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Symphony HomeRF Base Station User's Manual
Part # 7360.0147
Rev. A

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Whether such damages be direct, indirect, consequential, special, or otherwise and whether such damages are incurred by the person to whom this warranty extends or a third party.

Proxim does not warrant that the functions contained in the products will meet your requirements or that the operation of the Symphony HomeRF Base Station will be uninterrupted or error free.

Warranty Return Policy
If you have a problem with your Symphony HomeRF Base Station, please call Symphony Technical Support at (408) 731-2780. Symphony Technical Support will assist with resolving any technical difficulties you may have with your Symphony product. If a Symphony technical representative determines that a product is defective and the product is still in warranty, you will be assigned a Return Material Authorization (RMA) number to authorize its return for repair or replacement. Dated proof of purchase may be required. Package the product appropriately for safe shipment, mark the RMA number on the outside of the package, and ship the package at your expense. Proxim recommends that you insure the package during shipment.

For support of software media, please refer to the Symphony Web site at **http://www.proxim.com/symphony/**.

Contents

1. Introduction

Thank you for purchasing Proxim's Symphony HomeRF Base Station, a member of the Symphony HomeRF 2.0 Network. Proxim has been a market leader in the wireless networking industry for over ten years providing award-winning technology to companies and individuals around the world. You can expect this same reliability from the Symphony HomeRF 2.0 products in your home and/or small office.

The Symphony HomeRF Base Station interoperates with Symphony HomeRF adapters to deliver reliable, hassle-free networking for your laptops and desktops without wires or cabling. A Base Station connected to a cable modem, DSL modem, or ISDN router can provide broadband Internet access to wireless computers. Alternatively, you can connect the Base Station to an existing Local Area Network (LAN) to provide wireless computers with the same network connectivity as your wired Ethernet clients.

With the Symphony HomeRF 2.0 Network, laptops become free of wires and cables so you can check e-mail, surf the Internet, or exchange files from anywhere in your home or backyard! Desktop computers in hard to wire locations can now enjoy connectivity with the rest of the network.

This manual provides all of the information necessary to install and configure not only the Symphony HomeRF Base Station, but also the Symphony HomeRF adapters that you will use in conjunction with this device. However, you may want to refer to the manual that shipped with each adapter for additional information and troubleshooting suggestions.

Product Description

The Symphony HomeRF Base Station is a member of a product family that provides a complete wireless networking solution for the home or small office. The Symphony HomeRF 2.0 Network complies with the HomeRF specification 2.0 and operates at radio data rates up to 10 Mbps.

Symphony HomeRF Hardware Products

❑ **Symphony HomeRF PC Card Model 4440:** a 3.3-volt Type II PCMCIA card that ships with a snap-on antenna.

❑ **Symphony HomeRF USB Adapter Model 4240:** a wireless adapter that connects to a USB (Universal Serial Bus) port with a 6-foot cable; the adapter has a built-in antenna.

❑ **Symphony HomeRF Base Station Model 4940:** a stand-alone networking bridge that provides Internet access to the wireless network over a broadband connection like DSL or cable. The Base Station may also attach to a small Ethernet LAN to provide network connectivity between Ethernet nodes and wireless computers. The Base Station may also attach to a small Ethernet LAN to provide network connectivity between Ethernet and wireless computers. Over its Ethernet interface, it operates at either 10 Mbps or 100 Mbps (10/100 auto-sensing).

Software Products

Proxim ships several software tools with the Symphony HomeRF adapters to make installation and configuration simple and hassle-free.

❑ **The Symphony Composer Installation Wizard** guides the user through the setup and configuration of a Symphony network during the initial installation or following an upgrade from an earlier version of the Symphony software. The Composer Installation Wizard is described in Chapter 5 beginning on page 17.

❑ **The Symphony Maestro Configuration Tool** allows the user to configure the settings and monitor the status of the Symphony network. The Maestro Configuration Tool is described in Chapter 6 beginning on page 21.

❑ **The Symphony Conductor Modem Sharing Software** allows one computer to share its installed modem or Ethernet card with other computers on the wireless network. Note that you cannot use the Conductor program on a Symphony HomeRF 2.0 network that includes a Base Station.

❑ **The Symphony Location Switcher** provides a fast and convenient way to move a wireless computer between different locations by storing Internet and network configurations for multiple networks. The Location Switcher is described in Chapter 7 beginning on page 31.

Proxim also offers Symphony accessory products, such as a second antenna option for the Symphony HomeRF PC Card. Refer to the Symphony Web site at **http://www.proxim.com/symphony/** for additional information.

The Product Package

Each Symphony HomeRF Base Station comes with the following:

❑ One (1) Symphony HomeRF Base Station

❑ One (1) 12VDC, 500mA power adapter

❑ One (1) five-foot Ethernet cable (straight through)

❑ One (1) *Symphony HomeRF Base Station Quick Start Guide*

❑ One (1) *Symphony HomeRF Base Station User's Manual*

System Requirements

In order to use a Symphony HomeRF Base Station, you must have the following:

❑ An external, Ethernet-ready device that provides broadband Internet access, such as a cable modem, DSL modem, or ISDN router (one of these devices is required to share Internet access)

OR

❑ An Ethernet hub or a computer with an Ethernet card already installed (one of these devices is required to communicate with an Ethernet network)

❑ An account with an ISP (Internet Service Provider); this is required to share Internet access with the wireless network

❑ At least one Symphony HomeRF adapter installed in a computer running Windows 98, Windows ME, or Windows 2000 Professional with a minimum 486/66 MHz processor, a minimum of 16 MB of RAM, and a minimum of 10 MB of hard disk space available

Note:
The Symphony software to configure and manage a Base Station does not support Windows 95 or Windows 2000 Server.

Interoperability Between Symphony Products

Proxim's Symphony HomeRF products can operate at four data rates: 10 Mbps, 5 Mbps, 1.6 Mbps, and 800 Kbits/sec.

When operating at 1.6 Mbps or 800 Kbits/sec, the Symphony HomeRF products are compatible with Proxim's Symphony-HRF product line (PC Card, USB Adapter, and Cordless Gateway).

Note:
The Symphony HomeRF products are not interoperable with OpenAir-based Symphony product, namely the Symphony Cordless Modem, Symphony Ethernet Bridge, Symphony PC Card, Symphony PNP ISA Card, and the Symphony PCI Card.

2. Wireless Networking With the Base Station

What Is Wireless Networking?

A "network" is two or more computers physically connected to each other. For example, if you connect two computers together with a cable, you have created a network. The two computers will communicate with each other over the cable. Networking technology enables two or more PCs, located throughout your home or small office, to communicate. With a network in your home or small office, you can:

❑ Share Internet access so family members may surf the Internet at the same time using a single connection

❑ Print to a printer that is connected to another computer on the network

❑ Access and transfer files on the hard drive of any computer that is a member of the network

❑ Play multiplayer games

The term "wireless" refers to communication that occurs over radio waves rather than over a cable. A wireless network alleviates the need for expensive and intrusive wiring within the home to connect computers. It also allows mobile users to remain connected to the network even when a laptop is carried around the home or taken into the backyard.

The Symphony HomeRF products create a wireless network between each computer in a household using standard networking software included with Windows. This network links the computers together so that they can share files, printers, and other peripheral devices, such as CD-ROM drives or floppy disk drives. In addition, a Symphony network with a Base Station can share an Internet connection or communicate with a small Ethernet network.

Supported Configurations

The Base Station provides a wireless solution for a wide variety of small networking environments, including these three supported configurations:

❑ A Wireless Network Sharing Internet Access

❑ A Wireless Network Communicating With an Ethernet Network

❑ A Wireless Network Sharing Internet Access and Communicating With an Ethernet Network

Each configuration is described below.

Sharing Internet Access

The Symphony HomeRF Base Station connects to an Ethernet-ready Internet device, such as a DSL modem, cable modem, or ISDN router, to share Internet connectivity with each computer on the wireless network.

Figure 1 illustrates an example of this networking configuration. The diagram shows a Symphony HomeRF Base Station connected to a cable modem with an Ethernet cable.
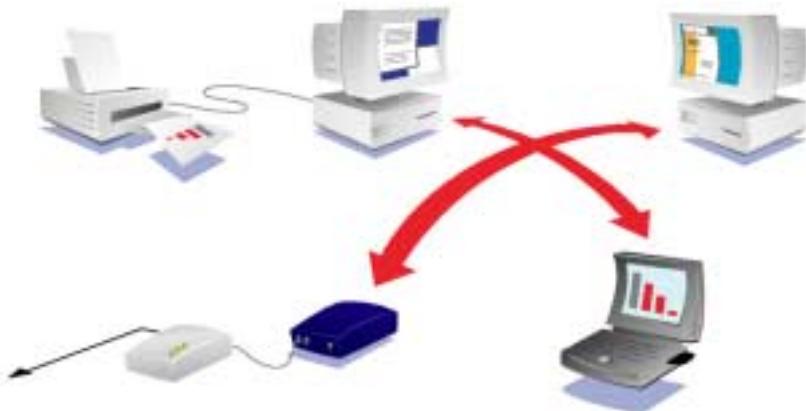

Figure 1
Sharing Internet Access

The Base Station links the broadband Internet device and the wireless computers so that each computer (laptops and desktops) on the Symphony network has simultaneous Internet access and can share files and printers with each other.

To use the Base Station in this configuration, you need an account with an Internet Service Provider (ISP) and one of the following pieces of equipment that you will connect to the Base Station with an Ethernet cable:

❑ An external cable modem

❑ An external DSL device, such as an ADSL modem

❑ An ISDN router

❑ Any other Ethernet device that can provide Internet access to a network.

Note that ISDN terminal adapters cannot be used with the Base Station because they do not communicate over Ethernet and do not have an RJ-45 connector.

The Base Station uses a technique known as Network Address Translation (NAT) to provide up to ten wireless computers with simultaneous access to the same Internet connection.

To implement NAT, the Base Station has two IP addresses: one that it uses to communicate with the ISP's network (which it receives from the ISP) and one to communicate with the Symphony wireless network (which is referred to as the Internal IP address).

In addition, the Base Station acts as a DHCP (Dynamic Host Configuration Protocol) server to automatically assign IP addresses to its wireless clients.

By default, the Base Station is configured to accept a dynamic IP address from an ISP's DHCP server. If your ISP uses static IP addressing or PPPoE, then you will need to configure the Base Station with the account information assigned by your ISP.

See Chapter 6: "Base Station Management and Configuration Features" on page 22 for more information on how to configure the Base Station's TCP/IP parameters.

Communicating With an Ethernet Network

If you already have a small network in your home or office, you can connect the Symphony HomeRF Base Station directly to an Ethernet cabling hub in order to provide connectivity between wireless computers and nodes on the wired Ethernet, as shown in Figure 2.
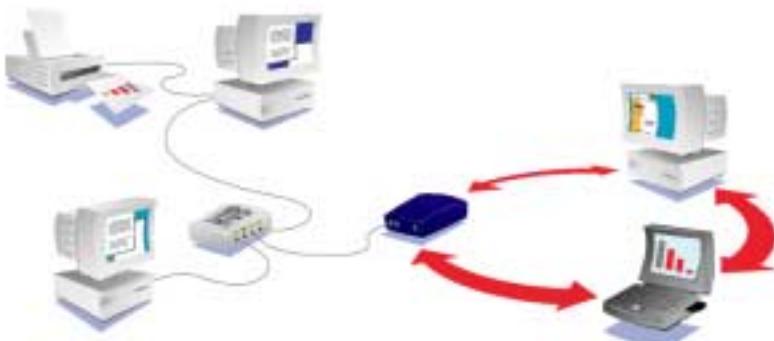
Figure 2
Communicating With a Wired Ethernet Network

Note:
The Base Station is designed to provide connectivity to small Ethernet networks that contain up to seven Ethernet nodes. Do not connect the Base Station to a cabling hub that has more than seven Ethernet devices attached.

The Base Station transparently links the two networks so that to each node there appears to be only one network. This function is known as Transparent Bridging.

In this configuration, each computer will have the ability to share files and printers with all of the other computers on the wireless and Ethernet networks.

For example, if you have a network server (such as a Windows 2000 server) on the Ethernet backbone, you can use the Base Station to provide wireless computers with the same client/server and file sharing capabilities available on existing Ethernet clients.

By default, the Base Station performs both Network Address Translation (NAT) and Transparent Bridging. However, to communicate with the Ethernet network using TCP/IP, you should disable NAT. Refer to Chapter 6: "Configure Network Topology" on page 22 and Chapter 8: "Networks Using Transparent Bridging Mode Only" on page 39 for details.

Sharing Internet Access And Communicating With An Ethernet Network

As discussed above, a Symphony HomeRF Base Station can link a Symphony network to a wired Ethernet network.

In addition, if you have an existing device on the Ethernet network that provides broadband Internet access to each of the Ethernet workstations (such as a cable modem, DSL modem, or ISDN router), then the wireless computers will also be able to share this Internet connection.

Figure 3 illustrates how a Base Station can connect a wireless network to an Ethernet network that has shared Internet access.
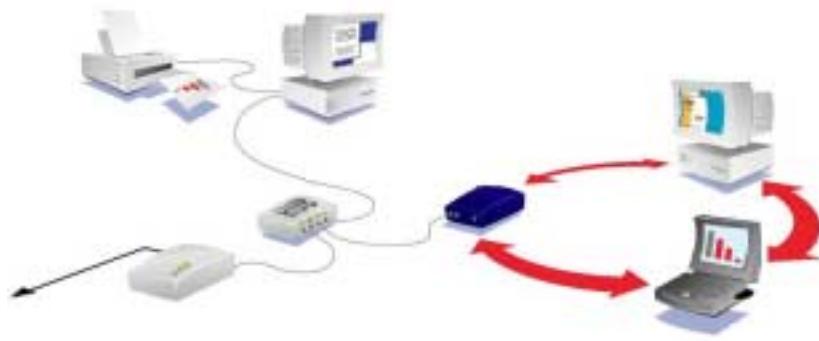

Figure 3
Sharing Internet Access and Ethernet Connectivity

Note:
The Base Station is designed to provide connectivity to small Ethernet networks that contain up to seven Ethernet nodes. Do not connect the Base Station to a cabling hub that has more than seven Ethernet devices attached.

The Ethernet hub in Figure 3 has three devices attached: an Ethernet-ready desktop computer, a DSL modem, and a Base Station.   The Base Station links the Ethernet and wireless networks together so that all computers can share files, printers, and Internet access.

In this configuration, the Base Station may perform both Network Address Translation (NAT) and Transparent Bridging or Transparent Bridging only.

By default, the Base Station will perform both functions, but depending on your network configuration, you may need to change this setting within the Symphony Maestro Configuration Tool.

If you already have an Internet-sharing software package (such as a proxy server program) installed on the network, configure the Base Station to perform Transparent Bridging only and then configure the wireless computers with TCP/IP settings that match the TCP/IP settings of the workstations on the existing Ethernet network. See Chapter 8: "Networks Using Transparent Bridging Mode Only" on page 39 for details.

If you do not have shared Internet access from all of the computers on the Ethernet network, you can use NAT to share a single IP address for the wireless network but you will not be able to share files and printers using TCP/IP. In this case, you must install a second protocol, such as NetBEUI or IPX/SPX, on all computers (Ethernet and wireless) to support file and printer sharing.

3. Installing the Base Station

The Symphony HomeRF Base Station is a stand-alone device which requires no software installation. Also, the Base Station has a built-in antenna which does not require installation.

Note:
Install the Base Station first before installing the Symphony HomeRF adapters that will communicate with it.

Follow these steps to install the Base Station:

1. Determine the best location for the Base Station. Keep in mind the following considerations:

   ❏ If you intend to use the Ethernet cable included with the product, the distance between the Base Station and the Ethernet-ready device to which it will connect cannot exceed the length of the cable. If you intend to use your own Ethernet cable rather than the one supplied, the cable must not exceed 100 meters.

   ❏ You should try to place the Base Station on a flat, sturdy surface as far from the ground as possible, such as on top of a desk or bookcase, keeping clear of metal obstructions and away from direct sunlight.

   ❏ You should try to centrally locate the Base Station so that it will provide coverage to all of the computers on the wireless network.

   ❏ The distance between the Base Station and a wall outlet cannot exceed the length of the power adapter's cable.

2. Attach one end of the Ethernet cable, provided in the product package, to **Port I** on the back of the Base Station and attach the other end to a 10/100 Mbps port on an Ethernet device.

Note:
Make sure that the Ethernet device is powered on before proceeding.

3. Attach one end of the supplied AC power adapter to the back of the Base Station and the other end to the wall outlet.

The three LEDs on the top of the Base Station will momentarily light up. In addition, the green Link LED, located to the left of the Ethernet ports, should light up.

4. If the Link LED is on, go to Step #10; if the LED is not on, go to Step #5.

5. Remove the connector plug from Ethernet **Port II**.

6. Remove the Ethernet cable from Port I and insert the cable into Port II. The Link LED should now light up.

7. If the Link LED is on, proceed to Step #9. If the Link LED is not on, proceed to Step #8.

8. If the Link LED does not turn on when the Ethernet cable is connected to either Ethernet Port I or Port II, try the following:

    ❑ Confirm that both the Base Station and the attached Ethernet device are powered up and operational.

    ❑ Try using another Ethernet cable, if available.

    ❑ Try connecting the Ethernet cable to another port on the Ethernet device.

    ❑ Contact Symphony Technical Support for assistance if none of these suggestions solve the problem.

9. Insert the connector plug into the Ethernet port that is not in use.

10. Proceed with the installation of the other Symphony HomeRF products in your home or small office following the instructions in Chapters 4 and 5.

Note:

The Symphony HomeRF Base Station must remain powered on during the installation of the other Symphony products.

4. Software Installation for Adapters

The following procedure describes how to install the Symphony software for the Symphony HomeRF adapters that you will communicate with the Base Station. The Symphony software supports Windows 98, Windows Millennium Edition (ME), and Windows 2000 Professional.

> **Note:**
> *The Symphony software does not support Windows 95 or Windows 2000 Server. Refer to Proxim's Web site at **http://www.proxim.com** to determine if there are driver-only packages available which support these operating systems.*

Pre-installation Considerations

Before beginning the installation of a Symphony HomeRF adapter, confirm that you have a Windows 98 or Windows ME installation CD available (depending on the computer's operating system). Windows 98/ME users may be prompted to insert a Windows CD during the installation. You should not need a Windows CD when installing a Symphony adapter on a Windows 2000 Professional computer.

If you do not have a Windows 98/ME CD, it is possible that you already have the Windows installation files on your hard disk. These Windows installation files are known as Windows Cabinet or CAB files. The Windows Cabinet files are commonly located in *C:\WINDOWS\OPTIONS\INSTALL* or *C:\WINDOWS\OPTIONS\CABS*.

> **Note:**
> *Windows 98/ME users may need the Windows CD or Cabinet files to complete the installation of the Symphony HomeRF adapter. Proxim recommends that you do not proceed with the installation until you have confirmed that you have one of these Windows installation media available.*

Note to Customers Using a Laptop Without a CD-ROM Drive

If you are installing a Symphony HomeRF PC Card in a laptop that does not have a CD-ROM drive or if your CD-ROM drive is an external device that shares a single PCMCIA slot with network adapter cards, you should follow the steps below prior to installing the Symphony software:

1. Windows 98/ME users: confirm that the Windows cabinet (CAB) files are installed on the computer. The CAB files are typically located in *C:\WINDOWS\OPTIONS\INSTALL* or *C:\WINDOWS\OPTIONS\CABS*.

2. Windows 98/ME users: if the computer does not have the CAB files installed, copy the *Win98* or *Win9x* folder found on the Windows CD-ROM to a temporary folder on the computer.

3. Copy the contents of the Symphony Installation CD-ROM to a temporary folder on the computer. Alternatively, you may download the software from the Symphony Web site at **http://www.proxim.com/symphony/**.

4. Follow the installation instructions contained in this chapter. When the instructions call for either the Windows CD or the Symphony Installation CD, search the temporary folders you created in Steps #2 and 3 above.

5. When the installation is complete, remove the temporary folders you created in Steps #2 and 3 above from the computer's hard drive.

Installation Procedure

Follow these steps to install a Symphony HomeRF adapter:

Note:
Make sure that the Symphony HomeRF Base Station is powered on before proceeding.

1. Insert the Symphony Installation CD; the Symphony Installation program will launch automatically, as shown in the example on the next page. If the program does not launch, run *SETUP.EXE* from the CD-ROM.

Note:
If you inserted the Symphony HomeRF adapter into the computer before running the Symphony Installation program, refer to Chapter 9 of the Symphony HomeRF Adapters User's Manual *for installation instructions.*

2. Click <**Customize**> to change the default installation directory; otherwise, click <**Install**> to continue with the standard installation.

3. Windows 2000 users: click <**Yes**> to continue the installation if prompted that the software package does not contain a Microsoft digital signature.

4. Insert the Symphony HomeRF adapter into the computer's PCMCIA slot or USB port when prompted by the following message:

5. Windows 98 and Windows ME users: insert the Windows installation CD if prompted. If you do not have a Windows installation CD, see "Pre-installation Considerations" on page 13.

6. Windows 2000 users: click <**Yes**> to continue the installation if prompted that the Symphony HomeRF adapter's software does not contain a Microsoft digital signature.

7. Reboot the computer if prompted. Otherwise, click <**Finish**> to close the installation program.

8. If prompted, enter your User name and Password in the network login dialog box. If you do not have an existing User name and Password, enter a new User Name and Password and write them down for future use.

9. The Symphony Composer Installation Wizard will launch automatically. Follow the on-screen instructions to configure your Symphony HomeRF adapter. See Chapter 5 for more information on the Symphony Composer.

5. Symphony Composer Installation Wizard

After you have installed a Symphony HomeRF adapter, the Symphony Composer Installation Wizard will automatically appear to guide you through the setup and configuration of your wireless network. You need to complete the Composer Wizard on each computer in which you installed an adapter.

The Composer provides a friendly user interface that helps you configure your network. Each configuration option is explained in detail as you navigate through the Composer's installation screens.

The Composer's Welcome screen, shown below, appears automatically following each installation. Also, you can launch the program from the Start Menu at any time to reconfigure the wireless network.
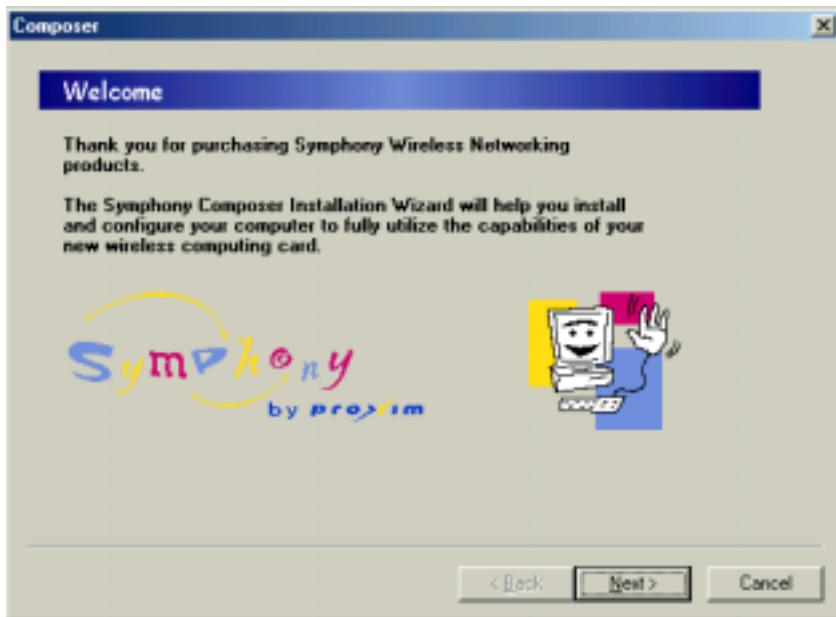
Be sure to read all of the on-screen instructions carefully before making a selection and proceeding to the next screen. At any time, you may click the <**Back**> button to return to an earlier screen and change a previous selection.

Important Note to Users in Transparent Bridging Mode Only

This note is only for users who will use the Base Station to communicate with an Ethernet network. If you want the Base Station to bridge TCP/IP traffic, you must configure the Base Station to operate in Transparent Bridging mode only within the Maestro Configuration Tool. See Chapter 6: "Configure Network Topology" on page 22 for information on how to change the Base Station's operating mode.

Also, if your Ethernet network does not have a DHCP server, then you must manually configure each wireless client with IP information that is valid on the Ethernet network. Complete the Symphony Composer Installation Wizard on each of your wireless computers and then refer to Chapter 8: "TCP/IP Settings for Transparent Bridging Only Networks" on page 39 for more information.

Composer Features

The Composer helps you configure the following network settings:

Assign a Security Code

A Security Code protects your wireless network from unauthorized access. Each Symphony HomeRF device must have the same Security Code to communicate. The Security Code is any combination of numbers and letters up to 20 characters long, and it is case-sensitive.

When configuring the Security Code on the first computer, enter a code that will be easy for you to remember. The Base Station will adopt this Security Code. Also, you will need to use the same Security Code later when configuring the other wireless computers.

Establish Communication With the Base Station

After you have configured a Security Code, the Composer will attempt to automatically detect the Symphony HomeRF Base Station.

If the Composer cannot find the Base Station, it will ask you a series of questions to help locate the Base Station. Follow the on-screen instructions to establish communication with the Base Station.

If problems persist, confirm that you have entered the correct Security Code and that the Base Station is powered on and operational. Also, try moving the computer and the Base Station closer together; the computer may be out of range.

Configure TCP/IP Information

When first powered on, the Base Station will request IP addressing information from your ISP's DHCP (Dynamic Host Configuration Protocol) server.

If the Base Station cannot receive an IP address automatically from the ISP (Internet Service Provider), the Composer will prompt you to select an ISP Connect Mode and enter any TCP/IP information assigned to you by the ISP.

The Base Station supports three ISP Connect Modes: static addressing, dynamic addressing, and PPPoE. See Chapter 6: "Configure ISP TCP/IP Settings" on page 23 for more information.

If you intend to use the Base Station in Transparent Bridging mode only to communicate with another network, leave the TCP/IP information blank and click <**Next**> to continue with the Composer Wizard.

Assign a Computer Name

In a Symphony network, each computer is assigned a name so that it can be easily identified by the other devices on the network. The Symphony Composer Installation Wizard will determine if your computer has already been assigned a name, and if not, it will prompt you to enter one. The Computer Name may be up to 15 alphanumeric characters long.

Select Drives and Printers to Share

The Symphony Composer will generate a list of the computer's hard drives, CD-ROM drives, floppy drives, and printers that may be shared with other computers on the wireless network. To share a resource, place a check mark next to its entry in the device list. Note that the Composer will display two configuration screens: one for sharing drives and one for sharing printers.

When sharing a computer's drive, click the entry multiple times to toggle between several access levels that may be granted to remote users. The options are Read/Write access, Read Only access, or no access.

If you configure a drive with Read/Write or Read Only access, Proxim recommends that you establish a password to prohibit unauthorized access. Depending on the type of Internet connection you have, others may be able to see your computers in their Network Neighborhood or My Network Places icon and have unauthorized access to your drives.

You may change the access type and establish passwords using the Symphony Maestro Configuration Tool. SeeChapter 6: "Configure Network Parameters" on page 27 for more information.

Configure Switcher Prompt at Boot-up

The Location Switcher includes an optional prompt that appears each time the computer boots up; this is a convenient method to switch between profiles for users who frequently move a laptop between multiple locations.

Note:
The Switcher prompt at boot-up feature is not available on computers running Windows ME.

Depending on the configuration of the computer, the Symphony Composer Installation Wizard may ask you to decide if you want this prompt to appear each time the computer boots up.

If you decide later that you want to enable or disable the Switcher prompt at boot-up, you can reconfigure this feature within the Location Switcher configuration screen. See Chapter 7 for more information on the Location Switcher.

Register Symphony Products

Following the successful completion of the Symphony Composer Installation Wizard, you will be given an opportunity to register your Symphony products on-line. Alternatively, you may register at any time by right-clicking the Symphony icon, located in the Windows System Tray. Choose **About** from the drop-down list and then click <**Register**>.

6. Symphony Maestro Configuration Tool

After the Composer configures the wireless network, a Symphony icon will appear in the Windows System Tray of each wireless computer, as shown below:

Base Station icon

The icon will change colors to reflect different states of connectivity. For example, the icon is gray when the network is functioning normally, and it is red when a wireless computer cannot communicate with the Base Station.

Double-click the Symphony icon or right-click the Symphony icon and choose **Status**, as shown below, to launch the Maestro Configuration Tool.

The Maestro Configuration Tool is shown in the following example.

The Maestro has two functions: it monitors the current state of the wireless network and it allows the user to reconfigure network parameters.

The following is a brief overview of Maestro's key features for networks that include a Base Station. Refer to the On-line Help documentation for additional details on how to use each of these features and for information on additional features not discussed in this chapter.

Base Station Management and Configuration Features

Maestro offers the following management and configuration features for the Symphony HomeRF Base Station:

Monitor Communication With Base Station

Maestro reports the Symphony Base Station Status, which includes a Base Station icon that changes color to reflect different states of connectivity (just like the Symphony icon in the Windows System Tray).

Configure Network Topology

The Base Station supports both Network Address Translation (NAT) and Transparent Bridging. (See Chapter 2 for information on these two functions). You can configure the Base Station to perform NAT only, Transparent Bridging only, or both functions simultaneously (the default setting).

In general, you should not need to change this parameter unless you want wireless computers to communicate with Ethernet computers (see Chapter 2: "Communicating With an Ethernet Network" on page 8 and Chapter 8: "Networks Using Transparent Bridging Mode Only" on page 39 for details).

To change the Base Station's operating mode, click <**Configure**> under the Symphony Base Station Status heading to edit the **Topology** setting. The three configuration options are described below:

I would like to use the Base Station to provide shared Internet access to my wireless computers:
This option corresponds to NAT mode only. Use this option if you have connected the Base Station to a broadband Internet device, like a cable or DSL modem.

I would like to use the Base Station to allow my wireless computers to communicate with Ethernet computers:
This option corresponds to Transparent Bridging mode only. Use this option if you want the Base Station to bridge the TCP/IP protocol so that wireless computers and Ethernet computers are on the same LAN and IP network.

I would like to use the Base Station to provide for both (above):
This option is the default setting and the Base Station performs both NAT and Transparent Bridging simultaneously. The Base Station uses NAT for the TCP/IP protocol and Transparent Bridging for all other protocols (such as NetBEUI or IPX/SPX).

Configure ISP TCP/IP Settings

When performing NAT, the Base Station requires IP addressing information from your ISP. Click <**Configure**> under the Symphony Base Station Status heading and select the **ISP TCP/IP** tab to edit the ISP settings. Note that the ISP TCP/IP tab is not visible if the Base Station is operating in Transparent Bridging mode only.

The Base Station supports three access methods or ISP Connect Modes: static IP addressing, dynamic IP addressing using DHCP (Dynamic Host Configuration Protocol), and PPPoE (Point-to-Point Protocol Over Ethernet). Contact your ISP to find out which method you use to connect to the Internet.

If you select **Static Addressing**, enter an IP address, subnet mask, default gateway, and up to two DNS (Domain Name System) addresses (in the fields labeled Address 1 and Address 2). Your ISP should provide you with these settings.

If you select **DHCP**, enter a Host Name if necessary. Contact your ISP to determine if a specific Host Name is required to access the Internet.

If you select **PPPoE**, enter a valid ISP User Name and ISP Password to establish a connection with the ISP's network and to receive dynamic IP addressing information from the ISP. Your ISP should assign you a User Name and Password for a PPPoE connection. Also, refer to "Configure Dial On Demand Settings" later in this chapter for information on PPPoE features.

Configure Dial On Demand Settings

Unlike static addressing or DHCP, PPPoE users are not necessarily always connected to the Internet. To determine when the Base Station will automatically connect or disconnect from the ISP, click <**Configure**> under the Symphony Base Station Status heading and choose the **Dial On Demand** tab (this tab is only available if the ISP Connect Mode is set to PPPoE).

By default, the Base Station is always connected to the Internet. However, if you change this setting, a <**Connect**> button will appear under the Symphony Base Station Status heading so you can connect and disconnect from the ISP.

The Dial On Demand screen offers the following configuration options:

Allow Internet connection to be brought up automatically:
The Base Station will connect to the Internet automatically whenever a user opens a Web browser or tries to communicate with a device on the Internet.

Prevent mail check from bringing up connection automatically:
This option is only available if you select **Allow Internet connection to be brought up automatically**. When enabled, a mail program checking for new messages will not force the Base Station to connect to the Internet. However, the Base Station will continue to automatically connect to the Internet if your mail program is configured with the name of the ISP's e-mail server (e.g., mail.proxim.com) rather than an IP address. Therefore, to prevent a mail check from launching an Internet connection, you must enable the **Prevent mail check** option and reconfigure the mail program to use the server's IP address in the incoming mail (POP3) server field. Contact your ISP to determine the IP address for the incoming mail server.

Do not allow Internet connection to be brought up automatically:
The Base Station will only connect to the Internet if you click the <**Connect**> button under the Symphony Base Station Status heading.

Always stay connected to the Internet:
This is the default setting. When this option is selected, the Disconnection options and the <**Connect**> button are unavailable.

Disconnection Options:
You may select either **Automatically Disconnect After the Specified Minutes of Inactivity** (between 1 and 60 minutes) or **Never Disconnect Automatically** to determine when the Base Station will terminate a PPPoE connection.

Configure Internal TCP/IP Settings

When performing NAT, the Base Station uses two IP addresses: one to communicate with the ISP (see "Configure ISP TCP/IP Settings" above) and one to communicate with the wireless network (called the internal IP address). By default, the Base Station is assigned an internal IP address of 10.0.0.1 and a subnet mask of 255.0.0.0. Also, the Base Station acts as a DHCP server to automatically assign IP addresses within the 10.0.0.0 IP network to the wireless computers (which are configured to accept a dynamic address by default).

If the Base Station's ISP TCP/IP Settings use the 10.0.0.0 IP network, then its two IP addresses will conflict. In this case, click <**Configure**> under the Symphony Base Station Status heading and select the **Internal TCP/IP Settings** tab to change the Base Station's internal IP address. The range of IP addresses dynamically assigned by the Base Station will also change based on the new IP address and subnet mask.

> ### Note:
> *Proxim recommends that only advanced users who are familiar with TCP/IP change the Internal TCP/IP Settings. If you change these settings, you must use a subnet mask that is valid for the class of IP address you entered and provides at least 4 bits of addressing space for the local network.*

Note that the Internal TCP/IP Settings tab is not visible if the Base Station is operating in Transparent Bridging mode only.

Upgrade the Base Station

You may use the Maestro Configuration Tool to upgrade the Base Station's firmware when a new version becomes available.

Click the <**Configure**> button under the Symphony Base Station Status heading and click the **Upgrade** tab to view the Upgrade screen. This screen reports the Base Station's current firmware version and the location on the Symphony Web site where you can download the latest firmware upgrade file.

Follow these steps to upgrade the Base Station's firmware:

1. Download the latest firmware version from the Symphony Web site to one of the wireless computers.

2. Open Maestro on the wireless computer to which you downloaded the firmware file in Step #1, click <**Configure**> under the Symphony Base Station Status heading, and select the **Upgrade** tab.

3. Write down the current version of the firmware as reported in the Upgrade screen. If the Base Station already has the latest version installed, there is no need to continue with the upgrade process.

> **Note:**
> *Before continuing the upgrade process, confirm that no wireless computer is using the Base Station to access the Internet or communicate with an Ethernet network.*

4. Click <**Upgrade from Disk**>.

5. When prompted, enter the location of the firmware file you downloaded (the file name should be *SYMEB475.BIN*).

6. Click <**Open**> to begin the upgrade process.

7. Follow the on-screen instructions to complete the upgrade process.

8. Click <**OK**> when notified that the upgrade process is complete and close the Maestro tool.

9. Reopen the Maestro tool and compare the new firmware version number with what you wrote down in Step #3 to confirm that the update was successful.

View Base Station Status

Click <**Status**> under the Symphony Base Station Status heading to view information about the Base Station.

When performing NAT, the Status screen displays the Base Station's current ISP TCP/IP Settings and reports the ISP Connect Mode (i.e., static addressing, DHCP, or PPPoE).

When performing Transparent Bridging only, the Status screen reports that the Base Station is set to Bridging Only mode.

Networking Features

Maestro offers the following networking features for each Symphony HomeRF adapter:

Obtain Network Status Information

Click the <**Status**> button under the Symphony Network Status heading to view the Wireless Status screen, which reports the number of packets sent and received by the Symphony HomeRF adapter while communicating with the wireless network.

Configure Network Parameters

Click <**Configure**> under the Symphony Network Status heading to display the computer's Setup screen where you may change the Security Code and which drives, directories, and printers are available for sharing.

Note that within Maestro's File Sharing screen you may designate specific directories to share rather than provide remote users with access to an entire drive. Therefore, you can limit the amount of information that is available over the network.

Also, after you select a new folder or drive to share, Maestro will prompt you to choose the type of access remote users will have to the shared resource (**Read/Write** or **Read Only**). **Read/Write** access allows a remote user to view, copy, create, and delete files on the shared drive. **Read Only** access allows a remote user to view and copy files on the shared drive.

> **Note:**
> *Read/Write and Read Only passwords do not apply to Windows 2000 Professional computers. For information on Windows 2000 file sharing security, refer to the documentation that came with your Windows 2000 Professional computer and to the* File Sharing With Windows 2000 *technical note on the Symphony Web site at **http://www.proxim.com/symphony/**.*

By default, Maestro will grant remote users Read/Write access to the shared resource. If you want to allow this type of access to remote users but prohibit unauthorized access, you can configure a **Read/Write Password**.

If you want to grant Read Only access to remote users, select the Read Only Access option. You may also set a **Read Only Password** to prevent unauthorized access.

Finally, if you select the **Depends on Password** option, you may set two different passwords (one for Read/Write access and the other for Read Only access) to allow full access to some users and partial access to others.

At any time, you can reset the access options for a particular drive or folder by highlighting the resource within the File Sharing screen and clicking <**Properties**>.

Warning!
Proxim recommends that you establish passwords for each drive that you share on the local area network. Depending on the type of Internet connection you have, others may be able to see your computers in their Network Neighborhood or My Network Places icon and have unauthorized access to your drives.

Test Wireless Connection

You may test the strength of the wireless connection between your computer and any other member of the wireless network using the Maestro tool. Follow these steps to test the wireless connection:

1. Highlight one of the other computers in the Symphony Network Map. The Symphony Network Map should list all of the other members of the wireless network that are within range.

2. Click <**Select**> to perform the link test.

Maestro will rate the connection strength as "Excellent," "Good," or "Poor," depending on the results of the test.

Note that double-clicking one of the entries in the Symphony Network Map will also open the Test Wireless Connection window.

Remote Drive Sharing

From within the Symphony Maestro Configuration Tool, you can assign a remote drive a drive letter on the local computer. For example, the C: drive of a remote computer may be assigned to the I: drive of the local computer. Once

assigned, the remote drive will appear to be another drive in the local computer's My Computer icon.

This process is also called "mapping" a network drive. A mapped network drive automatically reestablishes the connection each time the computer is restarted (unless the remote drive uses the **Depends on Password** security option). You can establish drive letters for not only remote shared drives but also remote shared directories.

To create a remote drive share, follow these steps:

1.   Open the Symphony Maestro Configuration Tool and refer to the Symphony Network Map.

2.   Highlight the name of the remote computer to which you want to attach.

3.   Click the <**Select**> button (alternatively, you may simply double-click the name of the remote computer).

4.   Select the **Remote Drive Sharing** tab to view a list of shared drives or directories on the remote computer.

5.   Highlight the name of a remote shared resource and click the <**Attach to Share**> button.

6.   Select the drive letter on the local computer to assign to the shared resource using the drop-down menu and click <**OK**>.

The mapped drive letter will appear to the left of the remote drive in the list of shared resources.

In the future, if you want to disconnect a shared drive mapping, highlight the name of the remote shared resource in the Remote Drive Sharing screen and click <**Detach From Share**>.

Note:
Windows 2000 users should refer to the File Sharing With Windows 2000 *technical note at **http://www.proxim.com/symphony/** for additional information on how to share files between Windows 2000 and Windows 98/ME computers.*

Launch Symphony Location Switcher

Click the <**Location Switcher...**> button under the Symphony Network Status heading to launch the Symphony Location Switcher configuration screen.

Administrative Features

Maestro also includes the following administrative features:

Determine Software Version in Use

To view information about the Symphony software versions installed on a wireless computer, right-click the Symphony icon in the Windows System Tray and choose **About** from the drop-down list. This will display the About Symphony Maestro Configuration Utility screen.

Register Products On-line

At any time you may register your Symphony HomeRF products on-line at Proxim's Web site. If you did not register your products following the completion of the Composer Installation Wizard, simply click the <**Register**> button in the About Symphony Maestro Configuration Utility screen to be taken to the Symphony Registration Web site.

7. Symphony Location Switcher

The installation procedure will automatically configure a Symphony HomeRF adapter with all of the parameters required to establish network communication. However, under some circumstances, you may want to move a computer from the wireless network to another network. For example, you may want to connect the computer to your office LAN (Local Area Network) that is in a different location and uses an Ethernet card to provide network access. In this case, the wireless network's settings may conflict with the settings of your office LAN.

Normally, in order to move a computer from one location to another, you must manually change several network settings, including the IP address, each time the computer is relocated. This process can be tedious and error prone. However, the Symphony software eliminates this concern by using location profiles.

Default Switcher Profiles

During installation, the Composer Wizard saves your computer's existing network configuration into a profile called "Original." After installation, the Composer saves the new network settings in a profile called "Symphony." Once the installation is complete, the computer will use the Symphony Profile until you switch back to the Original Profile using the Symphony Location Switcher.

> **Note:**
> *Among the network information saved within a profile is a computer's Internet Proxy Server settings. If you have configured Netscape Navigator with Proxy information, these settings are not saved within a profile. Netscape Navigator uses its own Internet Proxy information that the Symphony Composer Installation Wizard cannot access. If you have configured Netscape Navigator with Internet Proxy Settings, you must change this information manually from within Netscape Navigator each time the computer is relocated.*

Location Switcher Icon

After the Composer Wizard has configured a Symphony HomeRF adapter, the computer may automatically launch the Location Switcher program (depending on the computer's configuration) and place the Location Switcher icon in the Windows System Tray. If the icon does not appear, the Location Switcher program can be launched from the Symphony section of the Start Menu's Programs group.

The Location Switcher icon is shown in the following example.

Location Switcher icon

If you move the Windows cursor over the Switcher icon, a dialog box will appear that reports the current profile in use, as shown below.

At any time, you may edit an existing profile or create a new one using the Location Switcher configuration screen. Double-click the Switcher icon to display the configuration screen, shown below.

Alternatively, you can open the configuration screen by right-clicking the Switcher icon and choosing **Edit** or by selecting the **Symphony Location Switcher** entry in Start Menu > Programs > Symphony.
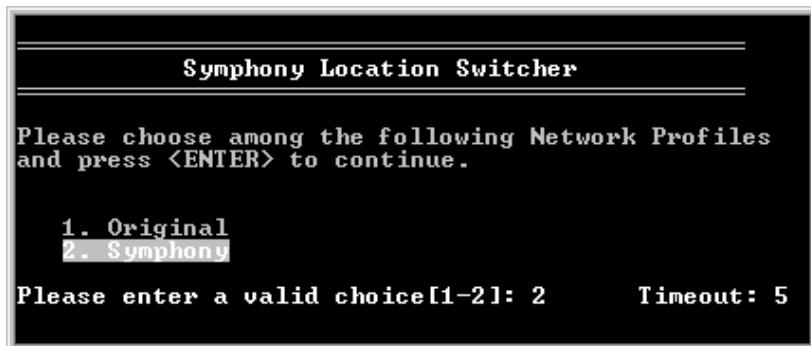
Location Switcher Icon In Taskbar

Depending on your computer's configuration, the Location Switcher icon may appear in the Windows System Tray each time you restart the computer.

You can prevent this from happening by unchecking the box labeled **Always show Switcher icon in taskbar** within the Location Switcher configuration screen. Likewise, if the icon does not appear, you can enable this feature by checking the box.

Switcher Prompt at Start-Up

During installation, the Composer Wizard may have asked you if you want to create a prompt at boot-up so that you can select which location profile to use. The prompt also includes an automatic timer; the Location Switcher will use the current profile if you do not select another one before the timer expires.

The example below is from a Windows 98 computer. For Windows 2000 Professional, the prompt appears after the user has logged on to the network.

```
              Symphony Location Switcher

Please choose among the following Network Profiles
and press <ENTER> to continue.


   1. Original
   2. Symphony

Please enter a valid choice[1-2]: 2        Timeout: 5
```

Note:
The Switcher prompt at boot-up feature is not available on computers running Windows ME.

You can disable this feature by unchecking the **Always prompt user at startup** box within the Switcher configuration screen.   Likewise, if the prompt does not appear, you can enable this feature by checking the box. This configuration option is not available on Windows ME computers.

Switching Between Profiles

The Location Switcher offers three ways to toggle between profiles:

❏ *Method 1:* Right-click the Switcher icon in the Windows System Tray and select the **Switch** option from the pop-up menu to choose between profiles.

❏ *Method 2:* Select a profile when prompted during boot-up, as described above.

❏ *Method 3:* Launch the Switcher configuration screen, select a profile from the **Switch to Profile** drop-down menu, and click <**Switch**>.

Note:
Methods 1 and 3 may require that you restart the computer when you change the profile so that the new settings can take effect.

Editing a Profile

To edit the network settings for a particular profile, follow these steps:

1.   Select a profile from the **Switch to Profile** drop-down menu on the Switcher Configuration screen.

2.   Click <**Edit Profile...**>.

3.   Select one of the configuration headings on the left-hand side of the screen to view and edit a profile's parameters.

4.   After you have made changes to a profile's network settings, click the <**Save Changes**> button.

5.   Restart the computer if prompted.

Each of the configuration headings is described below.

Identification

Identification configures the Computer Name, DNS Suffix, Workgroup affilia-
tion, and Domain affiliation for the selected profile. If you are unfamiliar
with these settings, Proxim recommends that you leave these parameters at
their default value. For Windows 2000 users, Proxim recommends that you
configure the computer to operate in a Workgroup rather than a Domain to simplify file
sharing on a peer-to-peer network. For more information, refer to the *File Sharing
With Windows 2000* technical note on the Symphony Web site at
http://www.proxim.com/symphony/.

Wireless

Wireless configures the wireless networking parameters. Other than Security
Code, none of the displayed parameters are applicable to the Symphony
HomeRF adapters (these parameters are for Symphony-HRF, Symphony, and
RangeLAN2 products).

TCP/IP

TCP/IP configures the TCP/IP parameters that the computer will use for the
selected profile. The TCP/IP parameters include IP Address, Subnet Mask,
DNS configuration, Gateways configuration, Proxy Server settings, and WINS
configuration. If you are unfamiliar with these settings, Proxim recommends
that you leave these parameters at their default value.

IPX/SPX

The IPX/SPX option configures the IPX/SPX parameters that the computer
will use for the selected profile. IPX/SPX is a network protocol like TCP/IP.
By default, the wireless network does not use this protocol, but it may be used
on other networks. If you are unfamiliar with these settings, Proxim recom-
mends that you leave these parameters at their default value.

File/Printer Sharing

The File/Printer Sharing option configures the drive mappings and default
printer that the computer will use when operating in the selected profile.

The File/Printer Sharing screen allows you to create, delete, or edit drive map-
pings (also known as remote drive shares) that are automatically established by
the computer when operating in the selected profile.

To make a new drive share, click <**Create Map**> and assign a drive letter and network path (if necessary, click <**Select**> to browse the network for the location of the drive you want to share).

To delete or edit an existing drive mapping, highlight one of the entries in the **Drive Mappings** table and click the appropriate button.

To change a profile's default printer, select another installed printer from the **Default Printer** drop-down menu.

Miscellaneous

The Miscellaneous option determines which Proxim programs are automatically launched when a computer is restarted using the selected profile.

"Maestro" corresponds to the Symphony Maestro Configuration Tool. "EConduct" corresponds to the Symphony Conductor Sharing Software for wireless networks that share a DSL or cable modem or communicate with another network. "Conductr" corresponds to the Symphony Conductor Modem Sharing Software for wireless networks that share a dial-up modem. "Statmon" corresponds to the RangeLAN2 Status Monitor; this program is not applicable for Symphony HomeRF devices.

For the Symphony Profile, you want the Symphony Maestro and Conductor programs to be launched automatically but not the RangeLAN2 Status Monitor. Therefore, the Maestro, EConduct, and Conductr entries should have a check mark and the Statmon entry should not.

Note:
A Windows 2000 Professional computer does not have the EConduct and Conductr entries.

For a profile that does not communicate with a Symphony network (such as a profile that uses an Ethernet card), then none of the entries should have a check mark; this will prevent these programs from loading when not needed.

Creating and Deleting Profiles

Within the Location Switcher configuration screen, you may create a new profile or delete an existing one. There is no limit to the number of profiles that you can create.

To create a new profile, follow these steps:

1. Click <**Create Profile**>. This will make a copy of an existing profile.

2. Assign a new name to the duplicate profile.

3. Change the network settings of the new profile using the Edit Profile options discussed earlier in this chapter.

To delete a profile, follow these steps:

1. Click <**Delete Profile**>.

2. Select a profile from the drop-down menu.

3. Click <**OK**> to delete the selected profile.

How to Use Profiles

Here are a few examples of how you might use different profiles:

Moving a Laptop Computer From the Home to the Office

Follow these steps when moving a computer from the home to the office:

1. Shut down the computer.

2. Eject the Symphony HomeRF PC Card from the PCMCIA slot.

3. Take the computer to the office.

4. Insert your office network card or set the computer in its docking station.

5. Turn on the computer.

6. Select the Original Profile (or another profile you have created specifi-cally for the office) at the Switcher prompt at boot-up.

The Location Switcher will restore all of your office LAN's settings, and the laptop will be ready to communicate with the office LAN without further configuration.

Alternatively, you can change the profile setting by right-clicking the Location Switcher icon or by clicking the <**Switch**> button in the Switcher configuration screen and restarting the computer if prompted.

Moving a Laptop Computer From the Office to the Home

Follow these steps when moving a computer from the office to the home:

1. Shut down the computer.

2. Remove the office network card or undock the laptop.

3. Take the computer home.

4. Insert the Symphony HomeRF PC Card into the PCMCIA slot.

5. Turn on the computer.

6. Select the Symphony Profile at the Switcher prompt at boot-up.

The Location Switcher will restore all of the Symphony settings, and the lap-top will be ready to communicate with the wireless network without further configuration.

Alternatively, you can change the profile setting by right-clicking the Switcher icon or by clicking the <**Switch**> button in the Switcher configuration screen and restarting the computer if prompted.

8. Using the Wireless Network

This chapter contains additional information for users who have configured the Base Station to use Transparent Bridging mode only as well as information on using Symphony with popular computer applications and accessories.

Networks Using Transparent Bridging Mode Only

For networks that use NAT, the Symphony software automatically configures the TCP/IP properties for wireless computers. However, for networks that do not use NAT (i.e., use Transparent Bridging mode only), then you may need to manually configure the TCP/IP properties for each wireless computer.

Understanding Transparent Bridging

Transparent Bridging allows wireless computers to communicate with computers on an Ethernet network as if all devices were attached to the same physical network.

In reality, the Symphony network and the wired Ethernet network use two different methods to communicate: one sends messages over a cable and the other sends messages over radio waves. However, when the Base Station is connected to both networks and is operating in Transparent Bridging mode, all devices, wired and wireless, appear to be on the same Local Area Network (LAN).

When configured for Transparent Bridging mode only, the Base Station bridges all protocol types between the two networks.

When configured to perform both NAT and Transparent Bridging, the Base Station bridges all protocol types except TCP/IP.

For information on how to configure the Base Station's operating mode to Transparent Bridging only, see Chapter 6: "Configure Network Topology" on page 22.

TCP/IP Settings for Transparent Bridging Only Networks

When configured to Transparent Bridging mode only, the Base Station does not require any TCP/IP configuration. However, you may need to manually configure each of the wireless client computers.

In order for Ethernet computers and wireless computers to communicate as part of the same LAN using TCP/IP, you must configure all devices (Ethernet and Symphony) to use the same IP network.

By default, a Symphony adapter is configured to accept an IP address from a DHCP server. If a DHCP server is not present, then the adapter will automatically configure itself with an IP address in the 169.254.0.0 network (this address range is reserved for private networks and is not valid on the Internet).

If your Ethernet network uses DHCP to assign dynamic IP addresses, then no additional configuration is required: the Symphony adapters will automatically receive IP addresses from the Ethernet network's DHCP server. If necessary, use the Windows 98/ME IP Configuration Tool (*WINIPCFG.EXE*) or Windows 2000 IP Configuration program (*IPCONFIG.EXE* at an MS-DOS prompt) to release and renew dynamic IP addresses.

However, if your Ethernet network uses static IP addresses (i.e., does not use DHCP), then you must manually configure each of the wireless clients with IP addressing information that is valid on the Ethernet network. This includes an IP address (each client must have a unique address), a subnet mask, default gateway, and any other TCP/IP parameters that are configured on your Ethernet clients.

Keep in mind that the Symphony adapter acts like a standard Ethernet card once installed. The Symphony adapter may use any existing IP addressing scheme already in use by Ethernet devices and can also be configured to use any additional networking protocols, such as NetBEUI or IPX/SPX.

Application Hints

This section provides information on the range of Symphony HomeRF products, how to reduce interference with other devices, and how to use the wireless network with common applications and peripheral devices.

Range of Symphony HomeRF Products

Two Symphony HomeRF products can communicate over a distance of up to 150 feet. Range is highly dependent upon the particular environment in which the products are used. Obstacles, such as walls and ceilings, weaken the radio signals. Metal objects, such as screen doors, window screens, and filing cabinets, also have an adverse effect on range. You should try to avoid placing a sheet of metal (like a filing cabinet) between two Symphony HomeRF devices.

Reducing Interference

The Symphony HomeRF 2.0 Network communicates using frequency hopping spread spectrum technology in the 2.4-GHz band. This is the same frequency band used by microwave ovens and 2.4-GHz telephones. Frequency hopping technology is designed to minimize interference so while you may notice a degradation in performance, your devices will not cease to function. Proxim recommends against installing the base station of a 2.4-GHz telephone between two Symphony HomeRF adapters.

Hint:
If you suspect a 2.4-GHz telephone is severely degrading the performance of the wireless network, temporarily disconnect power from the phone's base station to determine if this addresses the performance concern.

Home Network Security

The Symphony HomeRF 2.0 Network is secure against unauthorized access by eavesdroppers.

Frequency hopping signals are difficult to detect and decode because they hop several times a second from frequency to frequency in a pseudorandom sequence. Also, the Security Code adds an additional degree of protection because even if a network infiltrator is using another Symphony HomeRF device within range of your network, the infiltrator must know your Security Code in order to communicate with your wireless devices. Finally, Symphony's Network Address Translation (NAT) software acts as an Internet firewall to protect against unauthorized access from other users on the Internet.

Nonetheless, Proxim recommends that you establish passwords for each drive that you share on the local area network, particularly if you are using the Base Station in Transparent Bridging mode only. Depending on the type of Internet connection you have, others may be able to access your computer's files from over the Internet. Users who store personal information, such as bank records, on their computers may also want to consider installing a third-party security program to provide additional protection.

Accessing E-Mail

Each computer on the wireless network can send and receive e-mail exactly as if you were directly connected to the Internet (assuming that each computer has e-mail software installed and configured).

Typically, when you access e-mail, messages are downloaded from your ISP's mail server and stored on the computer's hard drive. Later, you can go back to that same computer to review your messages. However, if you access your e-mail account from a different computer, you will not be able to access the messages that were downloaded to the hard drive of the other computer. Therefore, every time you access a unique e-mail account, do so from the same computer (unless your ISP allows you to store your e-mail on its mail server or you use a Web-based e-mail service; contact your ISP for more information).

Playing Games Over the Home Network

You may play multiplayer games over your home network as long as the game supports operation over a LAN (local area network). Refer to the game's user guide for more information.

Sharing Software Applications

Most software designed for home use does not support operation over a network. This means that only a computer which has the program installed on its local hard drive can use the program. Refer to the software license agreement for restrictions on network use or contact the manufacturer for information on a network-enabled version of the software.

Sharing a Scanner with the Home Network

A wireless network can only share a scanner that supports operation over a network. Refer to the scanner's documentation or contact the scanner's manufacturer to determine if your scanner is network-enabled.

This chapter describes the LED Indicators, Ethernet ports, and buttons found on the Symphony HomeRF Base Station.

LED Indicators

The Base Station has four functional LEDs: three on the top of the unit (shown in Figure 4) and one on the back panel (shown in Figure 5).

❑ **Power Indicator LED** or **Status LED:** This LED turns green when the unit is powered on and operational; however, it will remain off during boot-up for several seconds while the Base Station searches for a wireless network to join. If the Base Station cannot locate an existing network with the same Security Code, it will start its own.

❑ **Wireless Network Activity LED:** This LED blinks green when the Base Station receives data from the wireless network.

❑ **Ethernet LED:** This LED blinks green when the Base Station receives data at 10 Mbps over the Ethernet connection; this LED blinks yellow when the Base Station receives data at 100 Mbps over the Ethernet connection

Ethernet LED   *Wireless LED*   *Power Indicator LED*
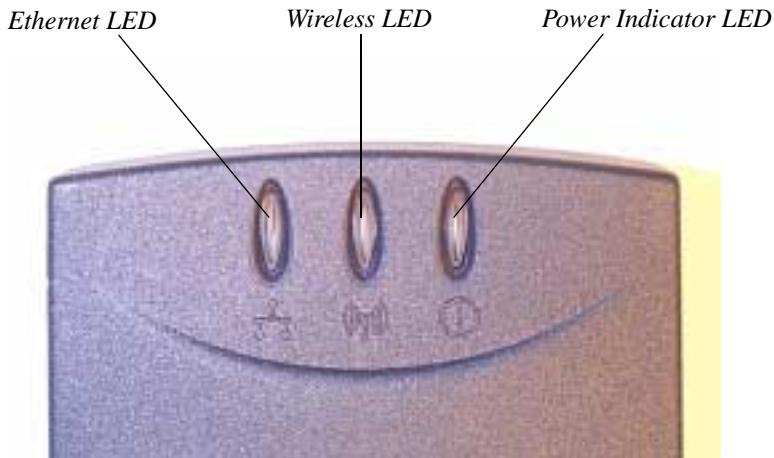
Figure 4
Top Panel LEDs

43

❏ Link LED: Located to the left of the Ethernet ports. This LED lights up when a physical connection exists between the Base Station and an attached Ethernet device. The LED will not light up if a damaged or improper Ethernet cable is attached.

Ports and Buttons

The ports and buttons on the Base Station's back panel (shown in Figure 5) are described below:

❏ **Ethernet Port I:** This 10/100 Mbps port is wired like a standard NIC (network interface card). Use a standard (straight through) Ethernet cable to connect Port I to an Ethernet hub or to device wired like an Ethernet hub, such as a cable modem or DSL modem.

❏ **Ethernet Port II:** This 10/100 Mbps port is wired like an Ethernet hub. Use a standard (straight through) Ethernet cable to connect Port II to a stand-alone PC or to a device wired like an Ethernet NIC.

Note:
Use either Port I or Port II. You cannot use the two Ethernet ports simultaneously.

❏ **Teach button:** When this button is pressed, the Base Station will send out a notification that allows other Symphony products that are operating in learn mode to join the wireless network.

❏ **Learn button:** When this button is pressed, the Base Station will enter learn mode to listen for network information from another Symphony product that is operating in teach mode.

Note:
Do not press either the Teach or Learn button unless directed to do so by the Symphony Composer Installation Wizard or by a Symphony Technical Support representative.
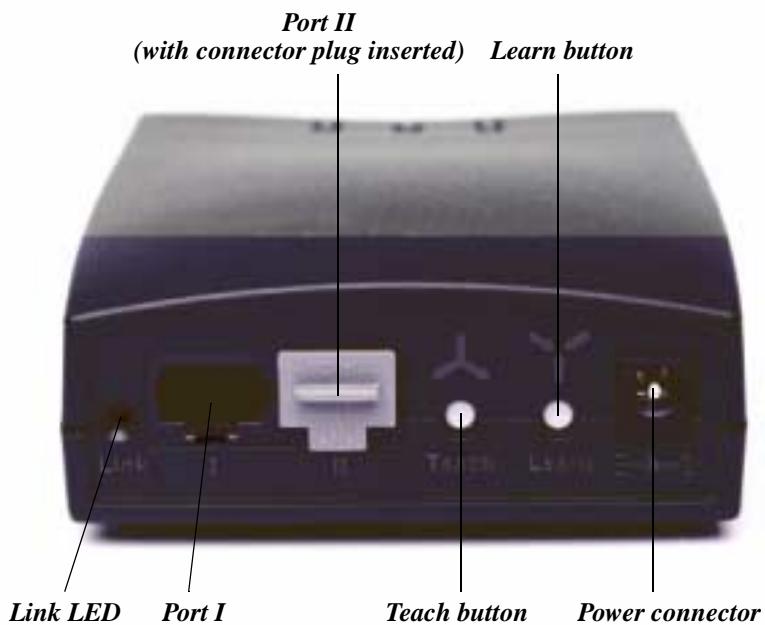
Figure 5
Back Panel

10. Uninstalling Symphony Products

This chapter describes how to uninstall Symphony HomeRF products.

Uninstalling the Base Station

To uninstall the Symphony HomeRF Base Station, unplug the power adapter from the wall outlet and disconnect the Ethernet cable from the attached Ethernet device.

Uninstalling Adapters

Proxim provides an uninstall tool to remove a Symphony HomeRF adapter and the Symphony software from a computer. The Symphony installation procedure copies the file *UNINSTAL.EXE* to the computer's hard drive and places a Windows shortcut called "Uninstall Symphony" in Start Menu > Programs > Symphony.

Follow these steps to uninstall the Symphony software:

1. Close all Windows programs.

2. Go to the Start Menu and choose **Uninstall** from the Programs group's Symphony folder.

3. When prompted, click <**OK**> to confirm that you want to uninstall the Symphony software.

4. When prompted, click <**OK**> to confirm that you have closed all Windows programs.

5. The Uninstall program will remove the Symphony components from your computer; this may take up to a minute.

6. Click <**OK**> when the process is complete, as shown in the following example.
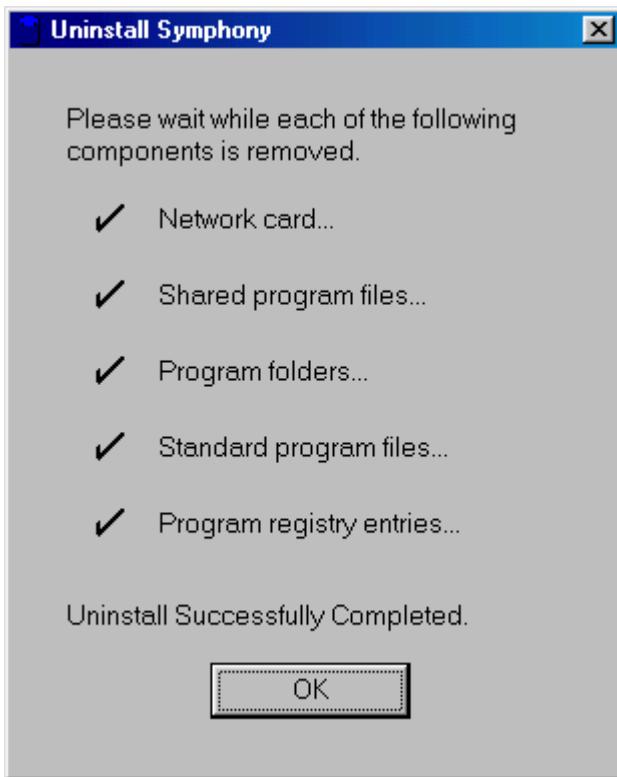
7. When prompted, shut down the computer and remove the Symphony HomeRF adapter from the computer.

Note:

The Uninstall program will reconfigure the computer with the network settings stored in the Original Profile, if any exist. For more information on profiles, refer to Chapter 7 beginning on page 31.

If you decide to reinstall the Symphony HomeRF adapter at a later date, follow the installation instructions in Chapters 4 and 5.

11. Troubleshooting

The Symphony HomeRF 2.0 Suite of products is designed to be very easy to install and operate. If you do experience difficulties, however, use the information in this chapter and on Proxim's Symphony Web site to help diagnose and solve your problems.

If you cannot resolve a problem, contact Proxim, as described in Appendix A: "How to Reach Technical Support" on page 53.

Note:
Refer to Chapter 9 o f the Symphony HomeRF Adapters User's Manual *for assistance with problems that arise during software installation.*

Common Technical Support Questions

Operational Issues

Symptom/Question	Possible Solution/Answer
The Base Station is configured to operate in Transparent Bridging mode only, but the wireless computers cannot communicate with my Ethernet network via TCP/IP.	Confirm that you have configured the wireless computers with IP addresses in the same IP network as the computers on the Ethernet network. See Chapter 8 for details.
My ISP has not assigned me enough IP addresses to assign a unique address to each wired and wireless computer. Can I use one IP address for the Base Station and still allow the wireless computers to communicate with my Ethernet network?	Yes. Configure the Base Station to operate in both NAT and Transparent Bridging mode. Also, configure all of your computers with a second networking protocol, like NetBEUI or IPX/SPX. The Base Station will use NAT with the TCP/IP protocol to share a single IP address with the wireless network, and it will bridge the second protocol (NetBEUI or IPX/SPX) so that Ethernet and wireless computers appear to be on the same LAN. See Chapter 2 for details.

Symptom/Question	Possible Solution/Answer
I can share files and printers between the computers on the wireless network, but I can't access the Internet.	Confirm that you have configured the Base Station with the appropriate Topology setting. Also, if you are using NAT, confirm that the Base Station's ISP TCP/IP settings have been properly configured. See Chapter 6 for details.
The Symphony icon in the Windows System Tray is red. Why?	The Symphony icon will turn red when the Symphony Base Station is unreachable. Try these steps: 1. Confirm that the Base Station is powered on. 2. You may be out of range of the Base Station. Try moving the computer closer to it. 3. Confirm that the Symphony HomeRF adapter's Security Code has not been changed within Maestro.
I can't print to the network printer.	1. Confirm that you have successfully installed the network printer on the computer from which you want to print. 2. Confirm that the printer and the computer it is attached to are powered on. 3. Confirm that the computer with the printer and the computer from which you want to print are both successfully logged into the network. 4. Test the strength of the wireless connection between the two computers from within the Maestro tool. The computers may be out of range of one another.
I get an error message while trying to copy driver files during the installation of my printer.	Certain printer manufacturers require that network computers run a proprietary software program to use the printer over the network. Consult your printer documentation for more information on how to share the printer on the network.

Symptom/Question	Possible Solution/Answer
I can't find another computer on the wireless network.	1. Confirm that the other computer is listed in the Symphony Network Map in the Maestro tool. 2. Test the strength of the wireless connection between the two computers from within the Maestro tool. The computers may be too far apart. 3. Confirm that you successfully logged onto the network. If you are unsure, go to the Start Menu and log off the current user to bring up the Network Logon prompt. 4. Use Microsoft's Find Computer utility to locate the computer on the network.
Which Ethernet port should I use to connect the Base Station to a cable modem?	In general, an Ethernet port on a cable modem, DSL modem, and ISDN router will have the same pinout as a cabling hub. In this case, connect an Ethernet cable to the Base Station's Port I. However, if the Link LED does not light up on the Base Station when it is connected to another Ethernet device, try connecting the cable to Port II.
The Link LED on the back of the Base Station is not on.	Try connecting the cable to both ports of the Base Station in succession. If the Link LED does not light up when connected to either port, try another Ethernet cable; your cable may be damaged.
The Base Station's Power Indicator LED is blinking on and off.	The Base Station is in the middle of upgrading its firmware; be patient while it completes the upgrade process.
How do I know if the Base Station's Ethernet port is operating at 10 Mbps or 100 Mbps?	Watch the Base Station's Ethernet LED. It blinks green when there is 10 Mbps activity and yellow when there is 100 Mbps activity.

Symptom/Question	Possible Solution/Answer
Can I connect the Base Station to my office Ethernet network so that my laptop can access the network?	The Symphony HomeRF Base Station can only be connected to small hubs with no more than 7 devices attached. If your office has more than 7 Ethernet devices networked together, then you should not attempt to use the Base Station to provide network connectivity to a wireless laptop.
Can I use two Base Stations on the same wireless network?	No. You can only use one Base Station on any wireless network.
I recently bought a Symphony HomeRF Base Station to add to my wireless network. Do I need to uninstall the software for my existing Symphony HomeRF adapters and reinstall it after I install the Base Station?	No, you do not need to uninstall your existing software. Run the Symphony Composer Installation Wizard from the Start Menu to reconfigure your computers to communicate with the Base Station.
Is the Base Station compatible with Symphony-HRF products?	Yes, the Base Station is compatible with Symphony-HRF products. However, the Base Station can only communicate at the higher data rates (10 and 5 Mbps) with other Symphony HomeRF products. It will operate at 1.6 Mbps or 800 Kbps when communicating with Symphony-HRF products.
Is the Base Station compatible with Symphony products, like the Symphony PCI Card?	No, the Base Station cannot communicate with the original Symphony products (Symphony Cordless PC Card, ISA Card, PCI Card, Ethernet Bridge, or Cordless Modem).
How can I use a laptop computer on both my office network and home network?	Switch between profiles using the Location Switcher. See Chapter 7 for details.

A. How to Reach Technical Support

If you're having a problem using any of the Symphony HomeRF 2.0 Networking products and can't resolve it with the suggestions in Chapter 11 or with information from the Symphony Web site, gather the following information and contact Symphony Technical Support:

❑   What network configuration is your wireless network using?

❑   What were you doing when the error occurred?

❑   What error message did you see?

❑   Can you reproduce the problem?

❑   What version of the software are you using with each of your Symphony HomeRF products?

You can reach Symphony Technical Support by voice, fax, E-mail, or mail:

Tel: 800-411-8106 or 408-731-2780
Fax: 408-731-3676
Web: **http://www.proxim.com/symphony**
E-mail: symphony_support@proxim.com

Mail: Proxim, Inc.
          Attn: Symphony Technical Support
          510 DeGuigne Drive
          Sunnyvale, CA 94085

B. Specifications

**The following technical specification is for reference purposes only.
Actual product performance and compliance with local telecommunica-
tions regulations may vary from country to country. Proxim, Inc. will
only ship products that are type approved in the destination country.**

Ethernet Interface: 10/100Base-TX (Twisted-Pair)

Ethernet Data Rate: 10/100 Mbps (auto-sensing)

Radio Data Rate: 10 Mbps, 5 Mbps, 1.6 Mbps, 800 Kbps

Frequency Band: 2.4-2.4835 GHz (in the U.S.)
                                 (spread spectrum frequency hopping)

Output Power: 100 mW

Range: A radius of up to 150 feet

Operating Temperature: 0°C to +40°C

Power Supply: 12 V DC, 500 mA maximum

C. Regulatory Information

FCC WARNING

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 the receiver.

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

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

Warning!

It is the responsibility of the installer and users of the Symphony HomeRF Base Station 4940 to guarantee that the antenna is operated at least 20 centimeters from any person. This is necessary to insure that the product is operated in accordance with the RF Guidelines for Human Exposure which have been adopted by the Federal Communications Commission.

Index

2.4-GHz Operating Band 41, 54
2.4-GHz Telephones 41

U

UNINSTAL.EXE 47
Uninstall Instructions 47–48
Upgrade from Disk 26
Upgrade Procedure 25–26
User Name
    Network 16
    PPPoE 23

W

Windows 2000
    IP Configuration Tool 40
    Professional 4, 13
    Server 4, 13
Windows 95 4, 13
Windows 98/ME 4, 13
    Cabinet (CAB) Files 13
    Installation CD 13, 16
    IP Configuration Tool 40
Windows System Tray 21, 32
WINIPCFG.EXE 40
WINS Configuration 35
Wireless Network 5
Wireless Network Activity LED 43
Wireless Switcher Options 35
Workgroup 35