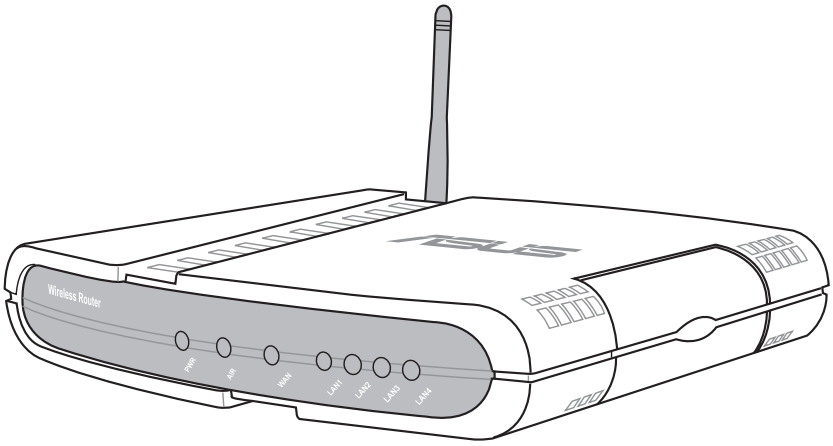
WL500g / WL500g Deluxe Wireless Router

(For 802.11g/b Wireless Clients)

WL500b Wireless Router

(For 802.11b Wireless Clients)



User's Manual

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Product Name: WL500g/WL500g Deluxe/WL500b
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ASUSTeK COMPUTER INC. (Asia-Pacific)

Company Address:	15 Li-Te Road, Peitou, Taipei 112
General Telephone:	+886-2-2894-3447
General Fax:	+886-2-2894-7798
Web Site Address:	www.asus.com.tw
General Email:	info@asus.com.tw

Technical Support

MB/Others (Tel):	+886-2-2890-7121
Notebook (Tel):	+886-2-2894-3447
Desktop/Server (Tel):	+886-2-2890-7123
Networking (Tel):	+886-2-2890-7902
Support Fax:	+886-2-2890-7698

ASUS COMPUTER INTERNATIONAL (America)

Company Address:	44370 Nobel Drive, Fremont, CA 94538, USA
General Fax:	+1-510-608-4555
Web Site Address:	usa.asus.com
General Email:	tsd@asus.com

Technical Support

General Support:	+1-502-995-0883
Notebook (Tel):	+1-510-739-3777 x5110
Support Email:	notebooktsd@asus.com
Support Fax:	+1-502-933-8713

ASUS COMPUTER GmbH (Germany & Austria)

Company Address:	Harkort Str. 25, D-40880 Ratingen, Germany
General Telephone:	+49-2102-95990
General Fax:	+49-2102-959911
Web Site Address:	www.asuscom.de
Online Contact:	www.asuscom.de/sales

Technical Support

Component Support:	+49-2102-95990
Notebook Support:	+49-2102-959910
Online Support:	www.asuscom.de/support
Support Fax:	+49-2102-959911

ASUS COMPUTER (Middle East and North Africa)

Company Address:	P.O. Box 64133, Dubai, U.A.E.
General Telephone:	+9714-283-1774
General Fax:	+9714-283-1775
Web Site Address:	www.ASUSarabia.com

Federal Communications Commission Statement

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to Part 15 of the Federal Communications Commission (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:

- Reorient or relocate the receiving antenna.
- 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.

WARNING! The use of a shielded-type power cord is required in order to meet FCC emission limits and to prevent interference to the nearby radio and television reception. It is essential that only the supplied power cord be used. Use only shielded cables to connect I/O devices to this equipment. You are cautioned that changes or modifications not expressly approved by the party responsible for compliance could void your authority to operate the equipment.

Reprinted from the Code of Federal Regulations #47, part 15.193, 1993. Washington DC: Office of the Federal Register, National Archives and Records Administration, U.S. Government Printing Office.

Canadian Department of Communications

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

This Class B digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

FCC Radio Frequency Exposure Caution Statement

In order to maintain compliance with the FCC RF exposure guidelines, this equipment should be installed and operated with minimum distance 20 cm 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. Any changes of modifications not expressly approved by the grantee of this device could void the users authority to operate the equipment.

Installation and use of this Wireless LAN device must be in strict accordance with the instructions included in the user documentation provided with the product. Any changes or modifications (including the antennas) made to this device that are not expressly approved by the manufacturer may void the user's authority to operate the equipment. The manufacturer is not responsible for any radio or television interference caused by unauthorized modification of this device, or the substitution or attachment of connecting cables and equipment other than manufacturer specified. It is the responsibility of the user to correct any interference caused by such unauthorized modification, substitution or attachment. Manufacturer and its authorized resellers or distributors will assume no liability for any damage or violation of government regulations arising from failing to comply with these guidelines.

This device and its antenna(s) must not be co-located or operating in conjunction with any other antenna or transmitter.

Declaration of Conformity for R&TTE directive 1999/5/EC

Essential requirements – Article 3

Protection requirements for health and safety – Article 3.1a

Testing for electric safety according to EN 60950 has been conducted. These are considered relevant and sufficient.

Protection requirements for electromagnetic compatibility – Article 3.1b

Testing for electromagnetic compatibility according to EN 301 489-1 and EN 301 489-17 has been conducted. These are considered relevant and sufficient.

Effective use of the radio spectrum – Article 3.2

Testing for radio test suites according to EN 300 328-2 has been conducted. These are considered relevant and sufficient.

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1. Introduction

Overview

Thank you for purchasing the ASUS Wireless Router. The ASUS Wireless Router, WL500g/WL500g Deluxe, complies with IEEE 802.11g and 802.11b standards. The ASUS 802.11b Wireless Router, WL500b, complies with IEEE 802.11b standards. The 802.11g is as extension to 802.11b (used in majority of wireless LANs today) that broadens 802.11b's data rates to 54 Mbps within the 2.4 GHz band using OFDM (orthogonal frequency division multiplexing) technology. The 802.11g allows backward compatibility with 802.11b devices but only at 11 Mbps or lower, depending on the range and presence of obstructions. Wireless LANs are complementary extensions to existing wired LANs, offering complete mobility while maintaining continuous network connectivity to both corporate and home Intranets. They add a new level of convenience for LAN users. PC users stay connected to the network anywhere throughout a building without being bound by a LAN wires. This is accomplished through the use of Access Point functionality of ASUS Wireless Routers. ASUS Wireless Router with built-in Internet gateway capability, allows your family to share a broadband Modem and one ISP account simultaneously from different rooms without wires! ASUS Wireless products can keep you connected anywhere, any time.

System Requirements

To begin using the ASUS 802.11g/802.11b Wireless Router, you must have the following minimum requirements:

- ADSL/Cable Modem and Broadband Internet Account.
- An Ethernet (10Base-T or 10/100Base-TX) adapter for wired client
- At least one 802.11g (54Mbps) or one 802.11b (11Mbps) wireless adapter for wireless mobile clients
- TCP/IP and an Internet browser installed

The Product Package

The WL500g/WL500g Deluxe Wireless Router comes with:

- One ASUS 802.11g Wireless Router
- One ASUS Wireless Router Quick Start Guide
- One power adapter (5 Volts DC)
- One support CD (utilities and user's manual)
- One RJ-45 Ethernet cable (straight-through)

The WL500b Wireless Router comes with:

- One ASUS 802.11b Wireless Router
- One ASUS Wireless Router Quick Start Guide
- One power adapter (5 Volts DC)
- One support CD (utilities and user's manual)
- One RJ-45 Ethernet cable (straight-through)

Features

The WL500g/WL500g Deluxe and WL500b Wireless Router features include:

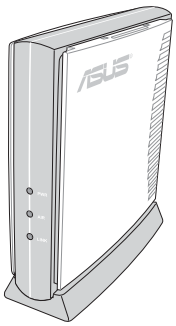
- **Wireless Connectivity And Protect Compatibility.** WL500g/WL500g Deluxe Wireless Router enables fastest 54Mbps IEEE 802.11g wireless transmission but keeps compatibility with existing IEEE 802.11b devices. WL500g Deluxe increases performance compared with standard 802.11g when Afterburner mode is enabled. The WL-500b Wireless Router utilizes the IEEE 802.11b standard.
- **Secure wireless connectivity.** The integrated Wireless Access Point with WPA authentication and encryption functionality allows the wireless router to link a broadband Internet connection to your local network of 802.11g or/and 802.11b wireless mobile clients securely. The ASUS Wireless Router is firmware upgradable to support WPA.
- **Multiple local network ports.** Four 10/100Base-T Ethernet ports, offering either a connection to a hub or switch on the local wired network or a direct connection to multiple Ethernet-enabled computers. Build-in DHCP server allows the Wireless Router to provide IP addresses to clients on your local network automatically.

- **Broadband port.** The Broadband port connects the Wireless Router to your cable/DSL modem. Static IP, dynamically IP and PPPoE (PPP over Ethernet) connection to Internet are supported.
- **Shared Internet access.** All computers on the local network can access the Internet through the Wireless Router, using only a single external IP address.
- **Firewall protection.** The wireless router use of NAT (Network Address Translation) provides firewall protection for your local network.
- **Children Protection.** The wireless router allows you to block the Internet access within a predefined time interval and to block the WWW access with specific keywords in URL within a predefined time interval.
- **USB devices support.** Connecting a USB storage device to the wireless router enables you to set up an FTP server and share the USB storage device with Internet or WLAN users. With a USB web camera, the wireless router allows you to monitor locations such as your home or office from any location through a wireless LAN or over the Internet.
- **Printer sharing.** With an additional Printer, the ASUS Wireless Router allows you to share the printer to your local area network. Standard parallel printers are supported.
- **Easy setup and management.** Use your web browser from any computer on the local network to configure the ASUS Wireless Router.

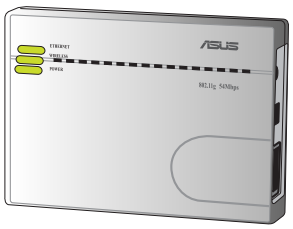
The ASUS Wireless Family

The ASUS Wireless family contains a several wireless network solutions for 802.11g & 802.11b wireless local area networks in the home or office.

Access Point or Client

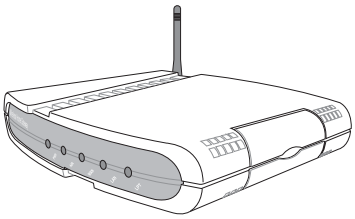


The **ASUS WLAN 802.11g Access Point (WL-300g)** creates a wireless network using the IEEE 802.11g and 802.11b wireless standards.

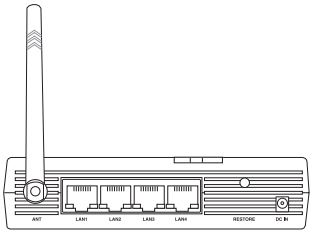


The **ASUS 3 in 1 Pocket Access Point (WL-330g)** creates a wireless network using the IEEE 802.11g/b wireless standards.

Access Point & Router

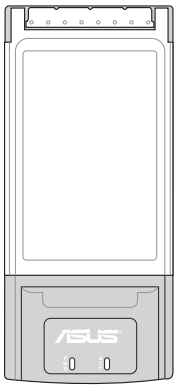


The **ASUS WLAN Gateway (WL-500g)** creates a wireless network using the IEEE 802.11g/b wireless standards and allows sharing a single Internet connection.



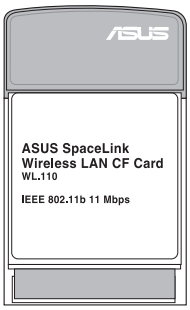
The **ASUS WLAN 802.11g Pocket Router (WL-530g)** creates a wireless network using the IEEE 802.11g and 802.11b wireless standards and allows sharing a single Internet connection.

PCMCIA Client



The **ASUS WLAN PC Card (WL-107g)** is a wireless LAN adapter that fits into a PCMCIA Type II slot in a Notebook PC and creates a wireless network using the IEEE 802.11g/b wireless standards.

Compact Flash (CF) Client



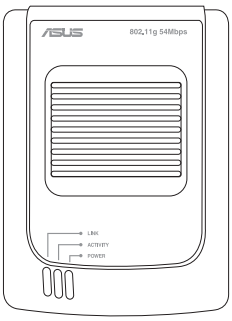
The **ASUS 802.11b Wireless CF Card (WL-110)** is a IEEE 802.11b wireless LAN adapter that fits into a Compact Flash Type II slot in a Portable Digital Assistant (PDA).

(The illustrations are not to scale.)

PCI Client

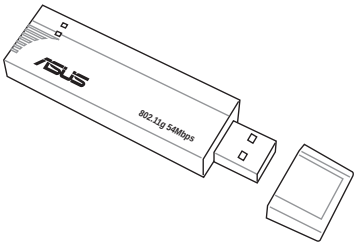
The **ASUS WLAN PCI Card (WL-138g)** is a wireless LAN adapter that fits into a standard PCI slot in a desktop PC and creates a wireless network using the IEEE 802.11g/b wireless standards.

USB Access Point or Client



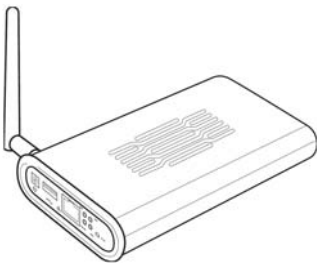
The **ASUS USB Wireless LAN Adapter (WL-160g)** creates a wireless network using the IEEE 802.11g/b wireless standards and connects to any computer using USB2.0 connectivity.

USB Client



The **ASUS USB Wireless LAN Adapter (WL-167g)** is thumb-sized and creates a wireless network using the IEEE 802.11g/b wireless standards and connects to any computer using USB2.0 connectivity.

Access Point & File Server



The **ASUS WLAN 802.11g Access Point (WL-HDD)** creates a wireless network using the IEEE 802.11g and 802.11b wireless standards. Also serves as a file server (wireless network attached storage).

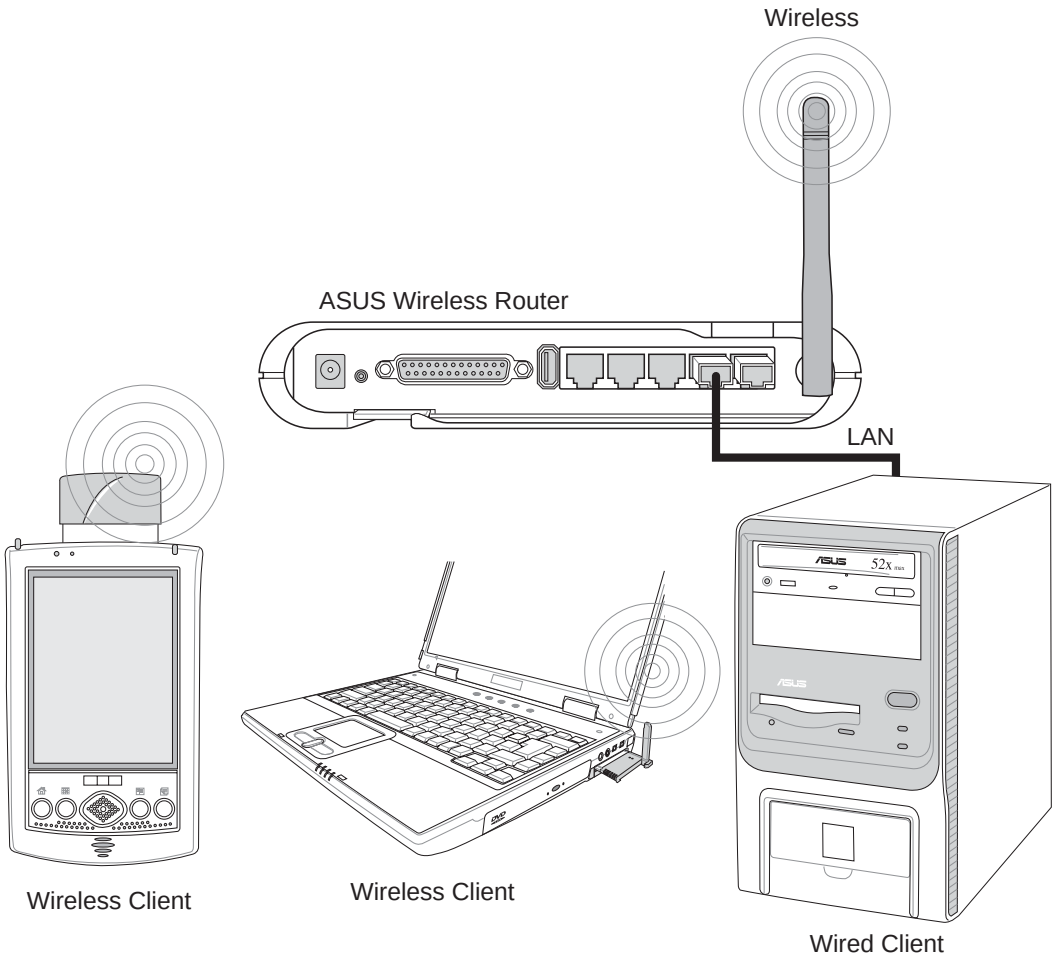
(The illustrations are not to scale.)

Network Topology

The settings that you need to perform will vary depending on the role that your ASUS Wireless Router will play.

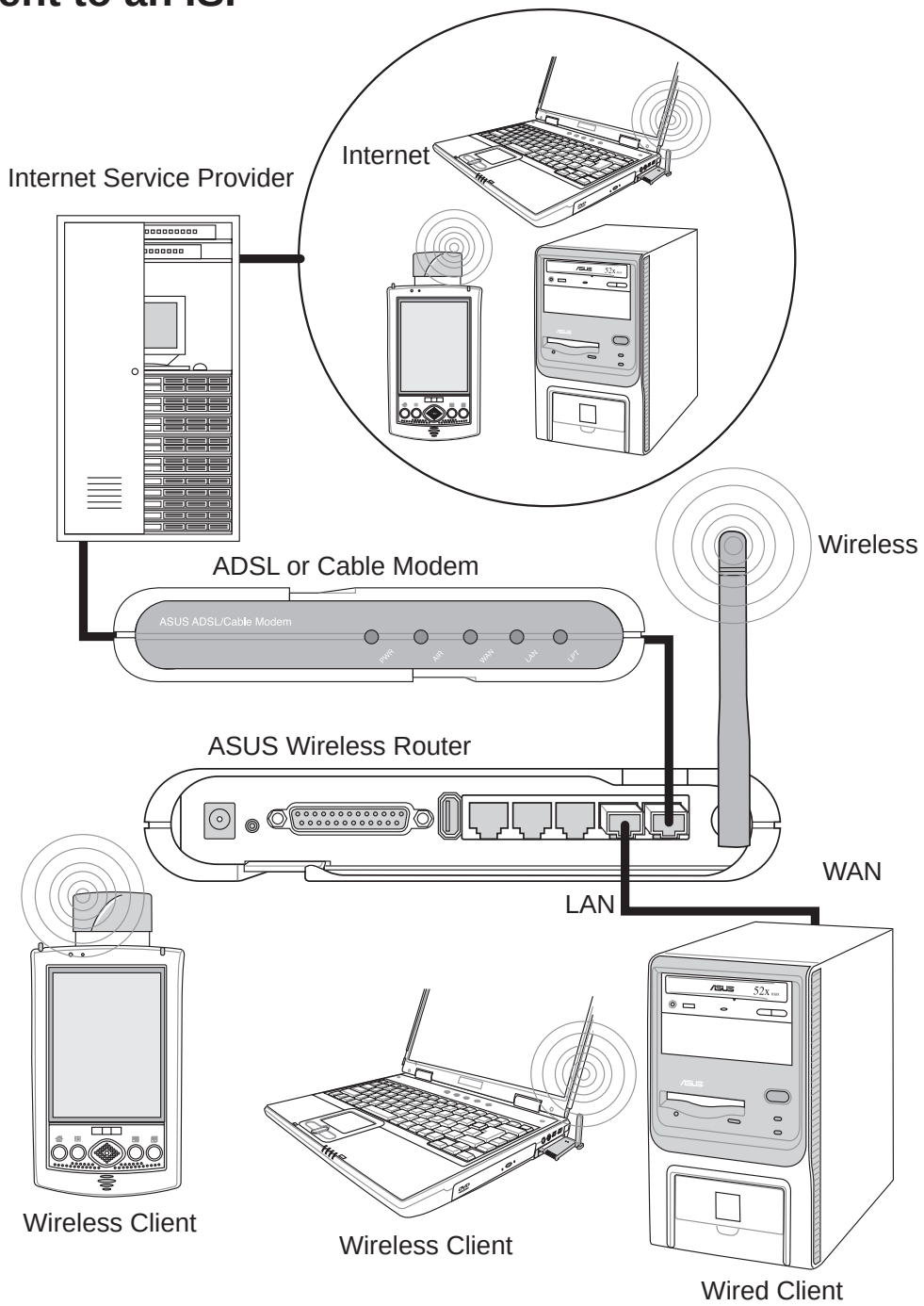
Network Backbone

No software setting is necessary in the ASUS Wireless Router.



In this topology, the wireless router connects your wired and wireless devices together to form a local area network (LAN), as shown. To connect a computer (or other device) to the ASUS Wireless Router, you need a network cable (UTP-Cat5) with one end connected to one of the LAN ports on the back of the ASUS Wireless Router and the other in the 10/100 LAN port on that device. For wireless connections, wireless mobile clients must comply with the IEEE 802.11b standard.

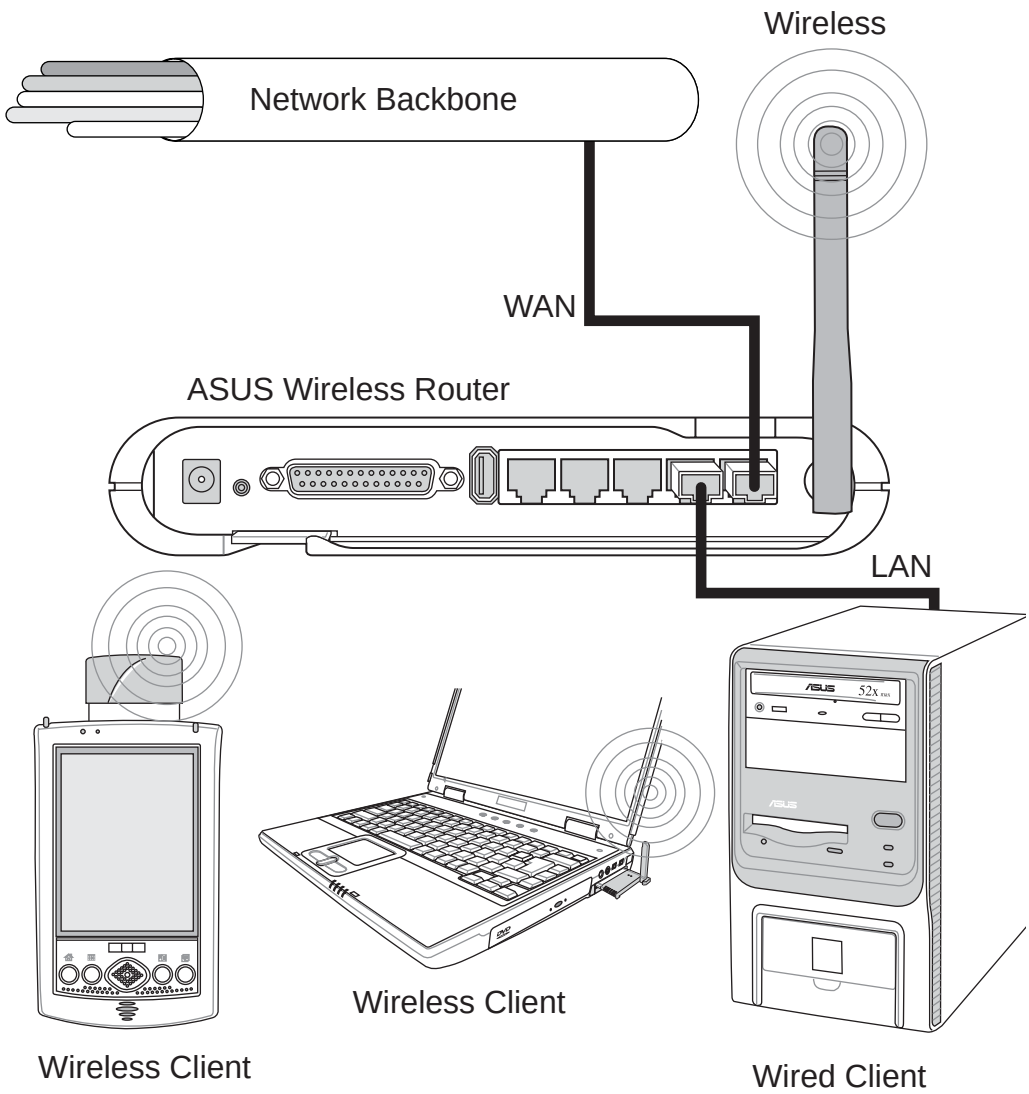
Agent to an ISP



In this topology, the wireless router is not only a backbone of your LAN but also an agent to your Internet Service Provider (ISP). You may use an ADSL or Cable modem to communicate with your ISP. Connect the LAN port on the modem with the WAN port at the back of the ASUS Wireless Router using a network cable as shown above.

Note: You also need to make sure that other connections on the ADSL or Cable modem are correct.

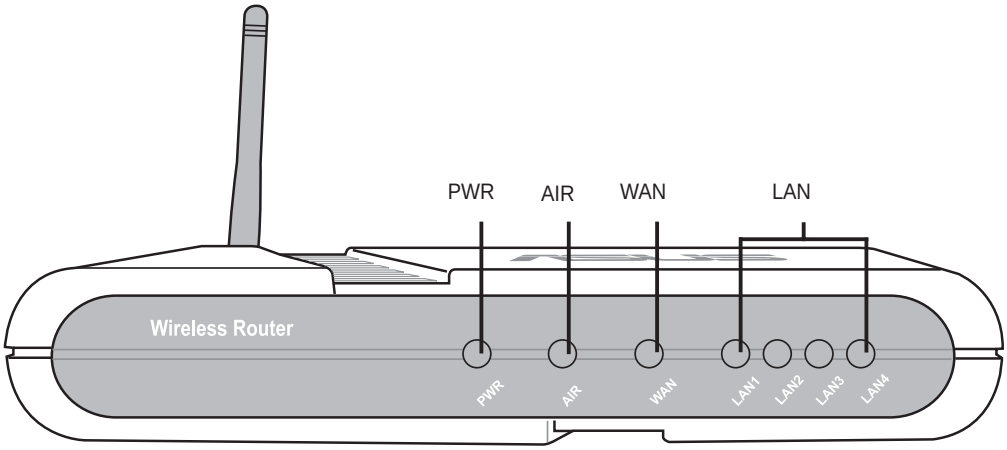
Agent to Another Network



In this topology, the wireless router is an agent between your LAN and another network. Use a network cable with one end connected to the WAN port on the wireless router and the other to the other network as shown above.

LED Indicators

The LEDs on the front of the ASUS Wireless Router display the status of the ASUS Wireless Router.



PWR (Power)

Off	No power
On	System ready
Flashing	Firmware upgrade failed

AIR (Wireless Network)

Off	No power
On	Wireless system ready
Flashing	Transmitting or receiving data (wireless)

WAN (Wide Area Network)

Off	No power
On	Has physical connection to an Ethernet network
Flashing	Transmitting or receiving data (through Ethernet wire)

LAN 1-4 (Local Area Network)

Off	No power
On	Has physical connection to an Ethernet network
Flashing	Transmitting or receiving data (through Ethernet wire)

2. Installation Procedure

Follow these steps to install the ASUS Wireless Router.

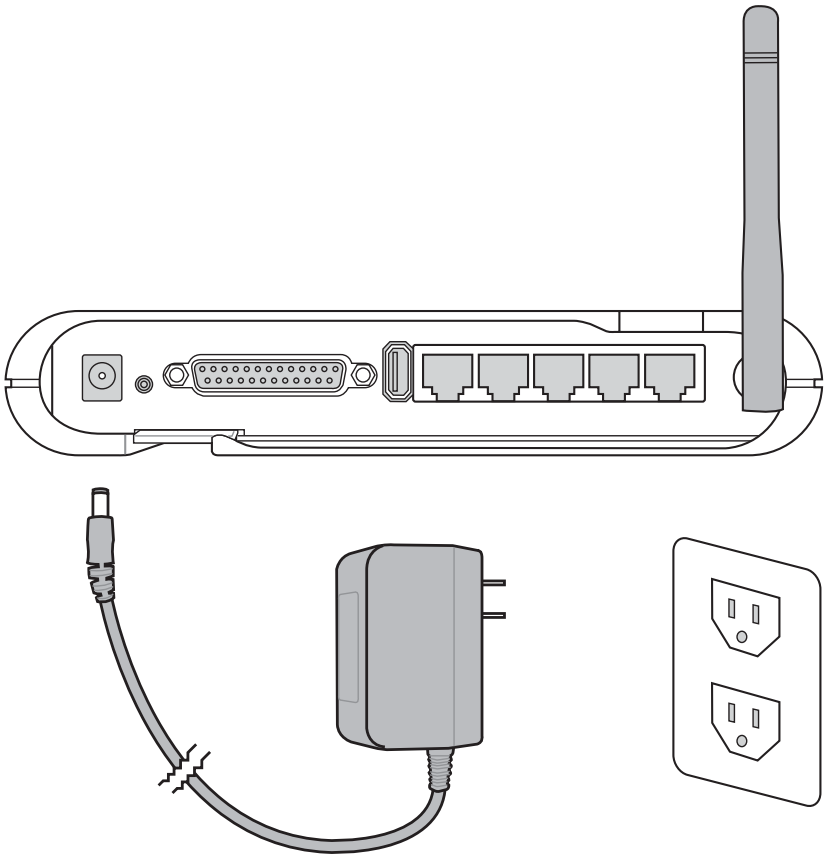
1. Determine the best location for the ASUS Wireless Router. Keep in mind the following considerations:
   - The length of the Ethernet cable that connects the ASUS Wireless Router to the network must not exceed 100 meters.
   - Try to place the ASUS Wireless Router on a flat, sturdy surface as far from the ground as possible, such as on top of a desk or bookcase, keeping clear of obstructions and away from direct sunlight.
   - Try to centrally locate the ASUS Wireless Router so that it will provide coverage to all of the wireless mobile devices in the area. Orientating the antenna vertically should provide the best reception.
   - Use only the power supply that came with this unit. Other power supplies may fit but the voltage and power may not be compatible.
2. Wall mounting or vertical standing is also possible.

It is the responsibility of the installer and users of the ASUS Wireless Router to guarantee that the antenna is operated at least 20 centimeters from any person. This is necessary to insure that the product is operated in accordance with the RF Guidelines for Human Exposure which have been adopted by the Federal Communications Commission.

4. **LAN Connection:** Attach one end of an RJ-45 Ethernet cable to the ASUS Wireless Router's LAN port (any one of the four) and attach the other end to the RJ-45 Ethernet cable to your desktop computer.
5. **Power Connection:** The ASUS Wireless Router requires power from an external power supply. The ASUS Wireless Router ships with a UL listed, Class 2 power supply (5V). Attach one end of the DC power adapter to the back of the ASUS Wireless Router and the other end to a power outlet.

   The Power LED on the front of the ASUS Wireless Router will light up when the unit is powered ON. In addition, the green LAN or WAN LEDs will turn ON to indicate that the ASUS Wireless Router has a physical Ethernet network connection.

Warning: Use the ASUS Wireless Router only with the power adapter supplied in the product package. Using another power supply may damage the ASUS Wireless Router.



6. **Printer Connection:** Connect a printer to the Wireless Router printer port (WL500g/WL500b only) or USB port to use the router as a printing server for your local network.
7. **USB Connection:** Connect a supported USB web camera or USB storage device to the Wireless Router USB port.

Note: Before using an embedded USB application or device, refer to the USB storage and USB camera support list on the ASUSTeK Web site at the following Internet address: http://www.asus.com.

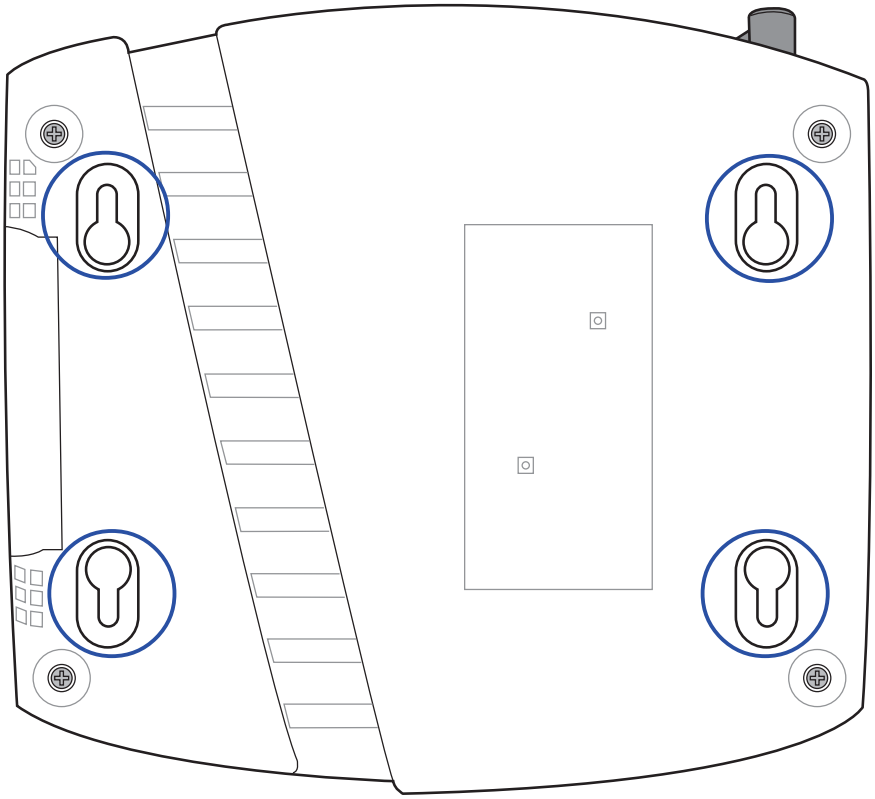
Wall Mounting Option

Out of the box, the ASUS Wireless Router is designed to sit on a raised flat surface like a file cabinet or book shelf. The unit may also be converted for mounting to a wall or ceiling.

Follow these steps to mount the ASUS Wireless Router to a wall:

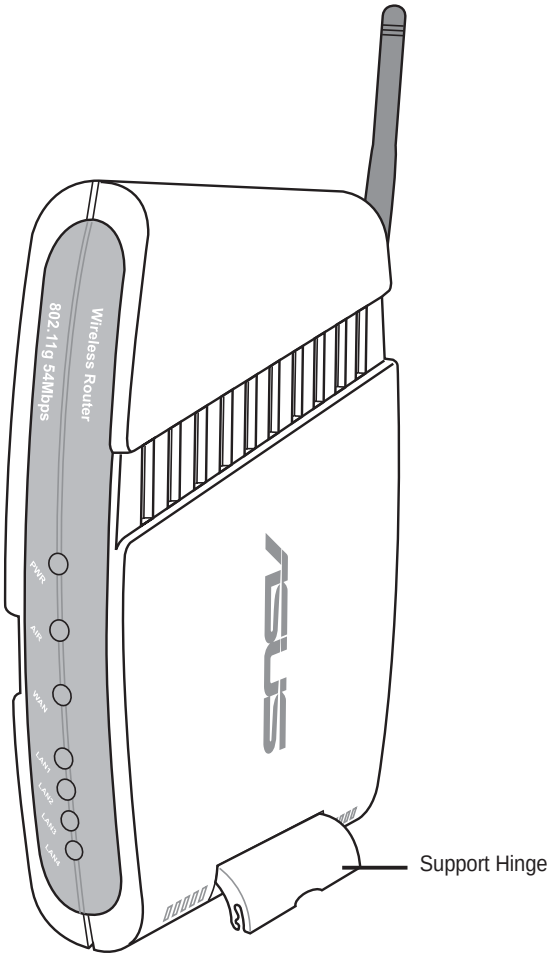
1. Look on the underside for the four mounting hooks.
2. Mark two upper holes in a flat surface using the provided hole template.
3. Tighten two screws until only 1/4” is showing.
4. Latch the upper two hooks of the ASUS Wireless Router onto the screws.

Note: Readjust the screws if you cannot latch the ASUS Wireless Router onto the screws or if it is too loose.



Vertical Standing Option

The ASUS Wireless Router can also stand on its side to save space. Two hinges can be opened on the right side to support vertical standing. Orientate the antenna so that it points upwards.



Connecting to the ASUS Wireless Router

Wired Connection

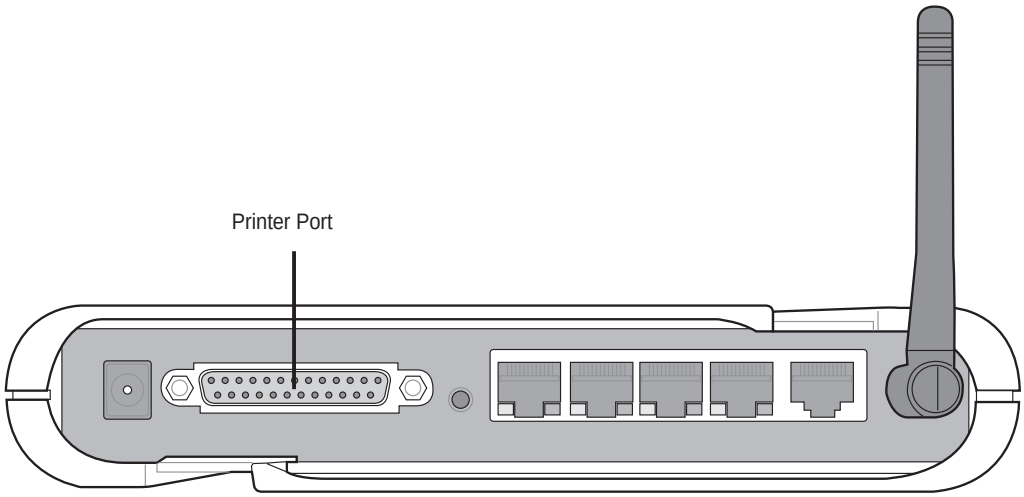
One RJ-45 cable is supplied with the ASUS Wireless Router. Auto crossover function is designed into the ASUS Wireless Router so you can use either a straight-through or a crossover Ethernet cable. Plug one end of the cable into the WAN port on the rear of the ASUS Wireless Router and the other end into the Ethernet port of your ADSL or Cable modem.

Wireless-Connection

Refer to your wireless adapter user's manual on associating with the ASUS Wireless Router. The default SSID of the ASUS Wireless Router is "default" (lower case), encryption is disabled and open system authentication is used.

Printer Connection (WL500g/WL500b only)

A DB25 parallel cable should be supplied with your printer. Plug the male connector of this parallel cable into the printer port on the rear of the ASUS Wireless Router and the centronics end into your printer.



3. Software Configuration

Configuring the ASUS Wireless Router

The ASUS Wireless Router can be configured to meet various usage scenarios. Some of the factory default settings may suit your usage; however, others may need changing. Prior to using the ASUS Wireless Router, you must check the basic settings to guarantee it will work in your environment. Configuring the ASUS Wireless Router is done through a web browser. You need a Notebook PC or desktop PC connected to the ASUS Wireless Router (either directly or through a hub) and running a web browser as a configuration terminal. The connection can be wired or wireless. For the wireless connection, you need an IEEE 802.11g/b compatible device, e.g. ASUS WLAN Card, installed in your Notebook PC. You should also disable WEP and set the SSID to “default” for your wireless LAN device. If you want to configure the ASUS Wireless Router or want to access the Internet through the ASUS Wireless Router, TCP/IP settings must be correct. Normally, the TCP/IP setting should be on the IP subnet of the ASUS Wireless Router.

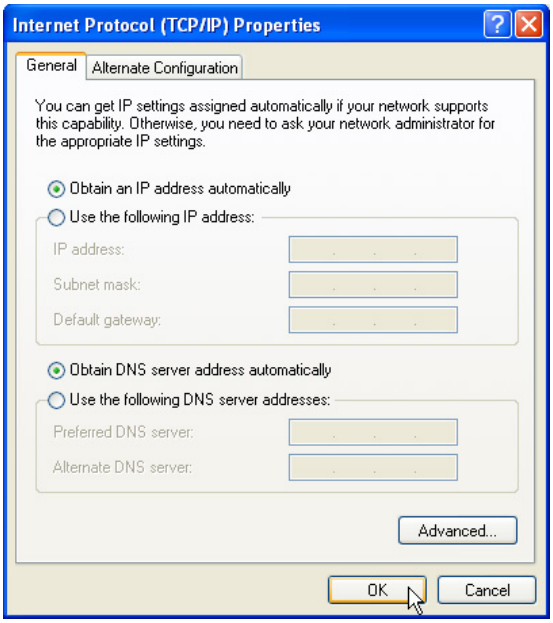
Note: Before rebooting your computer, the ASUS Wireless Router should be switched ON and in ready state.

Setting IP address for Wired or Wireless Connection

Get IP Automatically

The ASUS Wireless Router incorporates a DHCP server so the easiest method is to set your PC to get its IP address automatically and reboot your computer. So the correct IP address, gateway, DNS (Domain Name System Server) can be obtained from the ASUS Wireless Router.

Note: Before rebooting your PC, the ASUS Wireless Router should be switched ON and in ready state.

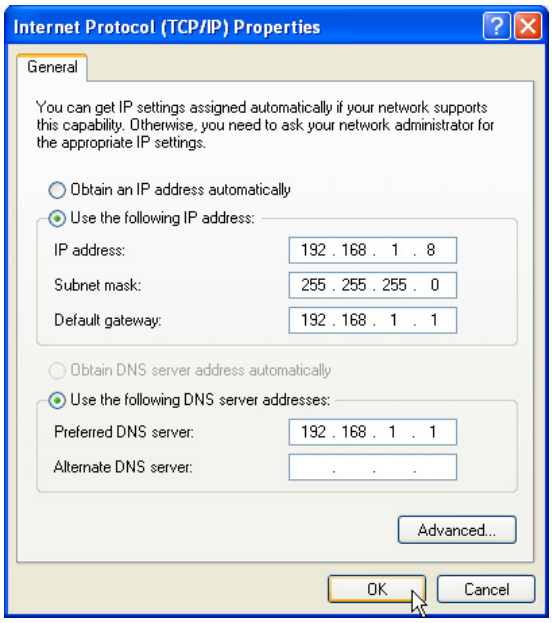


Setting IP Manually

If you want to set your IP address manually, the following default settings of the ASUS Wireless Router should be known:

- IP address 192.168.1.1
- Subnet Mask 255.255.255.0.

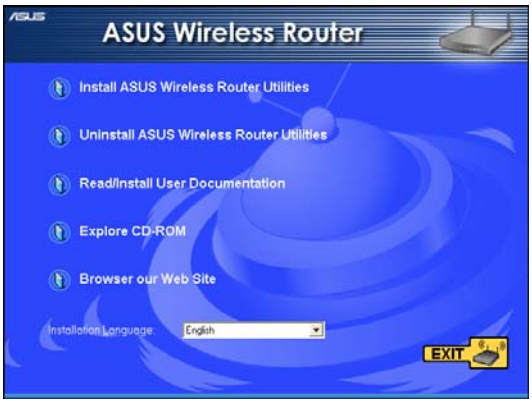
If you set your computer's IP manually, it needs to be on the same segment. For example:



- IP address 192.168.1.xxx (xxx can be any number between 2 and 254 that is not used by another device)
- Subnet Mask 255.255.255.0 (same as the ASUS Wireless Router)
- Gateway 192.168.1.1 (this is the ASUS Wireless Router)
- DNS 192.168.1.1 (ASUS Wireless Router IP address or your own).

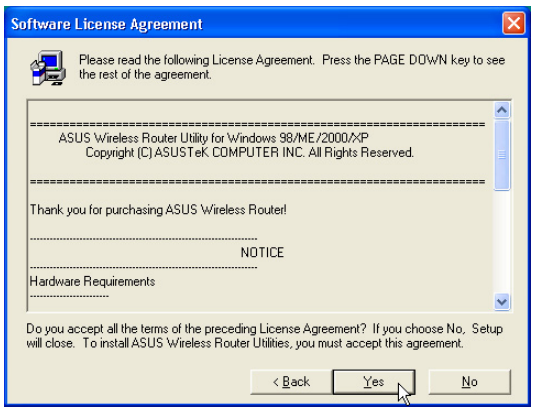
Installing the ASUS Wireless Router Utilities

Follow these steps to install the ASUS Wireless Router Utilities in Microsoft Windows. Insert the support CD provided with the ASUS Wireless Router and the menu will appear. (Double-click **setup.exe** if your autorun has been disabled.)

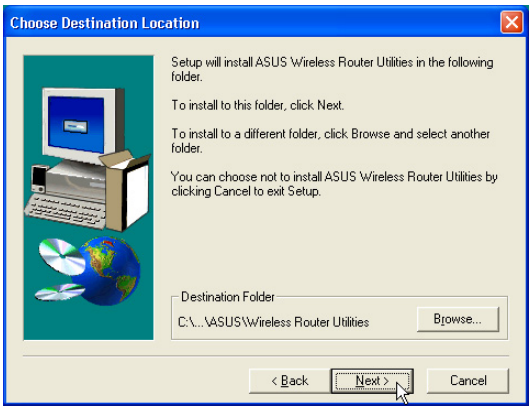


(1) Select a language and click **Install ASUS Wireless Router Utilities**.

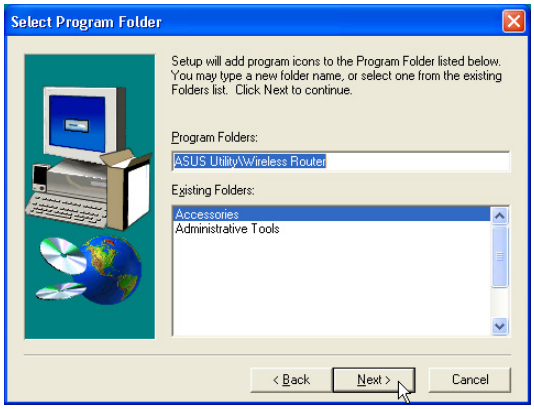
(2) Click **Next** after reading the welcome screen.



(3) Click **Yes** after reading the license agreement.



(4) Click **Next** to accept the default destination folder or enter another.



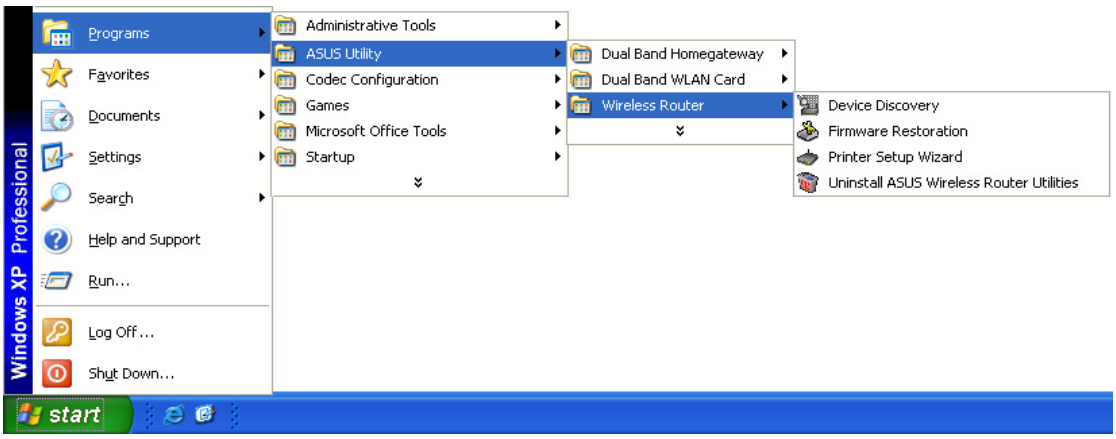
(5) Click **Next** to accept the default program folder or enter another.

(6) Click **Finish** when setup is complete.

Using the Wireless Router for the First Time

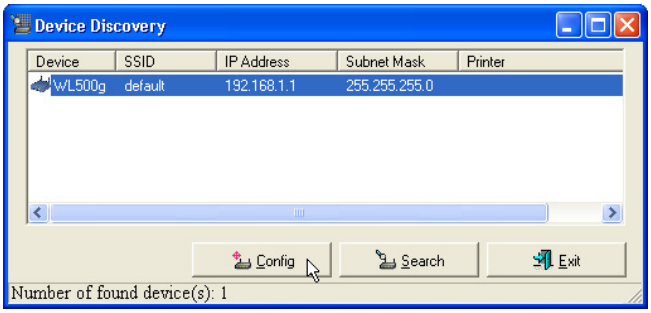
1. ASUS Wireless Router Utilities

Run **Device Discovery** from "ASUS Utility" in Windows Start Programs.

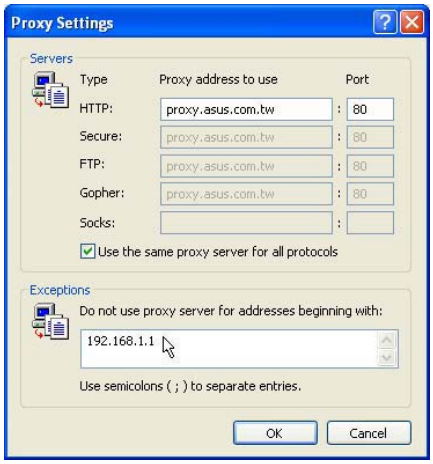


2. Connect to the ASUS WLAN Web Manager

Run the ASUS WLAN **Device Discovery** from the **Start** menu and click **Config** when the device is found.



Microsoft® Internet Explorer



Add **192.168.1.1** in the Exceptions box if you are using a proxy server (Microsoft® Internet Explorer).

If your computer's IP is not on the same subnet as the ASUS Wireless Router (192.168.1.X), you will be asked to change it. The IP address can be any number from 2 to 254 that is not used by another device. Gateway is not required.

Note: Using a proxy server (Microsoft® Internet Explorer) for your LAN requires that you set an exception for the ASUS Wireless Router or else connection will fail.

Enter Address or Name Manually

You can also open your PC's web browser and enter the name or the default IP address of the ASUS Wireless Router:

WL500g

http://my.router or **http://my.WL500g** or **http://192.168.1.1**

WL500g Deluxe

http://my.router or **http://my.WL500gx** or **http://192.168.1.1**

User Name & Password

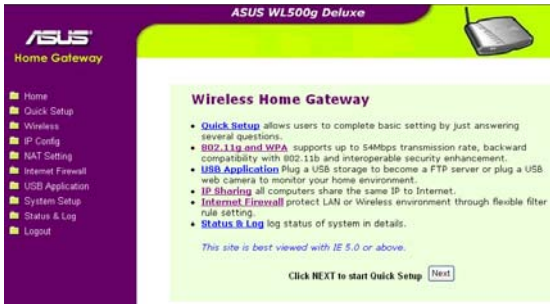
Once connected, a window will ask for the User name and Password in order to log in. The factory default values are "**admin**" and "**admin**".

Note: If you cannot find any the ASUS Wireless Routers due to a problem in the IP settings, push and hold the "Restore" button over five seconds to restore factory default settings.

Home Page

After logging in, you will see the ASUS Wireless Router home page.

WL500g

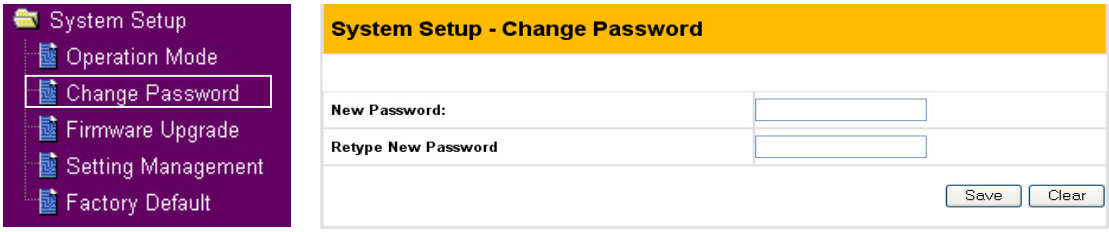


WL500g Deluxe

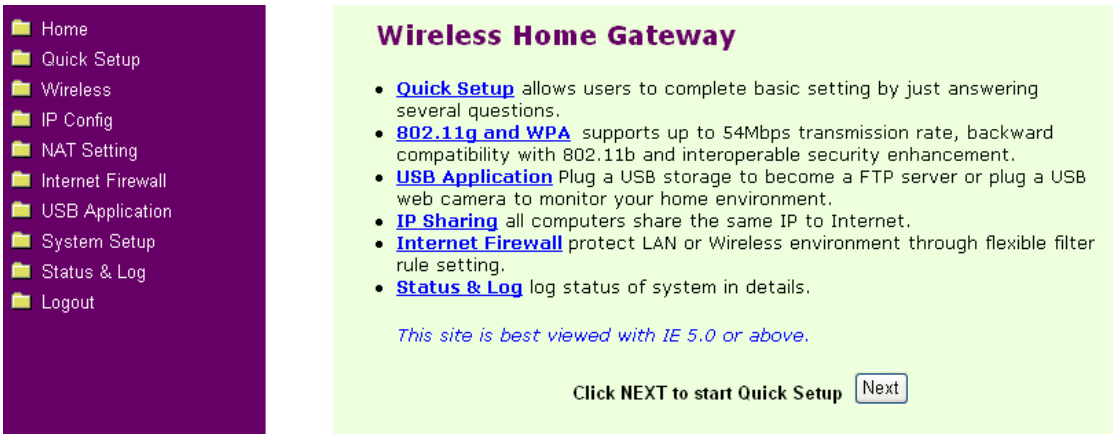
WL500b

IMPORTANT: After entering information on any page, click the "Apply" button Apply. If you click any other link, you will be directed to another page and lose your new settings.

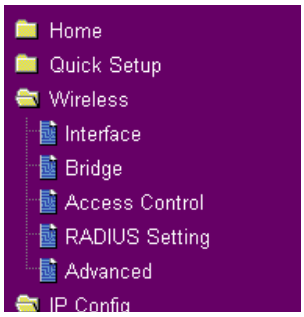
3. Set your own password



4. Use Quick Setup

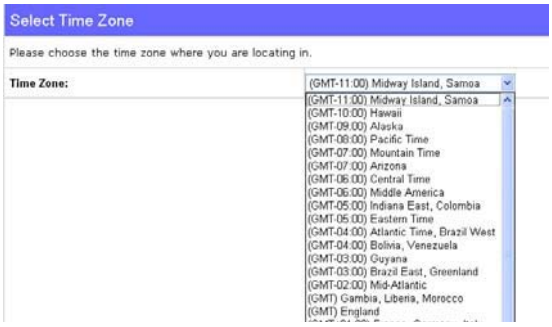


Home Gateway Mode

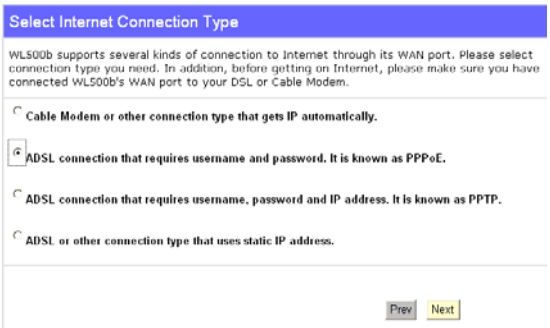


There are three operation modes in the ASUS Wireless Router. The default operation mode of the ASUS Wireless Router is Home Gateway Mode. Please refer to "System Setup" – "Operation Mode" in detail. To start quick setup, click **Next** to enter the "Quick Setup" page. Follow the instructions to setup the ASUS Wireless Router.

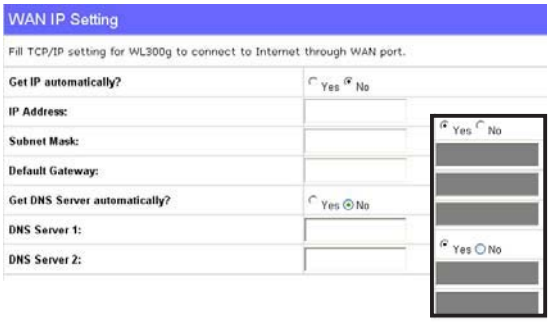
Quick Setup in Home Gateway Mode



Select your time zone or the closest region. Click **Next** to continue.

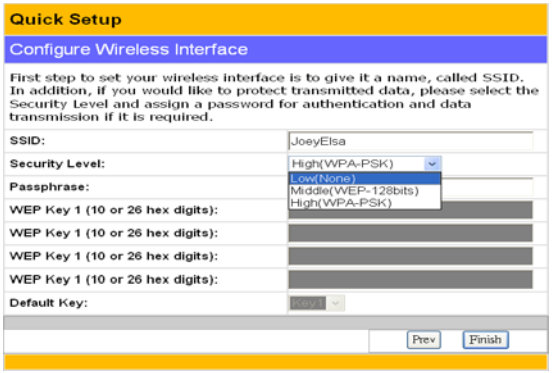


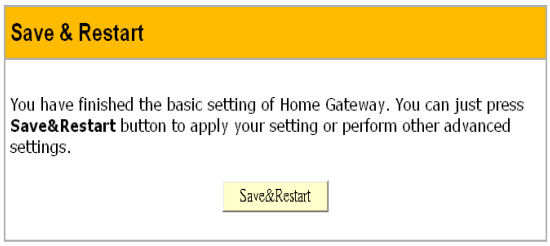
Select the connection type. Click **Next** to continue.



Select "No" to enter the information manually. "Yes" will disable the field. Click **Next** to continue.

Home Gateway Mode (Cont.)





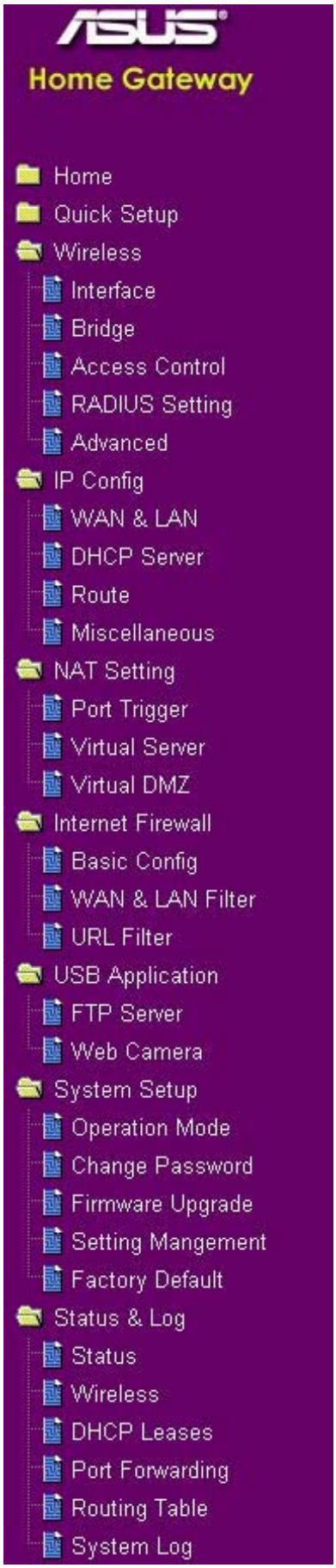
To set up your wireless interface, you must first give it an SSID (Service Set Identifier). The SSID is a unique identifier attached to packets sent over WLANs. This identifier emulates a password when a wireless device attempts communication on the WLAN. Because an SSID distinguishes WLANs from each other, access points and wireless devices trying to connect to a WLAN must use the same SSID.

Also, if you want to protect transmitted data, select a middle or high Security Level.

Middle: allows only those users with the same WEP key to connect to this access point and to transmit data using 128-bit WEP encryption.

High: allows only those users with the same WPA pre-shared key to connect to this access point and to transmit data using TKIP encryption.

Click **Finish** to continue. You are prompted to save the settings. Click **Save&Restart** to save the settings to the ASUS Wireless Router and enable the new settings.

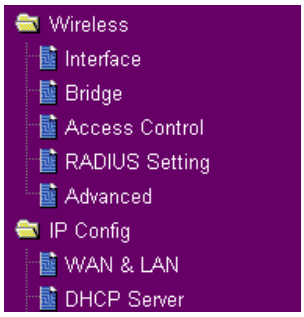


To adjust other settings, click an item on the menu to reveal a submenu and follow the instructions to setup the ASUS Wireless Router. Tips are given when you move your cursor over each item. The following have submenu items:

- Wireless
- IP Config
- NAT Setting
- Internet Firewall
- USB Application
- System Setup
- Status & Log

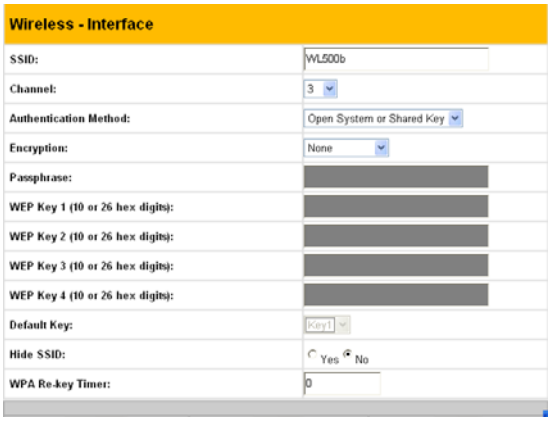
Wireless

Click an item on the menu to reveal a submenu. Follow the instructions to set up the ASUS Wireless Router. Tips are displayed when you move your cursor over an item.

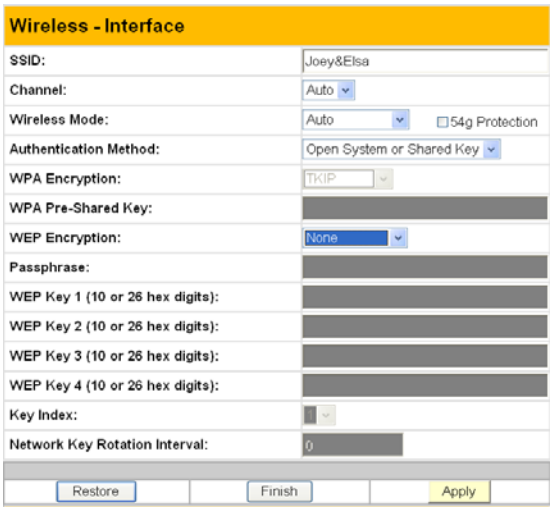


Interface

WL500b



WL500g/WL500g Deluxe



SSID

The SSID is an identification string of up to 32 ASCII characters that differentiate one ASUS Wireless Router AP or Access Point from other manufacturers. The SSID is also referred to as the “ESSID” or “Extended Service Set ID.” You can use the default SSID and radio channel unless more than one ASUS Wireless Router or Access Point is deployed in the same area. In that case, you should use a different SSID and radio channel for each ASUS Wireless Router or Access Point. All ASUS Wireless Routers and ASUS 802.11g/802.11b WLAN client adapters must have the same SSID to allow a wireless mobile client to roam between the ASUS Wireless Routers . By default, the SSID is set to “default”.

Wireless (Cont.)

Channel

The 802.11g and 802.11b specifications supports up to 14 overlapping channels for radio communication. To minimize interference, configure each ASUS 802.11g AP to be non-overlapping; select Auto from the Channel drop-down list to enable the system to select a clear channel during boot up as your operating channel.

Ensure that ASUS Wireless Routers sharing the same channel (or channels which are close in number) are as far away from each other as possible, based on the results of your site survey of the facility. There is a site survey utility on the ASUS Wireless Router setup CD.

Wireless Mode (WL500g/WL500g Deluxe Only)

This field indicates the 802.11g interface mode. Selecting “Auto” allows 802.11g and 802.11b clients to connect to the ASUS Wireless Router. Selecting “54g Only” maximizes performance, but prevents 802.11b clients from connecting to the ASUS Wireless Router. If “54g Protection” is checked, G-Mode protection of 11g traffic is enabled automatically in the presence of 11b traffic.

Wireless (Cont.)

Authentication Method	Encryption	Passphrase	WEP Key 1~4
Open or shared key	None WEP-64 bits WEP-128 bits	Not required 1~64 characters 1~64 characters	Not required 10 hex 26 hex
Shared key	WEP-64 bits WEP-128 bits	1~64 characters 1~64 characters	10 hex 26 hex
WPA-PSK ^	TKIP only * AES only *	8~63 characters 8~63 characters	Not required Not required
WPA ^	TKIP only * AES only *	Not required Not required	Not required Not required
Radius with 802.1x ^	Auto WEP-64 bits WEP-128 bits	Not required 1~64 characters 1~64 characters	Not required 10 hex 26 hex

* WL500g/WL500g Deluxe supports AES and TKIP encryption for WPA.

^ WL500b does not support WPA and Radius with 802.1x and WL500b only supports TKIP encryption for WPA-PSK.

WEP Encryption

Traditional WEP encryption is applied when “Open or Shared Key”, “Shared Key” or “Radius with 802.1x” authentication methods are selected.

WL500g/WL500g Deluxe: When “WPA” or “WPA-PSK” authentication methods are selected, you still can set WEP encryption for those clients that do not support WPA/WPA-PSK. Please note that Key Index for WEP key is limited to 2 or 3 when both WPA and WEP encryption are supported at the same time.

64/128-bit versus 40/104-bit

The following section explains low-level (64-bit) and high-level (128-bit) WEP Encryption schemes:

Wireless (Cont.)

64-bit WEP Encryption

64-bit WEP and 40-bit WEP are the same encryption method and can interoperate in a wireless network. This level of WEP encryption uses a 40-bit (10 Hex character) encryption scheme as a secret key, which is set by the user, and a 24-bit “Initialization Vector” scheme, which is not under user control.

Together these two schemes make a 64-bit (40 + 24) encryption scheme. Some vendors refer to this level of WEP as 40-bit and others refer to this as 64-bit. ASUS WLAN products use the term 64-bit when referring to this *lower* level of encryption.

128-bit WEP Encryption

104-bit WEP and 128-bit WEP are the same encryption method and can interoperate on a wireless network. This level of WEP encryption uses a 104-bit (26 Hex character) encryption scheme as a secret key which is set by the user, and a 24-bit “Initialization Vector”, which is not under user control.

Together these two schemes make a 128-bit (104 + 24) encryption scheme. Some vendors refer to this level of WEP as 104-bit and others refer to this as 128-bit. ASUS WLAN products use the term 128-bit when referring to this *higher* level of encryption.

Passphrase

Selecting “WEP-64bits” or “WEP-128bits” in the Encryption field generates four WEP keys automatically. A combination of up to 64 letters, numbers, or symbols is required. Alternatively, leave this field blank and type in four WEP keys manually.

- ¥ WEP-64bit key: 10 hexadecimal digits (0~9, a~f, and A~F)
- ¥ WEP-128bit key: 26 hexadecimal digits (0~9, a~f, and A~F)

Note: The ASUS WLAN family of products uses the same algorithm to generate WEP keys, eliminating the need for users to remember passwords and to maintain compatibility between products. However, using this method to generate WEP keys is not as secure as manual assignment.

Wireless (Cont.)

WEP Key

You can set a maximum of four WEP keys. A WEP key is either 10 or 26 hexadecimal digits (0~9, a~f, and A~F) based on whether you select 64bits or 128bits in the WEP pull-down menu. The ASUS Wireless Router and ALL of its wireless clients MUST have at least the same default key.

Key Index

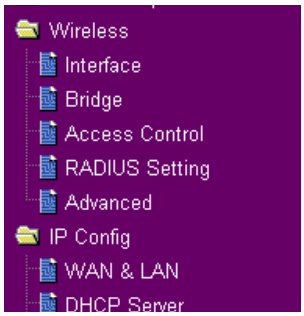
The Default Key field lets you specify which of the four encryption keys you use to transmit data on your wireless LAN. As long as the ASUS Wireless Router or wireless mobile client with which you are communicating has the same key in the same position, you can use any of the keys as the default key. If the ASUS Wireless Router and ALL of its wireless clients use the same four WEP keys, select “key rotation” to maximize security. Otherwise, choose one key in common as the default key.

Network Rotation Key Interval

This field specifies the time interval (in seconds) after which a WPA group key is changed. Enter ‘0’ (zero) to indicate that a periodic key-change is not required.

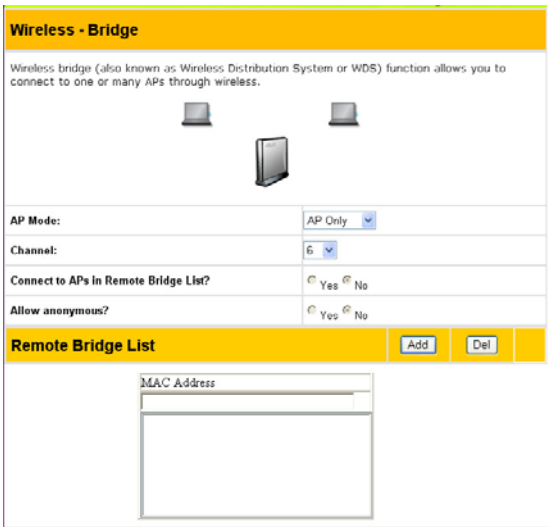
Wireless

Click an item on the menu to reveal a submenu. Follow the instructions to set up the ASUS Wireless Router. Tips are displayed when you move your cursor over an item.

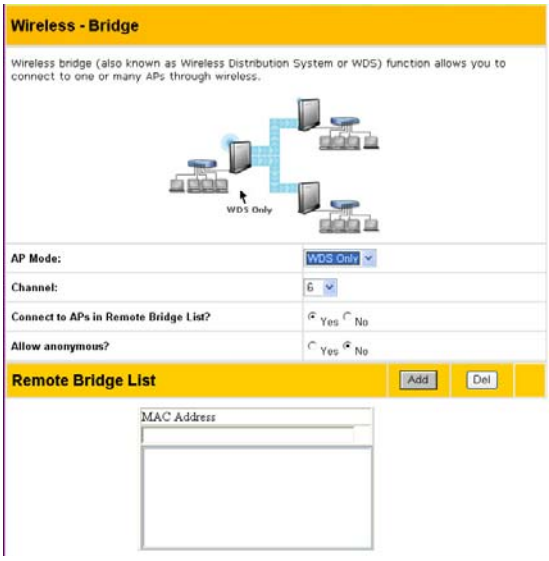


Bridge/Access Control List

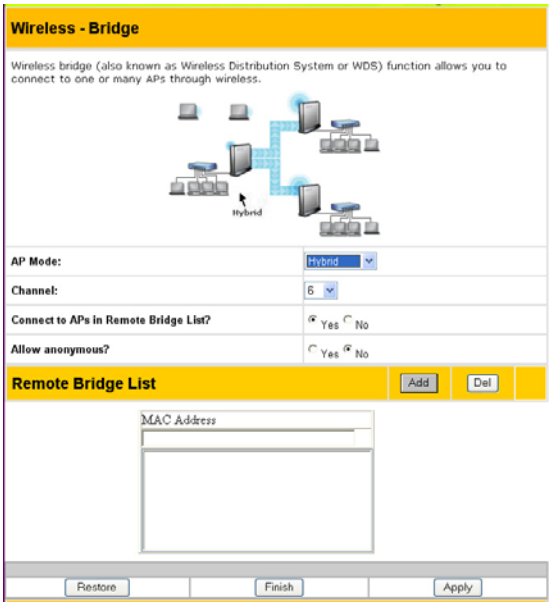
AP Only



WDS Only (WL500g/WL500g Deluxe)



Hybrid



Wireless bridge (also known as Wireless Distribution System or WDS) allows you to connect to one or many Access Points.

Wireless (Cont.)

AP Mode

AP (Access Point) Mode configures the ASUS Wireless Router for a specific application. By default, the ASUS Wireless Router is configured as an Access Point which enables wireless mobile clients to connect wirelessly to a wired Ethernet network. The following options are available from the drop-down list:

AP Only: the ASUS Wireless Router acts only as an Access Point.

WDS Only (WL500g/WL500g Deluxe): the ASUS Wireless Router can only communicate with other Access Points.

Hybrid: Hybrid allows you to use the ASUS Wireless Router both as an access point and as a wireless bridge.

Channel

Both Access Points in Wireless Bridge mode must be set to the same channel.

Connect to APs in Remote Bridge List (Yes/No)

Select **Yes** to connect to access points in the remote bridge list.

Allow anonymous? (Yes/No) (WL500g/WL500g Deluxe)

Select **Yes** to allow users without accounts to connect.

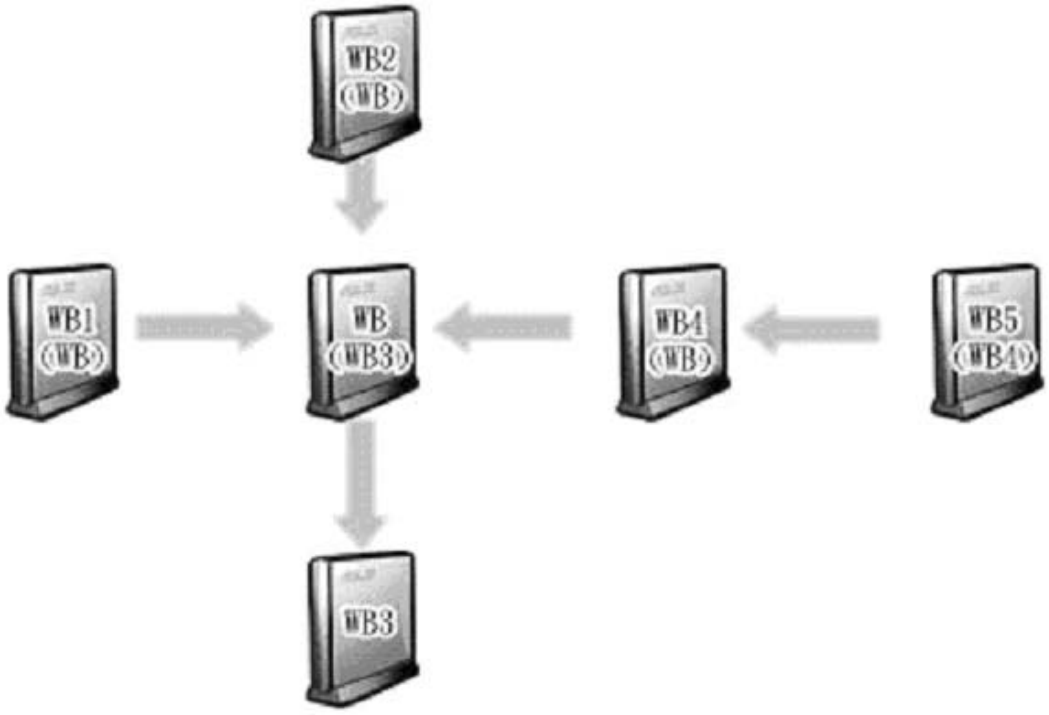
Note: If "Connect to APs in Remote Bridge List" and "Allow Anonymous" are both set to "No", it means that this AP will not connect with other APs and therefore the AP mode setting will return to "AP Only".

Wireless (Cont.)

MAC Address

Enter the MAC address of the target ASUS Wireless Router in order to designate which ASUS Wireless Router will be the partner for this ASUS Wireless Router.

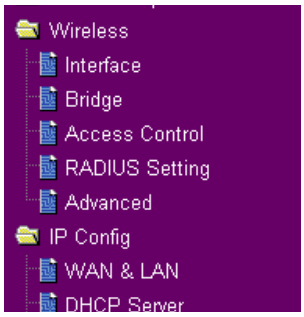
You can setup your wireless environment as shown in this figure:



Note: The content in braces "( )" is the MAC address in the Remote Bridge List of the AP. For example, WB1 have the MAC address of WB in its Remote Bridge List.

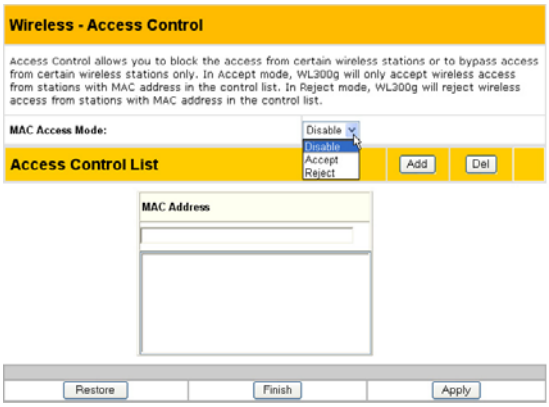
In this case, there are six ASUS Wireless Routers and they are linked as wireless bridges. Take one of them, named WB, as an example. WB is not in "AP Only" mode and "Connect to APs in Remote Bridge List" is set as "Yes", so it can connect to WB3. Meanwhile, "allow anonymous" is set as "Yes" or "Allow anonymous" is set as "No" but it has the MAC addresses of WB1, WB2, and WB4 in the "Remote Bridge List", so it can be connected by WB1, WB2, and WB4.

Wireless



Click an item on the menu to reveal a submenu. Follow the instructions to set up the ASUS Wireless Router. Tips are displayed when you move your cursor over an item.

Access Control



Pull down menu items:

Disable (no info required)

Accept (need to input information)

Reject (need to input information)

To add security, the ASUS Wireless Router has the ability to only associate with or not associate with wireless mobile clients that have their MAC address entered into this page.

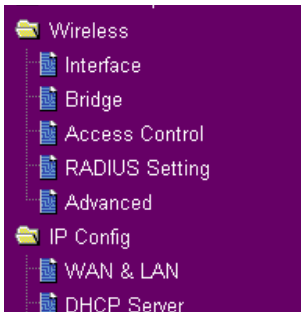
The default setting of “Disable” will allow any wireless mobile client to connect. “Accept” will only allow those entered into this page to connect. “Reject” will prevent those entered into this page from connecting.

Adding a MAC Address

To add a MAC address, enter the 12 hexadecimal characters into the white box next to “MAC Address:” and click the **Add** button. The MAC address will be placed in the control list below. Only a total of 31 MAC addresses can be entered into this page so determine which will be the lesser; those you wish to accept or those you wish to reject and click the appropriate “MAC Access Mode”.

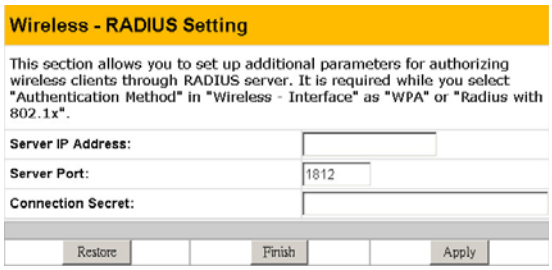
Note: Click the “Finish” button to save your new settings and re-start the ASUS Wireless Router or click “Save” and restart later.

Wireless



Click an item on the menu to reveal a submenu. Follow the instructions to set up the ASUS Wireless Router. Tips are displayed when you move your cursor over an item.

Radius Setting (WL500g/WL500g Deluxe)



This section enables you to set up additional parameters for connection with a RADIUS Server. Values are required for this page when the Authentication Method field in the Wireless - Interface screen are set as “WPA” or “Radius with 802.1x”. Refer to *Authentication Method* on page 32.

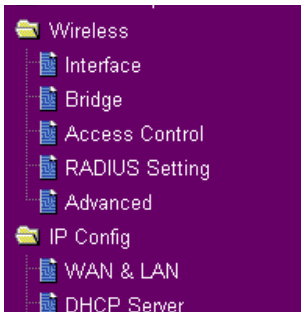
Server IP Address – specifies the IP address of the RADIUS server to use for 802.1X wireless authentication and dynamic WEP key derivation.

Server Port – specifies the UDP port number used by the RADIUS server.

Login Secret – specifies the password used to initialize a RADIUS connection.

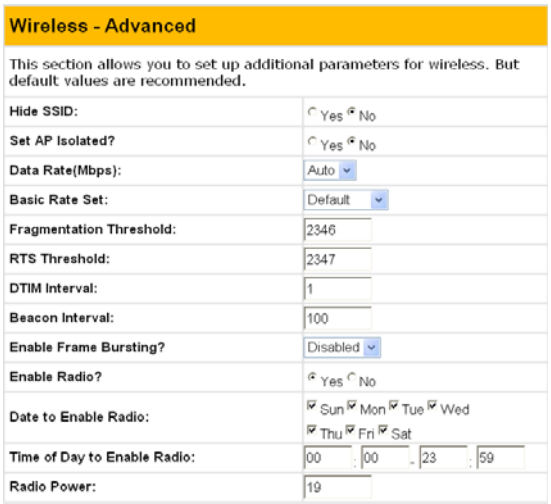
Note: A RADIUS server is used for remote user authentication and accounting. It is primarily used by Internet Service Providers, but can also be used on any network that needs a centralized authentication function for its workstations.

Wireless



Click an item on the menu to reveal a submenu. Follow the instructions to set up the ASUS Wireless Router. Tips are displayed when you move your cursor over an item.

Advanced



This section allows you to set up additional parameters for the wireless router function. We recommend that you use the default values for all items in this window.

AfterBurner (WL500g Deluxe only)

Enable AfterBurner: (WL500g Deluxe) - Set to Enable to increase performance for clients (such as WL100gx) that support this function.

Note: Your network speed will slow down if you have mixed 802.11g and Afterburner clients.

Hide SSID - By default, "No" is selected so that wireless mobile users can see your ASUS Wireless Router's SSID and join. If "Yes" is selected, your ASUS Wireless Router will not show in site surveys by wireless mobile clients and they will have to manually enter your ASUS Wireless Router's SSID. If you want to restrict access to "your" ASUS Wireless Router , this is a simple way to do it but for security reasons, don't forget to change the SSID to something other than "default".

Set AP Isolated (WL500g/WL500g Deluxe) - Selecting Yes to prevent wireless client from communicating with each other.

Data Rate (Mbps) (WL500g/WL500g Deluxe) - This field allows you to specify the transmission rate. Leave on "Auto" to maximize performance versus distance.

Wireless (Cont.)

Basic Rate Set (WL500g/WL500g Deluxe) - This field indicates the basic rates that wireless clients must support. Use "1 & 2 Mbps" only when backward compatibility is needed for some older wireless LAN cards with a maximum bit rate of 2Mbps.

Fragmentation Threshold (256-2346) – Fragmentation is used to divide 802.11 frames into smaller pieces (fragments) that are sent separately to the destination. Enable fragmentation by setting a specific packet size threshold. If there is an excessive number of collisions on the WLAN, experiment with different fragmentation values to increase the reliability of frame transmissions. The default value (2346) is recommended for normal use.

RTS Threshold (0-2347) – The RTS/CTS (Request to Send/Clear to Send) function is used to minimize collisions among wireless stations. When RTS/CTS is enabled, the router refrains from sending a data frame until another RTS/CTS handshake is completed. Enable RTS/CTS by setting a specific packet size threshold. The default value (2347) is recommended.

DTIM Interval (1-255) (WL500g/WL500g Deluxe) – DTIM (Delivery Traffic Indication Message) is a wireless message used to inform clients in Power Saving Mode when the system should wake up to receive broadcast and multicast messages. Type the time interval in which the system will broadcast a DTIM for clients in Power Saving Mode. The default value (3) is recommended.

Beacon Interval (1-65535) – This field indicates the time interval in milliseconds that a system broadcast packet, or beacon, is sent to synchronize the wireless network. The default value (100 milliseconds) is recommended.

Enable Frame Bursting? (WL500g/WL500g Deluxe) – This field allows you to enable frame-bursting mode to improve performance with wireless clients that also support frame-bursting.

Enable Radio? (WL500g/WL500g Deluxe) - Selecting "Yes" enables the wireless function during user-defined dates and times. Wireless users will not be able to connect on non-selected dates and times.

Date to Enable Radio (WL500g/WL500g Deluxe) - This field defines the dates that the wireless function will be enabled.

Time to Enable Radio (WL500g/WL500g Deluxe) - This field defines the time range that the wireless function will be enabled on each of the selected dates.