LINKSYS®

Quick Installation

Instant Wireless®

Wireless Signal Booster

WSB24-1

Package Contents
- One Linksys Wireless Signal Booster
- Two Signal Booster Cables
- Two Power Adapters
- One Quick Installation and User Guide
- One Wireless Router, BEFW11S4

Note: The images in this document show the Wireless Signal Booster being connected to an Access Point; the same directions can be followed when connecting the Wireless Signal Booster to a wireless Router.

The Wireless Signal Booster with Access Point

Connecting the Wireless Signal Booster to Your Linksys Access Point/Router

A. With your Access Point/Router powered off, place the Wireless Signal Booster on top of the Access Point/Router.

B. Disconnect the Access Point's/Router's antennas.

B

C. Connect the Signal Booster Cables from the Access Point's/Router's antenna ports to the Wireless Signal Booster's cable ports.

C

D. Connect the antennas to the Wireless Signal Booster's antenna ports.

D

E. Connect the appropriate power adapters to both the Access Point/Router and Wireless Signal Booster.

E

F. Now you are ready to use the Wireless Signal Booster in your wireless network.

QI-WSB24-10/25/02NC BW

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FCC STATEMENT

The Wireless Signal Booster WSB24-1 has been tested and found to comply with the limits 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 in accordance with 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 can be determined 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:
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—Increase the separation between the equipment and receiver.
—Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
—Consult the dealer or an experienced radio/TV technician for help.

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CAUTION: To maintain compliance with FCC'sRF exposure guidelines, this equipment should be installed and operated with minimum distance 20cm between the radiator and your body. Use on the supplied antenna. Unauthorized antenna, modification, or attachments could damage the transmitter and may violate FCC regulations.

MPE Statement (Safety Information)

Your device contains a low power transmitter. When device is transmitted it sends out Radio Frequency (RF) signal.

Safety Information

In order to maintain compliance with the FCC RF exposure guidelines, this equipment should be installed and operated with minimum distance 20cm between the radiator and your body.
Use only with supplied antenna. Unauthorized antenna, modification, or attachments could damage the transmitter and may violate FCC regulations.

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This Wireless LAN radio device has been evaluated under FCC Bulletin OET 65C and found compliant to the requirements as set forth in CFR 47 Sections 2.1091, 2.1093, and 15.247(b)(4) addressing RF Exposure from radio frequency devices. The radiation output power of this Wireless LAN device is far below the FCC radio frequency exposure limits. Nevertheless, this device shall be used in such a manner that the potential for human contact during normal operation-as a mobile or portable device but use in a body-worn way is strictly prohibit. When using this device, a certain separation distance between antenna and nearby persons has to be kept to ensure RF exposure compliance. In order to comply with the RF exposure limits established in the ANSI C95.1 standards, the distance between the antennas and the user should not be less than 20cm.

Contact Information

For help with the installation or operation of this product, 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 Issues	949-261-1288
Fax	949-261-8868
Email	support@linksys.com
Web	http://www.linksys.com
FTP Site	ftp.linksys.com

Instant Wireless™ Series

Wireless Access Point Router with 4-Port Switch

Use this Guide to install:
BEFW11S4

Fast Start Guide

LINKSYS®

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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.

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- 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

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For product support and product registration, contact us at the addresses below:

E-mail	europe-support@linksys.com latam-soporte@linksys.com
Web	http://www.linksys.com/international

Introduction

Thank you for choosing the Instant Wireless™ Wireless Access Point Router. This Router will allow you to set up a network with your PCs and even share your Internet connection.

How does the Router do all of this? By connecting your cable or DSL modem directly to the Router and using the Router's Ethernet ports to connect your PCs, it's almost as if each PC is connected directly to the Internet. In this way, you can have several PCs utilizing one Internet connection simultaneously. Plus, because it's also an Access Point, the Router can bridge your Ethernet network with your wireless PCs.

But what does all of this mean?

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

The PCs you connect to the Router's four LAN ports, when properly configured, create a LAN, or Local Area Network. They are connected with an Ethernet cable plugged into your computer's Ethernet adapter at one end and into one of the Router's LAN ports (numbered from one to four) at the other end. The term "Ethernet" is used to refer to your network accessories, such as cables and adapters, because Ethernet refers to the type of network you are setting up. In your Router's documentation, Ethernet refers to accessories that transfer computer data from 10Mbps to 100Mbps. (10Mbps and 100Mbps refer to the speeds used by network devices. When transferring data at 10Mbps, you are moving the equivalent of over seven floppy disks every second! Network accessories that function at 100Mbps move data ten times faster!)

PCs can also interact with the Router wirelessly. By configuring your wireless PCs with the same wireless settings as the Router, you can bridge these wireless PCs while integrating them into your existing Ethernet network.

Perhaps the most remarkable thing the Router does is to allow you to share your cable or DSL connection. This is done by connecting your cable or DSL modem to the Router's WAN port with an Ethernet cable. (WAN refers to a Wide Area Network.) The Internet is a network that, being global, covers the widest area of all! The PCs connected to the Router share this connection.

Use the instructions in this Fast Start to help you connect the Router, configure your PCs, and configure the Router in your network. These instructions should be all you need to get you up and running with a basic network, sharing your Internet access. The Router also comes equipped with more advanced functions, but these functions should not be utilized without a further understanding of routers and networks. These and other issues are explained in the User Guide on the Setup Wizard CD-ROM.

This is What You Will Be Setting Up

The Router's setup is similar to that shown in the figure above for any Windows PC. The Router lets you share your cable or DSL connection among several computers in your home or business. This is called a Local Area Network or LAN.

This Fast Start guide gives you the "big picture" of what you need to set up a basic home or business network. The next three sections explain how you will set up and configure your equipment to enable shared high-speed access to the Internet.

Step 1: Connect the Router

This walks you through the process of connecting the Router to your cable or DSL modem. Then, it shows you how your PCs are connected to the Router.

Step 2: Configure the PCs

This describes how your PCs are configured to communicate with the Router.

Step 3: Configure the Router

This step walks you through some basic Router settings, making it work with your cable or DSL modem and your ISP's settings.

Note: *This Fast Start Guide will direct you how to set up the Router with Ethernet cables. While the Router can be set up through a wireless connection, details about setting up the Router wirelessly will not be addressed in this Fast Start Guide. Those who wish to set up the Router through their wireless connection should refer to the Linksys website at www.linksys.com.*

Step 1: Connect the Router

In Step 1, you will connect the Router to your cable or DSL modem and to your home or business computers.

First, make sure that all devices you'll be working with are powered down, including your PCs, modem, and the Router.

A. If you haven't already done so, connect your cable or DSL modem to its proper connection—the coaxial jack for cable (Figure A1), or the phone jack for DSL (Figure A2). (Follow the instructions from your cable or DSL modem's installation guide.)

A1

A2

B. Using an Ethernet cable, connect the LAN or Ethernet port of the cable or DSL modem to the Router's WAN port.

B

C. Connect an Ethernet cable to your PC's Ethernet adapter. Connect the other end of the cable to one of the Router's LAN ports. Repeat this process for every PC you wish to connect to the Router.

C1

Note: If your PC's Ethernet adapter is not set up, please refer to the Ethernet adapter's documentation for more information.

For ease of installation, start with LAN Port 1 on the Router, then Port 2, Port 3, and finally Port 4.

If you are connecting more than four PCs to the Router, you will need to connect a hub or switch to the Router's Uplink port (if you use the Uplink port, then you cannot use Port 4). For information on Uplinking, please refer to the User Guide located on the Setup Wizard CD-ROM.

C2

D. Connect the power adapter to the Router's Power port. Then, connect the power adapter to an electrical outlet. Turn on the cable or DSL modem. Then turn on the first PC you wish to use when configuring the Router.

Proceed to Step 2: Configure the PCs on the next page.

Step 2: Configure the PCs

In Step 2, you will configure each of your computers to communicate with the Router.

To do this, you will need to configure your PC's network settings to obtain an IP (or TCP/IP) address automatically. Computers use IP addresses to communicate with each other across a network or the Internet.

Find out which operating system your computer is running, such as Windows 95, 98, Millennium, 2000, or XP. You will need to know which operating system your computer is running. You can find out by clicking the **Start** button and then selecting the **Settings** option. (If your Start menu doesn't have a Settings option, you're running Windows XP. You can select the Control Panel directly from the Start Menu.) Then, click **Control Panel** and double-click the **System** icon. Click the **Cancel** button when done.

Once you know which Windows operating system you are running, follow the directions in this step for your computer's operating system. You may need to do this for each computer you are connecting to the Router.

The next few pages tell you, step by step, how to configure your TCP/IP settings based on the type of Windows operating system you are using. Once you've configured your computers, continue to Step 3: Configure the Router.

If you are running:

Windows 95, Windows 98, Windows Me

A. Click the **Start** button, click **Settings** and open the **Control Panel**. From there, double-click the **Network** icon to open the Network screen.

B. Select the Configuration tab and highlight the **TCP/IP line** for the applicable Ethernet adapter*. If the word **TCP/IP** appears by itself, select that line**. Then, click the **Properties** button.

C. Click the **IP Address** tab and select **Obtain an IP address automatically**.

D. Click the **Gateway** tab and verify that the Installed Gateway field is blank. Click the **OK** button.

E. Click the **OK** button again. Windows may ask you for the original Windows installation disk or additional files. Supply them by pointing to the correct file location, e.g., D:\win98, D:\win9x, c:\windows\options\cabs, etc. (This assumes that "D" is the letter of your CD-ROM drive).

F. If Windows asks you to restart your PC, click the **Yes** button. If Windows does not ask you to restart, restart your computer anyway.

*Note: Do not choose a TCP/IP entry whose name mentions DUN, PPPoE, VPN, or AOL.

**Note: If there is no TCP/IP line listed, refer to the User Guide found on the Setup Wizard CD-ROM or your Ethernet adapter's documentation to install TCP/IP now.

If you are running:

Windows 2000

A. Click the **Start** button, click **Settings** and open the **Control Panel**. From there, double-click the **Network and Dial-up Connections** icon. This will display the Network screen.

B. Select the **Local Area Connection** icon for the applicable Ethernet adapter* (usually it is the first Local Area Connection listed). Double-click **Local Area Connection**.

C. When the Local Area Connection Status screen appears, click the **Properties** button.

D. Select **Internet Protocol (TCP/IP)** and click the **Properties** button.

E. Select **Obtain an IP address automatically** and click the **OK** button on the subsequent screens to complete the PC's configuration.

F. Restart your computer.

*Note: Do not choose a TCP/IP entry whose name mentions DUN, PPPoE, VPN, or AOL.

If you are running:

Windows XP

The following instructions assume you are running Windows XP's default interface. If you are using the Classic interface (where the icons and menus look like previous Windows versions), please follow the instructions for Windows 2000.

A. Click the **Start** button, open the **Control Panel**. and click the **Network and Internet Connections** icon. Then, click the **Network Connections** icon to display the Network screen.

B. Select the **Local Area Connection** icon for the applicable Ethernet adapter (usually it is the first Local Area Connection listed). Double-click **Local Area Connection**.

C. When the Local Area Connection Status screen appears, click the **Properties** button.

D. Select **Internet Protocol (TCP/IP)** and click the **Properties** button.

E. Select **Obtain an IP address automatically** and click the **OK** button on the subsequent screens to complete the PC's configuration.

F. Restart your computer.

Step 3: Configure the Router

In Step 3, you will configure the Router to function in your network and gain access to the Internet through your Internet Service Provider (ISP). Your ISP may require the use of a Host Name and Domain Name. Further, you will set the WAN Configuration Type on the Router's Setup tab from the information given by your ISP. *You will need this setup information from your ISP.* If you do not have this information, please contact your ISP before proceeding. To find out what questions you should ask your ISP, refer to question #1 in the Help section.

The instructions from your ISP tell you how to set up your PC for Internet access. Since you are now using the Router to share Internet access among several computers, you will use this setup information for Router configuration.

A. Open your web browser. (It's all right if you get an error message at this point. Continue following these instructions) Enter **192.168.1.1** into the web browser's Address field and press the **Enter** key.

B. An Enter Network Password window, shown in Figure B1, will appear. (Windows XP users will see a Connect to 192.168.1.1 window, shown in Figure B2.) Leave the User Name field empty, and enter **admin** (the default password) in lowercase letters in the Password field. Then, click the **OK** button.

C. If required by your ISP, enter the Router's **Host Name** and **Domain Name** in the appropriate fields on the Setup tab. (This is usually required by cable ISPs.)

D. To configure the Router for your wireless network, verify that the Setup tab's Wireless fields (shown in Figure D) are completed as follows:

Enable/Disable: Selecting the **Enable** radio button will enable the Router's wireless feature. Wireless functions will not be available unless enabled.

SSID: The SSID (or ESSID) is a unique name for your wireless network. It is case sensitive and must not exceed 32 characters. The default SSID is "linksys " but you should change this to a personal wireless network name. All wireless points in your network must use the same SSID.

Channel: Select the appropriate channel for your network from the list provided. All wireless points in your network must use the same channel in order to function properly.

Note: *If you are interested in changing the Router's WEP settings, turn to the section for Configuring Wireless Security.*

E. The Router supports five connection types: DHCP (obtain an IP automatically), PPPoE, Static IP Address, RAS, and PPTP. These types are selected from the pull-down menu beside **WAN Connection Type**. The Setup screen and available features will differ depending on what kind of connection type you select, the instructions for which are included here:

1. Obtain an IP Automatically

If your ISP says that you are connecting through a dynamic IP address (or DHCP), perform these steps:

a. Select **Obtain an IP automatically** as the WAN Connection Type (as previously shown in Figure D).

b. Click the **Apply** button to save the settings.

2. Static IP

If your ISP says that you are connecting through a static (or fixed) IP address, perform these steps:

a. Select **Static IP** as the WAN Connection Type.

b. In the fields beside "Specify WAN IP Address", enter the **IP Address**.

c. Enter the **Subnet Mask**.

d. Enter the **Default Gateway Address**.

e. Enter the **DNS** in the 1, 2, and/or 3 fields. You must enter at least one DNS address.

f. Click the **Apply** button to save the settings.

3. PPPoE

If your DSL provider says that you are connecting through PPPoE or if you normally enter a user name and password to access the Internet, perform these steps:

a. Select **PPPoE** as the WAN Connection Type.

b. Enter the **User Name**.

c. Enter the **Password**.

d. Click the **Apply** button to save the settings.

e. Click the **Status** tab, followed by the **Connect** button, to start the connection.

4. RAS

RAS is a service used in Singapore only. If you are using a RAS connection, check with your ISP for the necessary setup information.

5. PPTP

PPTP is a service used in Europe only. If you are using a PPTP connection, check with your ISP for the necessary setup information.

F. If you haven't already done so, click the **Apply** button to save the settings.

G. Reset the power on your cable or DSL modem and restart your computers. They will now obtain the Router's new settings.

Note: You only need to configure the Router from one computer. If you need advanced setting information, please refer to the Linksys support website at *support.linksys.com* or the User Guide on the Setup Wizard CD-ROM.

Congratulations! You've successfully configured the Router. You can test the setup by opening your web browser from any computer and entering *www.linksys.com/registration*.

If you are unable to reach our website, you may want to review what you did in this section or refer to the Help section in this Fast Start guide.

Help

The Help section contains the most frequently asked Internet connection questions. If you have additional setup needs or you wish to get information on the Advanced Features, please visit *kb.linksys.com* or see the User Guide, which contains a Troubleshooting appendix (available on the Setup Wizard CD-ROM).

1. I'm not sure what information I need from my Internet Service Provider (ISP) to get my network up and running. What questions should I ask?

What type of connection do I have: dynamic IP address, static IP address, or PPPoE?

- If I am using a dynamic IP address, I should ask:
  - What is my Host Name (if needed)?
  - What is my Domain Name (if needed)?

- If I am using a static IP address, I should ask:
  - What is my IP Address?
  - What is my Gateway?
  - What is my DNS?

- If I am using PPPoE (typically used by DSL ISPs), I should ask:
  - What is my User Name?
  - What is my Password?

After you obtain the information, follow the instructions in the Fast Start - Step 3: Configure the Router, and use this information to enter on the Setup tab. In the WAN Connection Type section, refer to the chart on the next page:

If you have this type of connection:	Perform these steps:
Dynamic IP Address (DHCP)	1. Select **Obtain an IP automatically** as the WAN Connection Type. 2. Click the **Apply** button to save the setting.
Static IP Address	1. Select **Static IP** as the WAN Connection Type. 2. Enter the **IP Address**. 3. Enter the **Subnet Mask**. 4. Enter the **Gateway Address**. 5. Enter the **DNS** in the 1, 2, and/or 3 fields. You need to enter at least one DNS address. 6. Click the **Apply** button to save the settings.
PPPoE	1. Select **PPPoE** as the WAN Connection Type. 2. Enter the **User Name**. 3. Enter the **Password**. 4. Click the **Apply** button to save the settings.
RAS or PPTP	If you are using RAS (Singapore SingTel) or PPTP (service in Europe), check with your ISP for the necessary setup information.

2. I'm having problems connecting to the Internet, what LEDs should be lit on the front of the Router?

- Each Router's LED will light up for any proper connection made on the back of the Router—whether it is an Ethernet cable or power cord.

  For example, the following are typical LEDs that light up once a computer and a cable or DSL modem are connected:

  - When the Router is turned on (the power adapter is plugged into the Router), the *Power* LED lights up.
  - When an Ethernet cable is properly connected between a PC and Port 4 of the Router, the *Link/Act*, *Ful/Col*, and *100* LEDs in Column 4 light up.
  - A cable or DSL modem connection causes the *WAN Link* LED to light up.

- My *WAN Link* LED isn't lit. What should I check?
  - Check that the cable you are using between your cable or DSL modem and the Router is the same cable that came with your modem. Depending on the type of connection your modem uses, you may need either a "straight-through" or "crossover" Ethernet cable (the "straight-through" type is more common).

- Some of the lights on the front of the Router don't light up when I plug in a PC.
  - Only the *Link/Act* LED is required for a connection to work correctly.

3. I cannot get onto the Internet, nor can I access the Router's Setup page. What should I check?

A. First check that the cable or DSL modem and computers are properly connected to the Router. See Question #2 for how to verify that the connections are good.

B. Then, check that you have properly configured your PCs to communicate with the Router. Below you will find instructions for the various versions of Windows.

- **Windows 95, 98, or ME**
  - Click the **Start** menu, and then click **Run**. After the Run window appears, enter **winipcfg** in the Open field, and then click the **OK** button.
  - When the IP Configuration window appears, click the **gray box** with a black arrow pointing down.
  - A list of adapters will appear. Select the **adapter** that you use to connect to the Internet. These items should not contain "PPP", "VPN", "AOL", or "Dial-Up adapter" as part of the entry.
  - The IP Address field should show an IP address of 192.168.1.100 or 192.168.1.xxx, with "xxx" being any number greater than 100.
    If your IP address is not in that range, hold the reset button on the front of the Router for more than 30 seconds. This will cause your Router to be set to factory default, so you will need to re-configure the Router's Setup page. After re-configuring the Setup page, restart the computer.

- **Windows NT, 2000, and XP**
  - Click the **Start** menu, and then click **Run**. After the Run window appears, enter **cmd** in the Open field, and then click the **OK** button.
  - This will open a command prompt. Enter **ipconfig /all** and then press the **Enter** key.

  - The IP Address field should show an IP address of 192.168.1.100 or 192.168.1.xxx, with "xxx" being any number greater than 100.
    If your IP address is not in that range, hold the reset button on the front of the Router for more than 30 seconds. This will cause your Router to be set to factory default, so you will need to re-configure the Router's Setup page. After re-configuring the Setup page, restart the computer.

C. Now you will configure some settings in Windows.

- Go to your desktop and double-click **My Computer**, and then double-click **Control Panel (**Windows XP users using the default interface, click **Start**, and then select **Control Panel**).
- When the Control Panel window pops up, double-click the **Internet Options** icon (Windows XP users using the default interface, click **Network and Internet Connections**, and then click **Internet Options**).
- When the Internet Options window appears, click the **Connections** tab.
- Check **Never Dial Up a Connection**. (If this choice is grayed out, that is fine.)
- Click the **LAN Settings …** button in the lower right-hand corner.
- When the Local Area Network (LAN) Settings window appears, **uncheck all boxes**.
- Click the **OK** button and the **Apply** button (the **Apply** button will be grayed out if you did not have to make any changes). Then click the **OK** button again.
- Exit the Control Panel, and restart your computer.

4. When I click on the icon to access the Internet, and enter the user name and password that my ISP gave me, I cannot connect to the Internet. What is wrong?

This means that you're using the software given to you by your ISP. Please use Internet Explorer or Netscape Navigator, which is located on your desktop (located on the Start Menu in Windows XP).

5. When I use Internet Explorer, a box pops up prompting me to dial up a connection. How can I disable that?

A. Go to your desktop and double-click **My Computer**, and then double-click **Control Panel (**Windows XP users using the default interface, click **Start**, and then select **Control Panel**).
B. When the Control Panel window pops up, double-click the **Internet Options** icon (Windows XP users using the default interface, click **Network and Internet Connections**, and then click **Internet Options**).
C. When the Internet Options window appears, click the **Connections** tab.

D. Check **Never Dial Up a Connection**.
E. Click the **Apply** button.
F. Click the **OK** button.

6. I get no signal strength or link quality or signal strength, what can I do?

A. Verify that the Router's WLAN LED is illuminated.
B. Verify that all of your wireless PCs are using "Infrastructure" mode.

7. How can I improve the Router's range?

A. Verify that the Router is as high off of the ground as possible.
B. Verify that there are no large sources of electrical interference nearby. (For example: speakers breaker boxes, florescent lights, microwaves, etc.)
C. Change the wireless channel being used. To do this:

- Open your web browser and type **http://192.168.1.1** into the "Address" field.
- In the "Enter Network Password" box, leave the "User Name" field blank and type **admin** as the password. Then, click **OK**.
- From the Setup tab, change the channel to **1**.
- Click the **Apply** button to save the settings.
- Continue doing this until you find the channel that provides the best range.

Configuring Wireless Security

Note: WEP encryption is an additional data security measure and not essential for router operation.

An acronym for Wired Equivalent Privacy, WEP is an encryption method used to protect your wireless data communications. WEP uses a combination of 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 point in a network must use an identical 64-bit or 128-bit key. Higher encryption levels mean higher levels of security, but due to the complexity of the encryption, they may mean decreased network performance.

You may also have heard the term "40-bit" used in conjunction with WEP encryption. This is simply another term for 64-bit WEP encryption. This level of WEP encryption has been called 40-bit because it uses a 40-bit secret key along with a 24-bit Initialization Vector (40 + 24 = 64). Wireless vendors may use either name. Linksys uses the term "64-bit" when referring to this level of encryption.

Make sure your wireless network is functioning before attempting to configure WEP encryption.

A 128-bit WEP encrypted wireless network will NOT communicate with a 64-bit WEP encrypted wireless network. Therefore, make sure that all of your wireless devices are using the same encryption level. All wireless devices complying with the 802.11b standard will support 64-bit WEP.

In addition to enabling WEP, Linksys also recommends the following security implementations:
• Changing the SSID from the default "linksys"
• Changing the WEP key regularly

Note: In order for WEP Encryption to be enabled, wireless functions must first be enabled. Select **Enable** on the Router's Wireless tab before proceeding.

The following steps will show you how to utilize WEP encryption

1. From the Web-based Utility's Setup tab, select **Mandatory** under the WEP section.

2. Press the **WEP Key Setting** button to set the WEP Encryption type and level.

3. The screen displayed in Figure C-1 may appear, verifying that you are enabling WEP Encryption. Press the **OK** button to continue.

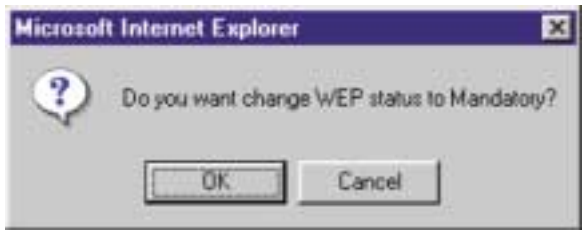

Figure C-1

4. This will display the screen shown in Figure C-2. From this screen, you will choose your WEP Encryption settings.

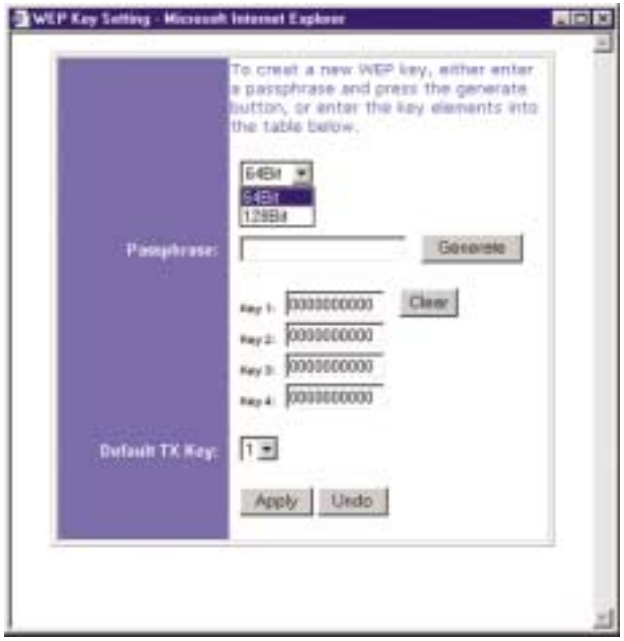

Figure C-2

- **WEP (64Bit or 128B)** Select the level of encryption from the drop-down box. 128-bit WEP encryption is unique to Linksys and may conflict with other vendors' WEP encryption.

Note: In order to utilize WEP encryption, all points in your wireless network must have WEP enabled and be set to the same Key Setting.

The WEP Encryption key is generated in one of two ways:

1. You may create an encryption key by using a **Passphrase.**

   a. Enter a Passphrase, a user-defined password, into the **Passphrase** field. The Passphrase can be a maximum of 31 letters, symbols, and numbers. No spaces can be used.

   b. Click the **Generate** button to create a key. The key will be 10 digits if you chose 64-bit encryption, or 26 digits if you chose 128-bit encryption. This key will be used to encrypt and decrypt the data being sent between the Router and your network's wireless PCs.

   The Key field may not display all digits. Using the mouse, click anywhere within the Key field. Move the cursor to the right to view the rest of the Key. Make sure your write down the entire Key EXACTLY the way it is displayed.

2. You may enter the encryption key manually.

Make a note of the Passphrase or Manual Key. You will need it for the other wireless devices on the network, as the same WEP encryption key must be entered in all wireless devices on the network.

Once you have chosen your key encryption method and entered either the Passphrase or manual key, click the **Apply** button, and the encryption portion of the setup is complete.

Note: In Windows XP, a 128-bit Key generated by the Router will be called a "104 bits (26 digits)" key, and a 64-bit Key generated by the Router will be called a "40 bits (10 digits)" key.

Configuring Wireless Security in Windows XP

As Windows XP does not allow for the use of the Linksys Passphrase feature with the wireless PC adapters, you will need to manually enter the key generated in the previous section.

The following steps will help you enable WEP and enter the encryption key manually for your wireless PC cards, in order to enable your Windows XP system to communicate with the Router wirelessly.

These steps assume that your CD-ROM drive is letter D and that you are running Windows XP in the default mode.

Be sure you have the WEP Key generated by the Router.

1. As shown in Figure C-3, click the **Start** button and go to the **Control Panel**.

Figure C-3

2. In the "Control Panel" window, click the **Network and Internet Connections** icon, shown in Figure C-4.

Figure C-4

3. Click the **Network Connections** icon, shown in Figure C-5.

Figure C-5

4. The "Network Connections" window will appear, as shown in Figure C-6. Under LAN or High-Speed Internet you will see all Network cards that are installed and operating in your computer. Double-click the **Wireless Network Connection** icon associated with your wireless adapter.

   If the "Wireless Network Connection Status" window appears, continue to the next step

If a “Connect to Wireless Network” window appears, in the Available Networks section, click the desired wireless network, specified by the Router’s SSID. Then, double-click the **Wireless Network Connection** icon.

Figure C-6

5. When the “Wireless Network Connection Status” window appears, as in Figure C-7, click the **Properties** button.

Figure C-7

6. When the “Wireless Network Connection Properties” window appears, as in Figure C-8, click the **Wireless Networks** Tab.

Figure C-8

7. If the appropriate wireless network, specified by the Router’s SSID, is displayed in the “Preferred networks” section, as shown in Figure C-9, double-click it and continue to the next step.

   Otherwise, click on the appropriate wireless network, specified by the Router’s SSID, in the “Available networks” section. Then, click the **Configure** button

Figure C-9

8. The “Wireless Network Properties” window (shown in Figure C-10) will appear.

   Click the check box for the **Data encryption (WEP enabled)** option.

   Remove the check from the **Network Authentication (Shared mode)** and **The key is provided for me automatically** fields.

   In the "Network key" field, enter the exact Key (all 10 or 26 digits, depending on the level of encryption) generated by the Router.

   Verify that the “Key format” field displays “Hexadecimal digits” and that the “Key length” field displays either “40 bits (10 digits)” or “104 bits (26 digits)”. If this is not displayed, you have entered the key incorrectly.

Figure C-10

   Click the **OK** button to save the settings. Click on **OK** buttons until you get back to the “Wireless Network Connection Status” window. Close any open windows to get back to the Windows XP desktop.

Close any applications and reboot your PC. After reboot, WEP configuration is complete and you should be able to connect wirelessly to the Router.

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AVIS DE CONFORMITÉ FCC
Les tests de conformité effectués sur le routeur de point d'accès sans fil avec commutateur 4 ports Instant Wireless™ ont montré qu'il respecte les limites fixées pour un appareil numérique de classe B en vertu de l'article 15 des règlements de la FCC. Ces limites sont conçues pour apporter une protection adéquate contre le brouillage radioélectrique préjudiciable des installations résidentielles. Cet équipement produit, utilise et peut émettre de l'énergie radioélectrique et il peut, lorsqu'il n'est pas installé et utilisé conformément aux instructions données, causer un brouillage préjudiciable des radiocommunications. Cependant, rien ne garantit qu'une installation particulière ne produira pas de brouillage. Si l'appareil venait à causer un brouillage préjudiciable de la réception d'émissions radio ou télévisuelles, ce qui peut être déterminé en l'éteignant et en le rallumant, nous vous conseillons d'essayer d'y remédier en prenant une ou plusieurs des mesures suivantes :

- réorienter ou déplacer l'antenne de réception ;
- éloigner l'appareil du récepteur ;
- brancher l'appareil et le récepteur sur des prises de courant différentes ;
- consulter le revendeur ou un technicien radiotélévision expérimenté.

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Pour le support produit, contactez-nous aux adresses indiquées ci-dessous :

E-mail	europe-support@linksys.com latam-soporte@linksys.com
Web	http://www.linksys.com/international

Introduction

Merci d'avoir choisi le routeur de point d'accès sans fil Instant Wireless™. Ce routeur permet de relier des PC en réseau et même de partager une connexion Internet.

Comment le routeur procède-t-il ? En connectant votre modem câble ou DSL directement au routeur et en utilisant les ports Ethernet du routeur pour relier vos PC, c'est un peu comme si chaque PC était directement connecté à Internet. Plusieurs PC peuvent ainsi utiliser simultanément une même connexion Internet. Le routeur constituant également un point d'accès, il peut établir un pont entre votre réseau Ethernet et vos PC sans fil.

Possibilités offertes

Les réseaux constituent de puissants outils pour partager des ressources informatiques. Vous pouvez utiliser une imprimante depuis différents ordinateurs et accéder aux données résidant sur le disque dur d'un autre ordinateur. Les réseaux permettent également d'utiliser à plusieurs des jeux vidéo. Les réseaux sont donc non seulement très utiles, mais peuvent également s'avérer ludiques.

Les PC que vous connectez aux quatre ports de réseau local du routeur, s'ils sont correctement configurés, créent un réseau local. Ils sont connectés au moyen d'un câble Ethernet branché à une extrémité sur l'adaptateur Ethernet de l'ordinateur et sur les ports de réseau local du routeur (numérotés de 1 à 4) à l'autre extrémité. Le terme « Ethernet » fait référence aux accessoires de réseau, tels que câbles et adaptateurs, et désigne le type de réseau mis en place. Dans la documentation du routeur, Ethernet fait référence aux accessoires qui transfèrent les données informatiques à un débit compris entre 10 Mbits/s et 100 Mbits/s. 10 Mbits/s et 100 Mbits/s désignent les vitesses utilisées par les périphériques réseau. Lors d'un transfert de données à 10 Mbits/s, vous transférez l'équivalent de plus de sept disquettes par seconde ! Les accessoires réseau qui fonctionnent à 100 Mbits/s offrent des débits dix fois plus rapides !

Les PC peuvent également être raccordés au routeur par une connexion sans fil. En configurant les PC sans fil avec les mêmes paramètres sans fil que le routeur, vous pouvez raccorder ces PC tout en les intégrant à votre réseau Ethernet existant.

Mais le routeur permet surtout de partager votre connexion câble ou DSL. Pour cela, il suffit de connecter votre modem câble ou DSL au port WAN du routeur avec un câble Ethernet. Le terme WAN (Wide Area Network) désigne un réseau étendu. Internet est un réseau global couvrant la zone la plus vaste qui soit ! Les PC connectés au routeur partagent cette connexion.

Utilisez les instructions de ce Guide de démarrage rapide pour connecter le routeur, configurer vos PC et configurer le routeur sur votre réseau. Ces instructions contiennent toutes les informations nécessaires à la mise en service d'un réseau de base avec partage de votre accès à Internet. Le routeur est également équipé de fonctions plus avancées, mais elles ne doivent pas être utilisées sans une connaissance approfondie des routeurs et des réseaux. Celles-ci, ainsi que d'autres sujets, sont abordés dans le Guide de l'utilisateur figurant sur le CD-ROM Setup Wizard (Assistant Installation).

Vue d'ensemble de l'installation

La configuration du routeur est similaire à celle illustrée à la figure ci-dessus pour tout PC Windows. Le routeur vous permet de partager votre connexion DSL ou par câble entre plusieurs ordinateurs à domicile ou au bureau. Cela s'appelle un réseau local ou LAN.

Ce Guide de démarrage rapide vous donne un « aperçu général » de ce dont vous avez besoin pour configurer un réseau de base chez vous ou au bureau. Les trois prochaines sections expliquent comment installer et configurer votre équipement pour permettre un accès partagé et grande vitesse à Internet.

Étape 1 : connexion du routeur

Cette étape vous guide à travers la procédure de connexion du routeur à votre modem câble ou DSL. Elle explique ensuite comment connecter vos PC au routeur.

Étape 2 : configuration des PC

Cette étape indique comment configurer vos PC pour communiquer avec le routeur.

Étape 3 : configuration du routeur

Cette étape décrit certains paramètres de base du routeur qui lui permettent de fonctionner avec votre modem câble ou DSL de même qu'avec les paramètres de votre ISP.

Remarque : *ce Guide de démarrage rapide décrit l'installation du routeur avec des câbles Ethernet. Bien que le routeur puisse être installé au moyen d'une connexion sans fil, cette configuration n'est pas décrite dans ce Guide de démarrage rapide. Si vous souhaitez installer le routeur en employant une connexion sans fil, reportez-vous aux informations présentées sur le site Web Linksys à l'adresse www.linksys.com.*

Étape 1 : connexion du routeur

À l'étape1, vous allez connecter le routeur à votre modem câble ou DSL, ainsi qu'aux ordinateurs de votre domicile ou bureau.

Vérifiez d'abord que tous les appareils que vous utiliserez sont hors tension, notamment les PC, le modem et le routeur.

A. Si ce n'est déjà fait, branchez votre modem câble ou DSL sur la prise adéquate : la prise coaxiale pour câble (figure A1) ou la prise téléphonique pour DSL (figure A2). (Suivez les instructions du Guide d'installation de votre modem câble ou DSL.)

A1

A2

B. À l'aide d'un câble Ethernet, raccordez le port Ethernet du modem câble ou DSL au port WAN du routeur.

B

C. Branchez un câble Ethernet sur l'adaptateur Ethernet du PC. Branchez l'autre extrémité du câble sur l'un des ports de réseau local du routeur. Recommencez cette opération pour chaque PC à connecter au routeur.

C1

Remarque : si l'adaptateur Ethernet du PC n'est pas installé, reportez-vous à sa documentation pour plus d'informations.

Pour simplifier l'installation, commencez par le port de réseau local 1 sur le routeur, puis le port 2, le port 3 et enfin le port 4.

Si vous connectez plus de quatre PC au routeur, vous devrez connecter un hub ou un commutateur au port de liaison montante (Uplink) du routeur (si vous utilisez le port de liaison montante, vous ne pouvez pas utiliser le port 4). Pour plus d'informations sur les liaisons montantes, reportez-vous au Guide de l'utilisateur figurant sur le CD-ROM Setup Wizard (Assistant Installation).

C2

D. Branchez l'adaptateur de courant sur le port d'alimentation du routeur, puis sur une prise électrique. Mettez le modem câble ou DSL sous tension. Mettez ensuite sous tension le premier PC à utiliser lors de la configuration du routeur.

Passez à l'étape 2 : configuration des PC (page suivante).

Étape 2 : configuration des PC

À l'étape 2, vous allez configurer chacun de vos ordinateurs pour communiquer avec le routeur.

Pour cela, vous devrez configurer les paramètres réseau du PC afin d'obtenir automatiquement une adresse IP (ou TCP/IP). Les ordinateurs emploient des adresses IP pour communiquer entre eux sur un réseau ou sur Internet.

Identifiez le système d'exploitation utilisé sur votre ordinateur, par exemple Windows 95, 98, Millennium, 2000 ou XP. Vous devez savoir sous quel système d'exploitation votre ordinateur fonctionne. Pour cela, cliquez sur le bouton **Démarrer**, puis sélectionnez l'option **Paramètres**. (Si le menu Démarrer ne comporte pas d'option Paramètres, vous utilisez Windows XP. Vous pouvez accéder directement au Panneau de configuration depuis le menu Démarrer.) Cliquez ensuite sur **Panneau de configuration**, puis double-cliquez sur l'icône **Système**. Cliquez sur le bouton **Annuler** une fois que vous avez terminé.

Une fois que vous connaissez le système d'exploitation Windows utilisé, suivez les directives de cette étape correspondant au système d'exploitation de l'ordinateur. Vous devrez éventuellement suivre cette procédure pour chaque ordinateur à connecter au routeur.

Les pages suivantes présentent la procédure pas à pas de configuration des paramètres TCP/IP en fonction du type de système d'exploitation Windows employé. Une fois les ordinateurs configurés, passez à l'étape 3 : configuration du routeur.

Si vous utilisez :
Windows 95, Windows 98, Windows Me

A. Dans le menu **Démarrer**, choisissez **Paramètres** et ouvrez le **Panneau de configuration**. Dans le Panneau de configuration, double-cliquez sur l'icône **Réseau** pour ouvrir l'écran Réseau.

B. Sélectionnez l'onglet Configuration et mettez en surbrillance la **ligne TCP/IP** de l'adaptateur Ethernet concerné*. Si le mot **TCP/IP** apparaît seul, sélectionnez cette ligne**. Cliquez ensuite sur le bouton **Propriétés**.

C. Cliquez sur l'onglet **Adresse IP** et sélectionnez **Obtenir une adresse IP automatiquement**.

D. Cliquez sur l'onglet **Passerelle** et vérifiez que le champ Passerelles installées est vide. Cliquez ensuite sur le bouton **OK**.

E. Cliquez de nouveau sur le bouton **OK**. Windows peut vous demander la disquette d'installation Windows d'origine ou des fichiers supplémentaires. Indiquez leur emplacement, par exemple D:\win98, D:\win9x, c:\windows\options\cabs, etc. Cela suppose que « D » soit la lettre du lecteur de CD-ROM.

F. Si Windows vous demande de redémarrer le PC, cliquez sur le bouton **Oui**. Même si Windows ne vous le demande pas, redémarrez quand même l'ordinateur.

*Remarque : ne choisissez pas une entrée TCP/IP dont le nom contient le terme DUN, PPPoE, VPN ou AOL.

**Remarque : si aucune ligne TCP/IP n'est répertoriée, reportez-vous au Guide de l'utilisateur se trouvant sur le CD-ROM Setup Wizard (Assistant Installation) ou à la documentation de votre adaptateur Ethernet pour installer TCP/IP maintenant.

Si vous utilisez :
Windows 2000

A. Dans le menu **Démarrer**, choisissez **Paramètres** et ouvrez le **Panneau de configuration**. Double-cliquez sur l'icône **Connexions réseau et accès à distance**. L'écran Réseau s'affiche.

B. Sélectionnez l'icône **Connexion au réseau local** pour l'adaptateur Ethernet concerné* (il s'agit généralement de la première connexion au réseau local répertoriée). Double-cliquez sur **Connexion au réseau local**.

C. Lorsque l'écran État de la connexion au réseau local apparaît, cliquez sur le bouton **Propriétés**.

D. Sélectionnez **Protocole Internet (TCP/IP)** et cliquez sur le bouton **Propriétés**.

E. Sélectionnez **Obtenir une adresse IP automatiquement** et cliquez sur le bouton **OK** dans les écrans suivants pour terminer la configuration du PC.

F. Redémarrez l'ordinateur.

*Remarque : ne choisissez pas une entrée TCP/IP dont le nom contient le terme DUN, PPPoE, VPN ou AOL.

Si vous utilisez :
Windows XP

Les instructions suivantes partent du principe que vous utilisez l'interface par défaut de Windows XP. Si vous utilisez l'interface classique (dans laquelle les icônes et les menus ressemblent à ceux des versions précédentes de Windows), veuillez suivre les instructions fournies pour Windows 2000.

A. Dans le menu **Démarrer**, ouvrez le **Panneau de configuration** et cliquez sur l'icône **Connexions réseau et Internet**. Cliquez ensuite sur l'icône **Connexions réseau** pour afficher l'écran Connexions réseau.

B. Sélectionnez l'icône **Connexion au réseau local** pour l'adaptateur Ethernet concerné (il s'agit généralement de la première connexion au réseau local répertoriée). Double-cliquez sur **Connexion au réseau local**.

C. Lorsque l'écran État de la connexion au réseau local apparaît, cliquez sur le bouton **Propriétés**.

D. Sélectionnez **Protocole Internet (TCP/IP)** et cliquez sur le bouton **Propriétés**.

E. Sélectionnez **Obtenir une adresse IP automatiquement** et cliquez sur le bouton **OK** dans les écrans suivants pour terminer la configuration du PC.

F. Redémarrez l'ordinateur.

Étape 3 : configuration du routeur

À l'étape 3, vous configurez le routeur pour l'utiliser dans votre réseau et accéder à Internet par l'intermédiaire de votre fournisseur de services Internet (ISP). Votre ISP peut imposer l'emploi d'un nom d'hôte et d'un nom de domaine. Vous indiquerez aussi le type de configuration WAN dans l'onglet Setup (Configuration) du routeur à partir des informations fournies par votre ISP. *Vous devrez demander ces informations de configuration à votre ISP.* Si vous ne disposez pas de ces informations, veuillez contacter votre ISP avant de continuer. Pour savoir quelles questions poser à votre fournisseur de services Internet, reportez-vous à la question 1 de la section Aide.

Les instructions de votre fournisseur de services Internet indiquent comment configurer votre PC pour un accès Internet. Comme vous utilisez maintenant le routeur pour partager un accès Internet entre plusieurs ordinateurs, vous aurez besoin de ces informations pour configurer le routeur.

A. Ouvrez le navigateur Web. Il est normal d'obtenir un message d'erreur à ce stade. Continuez à suivre ces instructions. Entrez **192.168.1.1** dans le champ Adresse de votre navigateur Web et appuyez sur la touche **Entrée**.

B. Une fenêtre Mot de passe réseau, présentée à la figure B1, apparaît. (Les utilisateurs de Windows XP verront une fenêtre Connexion 192.168.1.1, présentée à la figure B2). Laissez le champ Nom d'utilisateur vide et entrez **admin** (le mot de passe par défaut) en minuscules dans le champ Mot de passe. Cliquez ensuite sur le bouton **OK**.

C. Si votre fournisseur de services Internet le demande, entrez le **nom d'hôte** et le **nom de domaine** du routeur dans les champs appropriés de l'onglet Setup (Configuration). Ces informations sont habituellement demandées par les fournisseurs de services Internet proposant un accès par câble.

D. Pour configurer le routeur pour votre réseau sans fil, vérifiez que les champs Wireless (Sans fil) de l'onglet Setup (Configuration) (figure D) sont renseignés de la façon suivante :

Enable/Disable (Activer/Désactiver) : La sélection de la case d'option **Enable** (Activer) active la fonction sans fil du routeur. Les fonctions sans fil ne sont disponibles que si elles sont activées.

SSID : L'identificateur SSID (ou ESSID) est un nom unique attribué à votre réseau sans fil. Il respecte la casse et ne doit pas comporter plus de 32 caractères. L'identificateur SSID par défaut est « linksys », mais vous pouvez le remplacer par un nom de réseau sans fil personnel. Tous les points sans fil de votre réseau doivent utiliser le même SSID.

Remarque : *si vous souhaitez changer les paramètres WEP du routeur, passez à la section Configuration de la sécurité sans fil.*

Channel (Canal) : Sélectionnez le canal approprié pour votre réseau à partir de la liste proposée. Tous les points sans fil de votre réseau doivent utiliser le même canal pour fonctionner correctement.

E. Le routeur prend en charge cinq types de connexion : DHCP (obtention automatique d'une adresse IP), PPPoE, Adresse IP permanente, RAS et PPTP. Ces types sont sélectionnés dans le menu déroulant en regard de **WAN Connection Type** (Type de connexion WAN). L'écran Setup (Configuration) et les fonctions disponibles varient selon le type de connexion choisie. Les instructions correspondantes sont présentées ici :

1. Obtain an IP Automatically (Obtenir une adresse IP automatiquement)

Si votre fournisseur de services Internet indique que vous vous connectez par l'intermédiaire d'une adresse IP dynamique (ou DHCP), procédez comme suit :

a. Sélectionnez **Obtain an IP automatically** (Obtenir une adresse IP automatiquement) pour WAN Connection Type (Type de connexion WAN) (comme à la figure D plus haut).

b. Cliquez sur le bouton **Apply** (Appliquer) pour enregistrer les paramètres.

2. Adresse IP permanente

Si votre fournisseur de services Internet indique que vous vous connectez par l'intermédiaire d'une adresse IP permanente (ou statique), procédez comme suit :

a. Sélectionnez **Static IP** (Adresse IP permanente) pour WAN Connection Type (Type de connexion WAN).

b. Dans les champs situés en regard de « Specify WAN IP Address » (Spécifier l'adresse IP WAN), entrez l'**adresse IP**.

c. Renseignez le champ **Subnet Mask** (Masque de sous-réseau).

d. Renseignez le champ **Default Gateway Address** (Adresse de passerelle par défaut).

e. Entrez l'adresse **DNS** dans les champs 1, 2 et/ou 3. Vous devez entrer au moins une adresse DNS.

f. Cliquez sur le bouton **Apply** (Appliquer) pour enregistrer les paramètres.

3. PPPoE

Si votre fournisseur DSL indique que vous vous connectez par l'intermédiaire de PPPoE ou si vous entrez normalement un nom d'utilisateur ainsi qu'un mot de passe pour accéder à Internet, procédez comme suit :

a. Sélectionnez **PPPoE** pour WAN Connection Type (Type de connexion WAN).

b. Renseignez le champ **User Name** (Nom d'utilisateur).

c. Renseignez le champ **Password** (Mot de passe).

d. Cliquez sur le bouton **Apply** (Appliquer), pour enregistrer les paramètres.

e. Cliquez sur l'onglet **Status** (État), puis sur le bouton **Connect** (Se connecter) pour lancer la connexion.

4. RAS

RAS est un service utilisé à Singapour uniquement. Si vous utilisez une connexion RAS, demandez à votre fournisseur de services Internet les informations de configuration nécessaires.

5. PPTP

PPTP est un service utilisé en Europe uniquement. Si vous utilisez une connexion PPTP, demandez à votre fournisseur de services Internet les informations de configuration nécessaires.

F. Si ce n'est déjà fait, cliquez sur le bouton **Apply** (Appliquer) pour enregistrer les paramètres.

G. Remettez le modem câble ou DSL sous tension et redémarrez les ordinateurs. Ils utilisent à présent les nouveaux paramètres du routeur.

Remarque : vous ne devez configurer le routeur que sur un seul ordinateur. Si vous avez besoin d'informations sur la configuration avancée, visitez le site Web de support technique Linksys à l'adresse *support.linksys.com* ou reportez-vous au Guide de l'utilisateur figurant sur le CD-ROM Setup Wizard (Assistant Installation).

Félicitations ! La configuration du routeur est terminée. Vous pouvez tester la configuration en ouvrant votre navigateur Web à partir d'un ordinateur et en tapant *www.linksys.com/registration*.

Si vous ne parvenez pas à accéder à notre site Web, examinez à nouveau les procédures de cette section ou la section Aide de ce Guide de démarrage rapide.

Aide

La section Aide contient les questions les plus fréquentes sur la connexion à Internet. Si vous devez effectuer une configuration supplémentaire ou si vous souhaitez obtenir des informations sur les fonctions avancées, visitez le site *kb.linksys.com* ou consultez le Guide de l'utilisateur, qui contient une annexe consacrée au dépannage. Ce dernier est disponible sur le CD-ROM Setup Wizard (Assistant Configuration).

1. Je ne suis pas certain des informations que je dois me procurer auprès de mon fournisseur de services Internet (ISP) pour la mise en service de mon réseau. Quelles questions dois-je poser ?

Quel est mon type de connexion : adresse IP dynamique, adresse IP permanente ou PPPoE ?

- Si j'utilise une adresse IP dynamique, je dois demander :
  - Quel est mon nom d'hôte (éventuel) ?
  - Quel est mon nom de domaine (éventuel) ?
- Si j'utilise une adresse IP permanente, je dois demander :
  - Quelle est mon adresse IP ?
  - Quelle est ma passerelle ?
  - Quel est mon DNS ?
- Si j'utilise PPPoE (généralement employé par les ISP DSL), je dois demander :
  - Quel est mon nom d'utilisateur ?
  - Quel est mon mot de passe ?

Lorsque vous avez obtenu ces informations, suivez les instructions du Guide de démarrage rapide - Étape 3 : configuration du routeur et utilisez ces informations pour accéder à l'onglet Setup (Configuration). Dans la section WAN Connection Type (Type de connexion WAN), reportez-vous au graphique de la page suivante :

Si vous avez ce type de connexion :	Procédez comme suit :
Adresse IP dynamique (DHCP)	1. Sélectionnez **Obtain an IP automatically** (Obtenir une adresse IP automatiquement) pour WAN Connection Type (Type de connexion WAN). 2. Cliquez sur le bouton **Apply** (Appliquer) pour enregistrer les paramètres.
Adresse IP permanente	1. Sélectionnez **Static IP** (Adresse IP permanente) pour WAN Connection Type (Type de connexion WAN). 2. Renseignez le champ **IP Address** (Adresse IP). 3. Renseignez le champ **Subnet Mask** (Masque de sous-réseau). 4. Renseignez le champ **Gateway Address** (Adresse de passerelle). 5. Entrez l'adresse **DNS** dans les champs 1, 2 et/ou 3. Vous devez entrer au moins une adresse DNS. 6. Cliquez sur le bouton **Apply** (Appliquer) pour enregistrer les paramètres.
Protocole PPPoE	1. Sélectionnez **PPPoE** pour WAN Connection Type (Type de connexion WAN). 2. Renseignez le champ **User Name** (Nom d'utilisateur). 3. Renseignez le champ **Password** (Mot de passe). 4. Cliquez sur le bouton **Apply** (Appliquer) pour enregistrer les paramètres.
RAS ou protocole PPTP	Si vous utilisez RAS (Singapore SingTel) ou le protocole PPTP (service en Europe), demandez à votre fournisseur de services Internet les informations de configuration nécessaires.

2. Je rencontre des problèmes lors de la connexion à Internet. Quels voyants doivent être allumés à l'avant du routeur ?

- Le voyant de chaque routeur s'allume pour toutes les connexions correctes établies à l'arrière du routeur, qu'il s'agisse d'un câble Ethernet ou d'un cordon d'alimentation.

  Par exemple, voici les voyants qui s'allument en général lorsqu'un ordinateur et un modem câble ou DSL sont connectés :

  - Lorsque le routeur est sous tension (l'adaptateur secteur est branché sur le routeur), le voyant *Power* s'allume.
  - Lorsqu'un câble Ethernet est correctement raccordé à un PC et au port 4 du routeur, les voyants *Link/Act*, *Ful/Col* et *100* de la colonne 4 s'allument.
  - Si une connexion par modem câble ou DSL est établie, le voyant *WAN Link* s'allume.

- Mon voyant *WAN Link* n'est pas allumé. Que dois-je vérifier ?
  - Vérifiez que le câble qui relie le modem câble ou DSL et le routeur est identique à celui fourni avec votre modem. Selon le type de connexion utilisé par votre modem, il se peut que vous ayez besoin d'un câble Ethernet « droit » ou « croisé » (le type « droit » est plus courant).

- Certains des voyants situés à l'avant du routeur ne s'allument pas lorsque je le branche un PC.
  - Seul le voyant *Link/Act* doit s'allumer pour qu'une connexion fonctionne correctement.

3. Je ne parviens à accéder ni à Internet ni à la page de configuration du routeur. Que dois-je vérifier ?

A. Vérifiez d'abord que le modem câble ou DSL et les ordinateurs sont correctement connectés au routeur. Pour savoir comment vérifier les connexions, voir la question 2.

B. Vérifiez ensuite que vous avez bien configuré vos PC pour communiquer avec le routeur. Vous trouverez ci-dessous des instructions destinées aux différentes versions de Windows.

- **Windows 95, 98 ou ME**
  - Dans le menu **Démarrer**, cliquez sur **Exécuter**. Lorsque la fenêtre Exécuter apparaît, entrez **winipcfg** dans le champ Ouvrir, puis cliquez sur le bouton **OK**.
  - Lorsque la fenêtre Configuration IP s'affiche, cliquez sur la **case grise** munie d'une flèche noire vers le bas.
  - Une liste de cartes s'affiche. Sélectionnez la **carte** que vous utilisez pour vous connecter à Internet. Ces entrées ne doivent pas contenir les termes « PPP », « VPN », « AOL » ou « Dial-Up adapter ».
  - Le champ Adresse IP doit indiquer l'adresse IP 192.168.1.100 ou 192.168.1.xxx, où « xxx » représente un nombre supérieur à 100. Si votre adresse IP n'est pas comprise dans cette plage, maintenez enfoncé pendant plus de 30 secondes le bouton Reset (Réinitialisation) situé à l'avant du routeur. De cette manière, les valeurs par défaut du routeur sont rétablies et vous devez redéfinir sa page de configuration. Cette dernière opération effectuée, redémarrez l'ordinateur.

- **Windows NT, 2000 et XP**
  - Dans le menu **Démarrer**, cliquez sur **Exécuter**. Lorsque la fenêtre Exécuter apparaît, entrez **cmd** dans le champ Ouvrir, puis cliquez sur le bouton **OK**.
  - Une invite de commande s'ouvre. Entrez **ipconfig /all**, puis appuyez sur la touche **Entrée**.

  - Le champ Adresse IP doit indiquer l'adresse IP 192.168.1.100 ou 192.168.1.xxx, où « xxx » représente un nombre supérieur à 100. Si votre adresse IP n'est pas comprise dans cette plage, maintenez enfoncé le bouton Reset (Réinitialisation) situé à l'avant du routeur pendant plus de 30 secondes. De cette manière, les valeurs par défaut du routeur sont rétablies et vous devez reconfigurer sa page de configuration. Cette dernière opération effectuée, redémarrez l'ordinateur.

C. À présent, vous devez configurer certains paramètres dans Windows.

- Accédez à votre bureau et double-cliquez sur **Poste de travail**, puis sur **Panneau de configuration (**pour les utilisateurs de Windows XP qui emploient l'interface par défaut, cliquez sur **Démarrer**, puis sélectionnez **Panneau de configuration**).
- Lorsque la fenêtre Panneau de configuration s'affiche, double-cliquez sur l'icône **Options Internet** (les utilisateurs de Windows XP qui emploient l'interface par défaut doivent cliquer sur **Connexions réseau et Internet**, puis sur **Options Internet**).
- Lorsque la fenêtre Options Internet apparaît, cliquez sur l'onglet **Connexions**.
- Activez la case à cocher **Ne jamais établir de connexion** (peu importe que cette option soit grisée).
- Cliquez sur le bouton **Paramètres LAN** situé dans l'angle inférieur droit.
- Lorsque la fenêtre Paramètres du réseau LAN apparaît, **désactivez toutes les cases à cocher**.
- Cliquez sur le bouton **OK**, sur le bouton **Appliquer** (le bouton **Appliquer** est grisé si vous n'avez modifié aucun paramètre), puis de nouveau sur le bouton **OK**.
- Quittez le Panneau de configuration et redémarrez votre ordinateur.

4. Lorsque je clique sur l'icône permettant d'accéder à Internet et que j'entre le nom d'utilisateur ainsi que le mot de passe fournis par mon FAI, je ne parviens pas à me connecter à Internet. Quel est le problème ?

Cela signifie que vous utilisez le logiciel fourni par votre FAI. Utilisez Internet Explorer ou Netscape Navigator, qui se trouvent sur votre bureau (ou dans le menu Démarrer de Windows XP).

5. Lorsque j'utilise Internet Explorer, une boîte de dialogue s'affiche pour m'inviter à établir une connexion. Comment puis-je la désactiver ?

A. Accédez à votre bureau et double-cliquez sur **Poste de travail**, puis sur **Panneau de configuration (**les utilisateurs de Windows XP qui emploient l'interface par défaut doivent cliquer sur **Démarrer**, puis sélectionner **Panneau de configuration**).

B. Lorsque la fenêtre Panneau de configuration s'affiche, double-cliquez sur l'icône **Options Internet** (les utilisateurs de Windows XP qui emploient l'interface par défaut doivent cliquer sur **Connexions réseau et Internet**, puis sur **Options Internet**).

C. Lorsque la fenêtre Options Internet apparaît, cliquez sur l'onglet **Connexions**.

D. Activez la case à cocher **Ne jamais établir de connexion**.
E. Cliquez sur le bouton **Appliquer**.
F. Cliquez sur le bouton **OK**.

6. Je n'obtiens aucune intensité de signal ni qualité de liaison. Que puis-je faire ?

A. Assurez-vous que le voyant WLAN du routeur est allumé.
B. Vérifiez que tous vos PC sans fil utilisent le mode « Infrastructure ».

7. Comment puis-je améliorer la portée du routeur ?

A. Éloignez au maximum le routeur du sol.
B. Vérifiez qu'il n'existe aucune source importante de brouillage électrique. (Par exemple : des enceintes, des lampes fluorescentes, des micro-ondes, etc.)
C. Modifiez le canal sans fil utilisé. Pour ce faire :

- Ouvrez votre navigateur Web et tapez **http://192.168.1.1** dans le champ « Adresse ».
- Dans la zone « Enter Network Password » (Mot de passe réseau), laissez le champ « User Name » (Nom d'utilisateur) vide et tapez **admin** comme mot de passe. Cliquez ensuite sur **OK**.
- Dans l'onglet Setup (Configuration), sélectionnez le canal **1**.
- Cliquez sur le bouton **Apply** (Appliquer) pour enregistrer les paramètres.
- Répétez cette procédure jusqu'à ce que vous trouviez le canal offrant la meilleure portée.

« xxx »

Configuration de la sécurité sans fil

Remarque : le cryptage WEP est une mesure de sécurité des données supplémentaire, non essentielle au fonctionnement du routeur.

WEP (Wired Equivalent Privacy) est une méthode de cryptage employée pour protéger vos communications sans fil. WEP utilise une combinaison de clés 64 bits ou 128 bits pour mettre en œuvre un contrôle d'accès à votre réseau et des fonctions de sécurité par cryptage pour chaque transmission de données. Pour décoder une transmission de données, chaque point du réseau doit utiliser une clé 64 bits ou 128 bits identique. Des niveaux de cryptage élevés augmentent le niveau de sécurité, mais, en raison de leur complexité, peuvent entraîner une diminution des performances du réseau.

Le terme « 40 bits » désigne parfois le cryptage WEP. Il correspond simplement au cryptage WEP 64 bits. Ce niveau de cryptage WEP est qualifié de cryptage 40 bits parce qu'il utilise une clé secrète 40 bits avec un vecteur d'initialisation 24 bits (40 + 24 = 64). Les fournisseurs sans fil utilisent indifféremment ces deux noms. Linksys utilise le terme « 64 bits » pour désigner ce niveau de cryptage.

Vérifiez le fonctionnement de votre réseau sans fil avant de tenter de configurer le cryptage WEP.

Un réseau sans fil à cryptage WEP 128 bits NE PEUT PAS communiquer avec un réseau sans fil à cryptage WEP 64 bits. Par conséquent, vérifiez que tous vos dispositifs sans fil utilisent le même niveau de cryptage. Tous les dispositifs sans fil conformes à la norme 802.11b prennent en charge le cryptage WEP 64 bits.

Outre l'activation du cryptage WEP, Linksys recommande également la mise en œuvre des mesures de sécurité suivantes :
• Changement du SSID par défaut « linksys »
• Changement régulier de la clé WEP

Remarque : pour activer le cryptage WEP, vous devez d'abord activer les fonctions sans fil. Sélectionnez **Enable** (Activer) dans l'onglet Wireless (Sans fil) du routeur avant de continuer**.**

La procédure suivante indique comment utiliser le cryptage WEP

1. Dans l'onglet Setup (Configuration) de l'utilitaire Web, sélectionnez **Mandatory** (Obligatoire) dans la section WEP.

2. Cliquez sur le bouton **WEP Key Setting** (Paramètre de clé WEP) pour définir le type et le niveau de cryptage WEP.

3. L'écran affiché à la figure C-1 peut apparaître pour vérifier que vous activez le cryptage WEP. Cliquez sur le bouton **OK** pour continuer.

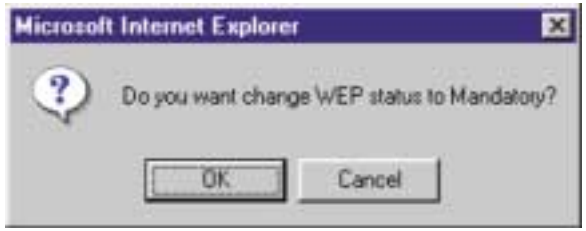

Figure C-1

4. L'écran présenté à la figure C-2 apparaît. Vous pouvez y choisir les paramètres de cryptage WEP.

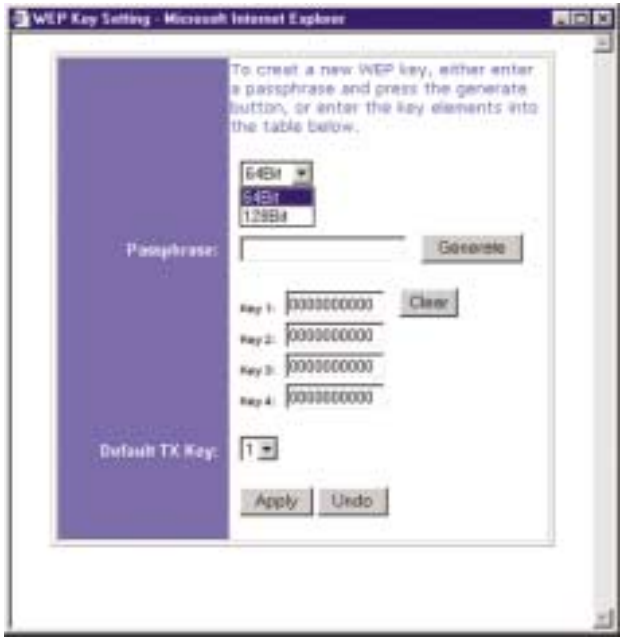

Figure C-2

- **WEP (64 Bit or 128 B)** (WEP 64 bits ou 128 bits) Sélectionnez le niveau de cryptage dans la zone de liste déroulante. Le cryptage WEP 128bits est propre à Linksys et peut créer des conflits avec le cryptage WEP d'autres fournisseurs.

Remarque : pour utiliser le cryptage WEP, tous les points du réseau sans fil doivent activer le cryptage WEP et être configurés avec les mêmes paramètres de clé.

La clé de cryptage WEP est générée de l'une des deux manières suivantes :

1. Vous pouvez créer une clé de cryptage en utilisant une **phrase de passe (Passphrase).**

   a. Renseignez le champ **Passphrase** (mot de passe défini par l'utilisateur). Cette phrase peut comporter jusqu'à 31 lettres, symboles et chiffres. Les espaces sont interdits.

   b. Cliquez sur le bouton **Generate** (Générer) pour créer une clé. La clé comportera 10 chiffres si vous choisissez un cryptage 64 bits ou 26 chiffres si vous choisissez un cryptage 128 bits. Cette clé sera utilisée pour crypter et décrypter les données échangées entre le routeur et les PC sans fil de votre réseau.

   Le champ Key (Clé) n'affiche pas nécessairement tous les chiffres. Cliquez dans le champ Key (Clé). Déplacez le curseur vers la droite pour afficher le reste de la clé. Notez toute la clé EXACTEMENT telle qu'elle apparaît.

2. Vous pouvez entrer la clé de cryptage manuellement.

Notez la phrase de passe ou la clé manuelle. Vous aurez besoin de ces informations pour les autres dispositifs sans fil sur le réseau, puisque la même clé de cryptage WEP doit être entrée sur tous les périphériques sans fil sur le réseau.

Une fois que vous avez choisi la méthode de cryptage de clé et entré la phrase de passe ou la clé manuelle, cliquez sur le bouton **Apply** (Appliquer) pour mettre fin à la partie cryptage de la configuration.

Remarque : dans Windows XP, une clé 128 bits générée par le routeur sera qualifiée de clé « 104 bits (26 chiffres) » et une clé 64 bits générée par le routeur de clé « 40 bits (10 chiffres) ».

Configuration de la sécurité sans fil dans Windows XP

Windows XP ne permettant pas l'utilisation de la fonction « phrase de passe » Linksys avec les adaptateurs PC sans fil, vous devez entrer manuellement la clé générée dans la section précédente.

Les instructions suivantes indiquent comment activer le cryptage WEP et entrer la clé de cryptage manuellement pour vos cartes PC sans fil afin de permettre au système Windows XP d'établir une communication sans fil avec le routeur.

Ces instructions partent du principe que votre lecteur de CD-ROM correspond à la lettre d'unité D et que vous utilisez Windows XP dans le mode par défaut.

Vérifiez que la clé WEP est générée par le routeur.

1. Dans le menu **Démarrer**, choisissez **Panneau de configuration** (figure C-3).

Figure C-3

2. Dans la fenêtre « Panneau de configuration », cliquez sur l'icône **Connexions réseau et Internet** (figure C-4).

Figure C-4

3. Cliquez sur l'icône **Connexions réseau** (figure C-5).

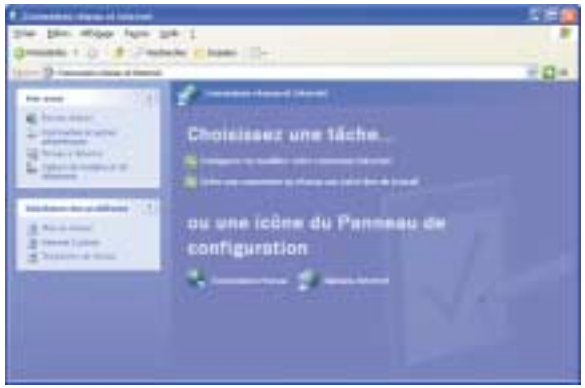

Figure C-5

4. La fenêtre « Connexions réseau » apparaît (figure C-6). Sous Réseau local ou Internet à haute vitesse sont répertoriées toutes les cartes réseau installées et utilisées dans votre ordinateur. Double-cliquez sur l'icône **Connexion réseau sans fil** associée à votre adaptateur sans fil.

   Si la fenêtre « État de la connexion du réseau sans fil » apparaît, passez à l'étape suivante.

Si une fenêtre « Connexion à un réseau sans fil » apparaît, dans la section Réseaux disponibles, cliquez sur le réseau sans fil concerné, spécifié par le SSID du routeur. Double-cliquez ensuite sur l'icône **Connexion réseau sans fil**.

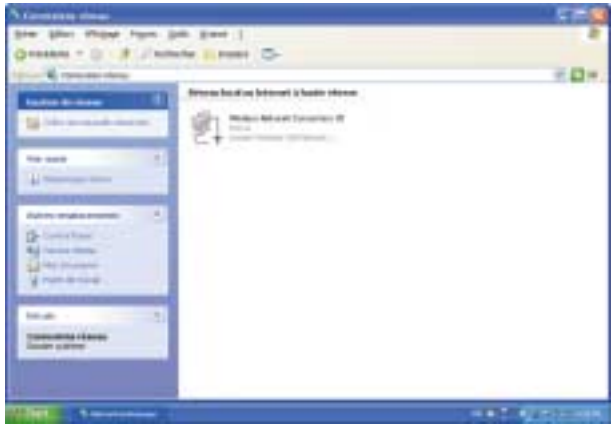

Figure C-6

5. Lorsque la fenêtre « État de la connexion du réseau sans fil » apparaît (figure C-7), cliquez sur le bouton **Propriétés**.

Figure C-7

6. Lorsque la fenêtre « État de la connexion du réseau sans fil » apparaît (figure C-8), cliquez sur l'onglet **Configuration réseaux sans fil**.

Figure C-8

7. Si le réseau sans fil approprié, spécifié par le SSID du routeur, est affiché dans la section « Réseaux favoris » (figure C-9), double-cliquez dessus et passez à l'étape suivante.

   Sinon, cliquez sur le réseau sans fil approprié, spécifié par le SSID du routeur, dans la section « Réseaux disponibles ». Cliquez ensuite sur le bouton **Configurer.**

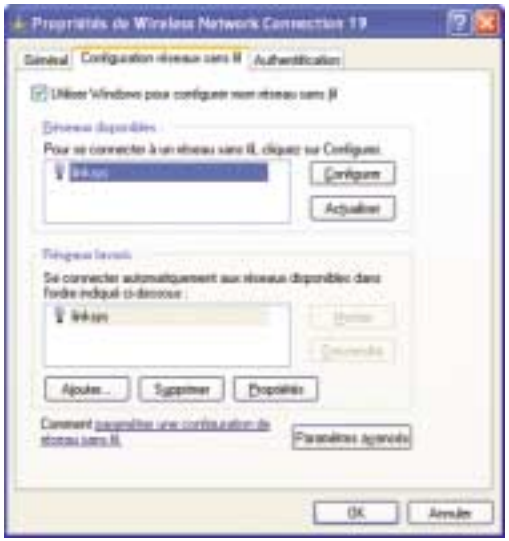

Figure C-9

8. La fenêtre « Propriétés du réseau sans fil » (figure C-10) apparaît.

   Activez la case à cocher **Cryptage de données (WEP activé)**.

   Désactivez les cases à cocher **Authentification réseau (mode partagé)** et **La clé m'est fournie automatiquement**.

   Dans le champ « Clé réseau », entrez la clé exacte (tous les 10 ou 26 chiffres, selon le niveau de cryptage) générée par le routeur.

   Vérifiez que le champ « Format de la clé » contient « Chiffres hexadécimaux » et que le champ « Longueur de la clé » contient « 40 bits (10 chiffres) » ou « 104 bits (26 chiffres) ». Si tel n'est pas le cas, vous n'avez pas entré la clé correctement.

Figure C-10

   Cliquez sur le bouton **OK** pour enregistrer les paramètres. Cliquez sur les boutons **OK** jusqu'à ce que vous reveniez à la fenêtre « État de la connexion réseau sans fil ». Fermez toutes les fenêtres pour revenir au bureau de Windows XP.

Fermez toutes les applications et redémarrez le PC. Après le redémarrage, la configuration WEP est terminée et vous devriez pouvoir établir une connexion sans fil au routeur.

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FCC-KONFORMITÄTSERKLÄRUNG Der Instant Wireless™ Wireless Access Point-Router mit 4-Port-Switch wurde nach Maßgabe der Grenzwerte von Abschnitt 15 der FCC-Vorschriften geprüft und als digitales Gerät der Klasse B eingestuft. Zweck dieser Grenzwerte ist es, für angemessenen Schutz vor schädlichen Störungen im Umfeld einer Privatinstallation zu sorgen. Dieses Gerät erzeugt und verwendet Funkfrequenzenergie und kann diese ausstrahlen. Bei unsachgemäßer Installation und Verwendung kann es Störungen des Funkverkehrs verursachen. Es kann nicht grundsätzlich ausgeschlossen werden, dass in bestimmten Installationen Störungen auftreten. Für den Fall, dass das Gerät Störungen des Funk- oder Fernsehempfangs auslöst, die sich durch Aus- und Einschalten des Geräts feststellen lassen, wird dem Benutzer empfohlen, die Störung durch eine oder mehrere der folgenden Maßnahmen zu beseitigen:

- Antenne neu ausrichten oder an einem anderen Ort aufstellen
- Abstand zum Empfänger oder Gerät erhöhen
- Empfänger und Gerät an getrennten Stromkreisen anschließen
- Händler oder erfahrenen Radio/TV-Fachmann hinzuziehen

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Produktunterstützung erhalten Sie unter den folgenden Adressen:

E-mail	europe-support@linksys.com latam-soporte@linksys.com
Web	http://www.linksys.com/international

Einführung

Vielen Dank für die Wahl des Instant Wireless™ Wireless Access Point-Routers. Dieser Router ermöglicht Ihnen die Einrichtung eines Netzwerks mit Ihren PCs sowie die Freigabe Ihrer Internet-Verbindung im Netzwerk.

Wie kann der Router diese Funktionen erfüllen? Wenn Sie Ihr Kabel- oder DSL-Modem direkt mit dem Router verbinden und Ihre PCs an den Ethernet-Ports des Routers anschließen, ist die Wirkung dieselbe, als wäre jeder PC direkt mit dem Internet verbunden. Auf diese Weise können mehrere PCs gleichzeitig eine Internet-Verbindung verwenden. Da der Router zugleich ein Access Point ist, kann er Ihr Ethernet-Netzwerk mit Ihren kabellosen PCs als Bridge verbinden.

Was bedeutet das?

Netzwerke sind ein wirkungsvolles Mittel zur gemeinsamen Nutzung von Computerressourcen. Über Netzwerke können Sie beispielsweise von verschiedenen Computern aus auf einen Drucker zugreifen und mit Daten arbeiten, die sich auf der Festplatte eines anderen Computers befinden. Netzwerke werden sogar dazu verwendet, Videospiele mit mehreren Spielern zu ermöglichen. Sie sind also nicht nur für die Arbeit zuhause und im Büro, sondern auch für die Freizeit nützlich.

Die PCs, die Sie an die vier LAN-Ports des Routers anschließen, bilden bei richtiger Konfiguration ein so genanntes LAN (Local Area Network), d. h. ein Nahbereichsnetzwerk. Sie sind über Ethernet-Kabel verbunden, die jeweils an den Ethernet-Karten der Computer und an den von 1 bis 4 nummerierten LAN-Ports des Routers angeschlossen sind. Der Begriff „Ethernet“, mit dem Netzwerkkomponenten wie Kabel und Netzwerkkarten bezeichnet werden, weist darauf hin, dass Ethernet der Typ des Netzwerks ist, das Sie einrichten. In der Dokumentation des Routers bezeichnet „Ethernet“ alle Netzwerkkomponenten, die Computerdaten mit 10 bis 100 Mbit/s übertragen. (10 und 100 Mbit/s sind die von den Netzwerkgeräten verwendeten Übertragungsraten. Wenn Daten mit 10 Mbit/s übertragen werden, entspricht dies dem Inhalt von mehr als sieben Disketten pro Sekunde! Netzwerkkomponenten, die mit 100 Mbit/s arbeiten, transportieren die Daten sogar noch zehnmal schneller!)

PCs können mit dem Router auch kabellos kommunizieren. Wenn Sie Ihre kabellosen PCs und den Router mit denselben Wireless-Einstellungen konfigurieren, können Sie diese kabellosen PCs in Ihr vorhandenes Ethernet-Netzwerk einbinden.

Ein besonders interessanter Aspekt ist, dass der Router die gemeinsame Nutzung Ihrer Kabel- oder DSL-Internetverbindung ermöglicht. Hierzu müssen Sie lediglich Ihr Kabel- oder DSL-Modem über ein Ethernet-Kabel an den WAN-Port des Routers anschließen. (WAN ist die Abkürzung von „Wide Area Network“, d. h. Weitbereichsnetzwerk.) Das Internet weist als globales Netzwerk die größte Ausdehnung aller Netzwerke auf! Die an den Router angeschlossenen PCs können diese Verbindung nutzen.

Die Anweisungen in dieser Kurzanleitung helfen Ihnen, den Router anzuschließen, Ihre PCs zu konfigurieren und den Router in Ihrem Netzwerk einzurichten. Diese Anweisungen sollten ausreichen, um ein einfaches Netzwerk mit freigegebenem Internetzugriff in Betrieb zu nehmen. Der Router verfügt auch über erweiterte Funktionen, die jedoch ein entsprechendes Fachwissen über Router und Netzwerke voraussetzen. Diese und andere Themen werden im Benutzerhandbuch behandelt, das sich auf der CD des Setup-Assistenten befindet.

So sieht die fertig gestellte Struktur aus:

Das Setup des Routers ist dem in der oben stehenden Abbildung für Windows-PCs gezeigten Setup vergleichbar. Mit dem Router können Sie Ihre Kabel- oder DSL-Verbindung für mehrere Computer in Ihrem privaten oder geschäftlichen Umfeld freigeben. Eine solche Struktur wird LAN (Local Area Network) genannt.

Diese Kurzanleitung vermittelt eine Übersicht der Komponenten zur Einrichtung eines einfachen privaten oder geschäftlichen Netzwerks. In den nächsten drei Abschnitten erfahren Sie, wie Sie Ihre Geräte einrichten und konfigurieren müssen, um über einen gemeinsamen Hochgeschwindigkeitszugang zum Internet zu verfügen.

Schritt 1: Anschließen des Routers

In diesem Schritt schließen Sie den Router an Ihr Kabel- oder DSL-Modem an. Anschließend verbinden Sie Ihre PCs mit dem Router.

Schritt 2: Konfigurieren der PCs

Hier ist beschrieben, wie Sie Ihre PCs konfigurieren müssen, um mit dem Router zu kommunizieren.

Schritt 3: Konfigurieren des Routers

In diesem Schritt lernen Sie grundlegende Einstellungen des Routers kennen, die den Betrieb mit Ihrem Kabel- oder DSL-Modem und Ihren ISP-Einstellungen ermöglichen.

Hinweis: *Diese Kurzanleitung beschreibt die Einrichtung des Routers mit Ethernet-Kabeln. Der Router kann zwar auch über eine kabellose Verbindung eingerichtet werden. In dieser Kurzanleitung werden jedoch keine Details zur kabellosen Einrichtung des Routers beschrieben. Wenn Sie den Router über eine kabellose Verbindung einrichten möchten, finden Sie weitere Informationen auf der Linksys-Website unter www.linksys.com.*

Schritt 1: Anschließen des Routers

In Schritt 1 verbinden Sie den Router mit Ihrem Kabel- oder DSL-Modem und Ihren privaten oder geschäftlichen Computern.

Vergewissern Sie sich zunächst, dass alle Geräte ausgeschaltet sind, mit denen Sie arbeiten werden, also die PCs, das Modem und der Router.

A. Soweit Sie dies nicht bereits durchgeführt haben, schließen Sie jetzt Ihr Kabel- oder DSL-Modem richtig an. Für den Kabelbetrieb ist eine Koaxialbuchse (Abbildung A1) und für den DSL-Betrieb eine Telefonbuchse vorgesehen (Abbildung A2). (Folgen Sie den Anweisungen im Installationshandbuch Ihres Kabel- oder DSL-Modems.)

A1

A2

B. Verbinden Sie mit einem Ethernet-Kabel den LAN- bzw. Ethernet-Port des Kabel- oder DSL-Modems mit dem WAN-Port des Routers.

B

C. Schließen Sie ein Ethernet-Kabel an die Ethernet-Karte Ihres PCs an. Schließen Sie das andere Ende des Kabels an einen LAN-Port des Routers an. Wiederholen Sie diesen Vorgang für jeden weiteren PC, den Sie an den Router anschließen möchten.

C1

Hinweis: Ist die Ethernet-Karte Ihres PCs nicht eingerichtet, finden Sie weitere Informationen in der Dokumentation der Ethernet-Karte.

Um die Installation zu vereinfachen, beginnen Sie mit dem LAN-Port 1 des Routers. Schließen Sie anschließend Port 2, Port 3 und schließlich Port 4 an.

Wenn Sie mehr als vier PCs an den Router anschließen möchten, müssen Sie an den Uplink-Port des Routers einen Hub oder Switch anschließen (wenn Sie den Uplink-Port verwenden, ist Port 4 nicht verfügbar). Weitere Informationen zum Uplink-Verfahren finden Sie im Benutzerhandbuch auf der CD des Setup-Assistenten.

C2

D. Verbinden Sie das Netzgerät mit dem Stromversorgungsanschluss des Routers. Schließen Sie das Netzgerät an einer Netzsteckdose an. Schalten Sie das Kabel- oder DSL-Modem ein. Schalten Sie dann den ersten PC ein, den Sie zum Konfigurieren des Routers verwenden möchten.

Fahren Sie mit Schritt 2 fort: Konfigurieren Sie die PCs (siehe nächste Seite).

Schritt 2: Konfigurieren der PCs

In Schritt 2 werden Sie die einzelnen Computer für die Kommunikation mit dem Router konfigurieren.

Hierzu müssen Sie die Netzwerkeinstellungen Ihres PCs so einstellen, dass eine IP-Adresse (auch TCP/IP-Adresse genannt) automatisch bezogen wird. Computer verwenden IP-Adressen zur gegenseitigen Kommunikation über ein Netzwerk oder das Internet.

Ermitteln Sie, unter welchem Betriebssystem Ihr Computer läuft, z. B. unter Windows 95, 98, Millennium, 2000 oder XP. Sie müssen den Typ des verwendeten Betriebssystems kennen, um fortzufahren. Hierzu können Sie auf die Schaltfläche **Start** klicken und anschließend die Option **Einstellungen** auswählen. (Wenn Ihr Startmenü die Option **Einstellungen** nicht enthält, handelt es sich um Windows XP. Hier können Sie die Systemsteuerung direkt aus dem Startmenü wählen.) Doppelklicken Sie dann auf **Systemsteuerung**, und klicken Sie auf das Symbol **System**. Klicken Sie auf die Schaltfläche **Abbrechen**, wenn Sie fertig sind.

Nachdem Sie jetzt wissen, welches Windows-Betriebssystem Sie verwenden, folgen Sie in diesem Schritt den Anweisungen für das Betriebssystem Ihres Computers. Diesen Vorgang müssen Sie gegebenenfalls für jeden Computer wiederholen, den Sie mit dem Router verbinden.

Auf den nächsten Seiten erfahren Sie Schritt für Schritt, wie Sie Ihre TCP/IP-Einstellungen für das verwendete Windows-Betriebssystem konfigurieren. Nachdem Sie die Konfiguration Ihrer Computer abgeschlossen haben, fahren Sie mit Schritt 3 fort: Konfigurieren des Routers

Betriebssystem:
Windows 95, Windows 98, Windows Me

A. Klicken Sie auf die Schaltfläche **Start**, klicken Sie auf **Einstellungen**, und öffnen Sie die **Systemsteuerung**. Doppelklicken Sie hier auf das Symbol **Netzwerk**, um das Fenster **Netzwerk** zu öffnen.

B. Wählen Sie die Registerkarte **Konfiguration** aus, und markieren Sie Zeile **TCP/IP** für die entsprechende Ethernet-Karte*. Wenn das Wort **TCP/IP** separat angezeigt wird, wählen Sie diese Zeile aus**. Klicken Sie anschließend auf die Schaltfläche **Eigenschaften**.

C. Klicken Sie auf die Registerkarte **IP-Adresse**, und wählen Sie die Option **IP-Adresse automatisch beziehen**.

D. Klicken Sie auf die Registerkarte **Gateway**, und vergewissern Sie sich, dass das Feld **Installierte Gateways** leer ist. Klicken Sie auf die Schaltfläche **OK**.

E. Klicken Sie erneut auf die Schaltfläche **OK**. Möglicherweise werden Sie nun vom System nach den Original-Installationsdateien von Windows oder nach zusätzlichen Dateien gefragt. Geben Sie den richtigen Dateipfad für diese Ressourcen an, z. B. „D:\win98“, „D:\win9x“, „C:\Windows\Options\cabs“ usw. (hierbei wird angenommen, dass „D“ der Laufwerkbuchstabe Ihres CD-ROM-Laufwerks ist).

F. Wenn Sie vom System gefragt werden, ob Sie Ihren PC neu starten möchten, klicken Sie auf die Schaltfläche **Ja**. Führen Sie den Neustart in jedem Fall durch, auch wenn Sie hierzu nicht aufgefordert werden.

*Hinweis: Wählen Sie keinen TCP/IP-Eintrag, dessen Name die Zeichenfolgen „DUN“, „PPPoE“, „VPN“ oder „AOL“ enthält.

**Hinweis: Ist keine TCP/IP-Zeile aufgelistet, sehen Sie im Benutzerhandbuch auf der Setup-CD des Assistenten oder in der Dokumentation Ihrer Ethernet-Karte nach, wie Sie TCP/IP jetzt installieren.

Betriebssystem:
Windows 2000

A. Klicken Sie auf die Schaltfläche **Start**, klicken Sie auf **Einstellungen**, und öffnen Sie die **System-steuerung**. Doppelklicken Sie hier auf das Symbol **Netzwerk- und DFÜ-Verbindungen**. Hierdurch wird das Fenster **Netzwerk** geöffnet.

B. Wählen Sie das Symbol **LAN-Verbindung** für die entsprechende Ethernet-Karte* aus (in der Regel ist dies die erste aufgelistete LAN-Verbindung). Doppelklicken Sie auf **LAN-Verbindung**.

C. Wenn das Statusfenster für die LAN-Verbindung angezeigt wird, klicken Sie auf die Schaltfläche **Eigenschaften**.

D. Wählen Sie **Internetprotokoll (TCP/IP)**, und klicken Sie auf die Schaltfläche **Eigenschaften**.

E. Wählen Sie **IP-Adresse automatisch beziehen**, und klicken Sie in den folgenden Dialogfeldern auf die Schaltfläche **OK**, um die Konfiguration des PCs abzuschließen.

F. Starten Sie Ihren Computer neu.

*Hinweis: Wählen Sie keinen TCP/IP-Eintrag, dessen Name die Zeichenfolgen „DUN“, „PPPoE“, „VPN“ oder „AOL“ enthält.

Betriebssystem:
Windows XP

Die folgenden Anweisungen setzen voraus, dass Sie die Standardoberfläche von Windows XP verwenden. Wenn Sie die klassische Oberfläche verwenden (bei der die Symbole und Menüs wie in den vorherigen Windows-Versionen aussehen), folgen Sie den Anweisungen für Windows 2000.

A. Klicken Sie auf die Schaltfläche **Start**, öffnen Sie die **Systemsteuerung**, und klicken Sie auf das Symbol **Netzwerk- und Internetverbindungen**. Klicken Sie dann auf das Symbol **Netzwerkverbindungen**, um das Fenster **Netzwerk** zu öffnen.

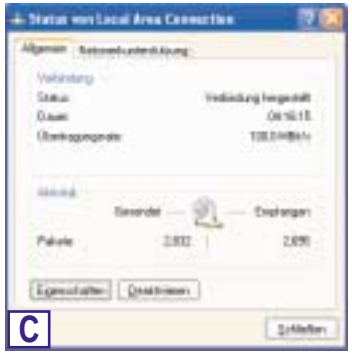
B. Wählen Sie das Symbol **LAN-Verbindung** für die entsprechende Ethernet-Karte aus (in der Regel ist dies die erste aufgelistete LAN-Verbindung). Doppelklicken Sie auf **LAN-Verbindung**.

C. Wenn das Statusfenster für die LAN-Verbindung angezeigt wird, klicken Sie auf die Schaltfläche **Eigenschaften**.

D. Wählen Sie **Internetprotokoll (TCP/IP)**, und klicken Sie auf die Schaltfläche **Eigenschaften**.

E. Wählen Sie **IP-Adresse automatisch beziehen**, und klicken Sie in den folgenden Dialogfeldern auf die Schaltfläche **OK**, um die Konfiguration des PCs abzuschließen.

F. Starten Sie Ihren Computer neu.



Schritt 3: Konfigurieren des Routers

In Schritt 3 konfigurieren Sie den Router für Ihr Netzwerk und richten den Internetzugang über Ihren Internetdienstanbieter (ISP) ein. Ihr ISP schreibt möglicherweise die Verwendung eines Hostnamens und eines Domänennamens vor. Außerdem legen Sie den WAN-Konfigurationstyp auf der Registerkarte **Setup** des Routers nach den Setup-Informationen Ihres ISP fest. *Diese Setup-Informationen müssen Ihnen vorliegen.* Sollte dies nicht der Fall sein, wenden Sie sich an Ihren ISP, bevor Sie fortfahren. Die richtigen Fragestellungen an Ihren ISP finden Sie in Frage Nr. 1 im Hilfeabschnitt.

Die Anweisungen Ihres ISP beschreiben, wie Sie Ihren PC für den Internetzugriff einrichten. Da Sie jetzt den Router zur gemeinsamen Nutzung des Internetzugangs durch mehrere Computer verwenden, werden diese Setup-Informationen für die Router-Konfiguration benötigt.

A. Öffnen Sie Ihren Webbrowser. (Wenn Sie an diesem Punkt eine Fehlermeldung erhalten, können Sie diese ignorieren. Fahren Sie den Anweisungen entsprechend fort.) Geben Sie im Adressfeld des Webbrowsers **192.168.1.1** ein, und drücken Sie die **EINGABETASTE**.

B. Nun wird ein Fenster zur Eingabe des Netzwerkkennworts angezeigt (siehe Abbildung B1). Unter Windows XP wird das Fenster **Verbinden mit 192.168.1.1** angezeigt (siehe Abbildung B2.). Lassen Sie das Feld **Benutzername** leer, und geben Sie im Feld **Kennwort** das Standardkennwort **admin** in Kleinbuchstaben ein. Klicken Sie anschließend auf die Schaltfläche **OK**.

C. Sofern dies von Ihrem ISP vorgeschrieben wird, geben Sie den Hostnamen und den Domänennamen des Routers in den entsprechenden Feldern **Host Name** und **Domain Name** der Registerkarte **Setup** ein (dies ist üblicherweise bei Kabel-ISPs der Fall).

D. Um den Router für Ihr kabelloses Netzwerk zu konfigurieren, vergewissern Sie sich, dass die Wireless-Felder auf der Registerkarte **Setup** (siehe Abbildung D) wie folgt ausgefüllt sind:

Enable/Disable (Aktivieren/Deaktivieren): Durch Auswahl des Optionsfelds **Enable** (Aktivieren) werden die Wireless-Funktionen des Routers aktiviert. Die Wireless-Funktionen sind nur nach Aktivierung verfügbar.

SSID: Die SSID (bzw. ESSID) ist ein eindeutiger Name für Ihr kabelloses Netzwerk. Er darf maximal 32 Zeichen umfassen; die Groß-/Kleinschreibung wird berücksichtigt. Die Standard-SSID lautet „linksys“. Sie sollten diese jedoch auf einen persönlichen Netzwerknamen ändern. Alle Wireless Access Points in Ihrem Netzwerk müssen dieselbe SSID verwenden.

Channel (Kanal): Wählen Sie den entsprechenden Kanal für Ihr Netzwerk aus der angezeigten Liste. Alle Wireless Access Points in Ihrem Netzwerk müssen denselben Kanal verwenden, um einwandfrei zu funktionieren.

Hinweis: *Wenn Sie die WEP-Einstellungen des Routers ändern möchten, fahren Sie mit dem Abschnitt zum Konfigurieren der Wireless-Sicherheit fort.*

E. Der Router unterstützt fünf Verbindungstypen: DHCP (automatischer Bezug der IP-Adresse), PPPoE, statische IP-Adresse, RAS und PPTP. Diese Typen können aus dem Pulldownmenü neben **WAN Connection Type** (WAN-Verbindungstyp) ausgewählt werden. Abhängig von Ihrer Auswahl des Verbindungstyps wird ein entsprechender Setup-Bildschirm mit spezifischen Funktionen angezeigt. Die Anweisungen hierzu finden Sie nachfolgend:

1. **Obtain an IP Automatically** (IP-Adresse automatisch beziehen)

Wenn Ihr ISP vorschreibt, dass Sie eine Verbindung über eine dynamische IP-Adresse (oder DHCP) herstellen sollen, führen Sie diese Schritte aus:

a. Wählen Sie für den WAN-Verbindungstyp die Option **Obtain an IP automatically** (IP-Adresse automatisch beziehen), wie zuvor in Abbildung D gezeigt.

b. Klicken Sie auf die Schaltfläche **Apply** (Übernehmen) um die Einstellungen zu speichern.

2. Statische IP-Adresse

Wenn Ihr ISP vorschreibt, dass Sie eine Verbindung über eine statische (unveränderliche) IP-Adresse herstellen sollen, führen Sie diese Schritte aus:

a. Wählen Sie als WAN-Verbindungstyp die Option **Static IP** (statische IP-Adresse).

b. Geben Sie in den Feldern neben **Specify WAN IP Address** (IP-Adresse angeben) die IP-Adresse ein.

c. Geben Sie unter **Subnet Mask** die Subnetmask ein.

d. Geben Sie unter **Default Gateway Address** die Standard-Gateway-adresse ein.

e. Geben Sie unter **DNS** die DNS-Adresse in den Feldern 1, 2 bzw. 3 ein. Sie müssen mindestens eine DNS-Adresse eingeben.

f. Klicken Sie auf die Schaltfläche **Apply** (Übernehmen) um die Einstellungen zu speichern.

3. PPPoE

Wenn Ihr DSL-Anbieter vorschreibt, dass Sie eine Verbindung über PPPoE herstellen, oder wenn Sie üblicherweise einen Benutzernamen und ein Kennwort eingeben, um auf das Internet zuzugreifen, führen Sie diese Schritte aus:

a. Wählen Sie als WAN-Verbindungstyp die Option **PPPoE**.

b. Geben Sie unter **User Name** den Benutzernamen ein.

c. Geben Sie unter **Password** das Kennwort ein.

d. Klicken Sie auf die Schaltfläche **Apply** (Übernehmen) um die Einstellungen zu speichern.

e. Klicken Sie auf die Registerkarte **Status** und anschließend auf die Schaltfläche **Connect** (Verbinden), um die Verbindung herzustellen.

4. RAS

RAS ist ein Dienst, der nur in Singapur verwendet wird. Wenn Sie eine RAS-Verbindung verwenden, fragen Sie Ihren ISP nach den erforderlichen Setup-Informationen.

5. PPTP

PPTP ist ein Dienst, der nur in Europa verwendet wird. Wenn Sie eine PPTP-Verbindung verwenden, fragen Sie Ihren ISP nach den erforderlichen Setup-Informationen.

F. Soweit Sie dies nicht bereits durchgeführt haben, klicken Sie jetzt auf die Schaltfläche **Apply** (Übernehmen) um die Einstellungen zu speichern.

G. Schalten Sie das Kabel- oder DSL-Modem aus und wieder ein, und starten Sie Ihre Computer neu. Damit übernehmen diese Geräte jetzt die neuen Einstellungen des Routers.

Hinweis: Der Router muss nur von einem Computer aus konfiguriert werden. Erweiterte Setup-Informationen finden Sie auf der Support-Website von Linksys unter *support.linksys.com* oder im Benutzerhandbuch auf der CD des Setup-Assistenten.

Das Setup ist beendet! Der Router ist nun vollständig konfiguriert. Sie können das Setup testen, indem Sie Ihren Webbrowser auf einem der Computer öffnen und *www.linksys.com/registration* eingeben.

Wenn Sie diese Website nicht öffnen können, sollten Sie die einzelnen Schritte in diesem Abschnitt noch einmal überprüfen oder im Hilfeabschnitt dieser Kurzanleitung nachschlagen.

Hilfe

Im Hilfeabschnitt finden Sie die am häufigsten gestellten Fragen zu Internetverbindungen. Wenn Sie zusätzliche Optionen festlegen möchten oder Informationen zu den erweiterten Funktionen benötigen, besuchen Sie *kb.linksys.com*, oder schlagen Sie im Benutzerhandbuch nach, das einen Anhang zur Fehlerbehebung enthält (es befindet sich auf der CD des Setup-Assistenten).

1. Ich bin mir nicht sicher, welche Informationen ich von meinem Internetdienstanbieter (ISP) benötige, um mein Netzwerk in Betrieb nehmen zu können. Welche Fragen muss ich stellen?

Welchen Verbindungstyp verwenden Sie: dynamische IP-Adresse, statische IP-Adresse oder PPPoE?

- Wenn Sie eine dynamische IP-Adresse verwenden, benötigen Sie folgende Daten:
  - Ihren Hostnamen (soweit erforderlich)
  - Ihren Domänennamen (soweit erforderlich)

- Wenn Sie eine statische IP-Adresse verwenden, benötigen Sie folgende Daten:
  - Ihre IP-Adresse
  - Ihre Gateway-Adresse
  - Ihre DNS-Adresse

- Wenn Sie PPPoE verwenden (üblich bei DSL-ISPs), benötigen Sie folgende Daten:
  - Ihren Benutzernamen
  - Ihr Kennwort

Nachdem Sie diese Informationen erhalten haben, folgen Sie den Anweisungen in Schritt 3 der Kurzanleitung: Konfigurieren Sie den Router, und verwenden Sie diese Informationen zur Eingabe auf der Registerkarte **Setup**. Beziehen Sie sich für den Abschnitt **WAN Connection Type** (WAN-Verbindungstyp) auf das Diagramm auf der nächsten Seite:

Verbindungstyp:	Führen Sie diese Schritte aus:
Dynamische IP-Adresse (DHCP)	1. Wählen Sie als WAN-Verbindungstyp die Option **Obtain an IP automatically** (IP-Adresse automatisch beziehen). 2. Klicken Sie auf die Schaltfläche **Apply** (Übernehmen) um die Einstellung zu speichern.
Statische IP-Adresse	1. Wählen Sie als WAN-Verbindungstyp die Option **Static IP** (statische IP-Adresse). 2. Geben Sie unter **IP Address** die IP-Adresse ein. 3. Geben Sie unter **Subnet Mask** die Subnetmask ein. 4. Geben Sie unter **Gateway Address** die Gatewayadresse ein. 5. Geben Sie unter **DNS** die DNS-Adresse in den Feldern 1, 2 bzw. 3 ein. Sie müssen mindestens eine DNS-Adresse eingeben. 6. Klicken Sie auf die Schaltfläche **Apply** (Übernehmen) um die Einstellungen zu speichern.
PPPoE	1. Wählen Sie als WAN-Verbindungstyp die Option **PPPoE**. 2. Geben Sie unter **User Name** den Benutzernamen ein. 3. Geben Sie unter **Password** das Kennwort ein. 4. Klicken Sie auf die Schaltflächen **Apply** (Übernehmen) um die Einstellungen zu speichern.
RAS oder PPTP	Wenn Sie RAS (Singapore SingTel) oder PPTP (einen europäischen Dienst) verwenden, fragen Sie Ihren ISP nach den erforderlichen Setup-Informationen.

2. Ich habe Probleme beim Herstellen einer Verbindung zum Internet. Welche der LEDs an der Vorderseite des Routers sollen leuchten?

- Eine leuchtende Router-LED zeigt jeweils an, dass die zugehörige Verbindung an der Rückseite des Routers einwandfrei ist, gleich ob es sich dabei um das Ethernet-Kabel oder um die Stromversorgung handelt.

  Beispielsweise leuchten üblicherweise die folgenden LEDs, nachdem ein Computer und ein Kabel- oder DSL-Modem angeschlossen wurde:

  - Wenn der Router eingeschaltet ist (wenn also das Netzteil am Router angeschlossen ist), leuchtet die LED *Power*.
  - Wenn ein Ethernet-Kabel an Port 4 des Routers und an einen PC richtig angeschlossen ist, leuchten die LEDs *Link/Act*, *Ful/Col* und *100* in Spalte 4.
  - Der Anschluss eines Kabel- oder DSL-Modems bewirkt das Aufleuchten der LED *WAN Link*.

- Die LED *WAN Link* leuchtet nicht. Was muss ich überprüfen?
  - Prüfen Sie, ob es sich bei dem Kabel zwischen dem Kabel- oder DSL-Modem und dem Router um das mit dem Modem gelieferte Kabel handelt. Abhängig von dem Verbindungstyp, den Ihr Modem verwendet, benötigen Sie entweder ein „gerades“ oder ein „gekreuztes“ Ethernet-Kabel (das „gerade“ Kabel ist das üblichere).

- Nach dem Anschließen eines PCs leuchten einige der LEDs an der Vorderseite des Routers nicht.
  - Die einwandfreie Funktion einer Verbindung ist bereits gewährleistet, wenn nur die LED *Link/Act* leuchtet.

3. Ich kann keine Verbindung zum Internet herstellen und nicht auf die Setup-Seite des Routers zugreifen. Was muss ich überprüfen?

A. Prüfen Sie zunächst, ob das Kabel- oder DSL-Modem und die Computer richtig mit dem Router verbunden sind. In der Antwort zur Frage Nr. 2 ist beschrieben, wie Sie diese Verbindungen überprüfen.

B. Prüfen Sie dann, ob Sie die PCs richtig für die Kommunikation mit dem Router konfiguriert haben. Nachfolgend finden Sie Anweisungen hierzu für die verschiedenen Versionen von Windows.

- **Windows 95, 98 oder Me**
  - Klicken Sie auf das Menü **Start** und dann auf **Ausführen**. Wenn das Fenster **Ausführen** angezeigt wird, geben Sie im Feld **Öffnen** die Zeichenfolge **winipcfg** ein. Klicken Sie anschließend auf die Schaltfläche **OK**.
  - Wenn das Fenster **IP-Konfiguration** angezeigt wird, klicken Sie auf das grau unterlegte Feld mit dem schwarzen, nach unten weisenden Pfeil.
  - Nun wird eine Liste mit Netzwerkkarten angezeigt. Wählen Sie die **Karte** aus, mit der Sie die Verbindung zum Internet herstellen. Diese Karteneinträge dürfen nicht die Zeichenfolgen „PPP“, „VPN“, „AOL“ oder „DFÜ-Adapter“ enthalten.
  - Das Feld **IP-Adresse** muss die IP-Adresse 192.168.1.100 bzw. 192.168.1.xxx enthalten, wobei „xxx“ für eine Zahl größer 100 steht. Befindet sich Ihre IP-Adresse nicht in diesem Bereich, drücken Sie die Reset-Taste an der Vorderseite des Routers länger als 30 Sekunden. Hierdurch wird der Router auf die Werksvorgabe zurückgesetzt, daher müssen Sie anschließend die Setup-Seite des Routers neu konfigurieren. Führen Sie nach der Neukonfiguration der Setup-Seite einen Neustart des Computers aus.

- **Windows NT, 2000 und XP**
  - Klicken Sie auf das Menü **Start** und dann auf **Ausführen**. Wenn das Fenster **Ausführen** angezeigt wird, geben Sie im Feld **Öffnen** die Zeichenfolge **cmd** ein. Klicken Sie anschließend auf die Schaltfläche **OK**.
  - Hierdurch wird eine Eingabeaufforderung angezeigt. Geben Sie **ipconfig /all** ein, und drücken Sie dann die **Eingabetaste**.

  - Das Feld **IP-Adresse** muss die IP-Adresse 192.168.1.100 bzw. 192.168.1.xxx enthalten, wobei „xxx“ für eine Zahl größer 100 steht. Befindet sich Ihre IP-Adresse nicht in diesem Bereich, drücken Sie die Reset-Taste an der Vorderseite des Routers länger als 30 Sekunden. Hierdurch wird der Router auf die Werksvorgabe zurückgesetzt, daher müssen Sie die Setup-Seite des Routers neu konfigurieren. Führen Sie nach der Neukonfiguration der Setup-Seite einen Neustart des Computers aus.

C. Anschließend konfigurieren Sie einige Einstellungen von Windows.

- Doppelklicken Sie auf dem Desktop auf **Arbeitsplatz** und dann auf **Systemsteuerung** (bei Verwendung der Standardoberfläche von Windows XP klicken Sie auf **Start** und wählen dann **Systemsteuerung**).
- Wenn das Fenster **Systemsteuerung** angezeigt wird, doppelklicken Sie auf das Symbol **Internetoptionen** (bei Verwendung der Standardoberfläche von Windows XP klicken Sie auf **Netzwerk- und Internetverbindungen** und dann auf **Internetoptionen**).
- Wenn das Fenster **Internetoptionen** angezeigt wird, klicken Sie auf die Registerkarte **Verbindungen**.
- Aktivieren Sie die Option **Keine Verbindung wählen**. (Wenn diese Option abgeblendet ist, müssen Sie nichts ändern.)
- Klicken Sie auf die Schaltfläche **LAN-Einstellungen** in der unteren rechten Ecke.
- Wenn das Fenster **Einstellungen für lokales Netzwerk (LAN)** angezeigt wird, **deaktivieren Sie alle Kontrollkästchen**.
- Klicken Sie auf die Schaltfläche **OK** und anschließend auf die Schaltfläche **Übernehmen** (wenn Sie keine Änderungen vornehmen mussten, ist die Schaltfläche **Übernehmen** abgeblendet). Klicken Sie anschließend erneut auf die Schaltfläche **OK**.
- Schließen Sie die Systemsteuerung, und starten Sie Ihren Computer neu.

4. Wenn ich auf das Symbol für den Internetzugang klicke und die Benutzername/Kennwort-Kombination eingebe, die mir mein ISP mitgeteilt hat, kann ich keine Verbindung zum Internet herstellen. Was ist der Fehler?

Sie verwenden die von Ihrem ISP bereitgestellte Software. Verwenden Sie stattdessen Internet Explorer bzw. Netscape Navigator. Diese Browser können Sie von Ihrem Desktop aus (unter Windows XP aus dem Startmenü) aufrufen.

5. Wenn ich Internet Explorer verwende, wird ein Feld eingeblendet, dass zum Herstellen einer DFÜ-Verbindung auffordert. Wie kann ich diese Einstellung deaktivieren?

A. Doppelklicken Sie auf dem Desktop auf **Arbeitsplatz** und dann auf **Systemsteuerung** (bei Verwendung der Standardoberfläche von Windows XP klicken Sie auf **Start** und wählen dann **Systemsteuerung**).
B. Wenn das Fenster **Systemsteuerung** angezeigt wird, doppelklicken Sie auf das Symbol **Internetoptionen** (bei Verwendung der Standardoberfläche von Windows XP klicken Sie auf **Netzwerk- und Internetverbindungen** und dann auf **Internetoptionen**).
C. Wenn das Fenster **Internetoptionen** angezeigt wird, klicken Sie auf die Registerkarte **Verbindungen**.

D. Aktivieren Sie die Option **Keine Verbindung wählen**.
E. Klicken Sie auf die Schaltfläche **Übernehmen**.
F. Klicken Sie auf die Schaltfläche **OK**.

6. Es wird keine ausreichende Signalstärke oder Verbindungsqualität angezeigt; was kann ich tun?

A. Vergewissern Sie sich, dass die WLAN-LED des Routers leuchtet.
B. Vergewissern Sie sich, dass alle Ihre kabellosen PCs den Infrastrukturmodus verwenden.

7. Wie kann ich die Betriebsreichweite des Routers verbessern?

A. Vergewissern Sie sich, dass der Router möglichst hoch über dem Boden aufgestellt ist.
B. Vergewissern Sie sich, dass sich in der Nähe keine großen elektrischen Störungsquellen befinden (wie beispielsweise Lautsprecher, Schaltschränke, Leuchtstoffröhren, Mikrowellengeräte usw.)
C. Wechseln Sie den verwendeten Wireless-Kanal. Hierzu gehen Sie wie folgt vor:

- Öffnen Sie Ihren Webbrowser, und geben Sie im Adressfeld **http://192.168.1.1** ein.
- Lassen Sie im Dialogfeld **Enter Network Password** (Netzwerkkennwort eingeben) das Feld **User Name** (Benutzername) leer, und geben Sie **admin** als Kennwort ein. Klicken Sie anschließend auf **OK**.
- Ändern Sie auf der Registerkarte **Setup** den Kanal auf **1**.
- Klicken Sie auf die Schaltfläche **Apply** (Übernehmen) um die Einstellungen zu speichern.
- Wiederholen Sie diesen Vorgang, bis Sie den Kanal mit der besten Reichweite gefunden haben.

Konfigurieren der Wireless-Sicherheit

Hinweis: Die WEP-Verschlüsselung ist ein zusätzliches Mittel zur Datensicherheit und für die Funktion des Routers nicht erforderlich.

WEP steht als Abkürzung für „Wired Equivalent Privacy“, ein Verschlüsselungsverfahren zum Schutz Ihrer kabellosen Datenkommunikation. WEP verwendet eine Kombination aus 64-Bit- oder 128-Bit-Schlüsseln, um den Zugriff auf das Netzwerk zu kontrollieren und die einzelnen Datenübertragungen sicher zu verschlüsseln. Um eine Datenübertragung zu decodieren, muss jeder Access Point im Netzwerk einen identischen 64-Bit- bzw. 128-Bit-Schlüssel verwenden. Höhere Verschlüsselungsstärken gewährleisten zwar eine höhere Sicherheit, aufgrund der Komplexität der Verschlüsselung können sie jedoch eine verminderte Netzwerkleistung bewirken.

Vielleicht haben Sie im Zusammenhang mit der WEP-Verschlüsselung auch den Begriff „40-Bit“ gehört. Auch damit ist die 64-Bit-WEP-Verschlüsselung gemeint. Diese WEP-Verschlüsselungsstufe wird „40-Bit“ genannt, weil sie einen geheimen 40-Bit-Schlüssel zusammen mit einem 24-Bit-Initialisierungsvektor verwendet (40 + 24 = 64). Die Hersteller von Wireless-Geräten verwenden beide Bezeichnungen. Linksys bezeichnet diese Verschlüsselungsstufe mit „64-Bit“.

Vergewissern Sie sich, dass Ihr kabelloses Netzwerk funktioniert, bevor Sie versuchen, die WEP-Verschlüsselung zu konfigurieren.

Ein nach dem 128-Bit-WEP-Verfahren verschlüsseltes kabelloses Netzwerk kann NICHT mit einem nach dem 64-Bit-WEP-Verfahren verschlüsselten kabellosen Netzwerk kommunizieren. Vergewissern Sie sich daher, dass alle Ihre kabellosen Geräte die gleiche Verschlüsselungsstufe verwenden. Alle kabellosen Geräte, die der Norm 802.11b entsprechen, unterstützen 64-Bit-WEP.

Linksys empfiehlt nicht nur, WEP zu aktivieren, sondern darüber hinaus auch folgende Sicherheitsmaßnahmen zu ergreifen:
• Ändern der SSID von der Vorgabe „linksys“
• Regelmäßiges Ändern des WEP-Schlüssels

Hinweis: Möchten Sie die WEP-Verschlüsselung aktivieren, müssen zuerst die Wireless-Funktionen aktiviert sein. Wählen Sie auf der Registerkarte **Wireless** (Kabellos) des Routers die Option **Enable** (Aktivieren), bevor Sie fortfahren.

Die folgenden Schritte zeigen Ihnen, wie Sie die WEP-Verschlüsselung einsetzen.

1. Wählen Sie auf der Registerkarte **Setup** des Web-Dienstprogramms im Abschnitt **WEP** die Option **Mandatory** (Obligatorisch).

2. Klicken Sie auf die Schaltfläche **WEP Key Setting** (WEP-Schlüsseleinstellung), um den Typ und die Stufe der WEP-Verschlüsselung einzustellen.

3. Nun wird gegebenenfalls das in Abbildung C-1 dargestellte Dialogfeld angezeigt, in dem bestätigt wird, dass Sie die WEP-Verschlüsselung aktivieren. Klicken Sie auf die Schaltfläche **OK**, um fortzufahren.

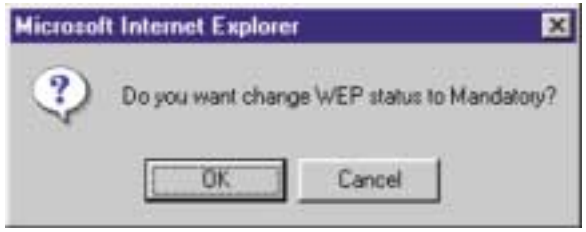


Abbildung C-1

4. Nun wird das in Abbildung C-2 dargestellte Dialogfeld angezeigt. Hier können Sie Ihre WEP-Verschlüsselungseinstellungen wählen.

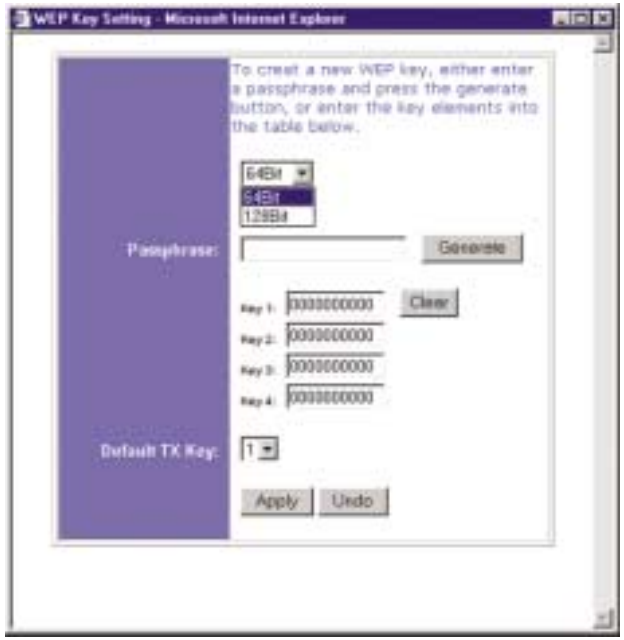


Abbildung C-2

- **WEP (64-Bit oder 128-Bit)** Wählen Sie die Verschlüsselungsstufe aus dem Dropdownfeld. Die 128-Bit-WEP-Verschlüsselung von Linksys ist herstellerspezifisch und möglicherweise nicht kompatibel mit der WEP-Verschlüsselung anderer Hersteller.

Hinweis: Um die WEP-Verschlüsselung einsetzen zu können, muss diese bei allen Access Points in Ihrem kabellosen Netzwerk aktiviert und auf dieselbe Schlüsseleinstellung eingestellt sein.

Der WEP-Schlüssel wird nach einem der folgenden beiden Verfahren generiert:

1. Durch Verwendung eines **Kennwortsatzes**

   a. Geben Sie einen Kennwortsatz als benutzerdefiniertes Kennwort in das Feld **Passphrase** (Kennwortsatz) ein. Der Kennwortsatz kann bis zu 31 Buchstaben, Sonderzeichen und Ziffern enthalten. Leerzeichen sind nicht zulässig.

   b. Klicken Sie auf die Schaltfläche **Generate** (Generieren), um einen Schlüssel zu erstellen. Wenn Sie die 64-Bit-Verschlüsselung gewählt haben, besteht der Schlüssel aus 10 Ziffern, bei der 128-Bit-Verschlüsselung aus 26 Ziffern. Mit diesem Schlüssel werden die zwischen dem Router und den kabellosen PCs des Netzwerks übertragenen Daten verschlüsselt bzw. entschlüsselt.

   Im Feld **Key** (Schlüssel) werden möglicherweise nicht alle Ziffern angezeigt. In diesem Fall klicken Sie mit der Maus an eine beliebige Stelle in diesem Feld. Verschieben Sie den Mauszeiger nach rechts, um den Rest des Schlüssels anzuzeigen. Der gesamte Schlüssel muss exakt so übernommen werden, wie er angezeigt wird.

2. Alternativ können Sie einen Schlüssel auch manuell eingeben.

Notieren Sie sich den Kennwortsatz bzw. den manuellen Schlüssel. Sie benötigen diese Angaben für die anderen kabellosen Geräte im Netzwerk, da bei diesen immer derselbe WEP-Schlüssel eingegeben werden muss.

Nachdem Sie das Verschlüsselungsverfahren ausgewählt und entweder den Kennwortsatz oder einen manuellen Schlüssel eingegeben haben, klicken Sie auf die Schaltfläche **Apply** (Übernehmen). Damit ist die Verschlüsselungskomponente des Setup abgeschlossen.

Hinweis: Unter Windows XP wird der vom Router generierte 128-Bit-Schlüssel „104-Bit-Schlüssel (26 Ziffern)“ genannt und der vom Router generierte 64-Bit-Schlüssel heißt „40-Bit-Schlüssel (10 Ziffern)“.

Konfigurieren der Wireless-Sicherheit unter Windows XP

Da Windows XP die Verwendung der Linksys-Kennwortsatzfunktion mit Wireless PC-Karten nicht gestattet, müssen Sie den im vorherigen Abschnitt generierten Schlüssel manuell eingeben.

Die folgenden Schritte zeigen Ihnen, wie Sie WEP aktivieren und den Schlüssel für Ihre kabellosen PC-Karten manuell eingeben, um Ihr Windows XP-System für die kabellose Kommunikation mit dem Router einzurichten.

Für diese Schritte wird vorausgesetzt, dass der Laufwerkbuchstabe Ihres CD-ROM-Laufwerks „D“ lautet und dass Sie Windows XP im Standardmodus ausführen.

Außerdem muss Ihnen der vom Router generierte WEP-Schlüssel vorliegen.

1. Wie in Abbildung C-3 gezeigt, klicken Sie auf die Schaltfläche **Start** und öffnen die **Systemsteuerung**.

Abbildung C-3

2. Klicken Sie im Fenster **Systemsteuerung** auf das Symbol **Netzwerk- und Internetverbindungen** (siehe Abbildung C-4).

Abbildung C-4

3. Klicken Sie auf das Symbol **Netzwerkverbindungen** (siehe Abbildung C-5).

Abbildung C-5

4. Nun wird das Fenster **Netzwerkverbindungen** angezeigt (siehe Abbildung C-6). Unter **LAN oder Hochgeschwindigkeitsinternet** sehen Sie alle Netzwerkkarten, die in Ihrem Computer installiert und aktiviert sind. Klicken Sie dann auf das Symbol **Drahtlose Netzwerkverbindung** zu Ihrer Wireless-Karte.

   Wird das Fenster **Status von Drahtlose Netzwerkverbindung** angezeigt, fahren Sie mit dem nächsten Schritt fort.

Wird das Fenster **Mit dem drahtlosen Netzwerk verbinden** angezeigt, klicken Sie unter **Verfügbare Netzwerke** auf das gewünschte Netzwerk, das über die SSID des Routers angegeben ist. Doppelklicken Sie dann auf das Symbol **Drahtlose Netzwerkverbindung**.

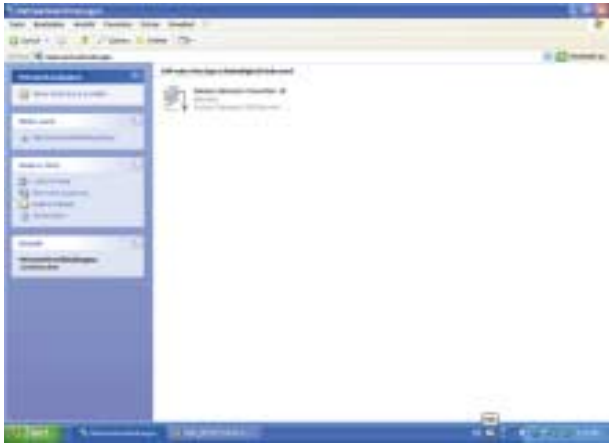


Abbildung C-6

5. Wird das Fenster **Status von Drahtlose Netzwerkverbindung** angezeigt (siehe Abbildung C-7), klicken Sie auf die Schaltfläche **Eigenschaften**.

Abbildung C-7

6. Wird das Fenster **Eigenschaften von Drahtloses Netzwerk** angezeigt (siehe Abbildung C-8), klicken Sie auf die Registerkarte **Drahtlose Netzwerke**.

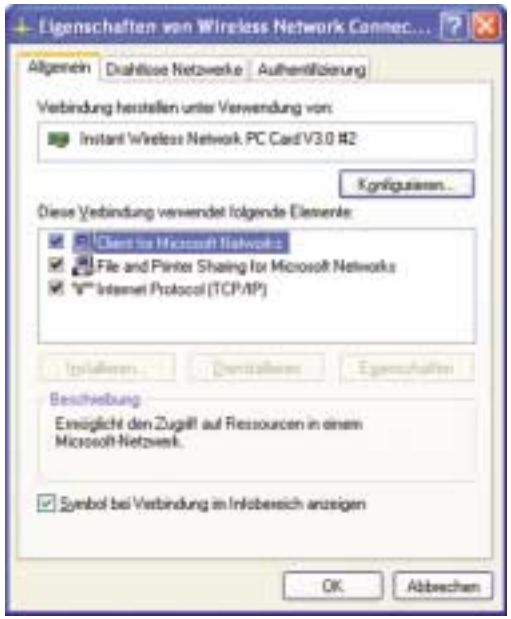


Abbildung C-8

7. Wird im Abschnitt **Bevorzugte Netzwerke** das entsprechende kabellose Netzwerk über die SSID des Routers angezeigt (siehe Abbildung C-9), doppelklicken Sie darauf und fahren mit dem nächsten Schritt fort.

   Andernfalls klicken Sie im Abschnitt **Verfügbare Netzwerke** auf das entsprechende, über die SSID des Routers angezeigte Netzwerk. Klicken Sie anschließend auf die Schaltfläche **Konfigurieren**.

Abbildung C-9

8. Das Fenster **Eigenschaften von Drahtloses Netzwerk** (siehe Abbildung C-10) wird angezeigt.

   Klicken Sie auf das Kontrollkästchen für die Option **Datenverschlüsselung (WEP aktiviert)**.

   Deaktivieren Sie die Kontrollkästchen für die Optionen **Netzwerkauthentifizierung (gemeinsamer Modus)** und **Schlüssel wird automatisch bereitgestellt**.

   Geben Sie im Feld **Netzwerkschlüssel** den exakten, vom Router generierten Schlüssel ein (alle 10 bzw. 26 Ziffern, abhängig von der Verschlüsselungsstufe).

   Vergewissern Sie sich, dass im Feld **Schlüsselformat** die Option **Hexadezimalziffern** und im Feld **Schlüssellänge** entweder die Option **40 Bits (10 Ziffern)** oder **104 Bits (26 Ziffern)** angezeigt wird. Wird keine diese Optionen angezeigt, haben Sie den Schlüssel falsch eingegeben.

Abbildung C-10

   Klicken Sie auf die Schaltfläche **OK**, um die Einstellungen zu speichern. Klicken Sie auf die Schaltflächen **OK**, bis Sie wieder zum Fenster **Status von Drahtlose Netzwerkverbindung** zurückgekehrt sind. Schließen Sie alle offenen Fenster, um zum Desktop von Windows XP zurückzukehren.

Beenden Sie alle Anwendungen, und starten Sie Ihren PC neu. Nach dem Neustart ist die WEP-Konfiguration abgeschlossen, und Sie sollten eine kabellose Verbindung zum Router herstellen können.

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DICHIARAZIONE RELATIVA ALLA NORMATIVA FCC In base alle prove eseguite sull'apparecchio Instant Wireless™ Wireless Access Point Router con switch a 4 porte si è determinato che esso è conforme ai limiti relativi ai dispositivi digitali di classe B, secondo la Parte 15 delle norme emanate dall'FCC (ente federale statunitense per le telecomunicazioni). Tali norme sono state concepite per fornire una protezione adeguata da interferenze pericolose in ambienti residenziali. Questo apparecchio genera, utilizza e può irradiare energia a radiofrequenza e, se non è installato e impiegato seguendo le istruzioni, può causare interferenze dannose alle trasmissioni radio. Tuttavia non si può garantire che non si verificheranno interferenze in installazioni specifiche. Se questo apparecchio causasse interferenze dannose alle trasmissioni radio o televisive, condizione determinabile spegnendo e accendendo l'apparecchio, si suggerisce all'utente di cercare di eliminare le interferenze adottando una o più delle seguenti misure:

- orientare diversamente o spostare l'antenna ricevente;
- porre l'apparecchio ad una maggiore distanza dall'impianto ricevente;
- collegare l'apparecchio a una presa di corrente diversa da quello dell'impianto ricevente;
- richiedere assistenza a un rivenditore o a un tecnico radiotelevisivo esperto.

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Per assistenza, rivolgersi alla Linksys ai seguenti indirizzi:

E-mail	europe-support@linksys.com latam-soporte@linksys.com
Web	http://www.linksys.com/international

Introduzione

Grazie per aver scelto Instant Wireless™ Wireless Access Point Router. Questo router consentirà di configurare una rete con i propri PC e di condividere il collegamento a Internet.

In che modo il router realizza tutto ciò? Collegando il modem cable o DSL direttamente al router e utilizzando le porte Ethernet del router per collegare i PC, è come se ogni PC fosse collegato direttamente a Internet. In questo modo, è possibile disporre di diversi PC in grado di utilizzare simultaneamente un collegamento Internet. Inoltre, poiché è un Access Point, il router può creare un ponte di collegamento tra la rete Ethernet e i PC Wireless.

Qual è il significato di tutto ciò quindi?

Le reti sono strumenti utili per la condivisione delle risorse del computer. È possibile accedere a una stampante da computer differenti e accedere ai dati ubicati sull'unità disco rigido di un altro computer. Le reti vengono inoltre utilizzate per i videogiochi in modalità multiplayer. Non sono quindi destinate solamente ad un uso domestico e di ufficio, ma hanno anche una funzione ludica.

I PC collegati alle quattro porte LAN del router, se configurati in modo appropriato, creano una LAN o Local Area Network (rete locale). Vengono collegati con un cavo Ethernet inserito nell'adattatore Ethernet del computer ad un'estremità e in una delle porte LAN del router (con numero progressivo da uno a quattro) all'altra estremità. Il termine "Ethernet" viene utilizzato per fare riferimento agli accessori di rete, come cavi e adattatori, poiché il termine Ethernet fa riferimento al tipo di rete che si sta configurando. Nella documentazione relativa al router, il termine Ethernet fa riferimento agli accessori che trasferiscono i dati del computer a una velocità compresa tra 10 Mbps e 100 Mbps. I termini 10 Mbps e 100 Mbps fanno riferimento alla velocità utilizzata dai dispositivi di rete. Il trasferimento dei dati alla velocità di 10 Mbps, è equivalente al trasferimento del contenuto di oltre sette floppy disk al secondo. Gli accessori di rete che funzionano alla velocità di 100 Mbps trasferiscono i dati a una velocità 10 volte superiore.

I PC possono inoltre interagire con il router in modalità Wireless. Configurando i PC in modalità Wireless con le stesse impostazioni Wireless del router, è possibile creare un ponte di collegamento tra i PC in modalità Wireless, integrandoli comunque nella rete Ethernet esistente.

Tuttavia, la funzione più importante del router è che consente di condividere il collegamento cable o DSL. Ciò viene effettuato collegando il modem cable o DSL alla porta WAN del router con un cavo Ethernet. (WAN è l'acronimo di Wide Area Network). Internet è una rete che, essendo globale, ricopre un'area vastissima. I PC collegati al router condividono tale collegamento.

Le istruzioni fornite in questa Guida di avviamento rapido facilitano il collegamento al router, la configurazione dei PC e la configurazione del router nella rete. Tali istruzioni dovrebbero essere sufficienti per configurare e mettere in esecuzione una rete di base, condividendo l'accesso a Internet. Il router dispone inoltre di funzioni più avanzate il cui utilizzo però è consigliato solo a chi ha familiarità con router e reti. Questi e altri problemi sono trattati nel Manuale dell'utente sul CD-ROM di Setup Wizard (Installazione guidata).

Quanto segue è ciò che si andrà a configurare

L'impostazione del router è simile a quella mostrata nella figura precedente per qualsiasi PC Windows. Il router consente di condividere la connessione cable o DSL tra più computer a casa o in ufficio. Questo tipo di connessione è definito Local Area Network (rete locale) o LAN.

Questa Guida di avviamento rapido fornisce un quadro generale di ciò che occorre per impostare una rete di base in casa o in ufficio. Nelle tre sezioni successive viene spiegato come impostare e configurare i propri apparecchi per consentire un accesso a Internet condiviso ad alta velocità.

Passaggio 1: Collegamento del router

L'utente viene assistito nel processo di collegamento del router al modem cable o DSL. Viene quindi mostrato in che modo i PC sono collegati al router.

Passaggio 2: Configurazione dei PC

Viene descritto in che modo i PC sono configurati per comunicare con il router.

Passaggio 3: Configurazione del router

L'utente viene assistito in alcune impostazioni di base del router, che ne consentono il funzionamento con il modem cable o DSL e le impostazioni del proprio ISP.

Nota: *questa Guida di avviamento rapido indicherà all'utente le modalità di configurazione del router con cavi Ethernet. Mentre il router può essere configurato attraverso un collegamento Wireless, i dettagli relativi alla configurazione del router in modalità Wireless non verranno approfonditi in questa Guida di avviamento rapido. Gli utenti che desiderassero configurare il router attraverso il collegamento Wireless, dovrebbero fare riferimento al sito Web di Linksys: www.linksys.com.*

Passaggio 1: Collegamento del router

Nel passaggio 1, si collegherà il router al modem cable o DSL e ai computer di casa o di ufficio.

Innanzitutto, accertarsi che tutti gli apparecchi da utilizzare, inclusi i PC, il modem e il router, siano scollegati dalla fonte di alimentazione.

A. Se non è già stato fatto, collegare correttamente il modem cable o DSL, ovvero utilizzando il jack coassiale con il modem cable (Figura A1) o il jack telefonico con il modem DSL (Figura A2). Seguire le istruzioni fornite nel manuale di installazione allegato al modem cable o DSL.

A.1

A.2

B. Utilizzando un cavo Ethernet, collegare la porta LAN o Ethernet del modem cable o DSL alla porta WAN del router.

B

C. Collegare un cavo Ethernet all'adattatore Ethernet del PC. Collegare l'altra estremità del cavo a una delle porte LAN del router. Ripetere questo processo per ogni PC che si desidera collegare al router.

C1

Nota: se l'adattatore Ethernet del PC non è configurato, fare riferimento alla documentazione relativa all'adattatore Ethernet per ulteriori informazioni.

Per semplicità di installazione, iniziare con la Porta LAN 1 sul router, proseguire con la Porta 2, la Porta 3 e per finire con la Porta 4.

Se si stanno collegando più di quattro PC al router, sarà necessario collegare un hub o switch alla porta Uplink del router (se si utilizza la porta Uplink, non è possibile utilizzare la Porta 4). Per informazioni sul collegamento tramite porta Uplink, fare riferimento al Manuale dell'utente contenuto nel CD-ROM dell'Installazione guidata.

C2

D. Collegare l'alimentatore di corrente alla porta di alimentazione del router. Successivamente, collegare l'alimentatore a una presa di corrente. Attivare il modem cable o DSL. Quindi accendere il primo PC che si desidera utilizzare durante la configurazione del router.

Procedere al passaggio 2: Configurazione dei PC, alla pagina successiva.

Passaggio 2: Configurazione dei PC

Nel passaggio 2, verrà configurato ogni computer per la comunicazione con il router.

Per effettuare ciò, sarà necessario configurare le impostazioni di rete del PC in modo che ottenga un indirizzo IP (o TCP/IP) automaticamente. I computer utilizzano gli indirizzi IP per comunicare reciprocamente attraverso una rete o attraverso Internet.

Determinare il tipo di sistema operativo utilizzato dal computer: Windows 95, 98, Millennium, 2000 o XP. È necessario conoscere il tipo di sistema operativo utilizzato dal computer. È possibile determinarlo facendo clic sul pulsante **Start/Avvio** e successivamente selezionando l'opzione **Impostazioni**. (Se il menu Start/Avvio non dispone dell'opzione Impostazioni, il sistema utilizzato è Windows XP. È possibile selezionare il Pannello di controllo direttamente dal menu Start/Avvio). Successivamente, fare clic su **Pannello di controllo** e fare doppio clic sull'icona **Sistema**. Fare clic sul pulsante **Annulla** al termine.

Una volta determinato il sistema operativo Windows utilizzato, seguire le istruzioni riportate in questo passaggio relative al sistema operativo del proprio computer. È possibile sia necessario effettuare ciò per ogni computer da collegare al router.

Le pagine successive forniscono all'utente le indicazioni, passo dopo passo, per configurare le impostazioni TCP/IP, sulla base del tipo di sistema operativo Windows utilizzato. Una volta configurati i computer, proseguire con il passaggio 3: Configurazione del router

Se si utilizza:
Windows 95, Windows 98, Windows Me

A. Fare clic sul pulsante **Start/Avvio**, quindi su **Impostazioni** e aprire il **Pannello di controllo**. Da tale posizione, fare doppio clic sull'icona **Rete** per aprire la schermata relativa alla rete.

B. Selezionare la scheda Configurazione e evidenziare la voce **TCP/IP** relativa all'adattatore Ethernet* utilizzabile. Se il termine **TCP/IP** viene visualizzato da solo, selezionarlo**. Successivamente, fare clic sul pulsante **Proprietà**.

C. Fare clic sulla scheda **Indirizzo IP** e selezionare **Ottieni automaticamente un indirizzo IP**.

D. Fare clic sulla scheda **Gateway** e verificare che il campo Gateway installati sia vuoto. Fare clic sul pulsante **OK**.

E. Fare nuovamente clic sul pulsante **OK**. Windows potrebbe richiedere il disco originale di installazione di Windows o file aggiuntivi. Fornire tali file, indicando l'ubicazione corretta degli stessi: ad esempio, D:\win98, D:\win9x, c:\windows\options\cabs , ecc. (Ciò presuppone che "D" corrisponda alla lettera dell'unità CD-ROM).

F. Se Windows richiede di riavviare il PC, fare clic sul pulsante **Sì**. Se Windows non richiede il riavvio, riavviare comunque il computer.

*Nota: non selezionare una voce TCP/IP il cui nome contenga DUN, PPPoE, VPN o AOL.

**Nota: se non è elencata una linea TCP/IP, fare riferimento al Manuale dell'utente contenuto nel CD-ROM dell'Installazione guidata o nella documentazione relativa all'adattatore Ethernet per installare ora il protocollo TCP/IP.

Se si utilizza:
Windows 2000

A. Fare clic sul pulsante **Start/Avvio**, quindi su **Impostazioni** e aprire il **Pannello di controllo**. Da tale posizione, fare doppio clic sull'icona **Rete e connessioni remote**. In questo modo verrà visualizzata la schermata relativa alla Rete.

B. Selezionare l'icona **Connessione alla rete locale (LAN)** per l'adattatore Ethernet* utilizzabile (solitamente è la prima Connessione alla rete locale elencata). Fare doppio clic su **Connessione alla rete locale (LAN)**.

C. Quando viene visualizzata la schermata Stato di Connessione alla rete locale (LAN), fare clic sul pulsante **Proprietà**.

D. Selezionare **Protocollo Internet (TCP/IP)** e fare clic sul pulsante **Proprietà**.

E. Selezionare **Ottieni automaticamente un indirizzo IP** e fare clic sul pulsante **OK** sulle schermate successive per completare la configurazione del PC.

F. Riavviare il computer.

*Nota: non selezionare una voce TCP/IP il cui nome contenga DUN, PPPoE, VPN o AOL.

Se si utilizza:
Windows XP

Le istruzioni seguenti presuppongono l'utilizzo dell'interfaccia predefinita di Windows XP. Se si utilizza l'interfaccia Classica (in cui le icone e i menu hanno lo stesso aspetto delle precedenti versioni di Window), seguire le istruzioni relative a Windows 2000.

A. Fare clic sul pulsante **Start**, aprire il **Pannello di controllo** e fare clic sull'icona **Rete e connessioni Internet**. Successivamente, fare clic sull'icona **Connessioni di rete** per visualizzare la schermata relativa alla Rete.

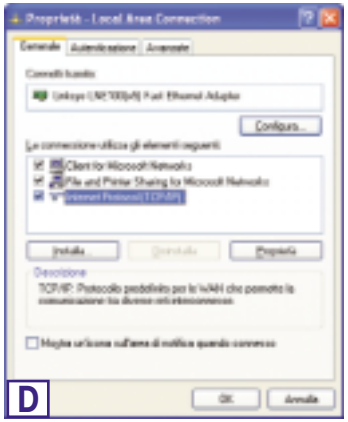
B. Selezionare l'icona **Connessione alla rete locale (LAN)** per l'adattatore Ethernet* utilizzabile (solitamente è la prima Connessione alla rete locale elencata). Fare doppio clic su **Connessione alla rete locale (LAN)**.

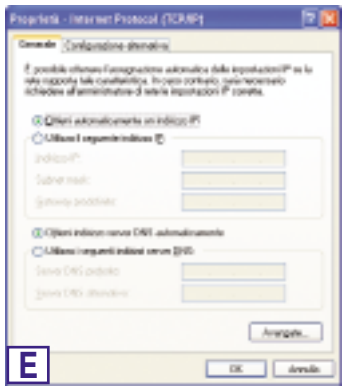
C. Quando viene visualizzata la schermata Stato di Connessione alla rete locale (LAN), fare clic sul pulsante **Proprietà**.

D. Selezionare **Protocollo Internet (TCP/IP)** e fare clic sul pulsante **Proprietà**.

E. Selezionare **Ottieni automaticamente un indirizzo IP** e fare clic sul pulsante **OK** sulle schermate successive per completare la configurazione del PC.

F. Riavviare il computer.





Passaggio 3: Configurazione del router

Nel passaggio 3, verrà configurato il router per il funzionamento nella propria rete e per ottenere l'accesso a Internet tramite il proprio ISP (Internet Service Provider). L'ISP potrebbe richiedere l'utilizzo di un Nome host e di un Nome dominio. Inoltre, verrà configurato il tipo di configurazione WAN (WAN Configuration Type) sulla scheda Setup (Configurazione) del router sulla base delle informazioni fornite dall'ISP. *Tali informazioni di configurazione sono messe a disposizione dall'ISP.* Se non si è in possesso di tali informazioni, contattare il proprio ISP prima di continuare. Per determinare le informazioni da richiedere all'ISP, fare riferimento alla domanda n°1 contenuta nella sezione Guida.

Le istruzioni fornite dall'ISP indicano le modalità di configurazione del PC per l'accesso a Internet. Poiché ora si sta utilizzando il router per la condivisione dell'accesso a Internet tra diversi computer, tali informazioni di configurazione verranno impiegate per la configurazione router.

A. Aprire il browser Web. (È normale che venga visualizzato un messaggio di errore a questo punto. Continuare a seguire queste istruzioni). Immettere **192.168.1.1** nel campo Indirizzo del browser Web e premere il tasto **Invio**.

A

B. Viene visualizzata la finestra Enter Network Password (Password di rete), mostrata nella figura A1. (Agli utenti di Windows XP verrà visualizzata la finestra Connect to 192.168.1.1 (Connetti a 192.168.1.1), mostrata nella figura A2.). Lasciare il campo User Name (Nome utente) vuoto e immettere **admin** (la password predefinita) in caratteri minuscoli nel campo Password. Successivamente, fare clic sul pulsante **OK**.

C. Se richiesto dall'ISP, immettere l'**Host Name (Nome host)** e il **Domain Name (Nome dominio)** del router nei campi appropriati della scheda Setup (Configurazione). (Ciò viene richiesto solitamente dagli ISP che offrono una connessione cable).

D. Per configurare il router per la rete Wireless, verificare che i campi Wireless della scheda Setup (Configurazione) (mostrati nella figura D) vengano completati nel modo seguente:

Enable / Disable (Abilita/Disabilita): La selezione del pulsante di opzione **Enable (Abilita)**, consentirà l'abilitazione della funzionalità Wireless del router. Le funzionalità Wireless non saranno disponibili se non abilitate.

SSID: SSID (o ESSID) è un nome univoco per la rete Wireless. Fa distinzione tra il maiuscolo e il minuscolo e non deve superare i 32 caratteri. L'SSID predefinito è "linksys " ma è necessario modificarlo con un nome di rete Wireless personale. Tutte le postazioni della rete Wireless devono utilizzare lo stesso SSID.

Channel (Canale): Selezionare il canale appropriato alla propria rete dall'elenco fornito. Tutte le postazioni Wireless della rete devono utilizzare lo stesso canale per funzionare in maniera appropriata.

Nota: *se si desidera modificare le impostazioni WEP del router, passare alla sezione Configurazione della protezione Wireless.*

E. Il router supporta cinque tipi di connessione: DHCP (ottiene un indirizzo IP automaticamente), PPPoE, Static IP Address (Indirizzo IP statico) , RAS e PPTP. Questi tipi vengono selezionati dal menu a discesa accanto a **WAN Connection Type (Tipo di connessione WAN)**. La schermata Setup (Configurazione) e le funzionalità disponibili differiranno in relazione al tipo di connessione selezionata, le cui istruzioni sono incluse nel presente manuale:

1. Obtain an IP Automatically (Ottieni un indirizzo IP automaticamente)

Se l'ISP determina che il collegamento avviene tramite un indirizzo IP dinamico (o DHCP), seguire i passaggi di seguito riportati:

a. Selezionare **Obtain an IP automatically (Ottieni un indirizzo IP automaticamente)** come tipo di connessione WAN (secondo quanto mostrato in precedenza nella figura D).

b. Fare clic sul pulsante **Apply (Applica)** per salvare le impostazioni.

2. Static IP (IP statico)

Se l'ISP determina che il collegamento avviene tramite un indirizzo IP statico (o fisso), seguire i passaggi riportati di seguito.

a. Selezionare **Static IP (IP statico)** come tipo di connessione WAN.

b. Nei campi accanto a "Specify WAN IP Address" (Specificare indirizzo IP WAN) immettere l'**indirizzo IP**.

c. Immettere la **Subnet Mask**.

d. Immettere il **Default Gateway Address (Indirizzo gateway predefinito)**.

e. Immettere il **DNS** nei campi 1, 2 e/o 3. È necessario immettere almeno un indirizzo DNS.

f. Fare clic sul pulsante **Apply (Applica)** per salvare le impostazioni.

3. PPPoE

Se il provider DSL determina che il collegamento avviene tramite una connessione PPPoE o se di solito si immette un nome utente e una password per accedere a Internet, seguire i passaggi riportati di seguito.

a. Selezionare **PPPoE** come tipo di connessione WAN.

b. Immettere lo **User Name (Nome utente)**.

c. Immettere la **Password**.

d. Fare clic sul pulsante **Apply (Applica)** per salvare le impostazioni.

e. Fare clic sulla scheda **Status (Stato)** seguita dal pulsante **Connect (Collegare)** per avviare la connessione.

4. RAS

RAS è un servizio utilizzato solo a Singapore. Se si utilizza una connessione RAS, verificare con il proprio ISP le informazioni di configurazione necessarie.

5. PPTP

PPTP è un servizio utilizzato solo in Europa. Se si utilizza una connessione PPTP, verificare con il proprio ISP le informazioni di configurazione necessarie.

F. Se non è ancora stato fatto, fare clic sul pulsante **Apply (Applica)** per salvare le impostazioni.

G. Fornire di nuovo l'alimentazione al modem cable o DSL e riavviare i computer. Le nuove impostazioni del router diventeranno effettive.

Nota: è necessario configurare il router solo da un computer. Se occorrono informazioni sulle impostazioni avanzate, visitare il sito Web dell'assistenza di Linksys all'indirizzo *support.linksys.com* o consultare il Manuale dell'utente nel CD-ROM di Setup Wizard (Installazione guidata).

Congratulazioni. Il router è stato correttamente configurato. È possibile verificarne la configurazione aprendo una sessione del browser Web da un qualsiasi computer e immettendo *www.linksys.com/registration*.

Se non si riesce a raggiungere il sito Web di Linksys, potrebbe essere necessario rivedere le impostazioni effettuate in questa sezione oppure consultare la sezione Guida in questa Guida di avviamento rapido.

Guida

Nella sezione Guida sono contenute le domande più frequenti relative alla connessione a Internet. In caso occorrano ulteriori informazioni sull'installazione o sulle funzioni avanzate, andare all'indirizzo *kb.linksys.com* o consultare il Manuale dell'utente contenente un'appendice Risoluzione dei problemi, disponibile nel CD-ROM di Setup Wizard (Installazione guidata).

1. In caso di dubbio sulle informazioni da richiedere all'Internet Service Provider (ISP) per configurare e mettere in funzione la rete, quali domande si dovrebbero fare?

Di che tipo di connessione dispongo: indirizzo IP dinamico, indirizzo IP statico o PPPoE?

- Se utilizzo un indirizzo IP dinamico, dovrei chiedere:
  - Qual è il mio nome host (se necessario)?
  - Qual è il mio nome dominio (se necessario)?

- Se utilizzo un indirizzo IP statico, dovrei chiedere:
  - Qual è il mio indirizzo IP?
  - Qual è il mio gateway?
  - Qual è il mio DNS?

- Se utilizzo PPPoE (in genere utilizzato dagli ISP che offrono una connessione DSL), dovrei chiedere:
  - Qual è il mio nome utente?
  - Qual è la mia password?

Una volta ottenute le informazioni, seguire le istruzioni nella Guida di avviamento rapido al passaggio 3: Configurazione del router e immettere queste informazioni nella scheda Setup (Configurazione). Nella sezione WAN Connection Type (Tipo di connessione WAN) fare riferimento al grafico sulla pagina successiva:

Se si dispone di questo tipo di connessione:	Seguire i passaggi riportati di seguito:
Dynamic IP Address (DHCP) (Indirizzo IP dinamico)	1. Selezionare **Obtain an IP automatically (Ottieni un indirizzo IP automaticamente)** come tipo di connessione WAN. 2. Fare clic sul pulsante **Apply (Applica)** per salvare le impostazioni.
Static IP Address (Indirizzo IP statico)	1. Selezionare **Static IP (IP statico)** come tipo di connessione WAN. 2. Immettere l'**IP Address (Indirizzo IP)**. 3. Immettere la **Subnet Mask**. 4. Immettere il **Gateway Address (Indirizzo gateway)**. 5. Immettere il **DNS** nei campi 1, 2 e/o 3. È necessario immettere almeno un indirizzo DNS. 6. Fare clic sul pulsante **Apply (Applica)** per salvare le impostazioni.
PPPoE	1. Selezionare **Static IP (IP statico)** come tipo di connessione WAN. 2. Immettere lo **User Name (Nome utente)**. 3. Immettere la **Password**. 4. Fare clic sul pulsante **Apply (Applica)** per salvare le impostazioni.
RAS o PPTP	Se si utilizza RAS (Singapore SingTel) o PPTP (servizio europeo), verificare presso il proprio ISP le informazioni di configurazione necessarie.

2. Si stanno verificando dei problemi di connessione a Internet. Quali LED dovrebbero essere accesi sul pannello anteriore del router?

- Si accenderà un LED del router per ogni collegamento correttamente effettuato sulla parte posteriore del router, sia che si tratti di un cavo Ethernet o di un cavo di alimentazione.

  Di seguito sono riportati i tipici LED che si accendono dopo aver collegato un computer e un modem cable o DSL:

  - Quando il router è acceso (l'adattatore di alimentazione è inserito nel router), il LED *Power (Alimentazione)* è acceso.
  - Quando un cavo Ethernet è correttamente collegato tra un PC e la porta 4 del router, i LED *Link/Act*, *Ful/Col* e *100* nella colonna 4 sono accesi.
  - Con una connessione modem cable o DSL il LED *WAN Link* è acceso.

- Il LED *WAN Link (collegamento WAN)* non è acceso. Quali verifiche occorre fare?
  - Verificare che il cavo utilizzato per collegare il modem cable o DSL al router sia quello fornito in dotazione con il modem. A seconda del tipo di connessione utilizzato dal modem, potrebbe essere necessario un cavo Ethernet "semplice" o "incrociato" (il tipo "semplice" è quello più comune).

- Alcune delle spie luminose sulla parte anteriore del router non si accendono quando si collega un PC.
  - Affinché una connessione funzioni correttamente è sufficiente che sia acceso il LED *Link/Act*.

3. È impossibile accedere a Internet o visualizzare la pagina per l'impostazione del router. Quali verifiche occorre fare?

A. Innanzitutto controllare che il modem cable o DSL e i computer siano correttamente collegati al router. Per informazioni su come verificare che le connessioni funzionino correttamente, tornare alla domanda n. 2.

B. Verificare quindi di aver configurato correttamente il PC per la comunicazione con il router. Di seguito sono riportate le istruzioni per diverse versioni di Windows.

- **Windows 95, 98 o ME**
  - Fare clic sul pulsante **Start (Avvio)** e scegliere **Esegui**. Nella finestra di dialogo Esegui immettere **winipcfg** nel campo Apri, quindi fare clic sul pulsante **OK**.
  - Nella finestra Configurazione IP fare clic sulla **casella grigia** con una freccia nera rivolta verso il basso.
  - Verrà visualizzato un elenco di adattatori. Selezionare l'**adattatore** da utilizzare per connettersi a Internet. Le voci dell'elenco non devono contenere nel nome "PPP", "VPN", "AOL" o "Dial-Up adapter".
  - Nel campo Indirizzo IP sarà visualizzato un indirizzo IP, come 192.168.1.100 o 192.168.1.xxx, dove "xxx" è un numero maggiore di 100. Se l'indirizzo IP visualizzato non rientra in questo intervallo, tenere premuto il pulsante Reset (Ripristina) sulla parte anteriore del router per oltre 30 secondi. Verranno così ripristinate le impostazioni predefinite del router e sarà necessario riconfigurarlo attraverso la pagina Setup (Impostazione). Al termine, riavviare il computer.

- **Windows NT, 2000 e XP**
  - Fare clic sul pulsante **Start (Avvio)** e scegliere **Esegui**. Nella finestra di dialogo Esegui immettere **cmd** nel campo Apri, quindi fare clic sul pulsante **OK**.
  - Verrà visualizzato un prompt dei comandi. Immettere **ipconfig /all**, quindi premere il tasto **Invio**.

- Nel campo Indirizzo IP sarà visualizzato un indirizzo IP, come 192.168.1.100 o 192.168.1.xxx, dove "xxx" è un numero maggiore di 100. Se l'indirizzo IP visualizzato non rientra in questo intervallo, tenere premuto il pulsante Reset (Ripristina) sulla parte anteriore del router per più di 30 secondi. Verranno così ripristinate le impostazioni predefinite del router e sarà necessario riconfigurarlo attraverso la pagina Setup (Impostazione). Al termine, riavviare il computer.

C. Configurare ora alcune impostazioni in Windows.

- Sul desktop fare doppio clic su **Risorse del computer**, quindi fare doppio clic su **Pannello di controllo (**per gli utenti di Windows XP che utilizzano l'interfaccia predefinita, fare clic sul pulsante **Start** e scegliere **Pannello di controllo**).
- Nella finestra del Pannello di controllo fare doppio clic sull'icona **Opzioni Internet** (per gli utenti di Windows XP che utilizzano l'interfaccia predefinita, fare clic su **Rete e connessioni Internet**, quindi scegliere **Opzioni Internet**).
- Nella finestra Opzioni Internet fare clic sulla scheda **Connessioni**.
- Selezionare **Non utilizzare mai connessioni remote** (questa opzione potrebbe anche essere inattiva).
- Fare clic sul pulsante **Impostazioni LAN** nell'angolo inferiore destro.
- Nella finestra Impostazioni rete locale (LAN) **deselezionare tutte le caselle**.
- Fare clic sul pulsante **OK**, quindi su **Applica** (se non è stata apportata alcuna modifica, il pulsante **Applica** è inattivo). Successivamente, fare di nuovo clic sul pulsante **OK**.
- Uscire dal Pannello di controllo e riavviare il computer.

4. È impossibile eseguire la connessione a Internet anche dopo aver fatto clic sull'icona per accedere a Internet e aver immesso il nome utente e la password forniti dall'ISP. Qual è il problema?

Il problema deriva dal fatto che si sta utilizzando il software fornito dall'ISP. Utilizzare invece il browser Internet Explorer o Netscape Navigator situati sul desktop (nel menu di avvio in Windows XP).

5. Durante l'utilizzo di Internet Explorer, viene visualizzata una finestra popup in cui viene richiesto di effettuare una connessione remota. Come è possibile disattivarla?

A. Sul desktop fare doppio clic su **Risorse del computer**, quindi fare doppio clic su **Pannello di controllo (**per gli utenti di Windows XP che utilizzano l'interfaccia predefinita, fare clic sul pulsante **Start** e scegliere **Pannello di controllo**).
B. Nella finestra del Pannello di controllo fare doppio clic sull'icona **Opzioni Internet** (per gli utenti di Windows XP che utilizzano l'interfaccia predefinita, fare clic su **Rete e connessioni Internet**, quindi scegliere **Opzioni Internet**).
C. Nella finestra Opzioni Internet fare clic sulla scheda **Connessioni**.

D. Selezionare **Non utilizzare mai connessioni remote**.
E. Fare clic sul pulsante **Applica**.
F. Fare clic sul pulsante **OK**.

6. Cosa fare se non si riceve l'intensità del segnale o la qualità del collegamento?

A. Verificare che il LED WLAN del router sia acceso.
B. Verificare che tutti i PC wireless stiano utilizzando la modalità "Infrastructure" (Infrastruttura).

7. In che modo è possibile incrementare il raggio di azione del router?

A. Verificare che il router si trovi il più in alto possibile da terra.
B. Verificare che nelle vicinanze non vi siano grandi sorgenti di interferenze elettriche (ad esempio, altoparlanti, luci fluorescenti, forni a microonde e così via).
C. Cambiare il canale wireless in uso nel modo seguente:

- Aprire una sessione del browser e digitare **http://192.168.1.1** nel campo "Indirizzo".
- Nella finestra "Password di rete" lasciare vuoto il campo "Nome utente" e digitare **admin** come password. Quindi fare clic su **OK**.
- Nella scheda Setup (Configurazione) impostare il canale su **1**.
- Fare clic sul pulsante **Apply (Applica)** per salvare le impostazioni.
- Ripetere l'operazione fino a trovare il canale che fornisce il migliore raggio di azione.

Configurazione della protezione Wireless

Nota: la crittografia WEP è una misura di protezione dati aggiuntiva e non essenziale per il funzionamento del router.

WEP, un acronimo di Wired Equivalent Privacy, è un metodo di crittografia utilizzato per proteggere le comunicazioni dei dati in modalità Wireless. WEP utilizza una combinazione di chiavi a 64 bit o 128 bit per fornire il controllo di accesso alla rete e per fornire la protezione di tipo crittografico ad ogni trasmissione di dati. Per decodificare una trasmissione di dati, ogni postazione della rete deve utilizzare una chiave a 64 bit o a 128 bit identica. Livelli superiori di crittografia comportano livelli più elevati di protezione, tuttavia, a causa della complessità della crittografia, potrebbero comportare un minore rendimento della rete.

Quando si parla di crittografia WEP, ricorre a volte il termine "40 bit" . Si tratta semplicemente di un altro termine che sta ad indicare la codifica WEP a 64 bit. Questo livello di crittografia WEP è stato denominato a 40 bit poiché si serve di una chiave segreta a 40 bit unitamente a un vettore di inizializzazione a 24 bit (40 + 24 = 64). È possibile che i fornitori di accessori Wireless utilizzino una denominazione differente. Linksys utilizza il termine "64 bit" quando fa riferimento a questo livello di crittografia.

Accertarsi che la rete Wireless sia funzionante prima di tentare la configurazione della crittografia WEP.

Una rete Wireless con crittografia WEP a 128 bit NON comunicherà con una rete Wireless con crittografia WEP a 64 bit. Pertanto, accertarsi che tutti i dispositivi Wireless stiano utilizzando lo stesso livello di crittografia. Tutti i dispositivi Wireless conformi allo standard 802.11b supporteranno la crittografia WEP a 64 bit.

Oltre ad abilitare la crittografia WEP, Linksys raccomanda inoltre le implementazioni di protezione seguenti:
• Modificare l'SSID predefinito "linksys"
• Modificare la chiave WEP regolarmente

Nota: per poter abilitare la Crittografia WEP, è necessario prima abilitare le funzionalità Wireless. Selezionare **Enable (Abilita)** sulla scheda Wireless del router prima di continuare**.**

I passaggi seguenti mostrano come utilizzare la crittografia WEP

1. Dalla scheda Utility's setup (Configurazione dell'Utilità) basata su Web, selezionare **Mandatory (Obbligatorio)** sotto la sezione WEP.

2. Premere il pulsante **WEP Key Setting (Impostazione chiave WEP)** per configurare il tipo e il livello di Crittografia WEP.

3. È possibile che venga visualizzata la schermata riportata nella figura C-1, che richiede la conferma dell'abilitazione della crittografia WEP. Premere il pulsante **OK** per continuare.

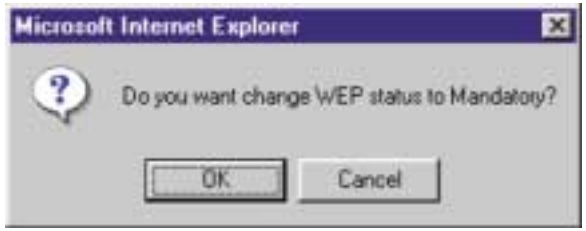


Figura C-1

4. Ciò porterà alla visualizzazione della schermata riportata nella figura C-2. Da tale schermata, verranno scelte le impostazioni di crittografia WEP.

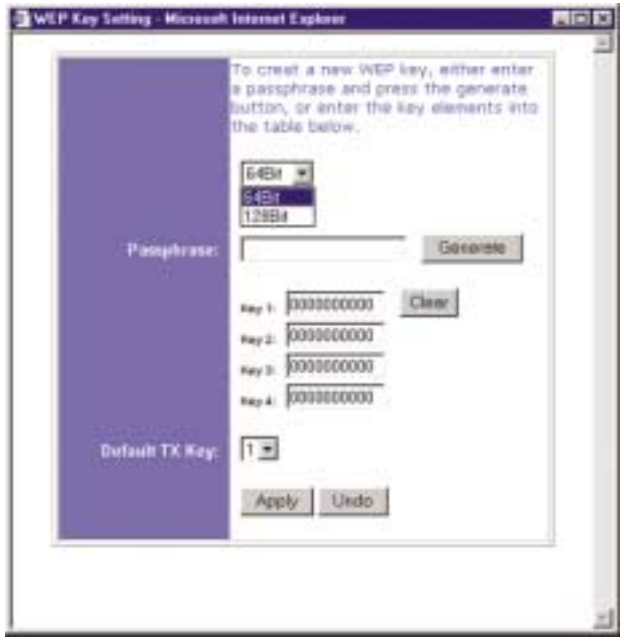


Figura C-2

- **WEP (64 Bit o 128 Bit)** Selezionare il livello di crittografia dalla casella a discesa. La crittografia WEP a 128 bit è univoca per Linksys e potrebbe andare in conflitto con altre forme di crittografia WEP di altri fornitori.

Nota: per poter utilizzare la crittografia WEP, tutte le postazioni nella rete Wireless devono avere il protocollo WEP abilitato e configurato con la stessa configurazione della chiave.

La chiave di crittografia WEP viene generata in uno dei seguenti modi:

1. È possibile creare una chiave di crittografia utilizzando una **Passphrase.**

   a. Immettere una Passphrase, una password definita dall'utente, nel campo **Passphrase**. La Passphrase può contenere un massimo di 31 lettere, simboli e numeri. Non è possibile utilizzare spazi.

   b. Fare clic sul pulsante **Generate (Genera)** per creare una chiave. La chiave sarà costituita da 10 cifre se è stata scelta una crittografia a 64 -bit o da 26 cifre se è stata scelta una crittografia a 128 bit. Questa chiave verrà utilizzata per codificare e decodificare i dati scambiati tra il router e i PC Wireless della rete.

   È possibile che il campo Key (Chiave) non visualizzi tutte le cifre. Con il mouse, fare clic in qualsiasi punto del campo Key (Chiave). Spostare il cursore sulla destra per visualizzare il resto della chiave. Accertarsi di aver annotato l'intera chiave ESATTAMENTE nel modo in cui viene visualizzata.

2. È possibile immettere la chiave di crittografia manualmente.

Prendere nota della Passphrase o della chiave manuale (Manual Key). Sarà necessaria per gli altri dispositivi Wireless presenti nella rete, poiché è necessario immettere la stessa chiave di crittografia WEP per tutti i dispositivi Wireless presenti nella rete.

Una volta scelto il metodo di crittografia a chiavi e una volta immessa la Passphrase o la chiave manuale, fare clic sul pulsante **Apply (Applica)** e la parte relativa alla crittografia della configurazione è completata.

Nota: in Windows XP, una chiave a 128 bit generata dal router, verrà denominata chiave a "104 bit (26 cifre)" e una chiave a 64 bit verrà denominata chiave a "40 bit (10 cifre)".

Configurazione della protezione Wireless in Windows XP

Poiché Windows XP non consente di utilizzare la funzionalità Passphrase di Linksys con gli adattatori Wireless del PC , sarà necessario immettere manualmente la chiave generata nella sezione precedente.

I passaggi seguenti consentiranno di abilitare il WEP e di immettere la chiave di crittografia per le schede Wireless dei PC, al fine di consentire al sistema Windows XP di comunicare con il router in modalità Wireless.

Questi passaggi presuppongono che all'unità CD-ROM sia assegnata la lettera D e che si stia utilizzando Windows XP nella modalità predefinita.

Accertarsi di disporre della chiave WEP generata dal router.

1. Secondo quanto visualizzato nella figura C-3, fare clic sul pulsante **Start** e portarsi sul **Pannello di controllo**.

Figura C-3

2. Nella finestra "Pannello di controllo", fare clic sull'icona **Rete e connessioni Internet**, riportata nella figura C-4.

Figura C-4

3. Fare clic sull'icona **Connessioni di rete**, riportata nella figura C-5.

Figura C-5

4. Verrà visualizzata la finestra "Connessioni di rete" , come riportato nella figura C-6. Sotto la voce LAN o Internet ad alta velocità, verranno visualizzate tutte le schede di rete installate e funzionanti del computer. Fare doppio clic sull'icona **Connessione di rete Wireless** associata all'adattatore Wireless.

   Se viene visualizzata la finestra "Stato di Connessione alla rete Wireless", proseguire al passaggio successivo.

Se viene visualizzata la finestra “Connessione alla rete Wireless”, nella sezione Reti disponibili, fare clic sulla rete Wireless desiderata, specificata dall’SSID del router. Successivamente, fare doppio clic sull’icona **Connessione alla rete Wireless**.

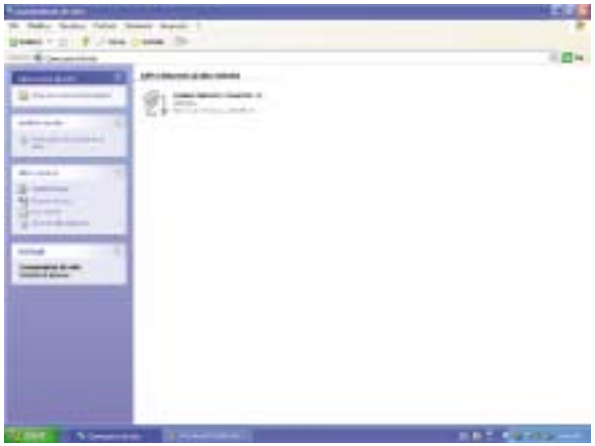


Figura C-6

5. Quando viene visualizzata la finestra “Stato di connessione alla rete Wireless”, come riportato nella figura C-7, fare clic sul pulsante **Proprietà**.

Figura C-7

6. Quando viene visualizzata la finestra “Proprietà - Connessione alla rete Wireless”, secondo quanto riportato nella figura C-8, fare clic sulla scheda **Reti Wireless**.

Figura C-8

7. Se la rete Wireless appropriata, specificata dall’SSID del router, viene visualizzata nella sezione “Reti preferite”, come riportato nella figura C-9, fare doppio clic su di essa e proseguire al passaggio successivo.

   Altrimenti, fare clic sulla rete Wireless appropriata, specificata dall’SSID del router, nella sezione “Reti disponibili”. Successivamente, fare clic sul pulsante **Configura**.

Figura C-9

8. Verrà visualizzata la finestra “Proprietà - Rete Wireless” (riportata nella figura C-10).

   Fare clic sulla casella di controllo relativa all’opzione **Crittografia dati (WEP abilitato)**.

   Deselezionare i campi **Autenticazione di rete (Modalità condivisa)** e **La chiave viene fornita automaticamente**.

   Nel campo “Chiave di rete”, immettere la chiave esatta (a 10 o 26 cifre, in relazione al livello di crittografia) generata dal router.

   Verificare che nel campo “Formato chiave” sia visualizzato “Cifre esadecimali” e nel campo “Lunghezza chiave” “40 bit (10 cifre)” o “104 bit (26 cifre)”. Se ciò non viene visualizzato, la chiave è stata immessa in maniera non corretta.

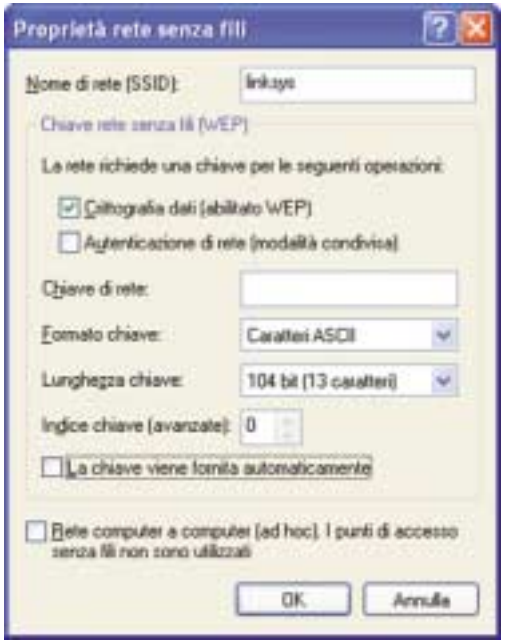


Figura C-10

   Fare clic sul pulsante **OK** per salvare le impostazioni. Fare clic sui pulsanti **OK** fino a ritornare alla finestra “Stato di Connessione di rete Wireless”. Chiudere tutte le finestre aperte per ritornare al desktop di Windows XP.

Chiudere tutte le applicazioni e riavviare il PC. Dopo il riavvio, la configurazione WEP è completata e sarà possibile connettersi in modalità Wireless al router.

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DECLARAÇÃO DA FCC
O router de ponto de acesso sem fios com switch de 4 portas Instant Wireless™ foi testado e está em conformidade com os limites para um dispositivo digital da Classe B, de acordo com a Parte 15 das regras da FCC. Estas regras foram concebidas para proporcionar uma protecção razoável contra interferência nociva numa instalação residencial. Este equipamento gera, utiliza e pode emitir energia de frequência de rádio e, se não for instalado e utilizado de acordo com as instruções, pode causar interferência nociva a comunicações de rádio. No entanto, não existe qualquer garantia de que não ocorrerá interferência numa determinada instalação. Se este equipamento causar interferência nociva à recepção de rádio ou de televisão, o que pode ser determinado desligando e voltando a ligar o equipamento, o utilizador deverá tentar corrigir a interferência através de uma ou mais das seguintes medidas:

- Alterar a orientação ou localização da antena de recepção
- Aumentar a distância entre o equipamento ou dispositivo
- Ligar o equipamento a uma tomada diferente da utilizada pelo receptor
- Consultar um técnico com experiência de rádio/TV

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Para obter suporte técnico, contacte-nos nos endereços abaixo indicados:

Correio electrónico	europe-support@linksys.com latam-soporte@linksys.com
Web	http://www.linksys.com/international

Introdução

Obrigado por escolher o router de ponto de acesso sem fios Instant Wireless™. Este router irá permitir-lhe configurar os seus PCs em rede e partilhar a ligação à Internet.

Como é que o router lhe permite tudo isto? Ligando o modem por cabo ou DSL directamente ao router e utilizando as portas Ethernet do router para ligar os PCs, como se cada PC estivesse directamente ligado à Internet. Desta forma, uma ligação à Internet pode ser utilizada simultaneamente por vários PCs. Além disso, por ser também um ponto de acesso, o router pode estabelecer uma ponte entre a rede Ethernet e os PCs sem fios.

Mas o que significa tudo isto?

As redes são ferramentas úteis para partilhar recursos informáticos. É possível aceder a uma impressora a partir de diferentes computadores, bem como a dados localizados no disco rígido de outro computador. As redes são também usadas para jogos de computador multi-jogador. Então, conclui-se que as redes não só são muito úteis em casa e no escritório, como podem ser também muito divertidas.

Os PCs ligados às quatro portas LAN do router, depois de adequadamente configurados, constituem uma rede local (LAN: Local Area Network). Os computadores são ligados através de um cabo Ethernet que é ligado, numa extremidade, ao adaptador de Ethernet do computador e, na outra extremidade, a uma das portas LAN do router (numeradas de um a quatro). O termo "Ethernet" é utilizado para designar os acessórios de rede, tais como cabos e adaptadores, porque Ethernet se refere ao tipo de rede que está a ser configurado. Na documentação do router, Ethernet refere-se aos acessórios que transferem os dados do computador de 10Mbps a 100Mbps. (10Mbps e 100Mbps referem-se às velocidades utilizadas pelos dispositivos de rede. Ao transferir dados a 10Mbps, está a mover o equivalente a mais de sete disquetes por segundo! Os acessórios de rede que funcionam a 100Mbps movem os dados dez vezes mais rapidamente!)

Os PCs também podem interagir com o router sem fios. Ao configurar os PCs sem fios utilizando as mesmas definições sem fios do router, é possível estabelecer uma ponte entres estes PCs sem fios, integrando-os na rede Ethernet existente.

A funcionalidade mais espantosa do router é, talvez, o facto de permitir partilhar a ligação por cabo ou DSL. Poderá usufruir desta funcionalidade ligando o modem por cabo ou DSL à porta WAN do router por meio de um cabo Ethernet (WAN refere-se a uma rede alargada: Wide Area Network). A Internet é uma rede global que abrange a maior área possível! Os PCs ligados ao router partilham esta ligação.

Utilize as instruções neste manual de iniciação rápida para ligar o router, configurar os seus PCs e configurar o router na sua rede. Estas instruções devem ser suficientes para colocar uma rede básica em funcionamento e partilhar o acesso à Internet. O router também vem equipado com funções mais avançadas, mas estas não devem ser utilizadas sem uma compreensão mais aprofundada do funcionamento dos routers e das redes. Estas e outras questões são explicadas no manual do utilizador no CD-ROM do assistente de configuração.

Esquema de configuração:

A configuração do router é semelhante à que é mostrada na figura acima, para qualquer PC a executar o Windows. O router permite-lhe partilhar a sua ligação por cabo ou DSL entre vários computadores em casa ou no escritório. Esta é chamada uma rede local ou LAN (Local Area Network).

Este manual de iniciação rápida fornece-lhe uma perspectiva geral do que é necessário para configurar uma rede básica em casa ou no escritório. As três secções que se seguem explicam como configurar o equipamento de modo a permitir a partilha do acesso de alta velocidade à Internet.

Passo 1: Ligação do router

É explicado o processo de ligação do router ao modem por cabo ou DSL. Em seguida, é mostrado como os PCs são ligados ao router.

Passo 2: Configuração dos PCs

É descrito como os PCs são configurados para comunicar com o router.

Passo 3: Configuração do router

São explicadas algumas das definições básicas do router para que funcione com o modem por cabo ou DSL e com as definições do ISP.

Nota: *Este manual de iniciação rápida irá ajudá-lo a configurar o router com cabos Ethernet. Apesar de ser possível configurar o router através de uma ligação sem fios, este manual de iniciação rápida não fornece pormenores sobre como configurar o router sem fios. Os utilizadores que pretendem configurar o router através de uma ligação sem fios deverão consultar o Web site da Linksys em www.linksys.com.*

Passo 1: Ligação do router

No passo 1, irá ligar o router ao modem por cabo ou DSL e aos computadores de casa ou do escritório.

Primeiro, certifique-se de que todos os dispositivos com que está a trabalhar estão desligados da corrente incluindo os PCs, o modem e o router.

A. Se ainda não o fez, ligue o modem por cabo ou DSL à ligação adequada—a tomada coaxial para cabo (figura A1) ou a tomada de telefone para DSL (figura A2) (Siga as instruções do manual de instalação do modem por cabo ou DSL.)

A1

A2

B. Utilizando um cabo Ethernet, ligue a porta LAN ou Ethernet do modem por cabo ou DSL à porta WAN do router.

B

C. Ligue um cabo Ethernet ao adaptador de Ethernet do PC. Ligue a outra extremidade do cabo a uma das portas LAN do router. Repita este processo para cada PC que pretender ligar ao router.

C1

Nota: Se o adaptador de Ethernet do PC não estiver configurado, consulte a documentação do adaptador de Ethernet para obter mais informações.

De modo a facilitar a instalação, comece pela porta LAN 1 do router, utilize em seguida a porta 2, depois a porta 3 e, finalmente, a porta 4.

Se pretender ligar mais de quatro PCs ao router, será necessário ligar um hub ou switch à porta Uplink do router (se utilizar a porta Uplink, não poderá utilizar a porta 4). Para obter informações sobre o Uplink, consulte o manual do utilizador no CD-ROM do assistente de configuração.

C2

D. Ligue o adaptador de corrente à porta de alimentação do router. Em seguida, ligue o adaptador de corrente a uma tomada eléctrica. Ligue o modem por cabo ou DSL. Em seguida, ligue o primeiro PC que pretender utilizar ao configurar o router.

Prossiga para o passo 2: Configuração dos PCs, na página seguinte.

Passo 2: Configuração dos PCs

No passo 2, irá configurar cada um dos computadores para comunicarem com o router.

Para tal, será necessário configurar as definições de rede do PC de modo a obter um endereço IP (ou TCP/IP) automaticamente. Os computadores utilizam os endereços IP para comunicar uns com os outros através de uma rede ou da Internet.

Descubra que sistema operativo está a ser executado pelo computador, como Windows 95, 98, Millennium, 2000 ou XP. Será necessário saber qual o sistema operativo utilizado pelo computador. Para tal, clique no botão **Iniciar** e seleccione a opção **Definições**. (Se o menu 'Iniciar' não tiver uma opção 'Definições', significa que está a utilizar o Windows XP. É possível seleccionar 'Painel de controlo' directamente a partir do menu 'Iniciar'.) Em seguida, clique em **Painel de controlo** e faça duplo clique no ícone **Sistema**. Clique no botão **Cancelar** quando terminar.

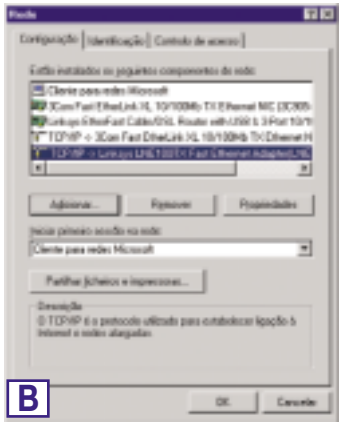
Depois de saber qual o sistema operativo do Windows a ser executado pelo computador, siga as instruções neste passo adequadas ao seu sistema operativo. Poderá ser necessário repetir este procedimento para todos os computadores que ligar ao router.

As páginas que se seguem informam-no, passo a passo, sobre como configurar as definições TCP/IP com base no tipo de sistema operativo do Windows que está a utilizar. Depois de configurar os computadores, prossiga para o passo 3: Configuração do router.

Se estiver a utilizar:
Windows 95, Windows 98, Windows Me

A. Clique no botão **Iniciar**, clique em **Definições** e abra o **Painel de controlo**. A partir daí, faça duplo clique no ícone **Rede** para abrir o ecrã 'Rede'.

B. Seleccione o separador 'Configuração' e clique na **Linha TCP/IP** para o adaptador de Ethernet aplicável*. Se a palavra **TCP/IP** aparecer sozinha, seleccione essa linha**. Em seguida, clique no botão **Propriedades**.



C. Clique no separador **Endereço IP** e seleccione **Obter automaticamente um endereço IP**.

D. Clique no separador **Gateway** e verifique se o campo 'Gateway instalada' está em branco. Clique no botão **OK**.

E. Clique novamente no botão OK. **O Windows poderá solicitar-lhe o disco de instalação original do Windows ou ficheiros adicionais. Forneça-os apontando a localização correcta do ficheiro, por exemplo, D:\win98, D:\win9x, c:\windows\options\cabs, etc. (sendo "D" a letra da unidade de CD-ROM).**

F. Se o Windows lhe perguntar se pretende reiniciar o computador, clique no botão **Sim**. Se o Windows não lhe solicitar que reinicie o computador, faça-o ainda assim.

*Nota: Não escolha uma entrada TCP/IP cujo nome mencione DUN, PPPoE, VPN, ou AOL.

**Nota: Se não existir uma linha TCP/IP listada, consulte o manual do utilizador no CD-ROM do assistente de configuração ou a documentação do adaptador de Ethernet para instalar o TCP/IP.

Se estiver a utilizar:
Windows 2000

A. Clique no botão **Iniciar**, clique em **Definições** e abra o **Painel de controlo**. A partir daí, faça duplo clique no ícone **Ligações de acesso telefónico e de rede**. Será apresentado o ecrã 'Rede'.

B. Seleccione o ícone **Ligação de rede local** para o adaptador de Ethernet* (normalmente, é a primeira ligação de rede local listada). Faça duplo clique em **Ligação de rede local**.

C. Quando o ecrã 'Estado da ligação de rede local' aparecer, clique no botão **Propriedades**.

D. Seleccione **Protocolo Internet (TCP/IP)** e clique no botão **Propriedades**.

E. Seleccione **Obter automaticamente um endereço IP** e clique no botão **OK** nos ecrãs subsequentes para concluir a configuração do PC.

F. Reinicie o computador.

*Nota: Não escolha uma entrada TCP/IP cujo nome mencione DUN, PPPoE, VPN, ou AOL.

Se estiver a utilizar:
Windows XP

As instruções que se seguem assumem que está a ser executada a interface predefinida do Windows XP. Se estiver a utilizar a interface clássica (em que os ícones e menus se assemelham às versões anteriores do Windows), siga as instruções para o Windows 2000.

A. Clique no botão **Iniciar**, abra o **Painel de controlo** e clique no ícone **Ligações de Internet e de rede**. Em seguida, clique no ícone **Ligações de rede** para apresentar o ecrã 'Rede'.

B. Seleccione o ícone **Ligação de rede local** para o adaptador de Ethernet (normalmente, é a primeira ligação de rede local listada). Faça duplo clique em **Ligação de rede local**.

C. Quando o ecrã 'Estado da ligação de rede local' aparecer, clique no botão **Propriedades**.

D. Seleccione **Protocolo Internet (TCP/IP)** e clique no botão **Propriedades**.

E. Seleccione **Obter automaticamente um endereço IP** e clique no botão **OK** nos ecrãs subsequentes para concluir a configuração do PC.

F. Reinicie o computador.

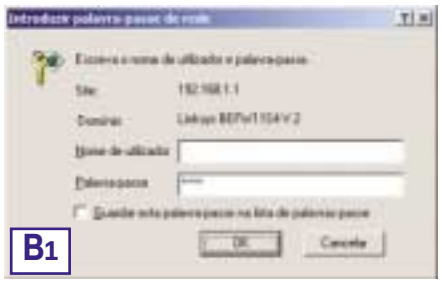
Passo 3: Configuração do router

No passo 3, irá configurar o router para funcionar em rede e obter acesso à Internet através do seu fornecedor de serviços Internet (ISP). O ISP pode requerer o uso de um nome de anfitrião e nome de domínio. Em seguida, irá definir o tipo de configuração WAN no separador de configuração do router, a partir das informações fornecidas pelo ISP. *É necessário obter estas informações de configuração junto do ISP.* Se não possuir estas informações, contacte o ISP antes de prosseguir. Para saber que questões deve colocar ao ISP, consulte a pergunta n.º 1 na secção 'Ajuda'.

As instruções do ISP informam-no sobre como configurar o PC para acesso à Internet. Uma vez que está a utilizar o router para partilhar o acesso à Internet entre diversos computadores, estas informações de configuração serão necessárias para configurar o router.

A. Abra o Web browser (não se preocupe se receber uma mensagem de erro nesta altura. Continue a seguir as instruções). Introduza **192.168.1.1** no campo 'Endereço' do Web browser e prima a tecla **Enter**.

B. Irá aparecer uma janela para introduzir a palavra-passe da rede, mostrada na figura B1. (Os utilizadores do Windows XP irão ver a janela 'Ligar a 192.168.1.1', mostrada na figura B2.). Deixe o campo 'User Name' (Nome de utilizador) vazio e introduza **admin** (a palavra-passe predefinida), em minúsculas, no campo 'Password'. Em seguida, clique no botão **OK**.



C. Se for exigido pelo ISP, introduza o nome de anfitrião e o nome de domínio nos campos **Host Name** e **Domain Name**, respectivamente, no separador 'Setup' (Configuração). (Este procedimento é normalmente exigido pelos ISPs de cabo.)

D. Para configurar o router para a sua rede sem fios, verifique se os campos 'Wireless' (Sem fios) no separador 'Setup' (Configuração), apresentados na figura D, estão preenchidos da seguinte forma:

Enable/Disable(Activar/desactivar): Se seleccionar o botão de opção **Enable** (Activar), irá activar a funcionalidade sem fios do router. As funções sem fios só estarão disponíveis se forem activadas.

SSID: O SSID (ou ESSID) é um nome exclusivo para a sua rede sem fios. É sensível a maíusculas/minúsculas e não pode ultraassar os 32 caracteres. O SSID predefinido é "linksys " mas deverá atribuir um nome pessoal à rede sem fios. É necessário que todos os pontos na rede sem fios utilizem o mesmo SSID.

Channel (Canal): Seleccione o canal apropriado para a sua rede a partir da lista fornecida. É necessário que todos os pontos na rede sem fios utilizem o mesmo canal para funcionarem correctamente.

Nota: *Se estiver interessado em alterar as definições WEP do router, consulte a secção 'Configurar a segurança sem fios'.*

E. O router suporta cinco tipos de ligações: DHCP (obtain an IP automatically) (DHCP, obter automaticamente um endereço IP), PPPoE, Static IP Address (Endereço IP estático), RAS e PPTP. Estes tipos são seleccionados a partir do menu pendente junto a **WAN Connection Type** (Tipo de ligação WAN). O ecrã de configuração e as funcionalidades disponíveis dependem do tipo de ligação seleccionado, apresentando-se em seguida as instruções para cada um deles:

1. Obter automaticamente um endereço IP

Se o ISP lhe disser que está a ligar através de um endereço IP dinâmico (ou DHCP), efectue os seguintes procedimentos:

a. Seleccione **Obtain an IP automatically** (Obter automaticamente um endereço IP) como tipo de ligação WAN (tal como foi anteriormente mostrado na figura D).

b. Clique no botão **Apply** (Aplicar) para guardar as definições.

2. IP estático

Se o ISP lhe disser que está a ligar através de um endereço IP estático (ou fixo), efectue os seguintes procedimentos:

a. Seleccione **Static IP** (IP estático) como tipo de ligação WAN.

b. Nos campos junto a 'Specify WAN IP Address' (Especificar endereço IP da WAN), introduza o **endereço IP**.

c. Introduza a **Subnet Mask** (Máscara de sub-rede).

d. Introduza o **Default Gateway Address** (Endereço da gateway predefinida).

e. Introduza o **DNS** nos campos 1, 2, e/ou 3. É necessário introduzir pelo menos um endereço de DNS.

f. Clique no botão **Apply** (Aplicar) para guardar as definições.

3. PPPoE

Se o fornecedor de DSL lhe disser que está a ligar através de PPPoE ou se costuma introduzir um nome de utilizador e palavra-passe para aceder à Internet, efectue os seguintes procedimentos:

a. Seleccione **PPPoE** como tipo de ligação WAN.

b. Introduza o **User Name** (Nome de utilizador).

c. Introduza a **Password** (Palavra-passe).

d. Clique no botão **Apply** (Aplicar) para guardar as definições.

e. Clique no separador **Status** (Estado), seguido do botão **Connect** (Ligar) para estabelecer a ligação.

4. RAS

O RAS é um serviço utilizado apenas em Singapura. Se estiver a utilizar uma ligação RAS, consulte o seu ISP para obter as informações de configuração necessárias.

5. PPTP

O PPTP é um serviço utilizado apenas na Europa. Se estiver a utilizar uma ligação PPTP, consulte o seu ISP para obter as informações de configuração necessárias.

F. Se ainda não o tiver feito, clique no botão **Apply** (Aplicar) para guardar as definições.

G. Desligue e volte a ligar o modem por cabo ou DSL à corrente e reinicie os computadores. Os computadores irão obter as novas definições do router.

Nota: Só é necessário configurar o router a partir de um computador. Para obter informações de configuração avançadas, consulte o Web site de suporte da Linksys em *support.linksys.com* ou o manual do utilizador no CD-ROM do assistente de configuração.

Parabéns! Concluiu com êxito a configuração do router. Pode testar a configuração abrindo o Web browser a partir de qualquer computador e entrando em *www.linksys.com/registration*.

Se não conseguir ir ao nosso Web site, reveja os procedimentos efectuados nesta secção ou consulte a secção de ajuda deste manual de iniciação rápida.

Ajuda

A secção de ajuda contém as perguntas mais frequentes relacionadas com a ligação à Internet. Se tiver necessidades de configuração adicionais ou pretender obter informações acerca das funcionalidades avançadas, visite *kb.linksys.com* ou consulte o manual do utilizador, que contém um anexo dedicado à resolução de problemas (disponível no CD-ROM do assistente de configuração).

1. Não tenho a certeza sobre as informações que necessito de obter junto do meu fornecedor de serviços Internet (ISP) para colocar a rede a funcionar. Que questões devo colocar?

Que tipo de ligação tenho: endereço IP dinâmico, endereço IP estático ou PPPoE?

- Se estiver a utilizar um endereço IP dinâmico, devo perguntar:
  - Qual é o meu nome de anfitrião (se necessário)?
  - Qual é o meu nome de domínio (se necessário)?

- Se estiver a utilizar um endereço IP estático, devo perguntar:
  - Qual é o meu endereço IP?
  - Qual é a minha gateway?
  - Qual é o meu DNS?

- Se estiver a utilizar PPPoE (tipicamente utilizado por ISPs de DSL), devo perguntar:
  - Qual é o meu nome de utilizador?
  - Qual é a minha palavra-passe?

Depois de obter as informações, siga as instruções indicadas no passo 3 do manual de iniciação rápida, 'Configuração do router', e introduza estas informações no separador 'Setup' (Configuração). Na secção 'WAN Connection Type' (Tipo de ligação WAN), consulte o gráfico na página seguinte:

Se tiver este tipo de ligação:	Efectue os seguintes procedimentos:
Dynamic IP Address (DHCP) (Endereço IP dinâmico, DHCP)	1. Seleccione **Obtain an IP automatically** (Obter automaticamente um endereço IP) como tipo de ligação WAN . 2. Clique no botão **Apply** (Aplicar) para guardar as definição.
Static IP Address (Endereço IP estático)	1. Seleccione **Static IP** (IP estático) como tipo de ligação WAN . 2. Introduza o **IP Address** (Endereço IP). 3. Introduza a **Subnet Mask** (Máscara de sub-rede). 4. Introduza o **Gateway Address** (Endereço de gateway). 5. Inrroduza o **DNS** nos campos 1, 2, e/ou 3. É necessário introduzir pelo menos um endereço de DNS. 6. Clique no botão **Apply** (Aplicar) para guardar as definição.
PPPoE	1. Seleccione **PPPoE** como tipo de ligação WAN . 2. Introduza o **User Name** (Nome de utilizador). 3. Introduza a **Password** (Palavra-passe). 4. Clique no botão **Apply** (Aplicar) para guardar as definição.
RAS ou PPTP	Se estiver a utilizar RAS (SingTel na Singapura) ou PPTP (serviço na Europa), consulte o seu ISP para obter as informações de configuração necessárias.

2. Estou a ter problemas para ligar à Internet. Que LEDs devem acender na parte da frente do router?

- Cada LED do router irá acender por cada ligação bem estabelecida na parte de trás do router—quer seja um cabo Ethernet ou um cabo de alimentação.

  Por exemplo, os seguintes LEDs acendem quando se liga um computador e um modem por cabo ou DSL:

  - Quando o router é ligado (o adaptador de corrente está ligado ao router), o LED *Power* acende.
  - Quando um cabo Ethernet é correctamente ligado entre um PC e a porta 4 do router, os LEDs *Link/Act*, *Ful/Col* e *100* na coluna 4 acendem.
  - A ligação de um modem por cabo ou DSL faz com que o LED *WAN Link* acenda.

- O LED *WAN Link* não está aceso. O que devo verificar?
  - Verifique se o cabo que está a usar entre o modem por cabo ou DSL e o router é o que foi fornecido com o modem. Consoante o tipo de ligação utilizada pelo modem, poderá necessitar de um cabo Ethernet directo ('straight-through') ou cruzado ('crossover'). O tipo directo é o mais comum.

- Algumas das luzes na parte da frente do router não acendem quando eu ligo um PC.
  - Apenas o LED *Link/Act* é necessário para que uma ligação funcione correctamente.

3. Não consigo aceder à Internet nem à página de configuração do router. O que devo veri-ficar?

A. Em primeiro lugar, verifique se o modem por cabo ou DSL e os computadores estão correctamente ligados ao router. Consulte a pergunta n.º 2 para obter informações sobre como verificar se as ligações estão correctas.

B. Em seguida, verifique se configurou correctamente os PCs para comunicarem com o router. Abaixo poderá encontrar instruções referentes às diversas versões do Windows.

- **Windows 95, 98 ou ME**
  - Clique no menu **Iniciar** e, em seguida, clique em **Executar**. Quando aparecer a janela 'Executar', introduza **winipcfg** no campo 'Abrir' e, em seguida, clique no botão **OK**.
  - Quando aparecer a janela 'Configuração IP', clique na **caixa cinzenta** com uma seta preta a apontar para baixo.
  - Irá aparecer uma lista de adaptadores. Seleccione o **adaptador** que utiliza para se ligar à Internet. Estes itens não devem conter "PPP", "VPN", "AOL" ou "Adaptador de acesso telefónico" como parte da entrada.
  - O campo 'Emdereço IP' deve mostrar 192.168.1.100 ou 192.168.1.xxx, sendo "xxx" qualquer número superior a 100. Se o seu endereço IP não estiver dentro desse intervalo, mantenha o botão 'Reset' na parte da frente do router premido durante mais de 30 segundos. Isto fará com as predefinições de fábrica sejam repostas, de forma que será necessário voltar a configurar a página de configuração do router. Depois de configurar novamente a página de configuração, reinicie o computador.

- **Windows NT, 2000 e XP**
  - Clique no menu **Iniciar** e, em seguida, clique em **Executar**. Quando aparecer a janela 'Executar', introduza **cmd** no campo 'Abrir' e, em seguida, clique no botão **OK**.
  - Irá aparecer uma linha de comandos. Introduza **ipconfig /all** e, em seguida, prima a tecla **Enter**.

  - O campo 'Endereço IP' deve mostrar 192.168.1.100 ou 192.168.1.xxx, sendo "xxx" qualquer número superior a 100. Se o seu endereço IP não estiver dentro desse intervalo, mantenha o botão 'Reset' na parte da frente do router premido durante mais de 30 segundos. Isto fará com as predefinições de fábrica sejam repostas, de forma que será necessário voltar a configurar a página de configuração do router. Depois de configurar novamente a página de configuração, reinicie o computador.

C. Em seguida, irá configurar algumas definições em Windows.

- No ambiente de trabalho, faça duplo clique em **O meu computador** e, em seguida, faça duplo clique em **Painel de controlo (**Os utilizadores do Windows XP com a interface predefinida devem clicar em **Iniciar** e seleccionar **Painel de controlo**).
- Quando a janela do painel de controlo aparecer, faça duplo clique no ícone **Opções da Internet** (os utilizadores do Windows XP com a interface predefinida devem clicar em **Ligações de Internet e de rede** e, em seguida, em **Opções da Internet**).
- Quando a janela 'Opções da Internet' aparecer, clique no separador **Ligações**.
- Seleccione **Nunca estabelecer uma ligação** (está tudo bem se esta opção não estiver disponível).
- Clique no botão **Definições da rede local…** no canto inferior direito.
- Quando a janela 'Definições da rede local' aparecer, desmarque todas as caixas.
- Clique no botão **OK** e no botão **Aplicar** (o botão **Aplicar** não poderá ser seleccionado se não tiver efectuado nenhuma alteração). Em seguida, clique no botão **OK** novamente.
- Saia do painel de controlo e reinicie o computador.

4. Quando clico no ícone para aceder à Internet e introduzo o nome de utilizador e palavra-passe fornecidos pelo ISP, não consigo estabelecer uma ligação à Internet. O que se passa?

Se isto acontecer, significa que está a utilizar o software fornecido pelo seu ISP. Utilize o Internet Explorer ou o Netscape Navigator, localizados no ambiente de trabalho (ou no menu 'Iniciar' no Windows XP).

5. Quando utilizo o Internet Explorer, aparece uma caixa a solicitar que estabeleça uma ligação de acesso telefónico. Como posso desactivar essa opção?

A. No ambiente de trabalho, faça duplo clique em **O meu computador** e, em seguida, faça duplo clique em **Painel de controlo (**Os utilizadores do Windows XP com a interface predefinida devem clicar em **Iniciar** e seleccionar **Painel de controlo**).
B. Quando a janela do painel de controlo aparecer, faça duplo clique no ícone **Opções da Internet** (os utilizadores do Windows XP com a interface predefinida devem clicar em **Ligações de Internet e de rede**e, em seguida, em **Opções da Internet**).
C. Quando a janela 'Opções da Internet' aparecer, clique no separador **Ligações**.

D. Seleccione **Nunca estabelecer uma ligação**.
E. Clique no botão **Aplicar**.
F. Clique no botão **OK**.

6. Não obtenho intensidade do sinal nem qualidade da ligação. O que posso fazer?

A. Verifique se o LED WLAN do router está iluminado.
B. Verifique se todos os PCs sem fios estão a utilizar o modo 'Infrastructure'.

7. Como posso aumentar a amplitude do router?

A. Coloque o router tão elevado do chão quanto possível.
B. Verifique se não existem fontes de interferência eléctrica significativa nas proximidades. (Por exemplo: caixas de altifalantes, luzes fluorescentes, microondas, etc.)
C. Mude o canal sem fios utilizado. Para o fazer:

- Abra o Web browser e escreva **http://192.168.1.1** no campo 'Endereço'.
- Na caixa 'Enter Network Password' (Introduzir palavra-passe da rede), deixe o campo do nome de utilizador em branco e escreva a palavra-passe **admin**. Em seguida, clique em **OK**.
- No separador 'Setup' (Configuração), mude o canal para **1**.
- Clique no botão **Apply** (Aplicar) para guardar as definições.
- Continue a efectuar este procedimento até encontrar o canal que forneça a maior amplitude.

Configurar a segurança sem fios

Nota: A encriptação WEP é uma medida adicional de segurança de dados não essencial para o funcionamento do router.

Sendo um acrónimo para privacidade equivalente com fios (WEP: Wired Equivalent Privacy), este constitui um método de encriptação utilizado para proteger as comunicações de dados sem fios. A WEP utiliza uma combinação de chaves de 64 ou 128 bits para proporcionar o controlo do acesso à sua rede e segurança de encriptação para todas as transmissões de dados. Para descodificar uma transmissão de dados, cada ponto na rede tem de utilizar uma chave de 64 ou 128 bits idêntica. Níveis de encriptação superiores significam maiores níveis de segurança, mas devido à complexidade da encriptação, podem também significar uma diminuição no desempenho da rede.

Também poderá ter ouvido falar no termo "40 bits" utilizado em associação com encriptação WEP . Este é outro termo para encriptação WEP de 64 bits . Este nível de encriptação WEP foi apelidado de 40 bits porque utiliza uma chave secreta de 40 bits juntamente com um vector de inicialização de 24 bits (40 + 24 = 64). Os fornecedores de equipamento sem fios poderão usar qualquer um dos nomes. A Linksys utiliza o termo "64 bits" para se referir a este nível de encriptação.

Certifique-se de que a rede sem fios está a funcionar antes de tentar configurar a encriptação WEP.

Uma rede sem fios com encriptação WEP de 128 bits NÃO comunicará com uma rede sem fios com encriptação WEP de 64 bits. Por isso, certifique-se de que todos os dispositivos sem fios utilizam o mesmo nível de encriptação. Todos os dispositivos sem fios em conformidade com a norma 802.11b suportam WEP de 64 bits.

Para além da activação da WEP, a Linksys também recomenda a implementação das seguintes medidas de segurança:
• Alteração do SSID cujo valor predefinido é "linksys"
• Alteração regular da chave WEP

Nota: Para activar a encriptação WEP, é necessário activar, em primeiro lugar, as funções sem fios. Seleccione **Enable** (Activar) no separador 'Wireless' (Sem fios) antes de prosseguir**.**

Os passos que se seguem irão mostrar como utilizar a encriptação WEP

1. A partir do separador 'Setup' (Configuração) do utilitário baseado na Web, seleccione **Mandatory** (Obrigatório) na secção WEP.

2. Prima o botão **WEP Key Setting** (Definição da chave WEP) para definir o tipo e o nível da encriptação WEP.

3. Poderá aparecer o ecrã apresentado na figura C-1, a confirmar se pretende activar a encriptação WEP. Prima o botão **OK** para continuar.

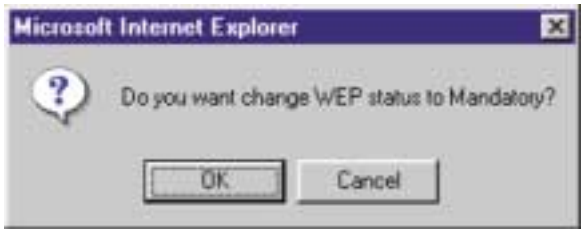


Figura C-1

4. Em seguida, será apresentado o ecrã mostrado na figura C-2. A partir daqui, poderá escolher as suas definições de encriptação WEP.

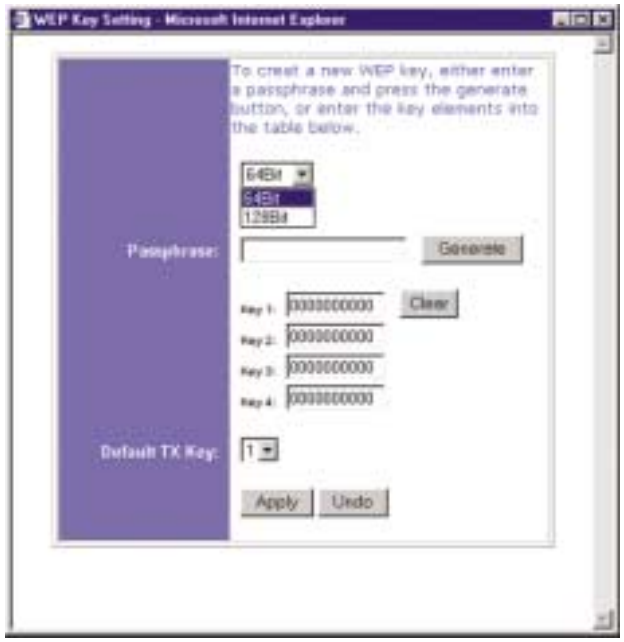


Figura C-2

- **WEP (64B ou 128B)** Seleccione o nível de encriptação a partir da caixa pendente. A encriptação WEP de 128 bits é exclusiva da Linksys e pode entrar em conflito com a encriptação WEP de outros fornecedores.

Nota: Para utilizar a encriptação WEP, todos os pontos na rede sem fios têm de ter a WEP activada e possuir a mesma definição de chave.

A chave de encriptação WEP é gerada de uma das seguintes formas:

1. O utilizador pode criar uma chave de encriptação utilizando uma **Passphrase (Frase-passe).**

   a. Introduza uma frase-passe, uma palavra-passe definida pelo utilizador, no campo **Passphrase**. A frase-passe pode conter até 31 letras, símbolos e números. Não é possível utilizar espaços.

   b. Clique no botão **Generate** (Gerar) para criar uma chave. A chave terá 10 dígitos, se escolher encriptação de 64 bits ou 26 dígitos, se escolher encriptação de 128 bits. Esta chave será utilizada para encriptar e desencriptar os dados enviados entre o router e os PCs sem fios da rede.

   O campo 'Key' (Chave) pode não apresentar todos os dígitos. Com o rato, clique em qualquer parte no campo 'Key' (Chave). Mova o cursor para a direita para ver o resto da chave. Certifique-se de que escreve toda a chave EXACTAMENTE da forma como é mostrada.

2. Pode introduzir a chave de encriptação manualmente.

Tome nota da frase-passe ou chave manual. Ela será necessária para os outros dispositivos sem fios da rede, uma vez que todos têm de possuir a mesma chave de encriptação WEP.

Uma vez escolhido o método da chave de encriptação e introduzida a frase-passe ou chave manual, clique no botão **Apply** (Aplicar) para concluir a parte do processo de configuração destinada à encriptação.

Nota: No Windows XP, uma chave de 128 bits gerada pelo router será designada por chave de "104 bits (26 dígitos)" e uma chave de 64 bits gerada pelo router será designada por chave de "40 bits (10 dígitos)" .

Configurar a segurança sem fios no Windows XP

Uma vez que o Windows XP não permite o uso da funcionalidade da frase-passe da Linksys com os adaptadores sem fios, será necessário introduzir manualmente a chave gerada na secção anterior.

Os seguintes procedimentos irão ajudá-lo a activar a WEP e introduzir manualmente a chave de encriptação para as placas PC Card sem fios, permitindo que o sistema Windows XP comunique com o router sem fios.

Estes procedimentos assumem que a letra da unidade de CD-ROM é 'D' e que o Windows XP está a ser executado no modo predefinido.

Certifique-se de que possui a chave WEP gerada pelo router.

1. Tal como é mostrado na figura C-3, clique no botão **Iniciar** e vá para o **Painel de controlo**.

Figura C-3

2. Na janela do painel de controlo, clique no ícone **Ligações de Internet e de rede** mostrado na figura C-4.

Figura C-4

3. Clique no ícone **Ligações de rede** mostrado na figura C-5.

Figura C-5

4. A janela "Ligações de rede" irá aparecer, tal como é mostrado na figura C-6. Em LAN ou Internet de alta velocidade, poderá ver todas as placas de rede instaladas e a funcionar no computador. Faça duplo clique no ícone **Ligação de rede sem fios** associado ao seu adaptador sem fios.

   Se a janela "Estado da ligação de rede sem fios" aparecer, prossiga para o passo seguinte.

Se aparecer uma janela “Ligar à rede sem fios” na secção “Redes disponíveis”, clique na rede sem fios pretendida especificada pelo SSID do router. Em seguida, faça duplo clique no ícone **Ligação de rede sem fios**.

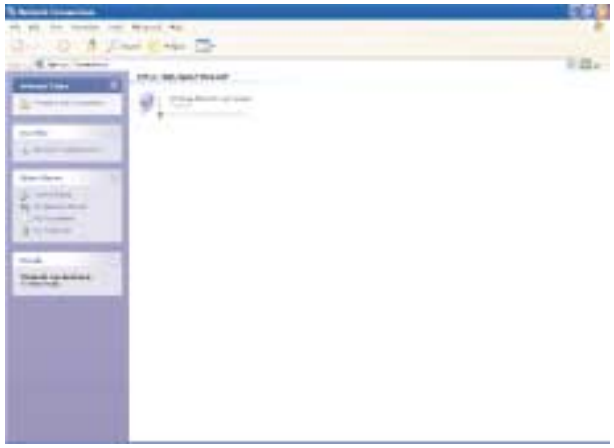


Figura C-6

5. Quando a janela “Estado da ligação de rede sem fios” aparecer, tal como é mostrado na figura C-7, clique no botão **Propriedades**.

Figura C-7

6. Quando a janela “Propriedades da ligação de rede sem fios” aparecer, tal como é mostrado na figura C-8, clique no separador **Redes sem fios**.

Figura C-8

7. Se for apresentada a rede sem fios apropriada, especificada pelo SSID do router, na secção “Redes preferidas”, tal como é mostrado na figura C-9, faça duplo clique na mesma e prossiga para o passo seguinte.

   Caso contrário, clique na rede sem fios apropriada, especificada pelo SSID do router, na secção “Redes disponíveis”. Em seguida, clique no botão **Configurar**.

Figura C-9

8. Irá aparecer a janela “Propriedades da rede sem fios” (mostrada na figura C-10).

   Marque a opção **Encriptação de dados (WEP activada)**, na caixa de verificação.

   Desmarque os campos **Autenticação de rede (modo partilhado)** e **Chave fornecida automaticamente**.

   No campo ”Chave de rede”, introduza a chave tal e qual como foi gerada pelo router (os 10 ou 26 dígitos, consoante o nível de encriptação).

   Verifique se o campo “Formato da chave” apresenta “Dígitos hexadecimais” e se o campo “Comprimento da chave” apresenta “40 bits (10 dígitos)” ou “104 bits (26 dígitos)”. Se assim não for, significa que a chave foi introduzida incorrectamente.

Figura C-10

   Clique no botão **OK** para guardar as definições. Clique nos botões **OK** até chegar à janela “Estado da ligação de rede sem fios”. Feche todas as janelas abertas para regressar ao ambiente de trabalho do Windows XP.

Feche todas as aplicações e reinicie o computador. Depois de reiniciar, a configuração WEP é concluída e deverá ser possível estabelecer uma ligação sem fios ao router.

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NORMATIVA DE LA FCC.
El ruteador Access Point para conexiones inalámbricas con switch de 4 puertos Instant Wireless™ ha sido probado y cumple las especificaciones de la Clase B para dispositivos digitales, con arreglo a la Sección 15 de la normativa de la FCC. Estas normas están diseñadas para proporcionar una protección razonable contra interferencias perjudiciales en instalaciones residenciales. Este equipo genera, utiliza y puede emitir energía radioeléctrica. Si no se instala y utiliza según las instrucciones, podría causar interferencias perjudiciales en las comunicaciones por radio. No obstante, no se garantiza que no se produzcan interferencias en una instalación concreta. Si este equipo llegara a producir interferencias perjudiciales para la recepción de radio o televisión, detectadas al encender y apagar el equipo, se recomienda tomar las medidas siguientes para corregirlas:

- Reoriente o cambie la ubicación de la antena receptora
- Aumente la distancia entre los equipos o los dispositivos
- Conecte el equipo a un enchufe distinto al del receptor
- Consulte a un distribuidor o técnico especializado de radio y TV

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Si necesita asistencia técnica sobre los productos, póngase en contacto con nosotros en las direcciones siguientes:

correo electrónico	europe-support@linksys.com latam-soporte@linksys.com
Web	http://www.linksys.com/international

Introducción

Gracias por elegir el ruteador Access Point para conexiones inalámbricas con switch de 4 puertos Instant Wireless™. Este ruteador le permitirá configurar una red en su PC y, además, compartir la conexión a Internet.

¿Cómo consigue el ruteador hacer todo esto? Al conectar un módem por cable o DSL al ruteador y los PC a los puertos Ethernet de éste, cada PC queda configurado como si estuviera conectado directamente a Internet. De este modo, varios PC pueden compartir simultáneamente una conexión a Internet. Además, puesto que también es Access Point (punto de acceso), el ruteador puede conectar la red Ethernet a los equipos inalámbricos.

¿Qué significa?

Las redes son herramientas muy útiles para compartir recursos. Permiten el acceso a una impresora desde varios equipos o a los datos localizados en el disco duro de otros equipos. Las redes también se utilizan para compartir videojuegos entre varios participantes. Por lo tanto, no sólo son útiles para los hogares y las oficinas, sino que también pueden proporcionar diversión.

Los PC conectados a los cuatro puertos LAN del ruteador y configurados correctamente forman una LAN o red de área local. Se comunican mediante un cable Ethernet conectado al adaptador Ethernet del equipo y a los puertos LAN del ruteador (numerados del uno al cuatro). Se utiliza la expresión “Ethernet” para referirse a los accesorios de la red, como cables y adaptadores, ya que el tipo de red que va a configurar es Ethernet. En la documentación del ruteador, Ethernet se refiere a los accesorios que transfieren datos informáticos entre 10 Mbps y 100 Mbps. (10 Mbps y 100 Mbps son las velocidades de transmisión de los dispositivos de la red. Una velocidad de transferencia de datos de 10 Mbps equivale a transferir siete disquetes por segundo. Los accesorios de red que funcionan a 100 Mbps transfieren los datos diez veces más rápido)

Los PC también pueden interactuar con el ruteador mediante conexiones inalámbricas. Al configurar los PC inalámbricos con los mismos parámetros que el ruteador, es posible interconectarlos e integrarlos en la red Ethernet existente.

Quizá, la función más importante del ruteador es la que permite compartir la conexión por cable o DSL. Se consigue conectando el módem por cable o DSL al puerto WAN del ruteador con un cable Ethernet. (WAN son las siglas en inglés de Red de área extensa.) Internet es una red global que cubre el área más extensa. Los PC conectados al ruteador comparten esta conexión.

Siga las instrucciones de esta Guía rápida para conectar el ruteador y configurar los PC y el ruteador en la red. En estas instrucciones se explican todos los pasos necesarios para configurar y poner en marcha una red normal y compartir el acceso a Internet. El ruteador dispone también de otras funciones más avanzadas, no obstante, no deberán utilizarse hasta no tener un conocimiento más amplio de ruteadores y redes. Estos temas y otros se tratan en el Manual del usuario del CD-ROM del Asistente para instalación.

Descripción de la configuración

La configuración del ruteador para cualquier PC Windows es similar a la figura mostrada arriba. El ruteador permite compartir la conexión de un módem por cable o DSL con varios equipos en casa en la oficina. Este tipo de conexión se denomina Red de área local o LAN.

En esta Guía rápida encontrará una descripción general de todos los pasos necesarios para configurar una red normal en su casa o en la oficina. En los tres apartados siguientes se explica cómo conectar y configurar los equipos para que utilicen un acceso compartido de alta velocidad a Internet.

Paso 1: Conexión del ruteador

En este paso se describe el proceso de conexión del ruteador al módem por cable o DSL. A continuación, se muestra cómo conectar los PC al ruteador.

Paso 2: Configuración de los PC

En este paso se explica cómo configurar los PC para que puedan comunicarse con el ruteador.

Paso 3: Configuración del ruteador

En este paso se muestran los ajustes que hay que realizar en el ruteador para que pueda conectarse con el módem por cable o DSL utilizando la información de su ISP.

Nota: *En esta Guía rápida se explica cómo configurar el ruteador con cables Ethernet. Aunque el ruteador puede configurarse para una conexión inalámbrica, en esta Guía rápida no se incluyen los detalles para este tipo de conexión. Si desea configurar el ruteador para una conexión inalámbrica, visite el sitio Web de Linksys en la dirección www.linksys.com.*

Paso 1: Conexión del ruteador

En el Paso 1, conectará el ruteador al módem por cable o DSL y a los equipos de su casa u oficina.

Compruebe que todos los dispositivos que va a utilizar están apagados, incluidos los PC, el módem y el ruteador.

A. Conecte el módem por cable o DSL a su toma correspondiente: la toma coaxial para el módem por cable (Figura A1) o la toma de teléfono para el módem DSL (Figura A2). (Siga las instrucciones del manual de instalación de los módems.)

A1

A2

B. Con un cable Ethernet, conecte el puerto LAN o Ethernet del módem por cable o DSL al puerto WAN del ruteador.

B

C. Conecte un cable Ethernet al adaptador Ethernet del PC. Conecte el otro extremo del cable a uno de los puertos LAN del ruteador. Repita este proceso con cada PC que desee conectar al ruteador.

C1

Nota: Si no está configurado el adaptador Ethernet del PC, consulte las instrucciones en la documentación del adaptador Ethernet.

Para facilitar la instalación, utilice los puertos LAN del ruteador en orden consecutivo de menor a mayor, primero el 1, luego el 2 y así sucesivamente.

Si va a conectar más de cuatro PC, deberá conectar un hub o un switch al puerto Uplink del ruteador (si utiliza el puerto Uplink, debe dejar libre el Puerto 4). Para obtener más información sobre cómo usar el puerto Uplink, consulte el Manual del usuario del CD-ROM del Asistente para instalación.

C2

D. Conecte el cable de alimentación a la toma de corriente del ruteador. A continuación, conecte el enchufe a una toma de corriente. Encienda el módem por cable o DSL y el primer PC que va a configurar en el ruteador.

Continúe con el Paso 2: Configuración de los PC en la página siguiente.

Paso 2: Configuración de los PC

En el Paso 2, se configuran los PC para su comunicación con el ruteador.

Para ello, deberá configurar los parámetros de la red de PC de forma que obtengan las direcciones IP (o TCP/IP) automáticamente. Los equipos utilizan las direcciones IP para comunicarse entre sí a través de una red o de Internet.

Averigüe qué sistema operativo utiliza su equipo, por ejemplo, Windows 95, 98, Millennium, 2000 o XP. Esta comprobación es necesaria. Puede averiguarlo haciendo clic en el botón **Inicio** y eligiendo la opción **Configuración**. (Si en el menú Inicio no aparece la opción Configuración, está utilizando Windows XP. Puede abrir el Panel de control directamente desde el menú Inicio.) A continuación, haga clic en **Panel de control** y haga doble clic en el icono **Sistema**. Cuando termine, haga clic en el botón **Cancelar**.

Después de comprobar la versión del sistema operativo Windows, siga las instrucciones de este paso para el sistema que corresponda a su equipo. Si es preciso, repita estos pasos para cada equipo que vaya a conectar al ruteador.

En las páginas siguientes se describe paso a paso cómo configurar los parámetros TCP/IP para los distintos tipos de sistemas operativos Windows. Después de configurar los equipos, vaya al Paso 3: Configuración del ruteador.

Para los sistemas operativos:
Windows 95, Windows 98 y Windows Me

A. Haga clic en el botón **Inicio**, elija **Configuración** y abra el **Panel de control**. En el Panel de control, haga doble clic en el icono **Red** para abrir el cuadro de diálogo Red.

B. En la ficha Configuración, seleccione la línea **TCP/IP** del adaptador Ethernet correspondiente*. Si aparece únicamente **TCP/IP**, seleccione esta línea**. A continuación, haga clic en el botón **Propiedades**.

C. Haga clic en la ficha **Dirección IP** y seleccione **Obtener una dirección IP automáticamente**.

D. Haga clic en la ficha **Puerta de enlace** y compruebe que el campo Puertas de enlace instaladas está vacío. Haga clic en el botón **Aceptar**.

E. Vuelva a hacer clic en el botón **Aceptar**. Es posible que Windows le pida el disco de instalación original u otros archivos adicionales. Cuando se le pida, indique la ubicación correcta de los archivos, p. ej., D:\win98, D:\win9x, c:\windows\options\cabs, etc. (Se presupone que "D" es la letra correspondiente a la unidad de CD-ROM).

F Si Windows solicita que reinicie el equipo, haga clic en el botón **Sí**. Reinicie el equipo de todas formas aunque el programa no lo pida.

*Nota: no seleccione las líneas TCP/IP donde se indique DUN, PPPoE, VPN o AOL.

**Nota: si no aparece TCP/IP en ninguna línea, consulte el Manual del usuario del CD-ROM del Asistente para instalación de la documentación del adaptador Ethernet e instale el protocolo TCP/IP.

Para el sistema operativo:
Windows 2000

A. Haga clic en el botón **Inicio**, elija **Configuración** y abra el **Panel de control**. En el Panel de control, haga doble clic en el icono **Conexiones de red y de acceso telefónico**. Se abre el cuadro de diálogo Red.

B. Seleccione el icono **Conexión de área local** correspondiente a su adaptador Ethernet* (normalmente, la primera conexión de área local de la lista). Haga doble clic en **Conexión de área local**.

C. En la pantalla de estado que aparece, haga clic en el botón **Propiedades**.

D. Seleccione **Protocolo de Internet (TCP/IP)** y haga clic en el botón **Propiedades**.

E. Seleccione **Obtener una dirección IP automáticamente** y haga clic en el botón **Aceptar** de las siguientes pantallas hasta completar la configuración del PC.

F Reinicie el equipo.

*Nota: no seleccione las líneas TCP/IP donde se indique DUN, PPPoE, VPN o AOL.

Para el sistema operativo:
Windows XP

Las siguientes instrucciones se refieren únicamente a la interfaz predeterminada de Windows XP. Si utiliza la interfaz Clásica (que muestra los iconos y los menús parecidos a las versiones anteriores de Windows), siga las instrucciones para Windows 2000.

A. Haga clic en el botón **Inicio**, abra el **Panel de control** y haga clic en el icono **Conexiones de red e Internet**. A continuación, haga clic en el icono **Conexiones de red** para abrir la pantalla Red.

B. Seleccione el icono **Conexión de área local** correspondiente a su adaptador Ethernet (normalmente, la primera conexión de área local de la lista). Haga doble clic en **Conexión de área local**.

C. En la pantalla de estado que aparece, haga clic en el botón **Propiedades**.

D. Seleccione **Protocolo de Internet (TCP/IP)** y haga clic en el botón **Propiedades**.

E. Seleccione **Obtener una dirección IP automáticamente** y haga clic en el botón **Aceptar** de las siguientes pantallas hasta completar la configuración del PC.

F Reinicie el equipo.

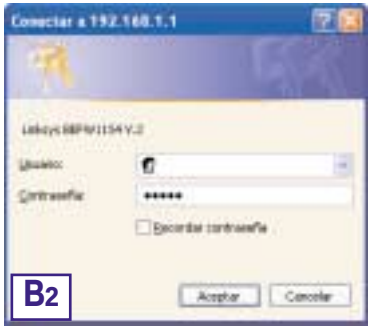
Paso 3: Configuración del ruteador

En el Paso 3, configurará el ruteador para su funcionamiento en la red y para obtener acceso a Internet mediante un Proveedor de servicios de Internet (ISP). Es posible que su ISP le pida que utilice un Nombre de host y un Nombre de dominio. A continuación, definirá el tipo de configuración WAN en la ficha de configuración de ruteador con los datos obtenidos de su ISP. *Estos datos son necesarios.* Si no los tiene, consulte a su ISP antes de continuar. Para saber qué datos necesita obtener de su ISP, consulte la pregunta nº 1 de la Ayuda.

El ISP le proporcionará las instrucciones para configurar el acceso a Internet desde su PC. Puesto que se va a utilizar para compartir el acceso a Internet entre varios equipos, también deberá utilizar esta información para la configuración del ruteador.

A. Abra el navegador Web. (Es posible que aparezca algún mensaje de error en este momento. Continúe con las siguientes instrucciones) Escriba **192.168.1.1** en el campo Dirección del navegador y pulse la tecla **Entrar**.

B. Aparece el cuadro de diálogo Escribir contraseña de red, como muestra la Figura B1. (Los usuarios de Windows XP verán la ventana Conectar con 192.168.1.1, que muestra la Figura B2.) Deje vacío el campo Nombre de usuario y escriba en minúsculas **admin** (la contraseña predeterminada) en el campo Contraseña. A continuación, haga clic en el botón **Aceptar**.



C. Si su ISP lo requiere, escriba el **Nombre de host** y el **Nombre de dominio** del ruteador en los campos correspondientes de la ficha de configuración. (Normalmente, estos datos son necesarios para los ISP de conexión por cable.)

D. Para configurar el ruteador para una red inalámbrica, compruebe que los campos Wireless (Inalámbrico) de la ficha Setup (Configuración), que muestra la Figura D, se han completado como sigue:

Enable/Disable (Activar/desactivar): Al seleccionar el botón de opción **Enable (Activar)** se activan las funciones inalámbricas del ruteador. Estas funciones no estarán disponibles si no se selecciona este botón.

SSID: SSID (o ESSID) es un nombre exclusivo para la red inalámbrica. El nombre distingue entre mayúsculas y minúsculas y no debe superar los 32 caracteres. El SSID predeterminado es “linksys “, pero se recomienda cambiarlo por un nombre más descriptivo de la red inalámbrica. Todos los puntos de la red inalámbrica deben utilizar el mismo SSID.

Channel (Canal): Seleccione en la lista el canal apropiado de la red. Todos los puntos de la red inalámbrica deben usar el mismo canal para funcionar correctamente.

Nota: *Si desea modificar la configuración WEP del ruteador, elija Configuración de la seguridad inalámbrica.*

E. El ruteador admite cinco tipos de conexiones: DHCP (obtener una dirección IP automáticamente), PPPoE, Dirección IP estática, RAS y PPTP. Estos tipos se seleccionan en el menú desplegable que aparece junto a **WAN Connection Type** (Tipo de conexión WAN). La pantalla de configuración y las distintas características varían según el tipo de conexión seleccionado. Vea las instrucciones a continuación:

1. Obtener una dirección IP automáticamente

Si el ISP le indica que su conexión es a través de una dirección IP dinámica (o DHCP), siga estos pasos:

a. Seleccione **Obtener una dirección IP automáticamente** en el Tipo de conexión WAN (como se muestra en la Figura D).

b. Haga clic en el botón **Apply** (Aplicar) para guardar la configuración.

2. Static IP (IP estática)

E2

Si el ISP le indica que su conexión es a través de una dirección IP estática (o fija), siga estos pasos:

a. Seleccione **Static IP** en WAN Connection Type (Tipo de conexión WAN) .

b. En los campos que aparecen junto a "Specify WAN IP Address", escriba la **Dirección IP**.

c. Escriba la **Máscara de subred**.

d. Escriba la **Dirección de la puerta de enlace predeterminada**.

e. Escriba el **DNS** en los campos 1, 2 y 3. Debe indicar al menos una dirección de servidor DNS.

f. Haga clic en el botón **Apply (Aplicar)** para guardar la configuración.

3. PPPoE

E3

Si su proveedor de DSL le indica que utiliza una conexión PPPoE, o si escribe normalmente un nombre de usuario y una contraseña para conectarse a Internet, siga estos pasos:

a. Seleccione **PPPoE** como Tipo de conexión Wan (WAN Connection Type).

b. Escriba el **Nombre de usuario**.

c. Escriba la **Contraseña**.

d. Haga clic en el botón **Apply (Aplicar)** para guardar la configuración.

e. Haga clic en la ficha **Status (Estado)** y, a continuación, en el botón **Connect (Conectar)** para iniciar la conexión.

4. RAS

El servicio RAS se utiliza únicamente en Singapur. Si utiliza una conexión RAS, solicite a su ISP los datos necesarios para la configuración.

5. PPTP

E5

El servicio PPTP se utiliza únicamente en Europa. Si utiliza una conexión PPTP, solicite a su ISP los datos necesarios para la configuración.

F Haga clic en el botón **Apply (Aplicar)** para guardar la configuración.

G. Conecte el módem por cable o DSL y reinicie los equipos. Se cargan los nuevos valores del ruteador.

Nota: sólo necesita configurar el ruteador para un equipo. Si desea consultar la información avanzada, visite el sitio Web de asistencia técnica de Linksys en la dirección *support.linksys.com* o vea el Manual del usuario en el CD-ROM del Asistente para instalación.

Ha completado la configuración del ruteador. Para probar su funcionamiento, abra el navegador Web en cualquier equipo y escriba *www.linksys.com/registration*.

Si no puede abrir nuestra página Web, vuelva a comprobar los pasos que ha realizado anteriormente o consulte la sección de ayuda de este manual.

Ayuda

En la sección de ayuda puede encontrar las preguntas más frecuentes sobre la conexión a Internet. Si necesita más información sobre la configuración o sobre las funciones avanzadas, visite *kb.linksys.com* o consulte el apéndice de solución de problemas en el Manual del usuario del CD-ROM del Asistente para instalación.

1. No conozco los datos que debo obtener del Proveedor de servicios de Internet (ISP) para poner la red en funcionamiento. ¿Qué preguntas tengo que hacer?

Cuál es el tipo de conexión: dirección IP dinámica, dirección IP estática o PPPoE

- Si utiliza una dirección IP dinámica, deberá averiguar:
  - El nombre del host (si procede)
  - El nombre de dominio (si procede)

- Si utiliza una dirección IP estática, deberá averiguar:
  - La dirección IP
  - La pasarela
  - El DNS

- Si utiliza PPPoE (lo utilizan normalmente los ISP de DSL), deberá averiguar:
  - El nombre de usuario
  - La contraseña

Cuando tenga la información, siga las instrucciones del apartado Inicio rápido - Paso 3: Configuración del ruteador. Utilice esta información para rellenar la ficha Setup (Configuración) al configurar el ruteador. Para la sección WAN Connection Type (Tipo de conexión WAN) consulte el gráfico de la página siguiente:

Si tiene este tipo de conexión:	Siga estos pasos:
Dirección IP dinámica (DHCP)	1. Seleccione **Obtener una dirección IP automáticamente** en el Tipo de conexión WAN . 2. Haga clic en el botón **Apply** (Aplicar) para guardar la configuración.
Dirección IP estática	1. Seleccione **Static IP** (IP estática) en el Tipo de conexión WAN . 2. Escriba la **Dirección IP**. 3. Escriba la **Máscara de subred**. 4. Escriba la **Dirección de la puerta de enlace**. 5. Escriba el **DNS** en los campos 1, 2 y 3. Debe indicar al menos una dirección DNS. 6. Haga clic en el botón **Apply** (Aplicar) para guardar la configuración.
PPPoE	1. Seleccione **PPPoE** en el Tipo de conexión WAN . 2. Escriba el **Nombre de usuario**. 3. Escriba la **Contraseña**. 4. Haga clic en el botón **Apply** (Aplicar) para guardar la configuración.
RAS o PPTP	Si utiliza RAS (SingTel de Singapur) o PPTP (servicio para Europa), consulte a su ISP los datos necesarios para la instalación.

2. Tengo problemas para conectar a Internet. ¿Que indicadores tienen que estar encendidos en la parte frontal del ruteador?

- Por cada equipo conectado correctamente en la parte posterior del ruteador deberá encenderse un indicador, independientemente de si se utiliza un cable Ethernet o uno de alimentación.

  Por ejemplo, normalmente, al conectar un equipo y un módem por cable o DSL se encienden los siguientes indicadores:

  - Al encender el ruteador (el adaptador de alimentación conectado al ruteador), se enciende el indicador *Power*.
  - Al conectar correctamente un cable Ethernet a un PC y al Puerto 4 del ruteador, se encienden los indicadores *Link/Act*, *Ful/Col* y *100* de la Columna 4.
  - Al conectar un módem por cable o DSL, se enciende el indicador *WAN Link*.

- No se enciende el indicador *WAN Link*. ¿Qué debo comprobar?
  - Compruebe si el cable conectado al módem por cable o DSL y el ruteador es el mismo que venía con el módem. Dependiendo del tipo de conexión del módem, necesitará un cable Ethernet "recto" o "cruzado" (el cable "recto" es el más habitual).

- Algunos indicadores de la parte frontal del ruteador no se encienden al conectar un PC.
  - Para que la conexión funcione correctamente sólo es necesario que se encienda el indicador *Link/Act*.

3. No puedo entrar en Internet ni acceder a la página de configuración del ruteador. ¿Qué debo comprobar?

A. En primer lugar, compruebe que el módem por cable o DSL y los equipos están conectados correctamente. Para verificar si el estado de las conexiones es correcto, consulte la Pregunta nº 2.

B. A continuación, compruebe si los PC están configurados correctamente para comunicarse con el ruteador. A continuación se describen las instrucciones para las distintas versiones de Windows.

- **Windows 95, 98 o ME**
  - Haga clic en el menú **Inicio** y elija **Ejecutar**. En el cuadro de diálogo Ejecutar, escriba **winipcfg** en el campo Abrir y haga clic en el botón **Aceptar**.
  - En el cuadro de diálogo Configuración IP, haga clic en el **cuadro gris** con la flecha hacia abajo.
  - Se abre una lista de adaptadores. Seleccione el **adaptador** que utiliza para conectarse a Internet. En los adaptadores no debe aparecer "PPP", "VPN", "AOL" ni "Adaptador de Acceso telefónico a redes".
  - En el campo Dirección IP deberán aparecer las direcciones IP 192.168.1.100 o 192.168.1.xxx, donde "xxx" es un número mayor de 100. Si su dirección IP no se encuentra dentro de este rango, mantenga pulsado el botón Reset de la parte frontal del ruteador durante más de 30 segundos. Esta operación restablece los valores predeterminados de fábrica del ruteador, por lo que deberá volver a completar la página de configuración del ruteador. Después de configurar la página, reinicie el equipo.

- **Windows NT, 2000 y XP**
  - Haga clic en el menú **Inicio** y elija **Ejecutar**. En el cuadro de diálogo Ejecutar, escriba **cmd** en el campo Abrir y haga clic en el botón **Aceptar**.
  - Se abre la ventana de la línea de comandos. Escriba **ipconfig /all** y pulse la tecla **Entrar**.

  - En el campo Dirección IP deberán aparecer las direcciones IP 192.168.1.100 o 192.168.1.xxx, donde "xxx" es un número mayor de 100. Si su dirección IP no se encuentra dentro de este rango, mantenga pulsado el botón Reset de la parte frontal del ruteador durante más de 30 segundos. Esta operación restablece los valores predeterminados de fábrica del ruteador, por lo que deberá volver a completar la página de configuración del ruteador. Después de configurar la página, reinicie el equipo.

C. A continuación, configurará algunos parámetros en Windows.

- Haga doble clic en el icono **Mi PC** del Escritorio y, a continuación, haga doble clic en **Panel de control (**Si utiliza Windows XP y la interfaz predeterminada, haga clic en **Inicio** y elija **Panel de control**).
- En el Panel de control, haga doble clic en el icono **Opciones de Internet** (Si utiliza Windows XP y la interfaz predeterminada, haga clic en **Conexiones de red e Internet** y, a continuación, haga clic en **Opciones de Internet**).
- En el cuadro de diálogo Opciones de Internet, haga clic en la ficha **Conexiones**.
- Active la casilla de selección **No marcar nunca una conexión**. (Si la opción aparece difuminada, no es necesario activarla.)
- Haga clic en el botón **Configuración LAN…** de la esquina inferior derecha.
- En el cuadro de diálogo Configuración de red de área local (LAN) que aparece, **desactive todas las casillas de selección**.
- Haga clic en los botones **Aceptar** y **Aplicar** (el botón **Aplicar** aparece atenuado si no se han hecho cambios). A continuación, vuelva a hacer clic en el botón **Aceptar**.
- Cierre el Panel de control y reinicie el equipo.

4. Al hacer clic en el icono de acceso a Internet y escribir el nombre de usuario y la contraseña proporcionados por mi ISP, no puedo conectar a Internet. ¿Cuál es el error?

Posiblemente, está utilizando el software que le ha proporcionado su ISP. Utilice Internet Explorer o Netscape Navigator, que puede encontrar en el Escritorio (en Windows XP, se encuentran en el menú Inicio).

5. Al abrir Internet Explorer, aparece un cuadro de diálogo de conexión de Acceso telefónico a redes. ¿Cómo se desactiva?

A. Haga doble clic en el icono **Mi PC** del Escritorio y, a continuación, haga doble clic en **Panel de control (**Si utiliza Windows XP y la interfaz predeterminada, haga clic en **Inicio** y elija **Panel de control**).
B. En el Panel de control, haga doble clic en el icono **Opciones de Internet** (Si utiliza Windows XP y la interfaz predeterminada, haga clic en **Conexiones de red e Internet** y, a continuación, haga clic en **Opciones de Internet**).
C. En el cuadro de diálogo Opciones de Internet, haga clic en la ficha **Conexiones**.

D. Active la casilla de selección **No marcar nunca una conexión**.
E. Haga clic en el botón **Aplicar**.
F. Haga clic en el botón **Aceptar**.

6. No aparece la señal de potencia de calidad de conexión. ¿Qué puedo hacer?

A. Compruebe si el indicador WLAN LED del ruteador está encendido.
B. Asegúrese de que todos los PC inalámbricos utilizan el modo “Infraestructura”.

7. ¿Cómo se amplía el alcance del ruteador?

A. El ruteador debe estar colocado en el lugar más alto posible.
B. No debe colocarse junto a equipos que produzcan muchas interferencias. (Por ejemplo: altavoces, tubos fluorescentes, microondas, etc.)
C. Cambie el canal inalámbrico. Para hacerlo:

- Abra el navegador Web y escriba **http://192.168.1.1** en el campo “Dirección”.
- En el cuadro “Escribir contraseña de red”, deje vacío el campo “Nombre de usuario” y escriba **admin** en el campo de contraseña. A continuación, haga clic en **Aceptar**.
- En la ficha Configuración, cambie el canal a **1**.
- Haga clic en le botón **Aplicar** y **Continuar** para guardar la configuración.
- Repita estos pasos hasta encontrar el canal que proporciona el mayor alcance.

Configuración de la seguridad inalámbrica

Nota: La encriptación WEP es una medida de seguridad de datos adicional no necesaria para el funcionamiento del ruteador.

Las siglas en inglés WEP (Wired Equivalent Privacy) significan Privacidad equivalente al cableado, un sistema de protección de datos para las comunicaciones inalámbricas. WEP emplea una combinación de claves de 64 o 128 bits para proporcionar control de acceso a la red y seguridad encriptada para todas las transmisiones de datos. Para des-encriptar una transmisión, todos los puntos de la red deben utilizar una clave idéntica de 64 o 128 bits. Cuanto más alto sea el nivel de encriptación, mayor será la seguridad, aunque, debido a la complejidad de la encriptación, podría afectar negativamente al rendimiento de la red.

Es posible que también haya oído la expresión “40 bits” relacionada con la encriptación WEP. Se trata sencillamente de otro término utilizado para la encriptación WEP de 64 bits. Este nivel de encriptación WEP se denomina de 40 bits porque emplea una clave secreta de 40 bits y un vector de iniciación de 24 bits (40 + 24 = 64). Los proveedores de comunicaciones inalámbricas utilizan los dos nombres. Linksys usa la expresión “64 bits” para referirse a este nivel de encriptación.

Antes de empezar a configurar la encriptación WEP, compruebe que la red inalámbrica funciona correctamente.

Una red inalámbrica con encriptación WEP de 128 bits NO puede comunicarse con otra red que utilice la encriptación WEP de 64 bits. Por lo tanto, asegúrese de que todos los dispositivos inalámbricos utilizan el mismo nivel de encriptación. Los dispositivos que cumplen el estándar 802.11b son compatibles con la encriptación WEP de 64 bits.

Además de habilitar WEP, Linksys recomienda tomar las siguientes medidas de seguridad:
• Cambiar el SSID predeterminado “linksys” por otro distinto
• Cambiar la clave WEP regularmente

Nota: Para activar la encriptación WEP, debe activar antes las funciones inalámbricas. Seleccione **Enable** (Activar) en la ficha Wireless (Inalámbricas) del ruteador antes de continuar**.**

En los pasos siguientes se explica cómo utilizar la encriptación WEP

1. En la ficha Setup (Configuración) de la utilidad basada en Web, elija **Mandatory (Obligatorio)** en la sección WEP.

2. Haga clic en el botón **WEP Key Setting (Configuración de la clave WEP)** para definir el tipo y el nivel de encriptación WEP.

3. Es posible que aparezca una pantalla como la que muestra la Figura C-1 solicitando que confirme la activación de la encriptación WEP. Pulse el botón **Aceptar** para continuar.

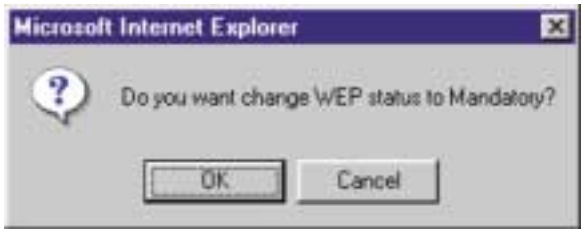


Figura C-1

4. Se abre una pantalla como la que muestra la Figura C-2 en la que deberá seleccionar los parámetros de la encriptación WEP.

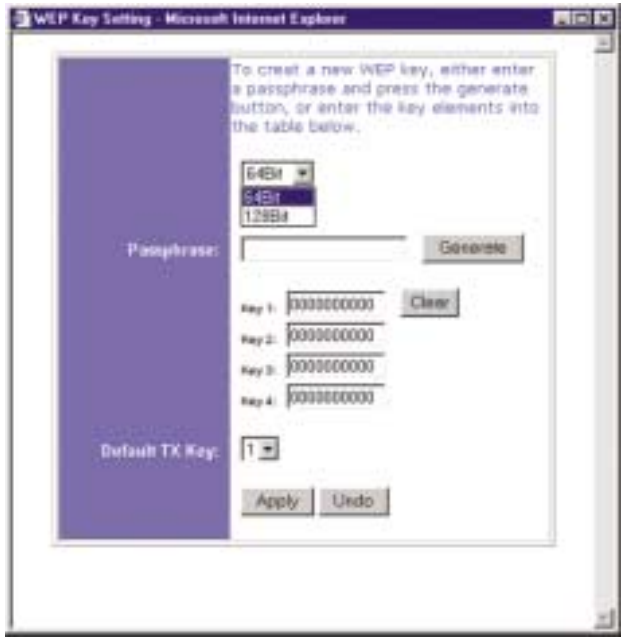


Figura C-2

- **WEP (64Bit o 128B)** Seleccione el nivel de encriptación en la lista desplegable. La encriptación WEP de 128 bits es exclusiva de Linksys y podría interferir con la encriptación WEP de otros fabricantes.

Nota: Para utilizar la encriptación WEP, todos los puntos de la red inalámbrica deben tener activada la encriptación WEP y la misma configuración de claves.

La clave de encriptación WEP se genera de una de estas dos formas:

1. Puede crear una clave de encriptación mediante una **Frase clave.**

   a. Escriba la Frase clave, una contraseña definida por el usuario, en el campo **Passphrase** (Frase clave). La Frase clave no debe superar los 31 caracteres entre letras, símbolos y números, y no se pueden utilizar espacios.

   b. Haga clic en el botón **Generate (Generar)** para crear la clave. La clave será de 10 dígitos si elige la encriptación de 64 bits o de 26 dígitos si elige la encriptación de 128 bits. Esta clave se utilizará para encriptar y desencriptar los datos transferidos entre el ruteador y la red inalámbrica de PC.

   Es posible que el campo Key (Clave) no muestre todos los dígitos. Haga clic en cualquier parte del campo Key y mueva el cursor hacia la derecha para ver el resto de la clave. Anote la clave completa EXACTAMENTE como aparece.

2. También puede introducir manualmente la clave de encriptación.

Anote la Frase clave o la Clave manual. Necesita conservarla ya que es necesario introducir la misma clave de encriptación WEP en todos los dispositivos inalámbricos de la red.

Cuando haya elegido el método de encriptación de claves y especificado la Frase clave o la clave manual, haga clic en el botón **Apply** (Aplicar) para completar la configuración de la encriptación.

Nota: En Windows XP, una clave de 128 bits generada por el ruteador se denomina clave de “104 bits (26 dígitos)” y una de 64 bits sería una clave de “40 bits (10 dígitos)” .

Configuración de la seguridad inalámbrica en Windows XP

Puesto que Windows XP no permite utilizar la función de Frase clave de Linksys en los adaptadores de PC inalámbricos, debe introducir manualmente la clave generada en el apartado anterior.

En los pasos siguientes se explica cómo activar la encriptación WEP y escribir manualmente la clave de encriptación de las tarjetas de PC inalámbricos para que el sistema Windows XP pueda comunicarse sin cables con el ruteador.

En estos pasos se presupone que la unidad de CD-ROM tiene asignada la letra D y que se está ejecutando Windows XP en el modo predeterminado.

Compruebe si tiene la clave WEP generada por el ruteador.

1. Como muestra la Figura C-3, haga clic en el botón **Inicio** y abra el **Panel de control**.

Figura C-3

2. En el “Panel de control”, haga clic en el icono **Conexiones de red e Internet**, como muestra la Figura C-4.

Figura C-4

3. Haga clic en el icono **Conexiones de red**, como muestra la Figura C-5.

Figura C-5

4. Se abre el cuadro de diálogo “Conexiones de red”, como muestra la Figura C-6. En LAN o Internet de alta velocidad se muestran todas las tarjetas de red instaladas y en funcionamiento en su equipo. Haga doble clic en el icono **Conexiones de red inalámbricas** asociado a su adaptador inalámbrico.

   Si se abre un cuadro de diálogo de estado de la conexión inalámbrica, continúe en el paso siguiente.

Si se abre el cuadro de diálogo “Conectar a red inalámbrica”, en la sección Redes disponibles, haga clic en la red inalámbrica que va a utilizar y que aparece marcada con el SSID de ruteador. A continuación, haga doble clic en el icono **Conexiones de red inalámbricas**.

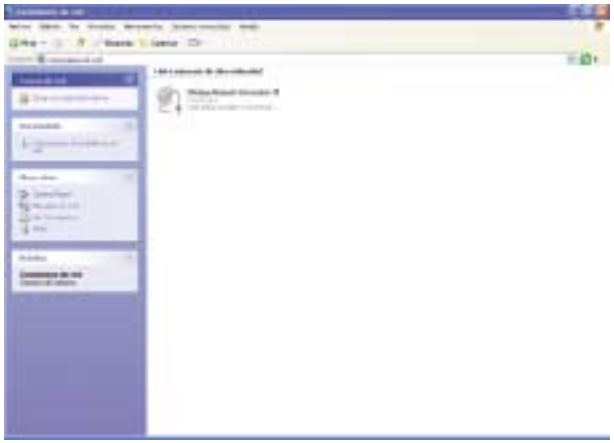


Figura C-6

5. Cuando se abra el cuadro de diálogo de estado de la conexión inalámbrica que muestra la Figura C-7, haga clic en el botón **Propiedades**.

Figura C-7

6. Cuando se abra el cuadro de diálogo de propiedades de la conexión inalámbrica que muestra la Figura C-8, haga clic en la ficha **Redes inalámbricas**.

Figura C-8

7. Si en la sección “Redes preferidas” aparece la red inalámbrica correcta que indica el SSID del ruteador, como muestra la Figura C-9, haga doble clic en ella y continúe en el siguiente paso.

   Si no aparece, en la sección “Redes disponibles” haga clic en la red inalámbrica que indica el SSID del ruteador. A continuación, haga clic en el botón **Configurar**.

Figura C-9

8. Se abre el cuadro de diálogo de propiedades de la red inalámbrica, como muestra la Figura C-10.

   Active la casilla de selección de la opción **Encriptación de datos (WEP habilitado)**.

   Desactive las casillas de selección de los campos **Autenticación de red (modo compartido)** y **La clave la proporciono yo automáticamente**.

   En el campo “Clave de red”, escriba la clave exacta (los 10 o 26 dígitos, según el nivel de encriptación) generada por el ruteador.

   Compruebe que el campo “Formato de clave” muestra “Dígitos hexadecimales” y que el campo “Longitud de la clave” muestra “40 bits (10 dígitos)” o “104 bits (26 dígitos)”. Si no aparecen estos datos, la clave que ha escrito no es correcta.

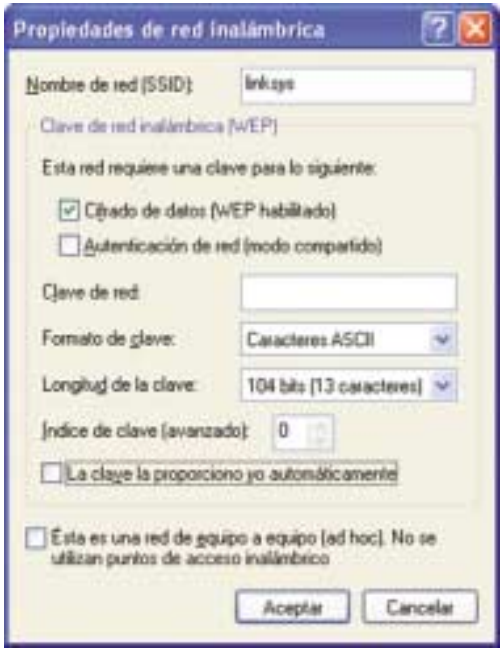


Figura C-10

   Haga clic en el botón **Aceptar** para guardar la configuración. Haga clic en los botones **Aceptar** restantes hasta que regrese al cuadro de diálogo de estado de la conexión de red inalámbrica. Cierre los cuadros de diálogo abiertos para regresar al Escritorio de Windows XP.

Cierre todas las aplicaciones y reinicie el equipo. Cuando vuelva a arrancar, la configuración de WEP estará completa y podrá conectarse sin cables al ruteador.

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Instant Wireless™ Series

Wireless Access Point Router with 4-Port Switch

Use this Guide to install: **BEFW11S4**

User Guide

LINKSYS®

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- EN 609 50 Safety
- ETS 300-328-2 Technical requirements for Radio equipment.

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- Deutschland D: Anmeldung im Outdoor-Bereich notwending, aber nicht genehmigungspflichtig. Bitte mit Händler die Vorgehensweise abstimmen.
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- 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.
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FCC STATEMENT

The Instant Wireless™ Wireless Access Point Router with 4-Port Switch has been tested and complies with the limits 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

For product support and product registration, contact us at the addresses below:

E-mail	europe-support@linksys.com latam-soporte@linksys.com
Web	http://www.linksys.com/international

UG-BEFW11S4 v3-21009NC TE

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Chapter 1: Introduction

The Linksys Wireless Access Point Router with 4-Port Switch

Congratulations on your purchase of a Wireless Access Point Router with 4-Port Switch. The Wireless Access Point Router with 4-Port Switch provides the ideal solution for connecting your wireless network to a high-speed broadband Internet connection and a 10/100 Fast Ethernet backbone. Configurable as a DHCP server for your existing network, the Wireless Access Point Router with 4-Port Switch acts as the only externally recognized Internet gateway on your local area network (LAN) and serves as an Internet NAT firewall against unwanted outside intruders. The Wireless Access Point Router with 4-Port Switch can also be configured to filter internal users' access to the Internet.

A typical router relies on a hub or a switch to share its Internet connection, but the Linksys Wireless Access Point Router with 4-Port Switch channels this connection through the blazing, full duplex speed of its built-in EtherFast® 10/100 4-Port Switch. This cutting-edge combination of wireless router and switch technology eliminates the need to buy an additional hub or switch and extends the range of your wireless network. Now your entire wireless network can enjoy blazing broadband Internet connections supported by its robust switched backbone. With the dual-function speed and power of the Wireless Access Point Router with 4-Port Switch, your network will take off at speeds faster than you ever imagined possible.

Features

- Supports Universal Plug-and-Play for easy configuration
- Capable of up to 128-bit WEP Encryption
- Supports enhanced security using NAT firewall, ZoneAlarm Pro and PC-cillin Software*
- Access your network remotely over the Internet through Virtual Private Networking (VPN)
- Supports IPSec and PPTP Pass-Through
- Administer and upgrade the Router remotely over the Internet
- Configurable as a DHCP Server on your network
- Advanced security management functions for Port Filtering, MAC Address Filtering, and DMZ Hosting
- Includes one Ethernet Cable to Connect to a Cable or DSL modem

* Full versions can be downloaded and/or purchased separately (Windows versions). Support for PC-cillin and Zone Alarm Pro may be limited or not available outside of United States and Canada.

Minimum Requirements

- One Windows 98 SE, Millennium, 2000, or XP PC equipped with:
  - TCP/IP Protocol,
  - Internet Explorer 4.0 or Netscape Navigator 4.7 for web-based configuration,
  - a CD-ROM Drive, and
  - an Ethernet Adapter with a UTP CAT 5 Network Cable
- Cable or DSL Modem with Ethernet Connection and Internet Access

An Introduction to LANs and WANs

Simply put, a router is a network device that connects two networks together.

In this instance, the Router connects your Local Area Network (LAN), or the group of PCs in your home or office, to the Wide Area Network (WAN) that is the Internet. The Router processes and regulates the data that travels between these two networks.

Think of the Router as a network device with two sides. The first side is made up of your private Local Area Network (LAN) of PCs. The other, public side is the Internet, or the Wide Area Network (WAN), outside of your home or office.

The Router's firewall (NAT) protects your network of PCs so users on the public, Internet side cannot "see" your PCs. This is how your LAN, or network, remains private. The Router protects your network by inspecting the first packet coming in from the WAN port before delivery to the final destination on the LAN port. The Router inspects Internet port services like the web server, ftp server, or other Internet applications, and, if allowed, it will forward the packet to the appropriate PC on the LAN side.

IP Addresses

What's an IP Address?

IP stands for Internet Protocol. Every device on an IP-based network, including PCs, print servers, and routers, requires an IP address to identify its "location," or address, on the network. This applies to both the WAN and LAN connections.

There are two ways of assigning an IP address to your network devices.

Static IP Addresses

A static IP address is a fixed IP address that you assign manually to a PC or other device on the network. Since a static IP address remains valid until you disable it, static IP addressing insures that the device assigned it will have that same IP address until you change it. Static IP addresses are commonly used with network devices such as server PCs or print servers.

If you use the Router to share your cable or DSL Internet connection, contact your ISP to find out if they have assigned a static IP address to your account. If so, you will need that static IP address when configuring the Router. You can get the information from your ISP.

Note: Since the Router is a device that connects two networks, it needs two IP addresses—one for the LAN side, and one for the WAN side. In this User Guide, you'll see references to the "WAN IP address" and the "LAN IP address."

Since the Router has firewall security (NAT), only the Router's WAN IP address can be seen from the Internet.

However, even the WAN IP address can be blocked, so that the Router and network seem invisible to the Internet—This is shown in the Filters section in "Chapter 5: Using the Routers Web-Based Utility".

Dynamic IP Addresses

A dynamic IP address is automatically assigned to a device on the network, such as PCs and print servers. These IP addresses are called "dynamic" because they are only *temporarily* assigned to the PC or device. After a certain time period, they expire and may change. If a PC logs on to the network (or the Internet) and its dynamic IP address has expired, the DHCP server will assign it a new dynamic IP address.

For DSL users, many ISPs may require you to log on with a user name and password to gain access to the Internet. This is called "Point to Point Protocol over Ethernet" or PPPoE. PPPoE is similar to a dial-up connection but does not have a phone number to dial into, and PPPoE is a dedicated high-speed connection. PPPoE also will provide the Router with a dynamic IP address to establish a connection to the Internet.

DHCP (Dynamic Host Configuration Protocol) Servers

DHCP frees you from having to assign IP addresses manually every time a new user is added to your network. PCs and other network devices using dynamic IP addressing are assigned a new IP address by a DHCP server. The PC or network device obtaining an IP address is called the DHCP client. The Router's WAN port is, by default, set as a DHCP client.

DHCP servers can either be a designated PC on the network or another network device, such as the Router. By default, a DHCP server is enabled on your Router's LAN ports. If you already have a DHCP server running on your network, you *must* disable one of the two DHCP servers. If you run more than one DHCP server on your network, you will experience network errors, such as conflicting IP addresses. To disable the Router's DHCP function, see the DHCP section in Chapter 3: Configuring the Router.

Note: Even if you assign a static IP address to a PC, other PCs can still use DHCP's dynamic IP addressing, as long as the static IP is not within the DHCP range of the LAN IP Address.

If the Router's DHCP function fails to provide a dynamic IP address for any reason, please refer to Appendix A: Troubleshooting.

The Wireless Access Point Router's Ports

Figure 1-1

The Router's rear panel (as shown in Figure 1-1) is where all of its connections are made.

WAN The WAN (Wide Area Network) Port is where you will connect your cable or DSL modem with an Ethernet cable. *Your modem connection will not work from any other port.*

Ports 1-4 These four LAN (Local Area Network) ports are where you will connect networked devices, such as PCs, print servers, and any other Ethernet devices you want to put on your network. If Port 4 is being used, the Uplink Port will not work.

Uplink The Uplink Port is where you can expand your network by connecting to another switch or hub. Uplinking to another switch or a hub is done by simply running a cable from the Uplink Port to the other device. The Uplink Port is shared with Port 4. If the Uplink port is being used, Port 4 will not work.

Power The Power Port is where you will connect the included AC Power adapter.

Antenna Jacks The Antenna Jacks are where the included antennas are connected.

The Reset Button

Pressing the Reset Button and holding it in for a few seconds will clear all of the Router's data and restore the factory defaults. This should be done only if you are experiencing heavy routing problems, and only after you have exhausted all of the other troubleshooting options. By resetting the Router, you run the risk of creating conflicts between your PCs' actual IP Addresses and what the Router thinks their IP Addresses should be. You may be forced to reboot each network PC.

If the Router locks up, simply press the reset button or power it down for three to five seconds by removing the power cable from the Router's Power Port. Leaving the power off for too long could result in the loss of network connections.

The Wireless Access Point Router's LEDs

Figure 1-2

The LAN Indicators

WLAN Act *Green*. This LED indicates wireless activity.

WLAN Link *Green*. This LED indicates that the Router's wireless functions have been enabled through the Web-based utility.

Power *Green*. This LED indicates that the Router's power is on.

Link/Act *Green*. This LED serves two purposes. When this LED is lit continuously, this indicates that the Router is connected to a device through the corresponding port (1, 2, 3, or 4). A blinking LED indicates that the Router is actively sending or receiving data over that port. When the Uplink Port is in use, the LED for Port 4 will be lit continuously.

Full/Col *Green*. This LED also serves two purposes. When this LED is lit continuously, the connection made through the corresponding port is running in Full Duplex mode. A blinking LED indicates that the connection is experiencing collisions. Infrequent collisions are normal. If this LED blinks too often, there may be a problem with your connection. Refer to the Troubleshooting Appendix if you think there is a problem.

100 *Orange*. This LED indicates when a successful 100Mbps connection is made through the corresponding port.

The WAN Indicators

Link *Green*. This LED indicates a connection between the Router and your broadband device or network.

Act *Green*. This LED blinks when the Router is sending or receiving data over the broadband (WAN) port.

Diag *Red*. This LED indicates the Router's self-diagnosis mode during boot-up and restart. It will turn off upon completing the diagnosis. If this LED stays on for an abnormally long period of time, refer to the Troubleshooting Appendix.

Chapter 2: Connecting the Router

Before You Start

Before plugging everything together, it's always a good idea to have everything you'll need to get the Router up and running. Depending upon how you configure the Router in Chapter 4: Configuring the Router, you may need some of the following values from your ISP:

When connecting through a Static IP connection, be sure to have 1) Your broadband-configured PC's fixed Internet IP Address, 2) Your broadband-configured PC's Computer Name and Workgroup Name, 3) Your Subnet Mask, 4) Your Default Gateway, and 5) Your Primary DNS IP address.

When connecting through a PPPoE connection, be sure to have 1) Your PPPoE User Name and 2) Your PPPoE Password.

The installation technician from your ISP should have left this information with you after installing your broadband connection. If not, you can call your ISP to request the data.

Once you have the above values, you can begin the Router's installation and setup.

Connecting Your Hardware Together and Booting Up

Once you are sure that you have the above values on hand, you can begin the Installation and Setup of the Router.

1. Power everything down, including your PCs, your cable or DSL modem and the Router.

2. Connect an Ethernet cable from one of your PC's Ethernet ports to one of the Router's LAN ports (as shown in Figure 2-1). Do the same with all the PCs you wish to connect to the Router. (LAN Port 4 will become inactive if you use the Uplink port.)

   In addition to accessing the Router through an Ethernet connection, a wireless connec-

Figure 2-1

tion can be used to access the Router. See the "For Wireless Connections" section that follows these connection instructions.

3. Connect another Ethernet cable from your cable or DSL modem to the Router's **WAN** port (as shown in Figure 2-2).

Figure 2-2

4. Connect the Power Adapter (included) to the Router's Power port (as shown in Figure 2-3) and plug the other end into a power outlet.

   - The Power LED will illuminate green as soon as the power adapter is connected.
   - The Diag LED will illuminate red for a few seconds while the Router goes through its internal diagnostic test. The LED will turn off when the self-test is complete.

Figure 2-3

5. Power on the cable or DSL modem. Verify that the power is on by checking the **Link** LED in the WAN column on the front of the Router. The Link LED will be illuminated if the power is on and the modem is ready.

6. Press the Reset button on the back of the Router. Hold the button in for three seconds, or until the Diag LED illuminates red. This restores the Router's default settings.

7. Power on your PC.

The Router is now connected. Continue to the next chapter to configure your PCs.

For Wireless Connections: In addition to accessing the Router through an Ethernet connection, a wireless connection can be used to access the Router. After powering on the Router and connecting it to your modem, enter the Router's IP Address in the Address field of your wireless PC's web-browser as follows: **http://192.168.1.1** and press **Enter**.

Important: ***The Wireless Access Point Router with 4-Port Switch is configured by default to work out of the box with all Linksys Wireless Adapters. If you have changed the defaults on your Linksys Wireless Adapters, or are using other wireless adapters, you must temporarily change your wireless adapter settings to: (SSID = linksys) in order to initially access the Router wirelessly. After you have accessed the Router with the default settings, you can change the router settings to coincide with your Network settings and reset your adapters.***

Important: ***Some ISPs—most notably some cable providers—configure their networks so that you do not have to enter a full Internet address into your web browser or e-mail application to reach your home page or receive your e-mail. If your Internet home page address is something very simple, such as "www", rather than "www.linksys.com", or your e-mail server's address is something similar to "e-mail" or "pop3", rather than "pop.mail.linksys.com", you won't be able to properly configure the Router until you determine the actual Internet addresses of your Web and e-mail connections.***

You must obtain this information prior to connecting the Router to your network. You can obtain this information by contacting your ISP.

Chapter 3: Configuring the PCs

Overview

These instructions will help you configure each of your computers to communicate with the Router.

To do this, you will need to configure your PC's network settings to obtain an IP (or TCP/IP) address automatically. Computers use IP addresses to communicate with each other across a network or the Internet.

You will need to know which operating system your computer is running, such as Windows 95, 98, Millennium, 2000, or XP. You can find out by clicking the **Start** button and then selecting the **Settings** option. (If your Start menu doesn't have a Settings option, you're running Windows XP. You can select the Control Panel directly from the Start Menu.) Then, click **Control Panel** and double-click the **System** icon. Click the **Cancel** button when done.

Once you know which Windows operating system you are running, follow the directions in this step for your computer's operating system. If you PC is not configured with the TCP/IP protocol, you will need to do this for each computer you are connecting to the Router.

The next few pages tell you, step by step, how to configure your TCP/IP settings based on the type of Windows operating system you are using. Once you've configured your computers, continue to Chapter 4: Configuring the Router.

Configuring Windows 95, 98, and Millennium PCs

1. Click the **Start** button, click **Settings** and open the **Control Panel**. From there, double-click the **Network** icon to open the Network screen.

2. Select the Configuration tab and highlight the **TCP/IP line** for the applicable Ethernet adapter (as shown in Figure 3-1). If the word **TCP/IP** appears by itself, select that line. (Note: If there is no TCP/IP line listed, refer to your Ethernet adapter's documentation to install TCP/IP now.) Then, click the **Properties** button.

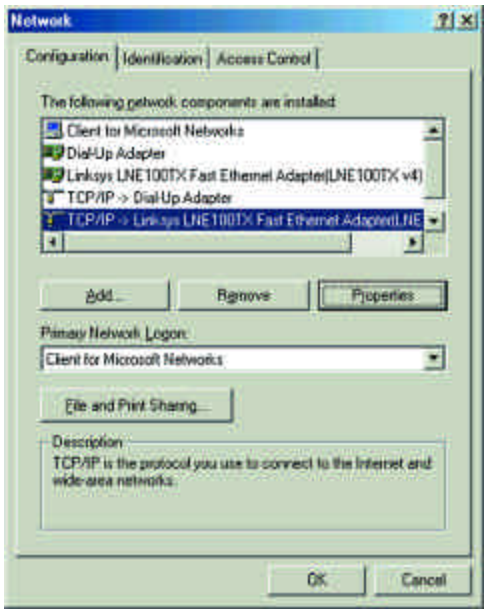

Figure 3-1

3. Click the **IP Address** tab and select **Obtain an IP address automatically** (as shown in figure 3-2).

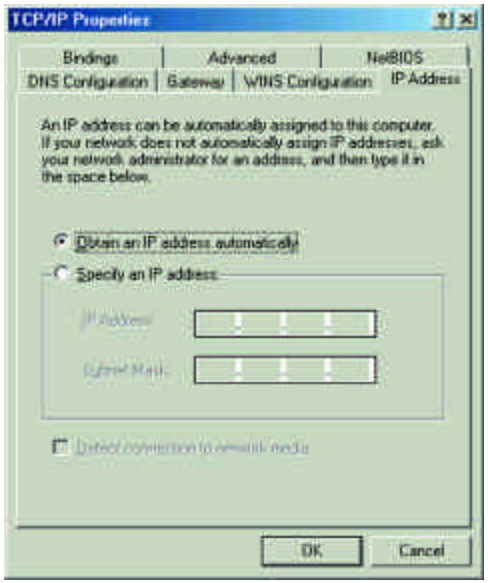

Figure 3-2

4. Click the **Gateway** tab and verify that the Installed Gateway field is blank. Click the **OK** button.

5. Click the **OK** button again. Windows may ask you for the original Windows installation disk or additional files. Supply them by pointing to the correct file location, e.g., D:\win98, D:\win9x, c:\windows\options\cabs, etc. (This assumes that "D" is the letter of your CD-ROM drive).

6. If Windows asks you to restart your PC, click the **Yes** button. If Windows does not ask you to restart, restart your computer anyway.

Repeat steps 1-6 for each PC on your network. When all of your PCs are configured, proceed to Chapter 4: Configuring the Router.

Configuring Windows 2000 PCs

1. Click the **Start** button, click **Settings** and open the **Control Panel**. From there, double-click the **Network and Dial-up Connections** icon. This will display the Network screen.

2. Select the **Local Area Connection** icon for the applicable Ethernet adapter (usually it is the first Local Area Connection listed).

Figure 3-3

3. When the Local Area Connection Status screen appears, click the **Properties** button. (See Figure 3-3.)

4. Select **Internet Protocol (TCP/IP)** (as shown in Figure 3-4) and click the **Properties** button.

Figure 3-4

5. Select **Obtain an IP address automatically** and verify that **Obtain DNS server address automatically** is selected (as shown in Figure 3-5). Then, click the **OK** button and click the **OK** button on the subsequent screens to complete the PC's configuration.

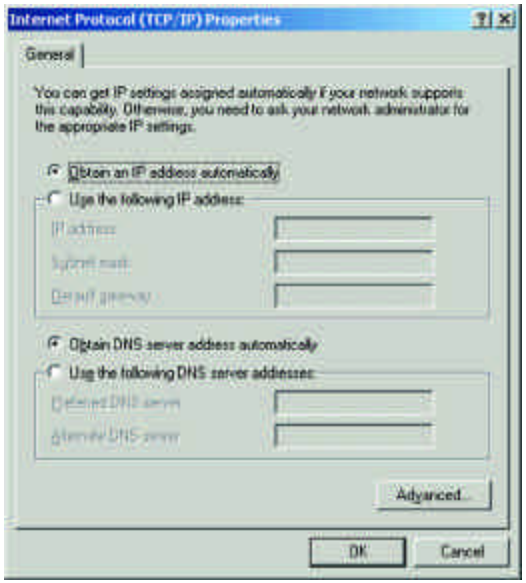

Figure 3-5

Repeat steps 1-5 for each PC on your network. When all of your PCs are configured, proceed to Chapter 4: Configuring the Router.

Configuring Windows XP PCs

The following instructions assume you are running Windows XP's default interface. If you are using the Classic interface (where the icons and menus look like previous Windows versions), please follow the instructions for Windows 2000.

1. Click the **Start** button, open the **Control Panel**. and click the **Network and Internet Connections** icon. Then, click the **Network Connections** icon to display the Network screen.

2. Select the **Local Area Connection** icon for the applicable Ethernet adapter (usually it is the first Local Area Connection listed).

Figure 3-6

3. When the Local Area Connection Status screen appears, click the **Properties** button. (See Figure 3-6.)

4. Select **Internet Protocol (TCP/IP)** (as shown in Figure 3-7) and click the **Properties** button.

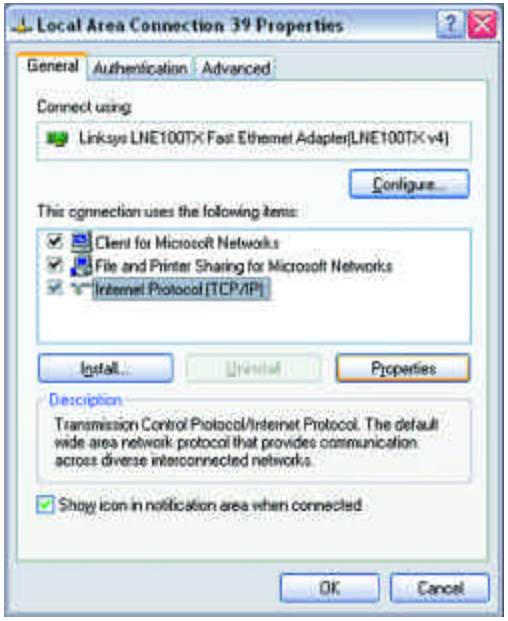

Figure 3-7

5. Select **Obtain an IP address automatically** and verify that **Obtain DNS server address automatically** is selected (as shown in Figure 3-8). Then, click the **OK** button and click the **OK** button on the subsequent screens to complete the PC's configuration.

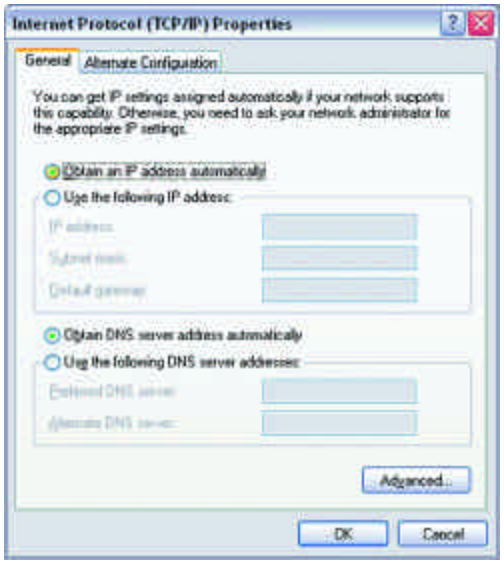

Figure 3-8

Repeat steps 1-5 for each PC on your network. When all of your PCs are configured, proceed to Chapter 4: Configuring the Router.

Chapter 4: Configuring the Router

This chapter will show you how to configure the Router to function in your network and gain access to the Internet through your Internet Service Provider (ISP). Detailed description of the Router's Web-based Utility can be found in the Chapter 5: Using the Router's Web-Based Utility. Your ISP may require the use of a Host Name and Domain Name. Further, you will set the WAN Configuration Type on the Router's Setup tab from the information given by your ISP. *You will need this setup information from your ISP.* If you do not have this information, please contact your ISP before proceeding.

The instructions from your ISP tell you how to set up your PC for Internet access. Since you are now using the Router to share Internet access among several computers, you will use this setup information for Router configuration.

1. Open your web browser, and enter **192.168.1.1** into the web browser's Address field, as shown in Figure 4-1. Then, press the **Enter** key.

Figure 4-1

2. An Enter Network Password window, shown in Figure 4-2a, will appear. (Windows XP users will see a Connect to 192.168.1.1 window, shown in Figure 4-2b.) Leave the User Name field empty, and enter **admin** (the default password) in lowercase letters in the Password field. Then, click the **OK** button.

Figure 4-2a

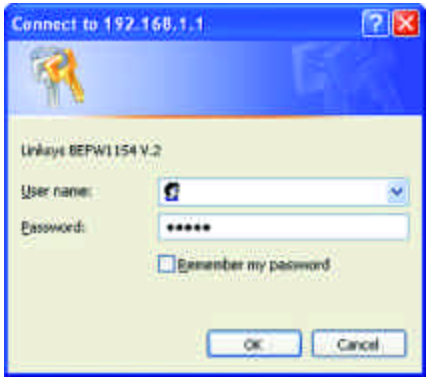

Figure 4-2b

3. If required by your ISP, enter the Router's **Host Name** and **Domain Name** in the appropriate fields on the Setup tab. (This is usually required by cable ISPs.)

4. To configure the Router for your wireless network, verify that the Setup tab's Wireless fields (shown in Figure 4-3) are completed as follows:

Figure 4-3

Enable/Disable: Selecting the **Enable** radio button will enable the Router's wireless feature. Wireless functions will not be available unless enabled.

SSID: The SSID is a unique name for your wireless network. It is case sensitive and must not exceed 32 characters. The default SSID is "linksys " but you should change this to a personal wireless network name. All wireless points in your network must use the same SSID.

SSID Broadcast - Allows the SSID to be broadcast on your network. You may want to enable this function while configuring the Router, but make sure that you disable it when you are finished. With this enabled, someone could easily obtain the SSID information with site survey software and gain unauthorized access to your network. Click **Enable** to broadcast. Click **Disable** to increase network security and prevent the SSID from being seen on networked PCs**.**

Channel: Select the appropriate channel for your network from the list provided. All wireless points in your network must use the same channel in order to function properly.

Do not *change the WEP setting from the default, "Disabled", without first referring to the Wireless Security sections of the User Guide or Setup Wizard CD-ROM for advanced features and settings.*

5. The Router supports five connection types: DHCP (obtain an IP automatically), PPPoE, Static IP Address, RAS, and PPTP. These types are selected from the drop-down menu beside **WAN Connection Type**. The Setup tab and available features will differ depending on what kind of connection type you select, the instructions for which are included here:

Obtain an IP Automatically

If your ISP says that you are connecting through a dynamic IP address (or DHCP), perform these steps:

a. Select **Obtain an IP automatically** as the WAN Connection Type (as previously shown in Figure 4-3).

b. Click the **Apply** button to save the settings.

Static IP

If your ISP says that you are connecting through a static (or fixed) IP address, perform these steps (as shown in Figure 4-4):

a. Select **Static IP** as the WAN Connection Type.

b. In the fields beside "Specify WAN IP Address", enter the **IP Address**.

c. Enter the **Subnet Mask**.

d. Enter the **Default Gateway Address**.

e. Enter the **DNS** in the 1, 2, and/or 3 fields. You must enter at least one DNS address.

f. Click the **Apply** button to save the settings.

Figure 4-4

PPPoE

If your DSL provider says that you are connecting through PPPoE or if you normally enter a user name and password to access the Internet, perform these steps (shown in Figure 4-5):

a. Select **PPPoE** as the WAN Connection Type.

b. Enter the **User Name**.

c. Enter the **Password**.

d. Click the **Apply** button to save the settings.

Figure 4-5

RAS (for SingTel Users)

RAS is a service used in Singapore only. If you are using a RAS connection (as shown in Figure 4-6), check with your ISP for the necessary setup information.

Figure 4-6

PPTP

PPTP is a service used in Europe only. If you are using a PPTP connection (as shown in Figure 4-7), check with your ISP for the necessary setup information.

Figure 4-7

6. If you haven't already done so, click the **Apply** button to save the settings.

7. Reset the power on your cable or DSL modem and restart your computers. They will now obtain the Router's new settings.

   Note: You only need to configure the Router from one computer. If you need advanced setting information, please refer to the Linksys support website at *support.linksys.com* or the User Guide on the Setup Wizard CD-ROM.

   Congratulations! You've successfully configured the Router. You can test the setup by opening your web browser from any computer and entering *www.linksys.com/registration* (as shown in Figure 4-8).

Figure 4-8

If you are unable to reach our website, you may want to review what you did in this section or refer to the Troubleshooting Appendix.

Chapter 5: Using the Router's Web-Based Utility

For your convenience, an administrative utility has been programmed into the Router. This chapter will explain all of the functions in this utility. All router-based administrative tasks are performed through this web utility. The web utility can be accessed by any PC on the network by typing "http://192.168.1.1" in the PC's web browser address window, as shown in Figure 5-1.

Figure 5-1

Upon entering the address into the web browser, a password request page will pop up, as shown in Figure 5-2a. (Windows XP users will see a "Connect to 192.168.1.1" window, shown in Figure 5-2b.)

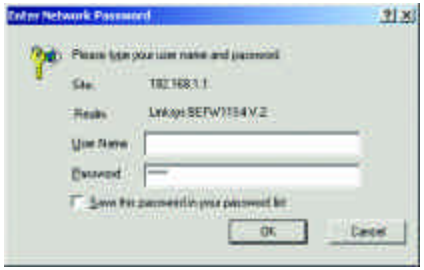

Figure 5-2a

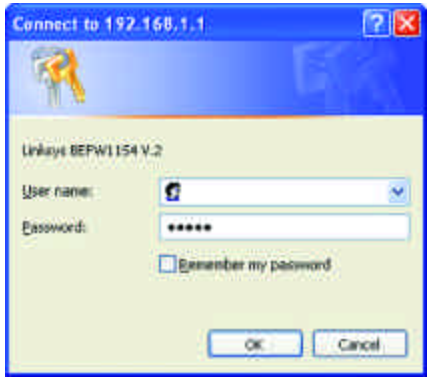

Figure 5-2b

Leave the User Name field empty, and enter **admin** (the default password) in lowercase letters in the Password field. Then, click the **OK** button.

In this chapter, you will find brief descriptions of each of the utility's tabs and its more important functions. More detailed explanations and instructions can be found by clicking each page's **Help** button or on Linksys's website at *www.linksys.com*. To clear any values you've entered on any page, click the **Cancel** button. To apply any settings you've altered on any page, click the **Apply** button.

The utility's tabs: Setup, Password, Status, DHCP, Log, Security and Help are used for Basic Setup of the Router. When the Advanced Tab is clicked, further options will be displayed for Filters, Forwarding, Dynamic Routing, Static Routing DMZ Host, MAC Address Cloning, and Wireless configuration.

Setup

The Setup tab is the first tab you will see when you access the Utility. If you have already installed and set up the Router, you have already seen this tab and have already properly configured all of the values.

Figure 5-3

- **Host Name** This entry is necessary for some ISPs and can be provided by them.

- **Domain Name** This entry is necessary for some ISPs and can be provided by them.

- **Firmware Version** This displays the firmware version the Router is currently using. As future versions of the Router's firmware become available, they can be downloaded from the Linksys website at *www.linksys.com.*

Note: ***Due to differences in web browsers, some screen shots may differ.***

- **LAN IP Address and Subnet Mask** This is the Router's IP Address and Subnet Mask as seen on the internal LAN. The default value is 192.168.1.1 for IP Address and 255.255.255.0 for Subnet Mask.

- **Wireless (Enable/Disable).** In order to utilize the Router's wireless functions, select **Enable**. If you do not wish to utilize any wireless functions, make sure **Disable** is selected. *(**Note:** No other wireless functions will be available unless you enable this setting.)*

- **SSID**: The SSID is a unique name for your wireless network. It is case sensitive and must not exceed 32 characters. The default SSID is "linksys " but you should change this to a personal wireless network name. All wireless points in your network must use the same SSID. Verify that you are using the correct SSID and click the **Apply** button to set it.

- **SSID Broadcast** - Allows the SSID to be broadcast on your network. You may want to enable this function while configuring the Router, but make sure that you disable it when you are finished. With this enabled, someone could easily obtain the SSID information with site survey software and gain unauthorized access to your network. Click **Enable** to broadcast. Click **Disable** to increase network security and prevent the SSID from being seen on networked PCs**.**

- **Channel** Select the appropriate channel from the list provided to correspond with your network settings, between 1 and 11. (Higher channels can only be used outside of the United States and Canada.) All points in your wireless network must use the same channel in order to function correctly. Verify that the correct channel is selected and click the **Apply** button to set it.

- **WEP (Mandatory/Disable).** In order to utilize WEP encryption, select **Enable**. If you do not wish to utilize WEP encryption, make sure **Disable** is selected.

- **WEP Key Setting** When WEP Encryption is Enabled, press this button to modify the WEP Key Settings.

  For further details on configuring Wireless Security, using WEP, refer to Appendix C: Configuring Wireless Security.

- **WAN Connection Type** The Router supports five connection types: DHCP (obtain an IP automatically), PPPoE, Static IP Address, RAS, and PPTP. These types are selected from the drop-down menu beside **WAN Connection Type**. The Setup tab and available features will differ depending on what kind of connection type you select. Each option is described on the following pages.

Obtain an IP Automatically

If your ISP says that you are connecting through a dynamic IP address (or DHCP), select this option from the drop-down menu (as shown in Figure 5-3). Now, the Router will accept the dynamic IP addresses assigned by your ISP when connecting to the Internet.

Static IP

If your ISP says that you are connecting through a static (or fixed) IP address, select this option from the drop-down menu (as shown in Figure 5-4). The Router will utilize that static IP Address when the following information is entered into the appropriate field:

Figure 5-4

- **WAN IP Address and Subnet Mask** This is the Router's IP Address and Subnet Mask as seen by external users on the Internet (including your ISP).

- **Default Gateway Address** Your ISP will provide you with the Gateway IP Address.

- **DNS (Domain Name Server) IP Address** Your ISP will provide you with at least one DNS IP Address.

PPPoE

Some DSL-based ISPs use PPPoE (Point-to-Point Protocol over Ethernet) to establish communications with an end-user. If you are using a DSL line, check with your ISP to see if they use PPPoE. If they do use PPPoE, select this from the drop-down menu (as shown in Figure 5-5).

Figure 5-5

If you do enable PPPoE, remember to remove any existing PPPoE applications already on any of your PCs.

- **User Name and Password** Enter the User Name and Password you use when logging onto your ISP connection.

- **Connect on Demand and Max Idle Time** You can configure the Router to disconnect your ISP connection after a specified period of time (Max Idle Time). If you have been disconnected due to inactivity, Connect on Demand enables the Router to automatically re-establish your connection as soon as you attempt to access the Internet again. If you wish to activate Connect on Demand, click the radio button. If you want your Internet connection to remain on at all times, enter **0** in the Max Idle Time field. Otherwise, enter the number of minutes you want to have elapsed before your Internet access disconnects.

- **Keep Alive Option and Redial Period** This option keeps you connected to your ISP indefinitely, even when your connection sits idle. To use this option, click the radio button next to **Keep Alive**. The default Redial Period is 30 seconds.

RAS (for SingTel Users)
RAS is a service used in Singapore only. If you are using a RAS connection (as shown in Figure 4-6), check with your ISP for the necessary setup information.

PPTP
PPTP is a service used in Europe only. If you are using a PPTP connection (as shown in Figure 4-7), check with your ISP for the necessary setup information.

You can confirm that the above settings are correct by successfully connecting to the Internet.

To clear any values you've entered on any page, click the **Cancel** button. To apply any settings you've altered on any page, click the **Apply** button.

Password

From the Password tab, shown in Figure 5-7, you can change the Router's Password, enable Universal Plug and Play (UPnP) Services for systems such as Windows XP PCs, and restore the Router's factory default settings.

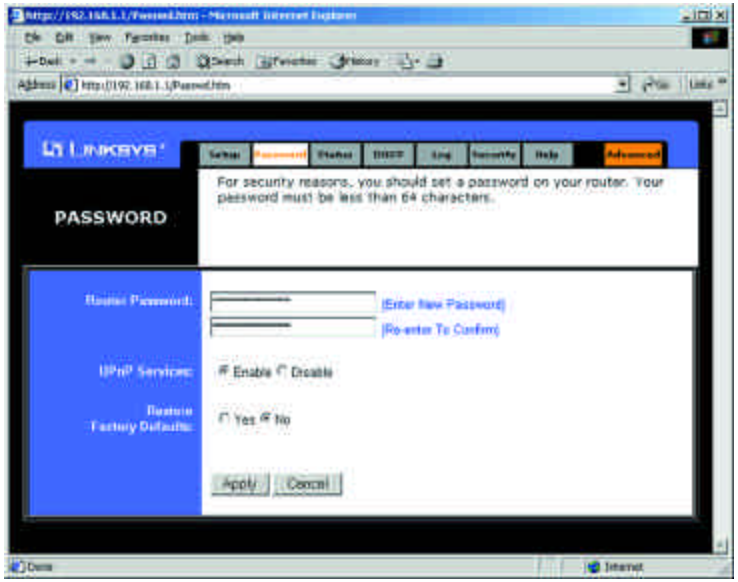

Figure 5-7

- **Router Password** For greater security, you should set a password for the Router. If you don't set the password, all users on your network will be able to access the Router using the default password **admin**. We recommend that you change your password often.

- **UPnP Services** Universal Plug and Play (UPnP) allows systems, such as Windows XP PCs to automatically configure the Router for various Internet applications, such as gaming and videoconferencing. Click the radio button next to **Enable** to enable UPnP Services, or **Disable** to disable UPnP Services.

- **Restore Factory Defaults** If you select the Restore Factory Default option and click the **Apply** button, you will clear all of the Router's settings and restore the default settings.

Do not restore the factory defaults unless you are having difficulties with the Router and have exhausted all other troubleshooting measures. Once the Router is reset, you will have to re-enter all of your configuration data.

To clear any values you've entered on any page, click the **Cancel** button. To apply any settings you've altered on any page, click the **Apply** button.

Status

The Status tab, shown in Figure 5-8, displays the Router's current status; it reflects the data and selections you've entered using the Setup tab and provides options for DHCP users.

Note: The information provided on the Status tab may vary depending on the Router's settings.

All of the information provided on the Status tab is read-only and can be changed using the Setup tab.

- **Host Name** This field shows the name of the Router. This entry is necessary for some ISPs.

- **Firmware Version** This field shows the installed version and date of the firmware. Version dates are slightly more accurate than version numbers.

- **Login** This indicates if you are using a dial-up style connection like PPPoE, RAS, or PPTP. For PPPoE, RAS, or PPTP only, there is a **Connect** button to click if you are disconnected and want to re-establish a connection.

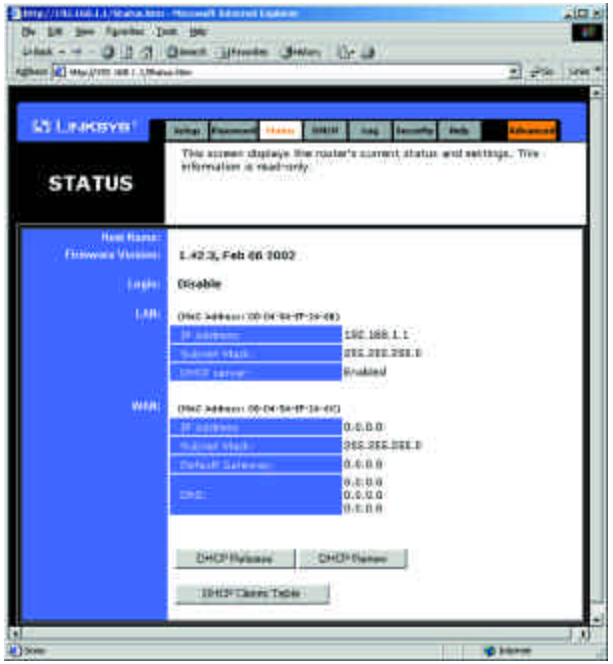

Figure 5-8

- **LAN** These fields display the current IP Address and Subnet Mask of the Router, as seen by users on your local area network. The DHCP Server field shows the status of the Router's DHCP server function, which is either enabled or disabled.

- **WAN** These fields display the WAN IP Address, WAN Subnet Mask, and WAN Default Gateway IP Address of the Router, as seen by external users on the Internet. The DNS (Domain Name System) IP Address fields show the IP address(es) of the DNS currently used by the Router. Multiple DNS IP settings are common. In most cases, the first available DNS entry is used.

- **DHCP Release** Click the **DHCP Release** button to delete the current IP address of the device connected to the Router's WAN port.

- **DHCP Renew** Click the **DHCP Renew** button to replace the current IP address—of the device connected to the Router's WAN port—with a new IP address.

- **DHCP Clients Table** This table lists the PCs that were given IP addresses by the Router.

DHCP

A DHCP (Dynamic Host Configuration Protocol) Server automatically assigns IP addresses to each computer on its network. Unless you already have one, you should set the Router up as a DHCP server. This is done on the DHCP tab, shown in Figure 5-9.

Figure 5-9

- **DHCP Server** Click the **Enable** option to enable the Router's DHCP server function If you already have a DHCP server on your network, set the Router's DHCP option to **Disable**.

- **Starting IP Address** Enter a numerical value for the DHCP server to start with when issuing IP addresses.

- **Number of DHCP users** Enter the maximum number of PCs that will require IP addresses assigned by the Router. No more than 253 computers can be used. In order to determine the DHCP IP Address range, add the starting IP address (e.g., 100) to the number of DHCP users. By default, as shown in Figure 5-9, if you add 50 users, the range or IP Addresses will be 192.168.1.100 to 192.168.1.149.

- **Client Lease Time** The Client Lease Time is the amount of time a network user will be allowed connection to the Router with their current dynamic IP address. Enter the amount of time, in minutes, that the user will be "leased" this dynamic IP address.

- **DNS** The Domain Name System (DNS) is how the Internet translates domain or website names into Internet addresses or URLs. Your ISP will provide you with at least one DNS Server IP Address. If you wish to use another, type that **IP Address** in one of these fields. You can type up to three DNS Server IP Addresses here. The Router will use these for quicker access to functioning DNS servers.

- **WINS** The Windows Internet Naming Service (WINS) manages each PC's interaction with the Internet. If you use a WINS server, enter that **server's IP Address** here. Otherwise, left this blank.

- **DHCP Clients Table** When this button is clicked, a table similar to that shown in Figure 5-10 appears, displaying a list of PCs assigned IP addresses by the Router. Click the **Refresh** button to display the most current information. If you wish to delete a client's IP address, select that client by clicking the box to the right and click the **Delete** button.

Figure 5-10

To clear any values you've entered on any page, click the **Cancel** button. To apply any settings you've altered on any page, click the **Apply** button.

Log

The Log tab, shown in Figure 5-11, provides you with a log of all incoming and outgoing URLs or IP addresses for your Internet connection.

To access activity logs, select the **Enable** option next to "Access Log". This function can be disabled by clicking the **Disable** radio button.

With logging Enabled, you can choose to view temporary logs or have a permanent record, using the Logviewer software. Temporary logs can be accessed from the Log tab by clicking either the **Incoming Access Log** or **Outgoing Access Log** buttons. The Incoming Access Log gives you a log of all the incoming Internet traffic while the Outgoing Access Log lists all the URLs and IP addresses of Internet sites that users on your network have accessed.

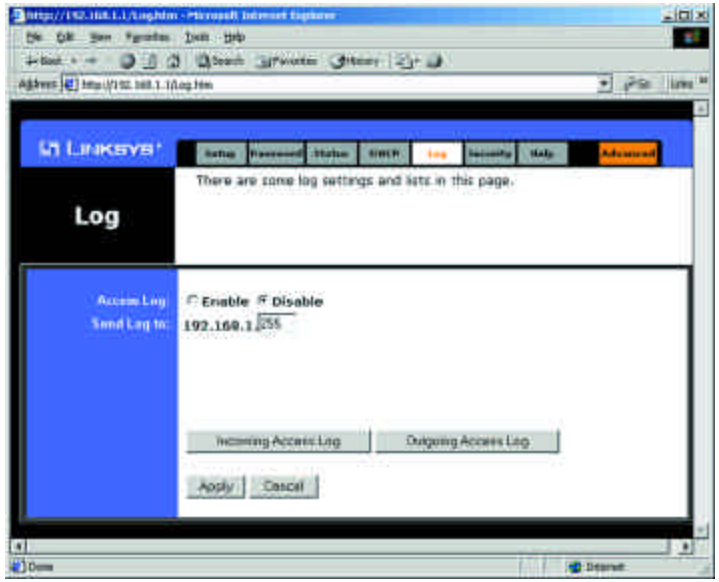

Figure 5-11

For a permanent record of these logs, Logviewer software must be used. This software is downloadable from the Linksys website at *www.linksys.com*. The Logviewer saves all incoming and outgoing activity as a permanent file on your PC's hard drive. Next to "Send Log to", enter the fixed IP address of the PC running the Logviewer software. The Router will now send updated logs to that PC.

To clear any values you've entered on any page, click the **Cancel** button. To apply any settings you've altered on any page, click the **Apply** button.

Security

Figure 5-12

The Security tab, as shown in Figure 5-12, enables configuration of the Router to provide enhanced network security using ZoneAlarm Pro and PC-cillin (each sold separately). While the Router provides a built-in Internet NAT firewall, ZoneAlarm Pro enhances the Router's security capabilities for increased protection against hackers and other threats from the Internet and PC-cillin protects against viruses. ZoneAlarm Pro and PC-cillin work independently of each other. For more information on ZoneAlarm Pro, PC-cillin, and DSL or cable network security, please click the on-screen link to the Internet Security Center.

Software Download

Click this button to purchase and download ZoneAlarm Pro and/or PC-cillin at the Internet Security Center. Print the summary page, which contains the license key needed for installation, or write down the license key if you are unable to print the page. You will also be e-mailed a confirmation invoice with the key included. When adding security enhancements to your other networked computers, you can either copy the downloaded files to the other PCs or re-download the software on each individual PC without incurring any more costs.

Note: Your license key will be e-mailed to you.

ZoneAlarm Pro Settings

If you have downloaded ZoneAlarm Pro, complete this section.

License Key Enter the License Key for ZoneAlarm Pro. The License Key will be e-mailed to you after you purchase ZoneAlarm Pro.

Enforce ZoneAlarm Pro Security Check this box to enable ZoneAlarm Pro on the Router. This will require every PC to have ZoneAlarm Pro installed before being allowed to access the Internet (except for exempt computers).

Enforcement Level This sets how often ZoneAlarm Pro will check for unauthorized intrusions. **More Secure** (default setting) enables ZoneAlarm Pro to check frequently. **Conserve Bandwidth** enables ZoneAlarm Pro to check less frequently; this uses less bandwidth. It is recommended to set the Enforcement Level at the More Secure setting unless there is a decrease in the Router's performance.

PC-cillin Settings

If you have downloaded PC-cillin, complete this section.

Enforce PC-cillin Anti-Virus Check this box to enable PC-cillin Anti-Virus on the Router.

Exempt Computers

If you wish to exempt any computers from enforcement of ZoneAlarm Pro and/or PC-cillin, complete this section.

Enable/Disable To enable or disable computer exemptions, click **Enable** or **Disable**.

From IP Address/To IP Address Enter the range of IP addresses for the computers you want to exempt from enforcement of ZoneAlarm Pro and/or PC-cillin.

AOL Parental Controls

Enabling this engages AOL's proprietary "Parental Control" feature. Enabling this will disable all options under the Advanced tab except MAC Address cloning.

Note: AOL Parental Controls are available to AOL customers in the Unites States Only.

To apply any of the settings you change on a page, click the **Apply** button. To cancel any values you've entered on any page, click the **Cancel** button.

Help

The Help tab, as shown in Figure 5-13, contains links to all of the Utility's internal support documentation, a link to Linksys's website, and the application that upgrades the Router's firmware. To utility these links, you must have an active Internet connection.

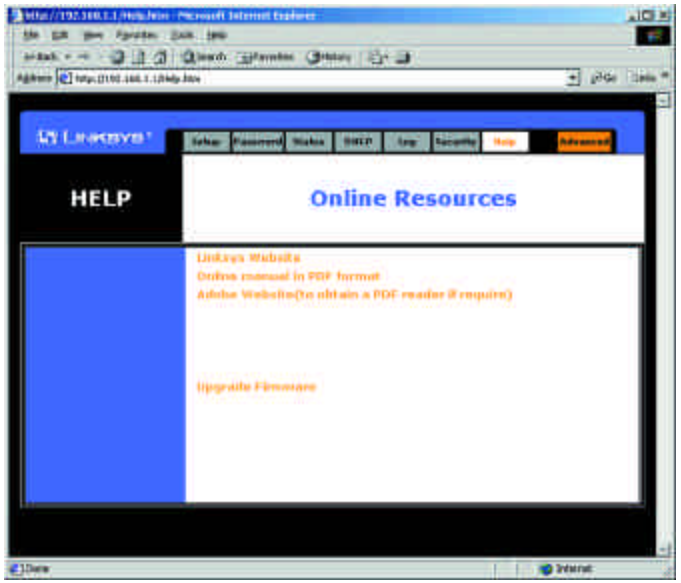

Figure 5-13

Click the **Linksys Website** link to connect to the Linksys homepage for Knowledgebase help files and information about other Linksys products.

For an **Online Manual in PDF format**, click that text link. The manual will appear in Adobe PDF format. If you do not have the Adobe PDF Reader installed on your computer, click the **Adobe Website** link to download this software.

Firmware can be upgraded by clicking the **Upgrade Firmware** link. Do not upgrade your firmware unless you are experiencing problems with the Access Point.

To upgrade the Router's firmware:

1. Access the **Help** tab and click **Upgrade Firmware**. A new page, shown in Figure 5-14, will appear.

Important: In order to upgrade the Router's firmware, you **must** use Internet Explorer 5.0 or higher, or Netscape Navigator 4.7 or higher. Upgrading the firmware may cause the Router to be reset to the factory defaults. Make a record of all settings before attempting the upgrade.

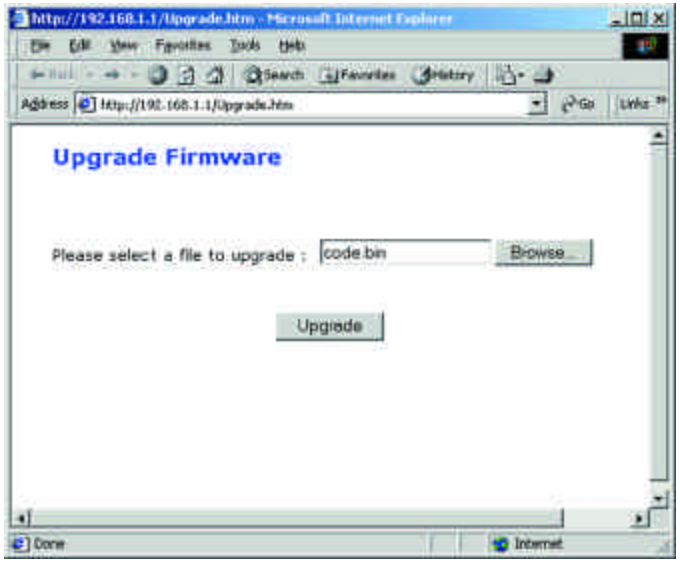

Figure 5-14

2. Click the **Browse** button and find the firmware upgrade file that you downloaded from the Linksys website. Double-click the **upgrade file**. This will place the file into the "File Path:" field.

3. When the correct file is in the "File Path:" field, click the **Upgrade** button and follow the instructions there. This will complete your firmware upgrade.

Important: Do not interrupt the firmware upgrade process in any way or power down the Router while the upgrade is in progress as this could damage the Router.

Advanced Tab: Filters

Important: Filtering is an Advanced Function. No changes should be made to this tab without a thorough understanding of networking concepts.

Filters block specific internal users from accessing the Internet. From the Filters tab, as shown in Figure 5-15, you can set up a filter through an IP address or a network port number.

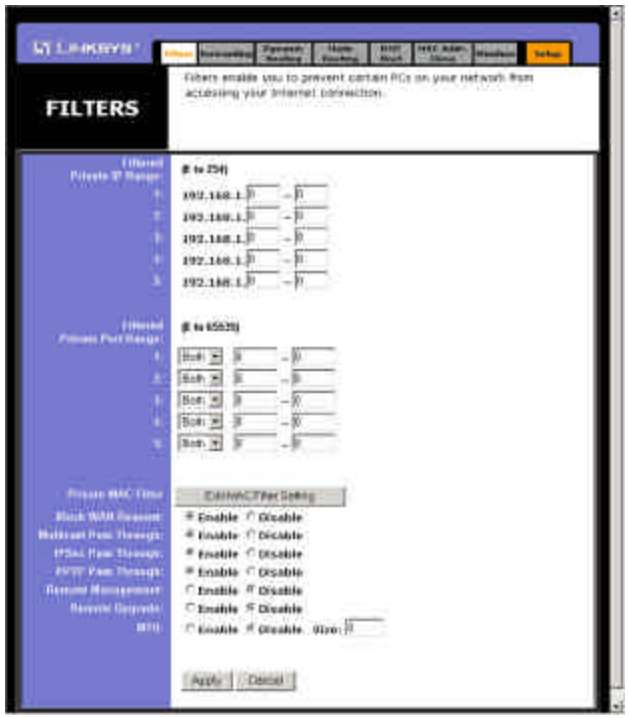

Figure 5-15

- **Setting Up Filters**

  To set up a filter using IP addresses, enter the range of IP addresses you wish to filter in the IP address fields. Users who have filtered IP addresses will not be able to access the Internet at all. If you only want to filter one IP address instead of a range of IP addresses, enter the same value into both fields. For instance, if you wish to filter the PC with the IP address of 192.168.1.5, enter **5** into both fields on one line: 192.168.1.**5** ~ 192.168.1.**5**. Click the **Apply** button when you're done.

To filter users by network port number, enter a network port number or a range of network ports. Enter the port numbers you want to filter in the port numbers fields. Users connected to the Router will no longer be able to access any port number listed there.

- **Editing MAC Filter Setting**

  This feature filters the Ethernet adapter's specific MAC address from going out to the Internet.

  To check your Ethernet adapter's MAC address, run **winipcfg** or **ipconfig** in the command prompt, depending on which Windows operating system you are using. To set the MAC filter, click the **Edit MAC Filter Setting** button. When a second window appears, select the range in the drop-down menu, and in a MAC number field, enter the 12-digit MAC address you want to filter. Click the **Apply** button before closing the window. For information on obtaining a MAC address, go to Appendix D: Finding the MAC Address and IP Address for Your Ethernet Adapter.

- **Blocking WAN Requests**

  By enabling the Block WAN Request feature, you can prevent your network from being "pinged," or detected, by other Internet users. The Block WAN Request feature also reinforces your network security by hiding your network ports. Both functions of the Block WAN Request feature make it more difficult for outside users to work their way into your network.

  Click the **Apply** button to save your changes.

- **Using Multicast Pass Through**

  This feature allows for multiple transmissions to specific recipients at the same time. Select **Enable** to support the feature, or **Disable** to keep the Router from multicasting.

- **Using Multicast Pass Through**

  This feature allows for multiple transmissions to specific recipients at the same time. Select **Enable** to support the feature, or **Disable** to keep the Router from multicasting.

- **Using IPSec Pass Through**

  This feature lets you use IPSec Pass Through. To use this feature, click the **Enable** button next to **IPSec Pass Through**, and then the **Apply** button.

  IPSec Pass Through is enabled by default. To disable IPSec Pass Through, click on **Disable** and then the **Apply** button.

- **Using PPTP Pass Through**

  Point-to-Point Tunneling Protocol is the method used to enable VPN sessions. To enable this feature, click the **Enable** button next to **PPTP Pass Through**, and click the **Apply** button.

  PPTP Pass Through is enabled by default. To disable this feature, click on **Disable** next to **PPTP Pass Through**, and then the **Apply** button.

- **Using Remote Management**

  This feature allows you to manage the Router from a remote location, such as over the Internet. To enable this feature, click on **Enable,** and click the **Apply** button. Remote Management must be activated before you can manage the Router from a remote location.

  To disable Remote Management, click on **Disable**, and click the **Apply** button. If you wish to use this feature, enter **http:\\<WAN IP Address>:8080** into your web browser's address field and press the **Enter** key**.** (Enter your specific WAN IP Address in place of <WAN IP Address>.)

  To disable this feature, click on **Disable**, and click the **Apply** button.

- **Using Remote Upgrade**

  This feature allows you to upgrade the Router's firmware from a remote location. To enable Remote Upgrade, click on **Enable**, and then click the **Apply** button. Remote Management must be activated before you can manage the Router from a remote location.

Important: Upgrading may cause the Router to be reset to the factory defaults. Make a record of all settings before attempting the upgrade.

- **Using MTU (Maximum Transmission Unit)**

  This feature specifies the largest packet size permitted for network transmission. Select **Enable** and enter the value desired. It is recommended that you leave this value in the 1200 to 1500 range. For most DSL users, it is recommended to use the value **1492**. By default, MTU is set at **1500** when disabled.

Advanced Tab: Port Range Forwarding

Important: Port Range Forwarding is an Advanced Function. No changes should be made to this tab without a thorough understanding of networking concepts.

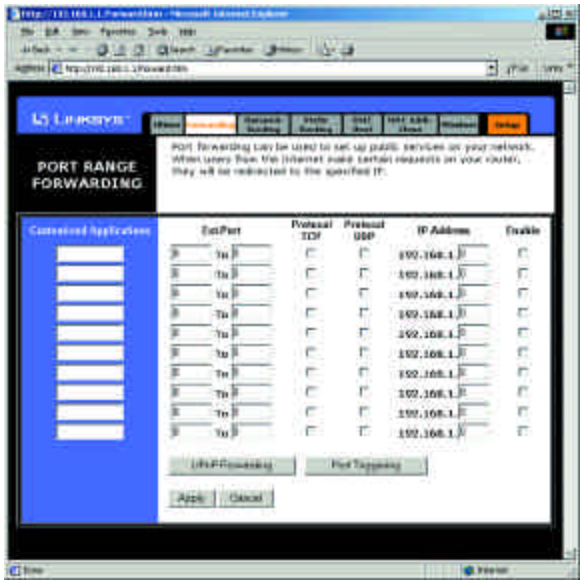

Figure 5-16

Port Range Forwarding from this tab, as shown in Figure 5-16, sets up public services on your network, such as web servers, ftp servers, e-mail servers, or other specialized Internet applications. (Specialized Internet applications are any applications that use Internet access to perform functions such as videoconferencing or online gaming. Some Internet applications may not require any forwarding.) When users send this type of request to your network via the Internet, the Router will forward those requests to the appropriate PC. Before using Forwarding, the DHCP function on the PC whose port is being forwarded must be disabled and have a new static IP address assigned because its IP address may change when using the DHCP function.

If you need to forward all ports to one PC, see the "DMZ" section.

To add a server using Port Range Forwarding:

1. Enter the **name** of the application in the appropriate Customized Applications field.

2. Next to the name of the application, enter the **number** or **range** of the external port(s) used by the server or Internet application in the Ext. Port column. Check with the Internet application software documentation for more information.

3. On the same line, select the protocol **TCP** or **UDP**, or select both protocols.

4. Enter the **IP address** of the server that you want the Internet users to be able to access. To find the IP address, go to Appendix D: Finding the MAC Address and IP Address for Your Ethernet Adapter.

5. Check the **Enable** box to enable the services you have defined. Port Range Forwarding will not function if the **Enable** button is left unchecked. This is disabled (unchecked) by default.

6. Configure as many entries as needed—the Router supports up to 10 ranges of ports. Click the **Apply** button when you are done.

UPnP Forwarding

Clicking the UPnP Forwarding button on the Port Range Forwarding tab will display the UPnP Forwarding tab. The UPnP Forwarding tab, shown in Figure 5-17, displays preset application settings as well as options for customization of port services for other applications.

This table is similar to the Port Forwarding table, but the items on this table will automatically synchronize with other UPnP devices and operating systems, such as Windows XP.

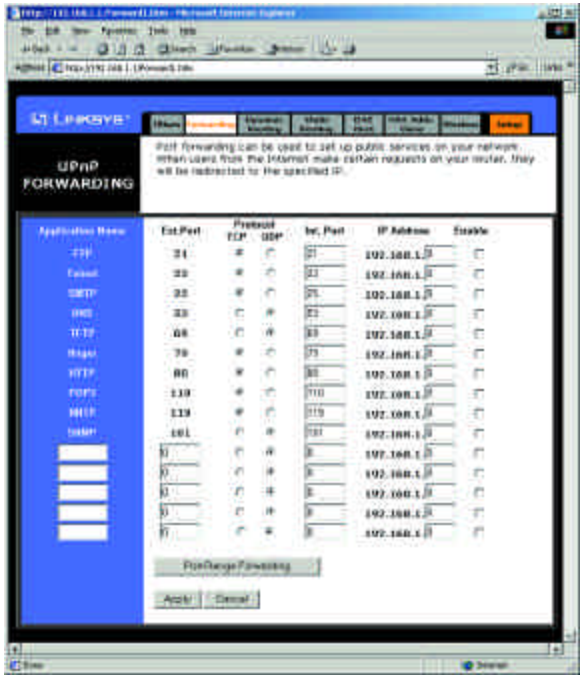

Figure 5-17

The Preset Applications are among the most widely used Internet applications that may require forwarding. They include the following:

- **FTP** (File Transfer Protocol) A protocol used to transfer files over a TCP/IP network (Internet, UNIX, etc.). For example, after developing the HTML pages for a website on a local machine, they are typically uploaded to the web server using FTP. FTP includes functions to log onto the network, list directories, and copy files. It can also convert between the ASCII and EBCDIC character codes. FTP operations can be performed by typing commands at a command prompt or via an FTP utility running under a graphical interface such as Windows. FTP transfers can also be initiated from within a web browser by entering the URL preceded by ftp://.

- **Telnet** A terminal emulation protocol commonly used on Internet and TCP/IP-based networks. It allows a user at a terminal or computer to log onto a remote device and run a program.

- **SMTP** (Simple Mail Transfer Protocol) The standard e-mail protocol on the Internet. It is a TCP/IP protocol that defines the message format and the message transfer agent (MTA), which stores and forwards the mail.

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

- **TFTP** (Trivial File Transfer Protocol) A version of the TCP/IP FTP protocol that has no directory or password capability.

- **Finger** A UNIX command widely used on the Internet to find out information about a particular user, such as a telephone number, whether the user is currently logged on, and the last time the user was logged on. The person being "fingered" must have placed his or her profile on the system in order for the information to be available. Fingering requires entering the full user@domain address.

- **HTTP** (HyperText Transport Protocol) The communications protocol used to connect to servers on the World Wide Web. Its primary function is to establish a connection with a web server and transmit HTML pages to the client web browser.

- **POP3** (Post Office Protocol 3) A standard mail server commonly used on the Internet. It provides a message store that holds incoming e-mail until users log on and download it. POP3 is a simple system with little selectivity. All pending messages and attachments are downloaded at the same time. POP3 uses the SMTP messaging protocol.

- **NNTP** (Network News Transfer Protocol) The protocol used to connect to Usenet groups on the Internet. Usenet newsreaders support the NNTP protocol.

- **SNMP** (Simple Network Management Protocol) A widely used network monitoring and control protocol. Data is passed from SNMP agents, which are hardware and/or software processes reporting activity in each network device (hub, router, etc.) to the workstation console used to oversee the network. The agents return information contained in a MIB (Management Information Base), which is a data structure that defines what is obtainable from the device and what can be controlled (turned off, on, etc.).

You must check the **Enable** box to enable the applications you have defined.

To add a server using UPnP Forwarding:

1. Enter the **name** of the application in the appropriate Application Name field.

2. Next to the name of the application, enter the **number** of the external port used by the server in the Ext. Port column. Check with the Internet application software documentation for more information.

3. On the same line, select the protocol **UDP** or **TCP**.

4. Enter the **number** of the internal port used by the server in the Int. Port column. Check with the Internet application software documentation for more information.

5. Enter the IP address of the server that you want the Internet users to be able to access. To find the IP address, go to Appendix D: Finding the MAC Address and IP Address for Your Ethernet Adapter.

6. Check the **Enable** box to enable the services you have defined. UPnP Forwarding will not function if the **Enable** button is left unchecked. This is disabled (unchecked) by default.

Port Triggering

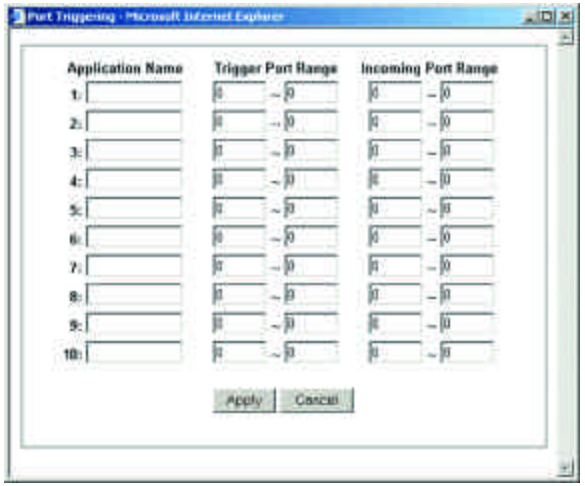

Figure 5-18

From the Port Range Forwarding tab, shown in Figure 5-18, click the **Port Triggering** button to allow the Router to watch outgoing data for specific port numbers. The IP address of the computer that sends the matching data is remembered by the Router, so that when the requested data returns through the Router, the data is pulled back to the proper computer by way of IP address and port mapping rules.

1. Enter the **Application Name** of the trigger.

2. Enter the **Trigger Port Range** used by the application. Check with the Internet application for the port number needed.

3. Enter the **Incoming Port Range** used by the application. Check with the Internet application for the port number needed.

4. Click the **Apply** button.

Advanced Tab: Dynamic Routing

Important: Dynamic Routing is an Advanced Function. No changes should be made to this tab without a thorough understanding of networking concepts.

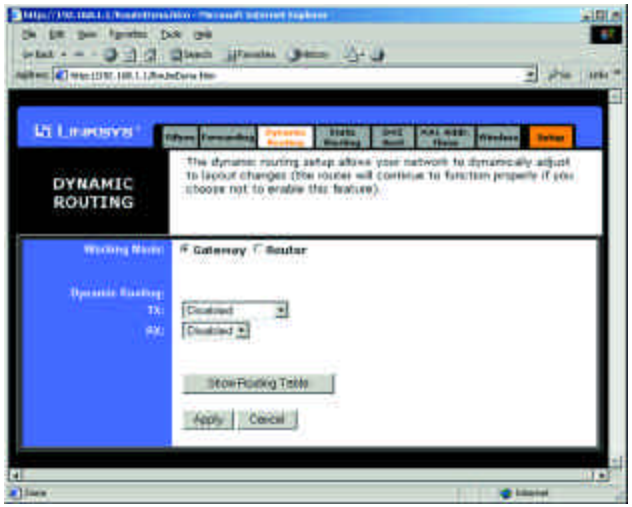

Figure 5-19

From the Dynamic Routing tab, shown in Figure 5-19, you can automatically adjust to physical changes in the network's layout. The Router, using the RIP protocol, determines the network packets' route based on the fewest number of hops between the source and the destination. The RIP protocol regularly broadcasts routing information to other routers on the network. To set up Dynamic Routing:

1. Choose the correct Working Mode. **Gateway Mode** should be used if the Router is hosting your network's connection to the Internet. **Router Mode** should be selected if the Router exists on a network with other routers.

2. In the **TX** field, choose the **protocol** by which you transmit data on the network.

3. In the **RX** field, choose the protocol by which the Router receives network data.

4. Click the **Apply** button to save your changes.

To view the Routing Table, which shows the network layout, click the **Show Routing Table** button.

To clear any values you've entered on any page, click the **Cancel** button. To apply any settings you've altered on any page, click the **Apply** button.

Advanced Tab: Static Routing

Important: Static Routing is an Advanced Function. No changes should be made to this tab without a thorough understanding of networking concepts.

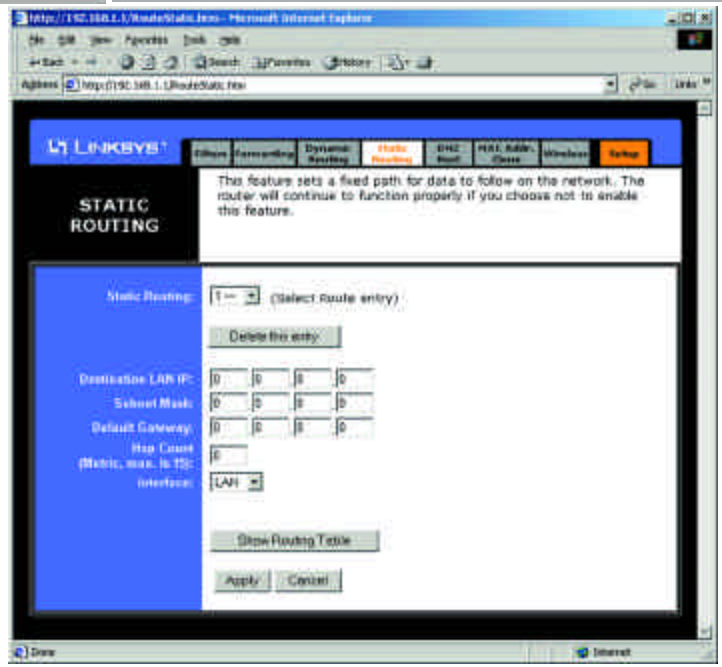

Figure 5-20

If the Router is connected to more than one network, it may be necessary to set up a static route between them. This is set on the Static Routing tab, as shown in Figure 5-20. A static route is a pre-determined pathway that network information must travel to reach a specific host or network. Click the **Show Routing Table** button to view the current static routing configuration.

To create a static route entry:

1. Select **Static Route Entry** from the drop-down list. The Router supports up to 20 static route entries.

2. Enter the following data to create a new static route:

   Destination LAN IP. The Destination LAN IP is the address of the remote network or host to which you want to assign a static route. Enter the IP address of the host for which you wish to create a static route here. If you are building a route to an entire network, be sure that the host portion of the IP address is set to zero. For example, the Router's standard IP address is 192.168.1.1. Based on this address, the address of the network to which the Router is connected is 192.168.1. You would enter the IP address 192.168.1.0 if you wanted to route to the entire network, rather than just to the Router.

   Subnet Mask. The Subnet Mask indicates which portion of an IP address is the network portion and which portion is the host portion. If, for instance, you use a Subnet Mask of 255.255.255.0 with the example shown above for Destination LAN IP, then this would indicate that the first three numbers of an network IP address identifies this particular network, while the last number in the network address (from 1 to 254) would identify the specific host.

   Gateway IP. This IP address should be the IP address of the gateway device that allows for contact between the Router and the remote network or host.

   Hop Count. This value gives the number of **nodes** that a data packet passes through before reaching its destination. A node is any device on the network, such as switches, PCs, etc.

   Interface. This interface tells you whether your network is on the internal LAN or the WAN, or the external Internet. If you're connecting to a subnetwork, select LAN. If you're connecting to another network through the Internet, select WAN.

To delete a Static Routing entry, select an **entry**, and click the **Delete this entry** button.

To clear any values you've entered on any page, click the **Cancel** button. To apply any settings you've altered on any page, click the **Apply** button.

Advanced Tab: DMZ Host

Important: DMZ Hosting is an Advanced Function. No changes should be made to this tab without a thorough understanding of networking concepts.

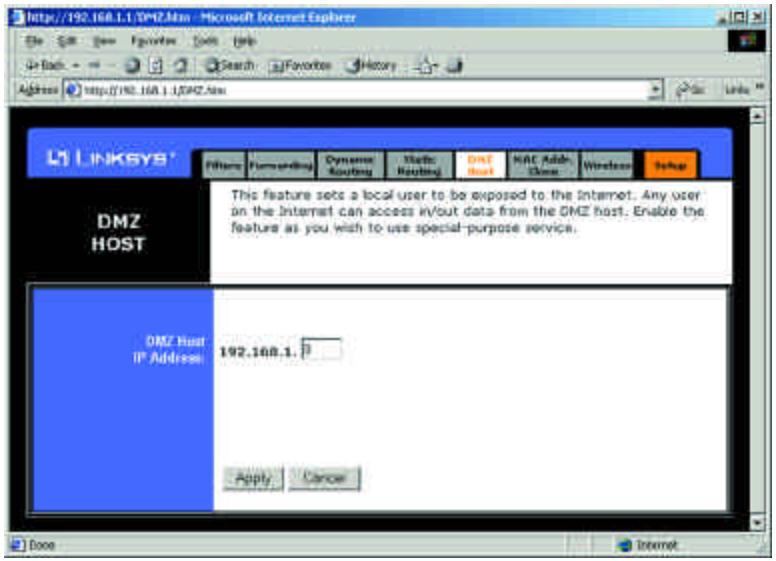

Figure 5-21

The DMZ Hosting feature, accessed from the DMZ Host tab as shown in Figure 5-21, allows one local user to be exposed to the Internet for use of a special-purpose service such as Internet gaming and videoconferencing.

Whereas Port Range Forwarding can only forward a maximum of ten port ranges, DMZ hosting forwards all the ports at the same time to one PC.

Before using this feature, the DHCP function on the PC whose port is being exposed must be disabled and have a new static IP address assigned because its IP address may change when using the DMZ function.

To expose one PC, enter the computer's IP address. To get the IP address of a computer, refer to Appendix D: Finding the MAC Address and IP Address for Your Ethernet Adapter.

Deactivate DMZ by entering a zero in the field.

When finished, click the **Apply** button to save the settings. Otherwise, click the **Cancel** button to undo changes made on this screen.

Advanced Tab: MAC Address Cloning

Important: MAC Address Cloning is an Advanced Function. No changes should be made to this tab without a thorough understanding of networking concepts.

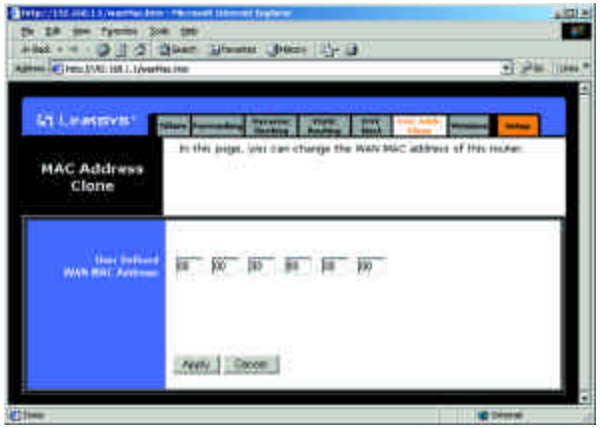

Figure 5-22

From the MAC Address Cloning tab, shown in Figure 5-22, you can assign the Router a MAC address, which is a 12-digit code assigned to a unique piece of hardware for identification, like a social security number. Some ISPs require that you register the MAC address of your network card/adapter, which was connected to your cable or DSL modem during installation. Therefore, in order to connect the Router to your cable or DSL modem in place of the PC (network card or adapter), you must change the Router MAC to duplicate (or clone) your network card/adapter MAC. You can find your adapter's MAC address by doing the following:

- If you are running Windows 95, 98 or Millennium:

  Go to **Start**, **Run**, type in **command**, and press **Enter**. At the DOS prompt, type **winipcfg**.

- If you are running Windows NT 4.0 or 2000:

  Go to **Start**, **Run**, type in **command**, and press **Enter**. At the DOS prompt, type **ipconfig /all**.

The Physical Address with 12 digits is your adapter's MAC address. Enter those 12 digits into the MAC Address fields, and click **Apply**. This "clones" your network adapter's MAC address onto the Router, and prevents you from having to call your ISP to change the registered MAC address to the adapter's MAC address.

Advanced Tab: Wireless

Important: Wireless is an Advanced Function. No changes should be made to this tab without a thorough understanding of networking concepts.

Before making any changes to the Wireless tab, shown in Figure 5-23, please check the wireless settings for all your wireless PCs, as these changes will alter the Router's effectiveness. In most cases, these settings do not need to be changed.

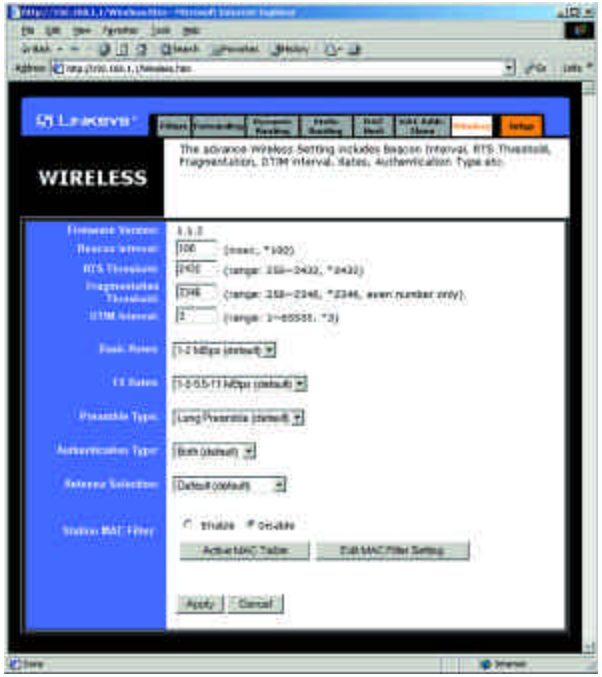

Figure 5-23

- **Firmware Version.** This indicates the Router's firmware version.

- **Beacon Interval.** This value indicates the frequency interval of the beacon. A beacon is a packet broadcast by the Router to keep the network synchronized. A beacon includes the wireless LAN service area, the IP address, the Broadcast destination addresses, a time stamp, Delivery Traffic Indicator Maps, and the Traffic Indicator Message (TIM).

- **RTS Threshold.** This value should remain at its default setting of 2,346. Should you encounter inconsistent data flow, only minor modifications are recommended.

- **Fragmentation Threshold.** This value indicates how much of the Router's resources are devoted to recovering packet errors. The value should remain at its default setting of 2,346. If you have decreased this value and experience high packet error rates, you can increase it again, but it will likely decrease overall network performance. Only minor modifications of this value are recommended.

- **DTIM Interval.** This value indicates the interval of the Delivery Traffic Indication Message (DTIM). A DTIM field is a countdown field informing clients of the next window for listening to broadcast and multicast messages. When the Router has buffered broadcast or multicast messages for associated clients, it sends the next DTIM with a DTIM Interval value. Clients for the Router hear the beacons and awaken to receive the broadcast and multicast messages.

- **Basic Rates.** The basic transfer rates should be set depending on the speed of your wireless network. You must select **1-2 (Mbps)** if you have older 802.11 compliant equipment on your network, such as wireless adapters that support only 1 or 2 Mbps. Selecting 1-2 (Mbps), however, does **not** limit the basic transfer rates of faster adapters.

- **TX Rates.** Select all the supported rates at which an access point will communicate with a client.

- **Preamble Type.** The preamble defines the length of the CRC block for communication between the Router and the roaming Network Card. (High network traffic areas should use the shorter preamble type.) Select the appropriate preamble type and click the **Apply** button to set it.

- **Authentication Type.** You may choose between **Open System**, **Shared Key**, and **Both**. The Authentication Type default is set to **Open System**, in which the sender and the recipient do NOT share a secret key. Each party generates its own key-pair and asks the receiver to accept the randomly-generated key. Once accepted, this key is used for a short time only. Then a new key is generated and agreed upon. **Shared Key** is when both the sender and the recipient share a secret key.

- **Antenna Selection.** This selection is for choosing which antenna transmits data. By default, the Diversity Antenna selection, used to increase reception, is chosen.

- **Station MAC Filter.** This option will allow you to prevent wireless users on your network from accessing the Router's functions.

  Clicking the **Active MAC Table** button will display the MAC Addresses of all users on your wireless network. Addresses in green show access to the Router, while addresses in red do not have access.

  To filter users, click the **Edit MAC Filter Setting** button. The window shown in Figure 5-24 will appear.

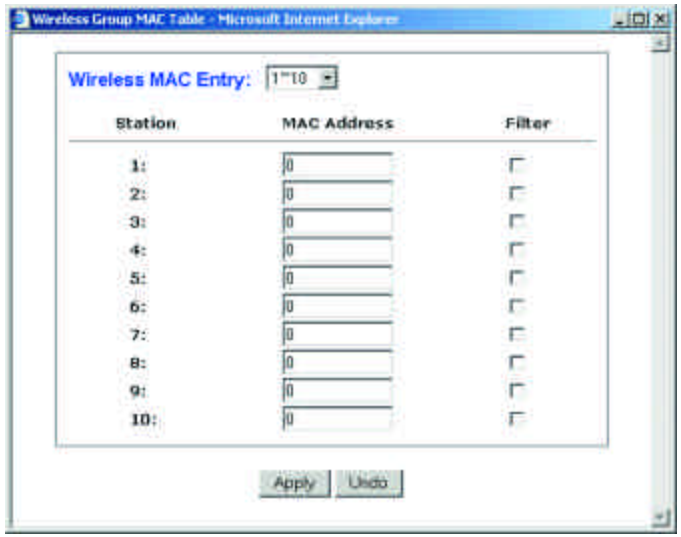

Figure 5-23

  Click the **Wireless MAC Entry** drop-down menu to select a range of entries for your network. From within this range, select the entry for which you'd like to manage access. Verify that the appropriate **MAC Address** is entered into the MAC Address field. Click the **Filter** checkbox beside that MAC Address. Now, this user will be prevented from accessing the Router. All other users will have access. To allow only that user and deny access to all others, leave **Filter** unchecked.

  Click the **Apply** button to set these changes or **Undo** if you do not wish these changes to go into effect.

When finished with the Wireless Tab, click the **Apply** button to save the settings. Otherwise, click the **Cancel** button to undo changes made on this screen.

Appendix A: Troubleshooting

Common Problems and Solutions

This appendix consists of two parts: "Common Problems and Solutions" and "Frequently Asked Questions." Provided are possible solutions to problems regarding the installation and operation of the Router. If your situation is described here, the problem should be solved by applying the corresponding solution. If you can't find an answer here, check the Linksys website at *www.linksys.com*.

1. I need to set a static IP address on a PC.

The Router, by default, assigns an IP address range of 192.168.1.100 to 192.168.1.150 using the DHCP server on the Router. To set a static IP address, you can only use the ranges 192.168.1.2 to 192.168.1.99 and 192.168.1.151 to 192.168.1.254. Each PC or network device that uses TCP/IP must have a unique address to identify itself in a network. If the IP address is not unique to a network, Windows will generate an IP conflict error message. You can assign a static IP address to a PC by performing the following steps:

For Windows 95, 98, and Me:

A. Click **Start**, **Settings**, and **Control Panel**. Double-click **Network**.
B. In *The following network components are installed* box, select the **TCP/IP->** associated with your Ethernet adapter. If you only have one Ethernet adapter installed, you will only see one TCP/IP line with no association to an Ethernet adapter. Highlight it and click the **Properties** button.
C. In the *TCP/IP properties* window, select the **IP address** tab, and select **Specify an IP address**. Enter a unique **IP address** that is not used by any other computer on the network connected to the Router. You can only use an IP address in the ranges 192.168.1.2 to 192.168.1.99 and 192.168.1.151 to 192.168.1.254. Make sure that each IP address is unique for each PC or network device.
D. Click the **Gateway** tab, and in the *New Gateway* prompt, enter **192.168.1.1**, which is the default IP address of the Router. Click the **Add** button to accept the entry.
E. Click the **DNS** tab, and make sure the **DNS Enabled** option is selected. Enter the **Host** and **Domain** names (e.g., John for Host and home for Domain). Enter the **DNS entry** provided by your ISP. If your ISP has not provided the DNS IP address, contact your ISP to get that information or go to its website for the information.
F. Click the **OK** button in the *TCP/IP properties* window, and click **Close** or the **OK** button for the Network window.
G. Restart the computer when asked.

For Windows 2000:

A. Click **Start**, **Settings**, and **Control Panel**. Double-click **Network and Dial-Up Connections**.
B. Right-click the **Local Area Connection** that is associated with the Ethernet adapter you are using, and select the **Properties** option.
C. In the *Components checked are used by this connection* box, highlight **Internet Protocol (TCP/IP)**, and click the **Properties** button. Select **Use the following IP address** option.
D. Enter a unique **IP address** that is not used by any other computer on the network connected to the Router. You can only use an IP address in the ranges 192.168.1.2 to 192.168.1.99 and 192.168.1.151 to 192.168.1.254.
E. Enter the Subnet Mask, **255.255.255.0**.
F. Enter the Default Gateway, **192.168.1.1** (Router's default IP address).
G. Toward the bottom of the window, select **Use the following DNS server addresses**, and enter the **Preferred DNS server** and **Alternative DNS server** (provided by your ISP). Contact your ISP or go on its website to find the information.
H. Click the **OK** button in the *Internet Protocol (TCP/IP) Properties* window, and click the **OK** button in the *Local Area Connection Properties* window.
I. Restart the computer if asked.

For Windows NT 4.0:

A. Click **Start**, **Settings**, and **Control Panel**. Double-click the **Network** icon.
B. Click the **Protocol** tab, and double-click **TCP/IP Protocol**.
C. When the window appears, make sure you have selected the correct **Adapter** for your Ethernet adapter.
D. Select **Specify an IP address**, and enter a unique **IP address** that is not used by any other computer on the network connected to the Router. You can only use an IP address in the ranges 192.168.1.2 to 192.168.1.99 and 192.168.1.151 to 192.168.1.254.
E. Enter the Subnet Mask, **255.255.255.0**.
F. Enter the Default Gateway, **192.168.1.1** (Router's default IP address).
G. Click the **DNS** tab, and enter the **Host** and **Domain** names (e.g., John for Host and home for Domain). Under DNS Service Search Order, click the **Add** button. Enter the **DNS IP address** in the DNS Server field, and click the **Add** button. Repeat this action for all DNS IP addresses given by your ISP.
H. Click the **OK** button in the *TCP/IP Protocol Properties* window, and click the **Close** button in the *Network* window.
I. Restart the computer if asked.

For Windows XP:

The following instructions assume you are running Windows XP with the default interface. If you are using the Classic interface (where the icons and menus look like previous Windows versions), please follow the instructions for Windows 2000.

A. Click **Start** and **Control Panel**.
B. Click the **Network and Internet Connections** icon and then the **Network Connections** icon.
C. Right-click the **Local Area Connection** that is associated with the Ethernet adapter you are using, and select the **Properties** option.
D. In the *This connection uses the following items* box, highlight **Internet Protocol (TCP/IP)**. Click the **Properties** button.
E. Enter a unique **IP address** that is not used by any other computer on the network connected to the Router. You can only use an IP address in the ranges 192.168.1.2 to 192.168.1.99 and 192.168.1.151 to 192.168.1.254.
F. Enter the Subnet Mask, **255.255.255.0**.
G. Enter the Default Gateway, **192.168.1.1** (Router's default IP address).
H. Toward the bottom of the window, select **Use the following DNS server addresses**, and enter the **Preferred DNS server** and **Alternative DNS server** (provided by your ISP). Contact your ISP or go on its website to find the information.
I. Click the **OK** button in the *Internet Protocol (TCP/IP) Properties* window. Click the **OK** button in the *Local Area Connection Properties* window.

2. I want to test my Internet connection.

A. Check your TCP/IP settings.

For Windows 95, 98, and Me:
Refer to your Ethernet adapter's documentation for details. Make sure **Obtain IP address automatically** is selected in the settings.

For Windows 2000:

- Click **Start**, **Settings**, and **Control Panel**. Double-click **Network and Dial-Up Connections**.
- Right-click the **Local Area Connection** that is associated with the Ethernet adapter you are using, and select the **Properties** option.
- In the *Components checked are used by this connection* box, highlight **Internet Protocol (TCP/IP)**, and click the **Properties** button. Make sure that **Obtain an IP address automatically** and **Obtain DNS server address automatically** are selected.

- Click the **OK** button in the *Internet Protocol (TCP/IP) Properties* window, and click the **OK** button in the Local Area Connection Properties window.
- Restart the computer if asked.

For Windows XP:
The following instructions assume you are running Windows XP with the default interface. If you are using the Classic interface (where the icons and menus look like previous Windows versions), please follow the instructions for Windows 2000.

- Click **Start** and **Control Panel**.
- Click the **Network and Internet Connections** icon and then the **Network Connections** icon.• Right-click the **Local Area Connection** that is associated with the Ethernet adapter you are using, and select the **Properties** option.
- In the *This connection uses the following items* box, highlight **Internet Protocol (TCP/IP)**, and click the **Properties** button. Make sure that **Obtain an IP address automatically** and **Obtain DNS server address automatically** are selected.
- Click the **OK** button in the *Internet Protocol (TCP/IP) Properties* window, and click the **OK** button in the *Local Area Connection Properties* window.
- Restart the computer if asked.

For Windows NT 4.0:
- Click **Start**, **Settings**, and **Control Panel**. Double-click the **Network** icon.
- Click the **Protocol** tab, and double-click on **TCP/IP Protocol**.
- When the window appears, make sure you have selected the correct **Adapter** for your Ethernet adapter and set it for **Obtain an IP address from a DHCP server**.
- Click the **OK** button in the *TCP/IP Protocol Properties* window, and click the **Close** button in the *Network* window.
- Restart the computer if asked.

B. Open a command prompt.
- For **Windows 95, 98,** and **Me**, please click **Start** and **Run**. In the Open field, type in **command**. Press the **Enter** key or click the **OK** button.
- For **Windows NT, 2000,** and **XP**, please click **Start** and **Run**. In the Open field, type **cmd**. Press the **Enter** key or click the **OK** button.

C. In the command prompt, type **ping 192.168.1.1** and press the **Enter** key.
- If you get a reply, the computer is communicating with the Router.
- If you do NOT get a reply, please check the cable, and make sure **Obtain an IP address automatically** is selected in the TCP/IP settings for your Ethernet adapter.

D. In the command prompt, type **ping** *followed by your WAN IP address* and press the **Enter** key. The WAN IP Address can be found in the web interface of the Router. For example, if your WAN IP address is 1.2.3.4, you would enter **ping 1.2.3.4** and press the **Enter** key.
- If you get a reply, the computer is connected to the Router.
- If you do NOT get a reply, try the ping command from a different computer to verify that your original computer is not the cause of the problem.

E. In the command prompt, type **ping www.yahoo.com** and press the **Enter** key.
- If you get a reply, the computer is connected to the Internet. If you cannot open a webpage, try the ping command from a different computer to verify that your original computer is not the cause of the problem.
- If you do NOT get a reply, there may be a problem with the connection. Try the ping command from a different computer to verify that your original computer is not the cause of the problem.

3. I am not getting an IP address on the WAN with my Internet connection.

A. Refer to "Problem #2, I want to test my Internet connection" to verify that you have connectivity.
B. If you need to register the MAC address of your Ethernet adapter with your ISP, please see "Appendix F: Finding the MAC address and IP Address for Your Ethernet Adapter." If you need to clone the MAC address of your Ethernet adapter onto the Router, see the MAC Address Clone section of "Chapter 5: Using the Router's Web-based Utility" for details.
C. Make sure you are using the right WAN settings. Contact your ISP to see if your WAN connection type is DHCP, Static IP Address, or PPPoE (commonly used by DSL consumers). Please refer to the Setup section of "Chapter 5: Using the Router's Web-based Utility" for details on WAN settings.
D. Make sure you have the right cable. Check to see if the WAN column has a solidly lit Link LED.
E. Make sure the cable connecting from your cable or DSL modem is connected to the Router's WAN port. Verify that the Status page of the Router's web interface shows a valid IP address from your ISP.

F. Turn off the computer, Router, and cable/DSL modem. Wait 30 seconds, and then turn on the Router, cable/DSL modem, and computer. Check the Status tab of the Router's web-based utility to see if you get an IP address.

4. I am not able to access the Router's web interface Setup page.

A. Refer to "Problem #2, I want to test my Internet connection" to verify that your computer is properly connected to the Router.
B. Refer to "Appendix D: Finding the MAC Address and IP address for Your Ethernet Adapter" to verify that your computer has an IP Address, Subnet Mask, Gateway, and DNS.
C. Set a static IP address on your system; refer to "Problem #1: I need to set a static IP address."
D. Refer to "Problem #10: I need to remove the proxy settings or the dial-up pop-up window (for PPPoE users)."

5. I can't get my Virtual Private Network (VPN) working through the Router.

Access the Router's web interface by going to **http://192.168.1.1** or the **IP address** of the Router, and go to the **Advanced => Filter** tab. Make sure you have IPsec pass-through and/or PPTP pass-through enabled.

VPNs that use IPSec with the ESP (Encapsulation Security Payload known as protocol 50) authentication will work fine. At least one IPSec session will work through the Router; however, simultaneous IPSec sessions *may* be possible, depending on the specifics of your VPNs.

VPNs that use IPSec and AH (Authentication Header known as protocol 51) are incompatible with the Router. AH has limitations due to occasional incompatibility with the NAT standard.

Change the IP address for the Router to another subnet to avoid a conflict between the VPN IP address and your local IP address. For example, if your VPN server assigns an IP address 192.168.1.X (X is a number from 1 to 254) and your local LAN IP address is 192.168.1.X (X is the same number used in the VPN IP address), the Router will have difficulties routing information to the right location. If you change the Router's IP address to 192.168.2.1, that should solve the problem. Change the Router's IP address through the Setup tab of the web interface. If you assigned a static IP address to any computer or network device on the network, you need to change its IP address accordingly to 192.168.2.Y (Y being any number from 1 to 254). Note that each IP address must be unique within the network.

Your VPN may require port 500/UDP packets to be passed to the computer that is connecting to the IPSec server. Refer to "Problem #7, I need to set up online game hosting or use other Internet applications" for details.

Check the Linksys website for more information at *www.linksys.com*.

6. I need to set up a server behind my Router.

To use a server like a web, ftp, or mail server, you need to know the respective port numbers they are using. For example, port 80 (HTTP) is used for web; port 21 (FTP) is used for FTP, and port 25 (SMTP outgoing) and port 110 (POP3 incoming) are used for the mail server. You can get more information by viewing the documentation provided with the server you installed. Follow these steps to set up port forwarding through the Router's web-based utility. We will be setting up web, ftp, and mail servers.

A. Access the Router's web-based utility by going to **http://192.168.1.1** or the **IP address** of the Router. Go to the **Advanced => Forwarding** tab.
B. Enter any **name** you want to use for the Customized Application.
C. Enter the **Ext. Port range** of the service you are using. For example, if you have a web server, you would enter the range 80 to 80.
D. Check the **protocol** you will be using, TCP and/or UDP.
E. Enter the **IP address** of the PC or network device that you want the port server to go to. For example, if the web server's Ethernet adapter IP address is 192.168.1.100, you would enter 100 in the field provided. Check "Appendix D: Finding the MAC Address and IP Address for Your Ethernet Adapter" for details on getting an IP address.
F. Check the **Enable** option for the port services you want to use. Consider the example below:

Customized Application	Ext. Port	TCP	UDP	IP Address	Enable
Web server	80 to 80	X	X	192.168.1.100	X
FTP server	21 to 21	X		192.168.1.101	X
SMTP (outgoing)	25 to 25	X	X	192.168.1.102	X
POP3 (incoming)	110 to 110	X	X	192.168.1.102	X

When you have completed the configuration, click the **Apply** button.

7. I need to set up online game hosting or use other Internet applications.

If you want to play online games or use Internet applications, most will work without doing any port forwarding or DMZ hosting. There may be cases when you want to host an online game or Internet application. This would require you to set up the Router to deliver incoming packets or data to a specific computer. This also applies to the Internet applications you are using. The best way to get the information on what port services to use is to go to the website of the online game or application you want to use. Follow these steps to set up online game hosting or use a certain Internet application:

A. Access the Router's web interface by going to **http://192.168.1.1** or the **IP address** of the Router. Go to the **Advanced => Forwarding** tab.
B. Enter any **name** you want to use for the Customized Application.
C. Enter the **Ext. Port range** of the service you are using. For example, if you want to host Unreal Tournament (UT), you would enter the range 7777 to 27900.
D. Check the **protocol** you will be using, TCP and/or UDP.
E. Enter the **IP address** of the PC or network device that you want the port server to go to. For example, if the web server's Ethernet adapter IP address is 192.168.1.100, you would enter 100 in the field provided. Check "Appendix D: Finding the MAC Address and IP Address for Your Ethernet Adapter" for details on getting an IP address.
F. Check the **Enable** option for the port services you want to use. Consider the example below:

Customized Application	Ext. Port	TCP	UDP	IP Address	Enable
UT	7777 to 27900	X	X	192.168.1.100	X
Halflife	27015 to 27015	X	X	192.168.1.105	X
PC Anywhere	5631 to 5631		X	192.168.1.102	X
VPN IPSEC	500 to 500		X	192.168.1.100	X

When you have completed the configuration, click the **Apply** button.

8. I can't get the Internet game, server, or application to work.

If you are having difficulties getting any Internet game, server, or application to function properly, consider exposing one PC to the Internet using DeMilitarized Zone (DMZ) hosting. This option is available when an application requires too many ports or when you are not sure which port services to use. Make sure you disable all the forwarding entries if you want to successfully use DMZ hosting, since forwarding has priority over DMZ hosting. (In other words, data that enters the Router will be checked first by the forwarding settings. If the port number that the data enters from does not have port forwarding, then the Router will send the data to whichever PC or network device you set for DMZ hosting.) Follow these steps to set DMZ hosting:

A. Access the Router's web-based utility by going to **http://192.168.1.1** or the **IP address** of the Router. Go to the **Advanced => Forwarding** tab.
B. Disable or remove the entries you have entered for forwarding. Keep this information in case you want to use it at a later time.
C. Click the **DMZ Host** tab.
D. Enter the Ethernet adapter's **IP address** of the computer you want exposed to the Internet. This will bypass the NAT firewall for that computer. Please refer to "Appendix D: Finding the MAC Address and IP Address for Your Ethernet Adapter" for details on getting an IP address.

Once completed with the configuration, click the **Apply** button.

9. I forgot my password, or the password prompt always appears when saving settings to the Router.

Reset the Router to factory default by pressing the **Reset** button for 30 seconds and then releasing it. If you are still getting prompted for a password when saving settings, then perform the following steps:

A. Access the Router's web interface by going to **http://192.168.1.1** or the **IP address** of the Router. Enter the default password **admin**, and click the **Password** tab.
B. Enter a **different password** in the Router Password field, and enter the same password in the second field to confirm the password.
C. Click the **Apply** button.

10. I am a PPPoE user, and I need to remove the proxy settings or the dial-up pop-up window.

If you have proxy settings, you need to disable these on your computer. Because the Router is the gateway for the Internet connection, the computer does not need any proxy settings to gain access. Please follow these directions to verify that you do not have any proxy settings and that the browser you use is set to connect directly to the LAN.

For Microsoft Internet Explorer 5.0 or higher:

A. Click **Start**, **Settings**, and **Control Panel**. Double-click **Internet Options**.
B. Click the **Connections** tab.
C. Click the **LAN settings** button and remove anything that is checked.
D. Click the **OK** button to go back to the previous screen.
E. Click the option **Never dial a connection**. This will remove any dial-up pop-ups for PPPoE users.

For Netscape 4.7 or higher:

A. Start **Netscape Navigator**, and click **Edit**, **Preferences**, **Advanced**, and **Proxies**.
B. Make sure you have **Direct connection to the Internet** selected on this screen.
C. Close all the windows to finish.

11. To start over, I need to set the Router to factory default.

Hold the **Reset** button for up to 30 seconds and then release it. This will return the password, forwarding, and other settings on the Router to the factory default settings. In other words, the Router will revert to its original factory configuration.

12. I need to upgrade the firmware.

In order to upgrade the firmware with the latest features, you need to go to the Linksys website and download the latest firmware at *www.linksys.com*. Follow these steps:

A. Go to the Linksys website at **http://www.linksys.com** and download the latest firmware.
B. To upgrade the firmware, follow the steps in the Help section found in "Chapter 5: Using the Router's Web-based Utility."

13. The firmware upgrade failed, and/or the Diag LED is flashing.

The upgrade could have failed for a number of reasons. Follow these steps to upgrade the firmware and/or make the Diag LED stop flashing:

A. If the firmware upgrade failed, use the **TFTP** program (it was downloaded along with the firmware). Open the pdf that was downloaded along with the firmware and TFTP program, and follow the pdf's instructions.
B. Set a **static IP address** on the PC; refer to "Problem #1, I need to set a static IP address." Use the following IP address settings for the computer you are using:

IP Address: 192.168.1.50
Subnet Mask: 255.255.255.0
Gateway: 192.168.1.1

C. Perform the upgrade using the TFTP program or the Router's web-based utility through its Help tab.

14. My DSL service's PPPoE is always disconnecting.

PPPoE is not actually a dedicated or always-on connection. The DSL ISP can disconnect the service after a period of inactivity, just like a normal phone dial-up connection to the Internet. There is a setup option to "keep alive" the connection. This may not always work, so you may need to re-establish connection periodically.

A. To connect to the Router, go to the web browser, and enter **http://192.168.1.1** or the **IP address** of the Router.
B. Enter the **password**, if asked. (The default password is **admin**.)
C. In the Setup tab, select the option **Keep Alive**, and set the **Redial Period** option at **20** (seconds).
D. Click the **Apply** button.
E. Click the **Status** tab, and click the **Connect** button.
F. You may see the login status display as **Connecting**. Press the **F5** key to refresh the screen, until you see the login status display as **Connected**.
G. Click the **Apply** button to continue.

If the connection is lost again, follow steps E to G to re-establish connection.

15. I can't access my email, web, or VPN, or I am getting corrupted data from the Internet.

The Maximum Transmission Unit (MTU) setting may need to be adjusted. By default, the MTU is set at 1500. For most DSL users, it is strongly recommended to use MTU 1492. If you are having some difficulties, perform the following steps:

A. To connect to the Router, go to the web browser, and enter **http://192.168.1.1** or the **IP address** of the Router.
B. Enter the password, if asked. (The default password is **admin**.)
C. Click the **Advanced => Filter** tab.
D. Look for the MTU option, and select **Enable**. In the Size field, enter **1492**.
E. Click the **Apply** button to continue.

If your difficulties continue, change the **Size** to different values. Try this list of values, one value at a time, in this order, until your problem is solved:

1462
1400
1362
1300

16. I need to use port triggering.

Port triggering looks at the outgoing port services used and will trigger the Router to open a specific port, depending on which port an Internet application uses. Follow these steps:

A. To connect to the Router, go to the web browser, and enter **http://192.168.1.1** or the **IP address** of the Router.
B. Enter the password, if asked. (The default password is **admin**.)
C. Click the **Advanced => Forwarding** tab, and click the **Port Trigger** button.
D. Enter any **name** you want to use for the Application Name.
E. Enter the **Triggered Port Range**. Check with your Internet application provider for more information on which outgoing port services it is using.
F. Enter the **Incoming Port Range**. Check with your Internet Application provider for more information on which incoming port services are required by the Internet application.

17. The Diag LED stays lit continuously.

- The Diag LED lights up when the device is first powered up. Meantime, the system will boot up itself and check for proper operation. After finishing the checking procedure, the LED turns off to show that the system is working fine. If the LED remains lit after this time, the device is not working properly. Try to flash the firmware by assigning a static IP address to the computer, and then upgrade the firmware. Try using the following settings, IP Address: 192.168.1.50 and Subnet Mask: 255.255.255.0.

18. When I enter a URL or IP address, I get a time-out error or am prompted to retry.

- Check if other PCs work. If they do, ensure that your workstation's IP settings are correct (IP Address, Subnet Mask, Default Gateway, and DNS). Restart the computer that is having a problem.
- If the PCs are configured correctly, but still not working, check the Router. Ensure that it is connected and ON. Connect to it and check its settings. (If you cannot connect to it, check the LAN and power connections.)
- If the Router is configured correctly, check your Internet connection (DSL/cable modem, etc.) to see if it is working correctly. You can remove the Router to verify a direct connection.
- Manually configure the TCP/IP with a DNS address provided by your ISP.
- Make sure that your browser is set to connect directly and that any dial-up is disabled. For Internet Explorer, click **Tools**, **Internet Options**, and then the **Connection** tab. Make sure that Internet Explorer is set to **Never dial a connection**. For Netscape Navigator, click **Edit**, **Preferences**, **Advanced**, and **Proxy**. Make sure that Netscape Navigator is set to **Direct connection to the Internet**.

19. The Full/Col LED keeps flickering continuously.

- Check the Category 5 Ethernet cable and its RJ-45 connectors.
- There may be interference with other network devices. Try removing other PCs or network devices to see if the problem persists. Eliminate each network device one at a time to determine the cause.

Frequently Asked Questions

What is the maximum number of IP addresses that the Router will support? The Router will support up to 253 IP addresses.

Is IPSec Pass-Through supported by the Router? Yes, it is a built-in feature that the Router automatically enables.

Where is the Router installed on the network? In a typical environment, the Router is installed between the cable/DSL modem and the LAN. Plug the Router into the cable/DSL modem's Ethernet port.

Does the Router support IPX or AppleTalk? No. TCP/IP is the only protocol standard for the Internet and has become the global standard for communications. IPX, a NetWare communications protocol used only to route messages from one node to another, and AppleTalk, a communications protocol used on Apple and Macintosh networks, can be used for LAN to LAN connections, but those protocols cannot connect from WAN to LAN.

Does the WAN connection of the Router support 100 Mbps Ethernet? Because of the speed limitations of broadband Internet connections, the Router's current hardware design supports 10 Mbps Ethernet on its WAN port. It does, of course, support 100 Mbps over the auto-sensing Fast Ethernet 10/100 switch on the LAN side of the Router.

What is **Network Address Translation** and what is it used for? Network Address Translation (NAT) translates multiple IP addresses on the private LAN to one public address that is sent out to the Internet. This adds a level of security since the address of a PC connected to the private LAN is never transmitted on the Internet. Furthermore, NAT allows the Router to be used with low cost Internet accounts, such as DSL or cable modems, when only one TCP/IP address is provided by the ISP. The user may have many private addresses behind this single address provided by the ISP.

Does the Router support any operating system other than Windows 95, Windows 98, Windows 2000, Windows NT, or Windows XP? Yes, but Linksys does not, at this time, provide technical support for setup, configuration or troubleshooting of any non-Windows operating systems.

Does the Router support ICQ send file? Yes, with the following fix: click **ICQ menu -> preference -> connections tab->**, and check **I am behind a firewall or proxy**. Then set the firewall time-out to **80** seconds in the firewall setting. The Internet user can then send a file to a user behind the Router.

I set up an Unreal Tournament Server, but others on the LAN cannot join. What do I need to do? If you have a dedicated Unreal Tournament server running, you need to create a static IP for each of the LAN computers and forward ports 7777, 7778, 7779, 7780, 7781, and 27900 to the IP address of the server. You can also use a port forwarding range of 7777 ~ 27900. If you want to use the UT Server Admin, forward another port (8080 usually works well but is used for remote admin. You may have to disable this.), and then in the [UWeb.WebServer] section of the server.ini file, set the ListenPort to 8080 (to match the mapped port above) and ServerName to the IP assigned to the Router from your ISP.

Can multiple gamers on the LAN get on one game server and play simultaneously with just one public IP address? It depends on which network game or what kind of game server you are using. For example, Unreal Tournament supports multi-login with one public IP.

How do I get *Half-Life: Team Fortress* to work with the Router? The default client port for Half-Life is 27005. The computers on your LAN need to have "+clientport 2700x" added to the HL shortcut command line; the x would be 6, 7, 8, and on up. This lets multiple computers connect to the same server. *One problem:* Version 1.0.1.6 won't let multiple computers with the same CD key connect at the same time, even if on the same LAN (not a problem with 1.0.1.3). As far as hosting games, the HL server does not need to be in the DMZ. Just forward port 27015 to the local IP address of the server computer.

How can I block corrupted FTP downloads? If you are experiencing corrupted files when you download a file with your FTP client, try using another FTP program.

The web page hangs; downloads are corrupt, or nothing but junk characters are being displayed on the screen. What do I need to do? Force your Ethernet adapter to 10Mbps or half duplex mode, and turn off the "Auto-negotiate" feature of your Ethernet adapter as a temporary measure. (Please look at the Network Control Panel in your Ethernet adapter's Advanced Properties tab.)

Make sure that your proxy setting is disabled in the browser. Check our website at *www.linksys.com* for more information.

If all else fails in the installation, what can I do? Reset the Router by holding down the reset button until the Diag LED fully turns on and off. Reset your cable or DSL modem by powering the unit off and then on. Obtain and flash the latest firmware release that is readily available on the Linksys website, *www.linksys.com*.

How will I be notified of new Router firmware upgrades? All Linksys firmware upgrades are posted on the Linksys website at *www.linksys.com*, where they can be downloaded for free. The Router's firmware can be upgraded with TFTP programs. If the Router's Internet connection is working well, there is no need to download a newer firmware version, unless that version contains new features that you would like to use. Downloading a more current version of Router firmware will not enhance the quality or speed of your Internet connection, and may disrupt your current connection stability.

Will the Router function in a Macintosh environment? Yes, but the Router's setup pages are accessible only through Internet Explorer 4.0 or Netscape Navigator 4.0 or higher for Macintosh.

I am not able to get the web configuration screen for the Router. What can I do? You may have to remove the proxy settings on your Internet browser, e.g., Netscape Navigator or Internet Explorer. Or remove the dial-up settings on your browser. Check with your browser documentation, and make sure that your browser is set to connect directly and that any dial-up is disabled. Make sure that your browser is set to connect directly and that any dial-up is disabled. For Internet Explorer, click **Tools**, **Internet Options**, and then the **Connection** tab. Make sure that Internet Explorer is set to **Never dial a connection**. For Netscape Navigator, click **Edit**, **Preferences**, **Advanced**, and **Proxy**. Make sure that Netscape Navigator is set to **Direct connection to the Internet**.

What is DMZ Hosting? Demilitarized Zone (DMZ) allows one IP address (computer) to be exposed to the Internet. Some applications require multiple TCP/IP ports to be open. It is recommended that you set your computer with a static IP if you want to use DMZ Hosting. To get the LAN IP address, see "Appendix D: Finding the MAC Address and IP Address for Your Ethernet Adapter."

If DMZ Hosting is used, does the exposed user share the public IP with the Router? No.

Does the Router pass PPTP packets or actively route PPTP sessions? The Router allows PPTP packets to pass through.

Is the Router cross-platform compatible? Any platform that supports Ethernet and TCP/IP is compatible with the Router.

How many ports can be simultaneously forwarded? Theoretically, the Router can establish 520 sessions at the same time, but you can only forward 10 ranges of ports.

Does the Router replace a modem? Is there a cable or DSL modem in the Router? No, this version of the Router must work in conjunction with a cable or DSL modem.

Which modems are compatible with the Router? The Router is compatible with virtually any cable or DSL modem that supports Ethernet.

What are the advanced features of the Router? The Router's advanced features include IP Filtering, Port Range Forwarding, Dynamic Routing, Static Routing, DMZ hosting, and MAC Address Cloning.

What is the maximum number of VPN sessions allowed by the Router? The maximum number depends on many factors. At least one IPSec session will work through the Router; however, simultaneous IPSec sessions *may* be possible, depending on the specifics of your VPNs.

How big is the memory buffer on the Router? 1MB buffer and 512KB flash.

How can I check whether I have static or DHCP IP Addresses? Consult your ISP to obtain this information.

How do I get mIRC to work with the Router? Under the Port Range Forwarding tab, set port forwarding to 113 for the PC on which you are using mIRC.

Can the Router act as my DHCP Server? Yes. The Router has DHCP Server software built-in.

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 documentation to determine if it supports operation over a network.

What is the IEEE 802.11b standard? The IEEE 802.11b Wireless LAN standards subcommittee formulates the standard for the industry. The objective is to enable wireless LAN hardware from different manufacturers to communicate.

What IEEE 802.11 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

What is BSS ID? A specific Ad-hoc LAN is called a Basic Service Set (BSS). Computers in a BSS must be configured with the same BSS ID.

What is SSID? An Infrastructure configuration could also support roaming capability for mobile workers. More than one BSS can be configured as an Extended Service Set (ESS). Users within an ESS could roam freely between BSSs while maintaining a continuous connection to the wireless network stations and Access Points.

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. 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? WLAN features two-fold protection in security. On the hardware side, as with Direct Sequence Spread Spectrum technology, it has the inherent security feature of scrambling. On the software side, the WLAN series offers 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.

What is a MAC Address? The Media Access Control (MAC) 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. For all practical purposes, this number is usually permanent. Unlike IP addresses, which can change every time a computer logs on to the network, the MAC address of a device stays the same, making it a valuable identifier for the network.

If your questions are not addressed here, refer to the Linksys website, *www.linksys.com.*

Appendix B: How to Ping Your ISP's E-mail and Web Addresses

Virtually all Internet addresses are configured with words or characters (i.e., www.linksys.com, www.yahoo.com, etc.) In actuality, however, these Internet addresses are assigned to IP addresses, which are the true addresses on the Internet. For example, www.linksys.com is actually 216.23.162.142. Entering that into your web browser will bring up at the Linksys home page every time.

IP and web addresses, however, can sometimes be long and hard to remember. Because of this, certain ISPs will shorten their server addresses to single words or codes on their users' web browser or e-mail configurations. If your ISP's e-mail and web server addresses are configured with single words ("www," "e-mail," "home," "pop3," etc.) rather than whole Internet Addresses or IP Addresses, the Router may have problems sending or receiving mail and accessing the Internet. This happens because the Router has not been configured by your ISP to accept their abbreviated server addresses.

The solution is to determine the true web addresses behind your ISP's code words. You can determine the IP and web addresses of your ISP's servers by "pinging" them.

Note: If you don't have your ISP's web and e-mail IP addresses, you must either get them from your ISP or follow these steps prior to connecting the Router to your network.

Step One: Pinging an IP Address

The first step to determining your ISP's web and e-mail server address is to ping its IP address.

1. **Power on the computer and the cable or DSL modem**, and restore the network configuration set by your ISP if you have since changed it.

2. **Click Start**, then **Run,** and type "command." This will bring up the DOS window.

3. **At the DOS command prompt**, type "ping mail" (assuming that the location for which you're trying to find an IP address is configured as "mail"). Press **Enter**. Information such as the following data, taken from a ping of Microsoft Network's e-mail server, will be displayed.

```
C:\>ping mail

Pinging mail [24.53.32.4] with 32 bytes of data:

Reply from 24.53.32.4: bytes=32 time<10ms TTL=128
Reply from 24.53.32.4: bytes=32 time<10ms TTL=128
Reply from 24.53.32.4: bytes=32 time<10ms TTL=128
Reply from 24.53.32.4: bytes=32 time<10ms TTL=128

Ping statistics for 24.53.32.4:
    Packets: Sent = 4, Received = 4, Lost = 0 (0%
   loss),
Approximate round trip times in milli-seconds:
    Minimum = 0ms, Maximum =  0ms, Average =  0ms
```

4. **Write down the IP address returned by the ping command**. (In the example above: 24.53.32.4.) This IP address is the actual IP address of the server "mail," or any other word or value you have pinged.

Step Two: Pinging for a Web Address

While the IP address returned above would work as your e-mail server address, it may not be permanent. IP addresses change all the time. Web addresses, however, usually don't. Because of this, you're likely to have fewer problems by configuring your system with web addresses rather than IP addresses. Follow the instructions below to find the web address assigned to the IP address you just pinged.

1. **At the DOS command prompt**, type "ping -a 24.53.32.4," where 24.53.32.4 is the IP address you just pinged. Information such as the following data will be displayed.

```
C:\>ping -a 24.53.32.4

Pinging mail.msnv3.occa.home.com [24.53.32.4] with
   32 bytes of data:

Reply from 24.53.32.4: bytes=32 time<10ms TTL=127
Reply from 24.53.32.4: bytes=32 time<10ms TTL=127
Reply from 24.53.32.4: bytes=32 time<10ms TTL=127
Reply from 24.53.32.4: bytes=32 time<10ms TTL=127

Ping statistics for 24.53.32.4:
     Packets: Sent = 4, Received = 4, Lost = 0 (0%
   loss),
Approximate round trip times in milli-seconds:
     Minimum = 0ms, Maximum =  0ms, Average =  0ms
```

2. **Write down the web address returned by the ping command** (in the example above: mail.msnv3.occa.home.com.). This web address is the web address assigned to the IP address you just pinged. While the IP address of "mail" could conceivably change, it is likely that this web address will not.

3. **Replace your ISP's abbreviated server address** with this extended web address in the corresponding Internet application (web browser, e-mail application, etc.).

Once you have replaced the brief server address with the true server address, the Router should have no problem accessing the Internet through that Internet application.

Appendix C: Configuring Wireless Security

Note: WEP encryption is an additional data security measure and not essential for router operation.

An acronym for Wired Equivalent Privacy, WEP is an encryption method used to protect your wireless data communications. WEP uses a combination of 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 point in a network must use an identical 64-bit or 128-bit key. Higher encryption levels mean higher levels of security, but due to the complexity of the encryption, they may mean decreased network performance.

You may also have heard the term "40-bit" used in conjunction with WEP encryption. This is simply another term for 64-bit WEP encryption. This level of WEP encryption has been called 40-bit because it uses a 40-bit secret key along with a 24-bit Initialization Vector (40 + 24 = 64). Wireless vendors may use either name. Linksys uses the term "64-bit" when referring to this level of encryption.

Make sure your wireless network is functioning before attempting to configure WEP encryption.

A 128-bit WEP encrypted wireless network will NOT communicate with a 64-bit WEP encrypted wireless network. Therefore, make sure that all of your wireless devices are using the same encryption level. All wireless devices complying with the 802.11b standard will support 64-bit WEP.

In addition to enabling WEP, Linksys also recommends the following security implementations:
• Changing the SSID from the default "linksys"
• Changing the WEP key regularly

Note: In order for WEP Encryption to be enabled, wireless functions must first be enabled. Select **Enable** under the Wireless section before proceeding.

The following steps will show you how to utilize WEP encryption

1. From the Web-based Utility's Setup tab, select **Mandatory** under the WEP section.

2. Press the **WEP Key Setting** button to set the WEP Encryption type and level.

3. The screen displayed in Figure C-1 may appear, verifying that you are enabling WEP Encryption. Press the **OK** button to continue.

Figure C-1

4. This will display the screen shown in Figure C-2. From this screen, you will choose your WEP Encryption settings.

Figure C-2

- **WEP (64Bit or 128B)** Select the level of encryption from the drop-down box. 128-bit WEP encryption is unique to Linksys and may conflict with other vendors' WEP encryption.

Note: In order to utilize WEP encryption, all points in your wireless network must have WEP enabled and be set to the same Key Setting.

The WEP Encryption key is generated in one of two ways:

1. You may create an encryption key by using a **Passphrase.**

   a. Enter a Passphrase, a user-defined password, into the **Passphrase** field. The Passphrase can be a maximum of 31 letters, symbols, and numbers. No spaces can be used.

   b. Click the **Generate** button to create a key. The key will be 10 digits if you chose 64-bit encryption, or 26 digits if you chose 128-bit encryption. This key will be used to encrypt and decrypt the data being sent between the Router and your network's wireless PCs.

   The Key field may not display all digits. Using the mouse, click anywhere within the Key field. Move the cursor to the right to view the rest of the Key. Make sure your write down the entire Key EXACTLY the way it is displayed.

2. You may enter the encryption key manually.

Make a note of the Passphrase or Manual Key. You will need it for the other wireless devices on the network, as the same WEP encryption key must be entered in all wireless devices on the network.

Once you have chosen your key encryption method and entered either the Passphrase or manual key, click the **Apply** button, and the encryption portion of the setup is complete.

Note: In Windows XP, a 128-bit Key generated by the Router will be called a "104 bits (26 digits)" key, and a 64-bit Key generated by the Router will be called a "40 bits (10 digits)" key.

Configuring Wireless Security in Windows XP

As Windows XP does not allow for the use of the Linksys Passphrase feature with the wireless PC adapters, you will need to manually enter the key generated in the previous section.

The following steps will help you enable WEP and enter the encryption key manually for your wireless PC cards, in order to enable your Windows XP system to communicate with the Router wirelessly.

These steps assume that your CD-ROM drive is letter D and that you are running Windows XP in the default mode.

Be sure you have the WEP Key generated by the Router.

1. As shown in Figure C-3, click the **Start** button and go to the **Control Panel**.

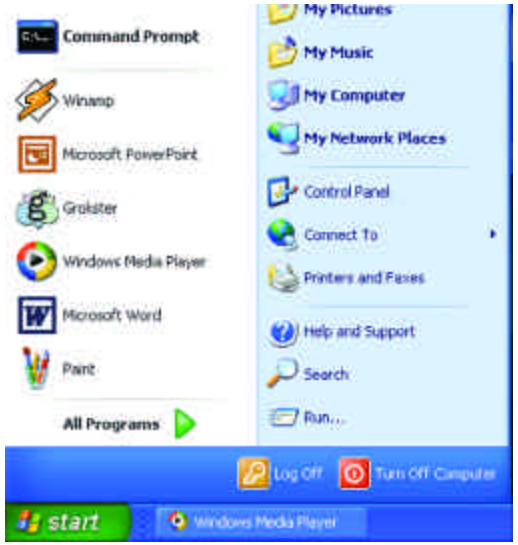

Figure C-3

2. In the "Control Panel" window, click the **Network and Internet Connections** icon, shown in Figure C-4.

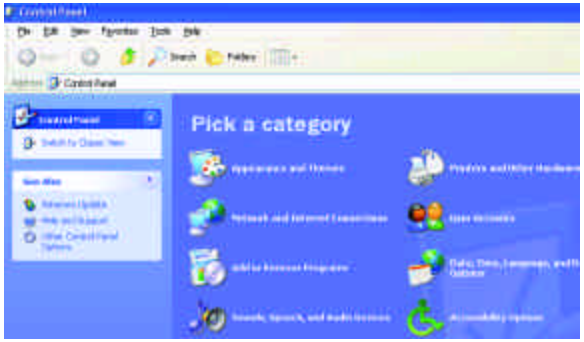

Figure C-4

3. Click the **Network Connections** icon, shown in Figure C-5.

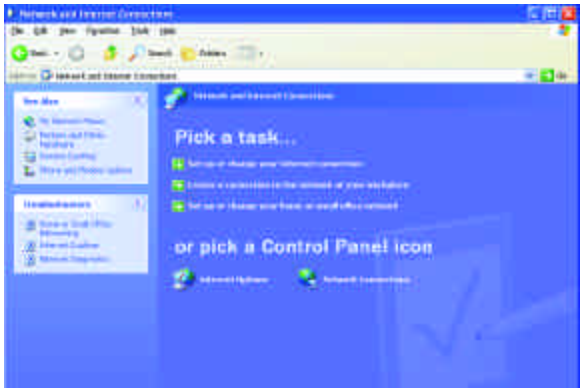

Figure C-5

4. The "Network Connections" window will appear, as shown in Figure C-6. Under LAN or High-Speed Internet you will see all Network cards that are installed and operating in your computer. Double-click the **Wireless Network Connection** icon associated with your wireless adapter.

   If the "Wireless Network Connection Status" window appears, continue to the next step

If a "Connect to Wireless Network" window appears, in the Available Networks section, click the desired wireless network, specified by the Router's SSID. Then, double-click the **Wireless Network Connection** icon.

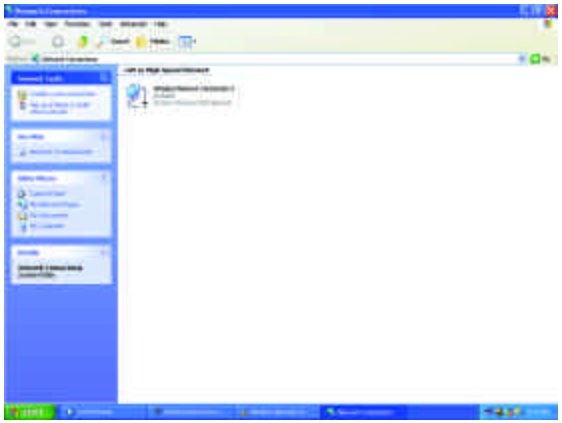

Figure C-6

5. When the "Wireless Network Connection Status" window appears, as in Figure C-7, click the **Properties** button.

Figure C-7

6. When the "Wireless Network Connection Properties" window appears, as in Figure C-8, click the **Wireless Networks** Tab.

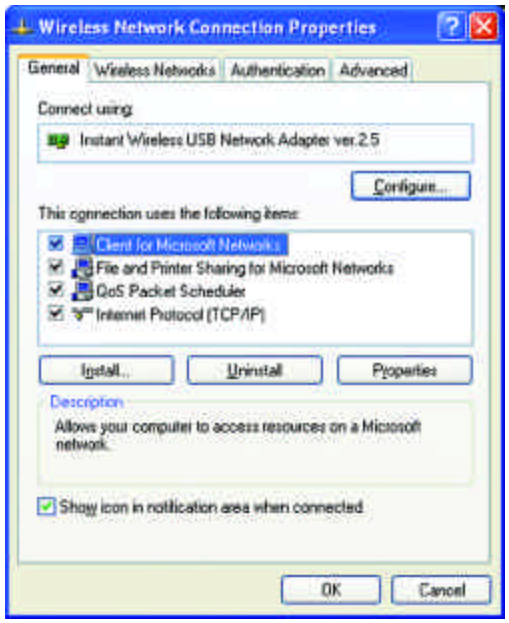

Figure C-8

7. If the appropriate wireless network, specified by the Router's SSID, is displayed in the "Preferred networks" section, as shown in Figure C-9, double-click it and continue to the next step.

   Otherwise, click on the appropriate wireless network, specified by the Router's SSID, in the "Available networks" section. Then, click the **Configure** button

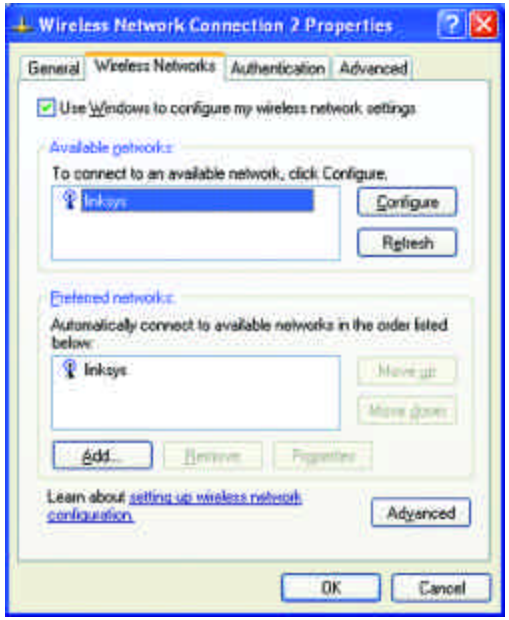

Figure C-9

8. The “Wireless Network Properties” window (shown in Figure C-10) will appear.

   Click the check box for the **Data encryption (WEP enabled)** option.

   Remove the check from the **Network Authentication (Shared mode)** and **The key is provided for me automatically** fields.

   In the "Network key" field, enter the exact Key (all 10 or 26 digits, depending on the level of encryption) generated by the Router.

   Verify that the “Key format” field displays “Hexadecimal digits” and that the “Key length” field displays either “40 bits (10 digits)” or “104 bits (26 digits)”. If this is not displayed, you have entered the key incorrectly.

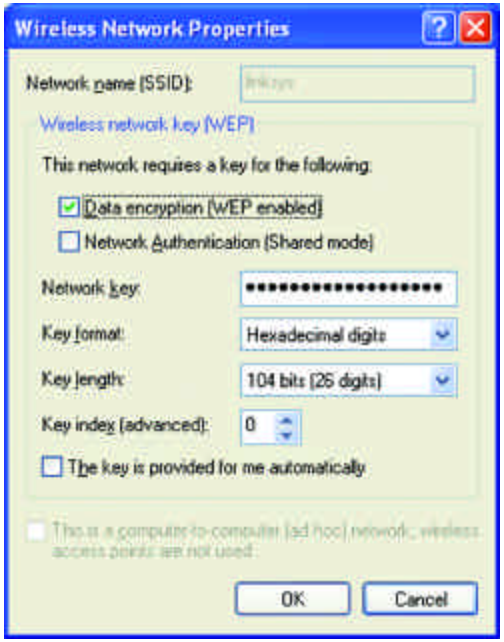

Figure C-10

   Click the **OK** button to save the settings. Click on **OK** buttons until you get back to the “Wireless Network Connection Status” window. Close any open windows to get back to the Windows XP desktop.

Close any applications and reboot your PC. After reboot, WEP configuration is complete and you should be able to connect wirelessly to the Router.

Appendix D: Finding the MAC Address and IP Address for Your Ethernet Adapter

This section describes how to find the MAC address for your Ethernet adapter to do either MAC Filtering or MAC Address Cloning for the Router and ISP. You can also find the IP address of your computer’s Ethernet adapter. The IP address is used for filtering, forwarding, and DMZ. Follow these steps to find the MAC address or IP address for your adapter in Windows 95, 98, ME, NT, 2000, and XP.

For Windows 95, 98, and ME:

1. Click on **Start** and **Run**. In the Open field, enter **winipcfg**, as shown in Figure D-1. Then press the **Enter** key or the **OK** button.

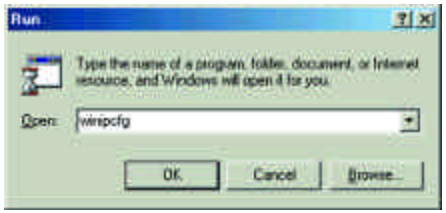

Figure D-1

2. When the IP Configuration window appears, as shown in Figure D-2, select the Ethernet adapter you are using to connect to the Router via a CAT 5 Ethernet cable.

Figure D-2

3. Write down the Adapter Address as shown on your computer screen (see Figure D-3). This is the MAC address for your Ethernet adapter and will be shown as a series of numbers and letters.

   The MAC address/Adapter Address is what you will use for MAC Address Cloning or MAC Filtering.

Figure D-3

The example in Figure F-3 shows the IP address of your Ethernet adapter as 192.168.1.100. Your computer may show something different.

Note: The MAC address is also called the Adapter Address.

For Windows NT, 2000, and XP:

The following steps show an alternative way of obtaining the MAC address and IP address for your Ethernet adapter.

1. Click on **Start** and **Run**. In the Open field, enter **cmd**, as shown in Figure D-4. Press the **Enter** key or click the **OK** button.

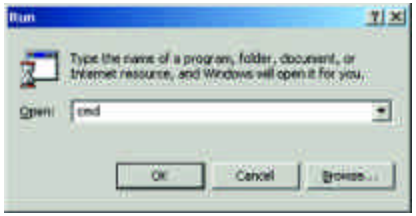

Figure D-4

2. In the command prompt, enter **ipconfig /all**. Then press the **Enter** key.

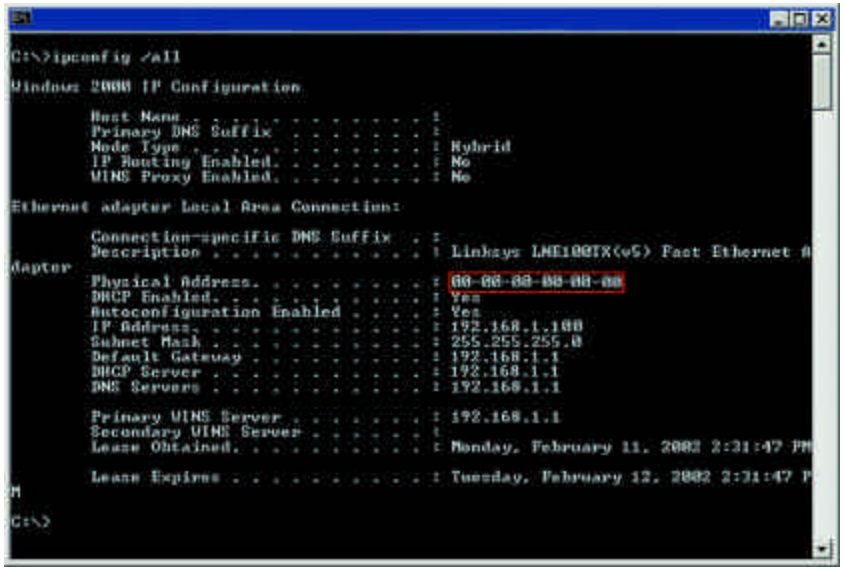

Figure D-5

3. Write down the Physical Address as shown on your computer screen; it is the MAC address for your Ethernet adapter. This will appear as a series of letters and numbers.

   The MAC address/Physical Address is what you will use for MAC Address Cloning or MAC Filtering.

Note: The MAC address is also called the Physical Address.

The example in Figure D-5 shows the IP address of your Ethernet adapter as 192.168.1.100. Your computer may show something different.

When entering the information using the Router's web-based utility, you will type the **12-digit MAC address** in this format, XXXXXXXXXXXX ***without the hyphens*** for MAC Filtering. See Figure D-6.

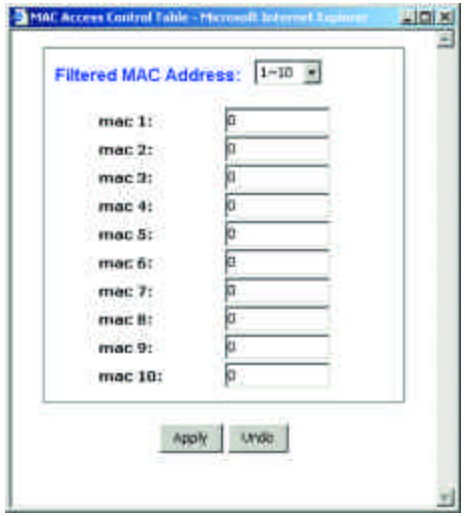

Figure D-6

When entering information for MAC Address Cloning, type the **12-digit MAC address** (see Figure D-7).

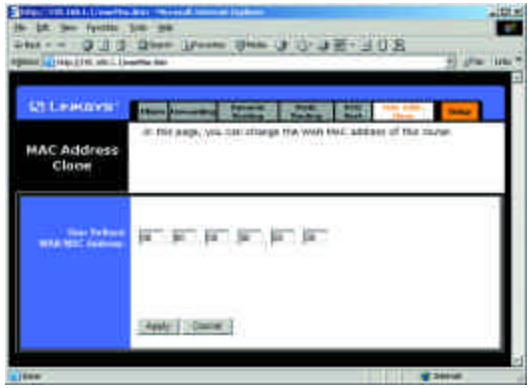

Figure D-7

Appendix E: Setting Up AOL® Broadband Cable & DSL

This document provides instructions for setting up the Router using firmware version 1.43 or above to work with AOL Broadband via a Cable or DSL connection. This Router's AOL Parental Controls feature is available for AOL customers in the US only. Please follow the instructions in the appropriate section below to configure for AOL Broadband for the type of broadband connection you have.

Note: You must install AOL 7.0 or above to all computers using AOL Services. Those with earlier versions of AOL can find details at AOL Keyword: Linksys Setup.

Note: Some of the screens in this section may look slightly different than what appears on your screen.

AOL Broadband via Cable

1. Open your web browser. Enter **http://192.168.1.1** in the web browser's Address field, as shown in Figure E-1, and press the **Enter** key.

Figure E-1

2. A password request page, shown in Figure E-2 will appear. (Windows XP users will see a Connect to 192.168.1.1 window slightly different from that shown). Leave the User Name field blank, and enter **admin** in the Password field. Then click the **OK** button.

Figure E-2

3. From the *Setup* screen that appears, shown in Figure E-3, select **Obtain an IP automatically** from the WAN Connection Type drop-down menu. Then, click the **Security** tab.

Figure E-3

4. Select **Enable** for AOL Parental Controls from the *Security* tab, shown in Figure E-4, and click the **OK** button on the screen that appears. Enabling this will disable all options under the Advanced tab except MAC Address cloning.

   Then, click the **OK** button to save these settings. Click the **X** button on the top right side of the window to close it.

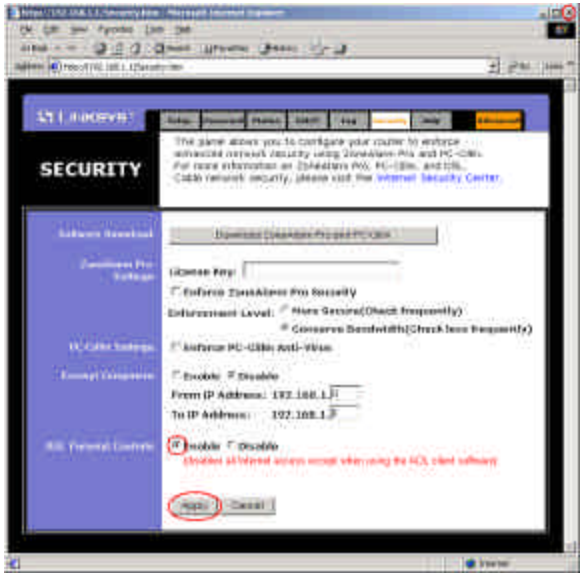

Figure E-4

Note: AOL Parental Controls are available to AOL customers in the Unites States Only.

AOL Broadband via DSL

1. Open your web browser. Enter **http://192.168.1.1** in the web browser's Address field, as shown in Figure E-5, and press the **Enter** key.

Figure E-5

2. A password request page, shown in Figure E-6 will appear. (Windows XP users will see a Connect to 192.168.1.1 window slightly different from that shown). Leave the User Name field blank, and enter **admin** in the Password field. Then click the **OK** button.

Figure E-6

3. From the *Setup* screen that appears, shown in Figure E-7, select **PPPoE** from the WAN Connection Type drop-down menu. Enter **america online** for the User Name. In the password field, multiple asterisks will appear. Keep these settings and click the **Apply** button to save them. Click the **X** button on the top right side of the window to close it.

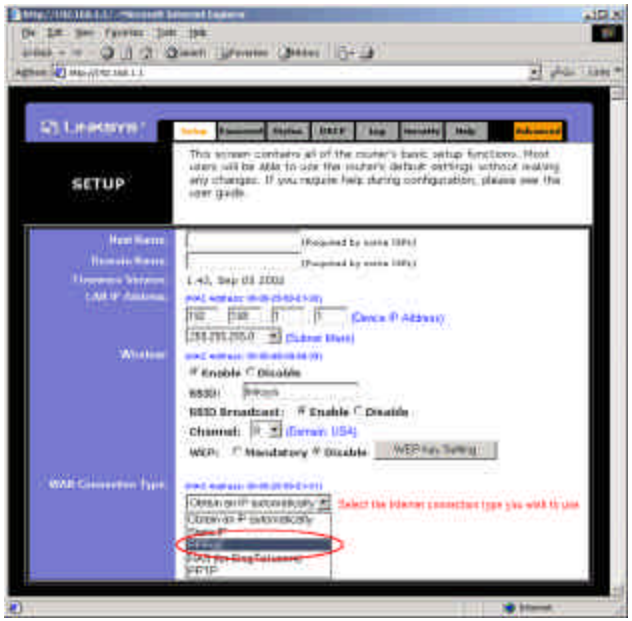

Figure E-7

Appendix F: Glossary

10BaseT - An Ethernet standard that uses twisted wire pairs.

100BaseTX - IEEE physical layer specification for 100 Mbps over two pairs of Category 5 wire.

Adapter - Printed circuit board that plugs into a PC to add to capabilities or connectivity to a PC. In a networked environment, a network interface card is the typical adapter that allows the PC or server to connect to the intranet and/or Internet.

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.

AppleTalk - An Apple Computer networking system that support Apple's proprietary local talk.

Auto-negotiate - To automatically determine the correct settings. The term is often used with communications and networking. For example, Ethernet 10/100 cards, hubs and switches can determine the highest speed of the node they are connected to and adjust their transmission rate accordingly.

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

Bandwidth - The transmission capacity of a given facility, in terms of how much data the facility can transmit in a fixed amount of time; expressed in bits per second (bps).

Beacon Interval - A beacon is a packet broadcast by the Access Point to keep the network synchronized. A beacon includes the wireless LAN service area, the AP address, the Broadcast destination addresses, a time stamp, Delivery Traffic Indicator Maps, and the Traffic Indicator Message (TIM).

Bit - A binary digit. The value - 0 or 1-used in the binary numbering system. Also, the smallest form of data.

Boot - To cause the computer to start executing instructions. Personal computers contain built-in instructions in a ROM chip that are automatically executed on startup. These instructions search for the operating system, load it and pass control to it.

Broadband - A data-transmission scheme in which multiple signals share the bandwidth of a medium. This allows the transmission of voice, data and video signals over a single medium. Cable television uses broadband techniques to deliver dozens of channels over one cable.

Browser - A browser is an application program that provides a way to look at and interact with all the information on the World Wide Web or PC. The word "browser" seems to have originated prior to the Web as a generic term for user interfaces that let you browse text files online.

BSS (**B**asic **S**ervice **S**et) - An infrastructure network connecting wireless devices to a wired network using a single access point.

Buffer - A buffer is a shared or assigned memory area used by hardware devices or program processes that operate at different speeds or with different sets of priorities. The buffer allows each device or process to operate without being held up by the other. In order for a buffer to be effective, the size of the buffer and the algorithms for moving data into and out of the buffer need to be considered by the buffer designer. Like a cache, a buffer is a "midpoint holding place" but exists not so much to accelerate the speed of an activity as to support the coordination of separate activities.

Cable Modem - A device that connects a computer to the cable television network, which in turn connects to the Internet. Once connected, cable modem users have a continuous connection to the Internet. Cable modems feature asymmetric transfer rates: around 36 Mbps downstream (from the Internet to the computer), and from 200 Kbps to 2 Mbps upstream (from the computer to the Internet).

CAT 5 - ANSI/EIA (American National Standards Institute/Electronic Industries Association) Standard 568 is one of several standards that specify "categories" (the singular is commonly referred to as "CAT") of twisted pair

cabling systems (wires, junctions, and connectors) in terms of the data rates that they can sustain. CAT 5 cable has a maximum throughput of 100 Mbps and is usually utilized for 100BaseTX networks.

CAT 5e - The additional cabling performance parameters of return loss and far-end crosstalk (FEXT) specified for 1000BASE-T and not specified for 10BASE-T and 100BASE-TX are related to differences in the signaling implementation. 10BASE-T and 100BASE-TX signaling is unidirectional-signals are transmitted in one direction on a single wire pair. In contrast, Gigabit Ethernet is bi-directional-signals are transmitted simultaneously in both directions on the same wire pair; that is, both the transmit and receive pair occupy the same wire pair.

CSMA/CA (**C**arrier **S**ense **M**ultiple **A**ccess/**C**ollision **A**voidance) - In local area networking, this is the CSMA technique that combines slotted time-division multiplexing with carrier sense multiple access/collision detection (CSMA/CD) to avoid having collisions occur a second time. This works best if the time allocated is short compared to packet length and if the number of situations is small.

Data Packet - One frame in a packet-switched message. Most data communications is based on dividing the transmitted message into packets. For example, an Ethernet packet can be from 64 to 1518 bytes in length.

Default Gateway - The routing device 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 manage centrally 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 especially 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.

DMZ (**Dem**ilitarized **Z**one) - Allows one IP address (or computer) to be exposed to the Internet. Some applications require multiple TCP/IP ports to be open. It is recommended that you set your computer with a static IP address if you want to use DMZ Hosting.

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

Domain - A subnetwork comprised of a group of clients and servers under the control of one security database. Dividing LANs into domains improves performance and security.

Download - To receive a file transmitted over a network. In a communications session, download means receive, upload means transmit.

DSL (**D**igital **S**ubscriber **L**ine) - A technology that dramatically increases the digital capacity of ordinary telephone lines into the home or office and, by employing unused bandwidth, still allows for normal phone usage. DSL provides "always-on" operation, eliminating the need to dial in to the service.

DSSS (**D**irect-**S**equence **S**pread **S**pectrum) - DSSS generates a redundant bit pattern for all data transmitted. 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).

DTIM (**D**elivery **T**raffic **I**ndication **M**essage) - A DTIM field is a countdown field informing clients of the next window for listening to broadcast and multicast messages. When the AP has buffered broadcast or multicast messages for

associated clients, it sends the next DTIM with a DTIM Interval value. AP Clients hear the beacons and awaken to receive the broadcast and multicast messages.

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.

Dynamic Routing - The ability for a router to forward data via a different route based on the current conditions of the communications circuits. For example, it can adjust for overloaded traffic or failing lines and is much more flexible than static routing, which uses a fixed forwarding path.

Encryption - A security method that applies a specific algorithm to data in order to alter the data's appearance and prevent other devices from reading the information.

ESS (**E**xtended **S**ervice **S**et) - A set of more than two or more BSSs (multiple access points) forming a single network.

Ethernet - IEEE standard network protocol that specifies how data is placed on and retrieved from a common transmission medium. Has a transfer rate of 10 Mbps. Forms the underlying transport vehicle used by several upper-level protocols, including TCP/IP and XNS.

Fast Ethernet - A 100 Mbps technology based on the 10Base-T Ethernet CSMA/CD network access method.

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.

Finger - A UNIX command widely used on the Internet to find out information about a particular user, such as telephone number, whether currently logged on or the last time logged on. The person being "fingered" must have placed his or her profile on the system. Fingering requires entering the full user@domain address.

Firewall - A firewall is a set of related programs, located at a network gateway server, that protects the resources of a network from users from other networks. (The term also implies the security policy that is used with the programs.) An enterprise with an intranet that allows its workers access to the wider Internet installs a firewall to prevent outsiders from accessing its own private data resources and for controlling what outside resources to which its own users have access.

Basically, a firewall, working closely with a router, examines each network packet to determine whether to forward it toward its destination.

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.

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

FTP (**F**ile **T**ransfer **P**rotocol) - A protocol used to transfer files over a TCP/IP network (Internet, UNIX, etc.). For example, after developing the HTML pages for a Web site on a local machine, they are typically uploaded to the Web server using FTP.

FTP includes functions to log onto the network, list directories and copy files. It can also convert between the ASCII and EBCDIC character codes. FTP operations can be performed by typing commands at a command prompt or via an FTP utility running under a graphical interface such as Windows. FTP transfers can also be initiated from within a Web browser by entering the URL preceded with ftp://.

Unlike e-mail programs in which graphics and program files have to be "attached," FTP is designed to handle binary files directly and does not add the overhead of encoding and decoding the data.

Full Duplex - The ability of a device or line to transmit data simultaneously in both directions.

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

Half Duplex - Data transmission that can occur in two directions over a single line, but only one direction at a time.

Hardware - Hardware is the physical aspect of computers, telecommunications, and other information technology devices. The term arose as a way to distinguish the "box" and the electronic circuitry and components of a computer from the program you put in it to make it do things. The program came to be known as the software.

Hop - The link between two network nodes.

HTTP (**H**yper**T**ext **T**ransport **P**rotocol) - The communications protocol used to connect to servers on the World Wide Web. Its primary function is to establish a connection with a Web server and transmit HTML pages to the client browser.

Hub - The device that serves as the central location for attaching wires from workstations. Can be passive, where there is no amplification of the signals; or active, where the hubs are used like repeaters to provide an extension of the cable that connects to a workstation.

ICQ - A conferencing program for the Internet that provides interactive chat, e-mail and file transfer and can alert you when someone on your predefined list has also come online.

IEEE (The **I**nstitute of **E**lectrical and **E**lectronics **E**ngineers) - 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 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 (Internet Protocol) today, an IP address is a 32-binary digit number that identifies each sender or receiver of information that is sent in packet 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 requestor or the e-mail sender and can respond by sending another message using the IP address it received.

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

IPSec (**I**nternet **P**rotocol **Sec**urity) - A suite of protocols used to implement secure exchange of packets at the IP layer. IPSec supports two basic modes: Transport and Tunnel. Transport encrypts the payload of each packet, leaving the header untouched, while Tunnel mode encrypts both the header and the payload and is therefore more secure. IPSec must be supported on both transmitter and receiver and must share a public key. Tunnel mode is widely deployed in VPNs (Virtual Private Networks).

IPX (**I**nternetwork **P**acket E**X**change) - A NetWare communications protocol used to route messages from one node to another. IPX packets include network addresses and can be routed from one network to another.

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.

ISP - An ISP (Internet service provider) is a company that provides individuals and companies access to the Internet and other related services such as Web site 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 (**M**edia **A**ccess **C**ontrol) **Address** - 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.

Mbps (**M**ega**B**its **P**er **S**econd) - One million bits per second; unit of measurement for data transmission.

MIB (**M**anagement **I**nformation **B**ase) - A set of database objects. This set contains information about a specific device for utilizing SNMP.

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

Multicasting - Sending data to a group of nodes instead of a single destination.

NAT (**N**etwork **A**ddress **T**ranslation) - The translation of an Internet Protocol address (IP address) used within one network to a different IP address known within another network. One network is designated the inside network and the other is the outside.

Network - A system that transmits any combination of voice, video and/or data between users.

NNTP (**N**etwork **N**ews **T**ransfer **P**rotocol) - The protocol used to connect to Usenet groups on the Internet. Usenet newsreaders support the NNTP protocol.

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

Packet - A unit of data routed between an origin and a destination in a network.

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

PC Card - A credit-card sized removable module that contains memory, I/O, or a hard disk.

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.

Plug-and-Play - The ability of a computer system to configure expansion boards and other devices automatically without requiring the user to turn off the system during installation.

Port - A pathway into and out of the computer or a network device such as a switch or router. For example, the serial and parallel ports on a personal computer are external sockets for plugging in communications lines, modems and printers.

PPPoE (**P**oint to **P**oint **P**rotocol **o**ver **E**thernet) - PPPoE is a method for the encapsulation of PPP packets over Ethernet frames from the user to the ISP over the Internet. One reason PPPoE is preferred by ISPs is because it provides authentication (username and password) in addition to data transport. A PPPoE session can be initiated by either a client application residing on a PC, or by client firmware residing on a modem or router.

PPTP (**P**oint-to-**P**oint **T**unneling **P**rotocol) - A protocol (set of communication rules) that allows corporations to extend their own corporate network through private "tunnels" over the public Internet. Effectively, a corporation uses a wide-area network as a single large local area network. A company no longer needs to lease its own lines for wide-area communication but can securely use the public networks. This kind of interconnection is known as a virtual private network.

RIP (**R**outing **I**nformation **P**rotocol) - A simple routing protocol that is part of the TCP/IP protocol suite. It determines a route based on the smallest hop count between source and destination. RIP is a distance vector protocol that routinely broadcasts routing information to its neighboring routers.

RJ-45 (**R**egistered **J**ack-**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.

Router - Protocol-dependent device that connects subnetworks together. Routers are useful in breaking down a very large network into smaller subnetworks; they introduce longer delays and typically have much lower throughput rates than bridges.

RTS (**R**equest **T**o **S**end) - An RS-232 signal sent from the transmitting station to the receiving station requesting permission to transmit.

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

SMTP (**S**imple **M**ail **T**ransfer **P**rotocol) - The standard e-mail protocol on the Internet. It is a TCP/IP protocol that defines the message format and the message transfer agent (MTA), which stores and forwards the mail.

SNMP (**S**imple **N**etwork **M**anagement **P**rotocol) - A widely used network monitoring and control protocol. Data is passed from SNMP agents, which are hardware and/or software processes reporting activity in each network device (hub, router, bridge, etc.) to the workstation console used to oversee the network. The agents return information contained in a MIB (Management Information Base), which is a data structure that defines what is obtainable from the device and what can be controlled (turned off, on, etc.).

Software - Instructions for the computer. A series of instructions that performs a particular task is called a "program." The two major categories of software are "system software" and "application software." System software is made up of control programs such as the operating system and database management system (DBMS). Application software is any program that processes data for the user.

A common misconception is that software is data. It is not. Software tells the hardware how to process the data.

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).

SPI (**S**tateful **P**acket **I**nspection) - A firewall technology that monitors the state of the transaction so that it can verify that the destination of an inbound packet matches the source of a previous outbound request. It examines not just the headers of the packet, but also the contents, to determine more about the packet than just its source and destination information. It is called "stateful" because verifies that the stated destination computer has previously requested the current communication. In this way, it verifies that all communications are initiated by the recipient computer and are taking place only with sources that are known and trusted from previous interactions. In addition to being a more rigorous inspection, stateful packet inspection closes off ports until connection to the specific port is requested. This allows an added layer of protection from the threat of port scanning.

SSID (**S**ervice **S**et IDentifier) - 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 an IP or a TCP/IP network.

Static Routing - Forwarding data in a network via a fixed path. Static routing cannot adjust to changing line conditions as can dynamic routing.

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.

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

TCP (**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 effi-

cient 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.

Telnet - A terminal emulation protocol commonly used on the Internet and TCP/IP-based networks. It allows a user at a terminal or computer to log onto a remote device and run a program.

TFTP (**T**rivial **F**ile **T**ransfer **P**rotocol) - A version of the TCP/IP FTP protocol that has no directory or password capability.

Throughput - The amount of data moved successfully from one place to another in a given time period.

TX Rate - Transmission Rate.

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).

Upgrade - To replace existing software or firmware with a newer version.

Upload - To transmit a file over a network. In a communications session, upload means transmit, download means receive.

URL (**U**niform **R**esource **L**ocator) - The address that defines the route to a file on the Web or any other Internet facility. URLs are typed into the browser to access Web pages, and URLs are embedded within the pages themselves to provide the hypertext links to other pages.

UTP - Unshielded twisted pair is the most common kind of copper telephone wiring. Twisted pair is the ordinary copper wire that connects home and many business computers to the telephone company. To reduce crosstalk or electromagnetic induction between pairs of wires, two insulated copper wires are twisted around each other. Each signal on twisted pair requires both wires. Since some telephone sets or desktop locations require multiple connections, twisted pair is sometimes installed in two or more pairs, all within a single cable.

VPN (**V**irtual **P**rivate **N**etwork) - A technique that allows two or more LANs to be extended over public communication channels by creating private communication subchannels (tunnels). Effectively, these LANs can use a WAN as a single large "virtually private" LAN. This removes the need to use leased lines for WAN communications through secure use of a publicly available WAN (such as the Internet). Examples of VPN technology are: PPTP (Point to Point Tunneling Protocol), L2TP (Layer 2 Tunneling Protocol), and IPSec (Internet Protocol Security).

WAN (**W**ide **A**rea **N**etwork)- A communications network that covers a relatively large geographic area, consisting of two or more LANs. Broadband communication over the WAN is often through public networks such as the telephone (DSL) or cable systems, or through leased lines or satellites. In its most basic definition, the Internet could be considered a WAN.

WEP (**W**ired **E**quivalent **P**rivacy) - A data privacy mechanism based on a 64-bit or 128-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 for configuring networks with static IP addresses.

Appendix G: Specifications

Standards		IEEE 802.3 (10BaseT), IEEE 802.3u (100BaseTX), IEEE 802.11b (Wireless)
Protocol		CSMA/CD
Ports		
WAN:		One 10Base-T RJ-45 Port for cable or DSL Modem
LAN:		Four 10/100 RJ-45 Switched Ports, One Shared Uplink Port
Speed (Mbps)	WAN:	10 (Half Duplex)
	LAN:	10/100 (Half Duplex) 20/200 (Full Duplex)
Cabling Type		UTP Category 5 or better
Button		Reset
TX Power		19 dbm
Throughput (average)		4.2 Mbps
Receiver Sensitivity (Typical)		1Mbps 0-5 BER @ -89dbm 5.5Mbps 10-5 BER @ -83dbm 11Mbps 10-5 BER @ -79dbm
Topology		Star (Ethernet)
LED Indicators		Power, WLAN Activity, WLAN Link
WAN		Link/Activity, Diag for WAN
LAN		Full Duplex/Collision, Link/Activity 100
Connectors		2 Antenna Connectors

Environmental

Dimensions	186mm x 154mm x 62mm (7.31" x 6.06" x 2.44")
Unit Weight	0.56 kg. (19.2 oz.)
Power Input	External, 5V DC, 2.5A
Certifications	FCC Class B, CE Mark
Operating Temperature	0ºC to 40ºC (32ºF to 104ºF)
Storage Temperature	-20ºC to 70ºC (-4ºF to 158ºF)
Operating Humidity	10% to 85%, Non-Condensing
Storage Humidity	5% to 90%, Non-Condensing

Appendix H: Contact Information

For help with installation or operation of this product, contact Linksys Technical Support at one of the phone numbers listed in the Technical Support insert or Internet addresses below:

E-mail

Europe	europe-support@linksys.com
United Kingdom & Ireland	uks@linksys.com
Latin America	latam-soporte@linksys.com
U.S. and Canada	support@linksys.com

For unlisted regions or updated contact information please visit the website below:

Web http://www.linksys.com/international

Appendix I: Warranty Information

LIMITED WARRANTY
Linksys guarantees that every Instant Wireless™Wireless Access Point Router with 4-Port Switch is free from physical defects in material and workmanship for two years from the date of purchase (Africa, Europe and Latin America only, other regions may have a different warranty period), when used within the limits set forth in the Specifications section of this User Guide. If you suspect the product is defective during the warranty period, contact the Linksys Technical Support in order to obtain a Return Authorization number (RMA) or contact the location where the product was purchased (if applicable). BE SURE TO HAVE YOUR PROOF OF PURCHASE ON HAND WHEN CONTACTING TECHNICAL SUPPORT. RETURN REQUESTS CANNOT BE PROCESSED WITHOUT PROOF OF PURCHASE.

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