LINKSYS®

A Division of Cisco Systems, Inc.

Dual-Band

5GHz/2.4GHz

802.11a 802.11g

Wireless A/G

Game Adapter

User Guide

WIRELESS

Model No. **WGA54AG**

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.***

This User Guide

The User Guide to the Wireless A/G Game Adapter has been designed to make understanding networking easier than ever. Look for the following items when reading this guide:

This checkmark means there is a note of interest and is something you should pay special attention to while using the Game Adapter.

This exclamation point means there is a caution or warning and is something that could damage your property or the Game Adapter.

This question mark provides you with a reminder about something you might need to do while using the Game Adapter.

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

word: *definition.*

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

Figure 0-1: Sample Figure Description

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

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Chapter 1: Introduction

Welcome

Thank you for choosing the Wireless A/G Game Adapter. With this Adapter, your wireless gaming experience will be faster and easier than ever.

How does the Game Adapter do this? Like all wireless products, the Game Adapter allows for greater range and mobility within your wireless network, whether it's using the Wireless-A (802.11a), Wireless-G (802.11g), or Wireless-B (802.11b) standard. Using this Adapter, your game console has the flexibility to communicate using any of the three wireless networking standards.

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. This is exactly what the Game Adapter is designed for—gaming over a wireless network. So, networks are not only useful in homes and offices, they can also be fun.

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

In most cases, you can use the "Fast Setup" chapter to quickly install the Game Adapter. If you need to configure the Game Adapter's settings, run the included Setup Wizard, which will walk you through its configuration, step by step. Use the instructions in this Guide to help you connect and set up the Game Adapter for your PlayStation®2, GameCube™, or Xbox®.* These instructions should be all you need to get the most out of the Game Adapter.

*Your game console may require a network adapter that is sold separately.

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.*

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

802.11g: *an IEEE wireless networking standard that specifies a maximum data transfer rate of 54Mbps and an operating frequency of 2.4GHz.*

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 A/G Game Adapter.

- Chapter 1: Introduction
  This chapter describes the Game Adapter's applications and this User Guide.
- Chapter 2: Planning Your Wireless Network
  This chapter discusses a few of the basics about wireless networking.
- Chapter 3: Getting to Know the Wireless A/G Game Adapter
  This chapter describes the physical features of the Game Adapter.
- Chapter 4: Fast Setup
  If your wireless network uses no wireless security and has SSID broadcast enabled, then use this chapter to quickly install the Game Adapter.
- Chapter 5: Setting up the Wireless A/G Game Adapter for PlayStation®2 or GameCube™
  This chapter instructs you on how to connect and set up the Game Adapter for your PlayStation2 or GameCube.
- Chapter 6: Setting up the Wireless A/G Game Adapter for Xbox®
  This chapter instructs you on how to connect and set up the Game Adapter for your Xbox.
- Chapter 7: Using the Wireless A/G Game Adapter Web Configuration Utility
  This chapter explains how to use the Game Adapter's Utility to make configuration changes.
- Appendix A: Troubleshooting
  This appendix describes some potential problems and solutions, as well as frequently asked questions, regarding installation and use of the Game Adapter.
- Appendix B: Wireless Security
  This appendix discusses security issues regarding wireless networking and measures you can take to help protect your wireless network.
- Appendix C: Windows Help
  This appendix describes how you can use Windows Help for instructions about networking, such as installing the TCP/IP protocol.
- Appendix D: Glossary
  This appendix gives a brief glossary of terms frequently used in networking.

ssid *(service set identifier): your wireless network's name.*

- Appendix E: Specifications
  This appendix provides the Game Adapter's technical specifications.
- Appendix F: Warranty Information
  This appendix supplies the Game Adapter's warranty information.
- Appendix G: Regulatory Information
  This appendix supplies the Game Adapter's regulatory information.
- Appendix H: 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, provided that they both share the same channel and SSID.

Choose a feasible radio channel and optimum access point position. Proper access point positioning combined with a clear radio signal will greatly enhance performance.

Network Layout

Wireless A/G products offer the most flexibility, because they can connect to 802.11a networks, or they can connect to networks with 802.11g and/or 802.11b devices—depending on the settings you configure on the dual-band products.

The Wireless A/G Game Adapter is compatible with all 802.11a, 802.11b, and 802.11g routers, as well as access points. It will also communicate with other wireless notebook adapters for your laptop computers, wireless PCI adapters for your desktop PCs, and wireless USB adapters when you want to enjoy USB connectivity. Wireless products will also communicate with wireless print servers.

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

***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*

***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.*

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 products that work with the Wireless A/G Game Adapter.

Chapter 3: Getting to Know the Wireless A/G Game Adapter

The Game Adapter's LED Indicators

The Game Adapter's LEDs indicate the status of its power and connections.

Power *Green*. The **Power** LED lights up when the Game Adapter is powered on.

Ethernet *Green*. The **Ethernet** LED lights up when the Game Adapter has an active wired connection. It will flash when data is transmitted or received.

Wireless *Green*. The **Wireless** LED lights up when the Game Adapter has an active wireless connection. It will flash when data is transmitted or received.

Figure 3-1: LED Indicators

The Game Adapter's Side Panel

The Game Adapter's mode switch, Reset button, and ports are located on the side panel of the Game Adapter.

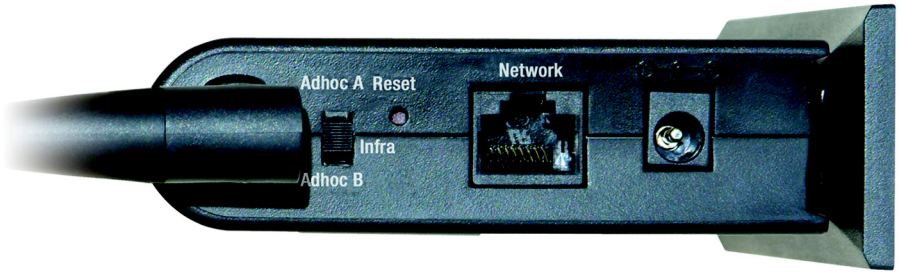

Figure 3-2: Side Panel

Switch The switch is used to set the Game Adapter's mode. If you will run the Setup Wizard or connect the Game Adapter directly to your Xbox, then set the switch to the **Infra** position. If you will follow the "Fast Setup" instructions, then set the switch to the **Adhoc A** position for Wireless-A (5GHz, 802.11a) networking, or set the switch to the **Adhoc B** position for Wireless-G (2.4GHz, 802.11g) or Wireless-B (2.4GHz, 802.11b) networking.

Reset The **Reset** button is used to reset the Game Adapter to its factory default settings. To restore the factory defaults, press this button for approximately five seconds.

Network The **Network** port is where you will connect the Ethernet network cable to your computer for setup or your game console for gaming.

Power The **Power** port is where you will connect the included power adapter.

Chapter 4: Fast Setup for the Wireless A/G Game Adapter

Overview

The Fast Setup directions are provided for any gamer playing over a wireless network with WEP encryption disabled and SSID broadcast enabled. If you need to change the Game Adapter's settings to match those of your wireless network, proceed to "Chapter 5: Setting up the Wireless A/G Game Adapter for PlayStation®2 or GameCube™." If you are connecting the Game Adapter directly to your Xbox, proceed to "Chapter 6: Setting up the Wireless A/G Game Adapter for Xbox®."

Instructions

1. If the Game Adapter will be used for head-to-head play over a 5GHz, 802.11a network, move the back panel switch to the Adhoc A position.

   If the Game Adapter will be used for head-to-head play over a 2.4GHz, 802.11g and/or 802.11b network, move the back panel switch to the Adhoc B position.

   If the Game Adapter will be used for Internet play, move the back panel switch to the Infra position.

2. Plug the included Ethernet network cable into the Game Adapter's Network port.

3. Make sure your game console is powered off. Then plug the other end of the Ethernet network cable into the Ethernet network port of your game console.

4. Plug the included power adapter into the Game Adapter's Power port.

   Then plug the other end into an electrical outlet, preferably a surge protector.

5. Power on your game console, and set it for multiplayer gaming.

Congratulations! The installation of the Wireless A/G Game Adapter is complete.

encryption: *encoding data transmitted in a network.*

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

ssid *(service set identifier): your wireless network's name.*

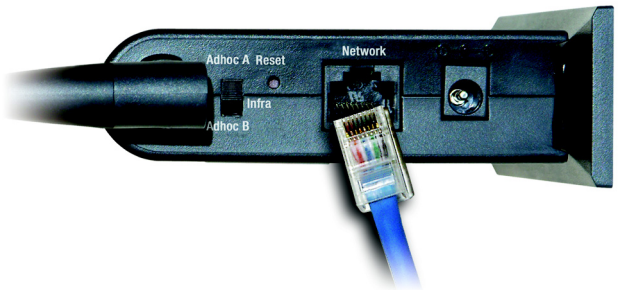

Figure 4-1: Connect the Ethernet Network Cable

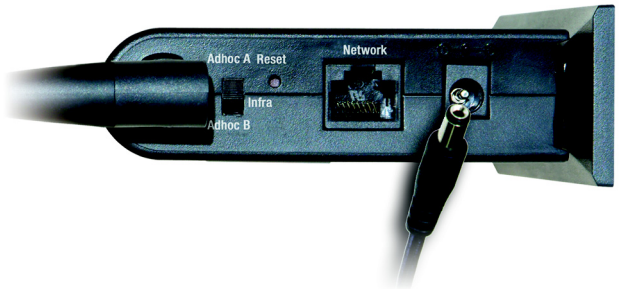

Figure 4-2: Connect the Power

Chapter 5: Setting up the Wireless A/G Game Adapter for PlayStation®2 or GameCube™

Overview

This chapter provides instructions on how to connect the Game Adapter to your computer and then set up the Game Adapter for the kind of gaming you do. If you are connecting the Game Adapter directly to your Xbox, proceed to "Chapter 6: Setting up the Wireless A/G Game Adapter for Xbox®."

Connecting the Game Adapter to Your Computer

1. Plug the included Ethernet network cable into the Game Adapter's Network port.

   Then plug the other end into the Ethernet network port of your router or computer.

   NOTE: For best results, plug the Game Adapter into a router for setup.

2. Plug the included power adapter into the Game Adapter's Power port.

   Then plug the other end into an electrical outlet, preferably a surge protector.

Proceed to the next section, "Starting the Setup Wizard."

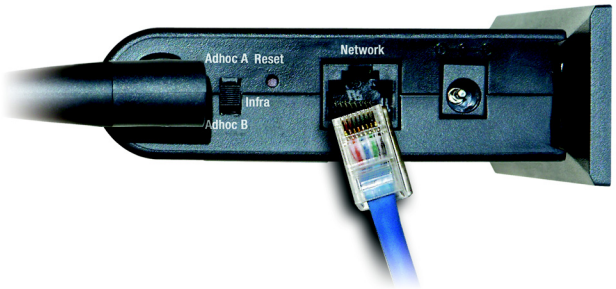

Figure 5-1: Connect the Ethernet Network Cable

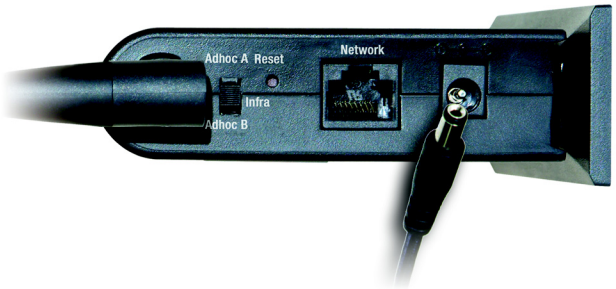

Figure 5-2: Connect the Power

Starting the Setup Wizard

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.

Setup - You can also click the **Setup** 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 Game Adapter, click the **Click Here to Start** button on the *Welcome* screen.

   The Setup Wizard will search for the Game Adapter. If it cannot find it, you will be asked to check the Game Adapter's physical connections. Check the cable connections and click **Continue**. The Setup Wizard will resume its search.

Figure 5-3: Setup Wizard's Welcome Screen

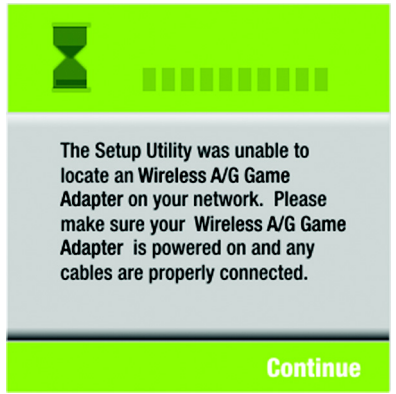

Figure 5-4: Searching for the Game Adapter Screen

2. When the Game Adapter has been located, enter its default password, **admin**. Then click **Enter**.

Follow the instructions in the appropriate section for your setup:

"Easy Setup Wizard Configuration for Head-to-Head Play" - a simple procedure to follow when you want to verify that the settings are correct

""Advanced Setup Wizard Configuration for Head-to-Head Play" - a procedure that lets you modify the Game Adapter's settings for head-to-head play

"Setup Wizard Configuration for Internet Play" - a procedure for configuring the Game Adapter to play games over a broadband Internet connection

After you have completed the appropriate instructions, refer to the instructions in the section, "Connecting the Game Adapter to Your Game Console."

Figure 5-5: Setup Wizard's Password Screen

Easy Setup Wizard Configuration for Head-to-Head Play

Use these Easy Setup instructions when you want to verify that the Game Adapter's settings are correct.

1. Select the **Head to Head (Console to Console)** radio button. Then click the **Next** button.

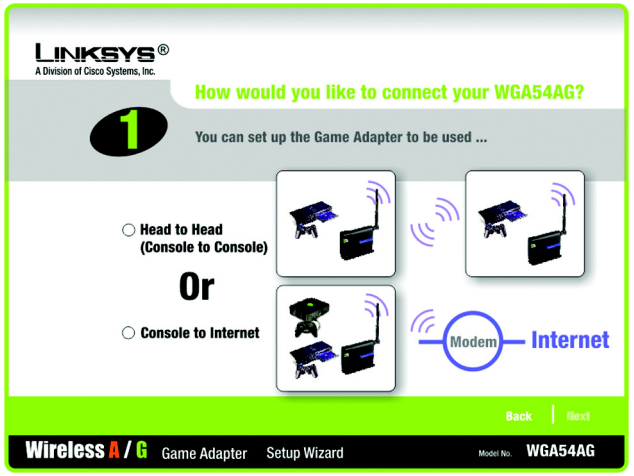

Figure 5-6: Setup Wizard's Gaming Mode Screen

2. Select one of the *Easy* settings. When setting up the first Game Adapter, click the **Adapter 1** radio button. When setting up the second Game Adapter, click the **Adapter 2** radio button. When Adapter 2 is selected, the Game Adapter's IP address will automatically change, so it won't conflict with the IP address of Adapter 1.

   Then click the **Next** button.

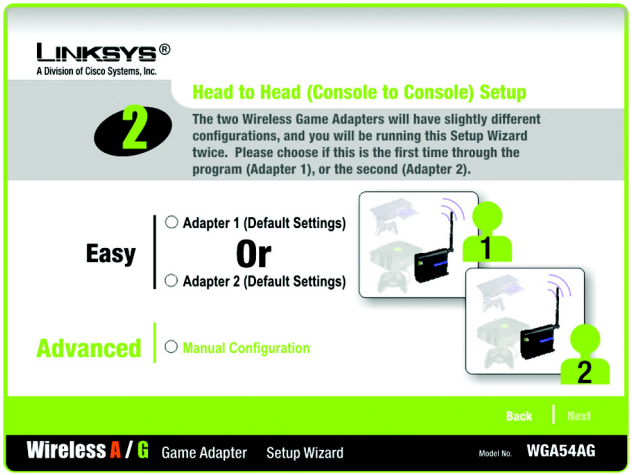

Figure 5-7: Setup Wizard's Head to Head Setup Screen

3. On the *Confirmation* screen, verify that the Game Adapter's settings are correct. Then click the **Yes** button to save these settings.

Figure 5-8: Setup Wizard's Confirmation Screen

4. Now that the settings have been confirmed, click the **Online Registration** button to register the Game Adapter, or click the **Exit** button to close the Setup Wizard.

Proceed to the section, "Connecting the Game Adapter to Your Game Console."

Figure 5-9: Setup Wizard's Congratulations Screen

Advanced Setup Wizard Configuration for Head-to-Head Play

Use these Advanced Setup instructions to modify the Game Adapter's settings for head-to-head play.

1. Select the **Head to Head (Console to Console)** radio button. Then click the **Next** button.

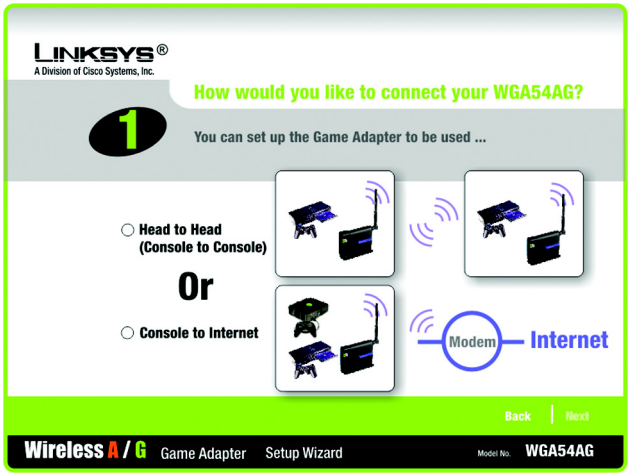

Figure 5-10: Setup Wizard's Gaming Mode Screen

2. Click the **Advanced | Manual Configuration** radio button. Then click the **Next** button.

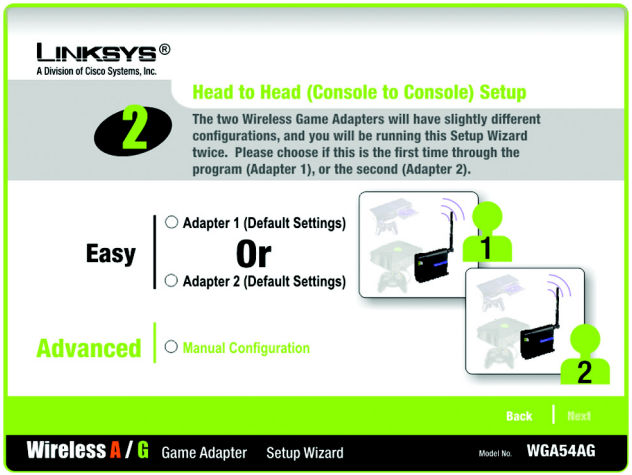

Figure 5-11: Setup Wizard's Head to Head Setup Screen

3. In the *SSID* field, enter the SSID or network name for your Wireless-A (5GHz, 802.11a) network.

NOTE: An SSID is the network name shared by all devices in a wireless network. Your network's SSID should be unique to your network and identical for all devices within the network.

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.

Click the **Next** button.

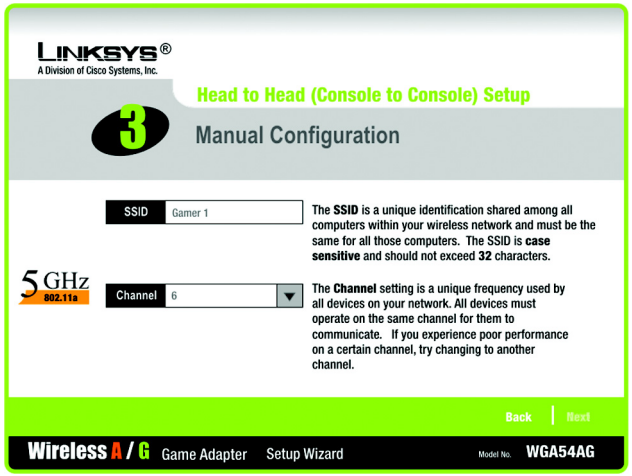

Figure 5-12: Setup Wizard's 5GHz Manual Configuration Screen

4. On the *Security Settings* screen for your Wireless-A network, select **64-bit** or **128-bit** encryption from the drop-down menu. Then enter a passphrase or WEP key. Click the **Next** button.

   If you don't want to use encryption, select **Disabled** and then click the **Next** button.

   Passphrase - Enter a passphrase in the *Passphrase* field, so a WEP key is automatically generated. The passphrase is case-sensitive and should not have more 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".

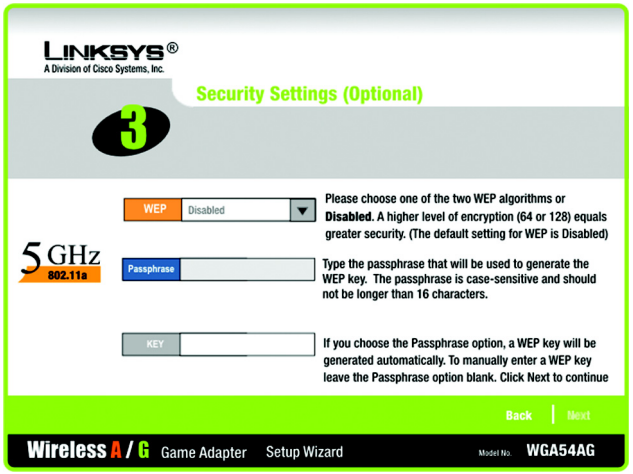

Figure 5-13: Setup Wizard's 5GHz Security Settings Screen

encryption: *encoding data transmitted in a network.*

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

5. In the *SSID* field, enter the SSID or network name for your Wireless-G (2.4GHz, 802.11g) and/or Wireless-B (2.4GHz, 802.11b) network.

   NOTE: An SSID is the network name shared by all devices in a wireless network. Your network's SSID should be unique to your network and identical for all devices within the network.

   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.

   Click the **Next** button.

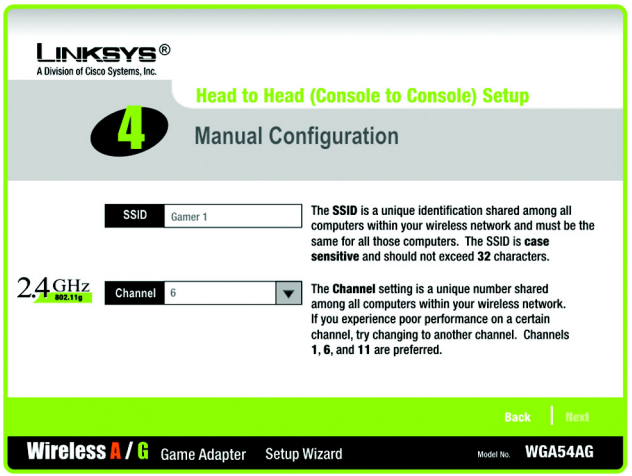

Figure 5-14: Setup Wizard's 2.4GHz Manual Configuration Screen

6. On the *Security Settings* screen for your Wireless-G and/or Wireless-B network, select **64-bit** or **128-bit** encryption from the drop-down menu. Then enter a passphrase or WEP key. Click the **Next** button.

   If you don't want to use encryption, select **Disabled** and then click the **Next** button.

   Passphrase - Enter a passphrase in the *Passphrase* field, so a WEP key is automatically generated. The passphrase is case-sensitive and should not have more 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".

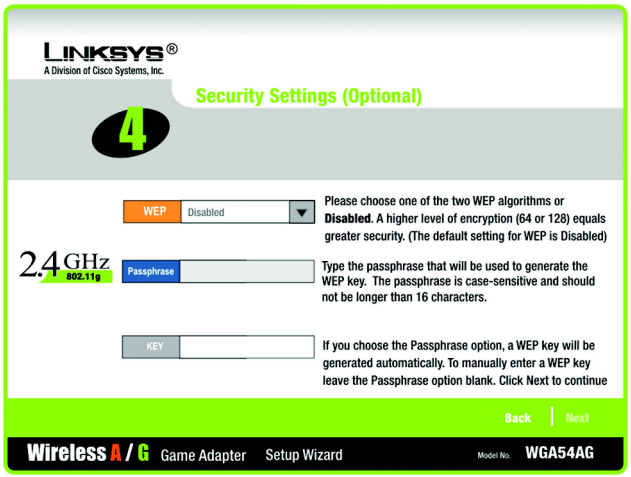

Figure 5-15: Setup Wizard's 2.4 GHz Security Settings Screen

7. The *Network Settings* screen will appear. Enter an IP Address, IP Mask (also known as Subnet Mask), and Gateway appropriate for your network setup. You must specify the IP Address on this screen. If you are unsure about the IP Mask and Gateway, do not change these fields. Click the **Next** button

   IP Address - This IP Address must be unique to your network.

   IP Mask - The Game Adapter's IP Mask must be the same as your wired network's IP or Subnet Mask.

   Gateway - Enter the IP address of your network's Gateway here.

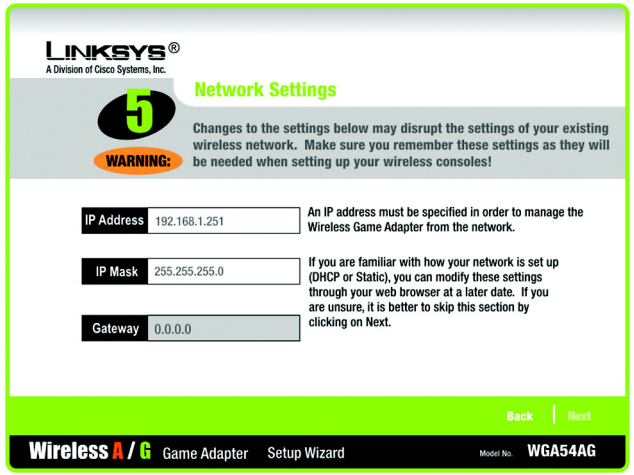

Figure 5-16: Setup Wizard's Network Settings Screen

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

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

***gateway**: a device that interconnects networks with different, incompatible communications protocols.*

8. On the *Confirmation* screen, verify that the Game Adapter's settings are correct. Then click the **Yes** button to save these settings.

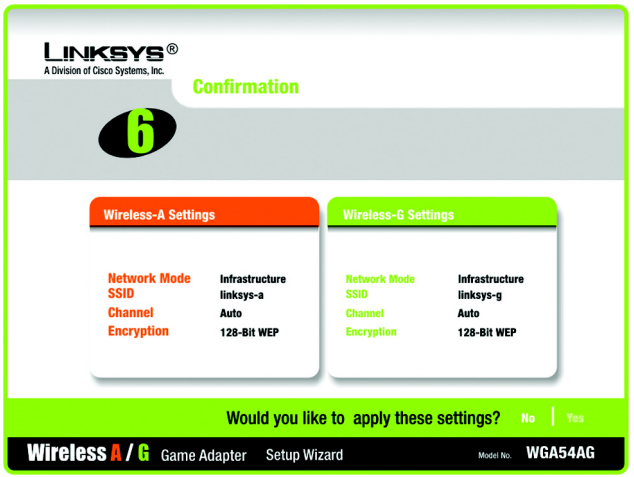

Figure 5-17: Setup Wizard's Confirmation Screen

9. Now that the settings have been confirmed, click the **Online Registration** button to register the Game Adapter, or click the **Exit** button to close the Setup Wizard.

Proceed to the section, "Connecting the Game Adapter to Your Game Console."

Figure 5-18: Setup Wizard's Congratulations Screen

Setup Wizard Configuration for Internet Play

The Console to Internet Setup lets you configure the Game Adapter's settings for playing games over a broadband Internet connection.

1. Select the **Console to Internet** radio button. Then click the **Next** button.

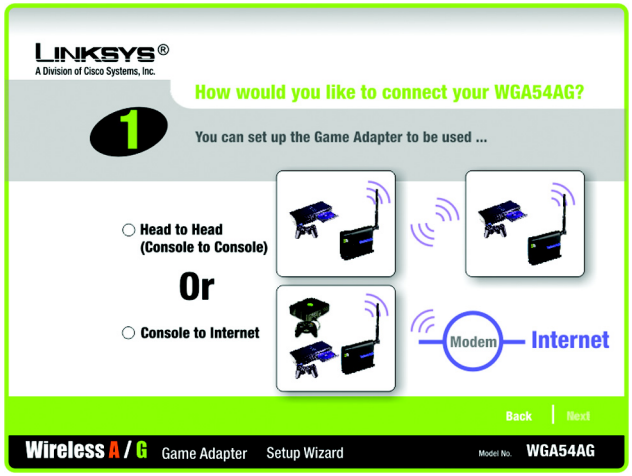

Figure 5-19: Setup Wizard's Gaming Mode Screen

2. In the first *SSID* field, enter the SSID or network name for your Wireless-A (5GHz, 802.11a) network. The SSID must be identical for all devices in the network.

   In the second *SSID* field, enter the SSID or network name for your Wireless-G (2.4GHz, 802.11g) and/or Wireless-G (2.4GHz, 802.11b) network.

   Click the **Next** button.

NOTE: An SSID is the network name shared by all devices in a wireless network. Your network's SSID should be unique to your network and identical for all devices within the network.

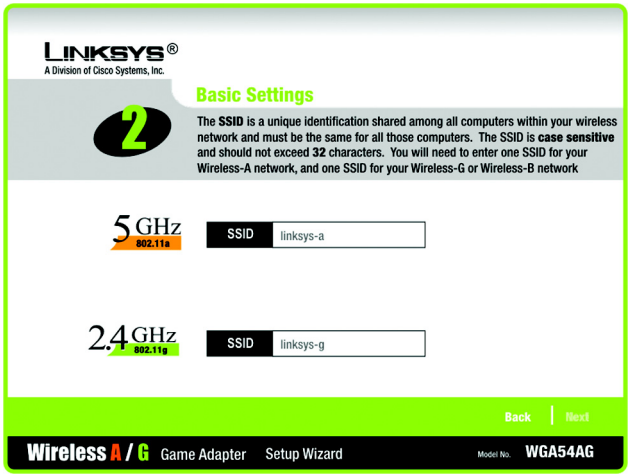

Figure 5-20: Setup Wizard's Basic Settings Screen

3. On the *Security Settings* screen for your Wireless-A (5GHz, 801.11a) network, select **64-bit** or **128-bit** encryption from the drop-down menu. Then enter a passphrase or WEP key. Click the **Next** button.

   If you don't want to use encryption, select **Disabled** and then click the **Next** button.

   Passphrase - Enter a passphrase in the *Passphrase* field, so a WEP key is automatically generated. The passphrase is case-sensitive and should not have more 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".

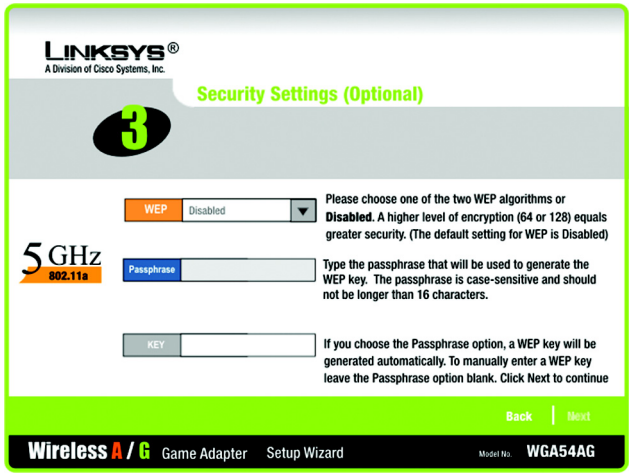

Figure 5-21: Setup Wizard's 5GHz Security Settings Screen

encryption: *encoding data transmitted in a network.*

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

4. On the *Security Settings* screen for your Wireless-G (2.4GHz, 801.11g) and/or Wireless-B (2.4GHz, 802.11b) network, select **64-bit** or **128-bit** encryption from the drop-down menu. Then enter a passphrase or WEP key. Click the **Next** button.

   If you don't want to use encryption, select **Disabled** and then click the **Next** button.

   Passphrase - Enter a passphrase in the *Passphrase* field, so a WEP key is automatically generated. The passphrase is case-sensitive and should not have more 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".

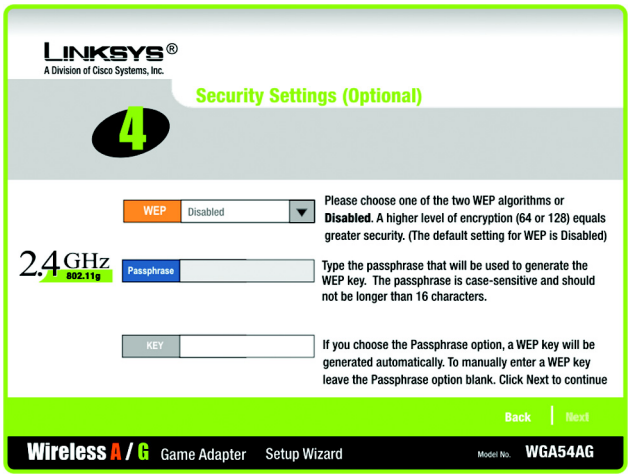

Figure 5-22: Setup Wizard's 2.4GHz Security Settings Screen

5. The *Network Settings* screen will appear. Enter an IP Address, IP Mask (also known as Subnet Mask), and Gateway appropriate for your network setup. You must specify the IP Address on this screen. If you are unsure about the IP Mask and Gateway, do not change these fields. Click the **Next** button

   IP Address - This IP Address must be unique to your network.

   IP Mask - The Game Adapter's IP Mask must be the same as your wired network's IP or Subnet Mask.

   Gateway - Enter the IP address of your network's Gateway here.

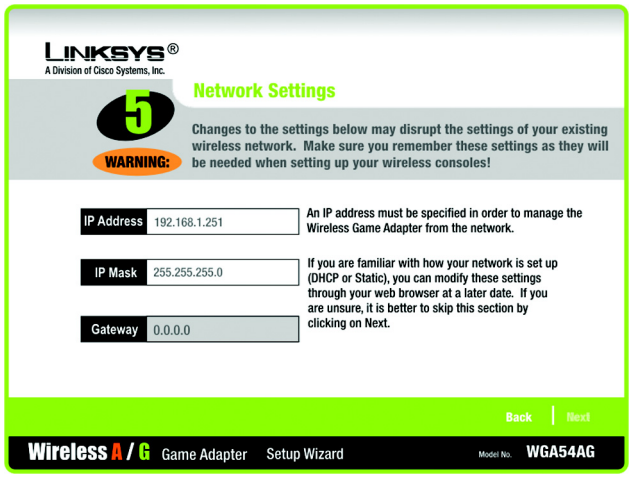

Figure 5-23: Setup Wizard's Network Settings Screen

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

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

gateway*: a device that interconnects networks with different, incompatible communications protocols.*

6. On the *Confirmation* screen, verify that the Game Adapter's settings are correct. Then click the **Yes** button to save these settings.

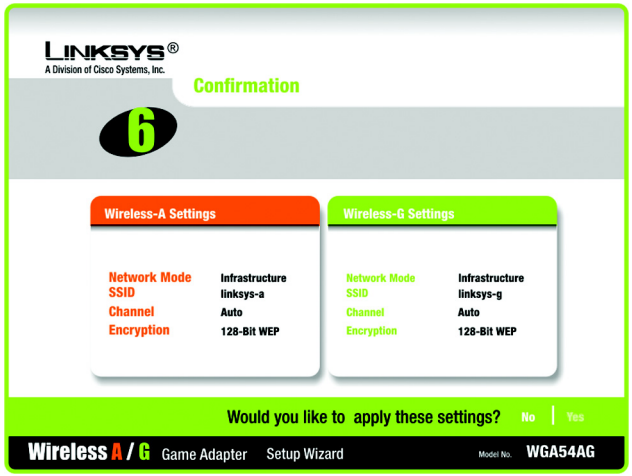

Figure 5-24: Setup Wizard's Confirmation Screen