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You can read the recommendations in the user guide, the technical guide or the installation guide for LINKSYS BEFW11S4. You'll find the answers to all your questions on the LINKSYS BEFW11S4 in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

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**Manual abstract:**

and/or its affiliates in the U.S. and certain other countries. Copyright © 2004 Cisco Systems, Inc. All rights reserved. @@@@This exclamation point means there is a caution or warning and is something that could damage your property or the Wireless-B Broadband Router. This question mark provides you with a reminder about something you might need to do while using the Wireless-B Broadband Router. In addition to these symbols, there are definitions for technical terms that are presented like this: word: definition. Also, each figure (diagram, screenshot, or other image) is provided with a figure number and description, like this: Figure 0-1: Sample Figure Description Figure numbers and descriptions can also be found in the "List of Figures" section in the "Table of Contents". BEFW11S4-v4-UG-41011E KL Wireless-B Broadband Router Table of Contents Chapter 1: Introduction Welcome What's in this Guide? 1 1 2 Chapter 2: Planning your Wireless Network Network Topology Roaming Network Layout 4 4 4 5 Chapter 3: Getting to Know the Wireless-B Broadband Router The Back Panel The Front Panel 6 6 7 Chapter 4: Connecting the Wireless-B Broadband Router Hardware Installation 8 8 Chapter 5: Configuring the Wireless-B Broadband Router Overview The Setup Tab - Basic Setup The Setup Tab - MAC Address Clone The Setup Tab - Advanced Routing The Wireless Tab - Basic Wireless Settings The Wireless Tab - Wireless Security The Wireless Tab - Wireless Network Access The Wireless Tab - Advanced Wireless Settings The Security Tab - VPN Passthrough The Applications and Gaming Tab - Port Range Forwarding The Applications and Gaming Tab - Port Triggering The Applications and Gaming Tab - UPnP Forwarding The Applications and Gaming Tab - DMZ The Administration Tab - Management The Administration Tab - Log The Administration Tab - Firmware Upgrade The Administration Tab - Factory Defaults The Status Tab - Router The Status Tab - Local Network 9 9 10 14 15 16 17 19 20 22 23 24 24 25 25 26 27 28 29 30 Wireless-B Broadband Router Appendix A: Troubleshooting Common Problems and Solutions Frequently Asked Questions 31 31 38 Appendix B: Wireless Security Security Precautions Security Threats Facing Wireless Networks 45 45 45 Appendix C: Upgrading Firmware 48 Appendix D: Windows Help 49 Appendix E: Finding the MAC Address and IP Address for Your Ethernet Adapter 50 Windows 98 or Me Instructions Windows 2000 or XP Instructions For the Router's Web-based Utility 50 50 51 Appendix F: Glossary Appendix G: Specifications Appendix H: Warranty Information Appendix I: Regulatory Information Appendix J: Contact Information 52 58 59 60 62 Wireless-B Broadband Router List of Figures Figure 3-1: The Broadband Router's Back Panel Figure 3-2: The Broadband Router's Front Panel Figure 4-1: Connecting Your Internet Connection Figure 4-2: Connecting Your Network Devices Figure 4-3: Connecting the Power Figure 5-1: Password Screen Figure 5-2: Setup Tab - Basic Setup Figure 5-3: DHCP Connection Type Figure 5-4: Static IP Connection Type Figure 5-5: PPPoE Connection Type Figure 5-6: RAS Connection Type Figure 5-7: PPTP Connection Type Figure 5-8: Heart Beat Signal Connection Type Figure 5-9: Optional Settings Figure 5-10: Setup Tab - MAC Address Clone Figure 5-11: Setup Tab - Advanced Routing Figure 5-12: Setup Tab - Routing Table Figure 5-13: Wireless Tab - Basic Wireless Settings Figure 5-14: WPA Pre-Shared Key Figure 5-15: WPA Radius Figure 5-16: Wireless Tab - Radius Figure 5-17: Wireless Tab - WEP Figure 5-18: Wireless Tab - Wireless Network Access Figure 5-19: Wireless Tab - Wireless Client MAC List Figure 5-20: Wireless Tab - Advanced Wireless Settings Figure 5-21: Security Tab - Filter Figure 5-22: Security Tab - MAC Filter Figure 5-23: Security Tab - VPN Passthrough Figure 5-24: Applications and Gaming Tab - Port Range Forwarding Figure 5-25: Applications and Gaming - Port Triggering 6 7 8 8 8 9 10 10 10 11 11 11 12 12 14 15 16 17 17 17 18 19 19 20 21 21 22 23 24 Wireless-B Broadband Router Figure 5-26: Applications and Gaming - UPnP Forwarding Figure 5-27: Applications and Gaming - DMZ Figure 5-28: Administration Tab - Management Figure 5-29: Backup & Restore Figure 5-30: Administration Tab - Log Figure 5-31: Log Table Figure 5-32: Administration Tab - Firmware Upgrade Figure 5-33: Administration Tab - Factory Defaults Figure 5-34: Status Tab - Router Figure 5-35: Status Tab - Local Network Figure 5-36: Status Tab - DHCP Active IP Table Figure C-1: Upgrade Firmware Figure E-1: IP Configuration Screen Figure E-2: MAC Address/Adapter Address Figure E-3: MAC Address/Physical Address Figure E-4: MAC Address Clone 24 25 25 26 26 26 27 28 29 30 30 48 50 50 51 51 Wireless-B Broadband Router Chapter 1: Introduction Welcome Thank you for choosing the Linksys Wireless-B Broadband Router. Think of the Linksys Wireless-B Broadband Router as a kind of "splitter" for your Internet connection. Just connect your DSL or Cable Modem to the Router, and all the computers in your household can share the Internet -- all at the same time. You can connect your home computers directly to the Router with Ethernet cables, or put wireless network adapters in them and communicate over radio waves, saving the trouble and expense of running cables through your house. Once your computers are connected to the Router, they can communicate with each other too, sharing resources and files. All your computers can print on a shared printer connected anywhere in the house. And your computers can share all kinds of files -- music, digital pictures, and documents. Keep all your digital music on one computer, and listen to it anywhere in the house. Organize all of your family's digital pictures in one place, to simplify finding the ones you want, and easing backup to CD-R. Play head-to-head computer games within the household, or against Internet opponents. Utilize extra free space on one computer when another's hard drive starts to fill up. Your home network is secure, too. All wireless communications are protected by 128-bit encryption. The Router helps keep intruders out of your computers. It's all easier than you think -- the included Setup Wizard takes you through configuring your network, step by step. With the Linksys Wireless-B Broadband Router at the heart of your home network, you don't need to be a networking genius to share printers, files, and your Internet connection -- with or without wires. LAN (Local Area Network): The computers and networking products that make up the network in your home or office Chapter 1: Introduction Welcome 1 Wireless-B Broadband Router What's in this Guide? This user guide covers the steps for setting up and using the Wireless-B Media Adapter. · Chapter 1: Introduction This chapter describes the Adapter's applications and this User Guide.



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· Chapter 2: Planning your Wireless Network This chapter describes the basics of wireless networking. · Chapter 3: Getting to Know the Wireless-B Broadband Router This chapter describes the physical features of the Router. · Chapter 4: Connecting the Wireless-B Broadband Router This chapter instructs you on how to connect the Router to your network.

· Chapter 5: Configuring the Wireless-B Broadband Router This chapter explains how to use the Web-Based Utility to configure the settings on the Wireless-B Broadband Router. · Appendix A: Troubleshooting This appendix describes some problems and solutions, as well as frequently asked questions, regarding installation and use of the Wireless-B Broadband Router. · Appendix B: Wireless Security This appendix explains the risks of wireless networking and some solutions to reduce the risks. · Appendix C: Upgrading Firmware This appendix instructs you on how to upgrade the firmware on your Router if you should need to do so. · Appendix D: Windows Help This appendix describes how you can use Windows Help for instructions about networking, such as installing the TCP/IP protocol. · Appendix E: Finding the MAC Address and IP Address for your Ethernet Adapter. This appendix describes how to find the MAC address for your computer's Ethernet adapter so you can use the MAC filtering and/or MAC address cloning feature of the Router. · Appendix F: Glossary This appendix gives a brief glossary of terms frequently used in networking. Chapter 1: Introduction What's in this Guide? 2 Wireless-B Broadband Router · Appendix G: Specifications This appendix provides the technical specifications for the Router. · Appendix H: Warranty Information This appendix supplies the warranty information for the Router.

· Appendix I: Regulatory Information This appendix supplies the regulatory information regarding the Router.. · Appendix J: Contact Information This appendix provides contact information for a variety of Linksys resources, including Technical Support. Chapter 1: Introduction What's in this Guide? 3 Wireless-B Broadband Router Chapter 2: Planning your Wireless Network Network Topology A wireless LAN is a group of computers, each equipped with one Linksys wireless adapter.

Computers in a wireless LAN must be configured to share the same radio channel. The Linksys wireless adapters provide access to a wired LAN for wireless workstations. An integrated wireless and wired LAN is called an infrastructure configuration. A group of Linksys wireless adapter users and a Wireless-B Broadband Router compose a Basic Service Set (BSS). Each Linksys wireless adapter PC in a BSS can talk to any computer in a wired LAN infrastructure via the Wireless-B Broadband Router.

An infrastructure configuration extends the accessibility of a Linksys wireless adapter PC to a wired LAN, and doubles the effective wireless transmission range for two Linksys wireless adapter PCs. Since the Wireless-B Broadband Router is able to forward data within its BSS, the effective transmission range in an infrastructure LAN is doubled. LAN: the computers and networking products that make up your local network Roaming Infrastructure mode also supports roaming capabilities for mobile users. More than one BSS can be configured as an Extended Service Set (ESS). This continuous network allows users to roam freely within an ESS. All PCs equipped with a Linksys wireless adapter within one ESS must be configured with the same ESS ID and use the same radio channel. Before enabling an ESS with roaming capability, choosing a feasible radio channel and optimum Wireless-B Broadband Router position is recommended. Proper router positioning combined with a clear radio signal will greatly enhance performance. Infrastructure: a wireless network that is bridged to a wired network via an access point. Chapter 2: Planning your Wireless Network Network Topology 4 Wireless-B Broadband Router Network Layout The Wireless-B Broadband Router is compatible with all 802.

11b adapters, such as the PC Card (WPC11) for your laptop computers, PCI Card (WMP11) for your desktop PC, and USB Adapter (WUSB11) for when you want to enjoy USB connectivity. The Router will also communicate with the wireless PrintServer (WPS11) and bridges (WET11). When you wish to connect your wired network with your wireless network, the Wireless-B Broadband Router's LAN port can be connected to any of Linksys's switches (such as the EZXS55W or EZXS88W). With these, and many other, Linksys products, your networking options are limitless. Go to the Linksys website at [www.linksys.com/international](http://www.linksys.com/international) for more information about products that work with the Wireless-B Broadband Router. Chapter 2: Planning your Wireless Network Network Layout 5 Wireless-B Broadband Router Chapter 3: Getting to Know the Wireless-B Br, if you'd like to change these settings, use the Router's web-based utility. This chapter will describe each web page in the Utility and each page's key functions. The utility can be accessed via your web browser through use of a computer connected to the Router.

For a basic network setup, most users only have to use the following screens of the Utility: · Basic Setup. On the Basic Setup screen, enter the settings provided by your ISP. · Management. Click the Administration tab and then the Management tab. The Router's default password is admin. To secure the Router, change the Password from its default. There are six main tabs: Setup, Wireless, Security, Applications & Gaming, Administration, and Status. Additional tabs will be available after you click one of the main tabs. To access the web-based utility, launch Internet Explorer or Netscape Navigator, and enter the Router's default IP address, 192.168.

1.1, in the Address field. Then press Enter. A password request page will appear. (Users of other versions of Windows will see a similar screen.) Leave the User Name field blank. The first time you open the Web-Based Utility, use the default password admin. (You can set a new password from the Administration tab's Management screen.) Then click the OK button. Note: The Router is designed to function properly after connecting the Router to your network.

This chapter is provided solely for those who wish to perform more advanced configuration or monitoring. Have You: Enabled TCP/IP on your PCs? PCs communicate over the network with this protocol. Refer to Appendix D: Windows Help for more information on TCP/IP. Figure 5-1: Password Screen Chapter 5: Configuring the Wireless-B Broadband Router Overview 9 Wireless-B Broadband Router The Setup Tab - Basic Setup The first screen that appears displays the Setup tab. This allows you to change the Broadband Router's general settings. Change these settings as described here and click the Save Settings button to apply your changes or Cancel Changes to cancel your changes.



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*Internet Setup* The Internet Setup section configures the Broadband Router to your Internet connection. Most of this information can be obtained through your ISP. Internet Connection Type Choose the type of Internet connection your ISP provides from the drop down menu. · DHCP.

By default, the Router's Internet Connection Type is set to Obtain an IP automatically, which should be kept only if your ISP supports DHCP or you are connecting through a dynamic IP address. · Static IP. If you are required to use a permanent IP address to connect to the Internet, select Static IP. Figure 5-2: Setup Tab - Basic Setup IP Address. This is the Router's IP address, when seen from the Internet.

Your ISP will provide you with the IP Address you need to specify here. Subnet Mask. This is the Router's Subnet Mask, as seen by users on the Internet (including your ISP). Your ISP will provide you with the Subnet Mask. Default Gateway.

Your ISP will provide you with the Default Gateway Address, which is the ISP server's IP address. Static DNS 1-3. Your ISP will provide you with at least one DNS (Domain Name System) Server IP Address. · PPPoE. Some DSL-based ISPs use PPPoE (Point-to-Point Protocol over Ethernet) to establish Internet connections. If you are connected to the Internet through a DSL line, check with your ISP to see if they use PPPoE. If they do, you will have to enable PPPoE. User Name and Password. Enter the User Name and Password provided by your ISP. Connect on Demand: Max Idle Time.

You can configure the Router to cut the Internet connection after it has been inactive for a specified period of time (Max Idle Time). If your Internet connection has been terminated 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 Figure 5-4: Static IP Connection Type Chapter 5:

*Configuring the Wireless-B Broadband Router* The Setup Tab - Basic Setup Figure 5-3: DHCP Connection Type 10 Wireless-B Broadband Router button. In the Max Idle Time field, enter the number of minutes you want to have elapsed before your Internet connection terminates. Keep Alive: Redial Period. If you select this option, the Router will periodically check your Internet connection. If you are disconnected, then the Router will automatically re-establish your connection. To use this option, click the radio button next to Keep Alive. In the Redial Period field, you specify how often you want the Router to check the Internet connection. 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, check with your ISP for the necessary setup information. · PPTP. Point to Point Tunneling Protocol (PPTP), is a service that applies to connections in Europe only.

subnet mask: An address code that determines the size of the network. Figure 5-5: PPPoE Connection Type IP Address. This is the Router's IP address, as seen from the Internet. Your ISP will provide you with the IP Address you need to specify here. Subnet Mask This is the Router's Subnet Mask, as seen by users on the Internet (including your ISP).

Your ISP will provide you with the Subnet Mask. Default Gateway. Your ISP will provide you with the Default Gateway Address. User Name and Password. Enter the User Name and Password provided by your ISP. Connect on Demand: Max Idle Time. You can configure the Router to cut the Internet connection after it has been inactive for a specified period of time (Max Idle Time). If your Internet connection has been terminated 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 this option, click the radio button next to Connect on Demand. In the Max Idle Time field, enter the number of minutes you want to have elapsed before your Internet connection terminates.

Keep Alive: Redial Period. If you select this option, the Router will periodically check your Internet connection. If you are disconnected, then the Router will automatically re-establish your connection. To use this option, click the radio button next to Keep Alive. In the Redial Period field, you specify how often you want the Router to check the Internet connection. The default Redial Period is 30 seconds. · Heart Beat Signal is a service used in Australia only. If you are using a Heart Beat Signal connection, check with your ISP for the necessary setup information. static ip address: a fixed address assigned to a computer or device connected to a network Figure 5-6: RAS Connection Type Figure 5-7: PPTP Connection Type Chapter 5: Configuring the Wireless-B Broadband Router The Setup Tab - Basic Setup 11 Wireless-B Broadband Router Optional Settings (Required by some ISPs) Some of these settings may be required by your ISP. Verify with your ISP before making any changes.

Host Name/Domain Name. These fields allow you to supply a host and domain name for the Router. Some ISPs, usually cable ISPs, require these names as identification. You may have to check with your ISP to see if your broadband Internet service has been configured with a host and domain name. In most cases, leaving these fields blank will work.

MTU. MTU is the Maximum Transmission Unit. It specifies the largest packet size permitted for Internet transmission. The default setting, Enable, allows you to enter the largest packet size that will be transmitted. The recommended size, entered in the Size field, is 1492.

You should leave this value in the 1200 to 1500 range. To have the Router automatically select the best MTU for your Internet connection, select Disable.

*Network Setup* The Network Setup section changes the settings on the network connected to the Router's Ethernet ports. Wireless Setup is performed through the Wireless tab. Router IP This presents both the Router's IP Address and Subnet Mask as seen by your network. Network Address Server Settings (DHCP)

The settings allow you to configure the Router's Dynamic Host Configuration Protocol (DHCP) server function. The Router can be used as a DHCP server for your network. A DHCP server automatically assigns an IP address to each computer on your network. If you choose to enable the Router's DHCP server option, you must configure all of your network PCs to connect to a DHCP server (the Router), and make sure there is no other DHCP server on your network.

Optional Settings Host Name and Domain Name.

These fields allow you to supply a host and domain name for the Router. Some ISPs require these names as identification. You may have to check with your ISP to see if your broadband Internet service has been configured with a host and domain name. In most cases, leaving these fields blank will work. MTU. The MTU (Maximum Transmission Unit) setting specifies the largest packet size permitted for network transmission.



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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.

Chapter 5: Configuring the Wireless-B Broadband Router The Setup Tab - Basic Setup Figure 5-8: Heart Beat Signal Connection Type Figure 5-9: Optional Settings 12 Wireless-B Broadband Router Network Setup Router IP. The values for the Router's Local IP Address and Subnet Mask are shown here. In most cases, keeping the default values will work. Local IP Address. The default value is 192.

168.1.1. Subnet Mask. The default value is 255.

255.255.0. Network Address Server Settings (DHCP). A Dynamic Host Configuration Protocol (DHCP) server automatically assigns an IP address to each PC on your network for you. Unless you already have one, it is highly recommended that you leave the Router enabled as a DHCP server. Local DHCP Server. DHCP is already enabled by factory default. If you already have a DHCP server on your network, set the Router's DHCP option to Disable. If you disable DHCP, remember to assign a static IP address to the Router.

Start IP Address. Enter a value for the DHCP server to start with when issuing IP addresses. This value must be 192.168.1. 2 or greater, because the default IP address for the Router is 192.168.1.1. Number of Address (Optional).

Enter the maximum number of PCs that you want the DHCP server to assign IP addresses to. This number cannot be greater than 253. 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, add 100 to 50, and the range is 192.168.1.100 to 192.168.

1.149. DHCP Address Range. The range of DHCP addresses is displayed here. 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. Static DNS 1-3. 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, leave this blank. IMPORTANT: Restoring the Access Point's factory default settings will erase all of your settings (WEP Encryption, Wireless and LAN settings, etc.), and replace them with the factory defaults. Do not reset the Access Point if you want to retain these settings.

Chapter 5: Configuring the Wireless-B Broadband Router The Setup Tab - Basic Setup 13 Wireless-B Broadband Router The Setup Tab - MAC Address Clone A MAC address is a 12-digit code assigned to a unique piece of hardware for identification. Some ISPs will require you to register a MAC address in order to access the Internet. If you do not wish to re-register the MAC address with your ISP, you may assign the MAC address you have currently registered with your ISP to the Router with the MAC Address Clone feature. MAC Clone Service. To have the MAC Address cloned, select Enable from the drop-down menu, otherwise leave it on the default Disable.

MAC Address. Enter the MAC Address registered with your ISP here. Click the Clone button to clone the MAC address. Change these settings as described here and click the Save Settings button to apply your changes or Cancel Changes to cancel your changes. Figure 5-10: Setup Tab - MAC Address Clone Chapter 5: Configuring the Wireless-B Broadband Router The Setup Tab - MAC Address Clone 14 Wireless-B Broadband Router The Setup Tab - Advanced

Routing This tab is used to set up the Router's advanced functions.

Dynamic Routing will automatically adjust how packets travel on your network. Static Routing sets up a fixed route to another network destination. NAT. Network Address Translation (NAT) technology translates IP addresses of a local area network to a different IP address for the Internet. To enable the NAT function, click Enable. Dynamic Routing. With Dynamic Routing you can enable the Gateway to automatically adjust to physical changes in the network's layout. The Gateway, 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 Gateways on the network. To enable RIP, click Enabled.

To disable RIP, click Disabled. · Transmit RIP Version. To transmit RIP messages, select the protocol you want: RIP1, RIP1-Compatible, or RIP2. If you don't want to transmit RIP messages, select None. · Receive RIP Version. To receive RIP messages, select the protocol you want: RIP1 or RIP2. If you don't want to receive RIP messages, select None. Static Routing. To set up a static route between the Router and another network, select a number from the Select Entry drop-down list. (A static route is a pre-determined pathway that network information must travel to reach a specific host or network.

) Enter the information described below to set up a new static route. (Clicking the Delete Entry will delete a static route.) Destination IP Address. The Destination LAN IP is the address of the remote network or host to which you want to assign a static route. Subnet Mask.

The Subnet Mask determines which portion of a Destination LAN IP address is the network portion, and which portion is the host portion. Gateway. This is the IP address of the gateway device that allows for contact between the Router and the remote network or host. Figure 5-12: Setup Tab - Routing Table Hop Count. This determines the maximum number of steps between network nodes that data packets will travel.

A node is any router in the path to the remote network. Interface. This interface tells you whether the Destination IP Address is on the Local (Ethernet and wireless networks) or the Internet. Figure 5-11: Setup Tab - Advanced Routing Chapter 5: Configuring the Wireless-B Broadband Router The Setup Tab - Advanced Routing 15 Wireless-B Broadband Router Click the Show Routing Table button to view the Static Routes you've already set up. For each route, the Destination IP address, Subnet Mask, Gateway, and Interface are displayed. Click the Refresh button to update the information. Change these settings as described here and click the Save Settings button to apply your changes or Cancel Changes to cancel your changes. The Wireless Tab - Basic Wireless Settings The basic settings for wireless networking are set on this screen. Wireless Network Name (SSID). The SSID is the network name shared among all points in a wireless network.



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The SSID must be identical for all points in the wireless network. It is case-sensitive and must not exceed 32 characters (use any of the characters on the keyboard). Make sure this setting is the same for all points in your wireless network. For added security, you should change the default SSID (Linksys) to a unique name. **Wireless Channel.** Select the appropriate channel from the list provided to correspond with your network settings. All devices in your wireless network must be broadcast on the same channel in order to function correctly. **Wireless SSID Broadcast.** When wireless clients survey the local area for wireless networks to associate with, they will detect the SSID broadcast by the Router. To broadcast the Router's SSID, keep the default setting, Enabled. If you do not want to broadcast the Router's SSID, then select Disabled. Change these settings as described here and click the Save Settings button to apply your changes or Cancel Changes to cancel your changes. Figure 5-13: Wireless Tab - Basic Wireless Settings Chapter 5: Configuring the Wireless-B Broadband Router The Wireless Tab - Basic Wireless Settings 16 Wireless-B Broadband Router The Wireless Tab - Wireless Security The Wireless Security settings configure the security of your wireless network. Click the radio button next to Enable to enable Wireless Security before choosing your options. Click the radio button next to Disable if you need to disable Wireless Security.

There are four wireless security mode options supported by the Router, WPA, RADIUS, and WEP. These four are briefly discussed here. **WPA Pre-Shared Key.** WPA provides the TKIP encryption method, with dynamic encryption keys. Enter a PreShared key of 8-32 characters, and enter a Group Key Renewal period, which instructs the Router how often it should change the encryption keys.

**WPA Radius.** WPA used in coordination with a RADIUS server. (This should only be used when a RADIUS server is connected to the Router.) Enter the RADIUS server's IP Address and port number, along with a key shared between the Router and the server. Then, enter a Group Key Renewal period, which instructs the Router how often it should change the encryption keys. **Radius.** WEP used in coordination with a RADIUS server. (This should only be used when a RADIUS server is connected to the Router.) First, enter the RADIUS server's IP Address and port number, along with a key shared between the Router and the server. Then, select a level of WEP encryption, and either generate a WEP key through the Passphrase or select a WEP key and enter the WEP key manually.

**WEP Encryption Level.** An acronym for Wired Equivalent Privacy, WEP is an encryption method used to protect your wireless data communications. WEP uses 64-bit or 128-bit keys to provide access control to your network and encryption security for every data transmission. To decode data transmissions, all devices in a network must use an identical WEP key. Higher encryption levels offer higher levels of security, but due to the complexity of the encryption, they may decrease network performance. To enable WEP, select 64 bits (10 hex digits) or 128 bits (26 hex digits). To disable WEP encryption, keep the default setting, No Encryption. **Passphrase.** Instead of manually entering WEP keys, you can enter a passphrase. This passphrase is used to generate one or more WEP keys.

It is case-sensitive and should not be longer than 31 alphanumeric characters. (This Passphrase function is compatible with Linksys wireless products only and cannot be used with Windows XP Zero Configuration. If you want to communicate with non-Linksys wireless products or Windows XP Zero Configuration, make a note of the WEP key generated in the Key 1 field, and enter it manually in the wireless client.) After you enter the Passphrase, click the Generate button to create WEP keys. Figure 5-14: WPA Pre-Shared Key Figure 5-15: WPA Radius Figure 5-16: Wireless Tab - Radius Chapter 5: Configuring the Wireless-B Broadband Router The Wireless Tab - Wireless Security 17 Wireless-B Broadband Router - Default Key.

Select which WEP key (1-4) will be used when the Gateway sends data. Make sure that the receiving device (wireless client) is using the same key. **WEP Keys 1-4.** WEP keys enable you to create an encryption scheme for wireless network transmissions. If you are not using a Passphrase, then manually enter a set of values.

(Do not leave a key field blank, and do not enter all zeroes; they are not valid key values.) If you are using 64-bit WEP encryption, the key must be exactly 10 hexadecimal characters in length. If you are using 128-bit WEP encryption, the key must be exactly 26 hexadecimal characters in length. Valid hexadecimal characters are "0"- "9" and "A"- "F". **WEP.** WEP is a basic encryption method, not as secure as WPA. To use WEP, select a level of WEP encryption, and either generate a WEP key through the Passphrase or select a WEP key and enter the WEP key manually. **WEP Encryption Level.** An acronym for Wired Equivalent Privacy, WEP is an encryption method used to protect your wireless data communications. WEP uses 64-bit or 128-bit keys to provide access control to your network and encryption security for every data transmission.

To decode data transmissions, all devices in a network must use an identical WEP key. Higher encryption levels offer higher levels of security, but due to the complexity of the encryption, they may decrease network performance. To enable WEP, select 64 bits (10 hex digits) or 128 bits (26 hex digits). To disable WEP encryption, keep the default setting, No Encryption. **Passphrase.** Instead of manually entering WEP keys, you can enter a passphrase. This passphrase is used to generate one or more WEP keys. It is case-sensitive and should not be longer than 31 alphanumeric characters. (This Passphrase function is compatible with Linksys wireless products only and cannot be used with Windows XP Zero Configuration. If you want to communicate with non-Linksys wireless products or Windows XP Zero Configuration, make a note of the WEP key generated in the Key 1 field, and enter it manually in the wireless client.) After you enter the Passphrase, click the Generate button to create WEP keys. **Default Key.** Select which WEP key (1-4) will be used when the Gateway sends data. Make sure that the receiving device (wireless client) is using the same key. **WEP Keys 1-4.**

WEP keys enable you to create an encryption scheme for wireless network transmissions. If you are not using a Passphrase, then manually enter a set of values. (Do not leave a key field blank, and do not enter all zeroes; they are not valid key values.) If you are using 64-bit WEP encryption, the key must be exactly 10 hexadecimal characters in length. If you are using 128-bit WEP encryption, the key must be exactly 26 hexadecimal characters in length. Valid hexadecimal characters are "0"- "9" and "A"- "F".



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Figure 5-17: Wireless Tab - WEP Change these settings as described here and click the Save Settings button to apply your changes or Cancel Changes to cancel your changes. Chapter 5: Configuring the Wireless-B Broadband Router The Wireless Tab - Wireless Security 18 Wireless-B Broadband Router The Wireless Tab - Wireless Network Access Wireless network access can be filtered by using the MAC addresses of the wireless devices transmitting within your network's radius. Wireless Network Access. If you select Allow All, all computers will be allowed access to the wireless network. To restrict access to the network, select Restrict Access. Click the Wireless Client MAC Address button, and the Wireless Client MAC list will appear. Select the MAC Address from the list and click the Select box, then click the Select button. Click the Refresh button if you want to refresh the screen. Click the Close button to return to the previous screen.

When finished making your changes on this tab, click the Save Settings button to save these changes, or click the Cancel Changes button to undo your changes. Figure 5-18: Wireless Tab - Wireless Network Access Figure 5-19: Wireless Tab - Wireless Client MAC List Chapter 5: Configuring the Wireless-B Broadband Router The Wireless Tab - Wireless Network Access 19 Wireless-B Broadband Router The Wireless Tab - Advanced Wireless Settings This tab is used to set up the Router's advanced wireless functions. These settings should only be adjusted by an expert administrator as incorrect settings can reduce wireless performance. Basic Rate. The Basic Rate setting is not actually one rate of transmission but a series of rates, advertising to the other wireless points in your network at what rates the Router can transmit. At the default setting, the Router will advertise that it will Automatically select the best rate for transmission. Other options of rates to advertise are 1-2Mbps, for use with older wireless technology, and All, when you wish to make all rates advertised.

The Basic Rate is not the rate transmitted; that is the Transmission Rate. Control Tx Rates. The default transmission rate is Auto. The range is from 1 to 54Mbps. The rate of data transmission should be set depending on the speed of your wireless network. You can select from a range of transmission speeds, or keep the default setting, Auto, to have the Gateway automatically use the fastest possible data rate and enable the Auto-Fallback feature. Auto-Fallback will negotiate the best possible connection speed between the Gateway and a wireless 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, Long Preamble(default) or Short Preamble. Authentication Type. The default is set to Auto (default), which allows either Open System or Shared Key authentication to be used.

With Open System authentication, the sender and the recipient do NOT use a WEP key for authentication. With Shared Key authentication, the sender and recipient use a WEP key for authentication. Beacon Interval. The default value is 100. Enter a value between 1 and 65,535 milliseconds. The Beacon Interval value indicates the frequency interval of the beacon. A beacon is a packet broadcast by the Router to synchronize the wireless network. DTIM Interval. This value, between 1 and 16384, 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. Its clients hear the beacons and awaken to receive the broadcast and multicast messages. The default value is 1. Fragmentation Threshold. This value specifies the maximum size for a packet before data is fragmented into multiple packets. If you experience a high packet error rate, you may slightly increase the Fragmentation Threshold. Setting the Fragmentation Threshold too low may result in poor network performance. Only minor reduction of the default value is recommended.

In most cases, it should remain at its default value of 2346. Figure 5-20: Wireless Tab - Advanced Wireless Settings Chapter 5: Configuring the Wireless-B Broadband Router The Wireless Tab - Advanced Wireless Settings 20 Wireless-B Broadband Router RTS Threshold.

Should you encounter inconsistent data flow, only minor reduction of the default value, 2346, is recommended. If a network packet is smaller than the preset RTS threshold size, the RTS/CTS mechanism will not be enabled. The Router sends Request to Send (RTS) frames to a particular receiving station and negotiates the sending of a data frame. After receiving an RTS, the wireless station responds with a Clear to Send (CTS) frame to acknowledge the right to begin transmission. The RTS Threshold value should remain at its default value of 2346.

Change these settings as described here and click the Save Settings button to apply your changes or Cancel Changes to cancel your changes. The Security Tab - Filter Filters block specific internal users from accessing the Internet. From the Filters tab, you can set up a filter through an IP address or a network port number. Filter IP Address Range. 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. Filter Port Range. To filter users by network port number, select a protocol, then 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. Filter MAC Address. This feature filters the Ethernet adapter's specific MAC address from going out to the Internet. To check your Ethernet adapter's MAC address, you can 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 the screen 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 Apply to save the changes, or Undo to undo the changes. For information on obtaining a MAC address, go to Appendix E: Finding the MAC Address and IP Address for Your Ethernet Adapter. Block WAN Requests. Enable the Block WAN Request feature by checking the radio button beside Block Anonymous Internet Requests and you can prevent your network from being "pinged," or detected, by other Internet users.



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Click Disabled if you want to allow anonymous Internet requests. The Block WAN Request feature also reinforces your network security by hiding your network ports. Both functions of the Block WAN Request Figure 5-22: Security Tab - MAC Filter Chapter 5: Configuring the Wireless-B Broadband Router The Wireless Tab - Advanced Wireless Settings Figure 5-21: Security Tab - Filter 21 Wireless-B Broadband Router feature make it more difficult for outside users to work their way into your network. This feature is enabled by default. Filter Multicast.

This feature allows for multiple transmissions to specific recipients at the same time. Select Enabled to support the feature, or Disabled to keep the Router from multicasting. Change these settings as described here and click the Save Settings button to apply your changes or Cancel Changes to cancel your changes. The Security Tab - VPN Passthrough Use the settings on this tab to allow VPN tunnels in either IPSec or PPTP protocols to pass through the Router's firewall. IPSec Passthrough. Internet Protocol Security (IPSec) is a suite of protocols used to implement secure exchange of packets at the IP layer. To allow IPSec tunnels to pass through the Router, click the radio button beside Enabled. IPSec Passthrough is enabled by default. Click Disabled to disable the function. PPPoE Passthrough.

Point-to-Point Protocol over Ethernet allows your PC(s) to use the PPPoE client software provided by your ISP. Some ISPs may request that you use this feature. To allow PPPoE Passthrough, click the radio button beside Enabled. PPTP Passthrough is enabled by default. Click Disabled to disable the function. PPTP Passthrough. Point-to-Point Tunneling Protocol is the method used to enable VPN sessions to a Windows NT 4.0 or 2000 server. To allow PPTP tunnels to pass through the Router, click the radio button beside Enabled. PPTP Passthrough is enabled by default.

Click Disabled to disable the function. Change these settings as described here and click the Save Settings button to apply your changes or Cancel Changes to cancel your changes. Figure 5-23: Security Tab - VPN Passthrough Chapter 5: Configuring the Wireless-B Broadband Router The Security Tab - VPN Passthrough 22 Wireless-B Broadband Router The Applications and Gaming Tab - Port Range Forwarding The Applications and Gaming Tab allows you to set 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.

) To forward a port, enter the information on each line for the criteria required. Descriptions of each criteria are described here. Application. In this field, enter the name you wish to give the application. Each name can be up to 12 characters.

Start/End. This is the port range. Enter the number that starts the port range under Start and the number that ends the range under End. Protocol. Enter the protocol used for this application, either TCP or UDP, or Both. IP Address. For each application, enter the IP Address of the PC running the specific application. Enable. Click the Enable checkbox to enable port forwarding for the relevant application. Figure 5-24: Applications and Gaming Tab - Port Range Forwarding Change these settings as described here and click the Save Settings button to apply your changes or Cancel Changes to cancel your changes.

Chapter 5: Configuring the Wireless-B Broadband Router The Applications and Gaming Tab - Port Range Forwarding 23 Wireless-B Broadband Router The Applications and Gaming Tab - Port Triggering Port Triggering Port Triggering is used for special applications that can request a port to be opened on demand. For this feature, the Gateway will watch outgoing data for specific port numbers. The Gateway will remember the IP address of the computer that sends a transmission requesting data, so that when the requested data returns through the Gateway, the data is pulled back to the proper computer by way of IP address and port mapping rules. Application. Enter the name you wish to give each application. Start Port and End Port. Enter the starting and ending Triggered Range numbers and the Forwarded Range numbers of the port you wish to forward. When finished making your changes on this tab, click the Save Settings button to save these changes, or click the Cancel Changes button to undo your changes. Figure 5-25: Applications and Gaming - Port Triggering The Applications and Gaming Tab - UPnP Forwarding UPnP Forwarding The UPnP Forwarding screen provides options for customization of port services for common applications. When users send this type of request to your network via the Internet, the Gateway will forward those requests to the appropriate computer.

Any computer whose port is being forwarded should have its DHCP client function disabled and should have a new static IP address assigned to it because its IP address may change when using the DHCP function. Choose or enter the Application in the field. Then, enter the External and Internal Port numbers in the fields. Select the type of protocol you wish to use for each application: TCP or UDP. Enter the IP Address in the field.

Click Enabled to enable UPnP Forwarding for the chosen application. When finished making your changes on this tab, click the Save Settings button to save these changes, or click the Cancel Changes button to undo your changes. Figure 5-26: Applications and Gaming - UPnP Forwarding Chapter 5: Configuring the Wireless-B Broadband Router The Applications and Gaming Tab - Port Triggering 24 Wireless-B Broadband Router The Applications and Gaming Tab -

DMZ The DMZ feature allows one network user to be exposed to the Internet for use of a special-purpose service such as Internet gaming or videoconferencing. DMZ hosting forwards all the ports at the same time to one PC. The Port Range Forward feature is more secure because it only opens the ports you want to have opened, while DMZ hosting opens all the ports of one computer, exposing the computer to the Internet.

Any PC whose port is being forwarded must have its DHCP client function disabled and should have a new static IP address assigned to it because its IP address may change when using the DHCP function. To expose one PC, select Enable. Then, enter the computer's IP address in the DMZ Host IP Address field. Change these settings as described here and click the Save Settings button to apply your changes or Cancel Changes to cancel your changes. Figure 5-27: Applications and Gaming - DMZ The Administration Tab - Management This section of the Administration tab allows the network's administrator to manage specific Router functions for access and security. Local Router Access. You can change the Router's password from here.



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Enter a new Router password and then type it again in the Re-enter to confirm field to confirm. **IMPORTANT:** Enabling remote Administration allows anyone with access to your password to configure the Router from somewhere else on the Internet. Remote Router Access.

This feature allows you to access the Router from a remote location, via the Internet. Remote Upgrade allows you to upgrade your firmware from a remote location. To enable Remote Upgrade, select Enabled. Remote Administration allows you to manage the Router from a remote location via the Internet. To enable Remote Administration, select Enabled. Enter the Administration Port number you will use to remotely access the Router. UPnP. UPnP allows Windows XP to automatically configure the Gateway for various Internet applications, such as gaming and videoconferencing. When using UPnP features, select Enable. Because allowing this may present a risk to security, this feature is disabled by default.

To allow users to make configuration changes, select Enabled. To allow users to disable Internet access, select Enabled. Figure 5-28: Administration Tab - Management Chapter 5: Configuring the Wireless-B Broadband Router The Applications and Gaming Tab - DMZ 25 Wireless-B Broadband Router To back up or restore a configuration, click the Backup and Restore button and the Backup & Restore Configuration screen will appear. To back up a configuration, click the Backup button. To restore a configuration, click the Browse button to find the file, then click the Restore button.

Change these settings as described here and click the Save Settings button to apply your changes or Cancel Changes to cancel your changes. The Administration Tab - Log Figure 5-29: Backup & Restore The Router can keep logs of all traffic for your Internet connection. To disable the Log function, select No. To monitor traffic between the network and the Internet, select Yes. When you wish to view the logs, click Incoming Log or Outgoing Log, depending on which you wish to view.

Logviewer IP Address. Logviewer IP Address uses a logviewer program installed in a PC. Enter the IP Address of the PC running the logviewer. The logviewer program is included on the Setup CD-ROM. Change these settings as described here and click the Save Settings button to apply your changes or Cancel Changes to cancel your changes. Figure 5-30: Administration Tab - Log Figure 5-31: Log Table Chapter 5: Configuring the Wireless-B Broadband Router The Administration Tab - Log 26 Wireless-B Broadband Router The Administration Tab - Firmware Upgrade **IMPORTANT:** Upgrading the firmware could erase all of your settings (WEP Encryption, Wireless and LAN settings, etc.), and replace them with the factory defaults. Linksys recommends that you back up your configuration settings before you upgrade the firmware. Firmware can be upgraded by following these instructions. Do not upgrade your firmware unless you are experiencing problems with the Router.

You can lose your settings when you upgrade the firmware, so Linksys recommends that you back up your settings first. You can back up your configuration from the Management screen of the Administration tab. To upgrade your firmware: Figure 5-32: Administration Tab - Firmware Upgrade Download the firmware from Linksys's website at [www.linksys.com/international](http://www.linksys.com/international) (choose your region/ country and proceed as directed by the web page). Enter the location of the firmware's file or click the Browse button to find the file. Then, click the Upgrade button to upgrade the firmware. For more information about upgrading firmware, refer to "Appendix C: Upgrading Firmware". Chapter 5: Configuring the Wireless-B Broadband Router The Administration Tab - Firmware Upgrade 27 Wireless-B Broadband Router The Administration Tab - Factory Defaults Click the Yes button to reset all configuration settings to their default values, and then click the Save Settings button. Any settings you have saved will be lost when the default settings are restored.

This feature is disabled by default. Click the Cancel Changes button to cancel your changes. **IMPORTANT:** Restoring the Router's factory default settings will erase all of your settings (WEP Encryption, Wireless and LAN settings, etc.), and replace them with the factory defaults. Do not reset the Router if you want to retain these settings.

Figure 5-33: Administration Tab - Factory Defaults Chapter 5: Configuring the Wireless-B Broadband Router The Administration Tab - Factory Defaults 28 Wireless-B Broadband Router The Status Tab - Router The Router screen on the Status Tab displays the Router's current status. Firmware Version. This is the Router's current firmware. MAC Address. This is the Router's MAC Address, as seen by your ISP.

Login Type. The status of the connection is displayed only for PPPoE, RAS, PPTP, or Heart Beat Signal connections. For these dial-up style connections, there is a Connect button to click if there is no connection and you want to establish an Internet connection, and a Disconnect button to disconnect the Internet connection. Internet IP Address. The Router's Internet IP Address is displayed here. Subnet Mask and Default Gateway. The Router's Subnet Mask and Default Gateway address are displayed here for DHCP and static IP connections. Primary DNS and Secondary DNS. Shown here are the DNS (Domain Name System) IP addresses currently used by the Router. Figure 5-34: Status Tab - Router DHCP Release.

Available for a DHCP connection, click the DHCP Release button to release the current IP address of the device connected to the Router's Internet port. DHCP Renew. Available for a DHCP connection, click the DHCP Renew button to replace the current IP address-- of the device connected to the Router's Internet port--with a new IP address. Change these settings as described here and click the Save Settings button to apply your changes or Cancel Changes to cancel your changes. Chapter 5: Configuring the Wireless-B Broadband Router The Status Tab - Router 29 Wireless-B Broadband Router The Status Tab - Local Network The Local Network screen on the Status Tab displays the status of your network. Local MAC Address. This is the Router's MAC Address, as seen on your local, Ethernet network. IP Address. This shows the Router's IP Address, as it appears on your local, Ethernet network. Subnet Mask.

When the Router is using a Subnet Mask, it is shown here. DHCP Server. If you are using the Router as a DHCP server, that will be displayed here. DHCP Client Table. Clicking this button will open a screen to show you which PCs are utilizing the Router as a DHCP server.

You can delete PCs from that list, and sever their connections, by checking a Delete box and clicking the Delete button. Click the Refresh button to refresh the screen. Figure 5-35: Status Tab - Local Network Figure 5-36: Status Tab - DHCP Active IP Table Chapter 5: Configuring the Wireless-B Broadband Router The Status Tab - Local Network 30 Wireless-B Broadband Router Appendix A: Troubleshooting This appendix consists of two parts: "Common Problems and Solutions" and "Frequently Asked Questions."



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" Provided are possible solutions to problems that may occur during the installation and operation of the Router. Read the descriptions below to help you solve your problems.

If you can't find an answer here, check the Linksys website at [www.linksys.com](http://www.linksys.com). Common Problems and Solutions 1. I need to set a static IP address on a PC. You can assign a static IP address to a PC by performing the following steps: · For Windows 98 and Me: 1. Click Start, Settings, and Control Panel. Double-click Network. 2. 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. 3. 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. Make sure that each IP address is unique for each PC or network device. 4. 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. 5. 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. 6.

Click the OK button in the TCP/IP properties window, and click Close or the OK button for the Network window. 7. Restart the computer when asked. · For Windows 2000: 1. Click Start, Settings, and Control Panel. Double-click Network and Dial-Up Connections. 2. Right-click the Local Area Connection that is associated with the Ethernet adapter you are using, and select the Properties option. 3. 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. 4. Enter a unique IP address that is not used by any other computer on the network connected to the Router. 5. Enter the Subnet Mask, 255.255.255.0. 6. Enter the Default Gateway, 192.168.1.1 (Router's default IP address). Appendix A: Troubleshooting Common Problems and Solutions 31 Wireless-B Broadband Router 7. 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. 8. Click the OK button in the Internet Protocol (TCP/IP) Properties window, and click the OK button in the Local Area Connection Properties window. 9. 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. 1. Click Start and Control Panel. 2. Click the Network and Internet Connections icon and then the Network Connections icon. 3. Right-click the Local Area Connection that is associated with the Ethernet adapter you are using, and select the Properties option. 4. In the This connection uses the following items box, highlight Internet Protocol (TCP/IP).

Click the Properties button. 5. Enter a unique IP address that is not used by any other computer on the network connected to the Router. 6. Enter the Subnet Mask, 255.255.255.0. 7. Enter the Default Gateway, 192.

168.1.1 (Router's default IP address). 8. 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. 9. 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 98, Me, 2000, and XP: · Refer to "Chapter 5: Configuring the Wireless-B Broadband Router" for details. Make sure Obtain IP address automatically is selected in the settings. B. Open a command prompt. For Windows 98 and Me: Click Start and Run. In the Open field, type in command. Press the Enter key or click the OK button.

For Windows 2000 and XP: · Click Start and Run. In the Open field, type cmd. Press the Enter key or click the OK button. 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. Appendix A: Troubleshooting Common Problems and Solutions 32 Wireless-B Broadband Router C.

In the command prompt, type ping followed by your Internet or Internet IP address and press the Enter key. The Internet or Internet IP Address can be found on the Status screen of the Router's web-based utility. For example, if your Internet or Internet 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. D. 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. 5.

@@@1. @@2. Make sure you are using the right Internet connection settings. @@@3. Make sure you have the right cable. Check to see if the Internet column has a solidly lit Link/Act LED. 4. @@@@5. Turn off the computer, Router, and cable/DSL modem. @@@@6.

@@@@1. @@2. @@@@@@@@@@@@@@@@We will be setting up web, ftp, and mail servers. 1. @@Go to the Applications & Gaming => Port Forwarding tab.

2. Enter any name you want to use for the Customized Application. 3. Enter the External Port range of the service you are using. @@4. Check the protocol you will be using, TCP and/or UDP. 5. @@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 E: Finding the MAC Address and IP Address for Your Ethernet Adapter" for details on getting an IP address. 6. Check the Enable option for the port services you want to use. Consider the example below: Customized Application Web server FTP server SMTP (outgoing) POP3 (incoming) External Port TCP 80 to 80 21 to 21 25 to 25 110 to 110 X X X X UDP X X X X IP Address 192.

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