LINKSYS®
A Division of Cisco Systems, Inc.

2.4GHz 802.11g

Wireless-G

Buisness PCI Adapter with RangeBooster

User Guide

WIRELESS

Model No. WMP200

CISCO SYSTEMS

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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 with RangeBooster easier than ever. Look for the following items when reading this User Guide:

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 with RangeBooster.

This exclamation point means there is a caution or warning and is something that could damage your property or the Wireless-G PCI Adapter with RangeBooster.

This question mark provides you with a reminder about something you might need to do while using the Wireless-G PCI Adapter with RangeBooster.

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 RangeBooster. With this Adapter, your wireless networking experience will be faster and easier than ever.

How does the Adapter do this? Like all wireless products, the Adapter allows for greater range and mobility within your wireless network. And with RangeBooster, the range and speed will be even greater. This adapter communicates over the 54Mbps 802.11g wireless standard, but can also communicate with the widely used 11Mbps 802.11b standard.

But what does all of this mean? Networks are useful tools for sharing computer resources. You can access one printer from different computers and access data located on another computer's hard drive. Networks are even used for playing multiplayer video games. So, networks are not only useful in homes and offices, they can also be fun.

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.

Use the instructions in this Guide to help you connect the Adapter, set it up, and configure it for your network. These instructions should be all you need to get the most out of the Adapter.

network: *a series of computers or devices connected for the purpose of data sharing, storage, and/or transmission between users.*

adapter: *a device that adds network functionality to your PC.*

Mbps: *one million bits per second; a unit of measurement for data transmission*

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.*

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

What's in this Guide?

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

- 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: Setting Up and Connecting the PCI Adapter
  This chapter shows you how to setup and connect the Adapter.

- Chapter 4: Using the Wireless Network Monitor
  This chapter show 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.

- 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.

Linksys 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.

***topology**: the physical layout of a network.*

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

***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*

***infrastructure**: a wireless network that is bridged to a wired network via an access point.*

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

***ssid**: your wireless network's name.*

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 at 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.

***switch**: a data switch that connects computing devices to host computers, allowing a large number of devices to share a limited number of ports*

***router**: a networking device that connects multiple networks together*

Chapter 3: Setting up and Connecting the Wireless-G PCI Adapter with RangeBooster

Starting the Setup

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

IMPORTANT: Do not connect the Adapter until you are instructed to do so or the setup will not work.

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).

Figure 3-1: Setup Wizard's Welcome Screen

On the *Welcome* screen, you have the following choices:

Click Here to Start- Click the **Click Here to Start** button to begin the software installation process.

User Guide - Click the **User Guide** button to open the PDF file of this User Guide.

Exit - Click the **Exit** button to exit the Setup Wizard.

1. To install the Adapter, click the **Click Here to Start** button on the *Welcome* screen.

2. After reading the License Agreement, click the **Next** button if you agree and want to continue the installation, or click the **Cancel** button to end the installation.

3. Windows will begin copying the files onto your PC.

Figure 3-2: Setup Wizard's License Agreement

Connecting the Adapter

1. Before connecting the PCI Adapter to your PC, turn off your desktop PC and disconnect the power.

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 and re-connect the power.

4. Attach the external antennas to the adapter's antenna ports. Bend the antennas up ninety degrees, then spread them apart ninety degrees, so they make a V or L shape.

5. Power on your desktop PC.

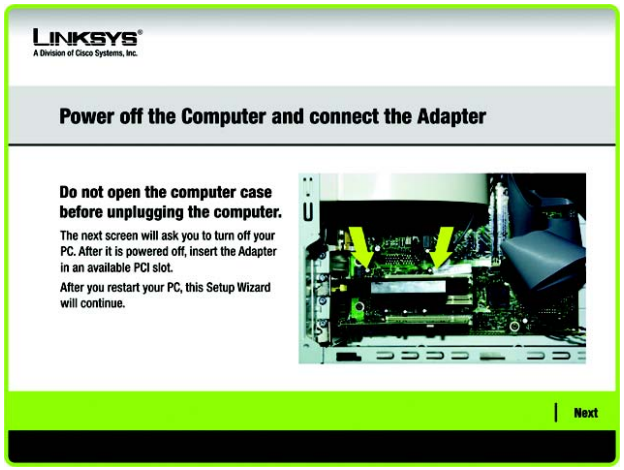

Figure 3-3: Connecting the Adapter

Setting up the Adapter

The next screen to appear will be the *Available Wireless Network* screen.

This screen provides two options for setting up the Adapter.

- **Available Wireless Network. (For most users.)** Use this option if you already have a network set up. The networks available to this Adapter will be listed on this screen. You can choose one of these networks and click the **Connect** button to connect to it. Click the **Refresh** button to update the Available Wireless Network list.
- **Manual Setup.** If your network is not listed on this screen, select **Manual Setup** to set up the adapter manually. This method of setting up the Adapter is intended for Advanced Users only.

The setup for each option is described, step by step, under the appropriate heading on the following pages.

Click **Exit** to close the Setup Wizard, if you wish to set up the Adapter later.

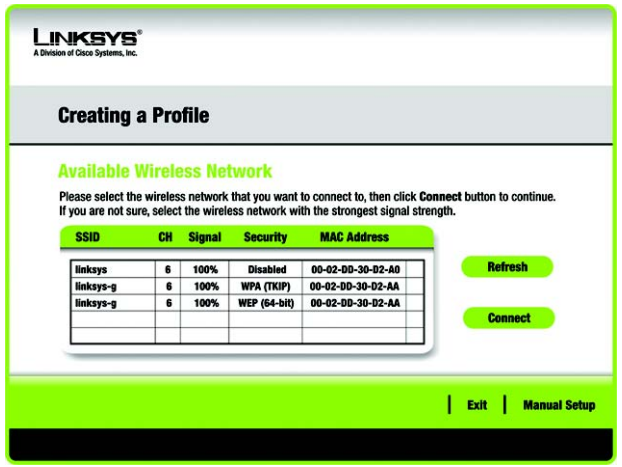

Figure 3-4: Available Wireless Network

Available Wireless Network

The available networks are listed in the table on the center of the screen by SSID. Select the wireless network you wish to connect to and click the **Connect** button. (If you do not see your network listed, you can click the **Refresh** button to bring the list up again.) If the network utilizes wireless security, you will need to configure security on the Adapter. If not, you will be taken directly to the *Congratulations* screen.

1. If you have wireless security enabled on your network, continue to step 2. If you don't have wireless security enabled, continue to step 3.

2. Wireless Security - Your wireless security settings must match the wireless security settings on all other devices on your network.

   - If your network has the wireless security WEP (Wired Equivalent Privacy) enabled, this screen will appear. Select **64-bit** or **128-bit**.

     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".

     Then click **Connect** and proceed to Step 3.

   - If your network has the wireless security WPA Personal (Wi-Fi Protected Access) enabled, this screen will appear.

     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.

     Then click **Connect** and proceed to Step 3.

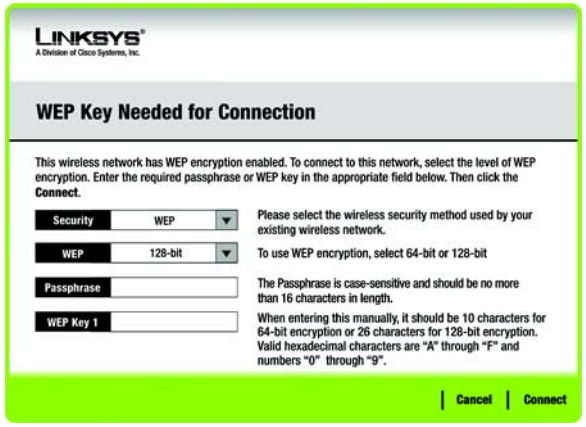

Figure 3-5: WEP Key Needed for Connection

wep *(wired equivalent privacy): a method of encrypting network data transmitted on a wireless network for greater security.*

encryption: *encoding data transmitted in a network.*

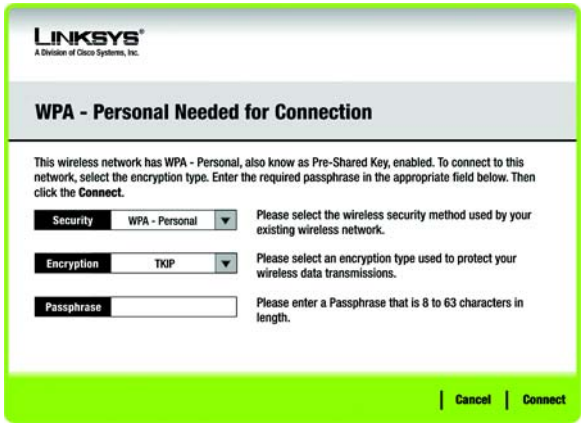

Figure 3-6: WPA - Personal Needed for Connection

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.*

- If your network has the wireless security PSK2 (Pre-shared key 2) enabled, this screen will appear.

  Passphrase - Enter a Passphrase, also called a pre-shared key, of 8-63 characters in the Passphrase field.

  Then click **Connect** and proceed to Step 3.

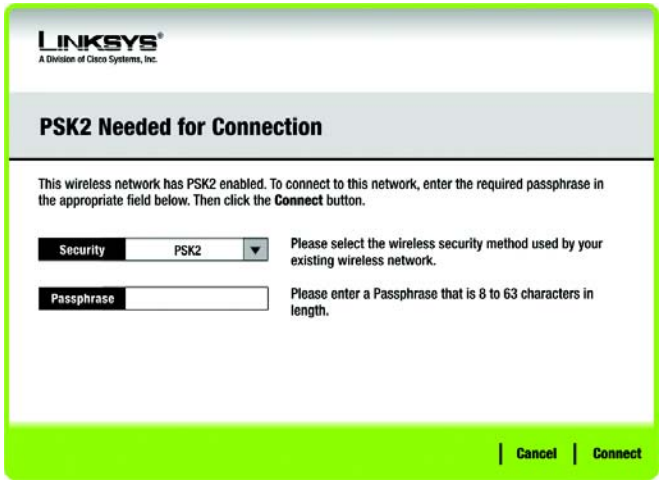

Figure 3-7: PSK2 Needed for Connection

3. After the software has been successfully installed, the *Congratulations* screen will appear. Click **Connect to Network** to connect to your network. For more information about the Wireless Network Monitor, refer to *Chapter 4: Using the Wireless Network Monitor.*

Congratulations! The installation of the Wireless-G PCI Adapter is complete.

To check the link information, search for available wireless networks, or make additional configuration changes, proceed to Chapter 4: Using the Wireless Network Monitor.

Figure 3-8: Congratulations

Manual Setup

If your network is not listed with the available networks, you can use Manual Setup.

1. Click **Manual Setup** on the *Available Wireless Network* screen to set up the adapter manually.

2. The *Network Settings* screen from the Wireless Network Monitor will appear. If your network has a router or other DHCP server, click the radio button next to **Obtain network settings automatically (DHCP)**.

   If your network does not have a DHCP server, click the radio button next to **Specify network settings**. Enter an IP Address, Subnet Mask, Default Gateway, and DNS addresses appropriate for your network. You must specify the IP Address and Subnet Mask on this screen. If you are unsure about the Default Gateway and DNS addresses, leave these fields empty.

   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 1 and **DNS 2** - Enter the DNS address of your wired Ethernet network here.

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

3. 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. 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. Enter the SSID for your network.

   Infrastructure Mode - Use this mode if you want to connect to a wireless router or access point.

   Ad-Hoc Mode - Use this mode if you want to connect to another wireless device directly without using a wireless router or access point.

   SSID - This is the wireless network name that must be used for all the devices in your wireless network. It is case- sensitive and should be a unique name to help prevent others from entering your network.

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

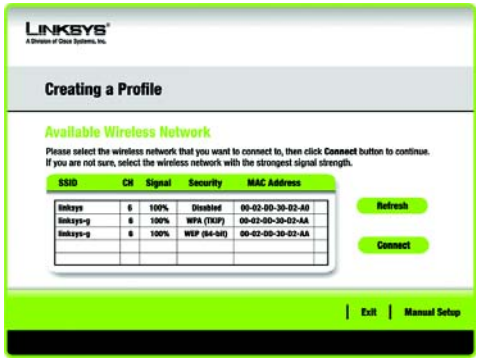

Figure 3-9: Available Wireless Network

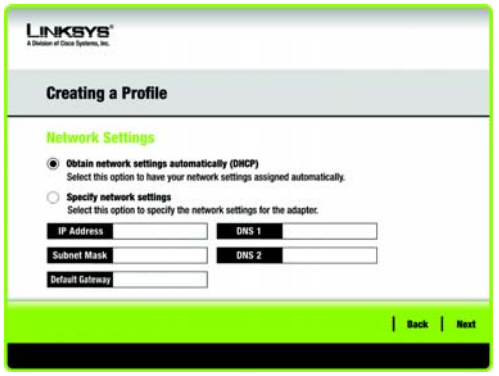

Figure 3-10: Network Settings

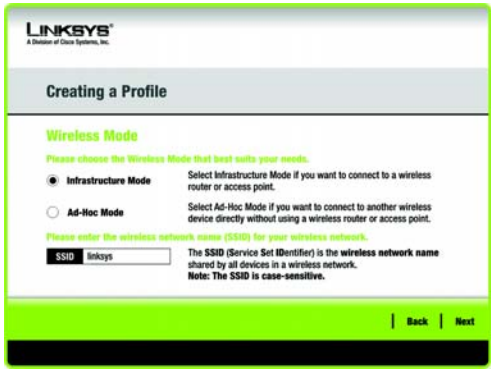

Figure 3-11: Wireless Mode

4. If you chose **Infrastructure Mode**, go to Step 5 now. If you chose **Ad-Hoc Mode**, the *Ad-Hoc Mode Settings* screen will appear.

   Select the correct operating channel for your wireless network. 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, keep the default setting.

   Click the **Next** button. Click the **Back** button to change any settings.

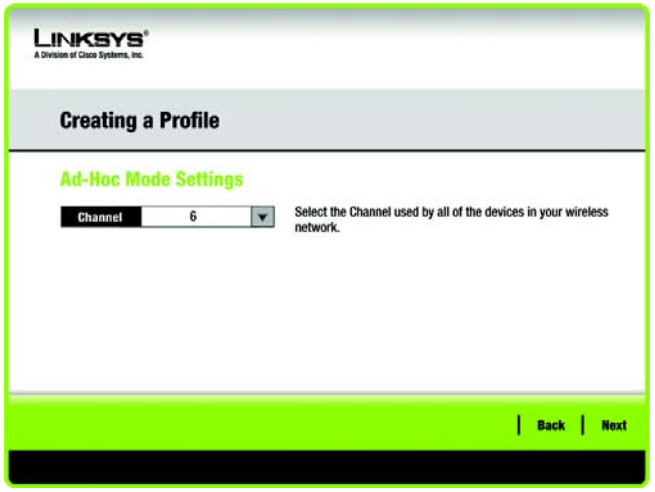

Figure 3-12: Ad-Hoc Mode Settings

5. If your wireless network doesn't have wireless security, select **Disabled** and then click the **Next** button to continue. Proceed to Step 6.

   If your wireless network has wireless security, select the method of security used by the other devices on your network: **WEP**, **WPA-Personal**, **PSK2**, **WPA-Enterprise**, or **RADIUS**. WEP stands for Wired Equivalent Privacy, and WPA stands for Wi-Fi Protected Access. PSK2 stands for Pre-shared Key2. WPA is a stronger security method than WEP. RADIUS stands for Remote Authentication Dial-In User Service. Click the **Next** button to continue or the **Back** button to return to the previous screen.

   Proceed to the appropriate section for your security method: WEP, WPA-Personal, PSK2, WPA-Enterprise, or RADIUS.

WEP

WEP - Select **64-bit or 128-bit** encryption

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.

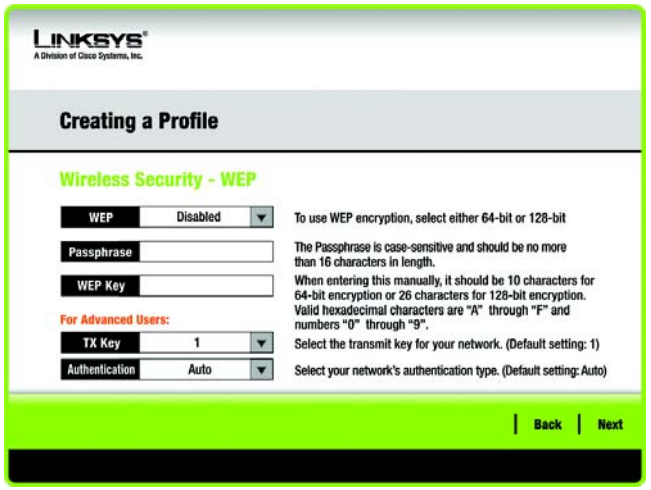

Figure 3-13: Wireless Security - WEP

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.

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

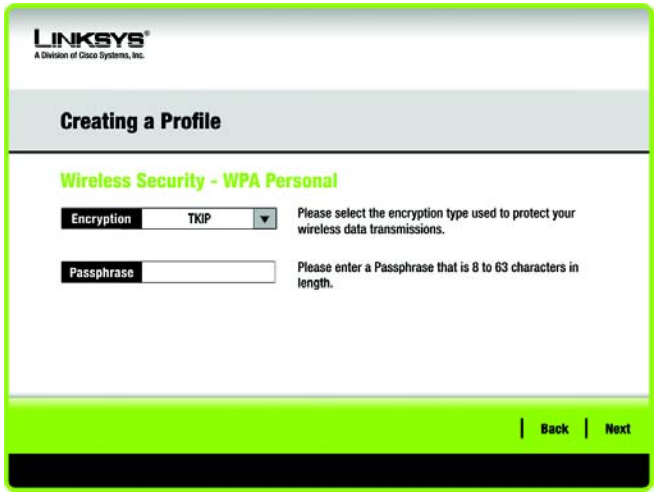

Figure 3-14: Wireless Security - WPA Personal

PSK2

Enter a Passphrase that is 8-63 characters in length.

Passphrase - Enter a Passphrase, also called a pre-shared key, of 8-63 characters in the *Passphrase* field.

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

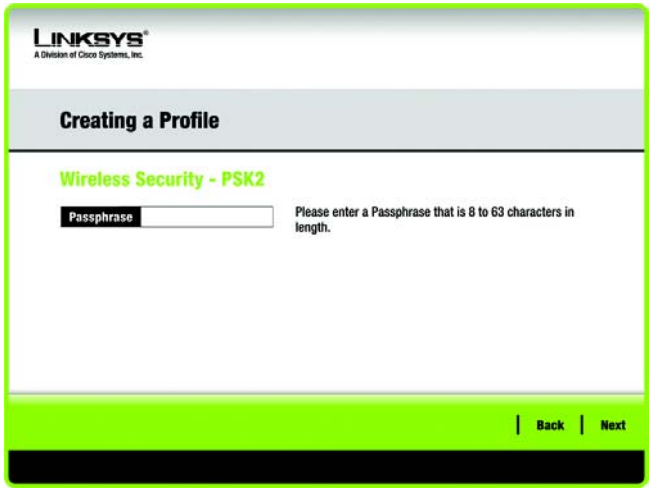

Figure 3-1: Wireless Security - PSK2

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.

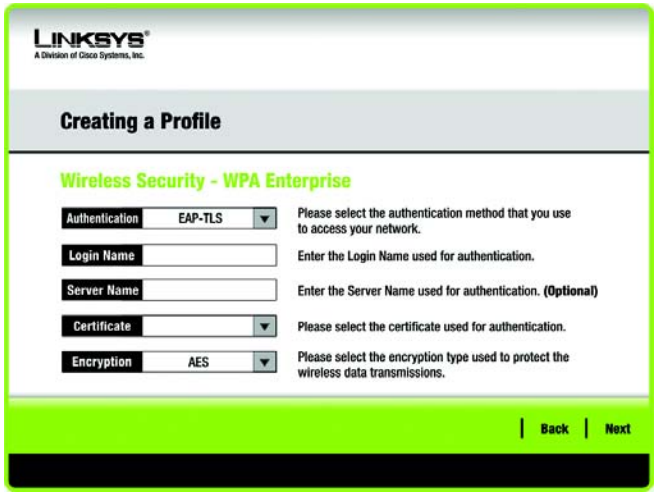

Figure 3-15: Wireless Security - WPA Enterprise - EAP-TLS

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. 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.

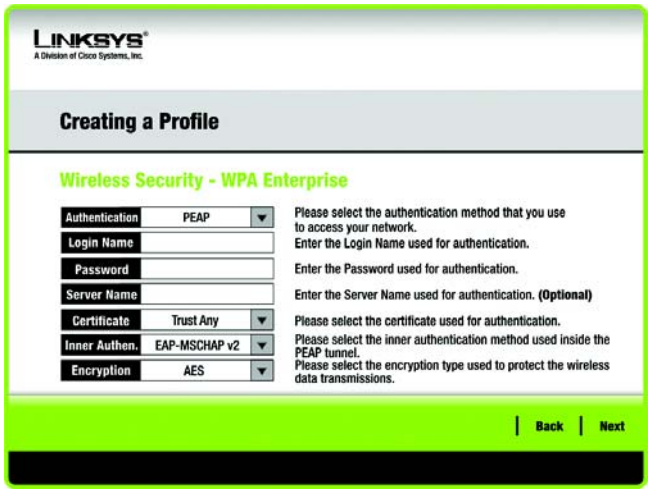

Figure 3-16: Wireless Security - WPA Enterprise - PEAP

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.

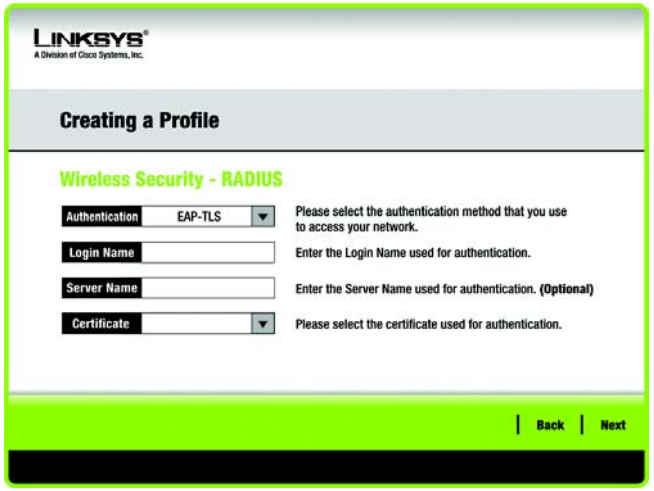

Figure 3-17: Wireless Security - RADIUS - EAP-TLS

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.

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

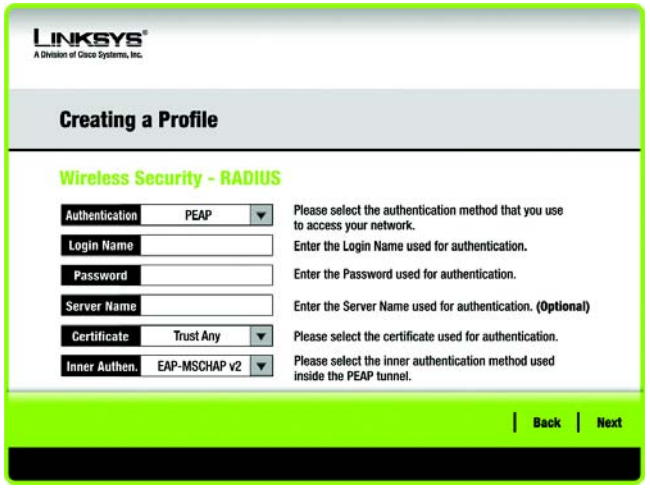

Figure 3-18: Wireless Security - RADIUS - PEAP

6. The *Confirm New Settings* screen will appear next and show the new settings. To save the new settings, click the **Save** button. To edit the new settings, click the **Back** button. To exit the Manual Setup through the Wireless Network Monitor, click **Exit**.

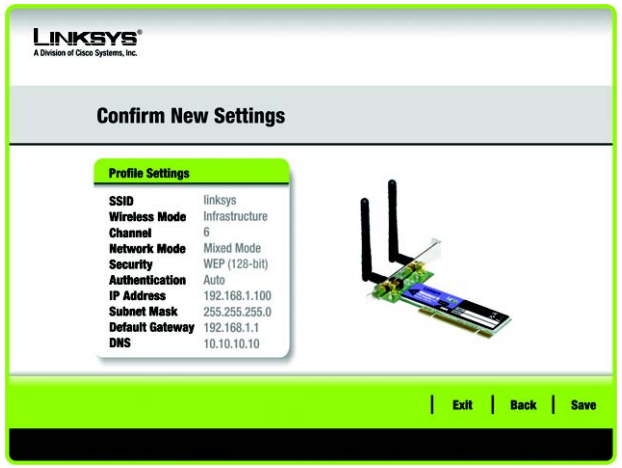

Figure 3-19: Confirm New Settings

7. The *Congratulations* screen will appear next. Click **Connect to Network** to implement the new settings and return to the *Link Information* screen. Click **Return to Profiles screen** to return to the Profiles screen.

Congratulations! Your manual setup through the Wireless Network Monitor is complete.

To check the link information, search for available wireless networks, or make additional configuration changes, proceed to Chapter 4: Using the Wireless Network Monitor.

Figure 3-20: Congratulations screen

Chapter 4: Using the Wireless Network Monitor

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, the Wireless Network Monitor icon will appear in the system tray of your computer. 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.

Figure 4-1: Wireless Network Monitor Icon

Using the Wireless Network Monitor

The opening screen of the Wireless Network Monitor is the *Link Information* screen. 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 or create connection profiles, click the **Profiles** tab.

Link Information

The *Link Information* screen displays network mode, signal strength, and link quality information about the current connection. It also 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 **More Information** button to view additional information about the wireless network connection on the *Wireless Network Status* screen.

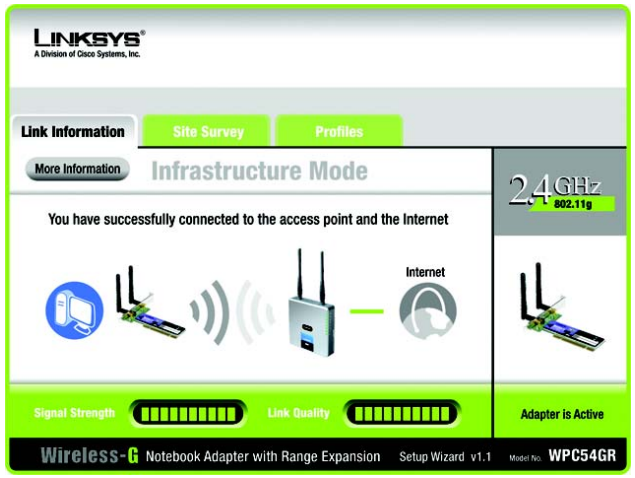

Figure 4-2: Link Information

Wireless Network Status

The *Wireless Network Status* screen provides information on your current network settings.

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 wireless security feature is displayed here.

Authentication - This is your wireless network's authentication method.

IP Address - The IP Address of the Adapter is displayed here.

Subnet Mask - The Subnet Mask of the Adapter is shown here.

Default Gateway - The Default Gateway address of the Adapter is displayed here.

DNS - This is the DNS address of the Adapter.

DHCP Client - This displays the Adapter's status as a DHCP client.

MAC Address- The MAC address of the wireless network's access point or wireless router is shown here.

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 **Statistics** button to go to the *Wireless Network Statistics* screen. Click the **Back** button to return to the initial *Link Information* screen. Click the **Save to Profile** button to save the currently active connection settings to a profile.

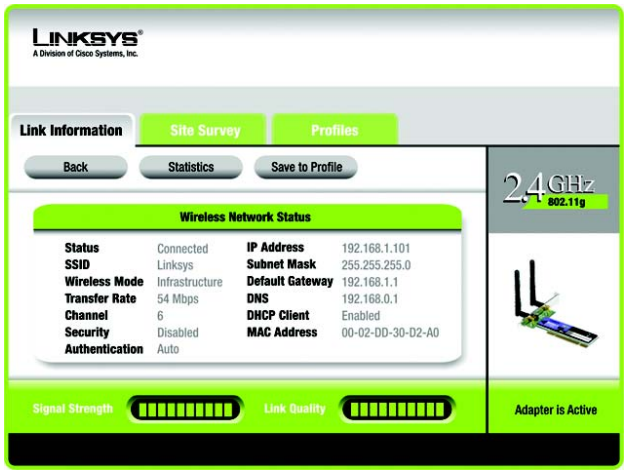

Figure 4-3: More Information - Wireless Network Status

Wireless Network Statistics

The *Wireless Networks Statistics* screen provides statistics on your current network settings.

Transmit Rate - This is 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.)

Receive Rate - This is the rate at which data is received.

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

Bytes Received - This shows the bytes received by the Adapter, in real time, since connecting to the wireless network or since the *Refresh Statistics* button was last pressed.

Bytes Transmitted - This shows the bytes transmitted by the Adapter, in real time, since connecting to the wireless network or since the *Refresh Statistics* button was last pressed.

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

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 Adapter.

Transmit Power - This is the power output at which the Adapter is transmitting.

Up Time - This indicates the length of the most recent connection to a wireless network.

Total Up Time - This indicates the cumulative total of the Adapter's connection time.

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* screen. Click the **Status** button to go to the *Wireless Network Status* screen. Click the **Save to Profile** button to save the currently active connection settings to a profile. Click the **Refresh** button to reset the statistics.

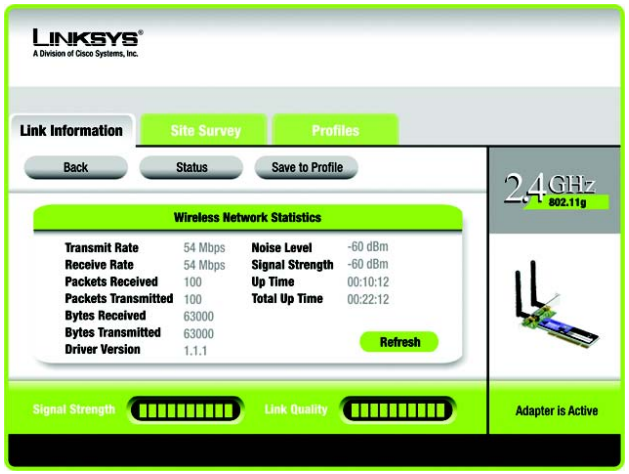

Figure 4-4: More Information-Network Statistics

Site Survey

The *Site Survey* screen displays a list of available networks in the table on the left. The table shows each network's SSID, Channel, and the quality of the wireless signal the Adapter is receiving. You may click **SSID**, **CH** (Channel), or **Signal**, to sort by that field.

SSID - The SSID or unique name of the wireless network is displayed here.

CH - This is the channel that the network uses.

Signal - This is the percentage of signal strength, from 0 to 100%.

Site Information

For each network selected, the following settings are listed:

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

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

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

Security - The status of the wireless security feature is displayed here.

MAC Address- The MAC address of the wireless network's access point is displayed here.

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, and click the **Connect** button. If the network has security enabled, then you will see one of the wireless security screens in the next paragraph.

Wireless Security - Your wireless security settings must match the wireless security settings on all other devices on your network.

- If your network has the wireless security WEP (Wired Equivalent Privacy) enabled, this screen will appear. Select **64-bit** or **128-bit**.

  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

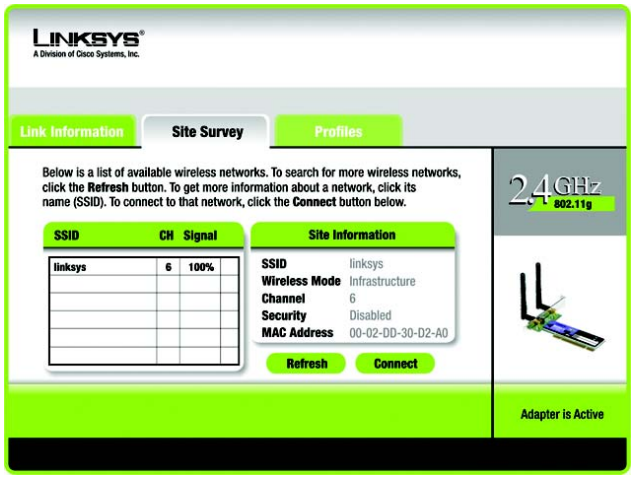

Figure 4-5: Site Survey

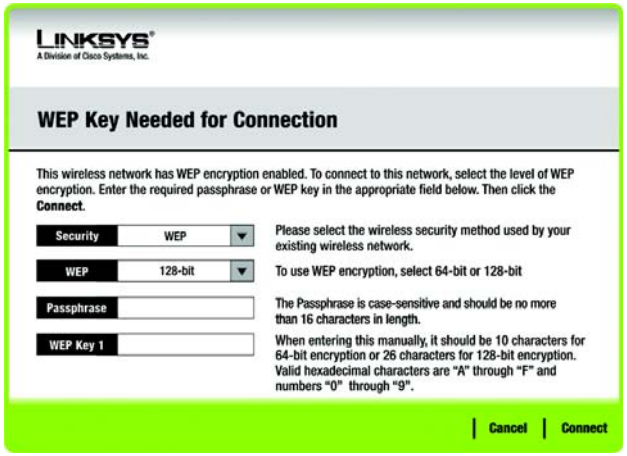

Figure 4-6: WEP Key Needed for Connection

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".

Then click **Connect.**

- If your network has the wireless security WPA Personal (Wi-Fi Protected Access) enabled, this screen will appear.

  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.

  Then click **Connect**.

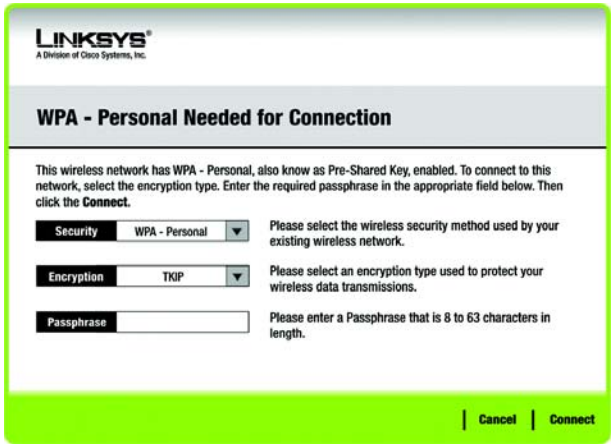

Figure 4-7: WPA-Personal Needed for Connection

- If your network has the wireless security PSK2 (Pre-shared key 2) enabled, this screen will appear.

  Passphrase - Enter a Passphrase, also called a pre-shared key, of 8-63 characters in the Passphrase field.

  Then click **Connect**.

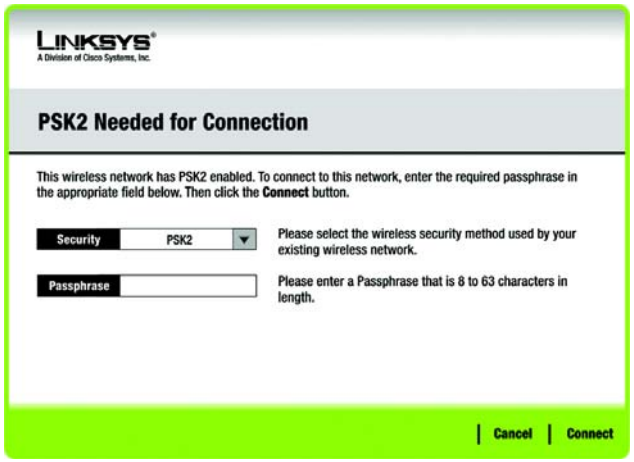

Figure 4-8: PSK2 Needed for Connection

Profiles

The *Profiles* screen lets you save different configuration profiles for different network setups. The table on the left displays a list of available profiles with their profile names and SSIDs.

Profile - The name of the profile is displayed here.

SSID - The SSID or unique name of the wireless network is displayed here.

Profile Information

For each profile selected, the following are listed:

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

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 wireless security feature is displayed here.

Authentication - The authentication setting for the network is shown here.

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

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

Edit - Select the profile you want to change, and then click the **Edit** button.

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.

Export - Select the profile you want to save in a different location, and click the **Export** button. Direct Windows to the appropriate folder, and click the **Save** button.

Delete - Select the profile you want to delete, and then click the **Delete** button.

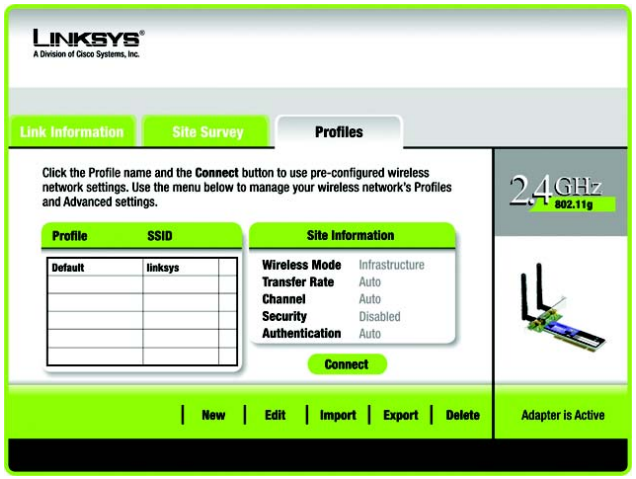

Figure 4-9: Profiles

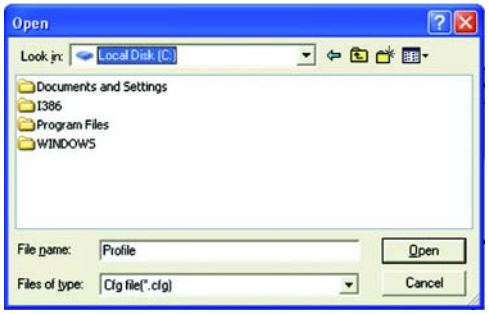

Figure 4-10: Import a Profile

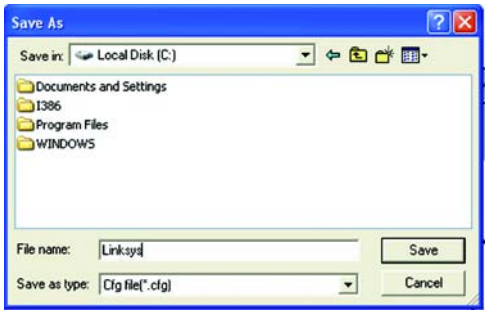

Figure 4-11: Export a Profile

NOTE: If you want to export more than one profile, you have to export them one at a time.

Create a New Profile

The next screen to appear will be the *Available Wireless Network* screen.

This screen provides two options for setting up the Adapter.

- **Available Wireless Network. (For most users.)** Use this option if you already have a network set up. The networks available to this Adapter will be listed on this screen. You can choose one of these networks and click the **Connect** button to connect to it. Click the **Refresh** button to update the Available Wireless Network list.
- **Manual Setup.** If your network is not listed on this screen, select **Manual Setup** to set up the adapter manually. This method of setting up the Adapter is intended for Advanced Users only.

The setup for each option is described, step by step, under the appropriate heading on the following pages.

Click **Exit** to close the Setup Wizard, if you wish to set up the Adapter later.

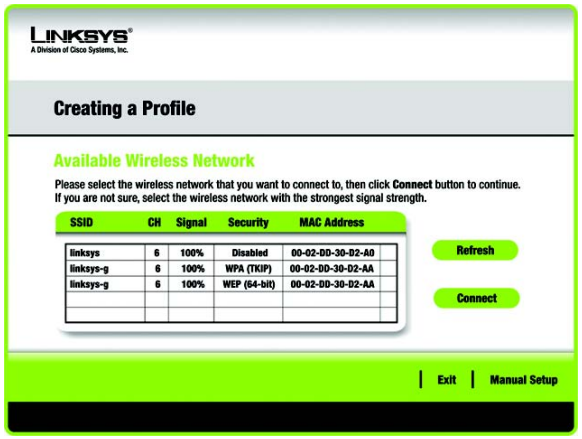

Figure 4-12: Create a New Profile

Available Wireless Network

The available networks are listed in the table on the center of the screen by SSID. Select the wireless network you wish to connect to and click the **Connect** button. (If you do not see your network listed, you can click the **Refresh** button to bring the list up again.) If the network utilizes wireless security, you will need to configure security on the Adapter. If not, you will be taken directly to the *Congratulations* screen.

1. If you have wireless security enabled on your network, continue to step 2. If you don't have wireless security enabled, continue to step 3.
2. Wireless Security - Your wireless security settings must match the wireless security settings on all other devices on your network.
   - If your network has the wireless security WEP (Wired Equivalent Privacy) enabled, this screen will appear. Select **64-bit** or **128-bit**.

     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.)

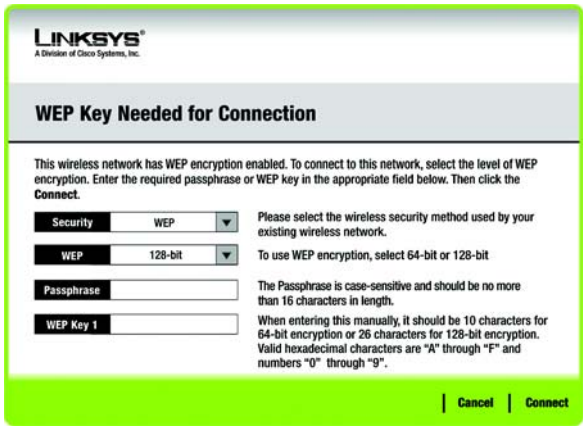

Figure 4-1: WEP Key Needed for Connection

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".

Then click **Connect** and proceed to Step 3.

- If your network has the wireless security WPA Personal (Wi-Fi Protected Access) enabled, this screen will appear.

  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.

  Then click **Connect** and proceed to Step 3.

- If your network has the wireless security PSK2 (Pre-shared key 2) enabled, this screen will appear.

  Passphrase - Enter a Passphrase, also called a pre-shared key, of 8-63 characters in the Passphrase field.

  Then click **Connect** and proceed to Step 3.

3. After the software has been successfully installed, the *Congratulations* screen will appear. Click **Connect to Network** to connect to your network, implement the new settings, and return to the *Link Information* screen.

Congratulations! The profile has been successfully configured.

Figure 4-2: WPA - Personal Needed for Connection

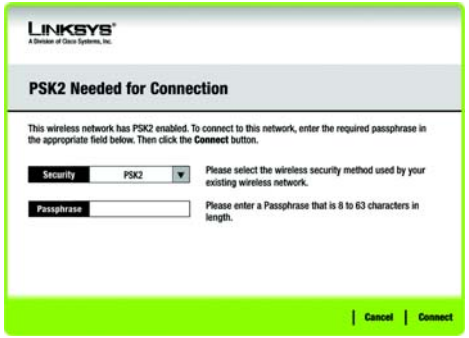

Figure 4-3: PSK2 Needed for Connection

Figure 4-4: Congratulations

Manual Setup

If your network is not listed with the available networks, you can use Manual Setup.

1. Click **Manual Setup** on the *Available Wireless Network* screen to set up the adapter manually.

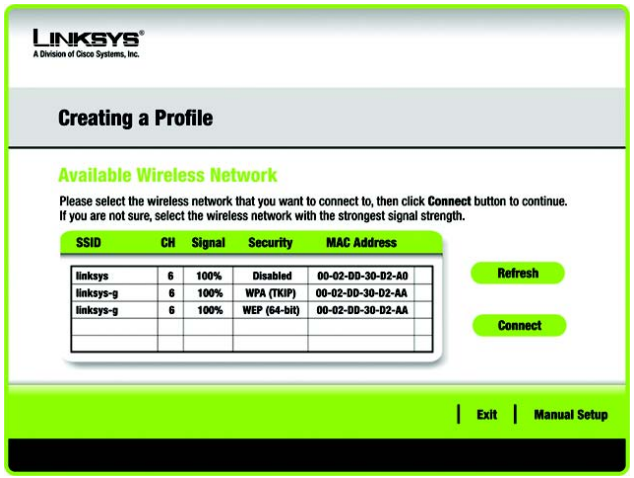

Figure 4-13: Available Wireless Network

2. The *Network Settings* screen from the Wireless Network Monitor will appear. If your network has a router or other DHCP server, click the radio button next to **Obtain network settings automatically (DHCP)**.

   If your network does not have a DHCP server, click the radio button next to **Specify network settings**. Enter an IP Address, Subnet Mask, Default Gateway, and DNS addresses appropriate for your network. You must specify the IP Address and Subnet Mask on this screen. If you are unsure about the Default Gateway and DNS addresses, leave these fields empty.

   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 1 and **DNS 2** - Enter the DNS address of your wired Ethernet network here.

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

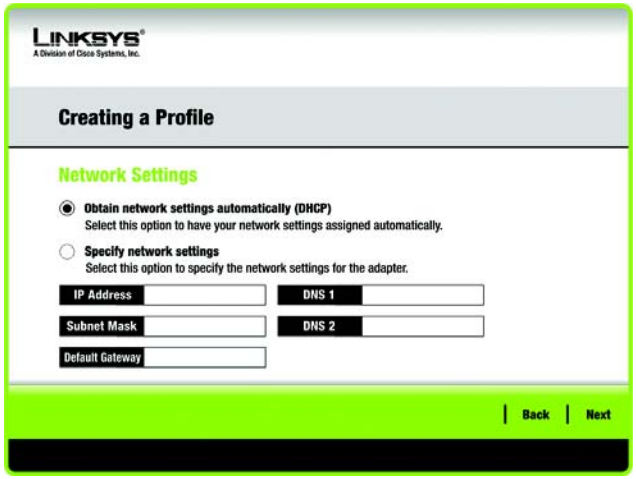

Figure 4-14: Network Settings

3. 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. 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. Enter the SSID for your network.

   Infrastructure Mode - Use this mode if you want to connect to a wireless router or access point.

   Ad-Hoc Mode - Use this mode if you want to connect to another wireless device directly without using a wireless router or access point.

   SSID - This is the wireless network name that must be used for all the devices in your wireless network. It is case- sensitive and should be a unique name to help prevent others from entering your network.

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

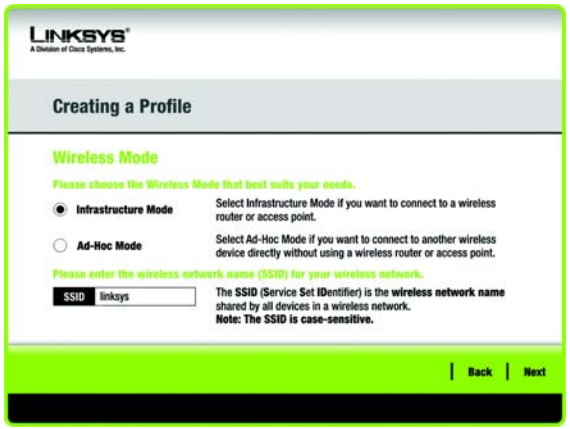

Figure 4-15: Wireless Mode

4. If you chose **Infrastructure Mode**, go to Step 5 now. If you chose **Ad-Hoc Mode**, the *Ad-Hoc Mode Settings* screen will appear.

   Select the correct operating channel for your wireless network. 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, keep the default setting.

   Click the **Next** button. Click the **Back** button to change any settings.

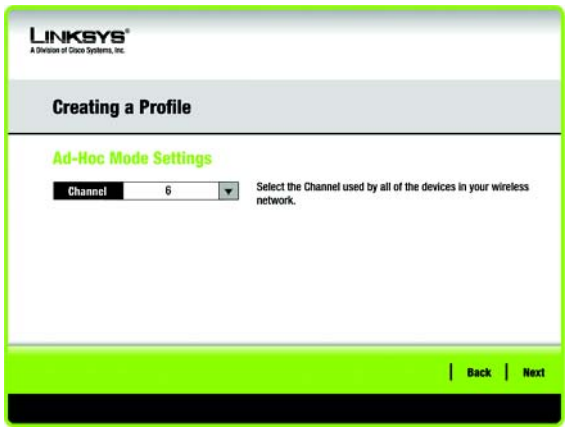

Figure 4-16: Ad-Hoc Mode Settings

5. If your wireless network doesn't have wireless security, select **Disabled** and then click the **Next** button to continue. Proceed to Step 6.

   If your wireless network has wireless security, select the method of security used by the other devices on your network: **WEP**, **WPA-Personal**, **WPA-Enterprise**, **PSK2**, or **RADIUS**. WEP stands for Wired Equivalent Privacy, and WPA stands for Wi-Fi Protected Access. WPA is a stronger security method than WEP. RADIUS stands for Remote Authentication Dial-In User Service. PSK2 stands for Pre-shared Key 2. Click the **Next** button to continue or the **Back** button to return to the previous screen.

   Proceed to the appropriate section for your security method: WEP, WPA-Personal, PSK2, WPA-Enterprise, or RADIUS.

wep *(wired equivalent privacy): a method of encrypting network data transmitted on a wireless network for greater security.*

encryption: *encoding data transmitted in a network.*

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.*