Wireless-G Ethernet Bridge

Use this guide to install:

WET54G

User Guide

LINKSYS®

LIMITED WARRANTY
Linksys guarantees that every Wireless-G Ethernet Bridge will be free from physical defects in material and workmanship for three years from the date of purchase, when used within the limits set forth in the Specifications section of this User Guide.

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

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

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SAFETY AND REGULATORY NOTICES

FCC STATEMENT
This Wireless-G Ethernet Bridge has been tested and complies with the specifications for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used according to the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which is found by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

• Reorient or relocate the receiving antenna
• Increase the separation between the equipment or devices
• Connect the equipment to an outlet other than the receiver's
• Consult a dealer or an experienced radio/TV technician for assistance

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

FCC Radiation Exposure Statement
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator and your body.
•   Access points with 2.4 GHz or 5 GHz integrated antenna must operate with a separation distance of at least 20 cm from all persons using the cable provided and must not be co-located or operating in conjunction with any other antenna or transmitter.
End-users must be provided with specific operations for satisfying RF exposure compliance.   And Linksys, LLC declare that WPC54GV1.2 (Wireless-G Ethernet Bridge) is limited in CH1~CH11 by specified firmware controlled in U.S.A.

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

EC DECLARATION OF CONFORMITY (EUROPE)
Linksys Group declares that the Instant Wireless Series products included in the Instant Wireless Series conform to the specifications listed below, following the provisions of the EMC Directive 89/336/EEC and Low Voltage Directive 73/23/EEC:

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

Note: This equipment is intended to be used in all EU and EFTA countries. Outdoor use may be restricted to certain frequencies and/or may require a license for operation. For more details, contact Linksys Corporate Compliance.

Note: Combinations of power levels and antennas resulting in a radiated power level of above 100 mW are considered as not compliant with the above mentioned directive and are not allowed for use within the European community and countries that have adopted the European R&TTE directive 1999/5/EC and/or the CEPT recommendation Rec 70.03. For more details on legal combinations of power levels and antennas, contact Linksys Corporate Compliance.

•   Linksys Group vakuuttaa täten että Instant Wireless Wireless-G Ethernet Bridge tyyppinen laite on direktiivin 1999/5/EY, direktiivin 89/336/EEC ja direktiivin 73/23/EEC oleellisten vaatimusten ja sitä koskevien näiden direktiivien muiden ehtojen mukainen.
•   Linksys Group déclare que le pont Ethernet sans fil G est conforme aux conditions essentielles et aux dispositions relatives à la directive 1999/5/EC, la directive 89/336/EEC, et à la directive 73/23/EEC.
•   Belgique B L'utilisation en extérieur est autorisé sur le canal 11 (2462 MHz), 12 (2467 MHz), et 13 (2472 MHz).
     Dans le cas d'une utilisation privée, à l'extérieur d'un bâtiment, au-dessus d'un espace public, aucun enregistrement n'est nécessaire pour une distance de moins de 300m. Pour une distance supérieure à 300m un enregistrement auprès de l'IBPT est requise. Pour une utilisation publique à l'extérieur de bâtiments, une licence de l'IBPT est requise. Pour les enregistrements et licences, veuillez contacter l'IBPT.

- France F: Bande de fréquence restreinte: seuls les canaux 10, 11, 12, 13 (2457, 2462, 2467, et 2472 MHz respectivement) doivent être utilisés en France. Toute utilisation, qu'elle soit intérieure ou extérieure, est soumise à autorisation. Vous pouvez contacter l'Autorité de Régulation des Télécommuniations (http://www.art-telecom.fr) pour la procédure à suivre.
- France F: Restricted frequency band: only channels 10, 11, 12, 13 (2457, 2462, 2467, and 2472 MHz respectively) may be used in France. License required for every indoor and outdoor installations. Please contact ART for procedure to follow.
- Deutschland D: Anmeldung im Outdoor-Bereich notwending, aber nicht genehmigungspflichtig. Bitte mit Händler die Vorgehensweise abstimmen.
- Germany D: License required for outdoor installations. Check with reseller for procedure to follow.
- Italia I: E' necessaria la concessione ministeriale anche per l'uso interno. Verificare con i rivenditori la procedura da seguire. L'uso per installazione in esterni non e' permessa.
- Italy I: License required for indoor use. Use with outdoor installations not allowed.
- the Netherlands NL License required for outdoor installations. Check with reseller for procedure to follow.
- Nederlands NL Licentie verplicht voor gebruik met buitenantennes. Neem contact op met verkoper voor juiste procedure.

Table of Contents

Chapter 1: Introduction

The Wireless-G Ethernet Bridge

The versatile Wireless-G Ethernet Bridge can make any wired Ethernet-equipped device a part of your wireless network. At home, use the Bridge to connect game consoles, set-top boxes, or computers to your Wireless-G network and its shared high-speed Internet connection. In the office, convert your Ethernet-wired printer, scanner, camera, notebook or desktop into a wireless networked device.

It's completely driver-free, so it works on any platform and under any operating system! Since there are no drivers to load, setup is a snap—configure the network settings through your PC's web browser, then plug it into your device and go. And physical installation is simplified by support for Power over Ethernet. With an optional PoE Adapter, you can mount the Bridge wherever you want—power and data are both supplied through the Category 5 Ethernet cable.

You can also use the Wireless-G Ethernet Bridge as a kind of "cable-less cable" to connect remote areas together. Maybe Shipping is all the way across the warehouse from Receiving. Or maybe you want to set up a home office in your detached garage. With a Wireless-G Ethernet Bridge in the garage, and another one (or a Wireless-G Access Point) in the house, you're connected—no digging trenches, and no overhead wires.

Let the Wireless-G Ethernet Bridge from Linksys open up exciting new possibilities for your wireless network.

Features

- Converts wired-Ethernet devices to Wireless-G (draft 802.11g) network connectivity
- Operates in the 2.4GHz frequency spectrum with throughput of up to 54Mbps
- Complies with IEEE draft 802.11g standard, and backwards compatible with IEEE 802.11b products
- Installs in minutes with easy-to-use Setup Wizard
- Built-in web user interface for easy configuration from any web browser
- Security of up to 128-bit WEP encryption
- Supports Power over Ethernet for easy deployment
- Equipped with one standard 10/100Base-TX interface

Chapter 2: Getting to Know the Wireless-G Ethernet Bridge

The Wireless-G Ethernet Bridge's Back Panel

Reset   The Reset button resets the Bridge to its factory default settings.

X-II   The **X-II** (MDI/MDI-X) slide switch offers a choice between two settings. Use the **X** setting if you are connecting the Bridge to a network adapter. Use the **II** setting if you are connecting the Bridge to a hub or switch.

LAN   The LAN port is where you will connect the Ethernet network cable.

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

> **Note:** If you use a Power over Ethernet (PoE) device to supply data and power through the Ethernet network cable, then you do not need to connect the power adapter to the Power port.

Figure 2-1

The Wireless-G Ethernet Bridge's Front Panel LEDs

Power   *Green.* The Power LED will light up when the Bridge is powered on.

Ethernet   *Green.* The Ethernet LED will be lit steadily when the Bridge is connected to the wired network. The LED will blink when there is wired network traffic.

Wireless-G   *Green.* The Wireless-G LED will be lit steadily when the Bridge is connected to the wireless network. The LED will blink when there is wireless network traffic.

Figure 2-2

Chapter 3: Planning Your Wireless Network

Network Topology

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

Ad-Hoc versus Infrastructure Mode

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

If the computers on the wireless network need to be accessible by a wired network or need to share a peripheral, such as a printer, with the wired network computers, the wireless network should be set up in *Infrastructure* mode. The basis of Infrastructure mode centers around an access point, which serves as the main point of communications in a wireless network (see Figure 3-1). Access points transmit data to PCs equipped with wireless network cards, which can roam within a certain radial range of the access point. Multiple access points can be arranged to work in succession to extend the roaming range, and can be set up to communicate with your Ethernet hardware as well.
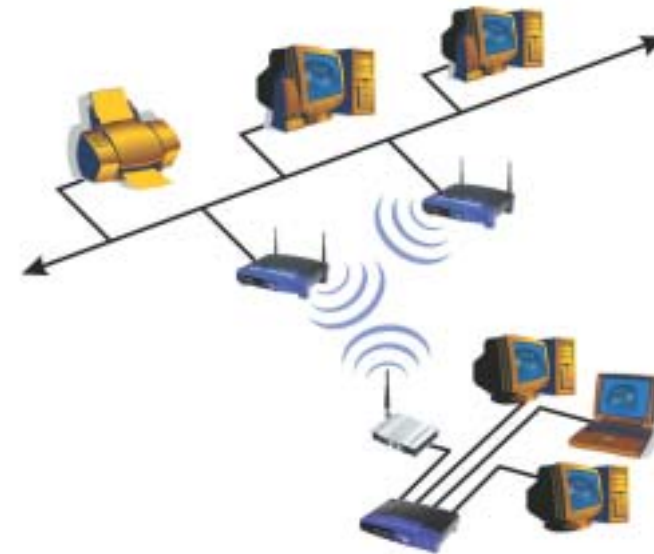
Figure 3-1

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

Figure 3-2 shows a typical scenario of four Wireless-G Ethernet Bridges in ad-hoc mode. Figure 3-3 shows a typical wireless bridging scenario using two Wireless-G Ethernet Bridges. Each wireless network is connected to a Wireless-G Ethernet Bridge through a switch. A separate notebook computer is equipped with a wireless PC card and can communicate with both wireless networks as long as it has the same SSID and channel as both wireless networks.

Figure 3-2

Figure 3-3

Chapter 4: Connecting the Wireless-G Ethernet Bridge for Setup

1. Attach the external antenna.

2. Plug the included Ethernet network cable into the LAN port on the back panel of the Bridge.

3. The **X-II** (MDI/MDI-X) slide switch offers a choice between two settings. Slide the **X-II** switch to the **X** position if you are connecting the Bridge to a PC's network adapter.

Figure 4-1

Slide the **X-II** selection switch to the **II** position if you are connecting the Bridge to a hub or switch.

4. Plug the other end of the Ethernet network cable into the RJ-45 port of the hub, switch, or PC you wish to use to configure the Bridge.

5. Plug the supplied power cable into the Power port on the back panel of the Bridge. Then plug the other end into an electrical outlet.

Figure 4-2

Proceed to the next section, "Chapter 5: Setting Up the Wireless-G Ethernet Bridge."

Chapter 5: Setting Up the Wireless-G Ethernet Bridge

Now that you've connected the Wireless-G Ethernet Bridge to your wired network, you are ready to set it up. The Setup Wizard will guide you through all the steps necessary.

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

Figure 5-1

- **Setup** - Click the **Setup** button to proceed with the Setup Wizard.
- **User Guide** - Click the **User Guide** button to open the PDF file of this User Guide.
- **LINKSYS Web** - Click the **LINKSYS Web** button to access the Linksys website using an active Internet connection.
- **Exit** - Click the **Exit** button to exit the Setup Wizard.

2. Click the **Setup** button to begin the setup process.

3. The screen shown in Figure 5-2 shows the two ways to configure the Bridge using this Setup Wizard. Optimally, you should perform this setup through a PC on your wired network. You can also set up the Bridge through one of the PCs on your wireless network. Click the **Next** button.

Figure 5-2

4. The screen shown in Figure 5-3 displays a list of Wireless-G Ethernet Bridges on your network, along with the status information for each Bridge. (If you have only one Bridge on your network, it will be the only one displayed.) Select the Bridge you are currently installing by clicking its name in the *Selection* box. Write down the IP address of the Wireless-G Ethernet Bridge, so you can use it to access the Web-based Utility later. Click the **Yes** button.

Figure 5-3

5. For security purposes, you will be asked
    for your password in order to access the
    Bridge. In lowercase letters, enter
    admin in the *Password* field (later you
    can change the password through the
    Web-based Utility). Then click the
    Enter button.

Figure 5-4

6. The screen shown in Figure 5-5 shows a choice of two wireless modes.
    Click the **Infrastructure** radio button if you want your wireless computers
    to network with computers on your wired network using a wireless access
    point. Click the **Ad-Hoc** radio button if you want multiple wireless com-
    puters to network directly with each other. Do not use the Ad-Hoc mode if
    you want to network your wireless computers with computers on your wired
    network.

    In the *WB Name* field, enter a unique name for the Bridge. Memorable
    names are helpful, especially if you are using multiple bridges on the same
    network. Click the **Next** button to continue or the **Back** button to return to
    the previous screen.

Figure 5-5

7. The *Wireless Settings* screen will now appear. Enter your wireless network's
    SSID. If you chose Ad-Hoc mode, select the channel at which the network
    broadcasts its wireless signal.

    If you have Wireless-G (draft 802.11g) and Wireless-B (802.11b) devices in
    your network, then keep the default *Network Mode* setting, **Mixed**. If you
    have only Wireless-G devices, select **G-Only**. Then click the **Next** button to
    continue or the **Back** button to return to the previous screen.

Figure 5-6

•   **SSID** - The SSID is the unique name shared among all devices in a wire-
    less network. The SSID must be identical for all devices in the wireless net-
    work. It is case-sensitive and must not exceed 32 alphanumeric characters,
    which can be any keyboard character.

•   **Channel** - From the drop-down menu, select the appropriate channel to
    match your network settings (available for Ad-Hoc mode only). All devices
    in your wireless network must use the same channel in order to function
    correctly.

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

8. The *IP Settings* screen will appear next, shown in Figure 5-7. If your network has a DHCP server, click the radio button next to **Automatically obtain an IP address (DHCP)**. Click the **Next** button to continue or the **Back** button to return to the previous screen. Then proceed to step 9.

    If your network does not have a DHCP server, click the radio button next to **Set IP configuration manually** to select this option. Enter an IP Address, IP Mask, and Gateway appropriate to your network. You must specify an IP address on this screen. If you are unsure about the IP Mask and Gateway, it is better to leave these two fields blank. Click the **Next** button to continue or the **Back** button to return to the previous screen. Then proceed to step 9.

Figure 5-7

• **IP Address** - This IP address must be unique to your network.

• **IP Mask** - The Bridge's IP Mask (also known as Subnet Mask) must be the same as your wired network's Subnet Mask.

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

9. The *Security Settings* screen, shown in Figure 5-8, appears next. Enable or disable Wired Equivalent Privacy (WEP) encryption for your wireless network. If you enable WEP, select the level of WEP encryption, and then enter a Passphrase. (If you want to enter a WEP key manually, then click the **Next** button.) If you want to disable WEP encryption, keep the default, **Disabled**. Click the **Next** button to continue.

Figure 5-8

• **WEP (Disabled/64-bit WEP/128-bit WEP)** - In order to utilize WEP encryption, select **64-bit** or **128-bit WEP** from the drop-down menu. Then enter a Passphrase. (If you want to enter a WEP key manually, then click the **Next** button.) If you do not want to use WEP encryption, keep the default setting, **Disabled**.

• **Passphrase** - Instead of manually entering a WEP key, you can enter a Passphrase, so a WEP key will be automatically generated after you click the **Next** button. The Passphrase is case-sensitive and should have 16 or fewer alphanumeric characters. It must match the passphrase of your wireless network and is compatible with Linksys wireless products only. (You will have to enter the WEP key(s) manually on any non-Linksys wireless products.)

10. If you entered a Passphrase, then you will see the automatically generated WEP key in the *Key 1* field. Click the **Next** button, and proceed to step 11.

    If you did not enter a Passphrase, then enter a WEP key in the *Key 1* field. 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"-"9" and "A"-"F". Then click the **Next** button, and proceed to step 11.

Figure 5-9

11. Review your settings on the *Confirmation* screen. Write down the Bridge's IP Address if you want to configure advanced settings through the Bridge's Web-based Utility. Click the **Yes** button to save these settings. Click the **No** button to exit the Setup Wizard.

Figure 5-10

12. The configuration using the Setup Wizard is complete. To configure any other Wireless-G Ethernet Bridges on your network, run this Setup Wizard again. To register the Bridge, click the **Online Registration** button. To exit the Setup Wizard, click the **Exit** button.

Figure 5-11

The Wireless-G Ethernet Bridge is now successfully configured for your network.

For more advanced configuration, proceed to "Chapter 7: Using the Wireless-G Ethernet Bridge Web-based Utility." Otherwise, go to "Chapter 6: Connecting the Wireless-G Ethernet Bridge for Network Use."

Chapter 6: Connecting the Wireless-G Ethernet Bridge for Network Use

Connection to a Network Device

1. After configuration, unplug the power cable from the electrical outlet, and unplug the Ethernet network cable from the PC.

2. Plug the Ethernet network cable into the RJ-45 port on the Ethernet-ready network device you wish to add to the wireless network.

3. Plug the power cable into a local electrical outlet.

> **Note:** If you do not have an active connection to the Ethernet-ready network device, then change the position of the **X-II** switch.

> **Note:** The Bridge features Power Over Ethernet (PoE) support. PoE technology allows a PoE adapter (also known as a power injector, power hub, or inline power device) to supply data and power to an Ethernet device using a single Ethernet network cable. To use the Bridge's PoE feature, follow the instructions for your specific PoE device.

The installation of the Wireless-G Ethernet Bridge is complete. Proceed to the next section, "Placement Options," if you want to mount the Bridge on a wall or have the Bridge stand on a surface.

Placement Options

There are three ways to place the Bridge. The first way is to place the Bridge horizontally on a surface (see Figure 6-1). The second way is to hang the Bridge on a wall, with the Bridge in a vertical position. The third way is to stand the Bridge vertically on a surface (see Figure 6-2). The second and third options are explained in further detail below.

Figure 6-1

Wall Mount Option

1. The Bridge has eight rubber inserts, four on each side. Depending on how you want to mount the Bridge, remove two of the rubber inserts.

2. Attach two screws to the wall in the location where you want to mount the Bridge.

3. Hang the Bridge off of the two screws.

Stand Option

1. The Bridge has eight rubber inserts, four on each side. Remove the two rubber inserts that are adjacent to the power port.

2. The Bridge includes two triangular stands. Insert a stand into an opening. Push the stand up to snap it into place.

3. Do the same with the second stand.

4. Place the Bridge.

The installation of the Wireless-G Ethernet Bridge is complete.

Figure 6-2

Chapter 7: Using the Wireless-G Ethernet Bridge Web-based Utility

Overview

The Bridge is designed to function properly after configuration using the Setup Wizard. However, if you would like to change these settings or make more advanced configuration changes, use your web browser and the Wireless-G Ethernet Bridge Web-based Utility. This chapter explains how to use the Utility.

Starting the Web-based Utility

1. Open your web browser, and enter the IP address of the Wireless-G Ethernet Bridge (the default is **192.168.1.226**). Press the **Enter** key, and the screen shown in Figure 7-1 will appear. In lowercase letters, enter the default password, **admin**, in the *Password* field. Click the **OK** button. You can set a new password on the *Password* screen later.

Figure 7-1

2. The *Setup* screen of the Bridge's Utility will appear.

Figure 7-2

The Utility provides a convenient, web-browser-based way to alter the Bridge's settings. It offers five main tabs:

- **Setup** - Enables you to configure the IP address and wireless settings.
- **Password** - Allows you to change the password or reset all settings to factory defaults.
- **Advanced** - Lets you change the advanced wireless settings and clone a MAC address onto the Bridge.
- **Status** - Displays the Bridge's current settings.
- **Help** - Provides explanations of various configuration settings and links to online technical support resources.

Setup

The *Setup* screen lets you configure the wired and wireless network settings for the Bridge.

Figure 7-3

⚠️ **Note:** You may have to refresh this page to see any new settings.

- **Firmware** - The version number of the Bridge's firmware is displayed here. Firmware should be upgraded ONLY if you experience problems with the Bridge. Firmware updates are posted at *www.linksys.com*.

- **MAC Address** - The MAC Address of the Bridge is displayed here.

LAN

- **Device Name** - You may assign any name to the Bridge. Unique, memorable names are helpful, especially if you are using multiple bridges on the same wireless network.

- **Configuration Type** - If the Bridge will obtain an IP address automatically from a DHCP server, such as a router, then select **Automatic Configuration-DHCP**. If you are assigning the Bridge a static IP address, then select **Static IP Address**, and enter an IP Address, Subnet Mask, and Gateway address in the *IP Address*, *Subnet Mask*, and *Gateway* fields.

Wireless

- **SSID** - The SSID is the network name shared among all devices in a wireless network. The SSID must be identical for all devices in the wireless network. It is case-sensitive and must not exceed 32 alphanumeric characters, which may be any keyboard character (do not use any spaces). Make sure this setting is the same for all devices in your wireless network. For added security, Linksys recommends that you change the default SSID (**linksys**) to a name of your choice.

  To search for available wireless networks, click the **Site Survey** button.

- **Network Type** - Choose a wireless operating mode for the Bridge. Keep the default setting, **Infrastructure**, if you want your wireless-equipped device to communicate with computers and other devices on your wired network using a wireless access point. Select **Ad-Hoc** button if you want multiple wireless-equipped devices to communicate directly with each other.

  If you chose Ad-Hoc mode, then select the correct operating channel for your network in the *Channel* drop-down menu. The channel you choose should match the channel set on the other devices in your wireless network. Then select the appropriate network mode. Keep the default, **Mixed**, if you have Wireless-G (draft 802.11g) and Wireless-B (802.11b) devices in your network. Select **G-Only** if you have only Wireless-G devices in your network.

- **WEP** - To enable WEP encryption, click the **Enable** radio button. To increase wireless network security, using WEP encryption is strongly recommended. Then click the **Edit WEP Settings** button to configure the WEP settings. To disable WEP encryption, keep the default, **Disable**.

An acronym for Wired Equivalent Privacy, WEP is an encryption method used to protect your wireless data communications. WEP uses 64-bit or 128-bit keys to provide access control to your network and encryption security for every data transmission. To decode a data transmission, each device in a network must use an identical WEP key. Higher encryption levels offer higher levels of security, but due to the complexity of the encryption, they may decrease network performance.

Click the **Apply** button to save your changes. If your page doesn't automatically refresh itself, then click the **Refresh** button of your web browser. Click the **Cancel** button to cancel your changes. Click the **Help** button for additional on-screen information.

Wireless Site Survey

The *Wireless Site Survey* screen shows all the wireless networks detected by the Bridge and their general information. You can use this screen to connect to one of these networks.

Figure 7-4

For each wireless network detected, the following information is displayed:

• *SSID* - The network name. To join a wireless network, click its **SSID**.

Note: Make sure your WEP key matches the WEP key of the wireless network you want to join. Otherwise, the connection will fail.

• *MAC Address* - The MAC address of the network's access point.

• *Channel* - The channel setting.

• *Signal Strength (%)* - The percentage of wireless signal strength.

• *Mode* - The type of wireless standard, network mode, and status of WEP encryption.

Click the **Refresh** button to obtain the most up-to-date data. Click the **Cancel** button to close this screen. Click the **Help** button for additional on-screen information.

WEP Encryption

Use the *WEP Encryption* screen to configure the WEP encryption level and WEP keys for the Bridge.

Figure 7-5

Note: You may have to refresh this page to see any new settings.

• *Default Key* - Select which WEP key (1-4) will be used when the Bridge sends data. Make sure the other wireless-equipped devices are using the same key.

• *WEP Encryption* - In order to use WEP encryption, select **64-Bit (10 hex digits)** or **128-Bit (26 hex digits)** from the drop-down menu.

• *Passphrase* - Instead of manually entering WEP keys, you can enter a Passphrase. This Passphrase is used to generate one or more WEP keys. It is case-sensitive and should not be longer than 16 alphanumeric characters. (The Passphrase function is compatible with Linksys wireless products only. If you want to communicate with non-Linksys wireless products, you will need to enter your WEP key(s) manually on the non-Linksys wireless products.) After you enter the Passphrase, click the **Generate** button to create WEP key(s).

• *Keys 1-4* - If you are not using a Passphrase, then you can enter one or more WEP keys manually.

  In each key field, manually enter a set of values. (Do not leave a key field blank, and do not enter all zeroes. These are not valid key values.) If you are using 64-bit WEP encryption, then each key must consist of exactly 10 hexadecimal characters in length. If you are using 128-bit WEP encryption, then each key must consist of exactly 26 hexadecimal characters in length. Valid hexadecimal characters are "0"-"9" and "A"-"F".

Click the **Apply** button to save your changes. If your page doesn't automatically refresh itself, then click the **Refresh** button of your web browser. Click the **Cancel** button to cancel your changes. Click the **Help** button for additional on-screen information.

Password

The *Password* screen lets you change the Bridge's Password and restore the factory default settings.

Figure 7-6

• **Administrative Password** - It is strongly recommended that you change the factory default password of the Bridge, which is **admin**. All users who try to access the Bridge's Web-based Utility will be prompted for the Bridge's Password. The new Password must not exceed 12 characters in length and must not include any spaces. Enter the new Password a second time to confirm it.

• **Restore Factory Defaults** - Click the **Yes** radio button to reset all configuration settings to their default values. If you do not want to restore the factory defaults, then keep the default setting, **No**.

> **Note:** Any settings you have saved will be lost when the default settings are restored.

To save your changes, click the **Apply** button. Click the **Cancel** button to cancel your changes. Click the **Help** button for additional on-screen information.

Advanced

Use the *Advanced Settings* screen to customize advanced wireless settings and clone a MAC address onto the Bridge.

Figure 7-7

Note: You may have to refresh this page to see any new settings.

Wireless

• **Transmission Rate** - The default setting is **Auto**. The range is from 1 to 54Mbps.

  The rate of data transmission should be set depending on the speed of your wireless network. You can select from a range of transmission speeds, or you can keep the default setting, **Auto**, to have the Bridge automatically use the fastest possible data rate and enable the Auto-Fallback feature. Auto-Fallback will negotiate the best possible connection speed between the Bridge and another wireless-equipped device.

• **Authentication Type** - The default setting is **Auto**. The choices are **Auto**, **Open**, and **Shared**.

  This setting allows the Bridge to authenticate communication with the wireless devices in your network. With the Shared Key setting, all wireless devices must have the same WEP keys so that the Bridge and the client can authenticate each other and start transmitting data. With the Open System setting, any device can join a network without performing any security check. Using the Auto setting, the Bridge will automatically detect whether a wireless device is set to Shared Key or Open System, and then transmit data using the appropriate authentication type.

• **RTS Threshold** - This value should remain at its default setting of 2347. The range is 0-2347 bytes. Should you encounter inconsistent data flow, only minor modifications are recommended. If a network packet is smaller than the preset RTS threshold size, the RTS/CTS mechanism will not be enabled. The Router sends Request to Send (RTS) frames to a particular receiving station and negotiates the sending of a data frame. After receiving an RTS, the wireless station responds with a Clear to Send (CTS) frame to acknowledge the right to begin transmission.

• **Fragmentation Threshold** - This value should remain at its default setting of **2346**. The range is 256-2346 bytes. It specifies the maximum size for a packet before data is fragmented into multiple packets. If you experience a high packet error rate, you may slightly increase the Fragmentation Threshold. Setting the Fragmentation Threshold too low may result in poor network performance. Only minor modifications of this value are recommended.

MAC Address

- **Cloning Mode** - You can clone the MAC address of any network device onto the Bridge. To disable MAC address cloning, keep the default setting, **Disable**. To use the MAC cloning feature, select **Enable**.

  If you have enabled MAC cloning, then select **Auto** if you want to clone the MAC address of the device currently connected to the Bridge's LAN port. The Bridge will actively scan for a new MAC address to be cloned whenever you disconnect and re-connect the Bridge through its LAN port. Select **Manual** if you want to specify a MAC address in the *Enter MAC Address* field. This is useful when the Bridge is connected to multiple devices through a switch or a hub.

Click the **Apply** button to save your changes. If your page doesn't automatically refresh itself, then click the **Refresh** button of your web browser. Click the **Cancel** button to cancel your changes. Click the **Help** button for additional on-screen information.

Status

The *Status* screen displayed the Bridge's current status and settings. All information is read-only.

Figure 7-8

- **Device Name** - The name you have assigned to the Bridge is displayed here.

- **Firmware Version** - The version number of the Bridge's firmware is displayed here. Firmware should be upgraded ONLY if you experience problems with the Bridge. Firmware updates are posted at *www.linksys.com*.

- **MAC Address** - The MAC Address of the Bridge is displayed here.

LAN Settings

• **IP Address** - The Bridge's IP Address is displayed here.

• **Subnet Mask** - The Bridge's Subnet Mask is displayed here.

• **Gateway** - The Gateway address for the Bridge is displayed here.

LAN Statistics

• **Ethernet TX** - The number of packets transmitted to the Ethernet network is displayed here.

• **Ethernet RX** - The number of packets received from the Ethernet network is displayed here.

• **Wireless TX** - The number of packets transmitted to the wireless network is displayed here.

• **Wireless RX** - The number of packets received from the wireless network is displayed here.

Wireless Settings

• **SSID** - The Bridge's SSID is displayed here.

• **Network Type** - The Bridge's mode is displayed here.

• **Channel** - The Bridge's channel setting is displayed here.

• **WEP** - The status of the Bridge's WEP encryption is displayed here.

• **TX Rate** - The Bridge's transmission rate is displayed here.

• **Link Quality** - The quality of the Bridge's connection is displayed here.

Click the **Refresh** button to obtain the most up-to-date settings and statistics. Click the **Help** button for additional on-screen information.

Help

The *Help* screen offers links to all of the help information for the Web-based Utility's screens and the Bridge's online technical support resources. All information is read-only.

Figure 7-9

• **Linksys Website** - Click the **Linksys Website** link to visit Linksys's website, *www.linksys.com*.

• **Online manual in PDF format** - Click the **Online manual in PDF format** to view this User Guide on-screen. It is in Adobe Acrobat Portable Document File (.pdf) format, so you will need the free Adobe Acrobat Reader to view the pdf. If you do not have the Reader, click the Adobe Website link to download it.

• **Adobe Website (software for viewing PDF documents)** - If you need to download the Adobe Acrobat Reader to view the User Guide pdf, then click the **Adobe Website** link.

Appendix A: Troubleshooting

Common Problems and Solutions

This section provides solutions to potential problems regarding the installation and operation of the Wireless-G Ethernet Bridge. If you can't find an answer here, check the Linksys website at *www.linksys.com*.

1. **I can't connect to the access point.**
   Open the Web-based Utility. On the **Setup** tab, perform the following steps:
   • Verify that the operating mode is set to Infrastructure mode.
   • Make sure that the SSID is the same as the SSID of the access point.
   • On the *WEP Encryption* screen, make sure that all of the WEP settings are the same as the WEP settings of the access point.

2. **I don't know how to change the Bridge's IP address.**
   You have two ways to change the Bridge's IP address.
   • Open the Web-based Utility. On the *Setup* screen, click the **Static IP Address** radio button, and change the IP address there.
   • If you encounter problems, power the Bridge off and on again, or push the Reset button. Then try to change the IP address again.

3. **The Bridge-enabled PC won't communicate with a wireless-enabled PC or printer.**
   Perform the following steps:
   • Check that the wireless-enabled PC or printer is on the same wireless network as the PC using the Bridge.
   • Make sure that the SSID and network mode are the same for all devices connected to the same wireless network.
   • If the wireless LAN settings are okay, make sure that all the devices are on the same IP network.

4. **The Web-based Utility doesn't detect the Bridge.**
   Make sure that the Ethernet cable is properly connected and that the Ethernet LED is lit. If the LED is not lit, change the position of the **X-II** slide switch on the Bridge's rear panel. Use the **X** setting if you are connecting the Bridge to a network adapter. Use the **II** setting if you are connecting the Bridge to a hub or switch. If you still do not have an active connection, then change the position of the **X-II** switch again.

5. **The Web-based Utility won't open.**
   Make sure that you have a network adapter installed on the PC so you can use the Web-based Utility.

6. **The Web-based Utility does not recognize my password.**
   The password is case-sensitive. Make sure you are using the correct case(s) when entering the password.

   If you forget your password, you can push the Bridge's Reset button. This will reset the password to the default setting; however, all other Bridge settings will be reset to the factory defaults as well. To use the default setting, enter **admin** in the *Password* field.

7. **After I make changes through the Web-based Utility, the new settings aren't displayed on-screen.**
   Click the **Refresh** button of your web browser. If the new settings aren't displayed, then unplug the power adapter from the Bridge. Plug the power adapter back in, and then click the **Refresh** button again.

Frequently Asked Questions

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

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

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

Can I play multiplayer games with other users of the wireless network?

Yes, as long as the game supports multiple players over a LAN. Refer to the game's user guide for more information.

What is ad-hoc mode?

When a wireless network is set to ad-hoc mode, the wireless-equipped computers are configured to communicate directly with each other. The ad-hoc wireless network will not communicate with any wired network.

What is infrastructure mode?

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

What is roaming?

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

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

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

What is ISM band?

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

What is Spread Spectrum?

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

What is DSSS? What is FHSS? And what are their differences?

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

Would the information be intercepted while transmitting on air?

Instant Wireless products feature two-fold protection in security. On the hardware side, as with Direct Sequence Spread Spectrum technology, it has the inherent security feature of scrambling. On the software side, Instant Wireless products offer the encryption function (WEP) to enhance security and access control. Users can set it up depending upon their needs.

What is WEP?
WEP is Wired Equivalent Privacy, a data privacy mechanism based on a 40/64 bit shared key algorithm, as described in the IEEE 802.11 standard.

Can Instant Wireless products support file and printer sharing?
Instant Wireless products perform the same function as LAN products. Therefore, Instant Wireless products can work with NetWare, Windows NT/2000, or other LAN operating systems to support printer or file sharing.

Appendix B: Glossary

802.11b - One of the IEEE standards for wireless networking hardware. Products that adhere to a specific IEEE standard will work with each other, even if they are manufactured by different companies. The 802.11b standard specifies a maximum data transfer rate of 11Mbps, an operating frequency of 2.4GHz, and WEP encryption for security. 802.11b networks are also referred to as Wi-Fi networks.

802.11g - A proposed, but as yet unratified extension of the IEEE 802.11 standard for wireless networking hardware. The draft 802.11g specifications used by Linksys specify a maximum data transfer rate of 54Mbps using OFDM modulation, an operating frequency of 2.4GHz, backward compatibility with IEEE 802.11b devices, and WEP encryption for security.

Ad-hoc Network - An ad-hoc network is a group of computers, each with a wireless adapter, connected as an independent 802.11 wireless LAN. Ad-hoc wireless computers operate on a peer-to-peer basis, communicating directly with each other without the use of an access point. Ad-hoc mode is also referred to as an Independent Basic Service Set (IBSS) or as peer-to-peer mode, and is useful at a departmental scale or SOHO operation.

Default Gateway - The router used to forward all traffic that is not addressed to a station within the local subnet.

DHCP (**D**ynamic **H**ost **C**onfiguration **P**rotocol) - A protocol that lets network administrators centrally manage and automate the assignment of Internet Protocol (IP) addresses in an organization's network. Using the Internet's set of protocol (TCP/IP), each machine that can connect to the Internet needs a unique IP address. When an organization sets up its computer users with a connection to the Internet, an IP address must be assigned to each machine. Without DHCP, the IP address must be entered manually at each computer and, if computers move to another location in another part of the network, a new IP address must be entered. DHCP lets a network administrator supervise and distribute IP addresses from a central point and automatically sends a new IP address when a computer is plugged into a different place in the network.

DHCP uses the concept of a "lease" or amount of time that a given IP address will be valid for a computer. The lease time can vary depending on how long a user is likely to require the Internet connection at a particular location. It's espe-

cially useful in education and other environments where users change frequently. Using very short leases, DHCP can dynamically reconfigure networks in which there are more computers than there are available IP addresses.

DHCP supports static addresses for computers containing Web servers that need a permanent IP address.

DNS - The Domain Name System (DNS) is the way that Internet domain names are located and translated into Internet Protocol (IP) addresses. A domain name is a meaningful and easy-to-remember "handle" for an Internet address.

DSSS (**D**irect-**S**equence **S**pread **S**pectrum) - DSSS generates a redundant bit pattern for all transmitted data. This bit pattern is called a chip (or chipping code). Even if one or more bits in the chip are damaged during transmission, statistical techniques embedded in the receiver can recover the original data without the need for retransmission. To an unintended receiver, DSSS appears as low power wideband noise and is rejected (ignored) by most narrowband receivers. However, to an intended receiver (i.e. another wireless LAN endpoint), the DSSS signal is recognized as the only valid signal, and interference is inherently rejected (ignored).

Dynamic IP Address - An IP address that is automatically assigned to a client station in a TCP/IP network, typically by a DHCP server. Network devices that serve multiple users, such as servers and printers, are usually assigned static IP addresses.

FHSS (**F**requency **H**opping **S**pread **S**pectrum) - FHSS continuously changes (hops) the carrier frequency of a conventional carrier several times per second according to a pseudo-random set of channels. Because a fixed frequency is not used, and only the transmitter and receiver know the hop patterns, interception of FHSS is extremely difficult.

Firmware - Code that is written onto read-only memory (ROM) or programmable read-only memory (PROM). Once firmware has been written onto the ROM or PROM, it is retained even when the device is turned off.

IEEE - The Institute of Electrical and Electronics Engineers. The IEEE describes itself as "the world's largest technical professional society—promoting the development and application of electrotechnology and allied sciences for the benefit of humanity, the advancement of the profession, and the well-being of our members."

The IEEE fosters the development of standards that often become national and international standards. The organization publishes a number of journals, has many local chapters, and has several large societies in special areas, such as the IEEE Computer Society.

Infrastructure Network - An infrastructure network is a group of computers or other devices, each with a wireless adapter, connected as an 802.11 wireless LAN. In infrastructure mode, the wireless devices communicate with each other and to a wired network by first going through an access point. An infrastructure wireless network connected to a wired network is referred to as a Basic Service Set (BSS). A set of two or more BSS in a single network is referred to as an Extended Service Set (ESS). Infrastructure mode is useful at a corporation scale, or when it is necessary to connect the wired and wireless networks.

IP Address - In the most widely installed level of the Internet Protocol (IP) today, an IP address is a 32-binary digit number that identifies each sender or receiver of information that is sent in packets across the Internet. When you request an HTML page or send e-mail, the Internet Protocol part of TCP/IP includes your IP address in the message (actually, in each of the packets if more than one is required) and sends it to the IP address that is obtained by looking up the domain name in the Uniform Resource Locator you requested or in the e-mail address you're sending a note to. At the other end, the recipient can see the IP address of the Web page requester or the e-mail sender and can respond by sending another message using the IP address it received.

IPCONFIG - A utility that provides for querying, defining and managing IP addresses within a network. A commonly used utility, under Windows NT and 2000, for configuring networks with static IP addresses.

ISP - An ISP (Internet service provider) is a company that provides individuals and companies access to the Internet and other related services such as website building and virtual hosting.

LAN - A local area network (LAN) is a group of computers and associated devices that share a common communications line and typically share the resources of a single processor or server within a small geographic area (for example, within an office building).

MAC Address - The MAC (Media Access Control) address is a unique number assigned by the manufacturer to any Ethernet networking device, such as a network adapter, that allows the network to identify it at the hardware level.

mIRC - mIRC runs under Windows and provides a graphical interface for logging onto IRC servers and listing, joining, and leaving channels.

Network Mask - Also known as the "Subnet Mask."

OFDM - Developed for wireless applications, Orthogonal Frequency Division Multiplexing (OFDM) technology offers superior performance—increased data rates and more reliable transmissions—than previous technologies, such as DSSS. OFDM is a scheme in which numerous signals of different frequencies are combined to form a single signal for transmission on the medium.

OFDM works by breaking one high-speed data stream into a number of lower-speed data streams, which are then transmitted in parallel. Each lower-speed stream is used to modulate a subcarrier. Essentially, this creates a multi-carrier transmission by dividing a wide frequency band or channel into a number of narrower frequency bands or sub-channels. OFDM is also used for other applications, including powerline networking.

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

PCMCIA - The PCMCIA (Personal Computer Memory Card International Association) is an industry group organized in 1989 to promote standards for a credit card-size memory or I/O device that would fit into a personal computer, usually a notebook or laptop computer.

Ping (**P**acket **IN**ternet **G**roper) - An Internet utility used to determine whether a particular IP address is online. It is used to test and debug a network by sending out a packet and waiting for a response.

Power over Ethernet (**PoE**) - A technology that allows a device, such as a power injector, power hub, or inline power device, to supply data and power to an Ethernet device using a single Ethernet network cable.

RJ-45 - A connector similar to a telephone connector that holds up to eight wires, used for connecting Ethernet devices.

Roaming - In an infrastructure mode wireless network, this refers to the ability to move out of one access point's range and into another and transparently reassociate and reauthenticate to the new access point. This reassociation and reauthentication should occur without user intervention and ideally without

interruption to network connectivity. A typical scenario would be a location with multiple access points, where users can physically relocate from one area to another and easily maintain connectivity.

SOHO (**S**mall **O**ffice/**H**ome **O**ffice) - Refers to any small office or home office environment.

SSID (**S**ervice **S**et **ID**entifier) - A unique name shared among all points in a wireless network. The SSID must be identical for each point in the wireless network and is case-sensitive.

Static IP Address - A permanent IP address that is assigned to a node in a TCP/IP network.

Subnet Mask - The method used for splitting IP networks into a series of subgroups, or subnets. The mask is a binary pattern that is matched up with the IP address to turn part of the host ID address field into a field for subnets.

TCP (**T**ransmission **C**ontrol **P**rotocol) - A method (protocol) used along with the IP (Internet Protocol) to send data in the form of message units (datagram) between network devices over a LAN or WAN. While IP takes care of handling the actual delivery of the data (routing), TCP takes care of keeping track of the individual units of data (called packets) that a message is divided into for efficient delivery over the network. TCP is known as a "connection oriented" protocol due to requiring the receiver of a packet to return an acknowledgment of receipt to the sender of the packet resulting in transmission control.

TCP/IP (**T**ransmission **C**ontrol **P**rotocol/**I**nternet **P**rotocol) - The basic communication language or set of protocols for communications over a network (developed specifically for the Internet). TCP/IP defines a suite or group of protocols and not only TCP and IP.

UDP (**U**ser **D**atagram **P**rotocol) - A method (protocol) used along with the IP (Internet Protocol) to send data in the form of message units (datagram) between network devices over a LAN or WAN. While IP takes care of handling the actual delivery of the data (routing), UDP takes care of keeping track of the individual units of data (called packets) that a message is divided into for efficient delivery over the network. UDP is known as a "connection-less" protocol due to NOT requiring the receiver of a packet to return an acknowledgment of receipt to the sender of the packet (as opposed to TCP).

WEP (**W**ired **E**quivalent **P**rivacy) - A data privacy mechanism based on a 64-bit shared key algorithm, as described in the IEEE 802.11 standard.

WINIPCFG - Configuration utility based on the Win32 API for querying, defining, and managing IP addresses within a network. A commonly used utility, under Windows 95, 98, and Millennium, for configuring networks with static IP addresses.

WLAN (**W**ireless **L**ocal **A**rea **N**etwork) - A group of computers and associated devices that communicate with each other wirelessly.

Appendix C: Specifications

Standards	Draft 802.11g, IEEE 802.11b, IEEE 802.3, IEEE 802.3u
Ports	One 10/100Base-TX RJ-45 Port
Buttons	MDI/MDI-X slide switch, Reset button
Cabling Type	Category 5 or better
LEDs	Power, Ethernet, Wireless
Transmit Power	18 dBm (typical) @ 11Mbps CCK 15 dBm (typical) @ 54Mbps OFDM
Security Feature	WEP Encryption
WEP Key Bits	64/128-bit
Modulation	802.11b: CCK (11Mbps, 5.5Mbps), DQPSK (2Mbps), DBPSK (1Mbps) 802.11g: OFDM (54Mbps)

Environmental

Dimensions	4.96" x 1.06" x 4.21" (126 mm x 27 mm x 107 mm)
Unit Weight	8.50 oz. (0.2409 kg)
Power	5V DC
Certifications	FCC Class B
Operating Temp.	32°F to 104°F (0°C to 40°C)
Storage Temp.	-13°F to 158°F (-25°C to 70°C)
Operating Humidity	10% to 90%, Non-Condensing
Storage Humidity	5% to 90%, Non-Condensing

Appendix D: Warranty Information

BE SURE TO HAVE YOUR PROOF OF PURCHASE AND A BARCODE FROM THE PRODUCT'S PACKAGING ON HAND WHEN CALLING. RETURN REQUESTS CANNOT BE PROCESSED WITHOUT PROOF OF PURCHASE.

IN NO EVENT SHALL LINKSYS'S LIABILITY EXCEED THE PRICE PAID FOR THE PRODUCT FROM DIRECT, INDIRECT, SPECIAL, INCI-DENTAL, OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OF THE PRODUCT, ITS ACCOMPANYING SOFTWARE, OR ITS DOCUMENTATION. LINKSYS DOES NOT OFFER REFUNDS FOR ANY PRODUCT.

LINKSYS OFFERS CROSS SHIPMENTS, A FASTER PROCESS FOR PRO-CESSING AND RECEIVING YOUR REPLACEMENT. LINKSYS PAYS FOR UPS GROUND ONLY. ALL CUSTOMERS LOCATED OUTSIDE OF THE UNITED STATES OF AMERICA AND CANADA SHALL BE HELD RESPONSIBLE FOR SHIPPING AND HANDLING CHARGES. PLEASE CALL LINKSYS FOR MORE DETAILS.

Appendix E: Contact Information

For help with the installation or operation of the Wireless-G Ethernet Bridge, contact Linksys Technical Support at one of the phone numbers or Internet addresses below.

Sales Information	800-546-5797 (LINKSYS)
Technical Support	800-326-7114
RMA (Return Merchandise Authorization) Issues	www.linksys.com (or call 949-271-5461)
Fax	949-265-6655
E-mail	support@linksys.com
Web	http://www.linksys.com
FTP Site	ftp.linksys.com

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