number
- Gateway Interface (choose one from the pull-down menu)
- Hop Count

When you've entered all the information, click **Apply.**

Delete IPX Route

Enter the appropriate information in the following fields to delete IPX routes:

- Route Type (click **Permanent** or **Static**)
- Destination Network Number
- Gateway Interface (choose one from the pull-down menu)

When you've entered all the information, click **Apply.**

IPX Services

The IPX SAP Services page shows the configuration information for the current IPX SAP services. From this page you can choose the following:

- Add IPX Service
- Delete IPX Service

Add IPX Service

Enter the appropriate information in the following fields to add IPX services:

• Server Name

• Network Number

• Node Number

• Socket

• Hop Count

• Service Type (If you choose Others from the pull-down menu, you must also enter the corresponding service type number.)

When you've entered all the information, click **Apply.**

Delete IPX Service

Enter the appropriate information in the following fields to delete IPX routing services:

• Remote Server's Name

• Service Type (If you choose Others from the pull-down menu, you must also enter the corresponding service type number.)

When you've entered all the information, click **Apply.**

SNMP Configuration

The WebRamp has a built-in SNMP agent that supports MIB-II. When the SNMP agent is enabled, any local or remote SNMP Managers can manage the device.

If you want an SNMP Manager to monitor and provide the status of your WebRamp, click Enable SNMP Agent on the SNMP Configuration page. All other information on this page is optional.

You can configure the following system information to be retrieved by the remote SNMP Manager:

- **System Contact.** The name of the person responsible for the WebRamp.
- **Device Name.** The local name of the WebRamp (such as Internet Router).
- **System Location.** The location where the device is installed.
- **Read Community String.** By default this password is public. The SNMP Manager uses this password to contact the WebRamp.
- **Read/Write Community String.** By default this password is public. The SNMP Manager uses this password to make changes to the WebRamp's current configuration using SNMP.

- **SNMP Management Stations.** These IP addresses have to be configured if you want the SNMP agent in the device to inform the Management Stations of any asynchronous events. These events are called *traps*. The WebRamp supports the standard traps. You can configure up to four management stations to receive the traps.

Applications

From this page you click the following links to reach other pages:

- Local Servers
- Internet Applications
- Visible Computers

Local Servers

The WebRamp offers support for hosting servers on the LAN that can be accessed from the Internet. Although the addresses on the WebRamp LAN are not directly accessible by an external Internet computer, the WebRamp allows for selective access by mapping incoming requests for a particular service to a particular LAN server. The incoming requests are sent to the WebRamp's external (WAN) IP address. The WebRamp can then, based on the service requested, (web, e-mail, and so on) re-direct the requests to the appropriate server on the LAN.

There can be only one server of a particular type on the LAN that can be accessed from the Internet. Therefore, there can only be one web server on the LAN that can be accessed by a remote Internet computer. Internet computers trying to access your local server or servers must use the IP address of the ISP-1 account.

From the Local Server page, you can add, delete, and enable or disable a local server.

Add Local Server

Follow these steps to prepare to set up a local server:

1. Obtain a single static (fixed) IP address from your ISP. This IP address is the address that all your local servers will access.

NOTE – Local Servers also work if you have a dynamic IP address, but the address used to access your servers can change each time the WebRamp connects to the Internet. As a general rule, it is better to get a static IP address.

---

2. Configure the Internet connection using Modem 1. It is important that Modem 1 is configured with this account because local servers can only be accessed using the IP address assigned to the ISP-1 account.

3. From the WebRamp Setup page, click **Advanced**, then **Local Configuration**, then **Applications,** then **Local Servers,** and then **Add** to reach the Add Local Server page.

4. Enter the IP address of the local computer.

5. In the Server field, choose the server type from the pull-down menu.

6. Click **Apply**.

To add other local servers, repeat these steps. When you finish this process, to access the local server from a remote client over the Internet, a user enters the ISP-assigned static IP address of the WebRamp as the server's address. To the remote client it appears that the WebRamp is the server.

Delete Local Server

To delete a local server, choose the local server to be deleted from the pull-down menu and then click **Apply**.

Internet Applications

The WebRamp comes configured with three Internet applications that use special data and control ports.

- CuSeeMe
- Diablo
- XWindows

If you want to add other special Internet applications, you use the Internet Applications page. From this page you can view the current Internet application configurations, and then modify, add, and delete those configurations.

- To modify, add, and delete the Internet application configuration information, choose the application from the pop-up menu and then click **Add, Edit,** or **Delete.**

NOTE – You should configure the WebRamp for Internet Applications only if you have in-depth knowledge of how applications use TCP/IP ports to connect to servers.

Add Internet Application

To add new Internet applications, which need special data and control ports, click **Add.** Enter the new application name and click **Apply,** which takes you to the Modify Application Settings page. Follow the steps in that section.

Modify Application Name and Ports

The Modify Applications Settings page allows you to enable or disable an Internet application, delete the application's port range, and change its name and port information.

- Click Add to change the port ranges, choose the connection type (outgoing control or incoming data), and the protocol (TCP or UDP). Click **Apply** after entering the information.

NOTE – When you create a new application, it must have at least one control and one data port configured before it can be enabled.

- Click Delete to delete the port range of the application shown in the pull-down menu. (One incoming and one outgoing port range must be shown in the pull-down menu.) Click **Apply** after entering the information.

- Click Rename to change the name of an application. Click **Apply** after entering the new name.

Delete Internet Application

From the Internet Application Configuration page, choose the application you want to delete and click **Delete.**

WARNING – When you click **Delete,** the application is immediately deleted.

Visible Computers

Visible computers are used to make a LAN computer "visible" to the Internet. The visible computer is accessed from the Internet using the IP address associated with the modem connection that corresponds to that visible computer—this address is shown in the WebRamp Status page as the Local WAN IP address.

The WebRamp allows you to designate one to three local computers to serve as Internet-visible computers, allowing the maximum access to games and interactive applications. You can configure one Internet-visible computer per ISP account, and only one visible computer can be configured per modem. For example, if you have two modems configured for Internet access, you can have two visible computers.

WARNING – A visible computer can pose a security risk to your network, because the computer is essentially an Internet node. The WebRamp's inherent IP address firewall does not apply to a visible computer. Avoid running any servers on the computer configured as visible. The risk is the same as if you were to use PPP software to directly connect the computer to the Internet using an attached modem.

As a general policy use visible computers only if the Internet application you are using does not seem to work, and you do not have enough knowledge of the application to create a Special Application entry.

Visible Computer Setup

You can designate one of three local computers to serve as Internet-visible computers, allowing maximum access to games and interactive applications. You can configure one Internet visible computer per ISP account.

Follow these steps to set up a visible computer:

NOTE – A visible Computer **does** pose a security risk to your network, because the computer is essentially an Internet node. Avoid running any servers on the computer configured as visible. The WebRamp's inherent IP address firewall does not apply to this computer.

---

1. Click **Advanced**, click **Local Configuration**, click **Applications,** and then click **Visible Computers**.

2. Select the visible computer to configure, click **Enable** (if disabled), and then enter the IP address of the local computer.

3. Click **Enable Access to the Local Computer,** and enter the IP address. If necessary, deselect any applications that should be diverted.

4. Click **Apply**.

Administrative Password

The WebRamp configuration password is also known as the administrative password used to configure the WebRamp. The default password is **password**.

> **NOTE –** If you change the default values on this page, the next time you access the
> WebRamp Configuration page, you will be prompted for the new password.

You can change this password at any time to protect the WebRamp
configuration. If you do change this password, make sure you store the password
in a safe place and then click **Apply**.

> **WARNING –** Make certain to keep the password in a safe place. Doing this will protect it
> and allow you to refer to it later in case you forget it. If you lose your
> password, you must send the WebRamp back to Ramp Networks to have it
> reset to the default password.

Telecommuter Configuration

You can set up telecommuter access to your network with the WebRamp. On the
Telecommuter Configuration page, click these links to set up access for
telecommuters:

- Modem Selection
- Protocol Configuration
- Telecommuters
- Options

Modem Selection

On the Modem Selection page, choose the modems to accept incoming calls from telecommuters and then click **Apply.**

Protocol Configuration

You can use IP and IPX for telecommuter connections.

IP Configuration

Follow these steps to configure IP for telecommuter connections:

1. Click **Enable IP for Telecommuters.**

2. Click **Assign From the DHCP Pool** or **Assign As Configured Below.**

    • If you click **Assign From the DHCP Pool**, the WebRamp's DHCP server assigns IP addresses to telecommuters when they connect.

    • If you click **Assign As Configured Below,** enter the IP addresses in the fields provided.

3. Click **Assign the DHCP DNS Server Addresses** or **Assign the Following Addresses.**

- If you click **Assign the DHCP DNS Server Addresses,** the WebRamp assigns the DNS server addresses to telecommuters when they connect. These addresses will include the WebRamp's address (if the WebRamp's DNS server is running) and the first DNS server address in the WebRamp DHCP table.

- If you click **Assign the Following Addresses,** enter the DNS server addresses in the fields provided.

4. Click **Apply.**

IPX Configuration

Follow these steps to configure IPX for telecommuters:

1. Click **Enable IPX for Telecommuters.**

2. Enter the hexadecimal IPX network numbers in the fields provided. (You must enter a number in every field.)

NOTE – The network number can be one to eight digits in length and must consist of hexadecimal digits (0-9 or a-f). Each network number must be unique within your IPX network. For example, 1a, 2a, and 3a could be valid telecommuter IPX network numbers.

---

3. Click **Apply.**

NOTE – If a Netware server is not part of the WebRamp's LAN, then you must config-
ure the WebRamp's local IPX network number so that telecommuters have ac-
cess to IPX resources. See "Local IPX Configuration" for more information.

Telecommuters

The Telecommuters page contains a database that lists each telecommuter, up to
40, that can dial into the WebRamp. From this page you can also add, modify,
and delete the telecommuter configuration.

Add

Follow these steps to add a telecommuter.

1. Click **Add** on the Telecommuters page.

2. On the Add a Telecommuter page, enter the following information:

    • User name

    • Password

3. Choose a callback option:

    • No callback

    • Callback on the number specified by the caller

    • Always callback using the following number (if you choose this option,
    you must then enter the number)

4. Click **Apply.**

The telecommuter you added appears automatically in the database.

Modify

To modify the information about an existing telecommuter, follow these steps:

1. Click **Modify** on the Telecommuters page.

2. On the Select a Telecommuter page, choose the telecommuter you wish to modify, and then click **Next.**

3. On the Modify a Telecommuter page, modify the information and then click **Apply.**

The modifications appear automatically in the database.

Delete

To delete a telecommuter, follow these steps:

1. Click **Delete** on the Telecommuters page.

2. On the Delete a Telecommuter page, choose the telecommuter you wish to delete and then click **Apply.**

Options

The Options page lets you choose the following for telecommuters.

• PAP and CHAP authentication protocols. You can choose PAP or CHAP to authenticate telecommuters.

• Idle time after which a call will be disconnected. The default is 300 seconds.

Troubleshooting

This chapter provides information you can use to help solve problems you might be having connecting to the Internet with your WebRamp. In addition the chapter contains FAQs (frequently asked questions) and the answers to those questions, as well as descriptions of the WebRamp's diagnostic pages.

WebRamp Problem Solving Pages

The WebRamp's graphical user interface (GUI) includes problem-solving pages that can help you determine where problems are occurring when you are trying to connect to the Internet. You access these pages by clicking either **Status** or **Diagnostics.**

WebRamp Status

The WebRamp Status page shows connection status, the modems in use, modem connection speed, and the total connection time. This page also provides IP address and WebRamp version information. Click **Status** to view the WebRamp Status page.

WebRamp Diagnostics

The WebRamp Diagnostics page contains links to other pages from which you can view recent actions or events that occurred on the WebRamp, download new software, backup WebRamp configuration information, and perform various diagnostic tests. This section provides an overview of each of these pages. Click **Diagnostics** to view the WebRamp Diagnostics page.

Event Log

The Event Log page shows recent actions or events that have occurred on the WebRamp. You can use the information on this page to diagnose problems you may be experiencing in connecting to the Internet. You should try to replicate your problem and then view the Event Log. Attempt to connect to the Internet or branch office, and then return to this page to view the resulting messages. Refresh this page to see an updated event log.

Modem Test

The Modem Test page checks the initialization strings and connectivity for the modem. Modem failure can mean that the connection between the WebRamp and the modem is not working properly, or the correct modem information wasn't entered at setup.

If you have a modem connected to the Modem 3 port, check your modem cable to make sure it is securely connected and that the modem is turned on. Verify that the correct modem information is entered in the Modem Configuration page before you perform the modem test.

Upgrade Key

You use the Firmware Upgrade Key page to enter an upgrade key that you receive from a WebRamp reseller. When the upgrade key is authenticated, click **Diagnostics** and then **Firmware Upgrade** to start upgrading your WebRamp. A key is only needed to upgrade your WebRamp to a version with more functionality. Typical maintenance upgrades are free and do not require an upgrade key.

Reset WebRamp

You use the Reset WebRamp page to clear connections, restart, and re-initialize the WebRamp. This procedure does not affect any configuration parameters, but it will discard all static IP and IPX routes.

Drop Calls

You use the Drop Active Calls page to disconnect active modem connections. You can disconnect modems individually or all at once.

NOTE – All outgoing modem connections will disconnect after a period of inactivity, based on the "idle time" set in the ISP or branch office settings.

Export Configuration

The Export Configuration page allows you to back up the WebRamp's current configuration information to your computer using the TFTP server. You might use this feature if you want to change the configuration of your WebRamp but want to save the existing settings to use again. You usually pair this procedure with the import configuration procedure.

Problem Report

You use the Problem Report Configuration page to report problems with your WebRamp to Ramp Networks Technical Support.

1. From Problem Report Configuration page click **Create** to reach the Problem Report page. Fill in the appropriate information and click **Next** to generate the problem report.

NOTE – If you don't have a trouble-ticket number, leave that field blank.

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2. Copy and send the report as an e-mail or a fax to Ramp Networks Technical Support:

   • Fax: 1(408)988-6363, attention Technical Support

   • E-mail: support@rampnet.com

Ping Test

The ping test verifies that the WebRamp can reach a remote location from a computer on the local LAN. This test verifies that the WebRamp is connected to a specific Internet host and to an ISP through which the ping data would have to travel.

When a computer is pinged, a network packet is sent to the specified IP address. The ping test can be used to test DNS server addresses or determine if a host is working. Some ISPs allow you to ping their fixed gateways for testing purposes. At the end of the test, you receive either an error message or success message.

If the ping succeeds but the computer cannot ping this address, verify the local computer's gateway IP address. The gateway IP address should be the IP address of the WebRamp.

NOTE – The ping test is executed from the WebRamp to the given IP address, not from the configuring computer.

Upgrade Firmware

You use the Firmware Upgrade page to update the WebRamp's internal software. Each time a new version of software is available, you use this page to download the new firmware directly to your WebRamp.

Set Factory Defaults

You use the Factory Default Settings page to reset the WebRamp to its default values. You usually do this in conjunction with the import and export configuration capabilities.

WARNING – This procedure resets all configuration parameters back to the original default values. Set factory defaults only if you are sure you want to erase all of the WebRamp's configuration information. See the table in Appendix A for the factory default settings.

NOTE – To change the WebRamp's IP address to match the IP address of your computer, use the WebRamp Finder utility.

Frequently Asked Questions

When you click this link from the Diagnostics page, you go directly to the Ramp Networks Technical Support web site. You must be connected to the Internet to access this page.

Import Configuration

You use this page to import new or previously saved configuration information from the TFTP server to the WebRamp. You usually pair this procedure with the export configuration procedure.

NOTE – Ramp Networks recommends that you set the WebRamp to factory defaults before you import configuration information, and that you import configuration information from the LAN TFTP server.

DHCP Troubleshooting

There are usually two problems associated with DHCP:

• the computer cannot communicate with the DHCP server

• the information provided by the DHCP server is not correct

If you are using the WebRamp's DHCP server, you can check your settings on the WebRamp problem-solving pages. Click **Advanced, Local Configuration,** and then **DHCP Server.** You can then view and configure various settings.

DHCP Communication

If your computer gets its IP address from the WebRamp's DHCP server, verify the following:

• DHCP is enabled on the WebRamp

• The WebRamp's LAN IP address is on the same network as the IP addresses in the DHCP table. For example, if the WebRamp's IP address is 192.168.1.1, the IP addresses in the DHCP table should be 192.168.1.2, 192.168.1.3, and so on. (It's ok if the WebRamp's IP address appears in the DHCP table; it will not assign its own address to a computer.)

- The gateway address is the WebRamp's LAN IP address. (If there is another router on the same LAN, the gateway address may be different than the WebRamp's.)

- The computers on the LAN should obtain their IP addresses from the DHCP server. Verify this in the computer's network settings.

If you do not want to use the WebRamp's DHCP server, you must disable it. See "DHCP Server Configuration" in Chapter 11 for more information.

DHCP Information

All of the data provided by the DHCP server is important, with the IP address range and the gateway IP address being the most important. Verify the following DHCP information:

- The WebRamp has a LAN IP address that is on the same network as the IP addresses in the DHCP table. For example, if the WebRamp's IP address is 192.168.1.1, the IP addresses in the DHCP table should be 192.168.1.2, 192.168.1.3, and so on. (It's ok if the WebRamp's IP address appears in the DHCP table; it will not assign its own address to a computer.)

- The gateway address is the WebRamp's LAN IP address. (If there is another router on the same LAN, the gateway address may be different than the WebRamp's.)

- The DNS server information is correct. (This information is usually provided by your ISP.)

  By default, the WebRamp provides computers with its LAN IP address as the first DNS server to try. The two additional IP addresses are backup servers the WebRamp tries if it cannot resolve a name to an IP address.

- The WINS information is correct. If you are using Microsoft networking and have a Windows Internet name server (WINS) on your LAN, enter the IP address of that server in the WINS Configuration page. WINS is used to locate other computers that use Microsoft networking by name.

LAN Adapters and PPP Connections

A Windows 95 computer can be configured with both a LAN adapter connected to an IP network and a Dial-Up Adapter for a PPP connection to the Internet or another IP LAN. When such a computer attempts to access a particular IP address, the destination server is located by checking the routing table and using the following process:

- If the destination IP address indicates that it is on the same IP subnet as the workstation's LAN adapter, then data is sent using the LAN adapter.

- If the destination IP address indicates that it is not on the same subnet as the workstation's LAN adapter, then data is sent to the default gateway. The default gateway then locates the destination route on behalf of the computer. By default, the dial-up connection becomes the default gateway.

This configuration becomes complicated for a user who is either dialing into the Internet when connected to a local private IP network or, conversely, when connected directly to the Internet and dialing into a private IP network. This is because PPP creates a default route if the option named Use Default Gateway On Remote Net is checked.

The default route that PPP creates establishes a priority for this connection in the computer's routing table. This priority allows full access to the remote network for name resolution and forwarding packets. However, it means more limited access for the local connection, because the default gateway used for network communications becomes the default gateway specified for the PPP connection. You will probably become aware of problems that this can cause when you try to connect to a computer on a remote subnet, but Windows 95 reports that it can't find that computer name.

Basically this problem occurs because neither the Domain Name System nor the TCP/IP protocol suite is designed to support multiple address spaces, which is the situation that occurs when a computer is simultaneously connected to a private IP network and the public Internet (or another private IP network).

To resolve the name resolution problems that can occur when you maintain a local network connection while using a Dial-Up connection to the Internet, see the Windows 95 Route command documentation for instructions on modifying the route table.

Gateway Problems

Your computer may be experiencing gateway problems if either of the following occurs:

- The WebRamp doesn't bring up the line and connect to the ISP or branch office when the web browser tries to reach a web site.

- The WebRamp is connected to the remote site and the computer cannot reach the remote computer.

Follow these steps to determine if the problem is with the WebRamp:

1. Check the computer's network information.

   • The IP address should be on the same network as the WebRamp. For example, if you are using the WebRamp's default addresses, the computer's IP address should be something such as 192.168.1.2.

   • The computer's subnet mask should match the WebRamp's subnet mask. You can check the WebRamp's subnet mask on the Local IP Address Configuration page. See "Local IP Address" in Chapter 11 for more information.

   • The default gateway value should be the WebRamp's IP address.

   • The DNS Server (Name Server) should contain the WebRamp's IP address and up to two additional addresses.

   If you changed any of the settings, try connecting again. If all of these settings are correct, proceed to step 2.

2. Ping the computer from the WebRamp.

   • From the Advanced Options page, click **Diagnostics,** and then **Ping Test.** Enter the IP address of the computer and then click the **Ping** button.

   If the Success page appears, the computer should be able to communicate with the WebRamp. Proceed to step 3.

3. Check the WebRamp's profile information.

   Check the following for an Internet connection:

   • From the Advanced Options page, click **Internet.** Verify that the Internet profile is enabled.

   • From the **Advanced Options** page, click **Internet,** then **ISP Options,** then **Account Information.** Verify that the phone number, user name, and password are correct.

   • From the **Advanced Options** page, click **Diagnostics,** and then **Event Log** to check for error messages.

For a branch office connection, you must determine the default path the WebRamp will use to connect to the remote site. If you have both an Internet profile and a branch office profile, the Internet profile is the default path. To change this, follow these steps:

1. From the Advanced Options page, click Local Configuration, then Routing, then IP Routing, and then Modify Default Route.

2. From the pull-down menu in the Interface field, choose the branch office profile. Then enter the gateway address (the IP address of the remote router's WAN connection.

Proceed to step 4.

4. Ping the remote site's router WAN interface.

   • From the Advanced Options page, click **Diagnostics,** and then **Ping Test.** Enter the IP address of the remote router's WAN address and then click the **Ping** button.

If the Success page appears, proceed to step 5.

5. Check the routing table of the remote router for these things:

NOTE – If you can't perform this step from your location, contact the remote router's network administrator.

   • Does the remote router have a route for the connection between it and the WebRamp? This allows the router to forward traffic to your WebRamp.

   • Does the remote router have a route to the computer's network? (192.168.1.0 if you are using the default WebRamp IP address.) This allows the router to determine that your network, 192.168.1.0, is available via the WebRamp.

When troubleshooting WebRamp connections, note the following:

• Do not use the host name when you are testing the WebRamp; instead, use the IP address to avoid any problems related to the HOST or LMHOSTS files, DNS server, WINS server, or any other methods of name resolution.

• In most cases, the subnet mask should be the same for all hosts on the same side of the WebRamp.

• Either router can use these steps to troubleshoot the connection. However, if one of the routers is not a WebRamp, you must consult the documentation or that router's network administrator.

Frequently Asked Questions

This section contains questions and answers to common problems users have when using the WebRamp to connect to the Internet. The FAQs are organized topically to help you quickly find the information you need to get up and running.

General

What does EasyStart do?

EasyStart checks for a network card driver, the presence of TCP/IP, and sets certain TCP/IP settings on computers running Windows 95, Windows 98, or Windows NT. See "Setting Up Your Computer" in Chapter 2 for more information.

What platforms does EasyStart run on?

EasyStart runs on computers running Windows 95, Windows 98, and Windows NT 4.0. If you have a Macintosh computer, see "Setting Up a Macintosh Computer" in Chapter 2 for information on setting that computer up to work with the WebRamp.

Can I run EasyStart on Macintosh or UNIX computers that are running SoftWindows?

No. EasyStart works only with computers running Windows 95, Windows 98, and Windows NT 4.0.

Do I have to run EasyStart to configure the WebRamp?

No. After you set up your hardware, see "Setting Up Your Computer" in Chapter 2. You can find information on setting up the WebRamp with both Windows and Macintosh systems in a new network without using EasyStart.

Do I have to run EasyStart to set up my computer to access the Internet with the WebRamp?

No. After you set up your hardware, see "Setting Up Your Computer" in Chapter 2. You can find information on setting up the WebRamp with both Windows and Macintosh systems in a new network without using EasyStart.

Should I use Express Internet or Connection Wizard to configure the WebRamp?

- Express Internet is the easiest way to set up the WebRamp to connect to the Internet. It sets up the Internet connection using modem 1.

- Connection Wizard allows you to choose which modem you want to use for your Internet connection. You can use Connection Wizard if you want to choose the modem you connect with, or if you want to set up a branch office connection.

Why isn't the power LED light on?

The power may not be connected. Check that the power cable is firmly plugged into an active power outlet and into the WebRamp's power jack.

Why isn't the Ethernet LED light on?

Check the following:

- Verify that the computer is on.

- The Ethernet cable may not be connected. Check that one end of the Ethernet cable is firmly plugged into an Ethernet port on the WebRamp and that the other end is firmly plugged into the Ethernet port on the computer. If both ends are firmly plugged in and the light still isn't on, the Ethernet cable may be damaged and you should replace it.

- You may have a bad network card.

After I configure my computer and WebRamp, how do I browse the Internet?

Verify that the power is on to the computer and WebRamp, and then simply open your browser to connect to the Internet.

I've configured my computer and my WebRamp; why can't I browse the Internet?

If you are connected to the Internet, the Ethernet and Modem LEDs will be flashing because information is being passed back and forth. If the LEDs are green but not flashing, you may have set TCP/IP incorrectly on your computer. Check the following:

- Check that your computer's network settings—gateway address and IP address— match that of the WebRamp

I typed 192.168.1.1 in the address area of my web browser; why can't I access the WebRamp Setup page?

You may not be able to access the WebRamp Setup page for the following reasons:

- The Ethernet cable is not connected properly. Verify that both ends are firmly plugged in.

- (Windows 95) The IP address on your computer may be set incorrectly. From the Start menu, choose **Run** and then type **winipcfg** and click **OK**. When the IP Configuration window displays, click **Release All** and then **Renew All**. Your IP address should appear as **192.168.1.x** (x is any number other than 1—192.168.1.1 is the IP address reserved for the WebRamp). Click **OK** to close winipcfg.

- The Ethernet cable is damaged—obtain another Ethernet cable and try connecting again.

Can I connect to the Internet and a branch office simultaneously?

Yes. See Chapter 8, "Connecting to Two Locations Simultaneously."

Why do I get the No DNS Server error message?

- You may have configured the DNS settings incorrectly. If you are using the WebRamp DHCP server and have completed configuration, simply restart your computer to update the network settings.

- If you are not using the WebRamp DHCP server, open the **Network** control panel, double-click **TCP/IP**, select the **DNS Configuration** tab and enter the WebRamp's IP address in the DNS IP address field. If you don't want to use the WebRamp's DNS server, then enter the DNS IP address provided by your ISP. Click **OK** twice to restart your computer and update the settings.

Modem

The cable for my Macintosh modem doesn't match the connector on the WebRamp. Do I need a different modem?

No. You can order a special adapter from the Technical Support group at Ramp Networks. Contact Technical Support at support@rampnet.com.

Why isn't my external modem responding?

If your modem isn't responding, verify the following:

- The modem connector is firmly attached to the WebRamp.

- The modem is turned on.

- The cable connecting the WebRamp to the modem is correct.

Why do I get a modem error when I try to connect?

You may have entered the wrong external modem information during setup. For example, you may have a US Robotics modem connected, but the configuration information is for a Motorola modem. Verify your modem settings in the Modem Configuration page.

Why do I hear the number dialing sequence when the computer is attempting to connect to the Internet but the connection doesn't complete?

The phone number the modem is trying to dial may be incorrect, the remote site modem may be busy, or there may be a line problem. Check your configuration to verify that the information is correct.You can also look at the Event Log for diagnostic information about the connection. To reach the Event Log page, click **Diagnostics** from any of the WebRamp pages and then click **Event Log.** Listing 1 shows an example of the data that appears in the Event Log after a successful connection:

Listing 12-1 Event Log data
PPP call initiated by packet: proto: TCP
sip:1.1.1.4 sport: 4896 dip:17.254.0.91 dport:80
PPP initiating a call to remote:2224600 on Modem 2
DEM connection successful:Modem 2:CARRIER 31200
PPP LCP Started on channel:Modem 2
PPP LCP Successful on channel:Modem 2
PPP LCP Negotiated Parameters on Modem 2: R_MRU:1524
R_MRRU:1600 R_AUTH:CHAP S_MRU:1500 S_MRRU:1600 S_AUTH:PAP
PPP Authentication started on:M2 type:PAP
PPP Authentication Succeeded on:M2 for user:
PPP IPCP Started on:Modem 2
PPP IPCP Dynamic IP Address negotiation successful:
Local: 206.14.182.216 Remote: 206.14.182.1
PPP IPCP connection successful.
MODEM connection successful:Modem 1:~
CONNECT 26400
PPP LCP Started on channel:Modem 1
PPP LCP Successful on channel:Modem 1
PPP LCP Negotiated Parameters on Modem 1: R_MRU:1524
R_MRRU:1600 R_AUTH:CHAP S_MRU:1500 S_MRRU:1600 S_AUTH:PAP
PPP Authentication started on:M1 for user:
PPP IPCP Started on:Modem 1
PPP IPCP Dynamic IP Address negotiation successful:
Local: 206.14.182.137 Remote: 206.14.182.1
PPP IPCP connection successful

Why doesn't the WebRamp dial the modem?

There may be some problems with the modem configuration. You can try the following:

1. From the WebRamp Setup page, click **Diagnostics,** and then click **Modem Test.** Click the appropriate button, **Modem 1, Modem 2,** or **Modem 3,** to verify that the modem is connected to and can be initialized by the WebRamp.

If you chose Other as your modem choice when you set up your modem configuration, you may need to provide an initialization string. Contact the modem manufacturer and specify that you need an initialization string that covers these conditions:

- Modem reports DCE to DCE speed and not DTE to DCE speed
- Modem provides hardware flow control
- Modem detects busy tones
- DCD signal follows the carrier state
- DSR is always on
- DTR causes the modem to hang up and auto answer is inhibited
- Modem performs auto fall back/forward, depending on line quality
- Modem negotiates auto reliable link

When I use the WebRamp, do I need to start dial-up networking to bring up the modem and access the Internet?

No. Simply open your browser and the WebRamp will connect you to the Internet.

I am not seeing 3x's 56K performance on the WebRamp. What could be the problem?

- Your ISP must support 56K modems.
- You won't see this performance for file transfers unless your ISP uses Multilink PPP.
- Very few modems truly deliver data transfer speeds of 56K.
- Verify that your connection speed is greater than 48K.

- The WebRamp can support modem speeds up to 3 times that of a single modem (assuming use of three modems). 56K modems must dial into special ports located at the ISP to get performance above 33.6K. Make sure your ISP supports 56K modems.

Can I use multiple ISDN modems to increase my Internet access speed?

Yes. You can use standard modems and ISDN modems, or any combination to increase your Internet connection speed.

Do I need three different ISP accounts when I use three modems to connect to the Internet?

If your ISP supports MultilinkPPP, you can use up to three modems with one ISP account. If you want to use three modems for your connection and your ISP doesn't support MultilinkPPP, you must use three different accounts and use Connection Optimized Link Technology to bond the modems.

Can I adjust the time interval for dropping the modem connection?

Yes. The default idle time is 300 seconds, but you can increase or decrease that interval. You can change the default setting by following these steps:

1. Click **Advanced** and then **Internet** to reach the Internet Connection page.

2. From the Internet Connection page, click **ISP Options** to reach the ISP Configuration page. Click **Advanced Configuration.**

3. On the Advanced Configuration page enter the appropriate number in the Idle Time in Seconds field. The default is 300 seconds. (Setting the idle time to zero keeps the call connected indefinitely.)

Can I use Connection Optimized Link Technology to connect to a branch office?

No. If you choose more than one modem to use with a branch office connection, Multilink PPP is used to bond the modems.

Can I connect to a branch office using the first modem and the Internet using the second?

Yes. Follow these steps:

1. From the WebRamp Setup page, click **Connection Wizard.**

2. On the Connection Wizard page, click the **Configure** button.

> **NOTE –** Express Internet configures your Internet connection using modem 1. If you previously used Express Internet to configure your Internet connection, you must clear that connection before you can configure a branch office connection using modem 1.

3. On the Configure a New Connection page, from the pull-down menu, choose the connection you wish to configure and then click **Configure.**

4. On the Modem Selection page, from the pull-down menu, choose the modem you wish to use with the connection and then click **Next.**

5. On the Modem Configuration page, select the speaker volume level of the internal modem. You can also select whether you want outgoing voice calls to have priority over data calls.

6. On the Call Direction Configuration page, click **Incoming, Outgoing,** or **Incoming and Outgoing** to choose the call direction and then click **Next.**

   • If you click Incoming, enter the authentication information for incoming calls on the Incoming Call Configuration page and then click **Next.**

   • If you click Outgoing, enter the account information to connect to the remote network and then click **Next.**

Network

Why doesn't my computer find the WebRamp on the local LAN?

There may be a problem with the Ethernet cable on the WebRamp. Check that one end of the Ethernet cable is fully plugged into an Ethernet port on the WebRamp and that the other end is fully plugged into the Ethernet port on the computer.

If the Ethernet cable connection is working, check the IP address of the computer. Follow these steps:

1. From the Start menu choose run. Type in **winipcfg** and then click **OK.**

2. In the IP Configuration window, click **Release All,** then **Renew All** to get an IP address from the WebRamp.

Why can't my Web browser find the WebRamp using its LAN IP address?

There may be a problem with the Ethernet cable on the WebRamp. Check that the Ethernet cable is firmly connected to the WebRamp and the computer. If the Ethernet LED is green but not flashing, you may have set TCP/IP incorrectly on your computer. See Chapter 2, "Installing the WebRamp," for more information.

Why do I hear normal modem activity but the connection comes up only briefly?

Check these WebRamp pages and compare the network settings to the information provided by the ISP or remote site administrator:

• IP Configuration page (for Internet connections)

• IP or IPX Configuration page (for branch office connections)

Will the WebRamp work without DHCP?

Yes, you can disable DHCP from the WebRamp Setup page.

1. From the WebRamp Setup page, click **Advanced**, and then **Local Configuration.**

2. From the Local Configuration page, click **DHCP Server** to reach the DHCP Server Configuration page. To disable DHCP click the **Disable** button.

NOTE – If DHCP is disabled, you must manually enter the IP address, gateway address and DNS server addresses (typically provided by the WebRamp) for each computer on the LAN.

I want to use my existing DHCP server; why won't the WebRamp's DHCP server disable itself?

• Verify that all the IP addresses of the computers on your network correspond to the WebRamp.

• Verify that you have only one DHCP server running on your network.

Also, see "Setting Up the WebRamp in a Dynamic IP Address Network" in Chapter 3 for information on using your existing DHCP server.

Will the WebRamp work with a proxy server?

Yes, the LAN computers would send Internet traffic to the Proxy server, which in turn would use the WebRamp to send and receive traffic from the Internet. The WebRamp would be the proxy server's gateway.

Can I dial into an NT server or Cisco or other router?

Yes. The WebRamp can dial into or from any other router when the WebRamp is configured for a branch office connection.

Does the WebRamp support SNMP?

Yes, the WebRamp supports SNMP.

I don't have a DNS server on the remote network. How do I contact the remote computers?

Type in the IP address of the remote computer or web server in your browser's URL line.

Why can't I connect to a Netcom account?

You may have entered your account information incorrectly. For Netcom accounts you must enter your information using this format:

us, *ppp*, *account ID*

What routing protocols does the WebRamp support?

The WebRamp supports TCP/IP, IPX/SPX, and bridging.

Can I configure the WebRamp so that the computers in my network use IPX routing only and not TCP/IP?

You must have at least one computer configured with TCP/IP. You access the WebRamp Setup page through your browser, which requires TCP/IP.

Does Network Neighborhood work over IP and IPX?

Yes. However, for a branch office connection, you must check the Enable IPX NetBios (Type 20) Broadcast checkbox on the Branch Office IPX Configuration page.

Internet Applications and Local Servers

When do I use Local Servers?

When you set up a computer on your LAN as a server that computers on the Internet can access, that computer is a Local Server. Because the WebRamp's security features do not allow computers to access your LAN by default, you must configure the WebRamp to allow traffic to reach this Local Server. The

Local Server feature can only be configured with Modem 1. You can set up more than one Local Computer on your LAN, but each server must be of a different type. For example, a web server, a mail server, and so on. See our web site at www.rampnet.com/service/apps for a complete list of servers and set up instructions.

When do I use the Internet Applications page?

This is an advanced feature and should be used only if you have in-depth knowledge of how an Internet application uses TCP/IP ports to connect to a server on the Internet. In general, these are Internet applications, such as CuSeeMe, that use two or more TCP/IP connections to work properly. One connection is made from a computer on your LAN, through the WebRamp, to a server on the Internet. The other connection is a separate connection made from the Internet server back to the computer on your LAN. The first connection is for control purposes, and the other is for data. Because both connections are associated with one computer, the WebRamp keeps track of the connections as one Internet application session.

When do I use a visible computer?

A visible computer is a computer on your LAN that computers on the Internet can access. A visible computer is different from a Local Server in that all incoming traffic (regardless of type) is forwarded on any of the WebRamp's modems to one specific computer on the LAN. This feature can be used to forward traffic to a web server or mail server. You can use this feature to host a web site or allow an Internet application such as CuSeeMe to work with a particular computer. You can configure up to three visible computers on your network.

Why can't I run the same Internet Application on more than one computer at the same time?

The WebRamp allows only one type of Internet application (or Local Server) to be in use at a time. If you must have more than one of the same kind of server on the LAN side of the WebRamp, you can use the Visible Computer feature. See www.rampnet.com/support for a complete list of supported applications.

Appendix

A

WebRamp's Default Settings

Table A-1 The default settings of the WebRamp

Local IP Address	192.168.1.1	
DNS Settings	Domain Name ramphome.com	DNS Server IP Address 192.168.1.1
DHCP Settings	Gateway Address 192.168.1.1	IP Address Range 192.168.1.1–192.168.1.254
IPX Settings	Learns network number automatically from LAN	
User Name	login (Not configurable)	
Admin Password	password	
Idle Time-Out	300 Seconds	

B

Upgrading the WebRamp Firmware

To upgrade the WebRamp firmware using the Console port, follow these steps:

1. Contact Technical Support at Ramp Networks to receive the latest firmware.

2. Create a folder called webramp on your computer, and copy the firmware to that folder.

3. Connect a serial cable to an available COM port on your computer and to the Console port on the WebRamp.

4. Select HyperTerminal from the Accessories program group.

5. When the Connection Description window appears, type a name for the connection and click OK.

6. Select the COM port that the serial cable is connected to, and click OK.

7. Confirm that the COM port settings are as follows:

   - Bits per second: 9600
   - Data bits: 8
   - Parity: None
   - Stop bits: 1
   - Flow control: None

8. Power off the WebRamp and follow the instructions as they appear on the HyperTerminal screen.

9. If you selected **38400** to be the baud rate, then select **Properties** to change the baud rate of the serial port. Click **Configure**, and then change the baud rate to **38400**. Click **OK** twice.

10. From the Transfer menu, choose **Send File**.

11. Click **Browse** to locate the firmware upgrade file in the WebRamp folder you created. Choose **XModem** for the protocol, and click **Send** to continue the upgrade.

The firmware upgrade takes about 15 to 20 minutes. After it completes, choose **Properties** from the File menu, and change the baud rate of the serial port back to 9600. Then power off and power on the WebRamp.

Recovering the WebRamp's IP Address

The WebRamp's default IP address is 192.168.1.1, with a subnet mask of 255.255.255.0. If you accidentally change the WebRamp's IP address, there are two ways to restore the default address:

• using the WebRamp Finder utility

• using the Console port and your computer's terminal program

Before you begin, make sure that the computer has TCP/IP installed and that it's connected to the WebRamp through an Ethernet cable.

Using WebRamp Finder

Follow these steps to recover the WebRamp's IP address using WebRamp Finder:

1. From the WebRamp CD, click **Tools** and open the WebRamp Finder utility.

2. Click **Set IP Address.**

3. Enter the new IP address and the subnet mask for the WebRamp, and click **OK.**

Using the Console Port

To begin, connect a serial cable to a COM port on the computer and to the Console port on the WebRamp. Then follow these steps:

1. Make certain that the terminal program on the computer is set to the following:

    *   9600 Baud

    *   8-N-1 with no flow control

2. At the login prompt, enter **login**.

3. When prompted for a password, enter **password**. Press **Enter** twice.

    A -> character, which is the prompt, should appear.

4. Enter the following commands at the prompt:

    setlocalip "-a <desired IP address> -m <desired subnet mask>"
    saveconfig
    logoutwr

Accessing Network Neighborhood

Network Neighborhood is a Windows application that allows Windows computers on a LAN to see each other and share files, directories (folders), and printers.

This appendix tells you how to set up Network Neighborhood capability for telecommuters and how to add it to existing branch office connections.

NOTE – Network Neighborhood is a Windows-specific application. It does not work with Macintosh computers.

Network Neighborhood With a Branch Office Connection

For information about setting up a branch office connection, see Chapter 7, "Connecting to Another Office."

When you set up a branch office connection using IPX or IP and IPX routing, you enable communication between the Windows computers on your network and a server on the branch office network, but not Network Neighborhood.

Microsoft applications, such as Network Neighborhood, use the NetBEUI protocol to allow computers on a local area network to share files and directories. When you set up a network of Windows computers, all the computers can see each other, because they are on the same network. Communication between

computers using NetBEUI is limited to the LAN, however, because NetBEUI cannot carry data over routers, between networks. Because of this limitation, you cannot access Network Neighborhood in a branch office using NetBEUI.

To access Network Neighborhood in a branch office, you must use NetBIOS, an application programming interface that runs on top of the IPX/SPX protocol and allows communication between Windows computers on different networks.

You can configure the WebRamp, and the Windows computers on your LAN and at the branch office, to allow Network Neighborhood capability on a branch office connection. The branch office connection must be configured with IPX or IP and IPX. The WebRamp does not forward IP broadcasts to the branch office.

NOTE – If you use bridging to connect to a branch office, no additional setup is required to access Network Neighborhood.

To configure the computers for Network Neighborhood capability on an existing branch office connection, follow these steps:

1. From the **Start** menu on the Windows desktop, choose **Settings** and then **Control Panels.**

2. In the Control Panels window, double-click **Network.**

3. In the Network window that appears, verify that the following network components are installed:
   - Client for Microsoft Networks
   - Client for Netware Networks
   - IPX/SPX-compatible protocol
   - TCP/IP protocol

NOTE – Use the Windows 95, Windows 98, or Windows NT CD to install any protocols that are not present.

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4. In the Network window, choose **IPX/SPX-compatible Protocol-> 3Com Fast Etherlink...,** and then click **Properties.**

5. In the IPX/SPX-Compatible Protocol Properties window, click the **I Want to Enable NetBIOS Over IPX/SPX** checkbox.

6. In the IPX/SPX-Compatible Protocol Properties window, click the **Advanced** tab, and then click **Set This Protocol to Be the Default Protocol.**

7. Click **OK.**

8. In the Network Window, click the **File and Print Sharing** button.

9. In the File and Print Sharing window, verify that the **I Want to Be Able to Give Others Access to My Files** checkbox is checked. (Users must click this checkbox to share files with other computers on the LAN.)

10. Click **OK.**

You must also configure certain WebRamp settings. Follow these steps:

1. From any page in the WebRamp configuration, click **Advanced.**

2. On the Advanced page, click the appropriate branch office connection (**Branch Office 1, Branch Office 2,** or **Branch Office 3**).

3. On the Branch Office page, click **Protocol Configuration.**

4. On the Branch Office Protocol Configuration page, click **IPX Configuration.**

5. On the Branch Office IPX Protocol Configuration page, click **Enable IPX NetBIOS (Type 20) Broadcast.**

6. Click **Apply.**

You must also configure the WebRamp or other router in the branch office to forward NetBIOS broadcast packets.

Network Neighborhood for Telecommuters

When telecommuters dial in to your network, they become part of the LAN and can access the resources available on that LAN. To add Network Neighborhood capability to an existing telecommuter connection, a telecommuter must configure certain Windows network settings on the home computer. For information about setting up the WebRamp for telecommuters, see "Setting Up the WebRamp for Telecommuter Access" in Chapter 10.

Telecommuters should do the following to set up their computers:

1. From the Start menu, choose **Settings** and then **Control Panels.**

2. In the Control Panels window, double-click **Network.**

3. In the Network window that appears, verify that the following network components are installed:

    *   Client for Microsoft Networks
    *   Client for Netware Networks
    *   IPX/SPX-compatible protocol
    *   TCP/IP protocol

    NOTE – Use the Windows 95, Windows 98, or Windows NT CD to install any protocols that are not present.

    ---

4. In the Network window, choose **IPX/SPX-compatible Protocol-> Dial-Up Adapter,** and then click **Properties.**

5. In the IPX/SPX-Compatible Protocol Properties window, click the **I Want to Enable NetBIOS Over IPX/SPX** checkbox.

6. In the IPX/SPX-Compatible Protocol Properties window, click the **Advanced** tab, and then click **Set This Protocol to Be the Default Protocol.**

7. Click **OK.**

8. In the Network Window, click the **File and Print Sharing** button.

9. In the File and Print Sharing window, verify that the **I Want to Be Able to Give Others Access to My Files** checkbox is checked. (Users must click this checkbox to share files with other computers on the LAN.)

10. Click **OK.**

Certain settings must also be configured on the telecommuter's computer for the Windows dial-up network connection. Follow these steps:

1. On the Windows desktop, double-click **My Computer.**

2. In the My Computer window, double-click **Dial-Up Networking.**

3. In the Dial-Up Networking window, select the icon for the dial-up connection you created to access the WebRamp's LAN, and then from the File menu choose **Properties.**

4. In the window that appears (the name of the window reflects the name you gave your connection) click the **Server Types** tab.

5. In the window that appears, verify that

- under Advanced Options, the **Log On to Network** checkbox is checked (the checkbox is checked by default)

- under Advanced Options, the **Enable Software Compression** checkbox is checked (the checkbox is checked by default)

- under Allowed Network Protocols, the **NetBEUI** checkbox is *not* checked

- under Allowed Network Protocols, the **IPX/SPX Compatible** checkbox is checked

- under Allowed Network Protocols, the **TCP/IP** checkbox is checked

6. Click **OK.**

Glossary

10BaseT

The Ethernet standard for Local Area Networks (LANs). The 10BaseT standard (also called twisted pair Ethernet) uses a twisted-pair cable with maximum lengths of 100 meters. The system operates at 10 Mbps and uses baseband transmission methods.

adapter

A part that connects two devices or systems, physically or electrically, and enables them to work together. It can be a plug that allows two wires to be connected, for example, or a printed circuit board that modifies the computer so it can work with certain hardware or software.

analog line

A communications line, such as an ordinary phone line, that carries continuously varying signals.

anonymous FTP

A method for downloading public files from a remote computer system using the File Transfer Protocol (FTP). You don't need an account to access the computer system, but the access rights are usually restricted. In general, you enter the word *anonymous* when the host prompts you for a username; you can enter anything for the password, such as your e-mail address or simply the word "guest." In many cases, you aren't prompted for your name and password.

application sharing

A feature that enables remotely accessed networks to share applications located on a remote server.

bandwidth	A measure of the capacity of a communications channel. For digital devices, bandwidth is usually expressed in bits per second (bps). For analog devices, the bandwidth is expressed in cycles per second, or Hertz (Hz).
bonding	See modem bonding.
bookmark	In a web browser, a link to a web page that you create and store in a local file that allows you to easily return to that location. Nearly all web browsers support a bookmarking feature.
bps	Bits per second, bps, is the rate of data transfer over a communication line.
bridge	Bridging connects networks that use the same communications protocols. Bridging uses a MAC (media access control) address to locate and send information from one network to another.
browser	See web browser.
Connection Optimized Link Technology	The modem bonding method patented by Ramp Networks. Connection Optimized Link technology uses a separate Internet account for each modem, but bonds the modems to increase the Internet access speed.
communications protocol	A set of rules or standards that regulate data exchange between computers, including the rules for data transmission and the formatting of messages. TCP/IP, DECnet, AppleTalk, SNA, and IPX/SPX are communications protocols.
communications software	Software that makes it possible to send and receive data over phone lines through modems.
control panel	In Windows and Macintosh systems, a utility that lets you adjust settings such as the date and time, mouse speed, and networking parameters.
DHCP	Dynamic Host Configuration Protocol. A protocol that enables a network connected to the Internet to assign a temporary IP address to a host automatically when the host connects to the network. With dynamic addressing, a device can have a different IP address every time it connects to the network. DHCP also supports a mix of static and dynamic IP addresses.
DHCP server	The server that assigns temporary IP addresses to the computer when it connects to the Internet. The WebRamp has a built-in DHCP server.
dial-up access	Connecting a computer to a network using a modem and a public phone network. The WebRamp supports dial-up access.

domain	The part of the network address that identifies the type of entity that owns the address. For example, edu identifies the address as being part of an educational organization. All devices sharing a common part of the network address are said to be of the same domain.
domain name	A name that identifies an IP address. For example, the domain name microsoft.com represents the IP address 198.105.232.4. Domain names are used in URLs to identify particular web pages. Every domain name has a suffix that indicates which top-level domain it belongs to. There are only a limited number of such domains. For example: gov - government agencies edu - educational institutions mil - military com - commercial business net - network organizations Because the Internet is based on IP addresses, not domain names, every web server requires a Domain Name System (DNS) server to translate domain names into IP addresses.
domain name system (DNS)	An Internet service that translates domain names into IP addresses. The Internet is based on IP addresses, but domain names are alphabetic and so easier to remember. Every time you use a domain name, a DNS service translates the name into the corresponding IP address. For example, the domain name www.microsoft.com would be translated to 198.105.232.4.
dynamic IP address	The address that the DHCP server assigns to the computer when the computer connects to the Internet.
dynamic routing	The process of real-time routing changes in response to network changes. Dynamic routing software adjusts routes based on the routing update messages it receives, then distributes updated messages about its new routes.
e-mail	Electronic mail is the transmission of messages over communications networks. The messages can be electronic text messages entered from the keyboard or electronic files stored on disk. Most computer networks have an e-mail system.
Ethernet	A Local Area Network (LAN) protocol. Ethernet supports data transfer rates of 10 Mbps. Ethernet is one of the most widely implemented LAN protocols.
file transfer protocol (FTP)	The protocol used on the Internet for transferring files to and from remote computer systems.

gateway	In networking, a combination of hardware and software that links two different types of networks. Gateways between e-mail systems, for example, allow users on different e-mail systems to exchange messages.
gopher	An Internet utility for organizing and displaying files on Internet servers. Files on a gopher server are presented hierarchically, with menus and submenus from which the user can choose and display files. Most Gopher databases are being converted to web sites, which can be more easily accessed using web search engines.
home page	The starting point of a web site. The home page serves as a type of index or table of contents to other files on the web site.
Hypertext Markup Language (HTML)	The authoring language used to create documents for the World Wide Web. HTML uses tags to define and format pages for the WWW.
Hypertext Transfer Protocol (HTTP)	The protocol used on the WWW for defining how information is formatted and transmitted, and what actions web servers and browsers should take in response to various commands.
Internet Protocol (IP)	The part of TCP/IP that determines how data messages are routed from a source to a destination over the Internet.
IP address	The number that uniquely identifies a computer connected to the Internet. The format of an IP address is a 32-bit numeric address written as four numbers separated by periods. Each number can be zero to 255. For example, 192.168.1.100 could be an IP address.
Internetwork Packet Exchange (IPX)	A networking protocol used by the Novell NetWare operating system.
Integrated Services Digital Network (ISDN)	An international communications standard for sending voice, video, and data over digital phone lines. ISDN requires special metal wires and supports data transfer rates of 64 Kbps (64,000 bits per second).
(ISP) Internet service provider	A business that provides access to the Internet. Usually for a monthly fee, the service provider gives you a web browser, username, password, and access phone number. Using a modem, you can log on to the Internet, browse the WWW, and send and receive e-mail.

Local Area Network (LAN)	A network of computers and other devices, usually in the same building, that are connected by a communications link that allows each element in the network to communicate with each other.
MAC (media access control) address	A hardware address that uniquely identifies each Ethernet card on a network. The MAC address is important when using filtering or the bridging protocol.
Medium Dependent Interface (MDI) switch	The switch located on the bottom of the WebRamp that controls the way a network sends or receives signals across a cable connection.
modem bonding	A technology that combines modem lines into a single channel. You can add up to three modems using ordinary analog phone lines, speeding up your access to the Internet.
modem	A modem is a device or program that enables a computer to transmit data over phone lines. Computer information is stored digitally, whereas information transmitted over phone lines is transmitted in the form of analog waves. A modem converts between these two forms.
Multilink PPP	Multilink Point-to-Point Protocol (PPP) is an Internet protocol that distributes a single Internet account across multiple modems. You can increase your Internet access speed by adding more modems, but have just one Internet account, and IP address, through your ISP.
network	A group of computers and other devices that are connected together and share software and information. Networks include Local Area Networks (LANs) and Wide Area Networks (WANs). LANs are geographically close together (usually in the same building), and WANs are separated geographically.
network operating system	An operating system that includes special functions for connecting computers and devices into a Local Area Network (LAN). Some operating systems, such as the Macintosh OS, have networking functions built in. The term network operating system is generally reserved for software that enhances a basic operating system by adding networking features. For example, some popular network operating systems for Windows include Novell NetWare and Microsoft LAN Manager.
network protocol	The network protocol defines the rules and parameters for network communications.

packet	A piece of information formatted for transmission over a network from one device to another. Data is broken up into packets for sending over a network, and each packet has a header containing source and destination addresses, an identification number, and error-checking code. All the data packets related to a message may not take the same route to get to their destination; they are reassembled once they have arrived.
packet switching	Refers to protocols that messages are divided into packets before they are sent. Each packet is then transmitted individually and can even follow different routes to its destination. Once all the packets forming a message arrive at the destination, they are recompiled into the original message.
Packet Internet Groper (PING)	A utility you can use to determine whether a computer is connected to the Internet. It works by sending a packet to the specified address and waiting for a reply. PING is useful in troubleshooting Internet connections. Pinging a domain name will return its IP address.
power supply	The component that supplies power to a computer or other device.
PPP	Short for Point-to-Point Protocol, a method of connecting a computer to the Internet. PPP is more stable than the older SLIP protocol and provides error checking features.
protocol	See communications protocol.
protocol stack	The set of protocol layers that work together to provide the services on a communications network. The set of TCP/IP protocols define communication over the Internet.
remote	In networks, remote refers to files, devices, and other resources that are not connected directly to your computer. Resources at your computer are considered local.
remote access	The ability to log onto a network from a geographically distant location. For example, you can access a company server from your home computer. You need a computer, modem, remote access software, and usually a PIN to obtain access.
RIP	The Routing Information Protocol (RIP) enables a router (the WebRamp) to exchange routing information with a neighboring router. RIP is used in small and medium-sized networks to access resources on a corporate network.

router	A device that receives transmitted messages and sends them to their correct destinations. Routers are used to link LANs that use the same communications protocols, and with the Internet to send data packets from one host to another.
static IP address	The address assigned permanently to a specific computer on a network. Compare dynamic IP address.
subnet	A network that is a part of another network. Dividing a single logical network into smaller physical networks simplifies routing. The subnet shares a network address with the other parts of the network.
subnet mask	A filter used by the router to determine the subnet destination of a packet.
Transmission Control Protocol/Internet Protocol (TCP/ IP)	The communications protocol that has become the standard for data transmission over networks.
TFTP server	The Trivial File Transfer Protocol is a simplified version of FTP. You can use the TFTP client built in to the WebRamp to import and export configuration information to and from the TFTP server. You can also use TFTP to download firmware upgrades.
Virtual Private Network (VPN)	A private network configured within a public network. A VPN uses encryption technology to prevent unauthorized users from gaining access to the network.
wide area network (WAN)	A network in which computers are connected to each other over a geographical distance. Typically, a WAN consists of two or more local area networks (LANs).
web browser	A software application used to view documents on the World Wide Web. For example, Netscape Navigator and Microsoft Internet Explorer are web browsers. These are graphical browsers, which means that they can display graphics as well as text. In addition, these browsers can present multimedia information, including sound and video.
World Wide Web (WWW)	A system of linked documents or web pages available from servers world wide. Each web page follows certain conventions and protocols. Web pages are written in HTML.