

LINKSYS®

A Division of Cisco Systems, Inc.



2.4GHz
802.11g

Compact
Wireless-G

USB Adapter

User Guide

WIRELESS

Model No. **WUSB54GC**

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 Compact Wireless-G USB Adapter 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 Compact Wireless-G USB Adapter.



This exclamation point means there is a Caution or warning and is something that could damage your property or the Compact Wireless-G USB Adapter.



This question mark provides you with a reminder about something you might need to do while using the Compact Wireless-G USB 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 Compact Wireless-G USB Adapter. 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. Connecting to your PC via the USB port means that this Adapter leaves the PC's slots open for other purposes. This adapter communicates over the 802.11g wireless standard, one of the newest wireless standards, to communicate with your network.

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.

And now, with SecureEasySetup, setting up your network and your Compact Wireless-G USB Adapter is easier than ever.

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.*

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.*

What's in this Guide?

This user guide covers the steps for setting up and using the Compact Wireless-G USB 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 Compact USB Adapter**
This chapter describes the physical features of the Adapter.
- **Chapter 3: Setting Up and Connecting the USB 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: Using Windows XP Wireless Configuration**
This appendix describes how Windows XP users can use Window's built-in wireless configuration to monitor their Adapter.
- **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.

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.

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

access point: device that allows wireless-equipped computers and other devices to communicate with a wired network.

infrastructure: Configuration in which a wireless network 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 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.

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

switch: device that is the central point of connection for computers and other devices in a network, so data can be shared at full transmission speeds.

router: a networking device that connects multiple networks together, such as a local network and the Internet.

Chapter 3: Getting to Know the Compact Wireless-G USB Adapter

The LED Indicators

The Adapter's LEDs display information about network activity.



Figure 3-1: Front Panel

Link *Green.* The Link LED flashes when there is network activity.

Chapter 4: Setting up and Connecting the USB Adapter

The USB Adapter is set up with the Setup Wizard that comes on the CD enclosed with the Adapter. This chapter will guide you through the setup procedure.



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

Starting the Setup Wizard

To begin the setup process, 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).

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 this User Guide.

Exit - Click **Exit** 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 **Next** if you agree and want to continue the installation, or click **Cancel** to end the installation.
3. Windows will begin copying the files onto your PC.



Figure 4-1: Setup Wizard's Welcome Screen



Figure 4-2: Setup Wizard's License Agreement

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4. The Setup Wizard will now prompt you to connect the Adapter to your PC's USB port. Once you've connect, click **Next**.
5. Windows 98SE and ME users will need to restart their PCs.

Connecting the Adapter

1. Connect the Adapter's connector to one of the USB ports on your computer.



Figure 4-3: The Connecting the Adapter Screen

Setting Up the Adapter

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

This screen provides three options for setting up the Adapter

- **SecureEasySetup.** This Adapter features SecureEasySetup. This means that you can set it up with just the press of a button when connecting to wireless routers or access points that also feature SecureEasySetup. Both devices on the network must feature SecureEasySetup for this to work.
- **Available Wireless Network. (For most users.)** Use this option if you already have a network set up with devices that do not have SecureEasySetup. 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 you are not taking advantage of SecureEasySetup and 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.

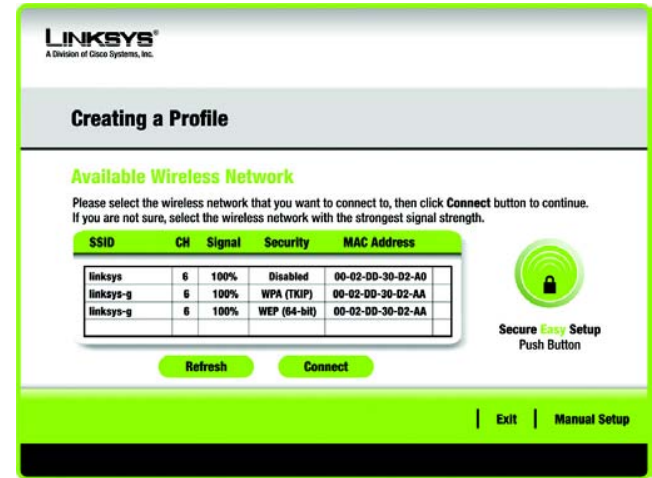


Figure 4-4: Available Wireless Network

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.

Setting Up the Adapter with SecureEasySetup

With SecureEasySetup, setting up the Adapter is as simple as pushing a couple of buttons. Before you press any buttons, though, you should locate the SecureEasySetup button on the device you're connecting the Adapter to, such as a wireless router or access point.

1. Starting from the *Available Wireless Network* screen, click the **SecureEasySetup** button on the right hand side.

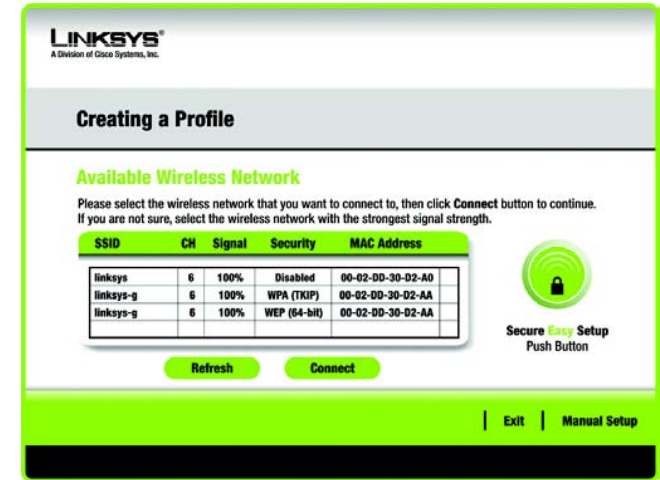


Figure 4-5: Available Wireless Network

2. You will be asked to locate the **SecureEasySetup** button on the device with which the Adapter will be communicating. If you are not sure where to find this button, click **Where can I find the button?**.

This will walk you through a couple of screens to help you find the button, which is usually located on the front of the wireless router or access point.



Figure 4-7: The SecureEasySetup Logo and Location

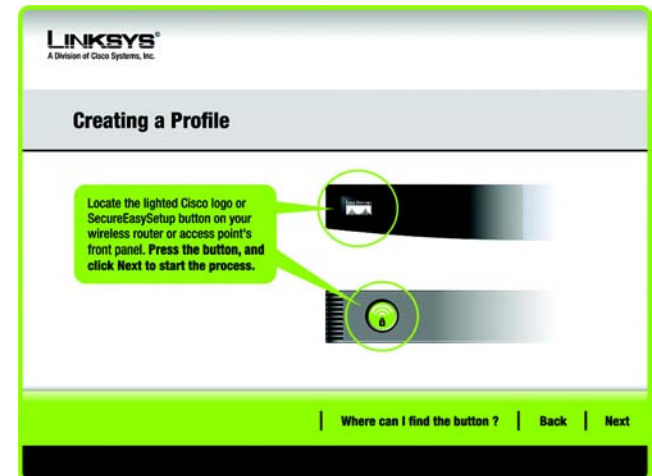


Figure 4-6: SecureEasySetup

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3. Press the Cisco logo or SecureEasySetup button on the wireless router or access point. When it turns white and begins to flash, click the **Next** button on the Setup Wizard screen. The logo or button will stop flashing on the wireless router or access point when the Adapter has been successfully added to the network. Repeat this procedure for any additional SecureEasySetup device.



NOTE: You can only add one SecureEasySetup device at a time.

4. When SecureEasySetup is complete, you may save your configuration to a text file by clicking the **Save** button, or print the configuration by clicking the **Print** button. Click **Connect to Network** to connect to your network.

Congratulations! Setup is complete.

To check the link information, search for available wireless networks, or make additional configuration changes, refer to *Chapter 5: Using the Wireless Network Monitor*.

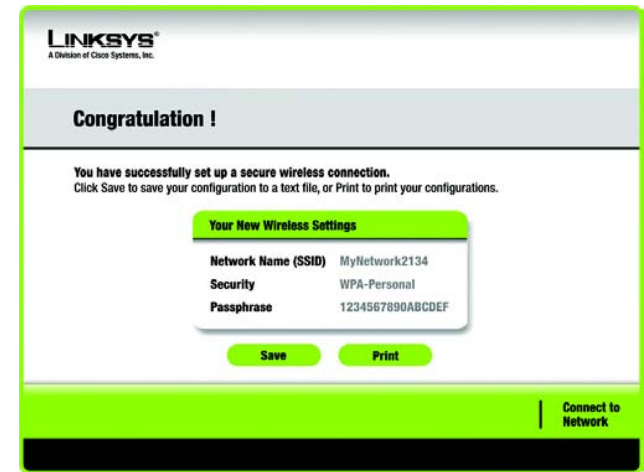


Figure 4-8: SecureEasySetup Complete

Setting Up the Adapter with Available Networks

If you're not setting up the Adapter with SecureEasySetup, another method for setting up the Adapter is with the available networks listed on the *Available Wireless Network* screen. 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 wireless security has been enabled on this network, you will see a wireless security screen. If your network utilizes WEP (Wired Equivalent Privacy) encryption, the *WEP Key Needed for Connection* screen will appear. If your network utilizes WPA-Personal (Wi-Fi Protected Access) encryption, the *WPA-Personal Needed for Connection* screen will appear. If your network utilizes PSK2 (Pre-Shared Key 2) encryption, the *PSK2 Needed for Connection* screen will appear.

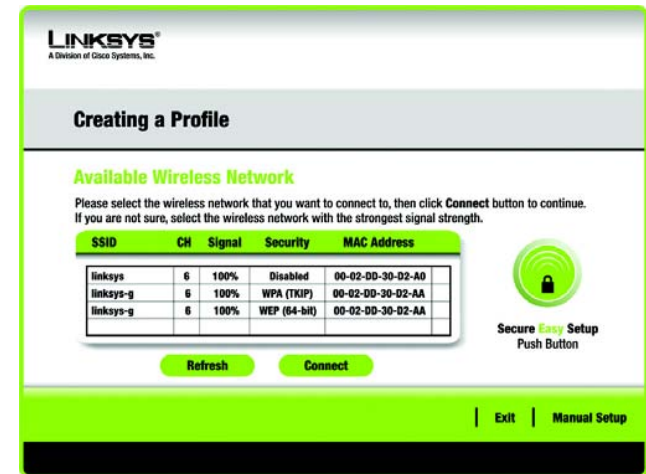


Figure 4-9: Available Wireless Network

encryption: encoding data transmitted in a network.

WEP Key Needed for Connection

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 the *Congratulations* screen. To cancel the connection, click **Cancel**.

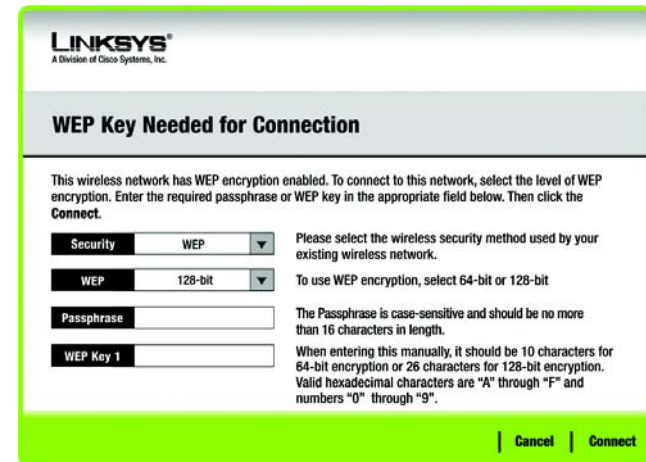


Figure 4-10: WEP Key Needed for Connection

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

WPA-Personal Needed for Connection

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 the *Congratulations* screen. To cancel the connection, click **Cancel**.

PSK2 Needed for Connection

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

Then, click **Connect** and proceed to the *Congratulations* screen. To cancel the connection, click **Cancel**.

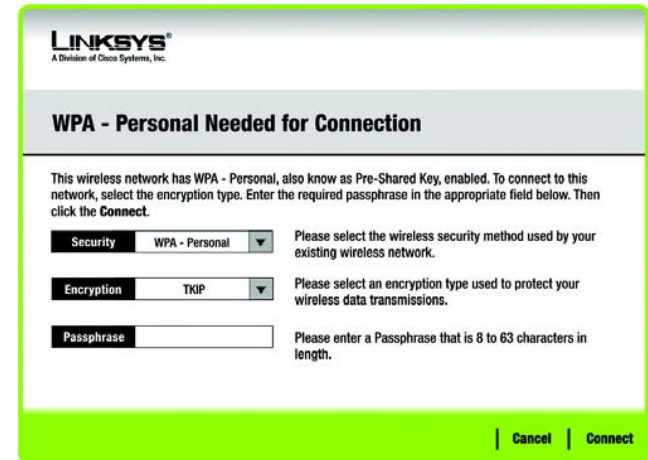


Figure 4-11: WPA-Personal Needed for Connection

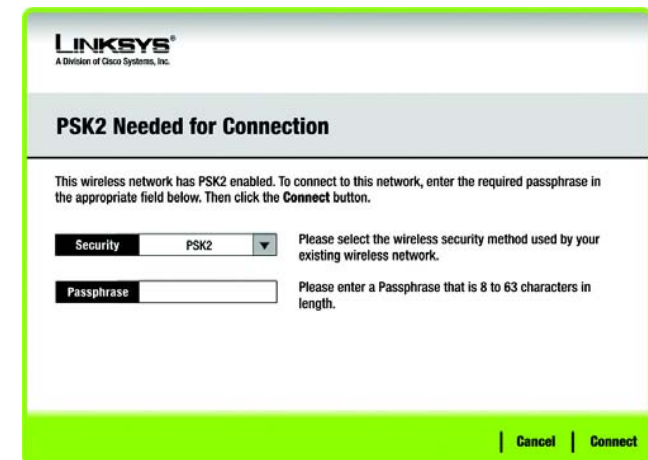


Figure 4-12: PSK2 Needed for Connection

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2. After the Adapter has been configured for the network, the *Congratulations* screen will appear. Click **Connect to Network** to connect to your network.



Figure 4-13: The Congratulations Screen

Congratulations! Setup is complete.

To check the link information, search for available wireless networks, or make additional configuration changes, refer to *Chapter 5: Using the Wireless Network Monitor*.

Setting Up the Adapter with Manual Setup

If you are not taking advantage of SecureEasySetup and your network is not listed with the available networks, click **Manual Setup** on the *Available Wireless Network* screen to set up the adapter manually.

1. After clicking **Manual Setup**, the *Network Settings* screen 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 **Next** to continue, or click **Back** to return to the *Available Wireless Network* screen.

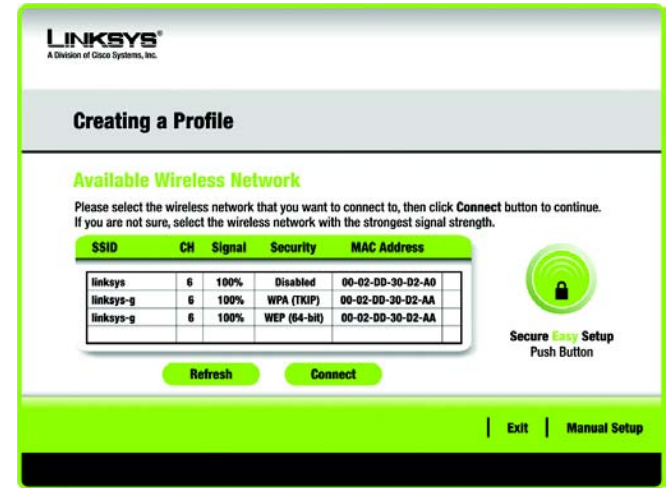


Figure 4-14: Available Wireless Network

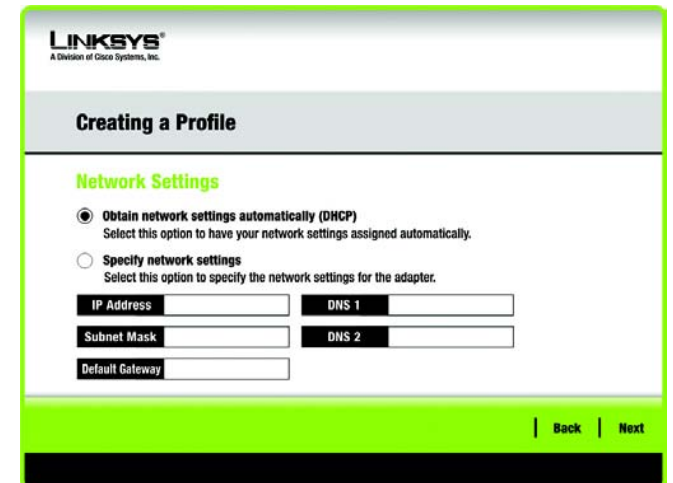


Figure 4-15: Network Settings

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- 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. Then, 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.

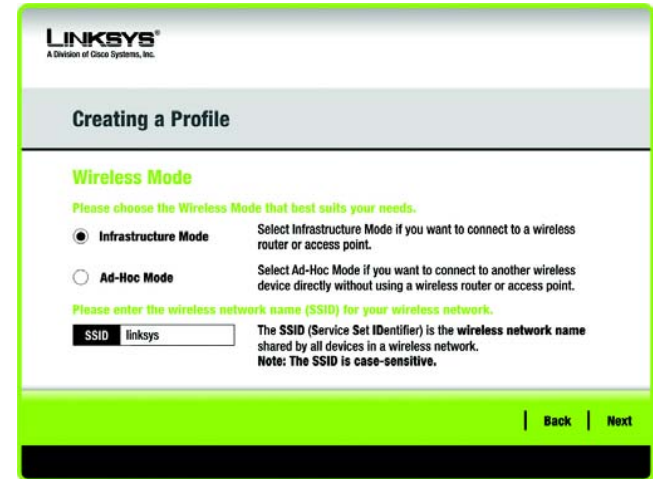
Click **Next** to continue or **Back** to return to the previous screen.

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

Select the correct **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.

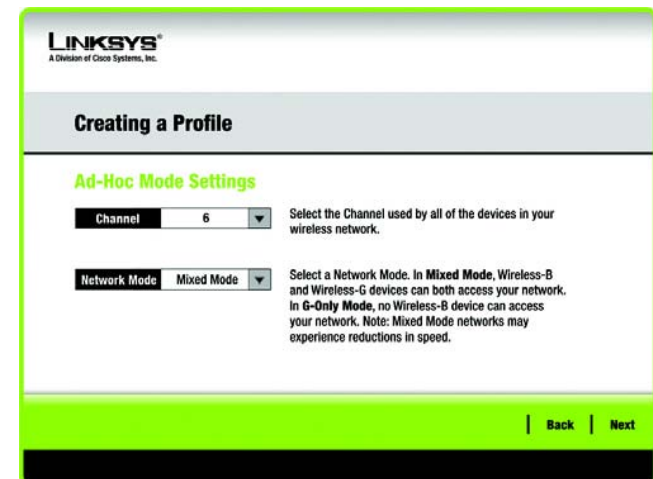
Then, select the **Network Mode** in which your wireless network will operate. In **Mixed Mode**, Wireless-B and Wireless-G devices can both operate on the network, though at a slower speed. In **G-Only Mode**, no Wireless-B devices can operate in the network.

Click **Next** to continue or click **Back** to change any settings.



The screenshot shows the 'LINKSYS' logo at the top left. Below it is the title 'Creating a Profile'. The main heading is 'Wireless Mode'. A sub-heading reads 'Please choose the Wireless Mode that best suits your needs.' There are two radio buttons: 'Infrastructure Mode' (selected) and 'Ad-Hoc Mode'. To the right of each radio button is a brief description. Below the radio buttons is a text input field for 'SSID' with the value 'linksys'. A note at the bottom right states 'Note: The SSID is case-sensitive.' At the bottom right of the screen are 'Back' and 'Next' buttons.

Figure 4-16: Wireless Mode



The screenshot shows the 'LINKSYS' logo at the top left. Below it is the title 'Creating a Profile'. The main heading is 'Ad-Hoc Mode Settings'. There are two dropdown menus: 'Channel' (set to 6) and 'Network Mode' (set to Mixed Mode). To the right of each dropdown menu is a brief description. At the bottom right of the screen are 'Back' and 'Next' buttons.

Figure 4-17: Ad-Hoc Mode Settings

4. The *Wireless Security* screen will appear. This step will configure wireless security.

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

Select **WEP**, **WPA-Personal**, **PSK2**, **WPA Enterprise**, **Radius**, or **LEAP** for the Encryption Method. WEP stands for Wired Equivalent Privacy, WPA stands for Wi-Fi Protected Access, which is a security standard stronger than WEP encryption, PSK2 stands for Pre-Shared Key 2, which is a security standard stronger than WPA-Personal, RADIUS stands for Remote Authentication Dial-In User Service, and LEAP stands for Lightweight Extensible Authentication Protocol. If you don't want to use encryption, select **Disabled**.

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

WEP

WEP - To use WEP encryption, select 64-bits or 128-bit characters from the drop-down menu, and enter a passphrase or key.

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

Passphrase - Instead of manually entering a WEP key, you can enter a passphrase in the Passphrase field, so a WEP key is automatically generated. This case-sensitive 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.)

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**, where it auto-detects for **Shared Key** or **Open** system. Shared Key is when both the sender and the recipient share a WEP key for authentication. Open key is when the sender and the recipient do not share a WEP key for authentication. All points on your network must use the same authentication type.

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

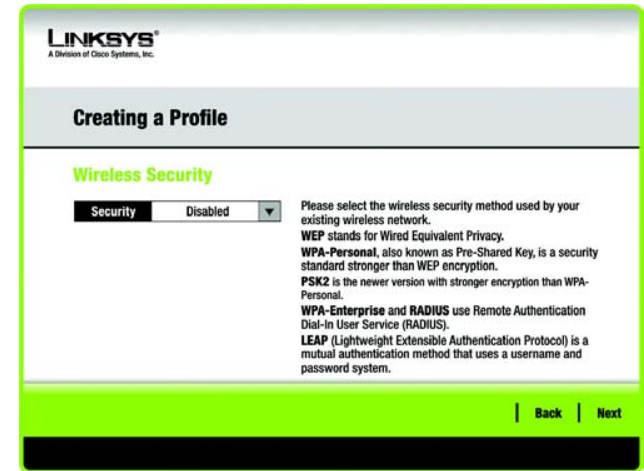


Figure 4-18: Wireless Security

encryption: encoding data transmitted in a network.

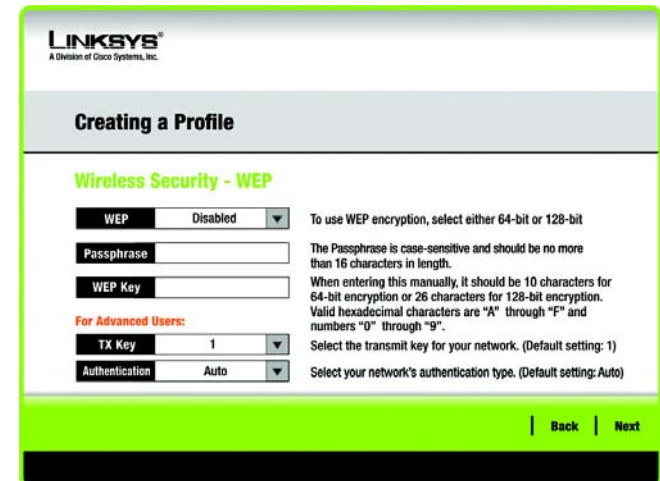


Figure 4-19: Wireless Security - WEP

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

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.

The screenshot shows the 'Creating a Profile' screen for 'Wireless Security - WPA Personal'. At the top, the Linksys logo is visible. Below the title, there are two main sections: 'Encryption' and 'Passphrase'. The 'Encryption' section has a dropdown menu currently set to 'TKIP' and a note: 'Please select the encryption type used to protect your wireless data transmissions.' The 'Passphrase' section has a text input field and a note: 'Please enter a Passphrase that is 8 to 63 characters in length.' At the bottom right, there are 'Back' and 'Next' buttons.

Figure 4-20: Wireless Security - WPA Personal

PSK2

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

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

The screenshot shows the 'Creating a Profile' screen for 'Wireless Security - PSK2'. At the top, the Linksys logo is visible. Below the title, there is one main section: 'Passphrase'. It has a text input field and a note: 'Please enter a Passphrase that is 8 to 63 characters in length.' At the bottom right, there are 'Back' and 'Next' buttons.

Figure 4-21: 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.

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 (Inner Authen.) used inside the PEAP tunnel. Then, 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.

The screenshot shows the 'Creating a Profile' page for 'Wireless Security - WPA Enterprise'. The 'Authentication' dropdown is set to 'EAP-TLS'. The 'Login Name' field is empty. The 'Server Name' field is empty. The 'Certificate' dropdown is set to a default value. The 'Encryption' dropdown is set to 'AES'. The page includes 'Back' and 'Next' buttons at the bottom right.

Figure 4-22: Wireless Security - WPA Enterprise - EAP-TLS

The screenshot shows the 'Creating a Profile' page for 'Wireless Security - WPA Enterprise'. The 'Authentication' dropdown is set to 'PEAP'. The 'Login Name' field is empty. The 'Password' field is empty. The 'Server Name' field is empty. The 'Certificate' dropdown is set to 'Trust Any'. The 'Inner Authen.' dropdown is set to 'EAP-MSCHAP v2'. The 'Encryption' dropdown is set to 'AES'. The page includes 'Back' and 'Next' buttons at the bottom right.

Figure 4-23: Wireless Security - WPA Enterprise - PEAP

RADIUS

RADIUS uses the security of a RADIUS server. (This should only be used when a RADIUS server is connected to the Router.) It offers two authentication methods: 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.

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 (Inner Authen.) used inside the PEAP tunnel.

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

The screenshot shows the 'Creating a Profile' screen for 'Wireless Security - RADIUS'. The 'Authentication' dropdown is set to 'EAP-TLS'. The 'Login Name' field is empty. The 'Server Name' field is empty. The 'Certificate' dropdown is set to a default value. The 'Back' and 'Next' buttons are visible at the bottom right.

Figure 4-24: Wireless Security - RADIUS - EAP-TLS

The screenshot shows the 'Creating a Profile' screen for 'Wireless Security - RADIUS'. The 'Authentication' dropdown is set to 'PEAP'. The 'Login Name' field is empty. The 'Password' field is empty. The 'Server Name' field is empty. The 'Certificate' dropdown is set to 'Trust Any'. The 'Inner Authen.' dropdown is set to 'EAP-MSCHAP v2'. The 'Back' and 'Next' buttons are visible at the bottom right.

Figure 4-25: Wireless Security - RADIUS - PEAP

LEAP

If you selected LEAP, then enter the Username and Password that will authenticate you on your wireless network. Select the *Login Method*, and if selecting Manual for your login, enter a Username and Password. Then, enter the password again to confirm it.

Login Method - Select from **Windows Login** (your usual Windows password) or **Manual** (password entered below).

Username - Enter a username used for authentication.

Password - Enter a password used for authentication.

Confirm - Enter the password again.

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

The screenshot shows a web interface for configuring wireless security. At the top left is the Linksys logo with the tagline 'A Division of Cisco Systems, Inc.'. Below the logo is a header 'Creating a Profile'. The main content area is titled 'Wireless Security - LEAP'. It contains a 'Login Method' dropdown menu currently set to 'Windows Login'. To the right of this dropdown is the instruction 'Select the login method you want to use.'. Below the dropdown are three input fields: 'User Name', 'Password', and 'Confirm'. Each field has a corresponding instruction to its right: 'Enter the User Name used for authentication.', 'Enter the Password used for authentication.', and 'Re-enter the Password again.'. At the bottom right of the form area, there are two buttons: 'Back' and 'Next', separated by a vertical line.

Figure 4-26: Wireless Security - LEAP

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- The next screen displays all of the Adapter's settings. If these are correct, you can save these settings to your hard drive by clicking **Save**. Click **Next** to continue and finish the setup. If these settings are not correct, click **Back** to change your settings. To exit the setup, click **Exit**.



Figure 4-27: Confirm New Settings

- After the software has been successfully installed, the *Congratulations* screen will appear. Click **Connect to Network** to connect to your network. Clicking **Return to Profiles screen** will open the Wireless Network Monitor's *Profiles* screen. For more information about the Wireless Network Monitor, refer to *Chapter 5: Using the Wireless Network Monitor*.

Congratulations! Setup is complete.

To check the link information, search for available wireless networks, or make additional configuration changes, refer to *Chapter 5: Using the Wireless Network Monitor*.



Figure 4-28: Congratulations

Chapter 5: 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 Setting Up and Connecting the Adapter, the Wireless Network Monitor icon will appear in your PC's 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.

Link Information Screens

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 and statistics 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.



NOTE: The Wireless Network Monitor should only be accessed AFTER connecting the Adapter. For more information on Setting Up and Connecting the Adapter, refer to *Chapter 4: Setting Up and Connecting the USB Adapter*.



Figure 5-1: Wireless Network Monitor Icon



Figure 5-2: 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 **Back** button to return to the initial *Link Information* screen. Click the **Statistics** button to go to the *Wireless Network Statistics* screen. Click the **Save to Profile** button to save the currently active connection settings to a profile.



Figure 5-3: 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.

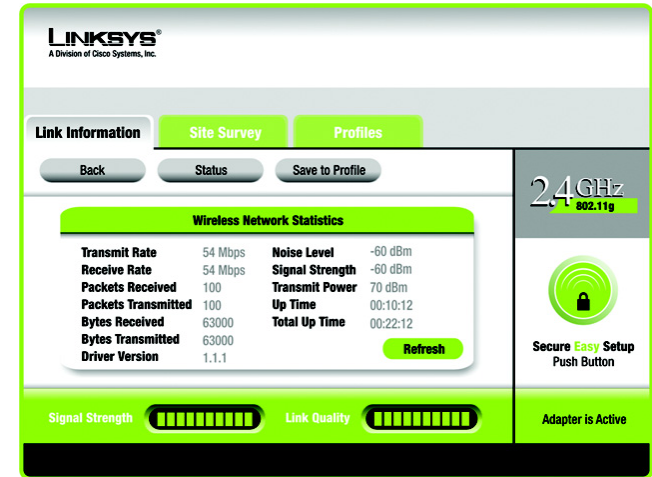


Figure 5-4: More Information - Wireless Network Statistics

SecureEasySetup

While using the Monitor, you might see the SecureEasySetup button on the right-hand side of the screen. This button can be used to set up the Adapter, if this has not already been done. With SecureEasySetup, setting up the Adapter is as simple as pushing a couple of buttons. Before you press any buttons, though, you should locate the SecureEasySetup button on the device you're connecting the Adapter to, such as a wireless router or access point.

1. After clicking the **SecureEasySetup** button, you will be asked to locate the **SecureEasySetup** button on the device with which the Adapter will be communicating. If you are not sure where to find this button, click **Where can I find the button?**

This will walk you through a couple of screens to help you find the button, which is usually located on the front of the wireless router or access point.

If you've clicked the button by accident or do not wish to use SecureEasySetup, you can click **Cancel** to return to the previous screen.



Figure 5-6: The SecureEasySetup Logo and Location



Secure Easy Setup
Push Button

Figure 5-5: The SecureEasySetup Button

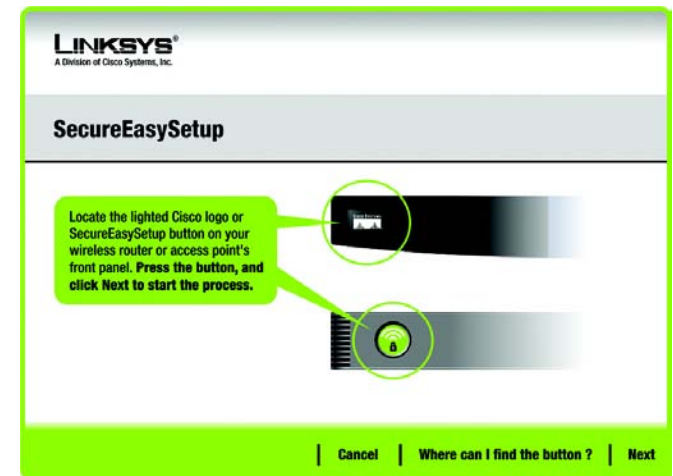


Figure 5-7: SecureEasySetup

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2. Press the Cisco logo or SecureEasySetup button on the wireless router or access point. When it turns white and begins to flash, click the **Next** button on the Setup Wizard screen. The logo or button will stop flashing on the wireless router or access point when the Adapter has been successfully added to the network. Repeat this procedure for any additional SecureEasySetup device.



NOTE: You can only add one SecureEasySetup device at a time.

3. SecureEasySetup is now complete and a configuration profile will have been created automatically. You may save your configuration profile to a text file by clicking the **Save** button, or print the configuration by clicking the **Print** button. Click **Connect to Network** to connect to your network.

Congratulations! SecureEasySetup is complete.

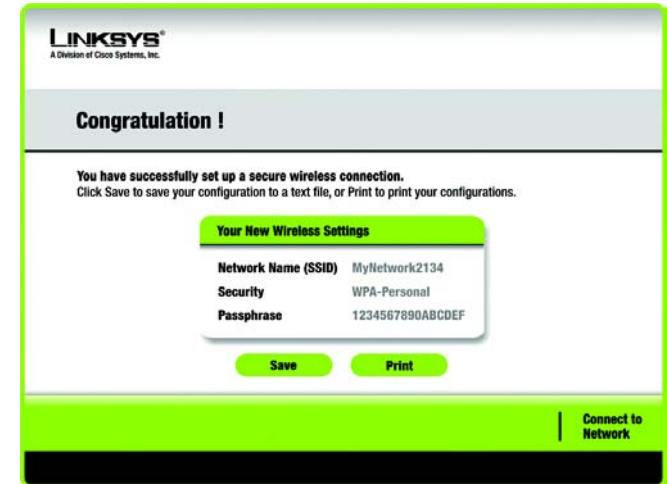


Figure 5-8: SecureEasySetup is Complete

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 encryption enabled, a screen appear requiring security information.

If the network has the wireless security WEP encryption enabled, then you will see the *WEP Key Needed for Connection* screen. Select the appropriate level of WEP encryption, **64-bit** or **128-bit** Then enter the network's Passphrase or WEP Key. To connect to the network, click **Connect**. To cancel the connection, click **Cancel**.

If the network has WPA Personal wireless security enabled, then you will see the *WPA-Personal Needed for Connection* screen. Select the appropriate encryption type, **TKIP** or **AES**. Enter the network's Passphrase or pre-shared key in the *Passphrase* field. To connect to the network, click **Connect**. To cancel the connection, click **Cancel**.

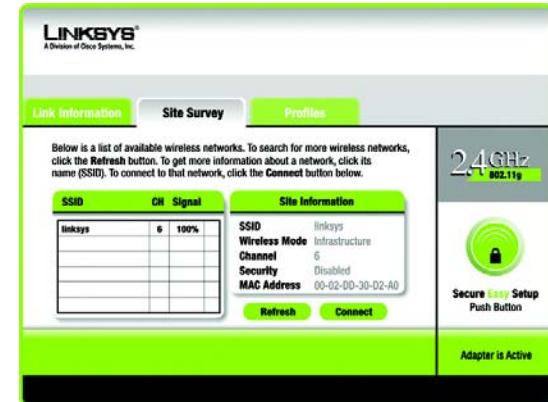


Figure 5-9: Site Survey

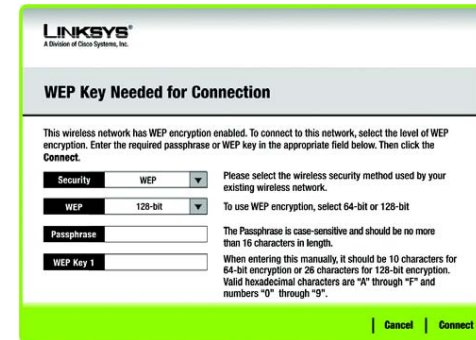


Figure 5-10: WEP Key Needed for Connection

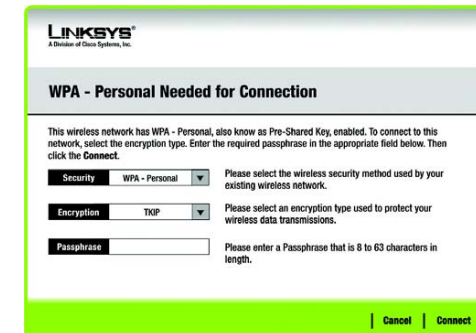


Figure 5-11: WPA-Personal Needed for Connection

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If the network has PSK2 wireless security enabled, then you will see the *PSK2 Needed for Connection* screen. Enter the network's Passphrase or pre-shared key in the *Passphrase* field. To connect to the network, click **Connect**. To cancel the connection, click **Cancel**.

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.

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 the **Connect** button.

New - Click **New** 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 **Edit**.

Import - Click **Import** 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 **Export**. Direct Windows to the appropriate folder, and click the **Save** button.

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



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

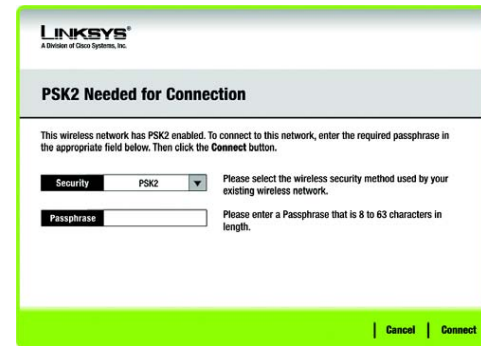


Figure 5-12: PSK2 Needed for Connection

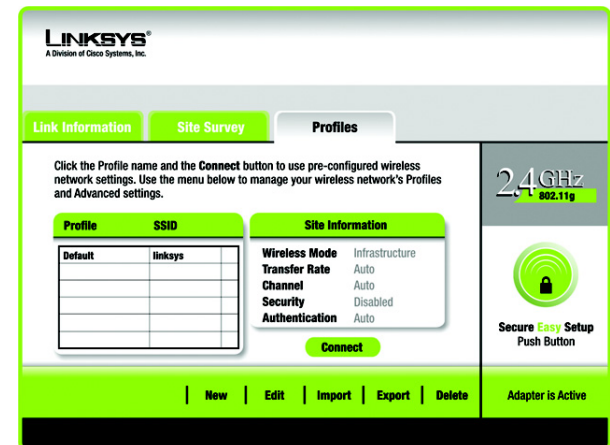


Figure 5-13: Profiles

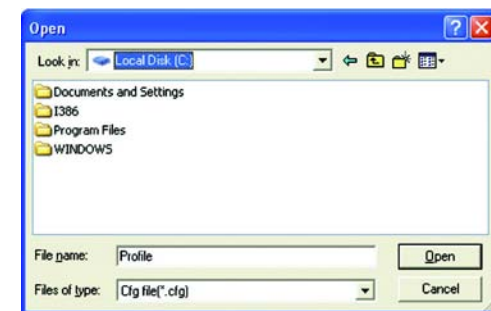


Figure 5-14: Import a Profile

Creating a New Profile

On the *Profiles* screen, click the **New** button to create a new profile. Enter a name for the new profile, and click the **OK** button. Click the **Cancel** button to return to the *Profiles* screen without entering a name.

The *Available Wireless Network* screen will appear. This screen provides three options for setting up the Adapter

- **SecureEasySetup.** This Adapter features SecureEasySetup. This means that you can set it up with just the press of a button when connecting to wireless routers or access points that also feature SecureEasySetup. Both point on the network must feature SecureEasySetup for this to work.
- **Available Networks.** Use this option if you already have a network set up with devices that do not have SecureEasySetup. 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 you are not taking advantage of SecureEasySetup and 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.

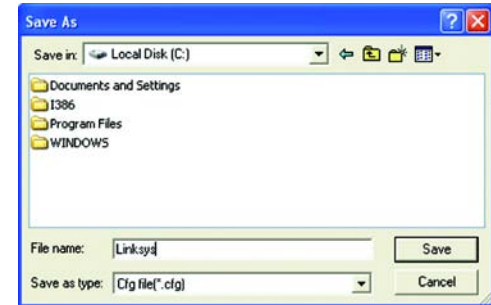


Figure 5-15: Export a Profile



Figure 5-16: Create a New Profile

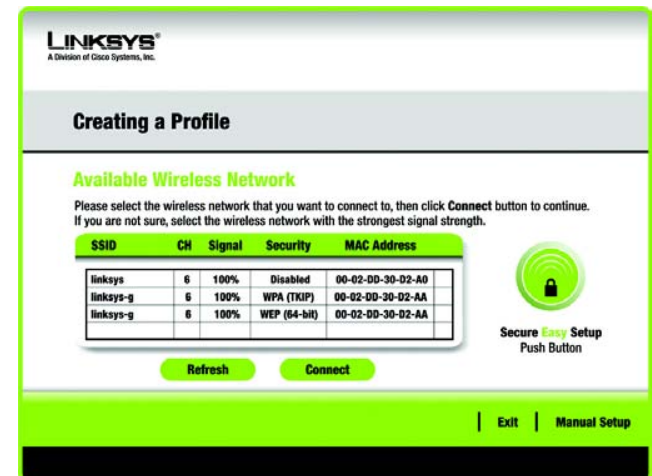


Figure 5-17: Available Wireless Network