

Wireless-G PCI Adapter



Use this Guide to install:

WMP54G

User Guide



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This Warranty is valid and may be processed only in the country of purchase.

If the product proves defective during this warranty period, go to the Linksys website at www.linksys.com for complete RMA (Return Merchandise Authorization) assistance. You can also call Linksys Technical Support in order to obtain a RMA Number. BE SURE TO HAVE YOUR PROOF OF PURCHASE AND A BARCODE FROM THE PRODUCT'S PACKAGING ON HAND WHEN CALLING. RETURN REQUESTS CANNOT BE PROCESSED WITHOUT PROOF OF PURCHASE. When returning a product, mark the RMA Number clearly on the outside of the package and include a copy of your original proof of purchase. All customers located outside of the United States of America and Canada shall be held responsible for shipping and handling charges.

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SAFETY AND REGULATORY NOTICES

FCC STATEMENT

The Instant Wireless® Wireless-G PCI Adapter has been tested and complies with the specifications for a Class B digital device, pursuant to Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- (1) This device may not cause harmful interference, and
- (2) This device must accept any interference received, including interference that may cause undesired operation.

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 according to 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 is found 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 or devices
- Connect the equipment to an outlet other than the receiver's
- Consult a dealer or an experienced radio/TV technician for assistance

FCC Caution: Any change or modification to the product not expressly approved by Linksys could void the user's authority to operate the device.

FCC RF Radiation Exposure Statement

To comply with the FCC and ANSI C95.1 RF exposure limits, the antenna(s) for this device must comply with the following:

- Access points with 2.4 GHz or 5 GHz integrated antenna must operate with a separation distance of at least 20 cm from all persons using the cable provided and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users must be provided with specific operations for satisfying RF exposure compliance.

Note: Dual antennas used for diversity operation are not considered co-located.

Canadian Department of Communications Industry Canada (IC) Notice

This Class B digital apparatus complies with Canadian ICES-003 and RSS-210. Cet appareil numérique de la classe B est conforme à la norme NMB-003 et CNR-210 du Canada.

"To prevent radio interference to the licensed service, this device is intended to be operated indoors and away from windows to provide maximum shielding. Equipment (or its transmit antenna) that is installed outdoors is subject to licensing."

"Pour empêcher que cet appareil cause du brouillage au service faisant l'objet d'une licence, il doit être utilisé à l'intérieur et devrait être placé loin des fenêtres afin de fournir un écran de blindage maximal. Si le matériel (ou son antenne d'émission) est installé à l'extérieur, il doit faire l'objet d'une licence."

EC DECLARATION OF CONFORMITY (EUROPE)

Linksys Group declares that the Instant Wireless® Series products included in the Instant Wireless® Series conform to the specifications listed below, following the provisions of the European R&TTE directive 1999/5/EC, EMC directive 89/336/EEC, and Low Voltage directive 73/23/EEC:

For 2.4 GHz devices with 100 mW radios, the following standards were applied:

- ETS 300-826, 301 489-1 General EMC requirements for Radio equipment.
- EN 609 50 Safety
- ETS 300-328-2 Technical requirements for Radio equipment.

Caution: This equipment is intended to be used in all EU and EFTA countries. Outdoor use may be restricted to certain frequencies and/or may require a license for operation. Contact local Authority for procedure to follow.

Note: Combinations of power levels and antennas resulting in a radiated power level of above 100 mW equivalent isotropic radiated power (EIRP) are considered as not compliant with the above mentioned directive and are not allowed for use within the European community and countries that have adopted the European R&TTE directive 1999/5/EC and/or the CEPT recommendation Rec 70.03.

For more details on legal combinations of power levels and antennas, contact Linksys Corporate Compliance.

- Linksys Group vakuuttaa täten että Instant Wireless® Wireless-G PCI Adapter tyyppinen laite on direktiivin 1999/5/EY, direktiivin 89/336/EEC ja direktiivin 73/23/EEC oleellisten vaatimusten ja sitä koskevien näiden direktiivien muiden ehtojen mukainen.

- Linksys Group déclare que la Instant Wireless® Wireless-G PCI Adapter est conforme aux conditions essentielles et aux dispositions relatives à la directive 1999/5/EC, la directive 89/336/EEC, et à la directive 73/23/EEC.
- Belgique B L'utilisation en extérieur est autorisé sur le canal 11 (2462 MHz), 12 (2467 MHz), et 13 (2472 MHz). Dans le cas d'une utilisation privée, à l'extérieur d'un bâtiment, au-dessus d'un espace public, aucun enregistrement n'est nécessaire pour une distance de moins de 300m. Pour une distance supérieure à 300m un enregistrement auprès de l'IBPT est requise. Pour une utilisation publique à l'extérieur de bâtiments, une licence de l'IBPT est requise. Pour les enregistrements et licences, veuillez contacter l'IBPT.
- France F:
2.4 GHz Bande : les canaux 10, 11, 12, 13 (2457, 2462, 2467, et 2472 MHz respectivement) sont complètement libres d'utilisation en France (en utilisation intérieur). Pour ce qui est des autres canaux, ils peuvent être soumis à autorisation selon le département. L'utilisation en extérieur est soumis à autorisation préalable et très restreint.

2.4 GHz Band: only channels 10, 11, 12, 13 (2457, 2462, 2467, and 2472 MHz respectively) may be used freely in France for indoor use. License required for outdoor installations.

- Deutschland D: Anmeldung im Outdoor-Bereich notwendig, aber nicht genehmigungspflichtig. Bitte mit Händler die Vorgehensweise abstimmen.
- Germany D: License required for outdoor installations. Check with reseller for procedure to follow.
- Italia I: E' necessaria la concessione ministeriale anche per l'uso interno. Verificare con i rivenditori la procedura da seguire. L'uso per installazione in esterni non e' permessa.
- Italy I: License required for indoor use. Use with outdoor installations not allowed.
- The Netherlands NL License required for outdoor installations. Check with reseller for procedure to follow.
- Nederlands NL Licentie verplicht voor gebruik met buitenantennes. Neem contact op met verkoper voor juiste procedure.

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Table of Contents

Chapter 1: Introduction	1
The Wireless-G PCI Adapter	1
Features	1
Chapter 2: Planning Your Wireless Network	2
Network Topology	2
Ad-Hoc versus Infrastructure Mode	2
Chapter 3: Getting to Know the Wireless-G PCI Adapter	4
Chapter 4: Hardware and Driver Installation and Configuration for Windows XP	5
Overview	5
Hardware Installation for Windows XP	5
Driver Installation for Windows XP	6
Windows XP Wireless Zero Configuration	7
Chapter 5: Software Installation and Configuration for Windows 98SE, Me, and 2000	10
Overview	10
Setup Wizard Instructions for Windows 98SE, Me, and 2000	11
Chapter 6: Hardware Installation for Windows 98SE, Me, and 2000	14
Chapter 7: Using the WLAN Monitor for Windows 98SE, Me, and 2000	15
Overview	15
Accessing the WLAN Monitor	15
Link Information	16
Site Survey	17
Profiles	19
Creating a New Profile	21

Instant Wireless® Series

Appendix A: Troubleshooting	26
Common Problems and Solutions	26
Frequently Asked Questions	26
Appendix B: Glossary	30
Appendix C: Specifications	38
Environmental	39
Appendix D: Warranty Information	40
Appendix E: Contact Information	41

Wireless-G PCI Adapter

Chapter 1: Introduction

The Wireless-G PCI Adapter

The Linksys Wireless-G PCI Adapter installs in most desktops and lets you put your computer almost anywhere in the building, without the cost and hassle of running network cables. Now you don't have to drill holes in your walls and climb through the attic or cellar to get connected to the network. Once you're connected, you can keep in touch with your e-mail, access the Internet, use instant messaging to chat with friends, and share files and other resources such as printers and network storage with other computers on the network.

The Wireless-G PCI Adapter connects you with Wireless-G networks at an incredible 54Mbps! And for added versatility, it can also interoperate with all the 11Mbps Wireless-B (802.11b) products found in homes, businesses, and public wireless hotspots around the country. And in either mode, your wireless communications are protected by up to 128-bit encryption, so your data stays secure.

So don't hassle with running cables through your house - get your desktop connected the easy way with the Linksys Wireless-G PCI Adapter.

Features

- Operates in the 2.4Ghz frequency spectrum with throughput of up to 54 Mbps
- Complies with IEEE 802.11g draft standards, and backwards compatible with IEEE 802.11b products
- Up to 128-bit WEP encryption
- 32-bit PCI Interface
- Compatible with Windows 98SE, Millennium, 2000 and XP

Chapter 2: Planning Your Wireless Network

Network Topology

A wireless local area network (WLAN) is exactly like a regular local area network (LAN), except that each computer in the WLAN uses a wireless device to connect to the network. Computers in a WLAN share the same frequency channel and SSID, which is an identification name for wireless devices.

Ad-Hoc versus Infrastructure Mode

Unlike wired networks, wireless networks have two different modes in which they may be set up: **infrastructure** and **ad-hoc**. In an infrastructure configuration a WLAN and wired LAN communicate to each other through an access point. In ad-hoc configuration, wireless-equipped computers communicate directly with each other. Choosing between these two modes depends on whether or not the wireless network needs to share data or peripherals with a wired network or not.

If the computers on the wireless network need to be accessed by a wired network or need to share a peripheral, such as a printer, with the wired network computers, the wireless network should be set up in **infrastructure** mode. (See Figure 2-1.) The basis of infrastructure mode centers around an *access point*, which serves

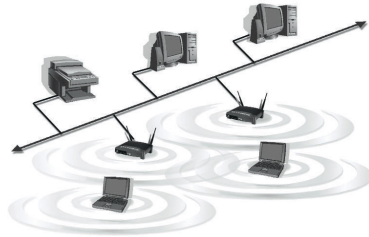


Figure 2-1

as the main point of communications between a wired and wireless network. Access points transmit data to PCs equipped with wireless network adapters, which can *roam* within a certain radial range of the access point. Multiple access points can be arranged to work in succession to extend the roaming range, and can be set up to communicate with your Ethernet (wired) hardware as well.

If the wireless network is relatively small and needs to share resources only with the other computers on the wireless network, then the **ad-hoc** mode can be used. (See Figure 2-2.) Ad-hoc mode allows computers equipped with wireless transmitters and receivers to communicate directly with each other, eliminating the need for an access point. The drawback of this mode is that, in Ad-Hoc mode, wireless-equipped computers are not able to communicate with computers on a wired network. And, of course, communication between the wireless-equipped computers is limited by the distance and interference directly between them.



Figure 2-2

Chapter 3: Getting to Know the Wireless-G PCI Adapter

The PCI Adapter will install into your PC like any PCI adapter and, on the mounting bracket, you will find two distinguishing items:

- ACT LED** *Green.* The ACT LED lights up when the Adapter is powered on.
- Antenna Port** Attach the PCI Adapter's antenna here and position it for maximum performance, which is usually perpendicular to the horizon.

Chapter 4: Hardware and Driver Installation and Configuration for Windows XP



Windows 98SE, Me, and 2000 users: Go to Chapter 5: Software Installation and Configuration for Windows 98SE, Me, and 2000.

Overview

After installing the Adapter into your PC, you will install the driver and configure the Adapter.

Hardware Installation for Windows XP

1. Turn off your desktop PC.
2. Open your PC case and locate an available PCI slot on the motherboard. Check with your computer manufacturer for instructions.
3. Slide the PCI Adapter into the PCI slot. Make sure that all of its pins are touching the slot's contacts. You may have to apply a bit of pressure to slide the adapter all the way in. After the adapter is firmly in place, secure its fastening tab to your PC's chassis with a mounting screw. Then, close your PC.
4. Attach the external antenna to the adapter's antenna port.
5. Power on your desktop PC.

You have now completed the hardware installation for the Adapter. To install the driver for the Adapter, proceed to the next section, "Driver Installation for Windows XP."

Driver Installation for Windows XP

1. Windows XP will automatically detect the Adapter. Insert the Setup CD-ROM into the CD-ROM drive and the screen in Figure 4-1 should appear. Click the radio button next to **Install the software automatically (Recommended)**. Then click the Next button.



Figure 4-1

Wireless-G PCI Adapter

2. When Windows has finished installing the driver, click the **Finish** button.

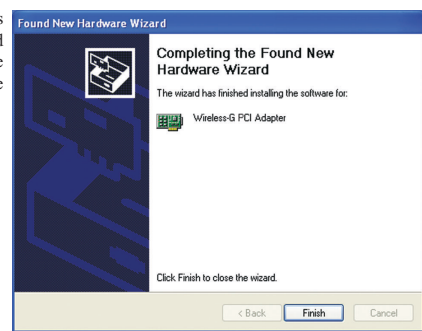


Figure 4-2

You have now completed the driver installation for the Adapter. To configure the Adapter, proceed to the next section, “Windows XP Wireless Zero Configuration.”

Windows XP Wireless Zero Configuration

For Windows XP users: Windows XP has a built-in configuration tool. Use Windows XP Wireless Zero Configuration (in the system tray at the bottom of your screen) to configure the Adapter.

1. After installing the Adapter, the Windows XP Wireless Zero Configuration icon will appear in your computer's system tray (see Figure 4-3). Double-click the icon.



Figure 4-3

2. The screen that appears will show any available wireless network. Select the network you want.

If you have already enabled WEP encryption on your network, skip ahead to step 3.

If you have NOT enabled WEP encryption on your network, the screen in Figure 4-4 will appear. Check the box next to *Allow me to connect to the selected wireless network, even though it is not secure.* Then click the **Connect** button and continue to step 4.

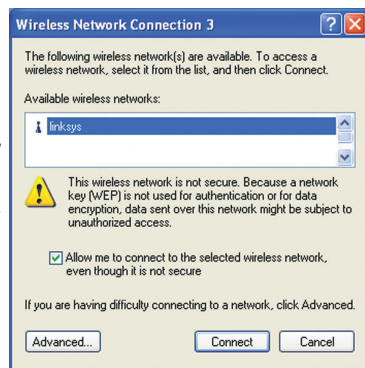


Figure 4-4



Note: Steps 2 and 3 are the instructions and screenshots for Windows XP with Service Pack 1 installed. If you have not installed Service Pack 1, select the network you want, and click the **Connect** button. If the network has WEP encryption enabled, enter the WEP key in the *Network key* field, and then click the **Connect** button.

3. The screen in Figure 4-5 will appear. Enter the WEP key of your wireless network in the *Network key* field, and re-enter it in the *Confirm network key* field. Then, click the **Connect** button.



Note: Wireless Zero Configuration does not support the use of a passphrase. Enter the exact WEP key used by your access point.

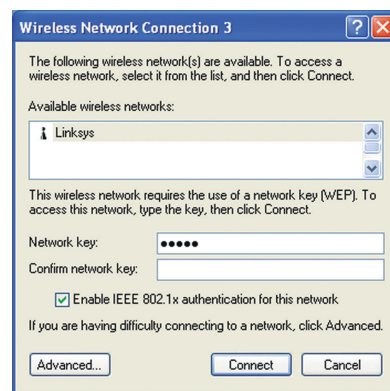
Wireless-G PCI Adapter

Figure 4-5

4. The screen in Figure 4-6 will appear if your connection is active.

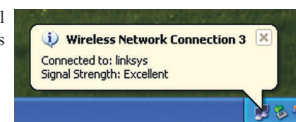


Figure 4-6

For more information about WEP, refer to your access point's documentation, or visit www.linksys.com.

For more information about wireless networking on a Windows XP computer, enter the keyword **wireless** in the Windows XP search engine.

Congratulations!

Your PC is now connected to your wireless network.

Chapter 5: Software Installation and Configuration for Windows 98SE, Me, and 2000

Overview

The Wireless-G PCI Adapter's Setup Wizard will guide you through the installation procedure for Windows 98SE, Me, and 2000. The Setup Wizard will install the WLAN Monitor and driver, as well as configure the Adapter.



Important for Windows 98SE, Me, and 2000 users: You must run the Setup Wizard to install the software before installing the hardware.

Insert the **Setup Wizard** CD-ROM into your CD-ROM drive. The Setup Wizard should run automatically, and Figure 5-1 should appear. If it does not, click the **Start** button and choose **Run**. In the field that appears, enter **D:\setup.exe** (if "D" is the letter of your CD-ROM drive).



Figure 5-1

10

Setup Wizard Instructions for Windows 98SE, Me, and 2000

1. To install the Adapter, click the **Install** button on the *Welcome* screen, Figure 5-1. Click **User Guide** to view the User Guide or click **Exit** to exit the Setup Wizard.
2. After reading the License Agreement, shown in Figure 5-2, click the **Next** button to continue the installation, or click the **Cancel** button to end the installation.



Figure 5-2

3. The Setup Wizard will display a screen similar to that shown in Figure 5-3, asking you to choose a wireless mode. Click the **Infrastructure Mode** radio button if you want your wireless computers to network with computers on your wired network using a wireless access point. Click the **Ad-Hoc Mode** radio button if you want multiple wireless computers to network directly with each other. Do not use Ad-Hoc mode if you want your wireless computers to communicate with computers on your wired network.

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In the *SSID* field, enter the **SSID** of your wireless network. The SSID must be identical for all devices in the network. The default setting is **linksys** (all lowercase). Click the **Next** button, or click the **Back** button to return to the previous page.

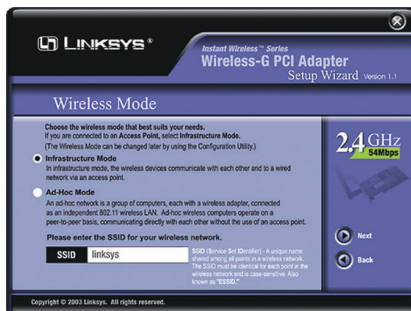


Figure 5-3

4. If you chose Infrastructure Mode, go to **Step 5** now. If you chose Ad-Hoc Mode, you'll see a screen similar to that shown in Figure 5-4. Select the correct operating channel for your network from the *Channel* drop-down menu. Then, select the *Network Mode* from the drop-down menu. Click the **Next** button, and go to **Step 5**. Click the **Back** button to change any settings.

Channel - The channel you choose should match the channel set on the other devices in your wireless network. If you are unsure about which channel to use, select the default channel (Channel 6).

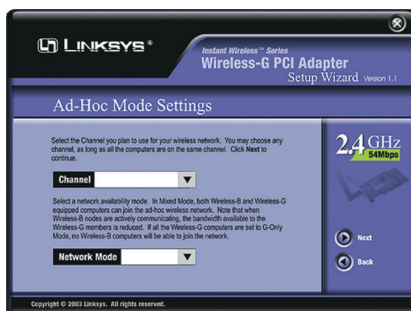


Figure 5-4

12

Wireless-G Notebook Adapter

Network Mode - Select **Mixed Mode**, and both Wireless-G and Wireless-B computers will be allowed on the network, but the speed will be reduced. Select **G-Only Mode** for maximum speed, but no Wireless-B users will be allowed on the network.

5. The Setup Wizard will ask you to review your settings (as in Figure 5-5) before it starts to copy files. Click the **Next** button to save these settings, or click the **Back** button to change any settings.

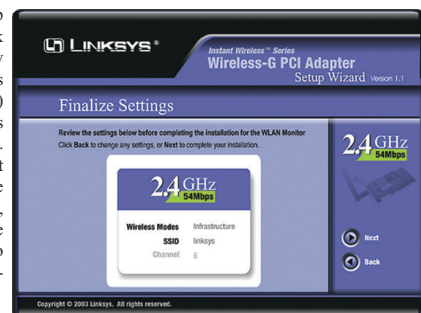


Figure 5-5

6. After the files have been successfully copied, the screen in Figure 5-6 will appear. Click the **Exit** button.

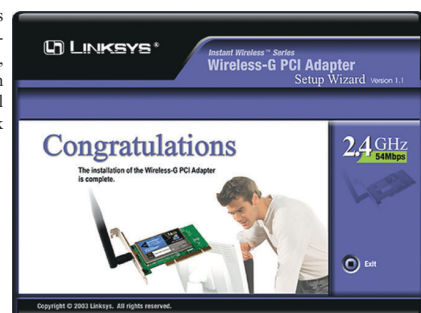


Figure 5-6

Proceed to "Chapter 6: Hardware Installation for Windows 98SE, Me, and 2000."

13

Chapter 6: Hardware Installation for Windows 98SE, Me, and 2000



Make sure that you do Chapter 5 and install the software with the Setup Wizard before you install the hardware.

1. Turn off your desktop PC.
2. Open your PC case and locate an available PCI slot on the motherboard. Check with your computer manufacturer for instructions.
3. Slide the PCI Adapter into the PCI slot. Make sure that all of its pins are touching the slot's contacts. You may have to apply a bit of pressure to slide the adapter all the way in. After the adapter is firmly in place, secure its fastening tab to your PC's chassis with a mounting screw. Then, close your PC.
4. Attach the external antenna to the adapter's antenna port.
5. Power on your desktop PC.

You have now completed the hardware installation for the Adapter.

If you want to check the link information, search for available wireless networks, or make additional configuration changes, proceed to "Chapter 7: Using the WLAN Monitor for Windows 98SE, Me, and 2000."

Chapter 7: Using the WLAN Monitor for Windows 98SE, Me, and 2000

Overview

Use the WLAN Monitor to check the link information, search for available wireless networks, or create profiles that hold different configuration settings.

Accessing the WLAN Monitor

After installing the Adapter, the WLAN Monitor icon will appear in your system tray. Double-click the icon (see Figure 7-1).



Figure 7-1

The *Link Information* screen (Figure 7-2) will appear. From this screen, you can find out how strong the current wireless signal is and how good the connection's quality is. You can also click the *More Information* button to view additional status information about the current wireless connection. To search for available wireless networks, click the *Site Survey* tab. To perform configuration changes, click the *Profiles* tab.



Figure 7-2

Link Information

The *Link Information* screen displays signal strength and link quality information about the current connection and provides a button to click for additional status information.

Ad-Hoc Mode or Infrastructure Mode - The screen indicates whether the Adapter is currently working in ad-hoc or infrastructure mode.

Signal Strength - The Signal Strength bar indicates signal strength.

Link Quality - The Link Quality bar indicates the quality of the wireless network connection.

Click the **X (Close)** button in the upper right corner to exit the WLAN Monitor.

Click the **More Information** button to view more information about the wireless network connection. A screen similar to that shown in Figure 7-3 will appear.

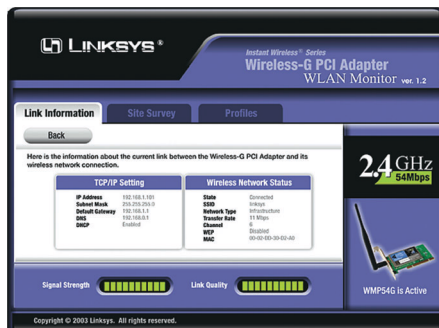


Figure 7-3

TCP/IP Setting

IP Address - The IP Address of the Adapter.

Subnet Mask - The Subnet Mask of the Adapter.

Default Gateway - The Default Gateway address of the Adapter.

DHCP - The status of the DHCP client.

DNS - The DNS address of the Adapter.

Wireless Network Status

State - The status of the wireless network connection.

SSID - The unique name of the wireless network.

Wireless Mode - The mode of the wireless network currently in use.

Transfer Rate - The data transfer rate of the current connection.

Channel - The channel to which the wireless network devices are set.

WEP - The status of the WEP encryption security feature.

MAC - The MAC address of the wireless network's access point.

Signal Strength - The Signal Strength bar indicates signal strength.

Link Quality - The Link Quality bar indicates the quality of the wireless network connection.

Click the **Back** button to return to the initial *Link Information* screen. Click the **X (Close)** button in the upper right corner to exit the WLAN Monitor.

Site Survey

The *Site Survey* screen, Figure 7-4, displays a list of infrastructure and ad-hoc networks available for connection.

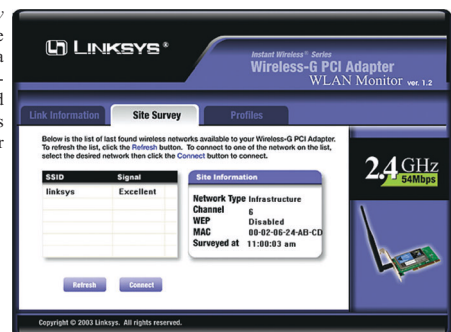


Figure 7-4

SSID - The SSID or unique name of the wireless network.

Signal - The percentage of signal strength.