

Copyright

© 2001 Proxim, Inc., Sunnyvale, CA. All rights reserved. Covered by one or more of the following U.S. patents: 5,412,687; 5,844,900; 5,875,179; 5,913,174; 6,006,090; and 5,231,634. This manual and the software described in it are copyrighted with all rights reserved. No part of this publication may be reproduced, transmitted, transcribed, stored in a retrieval system, or translated into any language in any form by any means without the written permission of Proxim, Incorporated.

Trademarks

Symphony, Symphony-HRF, the Symphony logo, Symphony Composer, Symphony Conductor, Symphony Maestro, and Proxim are trademarks of Proxim, Inc. All other trademarks are the property of their respective owners.

Limited Warranty, Disclaimer, Limitation Of Liability

For a period of one (1) year from the date of purchase by the retail customer, Proxim warrants the Symphony HomeRF product(s) against defects in materials and workmanship. If a product is found defective during the warranty period, Proxim will repair or replace the product with the same or a similar model, which may be a reconditioned unit, without charge for parts or labor. Any replaced or repaired product will have either a ninety (90) day warranty, under the conditions described herein, or the remainder of the initial one (1) year warranty, whichever is longer.

Proxim also warrants the media containing the Symphony software against failure for a period of ninety (90) days.

Proxim will not honor this warranty if there has been any attempt to tamper with or remove the product's external foil label. This warranty does not cover and Proxim will not be liable for any damage or failure caused by misuse, abuse, acts of God, accidents, or other causes beyond Proxim's control, or claim by any entity other than the original purchaser.

In no event shall Proxim, Inc. be responsible or liable for any damages arising:

- From the use of the product;
- From the loss of use, revenue or profit of the product; or
- As a result of any event, circumstance, action, or abuse beyond the control of Proxim, Inc.

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 product(s) will be uninterrupted or error free.

Warranty Return Policy

If you have a problem with your Symphony HomeRF product, 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	1
Product Description	2
Symphony HomeRF Hardware Products	2
Software Products	2
The Product Package	3
System Requirements	4
Network Requirements	4
Note to Customers Who Have a Symphony HomeRF Base Station	5
Interoperability Between Symphony Products	5
2. Wireless Networking for the Home & Small Office	7
What Is Wireless Networking?	7
Supported Configurations	8
Wireless Network Sharing a Modem	8
Wireless Network Communicating With An Ethernet Network	9
Peer-to-Peer Wireless Network	10
3. Installation	11
Pre-installation Considerations	11
Note to Customers Using a Laptop Without a CD-ROM Drive	11
Installation Procedure	12
4. Symphony Composer Installation Wizard	15
Important Note to PPPoE Users	16
Important Note to Users in Transparent Bridging Mode	16
Composer Features	16
Assign a Security Code	16
Choose a Network Configuration	17
Assign a Computer Name	18
Create a Virtual Modem	18
Select Drives and Printers to Share	18
Configure Switcher Prompt at Boot-up	19
Register Symphony Products	19

5. Symphony Maestro Configuration Tool 21

Conductor Management and Configuration Features 23
 Network Sharing a DSL or Cable Modem 23
 Network Sharing a Dial-Up Modem 24
 Network Communicating with Another Network 27
Networking Features 27
 Obtain Network Status Information 27
 Configure Network Parameters 27
 Test Wireless Connection 29
 Remote Drive Sharing 29
 Launch Symphony Location Switcher 30
Administrative Features 30
 Determine Software Version in Use 30
 Register Products On-line 30

6. Symphony Location Switcher 31

Default Switcher Profiles 31
Location Switcher Icon 32
 Switcher Icon In Taskbar 33
 Switcher Prompt at Start-Up 33
Switching Between Profiles 34
Editing a Profile 34
 Identification 35
 Wireless 35
 TCP/IP 35
 IPX/SPX 35
 File/Printer Sharing 35
 Miscellaneous 36
Creating and Deleting Profiles 37
Examples of When to Use Profiles 37
 Moving a Laptop Computer From the Home to the Office 37
 Moving a Laptop Computer From the Office to the Home 38

7. Using the Wireless Network 39

Additional Information for Wireless Networks That Communicate
With Another Network 39
 Understanding Transparent Bridging 39
 Configuring TCP/IP Settings for the Wireless Network 39

Sharing a Dial-up Modem	40
Multi-User Internet Sharing Mode	41
Single User Mode	42
Note to America Online and CompuServe 2000 Customers	43
Application Hints	44
Range of Symphony HomeRF Adapters	44
Reducing Interference	44
Home Network Security	44
Accessing E-Mail	45
Playing Games Over the Home Network	45
Sharing Software Applications	46
Using Fax Software	46
Sharing a Scanner with the Home Network	46
8. Uninstalling Symphony Software	47
9. Troubleshooting	49
Common Installation Problems	49
If You Inserted the Adapter Before Running the Setup Program	49
Symphony Composer Does Not Start	50
Adapter Does Not Install	51
USB Adapter's LED Indicator	53
A. How to Reach Technical Support	55
B. Specifications	56
C. Regulatory Information	57

1. Introduction

Thank you for purchasing Proxim's Symphony HomeRF 2.0 Network for your home or small office. 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 HomeRF2.0 products.

The Symphony HomeRF PC Card and USB Adapter deliver reliable, hassle-free networking for your laptops and desktops without the need for expensive or intrusive wires and cables. These easy to use and easy to setup wireless products create a fast Local Area Network (LAN) so that you can easily access files, print from any computer on the network, and share a single Internet connection!

With the Symphony HomeRF PC Card installed in a laptop computer, you have a truly mobile solution that allows you to check e-mail, surf the Web, or chat on-line from anywhere in or around your home or small office. With the Symphony HomeRF USB Adapter installed in a desktop computer, you can minimize the hassle and expense of adding phone lines or running wires through the house to provide Internet access in every room.

Product Description

The Symphony HomeRF adapters are members of a product family that provides a complete wireless networking solution for the home or small office.

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 connects to an external Ethernet device to provide Internet access to the wireless network over a high-speed connection using ISDN, DSL, service from a local cable company, or a similar access medium. The Base Station may also attach to a small Ethernet LAN to provide network connectivity between Ethernet nodes and wireless computers.

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 4.
- ❑ **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 5.
- ❑ **The Symphony Conductor Modem Sharing Software** allows one computer to share its installed modem or Ethernet card with other computers on the wireless network.

- ❑ **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. A user may switch between locations with a single keystroke during boot-up. The Location Switcher is described in Chapter 7.

Proxim also offers Symphony accessory products, such as an additional antenna option for the Symphony HomeRF PC Card and spare parts. Refer to the Symphony Web site at <http://www.proxim.com/symphony/> for additional information.

The Product Package

Each Symphony HomeRF adapter comes with the following:

- ❑ One (1) Symphony HomeRF PC Card or Symphony HomeRF USB Adapter
- ❑ One (1) snap-on antenna (for the Symphony HomeRF PC Card only)
- ❑ One (1) Symphony Installation CD-ROM, which includes the following: the Symphony Composer Installation Wizard, Symphony Conductor Modem Sharing Software, Symphony Maestro Configuration Tool, and Symphony Location Switcher
- ❑ One (1) *Symphony HomeRF Quick Start Guide*
- ❑ One (1) *Symphony HomeRF Wireless Adapters User's Manual*

Note:

If your computer does not have a CD-ROM drive to use with the Symphony Installation CD, you may download the software from the Symphony Web site at <http://www.proxim.com/symphony/>.

System Requirements

To install a Symphony HomeRF adapter, your computer must meet the following requirements:

- Minimum 486/66 MHz processor
- Windows 98, Windows Millennium Edition (with a Windows CD-ROM, diskettes, or Cabinet (CAB) files available for use during installation), or Windows 2000 Professional
- Minimum 16 MB RAM
- Minimum 10 MB of hard disk space available
- An available PCMCIA slot (for the Symphony HomeRF PC Card)
- An available USB port (for the Symphony HomeRF USB Adapter)

Network Requirements

To create a Symphony HomeRF Network, you must have a Symphony HomeRF adapter for each computer that will communicate with the network.

If you want to share an Internet connection over the network, you must have the following:

- A dial-up analog modem (56K ITU V.90) or a device that provides high-speed Internet access, such as a cable or DSL modem
- An account with an ISP (Internet Service Provider)

Note to Customers Who Have a Symphony HomeRF Base Station

If you purchased a Symphony HomeRF Base Station, please refer to the *Symphony HomeRF Base Station User's Manual* for installation and configuration instructions. Do not follow the instructions contained within this manual.

The *Symphony HomeRF Base Station User's Manual* provides complete information for the installation and configuration of Symphony HomeRF adapters that communicate with the Base Station.

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 for the Home & Small Office

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; and
- 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 can be configured to share a connection to the Internet or to communicate with a small Ethernet network.

Supported Configurations

During installation, the Symphony Composer Installation Wizard will attempt to automatically identify your Symphony network's configuration type. Listed below are the four supported configurations for a Symphony HomeRF adapter:

- A Wireless Network Using the Symphony HomeRF Base Station
- A Wireless Network Sharing a Modem
- A Wireless Network Communicating with Another Network (e.g., an Ethernet network)
- A Peer-to-Peer Wireless Network

All four options will establish file and printer sharing among computers but each provides a different degree of connectivity to the Internet or to a small Ethernet network.

If you have a Symphony HomeRF Base Station, please refer to the *Symphony HomeRF Base Station User's Manual* for installation and configuration information.

This manual describes the installation and configuration of a network that consists of Symphony HomeRF adapters only. In other words, any Symphony HomeRF network that does not include the Symphony HomeRF Base Station.

Wireless Network Sharing a Modem

A Symphony network may be configured to allow one computer to share its Internet access with the other members of the network. If you already have an internal or external dial-up modem connected to one of your computers or an external DSL or cable modem, which is connected to an Ethernet card installed in one of your computers, then you can share this modem with the rest of the wireless computers, as depicted below:



Proxim provides the Symphony Conductor Modem Sharing Software to allow one computer to share its modem with the other members of the wireless network. The Symphony Conductor runs on one computer, which acts as the leader of the network and grants modem access to the other computers.

The Conductor uses a technique known as Network Address Translation (NAT) to provides multiple wireless computers with simultaneous access to the same Internet connection.

To implement NAT, the Conductor has two IP addresses: one that it uses to communicate with the ISP's network and one to communicate with the Symphony wireless network. In addition, the Conductor acts as a DHCP (Dynamic Host Configuration Protocol) server to automatically assign IP addresses to its wireless clients.

Note:

If you intend to share a modem on your wireless network, you must install a Symphony HomeRF adapter in the computer that will share its attached modem first.

Wireless Network Communicating With An Ethernet Network

If you have an existing Ethernet card installed in one of the wireless computers, then you may configure this computer to act as a bridge between the wireless network and an Ethernet network, as depicted below:



Proxim provides the Symphony Conductor Modem Sharing Software which allows a computer that has two network interface cards (NICs) installed to act as an intermediary between two different networks. The Conductor software transparently links the two networks so that to each node there appears to be only one network. This function is known as “Transparent Bridging.”

For example, if one network computer has a Symphony HomeRF adapter and an Ethernet card installed, then it can grant Ethernet access to the other wireless computers via the TCP/IP protocol. In this configuration, each computer,

whether Ethernet or wireless, will have the ability to share files and printers with all of the other members of the wireless and Ethernet networks.

Note that this configuration is limited not only to Ethernet but can be used to bridge between the wireless network and any other standard networking technology. However, for the sake of simplicity, this manual refers to the second network as an Ethernet network.

Note:

If you intend to bridge between an Ethernet network and a wireless network, you must install a Symphony HomeRF adapter in the computer that will run the Conductor software first.

Peer-to-Peer Wireless Network

The simplest configuration of a Symphony network is referred to as a “Peer-to-Peer network.” In this configuration, depicted below, wireless computers communicate exclusively with each other: there is no modem sharing or communication with another network.



This option creates a wireless network to share files and printers between computers.

3. Installation

The following procedure describes how to install the Symphony software for a Symphony HomeRF adapter on a Windows 98, Windows Millennium Edition (ME), or Windows 2000 Professional computer.

Note:

The Symphony HomeRF adapters do not support Windows 95 or Windows 2000 Server.

Pre-installation Considerations

Before beginning the installation of a Symphony HomeRF adapter, confirm that you have a Windows 98/ME CD or diskettes available (depending on the computer's operating system). Windows 98 and Windows 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 or diskettes, 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:

You may need the Windows CD, diskettes, 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. For 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. For 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.
3. Copy the contents of the Symphony Installation CD-ROM to a temporary folder on the computer. Alternatively, you may download the Symphony 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, direct the installation wizard to 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:

*To use the Symphony Conductor program to share a modem or communicate with another network, you must install a Symphony HomeRF adapter in the computer that will run the Conductor program **FIRST**. A Windows 2000 Professional computer cannot run the Conductor program.*

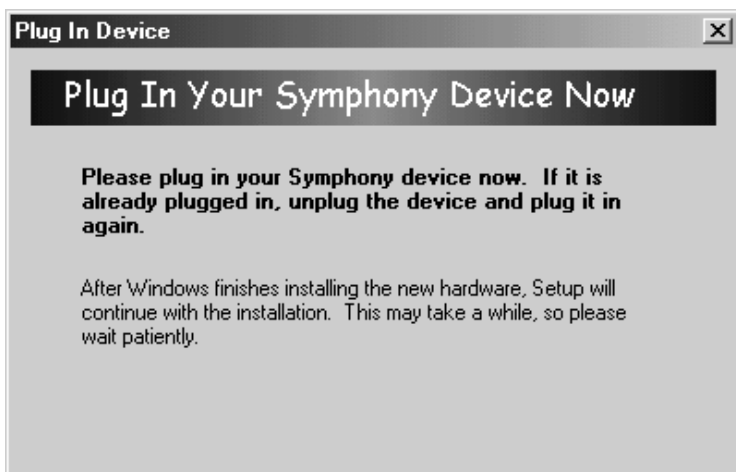
1. Insert the Symphony Installation CD; the Symphony Installation program will launch automatically, as shown in the example on the next page. If the program does not launch, run `SETUP.EXE` from the CD.

Note:

If you inserted the Symphony HomeRF adapter into the computer before running the Symphony Installation program, refer to Chapter 9: Troubleshooting for installation instructions.



2. Click <Customize> to change the default installation directory; otherwise, click <Install> to continue with the standard installation.
3. Insert the Symphony HomeRF adapter into the computer's PCMCIA slot or USB port when prompted by the following message:



4. Reboot the computer when prompted.
5. 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.

**Note:**

Do NOT choose the <Cancel>. You must enter a User name and Password to logon to the network.

6. The Symphony Composer Installation Wizard will launch automatically. Follow the on-screen instructions to configure your Symphony HomeRF adapter. See Chapter 4 for more information on the Symphony Composer.

4. 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.

Note:

*To use the Symphony Conductor to share a modem or communicate with another network, complete the Composer Wizard on the computer that will run the Conductor program **FIRST**. A Windows 2000 Professional computer cannot be the Conductor.*

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 PPPoE Users

If you are sharing a DSL or cable modem and your ISP uses the Point-to-Point over Ethernet protocol to connect you to the Internet, the Symphony Composer Installation Wizard does not configure PPPoE settings; you need to configure these settings within the Maestro Configuration Tool after you have completed the Composer Wizard. See Chapter 5 for details.

Important Note to Users in Transparent Bridging Mode

This note is only for users who want to create a wireless network that communicates with another network (e.g., an Ethernet network). 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 7 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: you will need to use the same Security Code later when configuring the other wireless computers.

Choose a Network Configuration

The Symphony Composer will ask you a series of question to determine your wireless network's configuration.

The Symphony HomeRF adapters support the following configurations:

- A network sharing a DSL or cable modem using NAT
- A network sharing a dial-up modem using NAT
- A network that communicates with another network (e.g., an Ethernet network) in Transparent Bridging mode
- A peer-to-peer network (no Internet sharing or no access to another network)

If want to share Internet connectivity on your network (using a DSL, cable, or dial-up modem), you must complete the Composer Wizard on the computer that has the shared modem installed first. If prompted, enter the TCP/IP information for the DSL or cable modem. This information should be available from your Internet Service Provider (ISP). For a dial-up modem, enter your ISP account information (telephone number, etc.) or select it from the list of Microsoft dial-up networking accounts when prompted.

If you want to create a wireless network that communicates with another network using Transparent Bridging, you must complete the Composer Wizard on the computer that has access to the other network first.

If you want to create a peer-to-peer network only, you can complete the Composer Wizard on your computers in any order.

Note:

If you want to share an Internet connection from a Windows 2000 Professional computer, create a peer-to-peer network and install Microsoft's Internet Connection Sharing (ICS) on the Windows 2000 computer.

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.

Create a Virtual Modem

For Conductor networks that share a dial-up modem, the Composer creates a virtual modem entry on the client computers which allows applications to use the shared modem as if it were locally installed. In addition, the Composer assigns the modem a COM port number so that it may be used by communication programs that identify a modem by its COM port rather than by its name.

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. See Chapter 5 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 product 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>**.

5. Symphony Maestro Configuration Tool

The Symphony Maestro Configuration Tool lets you make changes to the wireless network and monitor its current status.

After the Composer completes the installation of the wireless network, the Maestro Configuration Tool will display a Symphony icon in the Windows System Tray of each wireless computer. The icon's appearance will depend on which network configuration you have installed.

If you are using the Symphony Conductor to share a modem or communicate with another network, then the icon will appear as shown below:

Symphony Conductor icon



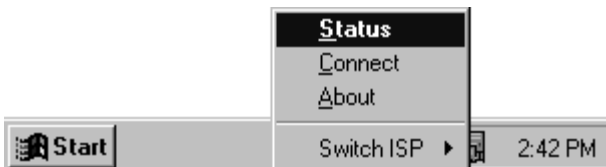
If you have a peer-to-peer wireless network that does not have shared access to the Internet or to another network, then the icon will appear as shown below:

Symphony Peer-to-Peer Network icon



The icon will change colors to reflect different states of connectivity. For example, the icon is blue and gray when a wireless computer can communicate with the Symphony network or Conductor computer, and it is red when a wireless computer cannot communicate with the network.

Double-click the Symphony icon to launch the Maestro tool. Alternatively, right-click the Symphony icon and choose **Status**, as shown in the following example for a network sharing a dial-up modem:



Either method will launch the Maestro Configuration Tool, shown in the following example.



The Maestro has two functions: it monitors the current state of the wireless network and the shared modem or network connection (if applicable), and it allows the user to reconfigure parameters for the wireless network and the shared device.

The following is a brief overview of the key features available with the Symphony Maestro Configuration Tool: the Management and Configuration options for Conductor networks only, the Networking Features for all networks, and the Administrative Features for all networks. 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.

Conductor Management and Configuration Features

Each of the three networks that use the Symphony Conductor offers different management and configuration options. Refer to the section below that corresponds to your network type for information about its available features.

Network Sharing a DSL or Cable Modem

A network sharing Internet access using a DSL or cable modem offers the following management and configuration features:

Monitor Communication with Modem:

Maestro reports the Symphony Conductor Status, which includes an icon of a desktop computer that changes color to reflect different states of connectivity, just like the Symphony Conductor icon in the Windows System Tray. This feature is available on all network computers.

Configure ISP TCP/IP Settings:

To share Internet connectivity with other wireless computers, you must configure the Conductor with IP addressing information from your ISP. Click **<Configure>** under the Symphony Conductor Status heading to edit the ISP TCP/IP Settings. These settings can only be configured from the Conductor computer.

The Conductor supports three access methods: static IP addressing, dynamic IP addressing using DHCP (Dynamic Host Configuration Protocol), and PPPoE (Point-to-Point Protocol Over Ethernet). Contact your ISP to determine what method you need to 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 receive dynamic IP addressing information. Your ISP should assign you a User Name and Password for a PPPoE connection.

Configure Internal TCP/IP Settings:

The Conductor uses a second IP address (which is different from the IP address obtained from the ISP) to communicate with the wireless network. By default, the Symphony Conductor is assigned an internal IP address of 10.0.0.1 and a subnet mask of 255.0.0.0. Also, the Conductor acts as a DHCP server to automatically assign IP address within the 10.0.0.0 IP network to the wireless computers (which are configured to accept a dynamic address by default).

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

Note:

Proxim recommends that only advanced users who are familiar with TCP/IP change the Conductor's 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.

These settings can only be configured from the Conductor computer.

View Conductor Status:

Click <**Status**> under the Symphony Conductor Status heading to view the Conductor's current ISP TCP/IP Settings. This screen also reports the ISP Connect Mode (i.e., static addressing, DHCP, or PPPoE). This feature is available on all network computers (Conductor and clients).

Network Sharing a Dial-Up Modem

A network sharing Internet access using a DSL or cable modem offers the following management and configuration features:

Monitor Communication with Modem:

Maestro reports the Symphony Conductor Status, which includes an icon of a desktop computer that changes color to reflect different states of connectivity, just like the Symphony Conductor icon in the Windows System Tray. In addition, Maestro reports when the modem is idle, dialing, connected to the Internet, or operating in Single User Mode. This feature is available on all wireless computers.

Connect to Internet:

Maestro offers two ways to manually connect to the Internet from any computer on the wireless network.

Method 1: Open the Maestro tool and click <**Connect**>.

Method 2: Right-click the Symphony Conductor icon and choose **Connect** from the drop-down menu.

These methods also apply when manually disconnecting from the Internet.

Reconfigure ISP Information:

Using the Maestro Configuration Tool, you can edit, add, delete, or switch between ISP accounts. The Symphony Conductor can store the configuration information for up to three (3) ISP accounts.

To view the ISP accounts, click <**Configure**> under the Symphony Conductor Status heading. You may edit the ISP information, including User Name, Password, ISP's phone number, ISP Type, and DNS addresses, for any of these accounts. To change the DNS addresses, click <**Advanced**>.

To add an ISP account, click <**Add ISP...**> and fill in the necessary fields. To delete an ISP account, click <**Remove ISP...**> and select an account from the ISP Name drop-down menu.

Maestro offers two ways to switch between ISP accounts.

Method 1: Open the Maestro tool, click <**Configure**>, and select a new ISP from the ISP Name drop-down menu.

Method 2: Right-click the Symphony Conductor icon and choose **Switch ISP** from the drop-down menu to select a different account.

Dial On Demand:

Click <**Configure**> under the Symphony Conductor Status heading and choose the **Dial On Demand** tab to set when the Conductor will automatically connect or disconnect from the ISP.

For example, you can configure the Conductor to dial out to the ISP whenever an Internet browser is launched from any computer on the wireless network. Also, Maestro lets you to set a time limit so that the Internet connection will be automatically disconnected after the specified period of inactivity.

Symphony Conductor Configuration:

You may enable or disable modem sharing (the ability of other computers on the Symphony network to use the shared modem) and prohibit the remote configuration of the Reconfigure ISP Information and Dial On Demand settings.

This feature is only available on the Conductor computer. To change the Conductor Configuration, open Maestro on the Conductor computer, click <**Configure**>, and select the **Symphony Conductor** tab.

Configure Internal TCP/IP Settings:

The Conductor uses two different IP addresses: one from the ISP to communicate with the Internet and one to communicate with the wireless network. By default, the Symphony Conductor is assigned an internal IP address of 10.0.0.1 and a subnet mask of 255.0.0.0. Also, the Conductor acts as a DHCP server to automatically assign IP address within the 10.0.0.0 IP network to the wireless computers (which are configured to accept a dynamic address by default).

If the Conductor's ISP TCP/IP Settings use the 10.0.0.0 IP network, then the Symphony Conductor's two IP addresses will conflict. In this case, click <**Configure**> under the Symphony Conductor Status heading to change the Conductor's Internal IP Settings. The range of IP addresses dynamically assigned by the Conductor 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 Conductor's 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.

These settings can only be configured from the Conductor computer.

View Modem Statistics:

Click <**Status**> under the Symphony Conductor Status heading for information on the shared modem's connection to the Internet. The status screen displays the time that the modem connected to the Internet, the length of time that it has been connected, and the result of the last connection attempt. In addition, the status screen reports the number of bytes sent and received by the modem.

An Advanced Status screen (accessed by clicking <**Advanced Status...**>) contains additional information about the connection. A Symphony technical support representative may ask you to view this screen for troubleshooting purposes.

Change Virtual Modem COM Port:

Click <**Configure**> under the Symphony Network Status heading and select the **Virtual Modem** tab to change which COM port is associated with the shared modem. This setting is only visible on client computers that share a dial-up modem.

Network Communicating with Another Network

A network that uses the Conductor to communicate with another network offers the following management and configuration features:

Monitor Communication with Remote Network:

Maestro reports the Symphony Conductor Status, which includes an icon of a desktop computer that changes color to reflect different states of connectivity, just like the Symphony Conductor icon in the Windows System Tray. This feature is available on all network computers.

View Conductor Status: Click <**Status**> under the Symphony Conductor Status heading to confirm the Conductor's mode of operation. For networks that communicate with another network, the Conductor's status screen reports that the Conductor is in Transparent Bridging mode only. This feature is available on all network computers (Conductor and clients).

Networking Features

The following Symphony Maestro features are available for all wireless networks regardless of configuration type.

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, the virtual modem port number (if applicable), and which drives, directories, and printers are available for sharing.

Note that within Maestro's File Sharing screen you can designate specific directories to share so that you do not need to 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.

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 entry. 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 this remote drive share has been established, 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. You can establish drive letters for not only remote shared drives, but also for 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. Click 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.
6. Click the **<Attach to Share>** button.
7. 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>**.

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

The Maestro Configuration Tool also includes the following administrative features, regardless of configuration type:

Determine Software Version in Use

To view information about the Symphony software versions currently in use, 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.

6. 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 this other network.

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

Default Switcher Profiles

During installation, the Composer Wizard saves your computer's existing network configuration into a profile called "Original." The Composer then reconfigures the network settings so that the computer will communicate with the wireless network. These new network settings are saved 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:

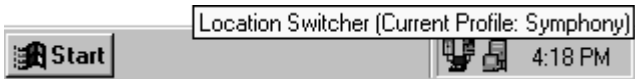
Among the network information saved within a profile is a computer's Internet Proxy Server settings. If you have configured Netscape Navigator with Proxy information, these settings are not saved within a profile. Netscape Navigator uses its own Internet Proxy information that the Symphony Composer Installation 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

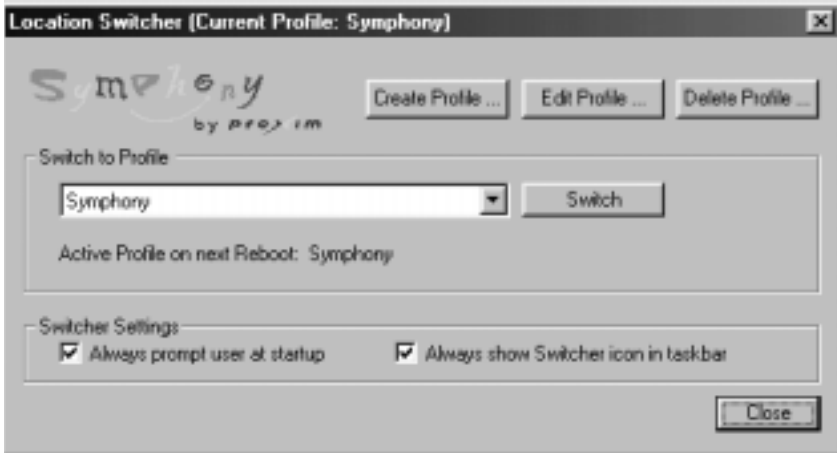
After the Symphony Composer Installation Wizard has completed the configuration of a Symphony adapter, the computer may automatically launch the Location Switcher program (depending on the computer's configuration), and the Location Switcher icon may appear in the Windows System Tray, as in the following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



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. Simply double-click the Switcher icon to display the Location Switcher configuration screen, shown below.



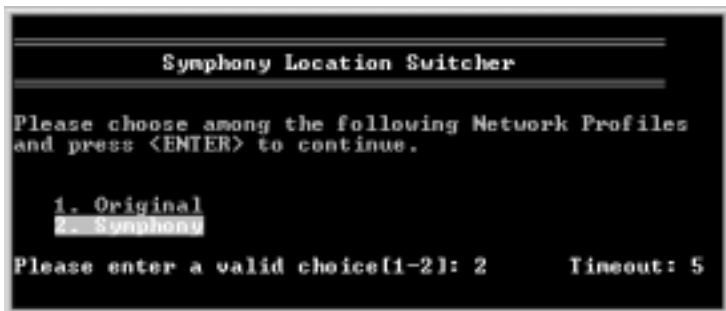
Alternatively, you can right-click the Switcher icon and choose Edit or select the Symphony Location Switcher entry found in the Symphony section of the Start Menu's Programs group to display this screen.

Switcher Icon In Taskbar

Depending on your computer's configuration, this icon may appear in the Windows System Tray each time you restart the computer. You can prevent this icon from appearing in the System Tray by unchecking the box labeled **Always show Switcher icon in taskbar** within the Location Switcher configuration screen. If this icon does not appear automatically, you can enable this feature by checking the box labeled **Always show Switcher icon in taskbar** within the Location Switcher configuration screen.

Switcher Prompt at Start-Up

In addition to the Switcher icon, the Location Switcher program may also create a prompt at boot-up that allows you to select which profile you want to use. The example below is from a Windows 95/98 computer; the Switcher prompts Windows 2000 Professional users to select a profile after the user has logged onto the network. the Switcher prompts Windows 2000 Professional users to select a profile after the user has logged onto the network.



During installation, the Composer wizard will ask you to decide if you want to use this prompt. If you chose to install this feature, then the prompt will appear during boot-up each time you restart the computer.

Note:

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

Select the profile you want to use and click <**Enter**>. This prompt also includes an automatic timer so if you do not wish to change the profile, it will automatically load your current profile after a brief countdown.

You can disable this feature by unchecking the box labeled **Always prompt user at startup** within the Switcher configuration screen. If this prompt does not appear automatically and you want to utilize this feature, place a check mark next to the box labeled **Always prompt user at startup** within the Switcher configuration screen. 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 dialog box, and click <**Switch**>.

Note:

Methods 1 and 3 above require that you restart the computer each time you change to a new profile in order for the new settings to 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 headings on the left-hand side 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 when prompted.

Each of the configuration headings is described below.

Identification

Identification configures the name, workgroup designation, and description that the computer will use for the selected profile. Windows 2000 Professional users can also configure the computer's Domain or workgroup affiliation within this screen.

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

The TCP/IP option 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 recommends that you leave these parameters at their default value or contact your network administrator for assistance.

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 mappings (also known as remote drive shares) used by the computer for 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 Mapping** 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 Modem Sharing Software for wireless networks that share a high-speed Internet connection 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, so 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 a wired Ethernet card), then none of these entries should have a check mark; this will prevent these programs from loading automatically 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 the duplicate profile a new name.
3. Change the network settings of the new profile using the Edit Profile options discussed earlier 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.

Examples of When to Use Profiles

Here are a few examples of how to switch between 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 place the computer in its docking station, if applicable.

5. Turn on the computer.
6. Select the Original Profile (or another profile you have created specifically for the office) at the Switcher prompt at boot-up.

The Location Switcher will restore all of your office LAN's settings during boot-up 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 when 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 from the PCMCIA slot or undock the laptop.
3. Take the computer home.
4. Insert the Symphony HomeRF PC Card into the PCMCIA socket.
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 during boot-up, and the laptop 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 when prompted.

7. Using the Wireless Network

This chapter contains application hints and additional information on some of the supported network configurations.

Additional Information for Wireless Networks That Communicate With Another Network

This section is for users who have configured a Symphony network to communicate with another network (e.g., an Ethernet network). The Symphony Conductor performs a function called Transparent Bridging in this configuration.

Understanding Transparent Bridging

Transparent Bridging allows wireless computers to communicate with computers on another network, such as a wired Ethernet network, as if all devices, Ethernet and wireless, 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 Conductor is running on a computer that 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).

The Conductor allows devices to share network resources, such as files or printers, with one another using the TCP/IP protocol. The program acts as an intermediary between the two network cards installed in the Conductor computer.

Configuring TCP/IP Settings for the Wireless Network

The Symphony adapter in a Conductor computer that performs Transparent Bridging does not require any TCP/IP configuration. Simply configure the Ethernet card installed in the Conductor computer as you would configure any node on the Ethernet network.

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, 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 necessary; the Symphony adapters will automatically receive IP addresses from the Ethernet network's DHCP server.

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 address scheme already in use by Ethernet devices. However, note that the Conductor will only bridge TCP/IP; the Conductor will not work in conjunction with other networking protocols, such as NetBEUI or IPX/SPX.

Sharing a Dial-up Modem

This section is for users who have configured a Symphony network to share a dial-up modem. Note that there can only be one shared dial-up modem on a wireless network.

This modem may be either a standard internal or external analog modem physically connected to a Windows 98/ME computer. A Windows 2000 Professional computer cannot share a dial-up modem using the Symphony Conductor software.

Modem Sharing operates in two modes: Multi-User Internet Sharing Mode and Single User Mode. The Symphony network automatically switches between these two modes as needed.

Multi-User Internet Sharing Mode

During installation, the Symphony Composer prompts you to enter your Internet Service Provider (ISP) account information, including User Name, Password, and telephone number. This information is then stored within the Symphony Conductor program for later use. When a user requests that the network modem establish an Internet connection, the Symphony Conductor program already has all of the information it needs to dial out to the ISP and log onto the Internet.

There are two ways to establish an Internet connection with a network modem.

The first method allows the network modem to automatically dial out to the Internet. During installation, the Composer Wizard reconfigures your Internet browser so that it will connect to the Internet over the LAN (Local Area Network) rather than with Dial-Up Networking. Therefore, when an Internet browser is launched from one of the network computers, the Symphony Conductor program will automatically connect to your ISP.

By default, the Symphony Network will also initiate an Internet connection when a network computer accesses an Internet e-mail account. These automatic connection features can be enabled or disabled from within the Dial On Demand screen of the Symphony Maestro Configuration Tool.

The second connection method requires that the user manually initiate an Internet session from within the Symphony Maestro Configuration Tool.

The Symphony icon will change in appearance on all network computers to alert users that an Internet session has been automatically established. The Symphony icon will appear as follows to indicate that the modem is in Multi-User Internet Sharing Mode:



Note:

Certain non-browser Internet applications, such as instant messaging programs, will need to be manually reconfigured to communicate with the Internet over the LAN (Local Area Network). By default, many of these programs are configured to use a Dial-Up Networking connection which will prohibit a network modem from operating in Multi-User Internet Sharing Mode.

Once the Symphony Conductor has established a connection with the ISP, then all wireless computers will have a connection to the Internet. There is a single telephone line and a single ISP account, but multiple computers will have simultaneous access to the Internet. Each computer will be able to surf a different Web site at the same time. However, while connected to the ISP, the network modem will be unavailable for any other use.

Note:

If a network computer connects to the Internet using Microsoft's Dial-Up Networking or an ISP-specific dialing program, then the network modem will operate only in Single User Mode. An Internet connection must be established either manually from the Symphony software interface or automatically, as configured in the Maestro's Dial On Demand screen, in order to use Multi-User Internet Sharing Mode.

Single User Mode

Single User Mode allows only one wireless computer access to the shared modem at any point in time.

Note:

Windows 2000 Professional computers cannot use the shared modem in Single User Mode.

While one computer is using the modem in Single User Mode, no other computer may access it.

Single User Mode is used with any communication program not configured to operate over the LAN (Local Area Network), such as a bill paying program or fax software. The modem will enter this mode whenever a computer attempts

to dial out using either Microsoft's Dial-Up Networking program or an application's built-in dialer.

To use the modem in Single User Mode, select the network modem's name from the modem list within an application's built-in dialer. If the application uses COM port numbers instead of names to identify a modem, direct the application to use the virtual modem port number associated with the network modem on that computer.

Note that if you are using a home answering machine software program with the shared network modem, the Symphony Conductor will recognize that the modem is in auto answer mode and not actually in use. Therefore, the Symphony Conductor will allow you to use the modem even though it is set to auto answer mode.

When one computer is using the modem in Single User Mode, the Symphony icon in the System Tray will change appearance on all network computers to alert users that the modem is in use.

When in Single User mode, the Symphony icon will appear as follows:



Note to America Online and CompuServe 2000 Customers

If you are an America Online (AOL) or CompuServe 2000 customer, you must use the shared modem in Single User Mode. AOL and CompuServe 2000 use a proprietary protocol that is incompatible with Symphony's Multi-User Internet Sharing Mode. AOL and CompuServe 2000 users may still access the Internet from any network computer in Single User Mode, but multiple network computers will not have Internet access at the same time.

Application Hints

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

Range of Symphony HomeRF Adapters

Two Symphony HomeRF adapters 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 Suite uses frequency hopping spread spectrum technology in the 2.4-GHz band to communicate. This is the same frequency band used by microwave ovens and 2.4-GHz phones. Frequency hopping technology is designed to minimize interference so while you may notice a reduction in performance, your devices will not cease to function. Proxim recommends against installing the base station of the 2.4-GHz phone 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

Frequency hopping technology is inherently secure. 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 the network.

Therefore, the Symphony radio signals are secure against unauthorized access by eavesdroppers.

In addition, Symphony's Network Address Translation (NAT) software acts as an Internet firewall to protect against unauthorized access from other users on the Internet.

However, Proxim recommends that you establish passwords for each drive that you share on the local area network, particularly if you are using the Symphony Conductor to share connectivity to another network (which is a feature that does not use NAT). Depending on the type of Internet connection you have, others may be able to access your computer's files from over the Internet. Finally, 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. Each computer that accesses e-mail must have e-mail software installed and configured.

Typically, when you access your e-mail account, messages are downloaded from your ISP's mail server and stored on that 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.

It is recommended that every time you access a unique e-mail account, you do so from the same computer. This way, you will always have access to all messages for that e-mail address. If your ISP allows you to store your e-mail on its mail server or you use a Web-based e-mail service, you may be able to access all of your messages from any computer on your home network. Also, if you want multiple e-mail addresses for the same Internet account, contact your ISP to determine if it supports this option.

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. Consult the application's user guide to determine if it supports operation over a network.

Even if you can share a program over the network, keep in mind that generally when you purchase software applications, you are authorized by the software manufacturer to install and run a single copy of that application on a single computer. Some software applications are designed to prevent simultaneous use. Please 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.

Using Fax Software

If you are sharing a dial-up analog modem, then the Symphony Conductor will support other modem applications, such as fax software or answering machine software, in Single User mode. Single User mode allows you to use the shared modem to send a fax from a remote computer on the network.

Sharing a Scanner with the Home Network

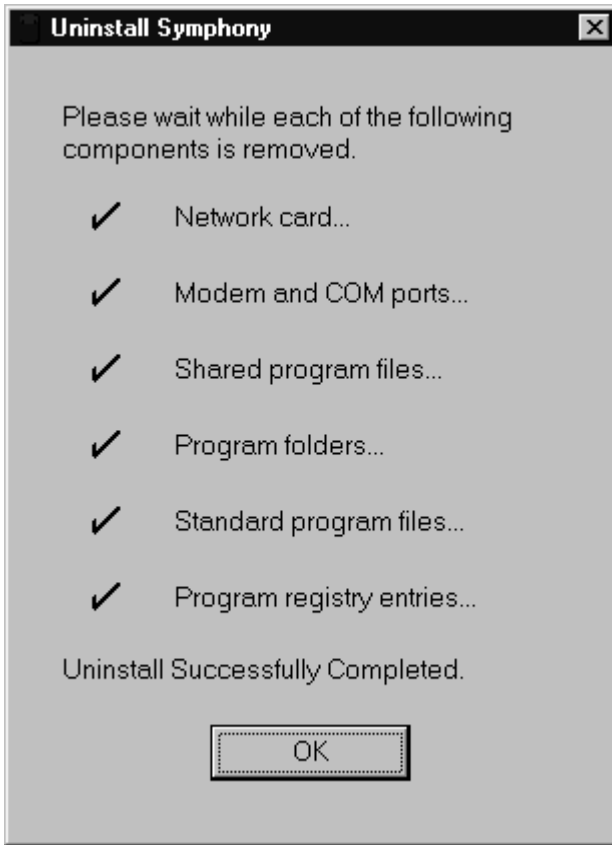
A wireless network can only share a scanner that supports operation over a network. Refer to the scanner's documentation or contact the scanner's manufacturer to determine if your scanner is network-enabled.

8. Uninstalling Symphony Software

Proxim provides an uninstall tool to remove a Symphony HomeRF adapter and the Symphony software from a desktop or laptop computer. The Symphony installation procedure copies the file UNINSTAL.EXE to the computer's hard drive and places a Windows shortcut in the Symphony group within the Programs section of the Start Menu.

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 6.

If you decide to reinstall the Symphony HomeRF adapter at a later date, follow the installation instructions in Chapters 3 and 4.

9. 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*.

Common Installation Problems

Chapter 3 describes how to install the Symphony HomeRF adapter in a computer running Windows 98, Windows ME, or Windows 2000 Professional by running the Symphony Installation program before inserting the adapter. This section provides some suggestions to resolve many of the common problems encountered during the installation of a Symphony HomeRF adapter.

If You Inserted the Adapter Before Running the Setup Program

Follow these steps to install the Symphony HomeRF adapter if you inserted the adapter before running the Symphony Installation program:

1. Insert the Symphony HomeRF adapter into a PCMCIA slot or USB port.
2. When the Symphony HomeRF adapter is inserted for the first time, Windows will automatically detect the adapter and launch the Add New Hardware Wizard.
3. Insert the Symphony Installation CD into the computer's CD-ROM drive.
4. Windows 98 and Windows 2000 Professional users, click **<Next>** to continue.
5. When prompted, select **Automatic search for a better driver** (Windows ME), **Search for the best driver for your device** (Windows 98), or **Search for a suitable driver for my device (recommended)** and click **<Next>**.
6. Windows 98 and Windows 2000 Professional users, check the **CD-ROM drive** box and click **<Next>** to continue.

7. Click <**Next**> to continue once the Add New Hardware Wizard locates the Symphony driver file.
8. When prompted, click <**Finish**>.
9. Open the **My Computer** icon on the Windows desktop and double-click the CD-ROM drive icon, typically this is drive D:.
10. If the Symphony Installation program does not launch automatically, double-click the *SETUPEXE* icon to launch the program.
11. Click <**Customize**> to change the default installation directory; otherwise, click <**Install**> to continue with the standard installation.
12. Follow the on-screen instructions and reboot the computer when prompted. You may need to reboot the computer more than once.
13. 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.

Note:

Do NOT choose the <Cancel>. You must enter a User name and Password to logon to the network.

14. The Symphony Composer Installation Wizard will launch automatically. Follow the on-screen instructions to configure your Symphony HomeRF adapter. See Chapter 4 for more information on the Symphony Composer.

Symphony Composer Does Not Start

If the Symphony Composer Installation Wizard does not appear, even though the Symphony HomeRF adapter appears to be working properly, confirm that the Symphony HomeRF adapter is in the Network Adapters category of the Device Manager without an “!” next to its entry and restart the computer. The Symphony Composer Installation Wizard will be launched once Windows finishes loading.

Note:

The Device Manager is located in the Control Panel's System icon.

If the Symphony HomeRF adapter is listed in the Device Manager's Network Adapters category and has an "!" next to its entry, refer to the section entitled "Adapter Does Not Install" for instructions.

If the Symphony HomeRF adapter does not appear in the Device Manager's Network Adapters category, check the Other Devices category for a Proxim device, a HomeRF device or an entry that reads, **IMPORTANT! Run Setup from the Symphony CD**. If any of these entries exist in the Other Devices category, run *SETUP.EXE* from the Symphony Installation CD to begin the installation of the Symphony HomeRF adapter.

Adapter Does Not Install

If an error message appears that the Symphony HomeRF adapter is not installed properly, then one of the following most likely occurred:

- The installation failed to copy all or some of the Windows networking files
- The Symphony HomeRF adapter encountered a resource conflict with another device in the computer

Follow these steps to determine if the adapter is working properly:

1. Open the Device Manager and look for a Symphony HomeRF entry in the Network Adapters category.
2. If the entry does not exist, confirm that the adapter is plugged in and refer to the "Symphony Composer Does Not Start" section for additional suggestions.
3. If the entry exists and has an "!" next to it, right-click the Symphony HomeRF entry and select **Properties** from the drop-down menu.
4. Click the **Resources** tab (if applicable) to see what system resources, if any, are in use by the Symphony HomeRF adapter.
5. If the card has failed to load or has been assigned no resources, then there was an error during installation (for example, you may have directed the installation wizard to skip a file that it needed to properly install the adapter). Run the Symphony Uninstall program to begin the installation procedure again. See Chapter 8 for details.

6. If the Properties window indicates that the card has been assigned resource settings, then either the card failed to load due to a resource conflict or your computer is having a system conflict. Refer to the section below that corresponds to the type of Symphony-HRF adapter you have installed:

Symphony HomeRF PC Card:

A resource conflict occurs when another device is already using the Interrupt Request (IRQ), I/O Base Address, or Memory Range for which the Symphony HomeRF PC Card is configured. Highlight the entry that reports a resource conflict and click <Change Setting...> to find another available resource.

Note:

You may need to uncheck the Use automatic settings box before you can click the <Change Settings> button.

Click <OK> after you have configured the PC Card to use the new resource setting and restart the computer when prompted.

Hint:

Generally, the Interrupt Request will be the cause of the resource conflict. You may find that your computer has no free Interrupt Request available for use. In this case, try setting the Interrupt Request to a value of 3 or 4, which typically corresponds to COM2 or COM1, respectively. If there is no free Interrupt Request, and you are actively using both COM1 and COM2 or other devices are using these resources, then you will need to remove and uninstall one of the other devices from the computer before the Symphony HomeRF PC Card may be used.

Symphony-HRF USB Adapter:

A computer's Universal Serial Bus (USB) controller automatically assigns resources to a Symphony-HRF USB Adapter. Refer to your PC's manual or contact your PC's manufacturer if there is a problem with the computer's USB controller.

The LED on the front of the USB Adapter will turn green when the driver is properly installed and the device is ready for operation.

USB Adapter's LED Indicator

The Symphony HomeRF USB Adapter includes an LED on the front of the unit that changes in appearance to reflect radio activity.

The USB Adapter's LED has five states:

- ❑ The LED is off when the USB Adapter is not connected to a USB port or when it is not receiving power from the computer.
- ❑ The LED is yellow when the USB Adapter is not installed or when the device is initializing.
- ❑ The LED is green when the USB Adapter is installed and operational.
- ❑ The LED flickers green when the USB Adapter receives information from another cordless device.
- ❑ The LED flickers yellow when the USB Adapter is transmitting information to another cordless device.

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 9 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 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

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 telecommunications regulations may vary from country to country. Proxim, Inc. will only ship products that are type approved in the destination country.

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

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 PC Card 4440 and/or the Symphony HomeRF USB Adapter 4240 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.

Declaration of Conformity

Déclaration de Conformité
Konformitätserklärung

The Manufacturer: Proxim Europe B.V.

Le Constructeur:

Der Hersteller:

Address: Strawinskylaan 3127
Adresse: 1077 ZX, P.O. Box 7067,
Adresse: 1007 JB Amsterdam, The Netherlands

Declares that the Product:

Déclare que le Produit:

Erklärt, dass das Produkt: **Type: Symphony HomeRF**
Model: 4440 PC Card
Model: 4240 USB Adapter

meets the essential requirements according to article 3 of the following EC-Directive:

est conforme aux exigences essentielles d'article 3 de la Directive CE:

die grundlegenden Anforderungen gemäß Artikel 3 der nachstehenden EU-Richtlinie erfüllt:

Directive 1999/5/EC of the European Parliament and of the Council of 09 March 1999 relating to Radio and telecommunications Terminal Equipment (R&TTE), including the mutual recognition of their conformity.

Directive 1999/5/EC du Parlement Européen et du Conseil du 09 mars 1999 concernant les radio et équipements terminaux de telecommunications, incluant la reconnaissance mutuelle de leur conformité.

Richtlinie 1999/5/EG des Europäischen Parlaments und des Rates vom 09.

März 1999 über Funkanlagen und Telekommunikationsendeinrichtungen und die gegenseitige Anerkennung ihrer Konformität.

and that the following harmonized standards have been applied:
et que les standards marmonises suivants ont ete appliques:
und dass die folgenden harmonisierten Normen angewandt wurden:

ETS 300328 / July 1997
ETS 300826 / November 1997
EN 60950 / August 1992
IEC 950 / 1991 Second Edition

Equipment Class Identifier **CE0560** 

This Product is a Class-2 under the scope of the R&TTE. Be aware that France uses other frequencies. This means that products bought elsewhere might cause problems in the above mentioned country(ies) and should be avoided.

Amsterdam, 11 May 2001

Place and Date of the declaration

Lieu et date de la declaration – Ort und Datum der Konformitätserklärung



Name and Signature

Nom et Signature – Name und Unterschrift

Carmelo S. Amarena

International Product Manager

Proxim, Inc. & Proxim Europe B.V.

