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**WARNING:** This product contains chemicals, including lead, known to the State of California to cause cancer, and birth defects or other reproductive harm. **Wash hands after handling.**

How to Use This User Guide

This User Guide has been designed to make understanding networking with the Wireless-G PCI Adapter easier than ever. Look for the following items when reading this User Guide:

- ![Checkmark] This checkmark means there is a note of interest and is something you should pay special attention to while using the Wireless-G PCI Adapter.
- ![Warning] This exclamation point means there is a caution or warning and is something that could damage your property or the Wireless-G PCI Adapter.
- ![Question] This question mark provides you with a reminder about something you might need to do while using the Wireless-G PCI Adapter.

In addition to these symbols, there are definitions for technical terms that are presented like this:

*word:* definition.

Also, each figure (diagram, screenshot, or other image) is provided with a figure number and description, like this:

**Figure 0-1: Sample Figure Description**

Figure numbers and descriptions can also be found in the “List of Figures” section in the “Table of Contents”.

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Chapter 1: Introduction

Welcome

Thank you for choosing the Wireless-G PCI Adapter. With this Adapter, your wireless networking experience will be faster and easier than ever.

Like all wireless products, the Adapter allows for greater range and mobility within your wireless network. This adapter communicates over the 54Mbps 802.11g wireless standard, which is almost five times faster than 802.11b. But since they share the same 2.4GHz radio band, the Adapter can also communicate with the widely used 11Mbps 802.11b standard.

PCs equipped with wireless cards and adapters can communicate without cumbersome cables. By sharing the same wireless settings, within their transmission radius, they form a wireless network.

The included Setup Wizard will walk you through configuring the adapter to your network's settings, step by step. Then just slide it into your computer's PCI Card slot and enjoy network access with the freedom of wireless.

Once you're connected, you can keep in touch with your e-mail, access the Internet, and share files and other resources such as printers and network storage with other computers on the network. At home, you can surf the web or use instant messaging to chat with friends while sitting out on the patio. Your wireless connection is protected by the new, industrial-strength security of Wireless Protected Access (WPA).

Get connected to current-standard 802.11b networks today, and be prepared for the future with the Wireless-G PCI Adapter from Linksys.
What’s in this Guide?

This user guide covers the steps for setting up and using the Wireless-G PCI Adapter.

- Chapter 1: Introduction
  This chapter describes the Adapter’s applications and this User Guide.

- Chapter 2: Planning Your Wireless Network
  This chapter discusses a few of the basics about wireless networking.

- Chapter 3: Getting to Know the Wireless-G PCI Adapter
  This chapter describes the physical features of the Adapter.

- Chapter 4: Software Installation and Configuration
  This chapter instructs you on how to install the Adapter’s Setup Wizard and Configure the Adapter.

- Chapter 5: Hardware Installation
  This chapter shows you how to connect the Adapter to your PC.

- Chapter 6: Using the Wireless Network Monitor
  This chapter shows you how to use the Adapter’s Wireless Network Monitor.

- Appendix A: Troubleshooting
  This appendix describes some problems and solutions, as well as frequently asked questions, regarding installation and use of the Adapter.

- Appendix B: Windows XP Wireless Zero Configuration
  This chapter instructs you on how to install Window XP Wireless Zero Configuration.

- Appendix C: Wireless Security
  This appendix discusses security issues regarding wireless networking and measures you can take to help protect your wireless network.

- Appendix D: Windows Help
  This appendix describes how you can use Windows Help for instructions about networking, such as installing the TCP/IP protocol.

- Appendix E: Glossary
  This appendix gives a brief glossary of terms frequently used in networking.

- Appendix F: Specifications
  This appendix provides the Adapter’s technical specifications.
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- **Appendix G: Warranty Information**
  This appendix supplies the Adapter’s warranty information.

- **Appendix H: Regulatory Information**
  This appendix supplies the Adapter’s regulatory information.

- **Appendix I: Contact Information**
  This appendix provides contact information for a variety of Linksys resources, including Technical Support.
Chapter 2: Planning your Wireless Network

Network Topology

A wireless network is a group of computers, each equipped with one wireless adapter. Computers in a wireless network must be configured to share the same radio channel. Several PCs equipped with wireless cards or adapters can communicate with one another to form an ad-hoc network.

Linksy wireless adapters also provide users access to a wired network when using an access point or wireless router. An integrated wireless and wired network is called an infrastructure network. Each wireless PC in an infrastructure network can talk to any computer in a wired network infrastructure via the access point or wireless router.

An infrastructure configuration extends the accessibility of a wireless PC to a wired network, and can double the effective wireless transmission range for two wireless adapter PCs. Since an access point is able to forward data within a network, the effective transmission range in an infrastructure network can be doubled.

Roaming

Infrastructure mode also supports roaming capabilities for mobile users. Roaming means that you can move your wireless PC within your network and the access points will pick up the wireless PC’s signal, providing that they both share the same channel and SSID.

Before enabling you consider roaming, choose a feasible radio channel and optimum access point position. Proper access point positioning combined with a clear radio signal will greatly enhance performance.
Network Layout

Linksys wireless access points and wireless routers have been designed for use with 802.11a, 802.11b, and 802.11g products. With 802.11g products communicating with the 802.11b standard and some products incorporating both “a” and “g”, products using these standards can communicate with each other.

Access points and wireless routers are compatible with 802.11a, 802.11b and 802.11g adapters, such as the PC Cards for your laptop computers, PCI Card for your desktop PC, and USB Adapters for when you want to enjoy USB connectivity. Wireless products will also communicate with the wireless PrintServer.

When you wish to connect your wired network with your wireless network, network ports on access points and wireless routers can be connected to any of Linksys’s switches or routers.

With these, and many other, Linksys products, your networking options are limitless. Go to the Linksys website at www.linksys.com for more information about wireless products.
Chapter 3: Software Installation and Configuration

The Wireless-G PCI Adapter Setup Wizard will guide you through the installation procedure. The Setup Wizard will install the Wireless Network Monitor and driver, as well as configure the Adapter.

1. Insert the Setup Wizard CD-ROM into your CD-ROM drive. The Setup Wizard should run automatically, and the Welcome screen 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).

   Click the Install button to continue the installation process. Clicking User Guide opened this User Guide. To close the Setup Wizard, click the Exit button.

   Figure 3-1: The Setup Wizard's Welcome Screen

   software: Instructions for the computer.

   IMPORTANT: You must run the Setup Wizard to install the software before connecting the Adapter.
2. Read the License Agreement displayed on the following screen and click the **Next** button to continue the installation. If you click the **Cancel** button, you will end the installation.

3. The Wireless Mode screen will ask for some information about your wireless network. In the **SSID** field, enter your network’s SSID (Service Set Identifier). The SSID is your wireless network name and must be identical for all devices in the network. The default setting is **linksys** (all lowercase).

   Next, choose a wireless mode. Click the **Infrastructure Mode** radio button if you want to connect to a wireless router or access point. Click the **Ad-Hoc Mode** radio button if you want to connect to another wireless device directly without using a wireless router or access point.

   Click the **Next** button to continue, or click the **Back** button to return to the previous page.
4. If you chose Infrastructure Mode, go to Step 5 now. If you chose Ad-Hoc Mode, 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, leave the default channel.

   **Network Mode** - Keep the default setting, Mixed, if you have Wireless-G and Wireless-B devices in your network. Select **G-Only** if you have only Wireless-G devices in your network.

5. Select the method of security that is used on your wireless network: WEP, WPA-Personal, WPA2-Personal, WPA-Enterprise, or RADIUS. WEP stands for Wired Equivalent Privacy, and WPA stands for Wi-Fi Protected Access. WPA is a stronger security method than WEP. WPA2 is a newer and stronger version of WPA. RADIUS stands for Remote Authentication Dial-In User Service. WPA-Enterprise and RADIUS use a RADIUS server. Click the Next button to continue or the Back button to return to the previous screen. For more information about the information on this screen, you can also click the Help button.

   If you don’t want to use encryption, select **Disabled** and then click the Next button. Proceed to Step 8.

6. Proceed to the appropriate section for your security method: WEP, WPA-Personal, WPA2-Personal, WPA-Enterprise, or RADIUS.
Wireless-G PCI Adapter with SpeedBooster

Chapter 3: Software Installation and Configuration

WEP

WEP - Select 64-bit or 128-bit encryption from the drop-down menu.

Then enter a passphrase or WEP key.

Passphrase - Enter a passphrase in the Passphrase field, so a WEP key is automatically generated. The passphrase is case-sensitive and should not be longer than 16 alphanumeric characters. It must match the passphrase of your other wireless network devices and is compatible with Linksys wireless products only. (If you have any non-Linksys wireless products, enter the WEP key manually on those products.)

WEP Key - The WEP key you enter must match the WEP key of your wireless network. For 64-bit encryption, enter exactly 10 hexadecimal characters. For 128-bit encryption, enter exactly 26 hexadecimal characters. Valid hexadecimal characters are “0” to “9” and “A” to “F”.

For Advanced Users

TX Key - The default transmit key number is 1. If your network’s access point or wireless router uses transmit key number 2, 3, or 4, select the appropriate number from the TX Key drop-down box.

Authentication - The default is set to Auto, so it will auto-detect for Shared Key or Open System authentication. For Shared Key authentication, both the sender and the recipient share a WEP key for authentication. For Open System authentication, the sender and the recipient do not share a WEP key for authentication. If you are not sure which authentication method to select, keep the default, Auto.

Click the Next button to continue or the Back button to return to the previous screen.
Wireless-G PCI Adapter with SpeedBooster

Chapter 3: Software Installation and Configuration

WPA Personal

WPA Personal offers two encryption methods, TKIP and AES, with dynamic encryption keys. Select TKIP or AES for encryption. Then enter a Passphrase that is 8-63 characters in length.

Encryption - Select the type of algorithm you want to use, TKIP or AES, from the Encryption drop-down menu.

Passphrase - Enter a Passphrase, also called a pre-shared key, of 8-63 characters in the Passphrase field. The longer and more complex your Passphrase is, the more secure your network will be.

Click the Next button to continue or the Back button to return to the previous screen.

WPA2 Personal

Passphrase - Enter a Passphrase, also called a pre-shared key, of 8-63 characters in the Passphrase field. The longer and more complex your Passphrase is, the more secure your network will be.

Click the Next button to continue or the Back button to return to the previous screen.

wpa (wi-fi protected access: a wireless security protocol using TKIP (Temporal Key Integrity Protocol) encryption, which can be used in conjunction with a RADIUS server.)
Chapter 3: Software Installation and Configuration

Wireless-G PCI Adapter with SpeedBooster

WPA Enterprise

WPA Enterprise features WPA security used in coordination with a RADIUS server. (This should only be used when a RADIUS server is connected to the Router.) WPA Enterprise offers two authentication methods, EAP-TLS and PEAP, as well as two encryption methods, TKIP and AES, with dynamic encryption keys.

**Authentication** - Select the authentication method your network is using, **EAP-TLS** or **PEAP**.

**EAP-TLS**

If you selected EAP-TLS, enter the login name of your wireless network in the **Login Name** field. Enter the name of the authentication server in the **Server Name** field (this is optional). From the **Certificate** drop-down menu, select the certificate you have installed to authenticate you on your wireless network. Select the type of encryption, **TKIP** or **AES**, from the **Encryption** drop-down menu.

Click the **Next** button to continue or the **Back** button to return to the previous screen.

**PEAP**

If you selected PEAP, enter the login name of your wireless network in the **Login Name** field. Enter the password of your wireless network in the **Password** field. Enter the name of the authentication server in the **Server Name** field (this is optional). From the **Certificate** drop-down menu, select the certificate you have installed to authenticate you on your wireless network; if you want to use any certificate, keep the default setting, **Trust Any**. Then select the authentication method used inside the PEAP tunnel, **EAP-MSCHAP v2** or **Generic Token Card**. Select the type of encryption, **TKIP** or **AES**, from the **Encryption** drop-down menu.

Click the **Next** button to continue or the **Back** button to return to the previous screen.
Chapter 3: Software Installation and Configuration

Wireless-G PCI Adapter with SpeedBooster

RADIUS

RADIUS features use of a RADIUS server. (This should only be used when a RADIUS server is connected to the Router.) RADIUS offers two authentication types: EAP-TLS and PEAP.

Authentication - Select the authentication method your network is using, EAP-TLS or PEAP.

EAP-TLS

If you selected EAP-TLS, enter the login name of your wireless network in the Login Name field. Enter the name of the authentication server in the Server Name field (this is optional). From the Certificate drop-down menu, select the certificate you have installed to authenticate you on your wireless network.

Click the Next button to continue or the Back button to return to the previous screen.

PEAP

If you selected PEAP, enter the login name of your wireless network in the Login Name field. Enter the password of your wireless network in the Password field. Enter the name of the authentication server in the Server Name field (this is optional). From the Certificate drop-down menu, select the certificate you have installed to authenticate you on your wireless network; if you want to use any certificate, keep the default setting, Trust Any. Then select the authentication method used inside the PEAP tunnel, EAP-MSCHAP v2 or Generic Token Card.

Click the Next button to continue or the Back button to return to the previous screen.

radius (remote authentication dial-in user service): a protocol that uses an authentication server to control network access.
Chapter 3: Software Installation and Configuration

Wireless-G PCI Adapter with SpeedBooster

7. The Setup Wizard will ask you to review your settings before it starts to copy files. Click the Next button to save these settings, or click the Back button to change any settings.

8. For Windows 2000 users, a screen stating that a digital signature was not found may appear. This software has been tested and found to work properly with Windows 2000. Click the Yes button to continue installation.
9. After the files have been successfully copied, the Congratulations screen will appear. Click the Exit button.

Now that the software installation is complete, proceed to Chapter 4: Connecting the Wireless-G PCI Adapter.
Chapter 4: Connecting the PCI Adapter

1. Before connecting the PCI Adapter to your PC, 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.

Figure 4-1: Your Computer’s PCI slot with Adapter installed
4. Attach the external antenna to the adapter’s antenna port.

Figure 4-2: Proper Positioning of the Antenna

5. Power on your desktop PC.

6. For Windows 2000 users, a screen stating that a digital signature was not found may appear. This software has been tested and found to work properly with Windows 2000. Click the Yes button to continue installation.

The installation of the Wireless-G PCI Adapter is complete. If you want to check the link information, search for available wireless networks, or make additional configuration changes, proceed to “Chapter 5: Using the Wireless Network Monitor.”
Chapter 5: Using the Wireless Network Monitor

Overview

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

Accessing the Wireless Network Monitor

After installing the Adapter's Setup Wizard, the Wireless Network Monitor icon will appear in your system tray. If the Wireless Network Monitor is enabled, then the icon will be green. If the Wireless Network Monitor is disabled or the Adapter is not connected, then the icon will be gray.

Double-click the icon. The Link Information tab will appear. From this tab, you can find out the strength of the current wireless signal as well as its quality. 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.

The Link Information Tab

The Link Information tab displays the 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 the signal strength.

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

Click the More Information button to view more information about the wireless network connection.

Click the X (Close) button in the upper right corner to exit the Wireless Network Monitor.
Clicking the More Information button displays much more information about the Adapter’s connection, as shown below:

**Wireless Network Status**

**Status** - This shows the status of the wireless network connection.

**SSID** - This is the unique name of the wireless network.

**Wireless Mode** - The mode of the wireless network currently in use is displayed here.

**Transfer Rate** - The data transfer rate of the current connection is shown here.

**Channel** - This is the channel to which the wireless network devices are set.

**Security** - The status of the WEP encryption security feature is shown here.

**Authentication** - This is your wireless network’s authentication method.

**IP Address** - This shows the Adapter’s IP Address.

**Subnet Mask** - This shows the Adapter’s Subnet Mask.

**Default Gateway** - This is the Adapter’s Default Gateway address.

**DNS** - The DNS address of the Adapter is displayed here.

**DHCP Client** - This displays the status of the DHCP client.

**MAC Address** - This is the Adapter’s MAC Address.

**Signal Strength** - The Signal Strength bar indicates the signal strength.

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

Click the **Statistic** button for the Wireless Network Statistics screen. Click the **Back** button to return to the initial **Link Information** tab. Clicking the **Save to Profile** button save the currently active connection to a profile. Click the **X** (Close) button in the upper right corner to exit the Wireless Network Monitor.

Clicking the Statistics button brings up the following information on your wireless connection:

**wep**: a method of encrypting data transmitted on a wireless network for greater security.

**TCP/IP**: a set of instructions PCs use to communicate over a network.

**IP address**: the address used to identify a computer or device on a network

**subnet mask**: an address code that determines the size of a network

**default gateway**: a device that forwards Internet traffic from your local area network

**DNS**: the IP address of your ISP’s server, which translates the names of websites into IP addresses.

**DHCP**: a protocol that lets one device on a local network, known as a DHCP server, assign temporary IP addresses to the other network devices, typically computers.
Transmit Rate - This shows the speed, in megabits per second, at which data is transmitted from the Adapter.

Receive Rate - This shows the speed, in megabits per second, at which data is received by the Adapter.

Packets Received - This shows the packets received by the Adapter, in real time, since connecting to the Wireless Network or since the Refresh button was last pressed.

Packets Transmitted - This shows the packets transmitted from the Adapter, in real time, since connecting to the Wireless Network or since the Refresh button was last pressed.

Noise Level - This shows the level of background noise affecting the wireless signal. A lower reading translates into a higher quality signal.

Signal Strength - This is the intensity of the wireless signal received by the card.

Up Time - This shows the period of the most recent connection to a wireless network.

Total Up Time - This shows the cumulative total of connection time with the Adapter.

Driver Version - This shows the version of the Adapter’s driver.

Refresh Statistics - Click this button to refresh the statistics.

Signal Strength - The Signal Strength bar indicates the 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 tab. Click the Status button to return to the Wireless Network Status screen of information about your wireless connection. Clicking the Save to Profile button saves the currently active connection to a profile. Click the X (Close) button in the upper right corner to exit the Wireless Network Monitor.
The Site Survey Tab

The Site Survey tab displays available networks and allows you to connect to them. The information about these networks are displayed as below:

- **SSID** - The SSID or unique name of the wireless network.
- **CH** - The channel upon which the network broadcasts.
- **Signal** - The percentage of signal strength, from 0 to 100%.

Site Information

- **SSID** - The SSID or unique name of the wireless network.
- **Wireless Mode** - The mode of the wireless network currently in use.
- **Channel** - The channel to which the wireless network devices are set.
- **Security** - The status of the security feature.
- **MAC Address** - The MAC address of the wireless network's access point.

**Refresh** - Click the **Refresh** button to perform a new search for wireless devices.

**Connect** - To connect to one of the networks on the list, select the wireless network (by SSID), and click the **Connect** button. If the wireless network has WEP encryption, WPA, or WPA2 enabled, you will need to configure the wireless security with that network. For more information, refer to the following section.
WEP Key Needed for Connection

Select 64-bit or 128-bit encryption from the drop-down menu. Enter a passphrase in the Passphrase field, so a WEP key is automatically generated. It is case-sensitive, cannot be longer than 16 alphanumeric characters, and must match the passphrase of your other Linksys wireless network devices. (If you have any non-Linksys wireless products, enter the WEP key manually.) If you enter a manual WEP key, it must match the WEP key of your wireless network. For 64-bit encryption, enter exactly 10 hexadecimal characters. For 128-bit encryption, enter exactly 26 hexadecimal characters. Valid hexadecimal characters are “0” to “9” and “A” to “F”. Click the Connect button to continue.

WPA-Personal Needed for Connection

Select TKIP or AES for encryption. Then enter a Passphrase that is 8-63 characters in length. Click the Connect button to continue.

WPA2-Personal Needed for Connection

Enter a Passphrase that is 8-63 characters in length. Click the Connect button to continue.
The Profiles Tab

The Profiles screen lets you save different configuration profiles for different network setups. You can also import or export profiles. The default profile holds the initial configuration saved when you ran the Setup Wizard.

**Profile** - Name of the connection profile.

**SSID** - The wireless network’s unique name, as set in the connection profile.

**Profile Information**

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

**Transfer Rate** - The data transfer rate of the current connection. (In Auto mode, the Adapter dynamically shifts to the fastest data transfer rate possible at any given time.)

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

**Security** - The status of the security feature.

**Authentication** - The authentication setting for the network.

**Connect** - To connect to a wireless network using a specific profile, select the profile, and click the **Connect** button.

**New** - Click the **New** button to create a new profile. See the next section, “Creating a New Profile,” for detailed instructions.

**Edit** - Select a profile, and click the **Edit** button to change an existing profile.
Import - Click the **Import** button to import a profile that has been saved in another location. Select the appropriate file and click the **Open** button.

![Importing a Profile](image)

Export - To save the profile(s) in a different location, click the **Export** button. Direct Windows to the appropriate folder and click the **OK** button.

![Exporting a Profile](image)

Delete - Click the **Delete** button to delete a profile.
Chapter 5: Using the Wireless Network Monitor

Creating a New Profile

1. On the Profiles tab, click the New button to create a new profile.

2. When the Create connection profile screen appears, enter a name for the new profile. Click OK to save the profile name or click Cancel to return to the previous screen.
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3. Enter your network’s settings on the **Network Settings** screen, which appears next.

   If your network has a DHCP server (or Router), click the radio button next to **Obtain an IP address automatically (DHCP)** and click the **Next** button to continue.

   If your network does not have a DHCP server (or router), click the radio button next to **Specify the IP address**. Enter an **IP Address**, **Subnet Mask**, **Default Gateway**, and **DNS** appropriate for your network. Enter each address in this format: xxx.xxx.xxx.xxx (the x’s represent the numbers that make up each address). You must specify the IP Address and Subnet Mask on this screen. If you are unsure about the Default Gateway and DNS addresses, then leave these fields alone.

   **IP Address** - This IP Address must be unique to your network.
   **Subnet Mask** - The Adapter’s Subnet Mask must be the same as your wired network’s Subnet Mask.
   **Default Gateway** - Enter the IP address of your network’s Gateway here.
   **DNS** - Enter the DNS addresses of your network here.

   Click the **Next** button to continue or the **Cancel** button to return to the previous screen.

4. The **Wireless Mode** screen shows a choice of two wireless modes. Click the **Infrastructure Mode** radio button if you want to connect to a wireless router or access point, and continue to Step 6. Click the **Ad-Hoc Mode** radio button if you want to connect to another wireless device directly without using a wireless router or access point. Click the **Next** button to continue or the **Back** button to return to the previous screen.

   **SSID** - The SSID is the unique wireless network name shared among all devices in your wireless network. The SSID must be identical for all devices in the wireless network. It is case-sensitive and must not exceed 32 alphanumeric characters, which can be any keyboard character.
   **Infrastructure Mode** - This mode allows wireless and wired networks to communicate through a wireless router or access point. Continue to Step 6 if selecting this mode.
   **Ad-Hoc Mode** - This mode allows wireless-equipped computers to communicate directly with each other. No access point or wireless router is used.
5. The *Ad-Hoc Mode Settings* screen, for those who chose an Ad-hoc network, will appear next. 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 to continue or 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, leave the default channel.

   **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.

6. Select the method of security that is used on your wireless network: **WEP**, **WPA-Personal**, **WPA2-Personal**, **WPA-Enterprise**, or **RADIUS**. WEP stands for Wired Equivalent Privacy, and WPA stands for Wi-Fi Protected Access. WPA is a stronger security method than WEP. WPA2 is a newer and stronger version of WPA. RADIUS stands for Remote Authentication Dial-In User Service. WPA-Enterprise and RADIUS use a RADIUS server. Click the **Next** button to continue or the **Back** button to return to the previous screen. For more information about the information on this screen, you can also click the **Help** button.

   If you don’t want to use encryption, select **Disabled** and then click the **Next** button to continue. Proceed to Step 9.

7. Proceed to the appropriate section for your security method: WEP, WPA-Personal, WPA2-Personal, WPA-Enterprise, or RADIUS.
WEP

**WEP** - Select **64-bit** or **128-bit** encryption from the drop-down menu.

**Passphrase** - Enter a passphrase in the *Passphrase* field, so a WEP key is automatically generated. It is case-sensitive and should not be longer than 16 alphanumeric characters. This passphrase must match the passphrase of your other wireless network devices and is compatible with Linksys wireless products only. (If you have any non-Linksys wireless products, enter the WEP key manually on those products.)

**WEP Key** - The WEP key you enter must match the WEP key of your wireless network. For 64-bit encryption, enter exactly 10 hexadecimal characters. For 128-bit encryption, enter exactly 26 hexadecimal characters. Valid hexadecimal characters are “0” to “9” and “A” to “F”.

**Advanced Users**

**TX Key** - The default transmit key number is 1. If your network’s access point or wireless router uses transmit key number 2, 3, or 4, select the appropriate number from the *TX Key* drop-down box.

**Authentication** - The default is set to *Auto*, so it will auto-detect for Shared Key or Open System authentication. For Shared Key authentication, both the sender and the recipient share a WEP key for authentication. For Open System authentication, the sender and the recipient do not share a WEP key for authentication. If you are not sure which authentication method to select, keep the default, *Auto*.

Click the **Next** button to continue, or click the **Back** button to return to the previous screen.

**WPA Personal**

WPA Personal offers two encryption methods, TKIP and AES, with dynamic encryption keys. Select **TKIP** or **AES** for encryption. Then enter a Passphrase that is 8-63 characters in length.

**Encryption** - Select the type of algorithm you want to use, **TKIP** or **AES**, from the *Encryption* drop-down menu.

**Passphrase** - Enter a Passphrase, also called a pre-shared key, of 8-63 characters in the *Passphrase* field. The longer and more complex your Passphrase is, the more secure your network will be.

Click the **Next** button to continue or the **Back** button to return to the previous screen.
WPA2 Personal

**Passphrase** - Enter a Passphrase, also called a pre-shared key, of 8-63 characters in the *Passphrase* field. The longer and more complex your Passphrase is, the more secure your network will be.

Click the **Next** button to continue or the **Back** button to return to the previous screen.

WPA Enterprise

WPA Enterprise features WPA security used in coordination with a RADIUS server. (This should only be used when a RADIUS server is connected to the Router.) WPA Enterprise offers two authentication methods, EAP-TLS and PEAP, as well as two encryption methods, TKIP and AES, with dynamic encryption keys.

**Authentication** - Select the authentication method your network is using, **EAP-TLS** or **PEAP**.

**EAP-TLS**

If you selected EAP-TLS, enter the login name of your wireless network in the *Login Name* field. Enter the name of the authentication server in the *Server Name* field (this is optional). From the *Certificate* drop-down menu, select the certificate you have installed to authenticate you on your wireless network. Select the type of encryption, **TKIP** or **AES**, from the *Encryption* drop-down menu.

Click the **Next** button to continue or the **Back** button to return to the previous screen.
Chapter 5: Using the Wireless Network Monitor
Creating a New Profile

PEAP

If you selected PEAP, enter the login name of your wireless network in the Login Name field. Enter the password of your wireless network in the Password field. Enter the name of the authentication server in the Server Name field (this is optional). From the Certificate drop-down menu, select the certificate you have installed to authenticate you on your wireless network; if you want to use any certificate, keep the default setting, Trust Any. Then select the authentication method used inside the PEAP tunnel, EAP-MSCHAP v2 or Generic Token Card. Select the type of encryption, TKIP or AES, from the Encryption drop-down menu.

Click the Next button to continue or the Back button to return to the previous screen.

RADIUS

RADIUS features use of a RADIUS server. (This should only be used when a RADIUS server is connected to the Router.) RADIUS offers two authentication types: EAP-TLS and PEAP.

Authentication - Select the authentication method your network is using, EAP-TLS or PEAP.

EAP-TLS

If you selected EAP-TLS, enter the login name of your wireless network in the Login Name field. Enter the name of the authentication server in the Server Name field (this is optional). From the Certificate drop-down menu, select the certificate you have installed to authenticate you on your wireless network.

Click the Next button to continue or the Back button to return to the previous screen.
PEAP

If you selected PEAP, enter the login name of your wireless network in the Login Name field. Enter the password of your wireless network in the Password field. Enter the name of the authentication server in the Server Name field (this is optional). From the Certificate drop-down menu, select the certificate you have installed to authenticate you on your wireless network; if you want to use any certificate, keep the default setting, Trust Any. Then select the authentication method used inside the PEAP tunnel, EAP-MSCHAP v2 or Generic Token Card.

Click the Next button to continue or the Back button to return to the previous screen.

8. The Confirm New Settings screen will appear. To save the new settings, click the Save button. To cancel the settings and return to the Profiles screen, click the Exit button. To edit the new settings, click the Back button.
9. The Congratulations screen shows that the new Profile has successfully been configured. Click Connect to Network to implement the new settings immediately and return to the Link Information screen. Click Return to Profiles Screen to keep the current settings active, and return to the Profiles screen so that you can edit your profile or create another profile.

Figure 5-26: Profiles - Congratulations
Appendix A: Troubleshooting

This appendix consists of two parts: “Common Problems and Solutions” and “Frequently Asked Questions.” This appendix provides solutions to problems that may occur during the installation and operation of the Wireless-G PCI Adapter. Read the description below to solve your problems. If you can't find an answer here, check the Linksys website at www.linksys.com.

Common Problems and Solutions

1. **The Wireless-G PCI Adapter does not work properly.**
   - Reinsert the Wireless-G PCI Adapter into your PC's PCI slot.
   - Right click on My Computer and select Properties. Select the device manager and click on the Network Adapter. You will find the Wireless-G PCI Adapter if it is installed successfully. If you see the yellow exclamation mark, the resources are conflicting. You will see the status of the Wireless-G PCI Adapter. If there is a yellow question mark, please check the following:
     - Make sure that your PC has a free IRQ (Interrupt ReQuest, a hardware interrupt on a PC.)
     - Make sure that you have inserted the right adapter and installed the proper driver.

   If the Wireless-G PCI Adapter does not function after attempting the above steps, remove the adapter and do the following:
     - Uninstall the driver software from your PC.
     - Restart your PC and repeat the hardware and software installation as specified in this User Guide.

2. **I cannot communicate with the other computers linked via Ethernet in the Infrastructure configuration.**
   - Make sure that the PC to which the Wireless-G PCI Adapter is associated is powered on.
   - Make sure that your Wireless-G PCI Adapter is configured on the same channel and with the same security options as with the other computers in the Infrastructure configuration.
Frequently Asked Questions

Can I run an application from a remote computer over the wireless network?
This will depend on whether or not the application is designed to be used over a network. Consult the application's user guide to determine if it supports operation over a network.

Can I play computer games with other members of the wireless network?
Yes, as long as the game supports multiple players over a LAN (local area network). Refer to the game's user guide for more information.

What is the IEEE 802.11b standard?
It is one of the IEEE standards for wireless networks. The 802.11b standard allows wireless networking hardware from different manufacturers to communicate, provided that the hardware complies with the 802.11b standard. The 802.11b standard states a maximum data transfer rate of 11Mbps and an operating frequency of 2.4GHz.

What is the IEEE 802.11g standard?
It is one of the IEEE standards for wireless networks. The 802.11g standard allows wireless networking hardware from different manufacturers to communicate, provided that the hardware complies with the 802.11g standard. The 802.11g standard states a maximum data transfer rate of 54Mbps and an operating frequency of 2.4GHz.

What IEEE 802.11b features are supported?
The product supports the following IEEE 802.11b functions:
- CSMA/CA plus Acknowledge protocol
- Multi-Channel Roaming
- Automatic Rate Selection
- RTS/CTS feature
- Fragmentation
- Power Management

What IEEE 802.11g features are supported?
The product supports the following IEEE 802.11g features:
- CSMA/CA plus Acknowledge protocol
- OFDM protocol
- Multi-Channel Roaming
- Automatic Rate Selection
- RTS/CTS feature
- Fragmentation
- Power Management
**What is ad-hoc mode?**
When a wireless network is set to ad-hoc mode, the wireless-equipped computers are configured to communicate directly with each other. The ad-hoc wireless network will not communicate with any wired network.

**What is infrastructure mode?**
When a wireless network is set to infrastructure mode, the wireless network is configured to communicate with a wired network through a wireless access point.

**What is roaming?**
Roaming is the ability of a portable computer user to communicate continuously while moving freely throughout an area greater than that covered by a single access point. Before using the roaming function, the workstation must make sure that it is the same channel number with the access point of dedicated coverage area.

To achieve true seamless connectivity, the wireless LAN must incorporate a number of different functions. Each node and access point, for example, must always acknowledge receipt of each message. Each node must maintain contact with the wireless network even when not actually transmitting data. Achieving these functions simultaneously requires a dynamic RF networking technology that links access points and nodes. In such a system, the user's end node undertakes a search for the best possible access to the system. First, it evaluates such factors as signal strength and quality, as well as the message load currently being carried by each access point and the distance of each access point to the wired backbone. Based on that information, the node next selects the right access point and registers its address. Communications between end node and host computer can then be transmitted up and down the backbone.

As the user moves on, the end node's RF transmitter regularly checks the system to determine whether it is in touch with the original access point or whether it should seek a new one. When a node no longer receives acknowledgment from its original access point, it undertakes a new search. Upon finding a new access point, it then re-registers, and the communication process continues.

**What is ISM band?**
The FCC and their counterparts outside of the U.S. have set aside bandwidth for unlicensed use in the ISM (Industrial, Scientific and Medical) band. Spectrum in the vicinity of 2.4 GHz, in particular, is being made available worldwide. This presents a truly revolutionary opportunity to place convenient high-speed wireless capabilities in the hands of users around the globe.

**What is Spread Spectrum?**
Spread Spectrum technology is a wideband radio frequency technique developed by the military for use in reliable, secure, mission-critical communications systems. It is designed to trade off bandwidth efficiency for reliability, integrity, and security. In other words, more bandwidth is consumed than in the case of narrowband transmission, but the trade-off produces a signal that is, in effect, louder and thus easier to detect, provided that
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the receiver knows the parameters of the spread-spectrum signal being broadcast. If a receiver is not tuned to the right frequency, a spread-spectrum signal looks like background noise. There are two main alternatives, Direct Sequence Spread Spectrum (DSSS) and Frequency Hopping Spread Spectrum (FHSS).

**What is DSSS? What is FHSS? And what are their differences?**
Frequency-Hopping Spread-Spectrum (FHSS) uses a narrowband carrier that changes frequency in a pattern that is known to both transmitter and receiver. Properly synchronized, the net effect is to maintain a single logical channel. To an unintended receiver, FHSS appears to be short-duration impulse noise. Direct-Sequence Spread-Spectrum (DSSS) generates a redundant bit pattern for each bit to be transmitted. This bit pattern is called a chip (or chipping code). The longer the chip, the greater the probability that the original data can be recovered. Even if one or more bits in the chip are damaged during transmission, statistical techniques embedded in the radio can recover the original data without the need for retransmission. To an unintended receiver, DSSS appears as low power wideband noise and is rejected (ignored) by most narrowband receivers.

**Would the information be intercepted while transmitting on air?**
The Adapter features two-fold protection in security. On the hardware side, as with Direct Sequence Spread Spectrum technology, it has the inherent security feature of scrambling. On the software side, the Adapter offers the encryption function (WEP) to enhance security and access control.

**What is WEP?**
WEP is Wired Equivalent Privacy, a data privacy mechanism based on a shared key algorithm, as described in the IEEE 802.11 standard. For more information, refer to “Appendix C: Wireless Security.”

**What is WPA?**
WPA is Wi-Fi Protected Access, a wireless security protocol that can be used in conjunction with a RADIUS server. For more information, refer to “Appendix C: Wireless Security.”

**What is RADIUS?**
RADIUS is Remote Authentication Dial-In User Service, which uses an authentication server to control network access. For more information, refer to “Appendix C: Wireless Security.”
Appendix B: Windows XP Wireless Zero Configuration

Windows XP Wireless Zero Configuration

If your computer is running Windows XP, then this choice will be available. If you want to use Windows XP Wireless Zero Configuration to control the Adapter, instead of using the Wireless Network Monitor, then right-click on the Wireless Network Monitor and select Use Windows XP Wireless Configuration.

If you want to switch back to the Wireless Network Monitor, right-click the Wireless Network Monitor icon, and select Use Linksys Wireless Network Monitor.

1. After installing the Adapter, the Windows XP Wireless Zero Configuration icon will appear in your computer’s system tray. Double-click the icon.

**NOTE:** For more information about Wireless Zero Configuration, refer to Windows Help.
2. The screen that appears will show any available wireless network. Select the network you want.
   
   If this network has WEP encryption enabled, go to step 3.
   
   If this network does not have WEP encryption enabled, you will be asked to select a network. Make sure the box next to Allow me to connect to the selected wireless network, even though it is not secure is checked. Then, click the Connect button, and go to step 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.

Figure B-4: Network Connection - No WEP
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3. If WEP is enabled, you will be asked to enter the network (WEP) key. 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, and proceed to step 4.

4. The Zero Configuration icon, showing a connection, will appear if your connection is active.

For more information about wireless networking on a Windows XP computer, click the Start button, select Help, and choose Support. Enter the keyword wireless in the field provided, and press the Enter key.

The installation of the Windows XP Wireless Configuration is complete.
Appendix C: Wireless Security

Linksys wants to make wireless networking as safe and easy for you as possible. The current generation of Linksys products provide several network security features, but they require specific action on your part for implementation. So, keep the following in mind whenever you are setting up or using your wireless network.

Security Precautions

The following is a complete list of security precautions to take (at least steps 1 through 5 should be followed):

1. Change the default SSID.
2. Disable SSID Broadcast.
3. Change the default password for the Administrator account.
4. Enable MAC Address Filtering.
5. Change the SSID periodically.
6. Use the highest encryption algorithm possible. Use WPA if it is available. Please note that this may reduce your network performance.
7. Change the WEP encryption keys periodically.

Security Threats Facing Wireless Networks

Wireless networks are easy to find. Hackers know that in order to join a wireless network, wireless networking products first listen for “beacon messages”. These messages can be easily decrypted and contain much of the network’s information, such as the network’s SSID (Service Set Identifier). Here are the steps you can take:

**Change the administrator’s password regularly.** With every wireless networking device you use, keep in mind that network settings (SSID, WEP keys, etc.) are stored in its firmware. Your network administrator is the only person who can change network settings. If a hacker gets a hold of the administrator’s password, he, too, can change those settings. So, make it harder for a hacker to get that information. Change the administrator’s password regularly.

**SSID.** There are several things to keep in mind about the SSID:
Appendix C: Wireless Security

Security Threats Facing Wireless Networks

1. Disable Broadcast
2. Make it unique
3. Change it often

Most wireless networking devices will give you the option of broadcasting the SSID. While this option may be more convenient, it allows anyone to log into your wireless network. This includes hackers. So, don’t broadcast the SSID.

Wireless networking products come with a default SSID set by the factory. (The Linksys default SSID is “linksys”.) Hackers know these defaults and can check these against your network. Change your SSID to something unique and not something related to your company or the networking products you use.

Change your SSID regularly so that any hackers who have gained access to your wireless network will have to start from the beginning in trying to break in.

**MAC Addresses.** Enable MAC Address filtering. MAC Address filtering will allow you to provide access to only those wireless nodes with certain MAC Addresses. This makes it harder for a hacker to access your network with a random MAC Address.

**WEP Encryption.** Wired Equivalent Privacy (WEP) is often looked upon as a cure-all for wireless security concerns. This is overstating WEP's ability. Again, this can only provide enough security to make a hacker's job more difficult.

There are several ways that WEP can be maximized:

1. Use the highest level of encryption possible
2. Use “Shared Key” authentication
3. Change your WEP key regularly

**WPA.** Wi-Fi Protected Access (WPA) is the newest and best available standard in Wi-Fi security. Three modes are available: WPA-Personal, WPA Radius, and Radius. Radius-PSK gives you a choice of two encryption methods: TKIP (Temporal Key Integrity Protocol), which utilizes a stronger encryption method and incorporates Message Integrity Code (MIC) to provide protection against hackers, and AES (Advanced Encryption System), which utilizes a symmetric 128-Bit block data encryption. WPA RADIUS offers two encryption methods, TKIP and AES, with dynamic encryption keys. RADIUS (Remote Authentication Dial-In User Service) utilizes a RADIUS server for authentication.

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**Important:** Always remember that each device in your wireless network MUST use the same encryption method and encryption key or your wireless network will not function properly.
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**WPA-Personal.** If you do not have a RADIUS server, Select the type of algorithm, TKIP or AES, and enter a password in the Passphrase field of 8-63 characters.

**WPA2-Personal.** Enter a password in the Passphrase field of 8-63 characters.

**WPA-Enterprise.** WPA used in coordination with a RADIUS server. (This should only be used when a RADIUS server is connected to the Router or other device.) WPA Radius offers two encryption methods, TKIP and AES, with dynamic encryption keys.

**RADIUS.** WEP used in coordination with a RADIUS server. (This should only be used when a RADIUS server is connected to the Router or other device.)

Implementing encryption may have a negative impact on your network's performance, but if you are transmitting sensitive data over your network, encryption should be used.

These security recommendations should help keep your mind at ease while you are enjoying the most flexible and convenient technology Linksys has to offer.
Appendix D: Windows Help

All wireless products require Microsoft Windows. Windows is the most used operating system in the world and comes with many features that help make networking easier. These features can be accessed through Windows Help and are described in this appendix.

TCP/IP

Before a computer can communicate with an access point or wireless router, TCP/IP must be enabled. TCP/IP is a set of instructions, or protocol, all PCs follow to communicate over a network. This is true for wireless networks as well. Your PCs will not be able to utilize wireless networking without having TCP/IP enabled. Windows Help provides complete instructions on enabling TCP/IP.

Shared Resources

If you wish to share printers, folder, or files over your network, Windows Help provides complete instructions on utilizing shared resources.

Network Neighborhood/My Network Places

Other PCs on your network will appear under Network Neighborhood or My Network Places (depending upon the version of Windows you’re running). Windows Help provides complete instructions on adding PCs to your network.
# Appendix E: Specifications

<table>
<thead>
<tr>
<th>Category</th>
<th>Specification</th>
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</thead>
<tbody>
<tr>
<td>Standards</td>
<td>802.11g, 802.11b</td>
</tr>
<tr>
<td>LEDs</td>
<td>Act: Solid when linked, flashes with traffic</td>
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<tr>
<td>Transmit Power</td>
<td>15dBm</td>
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<tr>
<td>Sensitivity</td>
<td>-80 dBm</td>
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<tr>
<td>Security features</td>
<td>WEP, WPA, and WPA2</td>
</tr>
<tr>
<td>Modulation</td>
<td>802.11b: CCK (11 Mbps), DQPSK (2 Mbps), DBPSK (1 Mbps)</td>
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<tr>
<td></td>
<td>802.11g: OFDM</td>
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<tr>
<td>WEP key bits</td>
<td>64Bit and 128Bit</td>
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<tr>
<td>Network Protocol</td>
<td>TCP/IP, IPX, NetBEUI</td>
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<tr>
<td>Dimensions</td>
<td>6.3&quot; x 8.27&quot; x 0.83&quot; (160 mm x 210 mm x 21 mm)</td>
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<tr>
<td>Unit Weight</td>
<td>3.175 oz. (0.09 kg.)</td>
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<td>FCC, Wi-Fi</td>
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<td>Operating Temp.</td>
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<tr>
<td>Storage Temp.</td>
<td>-40° C to 85° C (-40° F to 185° F)</td>
</tr>
<tr>
<td>Operating Humidity</td>
<td>0% to 95% Non-Condensing</td>
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<tr>
<td>Storage Humidity</td>
<td>0% to 95% Non-Condensing</td>
</tr>
</tbody>
</table>
Appendix F: Warranty Information

LIMITED WARRANTY

Linksys warrants to You that, for a period of three years (the “Warranty Period”), your Linksys Product will be substantially free of defects in materials and workmanship under normal use. Your exclusive remedy and Linksys’ entire liability under this warranty will be for Linksys at its option to repair or replace the Product or refund Your purchase price less any rebates. This limited warranty extends only to the original purchaser.

If the Product proves defective during the Warranty Period call Linksys Technical Support in order to obtain a Return Authorization Number, if applicable. BE SURE TO HAVE YOUR PROOF OF PURCHASE ON HAND WHEN CALLING. If You are requested to return the Product, mark the Return Authorization Number clearly on the outside of the package and include a copy of your original proof of purchase. RETURN REQUESTS CANNOT BE PROCESSED WITHOUT PROOF OF PURCHASE. You are responsible for shipping defective Products to Linksys. Linksys pays for UPS Ground shipping from Linksys back to You only. Customers located outside of the United States of America and Canada are responsible for all shipping and handling charges.

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Please direct all inquiries to: Linksys, P.O. Box 18558, Irvine, CA 92623.
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Appendix G: Glossary

**802.11a** - An IEEE wireless networking standard that specifies a maximum data transfer rate of 54Mbps and an operating frequency of 5GHz.

**802.11b** - An IEEE wireless networking standard that specifies a maximum data transfer rate of 11Mbps and an operating frequency of 2.4GHz.

**802.11g** - An IEEE wireless networking standard that specifies a maximum data transfer rate of 54Mbps, an operating frequency of 2.4GHz, and backward compatibility with 802.11b devices.

**Access Point** - A device that allows wireless-equipped computers and other devices to communicate with a wired network. Also used to expand the range of a wireless network.

**Adapter** - A device that adds network functionality to your PC.

**Ad-hoc** - A group of wireless devices communicating directly with each other (peer-to-peer) without the use of an access point.

**AES** *(Advanced Encryption Standard)* - A method that uses up to 256-bit key encryption to secure data.

**Backbone** - The part of a network that connects most of the systems and networks together, and handles the most data.

**Bandwidth** - The transmission capacity of a given device or network.

**Bit** - A binary digit.

**Byte** - A unit of data that is usually eight bits long.

**CSMA/CA** *(Carrier Sense Multiple Access/Collision Avoidance)* - A method of data transfer that is used to prevent data collisions.

**CTS** *(Clear To Send)* - A signal sent by a wireless device, signifying that it is ready to receive data.

**Default Gateway** - A device that forwards Internet traffic from your local area network.

**DHCP** *(Dynamic Host Configuration Protocol)* - A networking protocol that allows administrators to assign temporary IP addresses to network computers by "leasing" an IP address to a user for a limited amount of time, instead of assigning permanent IP addresses.
Appendix G: Glossary

**DNS (Domain Name Server)** - The IP address of your ISP's server, which translates the names of websites into IP addresses.

**Domain** - A specific name for a network of computers.

**DSSS (Direct-Sequence Spread-Spectrum)** - Frequency transmission with a redundant bit pattern resulting in a lower probability of information being lost in transit.

**Encryption** - Encoding data transmitted in a network.

**Ethernet** - IEEE standard network protocol that specifies how data is placed on and retrieved from a common transmission medium.

**Fragmentation** - Breaking a packet into smaller units when transmitting over a network medium that cannot support the original size of the packet.

**Gateway** - A device that interconnects networks with different, incompatible communications protocols.

**Hardware** - The physical aspect of computers, telecommunications, and other information technology devices.

**IEEE (The Institute of Electrical and Electronics Engineers)** - An independent institute that develops networking standards.

**Infrastructure** - A wireless network that is bridged to a wired network via an access point.

**IP (Internet Protocol)** - A protocol used to send data over a network.

**IP Address** - The address used to identify a computer or device on a network.

**ISM band** - Radio bandwidth utilized in wireless transmissions.

**ISP (Internet Service Provider)** - A company that provides access to the Internet.

**LAN** - The computers and networking products that make up your local network.

**MAC (Media Access Control) Address** - The unique address that a manufacturer assigns to each networking device.

**Mbps (MegaBits Per Second)** - One million bits per second; a unit of measurement for data transmission.

**Network** - A series of computers or devices connected for the purpose of data sharing, storage, and/or transmission between users.
Wireless-G PCI Adapter with SpeedBooster

**Node** - A network junction or connection point, typically a computer or work station.

**Packet** - A unit of data sent over a network.

**Passphrase** - Used much like a password, a passphrase simplifies the WEP encryption process by automatically generating the WEP encryption keys for Linksys products.

**Port** - The connection point on a computer or networking device used for plugging in cables or adapters.

**RADIUS (Remote Authentication Dial-In User Service)** - A protocol that uses an authentication server to control network access.

**RJ-45 (Registered Jack-45)** - An Ethernet connector that holds up to eight wires.

**Roaming** - The ability to take a wireless device from one access point's range to another without losing the connection.

**Router** - A networking device that connects multiple networks together.

**RTS (Request To Send)** - A networking method of coordinating large packets through the RTS Threshold setting.

**Server** - Any computer whose function in a network is to provide user access to files, printing, communications, and other services.

**Software** - Instructions for the computer. A series of instructions that performs a particular task is called a "program".

**Spread Spectrum** - Wideband radio frequency technique used for more reliable and secure data transmission.

**SSID (Service Set Identifier)** - Your wireless network's name.

**Subnet Mask** - An address code that determines the size of the network.

**Switch** - 1. A data switch that connects computing devices to host computers, allowing a large number of devices to share a limited number of ports. 2. A device for making, breaking, or changing the connections in an electrical circuit.

**TCP (Transmission Control Protocol)** - A network protocol for transmitting data that requires acknowledgement from the recipient of data sent.

**TCP/IP (Transmission Control Protocol/Internet Protocol)** - A set of instructions PCs use to communicate over a network.
TKIP (Temporal Key Integrity Protocol) - a wireless encryption protocol that provides dynamic encryption keys for each packet transmitted.

Topology - The physical layout of a network.

WEP (Wired Equivalent Privacy) - A method of encrypting network data transmitted on a wireless network for greater security.

WPA (Wi-Fi Protected Access) - a wireless security protocol using TKIP (Temporal Key Integrity Protocol) encryption, which can be used in conjunction with a RADIUS server.
Appendix H: Regulatory Information

FCC STATEMENT

This product has been tested and complies with the specifications 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 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 Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.

INDUSTRY CANADA (CANADA)

This Class B digital apparatus complies with Canadian ICES-003, RSS210. Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada. The use of this device in a system operating either partially or completely outdoors may require the user to obtain a license for the system according to the Canadian regulations.

EC DECLARATION OF CONFORMITY (EUROPE)

Linksys declares that this product conforms to the specifications listed below, following the provisions of the European R&TTE directive 1999/5/EC:

EN 301 489-1, 301 489-17 General EMC requirements for Radio equipment.
EN 609 50 Safety
EN 300-328-1, EN 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.

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

Belgique:

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 300 m. Pour une distance supérieure à 300 m un enregistrement auprès de l'IBPT est requis. 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:

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.

Vous pouvez contacter l'Autorité de Régulation des Télécommunications (http://www.art-telecom.fr) pour de plus amples renseignements.

SAFETY NOTICES

Caution: To reduce the risk of fire, use only No.26 AWG or larger telecommunication line cord.

Do not use this product near water, for example, in a wet basement or near a swimming pool.

Avoid using this product during an electrical storm. There may be a remote risk of electric shock from lightning.
Appendix I: Contact Information

Need to contact Linksys?
Visit us online for information on the latest products and updates to your existing products at: http://www.linksys.com or ftp.linksys.com

Can’t find information about a product you want to buy on the web? Do you want to know more about networking with Linksys products? Give our advice line a call at: 800-546-5797 (LINKSYS)
Or fax your request in to: 949-823-3002

If you experience problems with any Linksys product, you can call us at: 800-326-7114
Don't wish to call? You can e-mail us at: support@linksys.com

If any Linksys product proves defective during its warranty period, you can call the Linksys Return Merchandise Authorization department for obtaining a Return Authorization Number at: 949-823-3000
(Details on Warranty and RMA issues can be found in the Warranty Information section in this Guide.)