

# **802.11g Wireless ADSL VPN Router**

**802.11g/802.11b Wireless Access Point**

**ADSL Modem**

**NAT Router**

**VPN Gateway**

**4-Port Switching Hub**

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## **User's Guide**

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# Regulatory Approvals

## FCC Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one 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.

To assure continued compliance, any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment. (Example - use only shielded interface cables when connecting to computer or peripheral devices).

## FCC Radiation Exposure Statement

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

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

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

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

The antennas used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter.

## Channel

The Wireless Channel sets the radio frequency used for communication.

- Access Points use a fixed Channel. You can select the Channel used. This allows you to choose a Channel which provides the least interference and best performance. In the USA and Canada, 11 channels are available. If using multiple Access Points, it is better if adjacent Access Points use different Channels to reduce interference.
- In "Infrastructure" mode, Wireless Stations normally scan all Channels, looking for an Access Point. If more than one Access Point can be used, the one with the strongest signal is used. (This can only happen within an ESS.)
- If using "Ad-hoc" mode (no Access Point), all Wireless stations should be set to use the same Channel. However, most Wireless stations will still scan all Channels to see if there is an existing "Ad-hoc" group they can join.

## CAUTION:

- 1) To comply with FCC RF exposure compliance requirements, a separation distance of at least 20 cm must be maintained between the antenna of this device and all persons.
- 2) This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.



# Table of Contents

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<b>CHAPTER 1 INTRODUCTION .....</b>	<b>1</b>
Wireless ADSL Router Features .....	1
Package Contents .....	4
Physical Details .....	5
<b>CHAPTER 2 INSTALLATION .....</b>	<b>7</b>
Requirements .....	7
Procedure.....	7
<b>CHAPTER 3 SETUP.....</b>	<b>9</b>
Overview.....	9
Configuration Program.....	10
Setup Wizard.....	11
Home Screen.....	13
LAN Screen .....	14
Wireless Screen .....	16
Wireless Security .....	18
Trusted Wireless Stations.....	20
Password Screen.....	22
Mode Screen .....	23
<b>CHAPTER 4 PC CONFIGURATION.....</b>	<b>24</b>
Overview.....	24
Windows Clients .....	24
Macintosh Clients.....	35
Linux Clients .....	35
Other Unix Systems .....	35
Wireless Station Configuration .....	36
Wireless Configuration on Windows XP.....	36
<b>CHAPTER 5 OPERATION AND STATUS.....</b>	<b>46</b>
Operation - Router Mode .....	46
Status Screen .....	46
Connection Status - PPPoE & PPPoA .....	49
Connection Details - Dynamic IP Address.....	50
Connection Details - Fixed IP Address .....	51
<b>CHAPTER 6 ADVANCED FEATURES .....</b>	<b>52</b>
Overview.....	52
Internet.....	52
Dynamic DNS (Domain Name Server).....	56
Firewall Rules .....	57
User-defined Services .....	62
Options.....	64
Schedule .....	65
Virtual Servers .....	67
VPN Setup.....	69
<b>CHAPTER 7 ADVANCED ADMINISTRATION .....</b>	<b>78</b>
Overview.....	78
PC Database.....	79
Config File.....	83
Logging.....	84
E-mail .....	86
Diagnostics .....	88
Remote Administration.....	89

<b>Routing .....</b>	<b>91</b>
<b>Upgrade Firmware .....</b>	<b>95</b>
<b>CHAPTER 8 MODEM MODE.....</b>	<b>96</b>
<b>Overview.....</b>	<b>96</b>
<b>Management Connections .....</b>	<b>96</b>
<b>Home Screen.....</b>	<b>97</b>
<b>Mode Screen .....</b>	<b>98</b>
<b>Operation.....</b>	<b>98</b>
<b>Status Screen .....</b>	<b>99</b>
<b>APPENDIX A TROUBLESHOOTING.....</b>	<b>101</b>
<b>Overview.....</b>	<b>101</b>
<b>General Problems .....</b>	<b>101</b>
<b>Internet Access .....</b>	<b>101</b>
<b>Wireless Access .....</b>	<b>102</b>
<b>APPENDIX B ABOUT WIRELESS LANS .....</b>	<b>103</b>
<b>Modes .....</b>	<b>103</b>
<b>BSS/ESS.....</b>	<b>103</b>
<b>Channels.....</b>	<b>104</b>
<b>WEP .....</b>	<b>104</b>
<b>WPA-PSK.....</b>	<b>104</b>
<b>Wireless LAN Configuration.....</b>	<b>105</b>
<b>APPENDIX C ABOUT VPNS.....</b>	<b>106</b>
<b>Overview.....</b>	<b>106</b>
<b>Common VPN Situations.....</b>	<b>108</b>
<b>VPN Example .....</b>	<b>109</b>
<b>APPENDIX D SPECIFICATIONS .....</b>	<b>113</b>
<b>Multi-Function Wireless ADSL Router.....</b>	<b>113</b>
<b>Wireless Interface.....</b>	<b>113</b>
<b>Regulatory Approvals.....</b>	<b>114</b>

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# Chapter 1

## Introduction

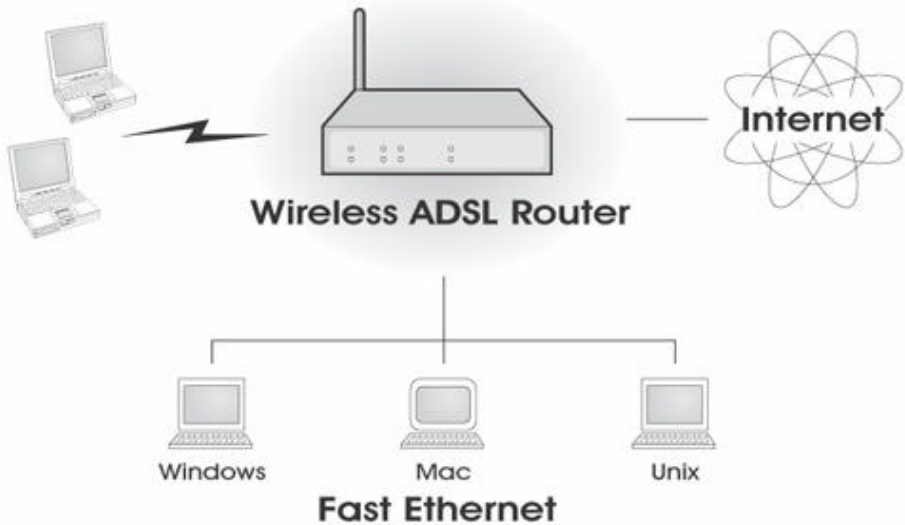
# 1

*This Chapter provides an overview of the Wireless ADSL Router's features and capabilities.*

Congratulations on the purchase of your new Wireless ADSL Router. The Wireless ADSL Router is a multi-function device providing the following services:

- **ADSL Modem.**
- **Shared Broadband Internet Access** for all LAN users.
- **Wireless Access Point** for 802.11b and 802.11g Wireless Stations.
- **VPN Gateway** to allow secure VPN connections over the Internet.
- **4-Port Switching Hub** for 10BaseT or 100BaseT connections.

### Wireless LAN



**Figure 1: Wireless ADSL Router**

## Wireless ADSL Router Features

The Wireless ADSL Router incorporates many advanced features, carefully designed to provide sophisticated functions while being easy to use.

### Internet Access Features

- **Shared Internet Access.** All users on the LAN or WLAN can access the Internet through the Wireless ADSL Router, using only a single external IP Address. The local (invalid) IP Addresses are hidden from external sources. This process is called NAT (Network Address Translation).
- **Built-in ADSL Modem.** The Wireless ADSL Router has a built-in ADSL modem, supporting all common ADSL connections.

- ***IPoA, PPPoE, PPPoA, Direct Connection Support.*** The Wireless ADSL Router supports all common connection methods.
- ***Auto-detection of Internet Connection Method.*** In most situations, the Wireless ADSL Router can test your ADSL and Internet connection to determine the connection method used by your ISP.
- ***Fixed or Dynamic IP Address.*** On the Internet (WAN port) connection, the Wireless ADSL Router supports both Dynamic IP Address (IP Address is allocated on connection) and Fixed IP Address.

## Advanced Internet Functions

- ***Application Level Gateways (ALGs).*** Applications which use non-standard connections or port numbers are normally blocked by the Firewall. The ability to define and allow such applications is provided, to enable such applications to be used normally.
- ***Special Applications.*** This feature, also called Port Triggering, allows you to use Internet applications which normally do not function when used behind a firewall.
- ***Virtual Servers.*** This feature allows Internet users to access Internet servers on your LAN. The required setup is quick and easy.
- ***Dynamic DNS Support.*** DDNS, when used with the Virtual Servers feature, allows users to connect to Servers on your LAN using a Domain Name, even if you have a dynamic IP address which changes every time you connect.
- ***URL Filter.*** Use the URL Filter to block access to undesirable Web sites by LAN users.
- ***Firewall.*** As well as the built-in firewall to protect your LAN, you can define Firewall Rules to determine which incoming and outgoing traffic should be permitted.
- ***Scheduling.*** Both the URL Filter and Firewall rules can be scheduled to operate only at certain times. This provides great flexibility in controlling Internet-bound traffic.
- ***Logs.*** Define what data is recorded in the Logs, and optionally send log data to a Syslog Server. Log data can also be E-mailed to you.
- ***VPN Pass through Support.*** PCs with VPN (Virtual Private Networking) software using PPTP, L2TP and IPSec are transparently supported - no configuration is required.

## VPN Features

- ***IPSec Support.*** IPSec is the most common protocol.
- ***Easy Configuration.*** The configuration required to allow 2 Wireless ADSL Routers to establish a VPN connection between them is easy accomplished.

## Wireless Features

- ***Standards Compliant.*** The Wireless ADSL Router complies with the IEEE802.11g (DSSS) specifications for Wireless LANs.
- ***Supports both 802.11b and 802.11g Wireless Stations.*** The 802.11g standard provides for backward compatibility with the 802.11b standard, so both 802.11b and 802.11g Wireless stations can be used simultaneously.
- ***Speeds to 54Mbps.*** All speeds up to the 802.11g maximum of 54Mbps are supported.
- ***WEP support.*** Support for WEP (Wired Equivalent Privacy) is included. Key sizes of 64 Bit and 128 Bit are supported. WEP encrypts any data before transmission, providing protection against snoopers.

- **WPA-PSK support.** Like WEP, WPA-PSK encrypts any data before transmission, providing protection against snoopers. The WPA-PSK is a later standard than WEP, and provides both easier configuration and greater security than WEP.
- **Wireless MAC Access Control.** The Wireless Access Control feature can check the MAC address (hardware address) of Wireless stations to ensure that only trusted Wireless Stations can access your LAN.
- **Simple Configuration.** If the default settings are unsuitable, they can be changed quickly and easily.

## LAN Features

- **4-Port Switching Hub.** The Wireless ADSL Router incorporates a 4-port 10/100BaseT switching hub, making it easy to create or extend your LAN.
- **DHCP Server Support.** Dynamic Host Configuration Protocol provides a dynamic IP address to PCs and other devices upon request. The Wireless ADSL Router can act as a DHCP Server for devices on your local LAN and WLAN.

## Configuration & Management

- **Easy Setup.** Use your WEB browser from anywhere on the LAN or WLAN for configuration.
- **Configuration File Upload/Download.** Save (download) the configuration data from the Wireless ADSL Router to your PC, and restore (upload) a previously-saved configuration file to the Wireless ADSL Router.
- **Remote Management.** The Wireless ADSL Router can be managed from any PC on your LAN or Wireless LAN. And, if the Internet connection exists, it can also (optionally) be configured via the Internet.
- **Network Diagnostics.** You can use the Wireless ADSL Router to perform a *Ping* or *DNS lookup*.

## Security Features

- **Password - protected Configuration.** Password protection is provided to prevent unauthorized users from modifying the configuration data and settings.
- **Wireless LAN Security.** WPA-PSK, WEP and Wireless access control by MAC address are all supported. The MAC-level access control feature can be used to prevent unknown wireless stations from accessing your LAN.
- **NAT Protection.** An intrinsic side effect of NAT (Network Address Translation) technology is that by allowing all LAN users to share a single IP address, the location and even the existence of each PC is hidden. From the external viewpoint, there is no network, only a single device - the Wireless ADSL Router.
- **Firewall.** All incoming data packets are monitored and all incoming server requests are filtered, thus protecting your network from malicious attacks from external sources.
- **Protection against DoS attacks.** DoS (Denial of Service) attacks can flood your Internet connection with invalid packets and connection requests, using so much bandwidth and so many resources that Internet access becomes unavailable. The Wireless ADSL Router incorporates protection against DoS attacks.



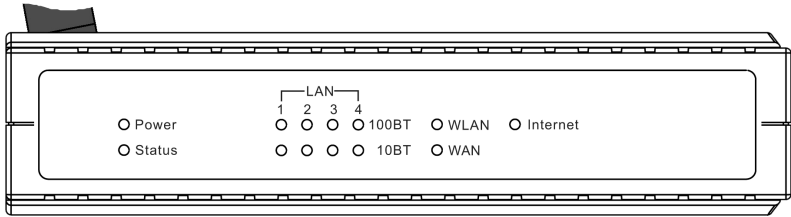
## Package Contents

The following items should be included. If any of these items are damaged or missing, please contact your dealer immediately.

- The Wireless ADSL Router Unit
- 1 Cat-5 Ethernet (LAN) cable
- 1 RJ-11 (ADSL) cable
- 1 RJ-11 to RJ45 cable (Germany only)
- Power Adapter
- Quick Installation Guide
- CD-ROM containing the on-line manual.

## Physical Details

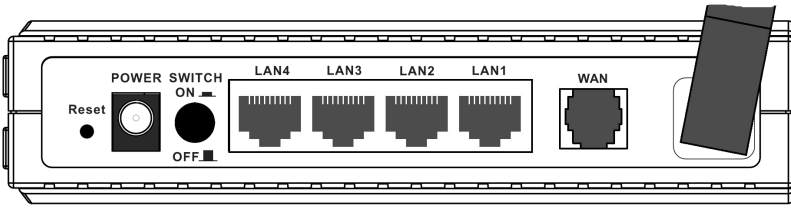
### Front-mounted LEDs



**Figure 2: Front Panel**

<b>Power LED (Green)</b>	<p><b>On</b> - Power on.</p> <p><b>Off</b> - No power.</p>
<b>Status LED (Yellow)</b>	<p><b>Off</b> - Normal operation.</p> <p><b>Blinking</b> - This LED blinks during start up, and during a Firmware Upgrade.</p>
<b>LAN</b>	<p>For each port, there are 2 LEDs, to indicate the connection speed (10BaseT or 100BaseT) of each port.</p> <ul style="list-style-type: none"> <li>• <b>100BT</b> - This will be ON if the LAN connection is using 100BaseT, and Blinking if data is being transferred via the corresponding LAN port.</li> <li>• <b>10BT</b> - This will be ON if the LAN connection is using 10BaseT, and Blinking if data is being transferred via the corresponding LAN port.</li> <li>• If neither LED is on, there is no active connection on the corresponding LAN port.</li> </ul>
<b>WLAN LED</b>	<p><b>On</b> - Wireless enabled.</p> <p><b>Off</b> - No Wireless connections currently exist.</p> <p><b>Flashing</b> - Data is being transmitted or received via the Wireless access point. This includes "network traffic" as well as user data.</p>
<b>WAN</b>	<p><b>On</b> - ADSL connection is available.</p> <p><b>Off</b> - No ADSL connection.</p> <p><b>Flashing</b> - Data is being transmitted or received via the ADSL connection.</p>

## Rear Panel



**Figure 3: Rear Panel**

**Power port**

Connect the supplied power adapter here.

**10/100BaseT  
LAN connections**

Use standard LAN cables (RJ45 connectors) to connect your PCs to these ports.

**Note:**

Any LAN port on the Wireless ADSL Router will automatically function as an "Uplink" port when required. Just connect any port to a normal port on the other hub, using a standard LAN cable.

**Reset Button  
(Reset to Defaults)**

This button will reset the Wireless ADSL Router to the factory default settings.

To do this, press and hold the Reset Button for five (5) seconds, until the Status LED is lit, then release the Reset Button, and wait the Wireless ADSL Router to restart using the factory default values.

**WAN port  
(ADSL port)**

Connect this port to your ADSL line.

# Chapter 2

## Installation

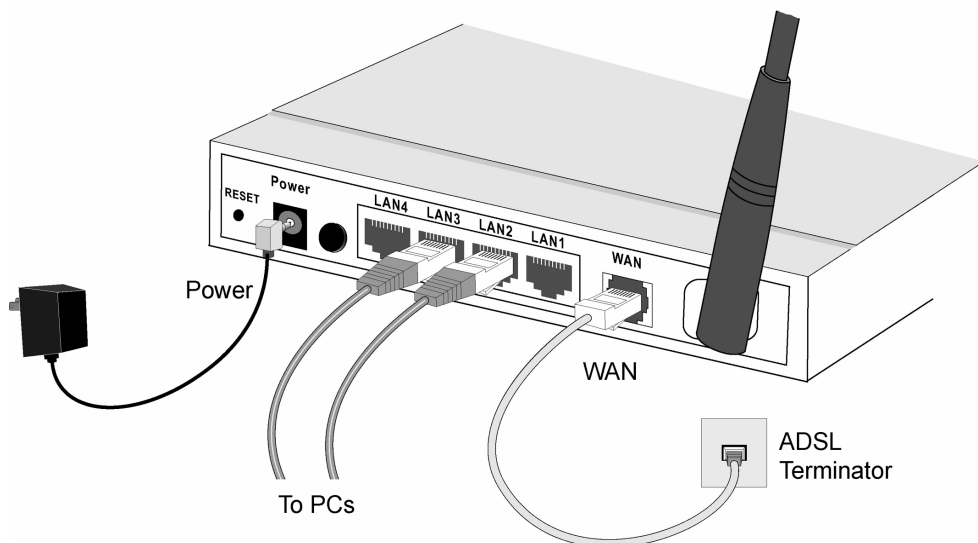
# 2

*This Chapter covers the physical installation of the Wireless ADSL Router.*

### Requirements

- Network cables. Use standard 10/100BaseT network (UTP) cables with RJ45 connectors.
- TCP/IP protocol must be installed on all PCs.
- For Internet Access, an Internet Access account with an ISP, and a DSL connection.
- To use the Wireless Access Point, all Wireless devices must be compliant with the IEEE 802.11g or IEEE 802.11b specifications.

### Procedure



**Figure 4: Installation Diagram**

#### 1. Choose an Installation Site

Select a suitable place on the network to install the Wireless ADSL Router.



**Note!**

**For best Wireless reception and performance, the Wireless ADSL Router should be positioned in a central location with minimum obstructions between the Wireless ADSL Router and the PCs.**

**Also, if using multiple Access Points, adjacent Access Points should use different Channels.**

## 2. Connect LAN Cables

Use standard LAN cables to connect PCs to the Switching Hub ports on the Wireless ADSL Router. Both 10BaseT and 100BaseT connections can be used simultaneously.

If required, connect any port to a normal port on another Hub, using a standard LAN cable. Any LAN port on the Wireless ADSL Router will automatically function as an "Uplink" port when required.

## 3. Connect ADSL Cable

Connect the supplied ADSL cable from to the WAN port on the Wireless ADSL Router (the RJ11 connector) to the ADSL terminator provided by your phone company.

## 4. Power Up

Connect the supplied power adapter to the Wireless ADSL Router and power up.

Use only the power adapter provided. Using a different one may cause hardware damage

## 5. Check the LEDs

- The *Power* LED should be ON.
- The *Status* LED should flash, then turn Off. If it stays on or blinking after 60 seconds, there is a hardware error.
- For each LAN (PC) connection, one of the LAN LEDs should be ON (provided the PC is also ON.)
- The *WLAN* LED should be ON
- The *WAN* LED should be ON if ADSL line is connected.

For more information, refer to *Front-mounted LEDs* in Chapter 1.

# Chapter 3

## Setup

# 3

*This Chapter provides Setup details of the Wireless ADSL Router.*

### Overview

This chapter describes the setup procedure for:

- Internet Access
- LAN configuration
- Wireless setup
- Assigning a Password to protect the configuration data.

PCs on your local LAN may also require configuration. For details, see *Chapter 4 - PC Configuration*.

Other configuration may also be required, depending on which features and functions of the Wireless ADSL Router you wish to use. Use the table below to locate detailed instructions for the required functions.

To Do this:	Refer to:
Configure PCs on your LAN.	Chapter 4: PC Configuration
Check Wireless ADSL Router operation and Status.	Chapter 5: Operation and Status
Use any of the following Advanced features: <ul style="list-style-type: none"><li>• Internet (DMZ, Special Applications, URL Filter)</li><li>• Dynamic DNS</li><li>• Firewall Rules</li><li>• Firewall Services</li><li>• Schedule</li><li>• Virtual Servers</li><li>• VPN</li></ul>	Chapter 6: Advanced Features
Use any of the following Administration Configuration settings or features: <ul style="list-style-type: none"><li>• PC Database</li><li>• Config File</li><li>• Logging</li><li>• E-mail</li><li>• Diagnostics</li><li>• Remote Admin</li><li>• Routing</li><li>• Upgrade Firmware</li></ul>	Chapter 7 Advanced Administration

## Configuration Program

The Wireless ADSL Router contains an HTTP server. This enables you to connect to it, and configure it, using your Web Browser. **Your Browser must support JavaScript.**

The configuration program has been tested on the following browsers:

- Netscape V4.08 or later
- Netscape 7
- Internet Explorer V5.01 or later

## Preparation

Before attempting to configure the Wireless ADSL Router, please ensure that:

- Your PC can establish a physical connection to the Wireless ADSL Router. The PC and the Wireless ADSL Router must be directly connected (using the Hub ports on the Wireless ADSL Router) or on the same LAN segment.
- The Wireless ADSL Router must be installed and powered ON.
- If the Wireless ADSL Router's default IP Address (192.168.0.1) is already used by another device, the other device must be turned OFF until the Wireless ADSL Router is allocated a new IP Address during configuration.

## Using your Web Browser

To establish a connection from your PC to the Wireless ADSL Router:

1. After installing the Wireless ADSL Router in your LAN, start your PC. If your PC is already running, restart it.
2. Start your WEB browser.
3. In the *Address* box, enter "HTTP://" and the IP Address of the Wireless ADSL Router, as in this example, which uses the Wireless ADSL Router's default IP Address:  
`HTTP://192.168.0.1`
4. When prompted for the User name and Password, enter values as follows:
  - User name     admin
  - Password     password

### If you can't connect

If the Wireless ADSL Router does not respond, check the following:

- The Wireless ADSL Router is properly installed, LAN connection is OK, and it is powered ON. You can test the connection by using the "Ping" command:
  - Open the MS-DOS window or command prompt window.
  - Enter the command:  

```
ping 192.168.0.1
```

If no response is received, either the connection is not working, or your PC's IP address is not compatible with the Wireless ADSL Router's IP Address. (See next item.)
- If your PC is using a fixed IP Address, its IP Address must be within the range 192.168.0.2 to 192.168.0.254 to be compatible with the Wireless ADSL Router's default IP Address of 192.168.0.1. Also, the *Network Mask* must be set to 255.255.255.0. See *Chapter 4 - PC Configuration* for details on checking your PC's TCP/IP settings.
- Ensure that your PC and the Wireless ADSL Router are on the same network segment. (If you don't have a router, this must be the case.)
- Ensure you are using the wired LAN interface. The Wireless interface can only be used if its configuration matches your PC's wireless settings.

## Setup Wizard

The first time you connect to the Wireless ADSL Router, the Setup Wizard will run automatically. (The Setup Wizard will also run if the Wireless ADSL Router's default settings are restored.)

1. Step through the Wizard until finished.
  - You need the data supplied by your ISP. Most connection methods require some data input.
  - The common connection types are explained in the following table.
2. On the final screen of the Wizard, run the test and check that an Internet connection can be established.
3. If the connection test fails:
  - Check all connections, and the front panel LEDs.
  - Check that you have entered all data correctly.



## Common Connection Types

Type	Details	ISP Data required
Dynamic IP Address	Your IP Address is allocated automatically, when you connect to you ISP.	<p>a) ADSL parameters (VPI and VCI) may be required, if they cannot be detected automatically.</p> <p>b) Some ISP's may require you to use a particular <i>Hostname</i> or <i>Domain</i> name, or MAC (physical) address.</p>
Static (Fixed) IP Address	Your ISP allocates a permanent IP Address to you. Usually, the connection is "Always on".	<p>a) ADSL parameters (VPI and VCI) may be required, if they cannot be detected automatically.</p> <p>b) IP Address allocated to you, and related information, such as Network Mask, Gateway IP address, and DNS address.</p>
PPPoE, PPPoA	You connect to the ISP only when required. The IP address is usually allocated automatically.	<p>a) ADSL parameters (VPI and VCI) may be required, if they cannot be detected automatically.</p> <p>b) User name and password are always required.</p> <p>c) If using a Static (Fixed) IP address, you need the IP address and related information (Network Mask, Gateway IP address, and DNS address)</p>
IPoA (IP over ATM)	Normally, the connection is "Always on".	<p>a) ADSL parameters (VPI and VCI) may be required, if they cannot be detected automatically.</p> <p>b) IP Address allocated to you, and related information, such as Network Mask, Gateway IP address, and DNS address.</p>

## Home Screen

After finishing the Setup Wizard, you will see the *Home* screen. When you connect in future, you will see this screen when you connect. An example screen is shown below.

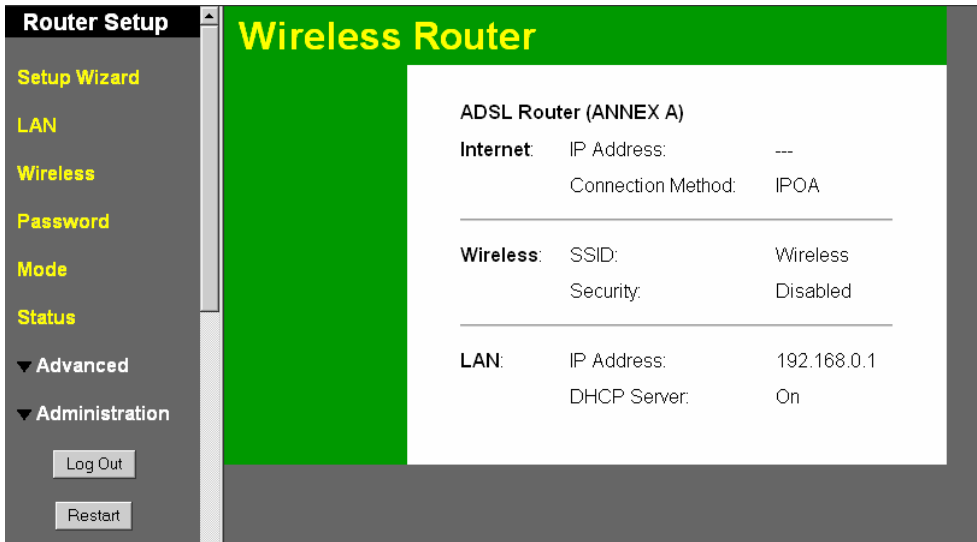


Figure 5: Home Screen

## Main Menu

The main menu, on the left, contains links to the most-commonly used screen. To see the links to the other available screens, click "Advanced" or "Administration".

The main menu also contains two (2) buttons:

- **Log Out** - When finished, you should click this button to logout.
- **Restart** - Use this if you wish to restart the Wireless ADSL Router. Note that restarting the Router will break any existing connections to or through the Router.

## Navigation & Data Input

- Use the menu bar on the left of the screen, and the "Back" button on your Browser, for navigation.
- Changing to another screen without clicking "Save" does NOT save any changes you may have made. You must "Save" before changing screens or your data will be ignored.



On each screen, clicking the "Help" button will display help for that screen.

## LAN Screen

Use the *LAN* link on the main menu to reach the LAN screen. An example screen is shown below.

Figure 6: LAN Screen

### Data - LAN Screen

TCP/IP	
<b>IP Address</b>	IP address for the Wireless ADSL Router, as seen from the local LAN. Use the default value unless the address is already in use or your LAN is using a different IP address range. In the latter case, enter an unused IP Address from within the range used by your LAN.
<b>Subnet Mask</b>	The default value 255.255.255.0 is standard for small (class "C") networks. For other networks, use the Subnet Mask for the LAN segment to which the Wireless ADSL Router is attached (the same value as the PCs on that LAN segment).
<b>DHCP Server</b>	<ul style="list-style-type: none"> <li>• If Enabled, the Wireless ADSL Router will allocate IP Addresses to PCs (DHCP clients) on your LAN when they start up. The default (and recommended) value is Enabled.</li> <li>• If you are already using a DHCP Server, this setting must be Disabled, and the existing DHCP server must be re-configured to treat the Wireless ADSL Router as the default Gateway. See the following section for further details.</li> <li>• The <b>Start IP Address</b> and <b>Finish IP Address</b> fields set the values used by the DHCP server when allocating IP Addresses to DHCP clients. This range also determines the number of DHCP clients supported.</li> </ul> <p>See the following section for further details on using DHCP.</p>

## DHCP

### What DHCP Does

A DHCP (Dynamic Host Configuration Protocol) **Server** allocates a valid IP address to a DHCP **Client** (PC or device) upon request.

- The client request is made when the client device starts up (boots).
- The DHCP Server provides the *Gateway* and *DNS* addresses to the client, as well as allocating an IP Address.

- The Wireless ADSL Router can act as a **DHCP server**.
- Windows 95/98/ME and other non-Server versions of Windows will act as a DHCP **client**. This is the default Windows setting for the TCP/IP network protocol. However, Windows uses the term *Obtain an IP Address automatically* instead of "DHCP Client".
- You must NOT have two (2) or more DHCP Servers on the same LAN segment. (If your LAN does not have other Routers, this means there must only be one (1) DHCP Server on your LAN.)

## Using the Wireless ADSL Router's DHCP Server

This is the default setting. The DHCP Server settings are on the *LAN* screen. On this screen, you can:

- Enable or Disable the Wireless ADSL Router's *DHCP Server* function.
- Set the range of IP Addresses allocated to PCs by the DHCP Server function.



**You can assign Fixed IP Addresses to some devices while using DHCP, provided that the Fixed IP Addresses are NOT within the range used by the DHCP Server.**

## Using another DHCP Server

You can only use one (1) DHCP Server per LAN segment. If you wish to use another DHCP Server, rather than the Wireless ADSL Router's, the following procedure is required.

- Disable the DHCP Server feature in the Wireless ADSL Router. This setting is on the LAN screen.
- Configure the DHCP Server to provide the Wireless ADSL Router's IP Address as the *Default Gateway*.

## To Configure your PCs to use DHCP

This is the default setting for TCP/IP for all non-Server versions of Windows.

See *Chapter 4 - Client Configuration* for the procedure to check these settings.

## Wireless Screen

The Wireless ADSL Router's settings must match the other Wireless stations.

Note that the Wireless ADSL Router will automatically accept both 802.11b and 802.11g connections, and no configuration is required for this feature.

To change the Wireless ADSL Router's default settings for the Wireless Access Point feature, use the *Wireless* link on the main menu to reach the *Wireless* screen. An example screen is shown below.

**Figure 7: Wireless Screen**

### Data - Wireless Screen

Identification	
<b>Regulatory Domain</b>	Select the correct domain for your location. It is your responsibility to ensure: <ul style="list-style-type: none"> <li>That the Wireless ADSL Router is only used in domains for which is licensed.</li> <li>That you select the correct domain, so that only the legal channels for that domain can be selected.</li> </ul>
<b>Station name</b>	This is the same as the "Device Name" for the Wireless ADSL Router.
<b>SSID (ESSID)</b>	<ul style="list-style-type: none"> <li>If using an ESS (Extended Service Set, with multiple access points) this ID is called an ESSID (Extended Service Set Identifier).</li> <li>To communicate, all Wireless stations should use the same SSID/ESSID.</li> </ul>

Options	
<b>Mode</b>	<p>Select the desired mode:</p> <ul style="list-style-type: none"> <li>• <b>g &amp; b</b> - Both 802.11g and 802.11b Wireless stations will be able to use the Wireless ADSL Router.</li> <li>• <b>g only</b> - Only 802.11g Wireless stations can use the Wireless ADSL Router.</li> <li>• <b>b only</b> - Only 802.11b connections are available. 802.11g Wireless Stations will only be able to use the Wireless ADSL Router if they are fully backward-compatible with the 802.11b standard.</li> </ul>
<b>Channel No.</b>	<ul style="list-style-type: none"> <li>• Select the Channel you wish to use on your Wireless LAN.</li> <li>• If you experience interference (shown by lost connections and/or slow data transfers) you may need to experiment with different channels to see which is the best.</li> <li>• If using multiple Access Points, adjacent Access Points should use different Channels to reduce interference.</li> </ul>
<b>Broadcast SSID</b>	<p>If enabled, the Wireless ADSL Router will broadcast its SSID. This allows PCs and other wireless stations to detect this Access Point and use the correct SSID.</p> <p>If disabled, PC users will have to manually enter the SSID and other details of the wireless interface before they can connect to this Access Point.</p>
Wireless Security	
<b>Current Setting</b>	The current Wireless security is displayed. The default value is disabled.
<b>Configure Button</b>	Click this button to access the Wireless security sub-screen, and view or change the settings. See the following section for details.
Access Point	
<b>Enable Wireless Access Point</b>	Enable this if you want to use Wireless Access Point function. If disabled, no Wireless stations can use the Access Point function, and all connections must be made via the wired LAN.
<b>Allow access by ...</b>	<p>Use this feature to determine which Wireless stations can use the Access Point. The options are:</p> <ul style="list-style-type: none"> <li>• <b>All Wireless Stations</b> - All wireless stations can use the access point, provided they have the correct SSID and security settings.</li> <li>• <b>Trusted Wireless stations only</b> - Only wireless stations you designate as "Trusted" can use the Access Point, even if they have the correct SSID and security settings.</li> </ul> <p>This feature uses the MAC address to identify Wireless stations. The MAC address is a low-level network identifier which is unique to each PC or network device.</p> <p>To define the trusted wireless stations, use the "Set Stations" button.</p>
<b>Set Stations Button</b>	Click this button to manage the trusted PC database.

## Wireless Security

This screen is accessed by clicking the "Configure" button on the *Wireless* screen. There are 3 options for Wireless security:

- **Disabled** - no data encryption is used.
- **WEP** - data is encrypted using the WEP standard.
- **WPA-PSK** - data is encrypted using the WPA-PSK standard. This is a later standard than WEP, and provides much better security than WEP. If all your Wireless stations support WPA-PSK, you should use WPA-PSK rather than WEP.

### WEP Wireless Security

Figure 8: WEP

### Data - WEP Screen

WEP Data Encryption	
<b>WEP Data Encryption</b>	<p>Select the desired option, and ensure the Wireless Stations use the same setting.</p> <ul style="list-style-type: none"> <li>• <b>64 Bit</b> - data is encrypted, using the default key, before being transmitted. You must enter at least the default key. For 64 Bit Encryption, the key size is 10 chars in HEX (0~9 and A~F).</li> <li>• <b>128 Bit</b> - data is encrypted, using the default key, before being transmitted. You must enter at least the default key. For 128 Bit Encryption, the key size is 26 chars in HEX (0~9 and A~F).</li> </ul>
<b>Authentication Type</b>	<p>Normally, this should be left at the default value of "Automatic". If changed to "Open System" or "Shared Key", ensure that your Wireless Stations use the same setting.</p>
<b>Default Key</b>	<p>Select the key you wish to be the default. Transmitted data is ALWAYS encrypted using the Default Key; the other Keys are for decryption only.</p> <p>You must enter a <b>Key Value</b> for the <b>Default Key</b>.</p>

<b>Key Value</b>	Enter the key value or values you wish to use. The <b>Default Key</b> is required, the other keys are optional. Other stations must have the same key.
<b>Passphrase</b>	If desired, you can generate a key from a phrase, instead of entering the key value directly. Enter the desired phrase, and click the "Generate Keys" button.

## WPA-PSK Wireless Security

**Figure 9: WPA-PSK**

### Data - WPA-PSK Screen

<b>Security System</b>	<b>WPA-PSK</b> Like WEP, data is encrypted before transmission. WPA is more secure than WEP, and should be used if possible. WPA-PSK is the version of WPA, which does NOT require a Radius Server on your LAN.
<b>PSK</b>	Enter the PSK (network key). Data is encrypted using a key derived from the network key. Other Wireless Stations must use the same network key. The PSK must be from 8 to 63 characters in length.
<b>WPA Encryption</b>	The WPA-PSK standard allows different encryption methods to be used. Select the desired option. Wireless Stations must use the same encryption method.



## Trusted Wireless Stations

This feature can be used to prevent unknown Wireless stations from using the Access Point. This list has no effect unless the setting *Allow access by trusted stations only* is enabled.

To change the list of trusted wireless stations, use the *Modify List* button on the *Access Control* screen. You will see a screen like the sample below.

Figure 10: Trusted Wireless Stations

### Data - Trusted Wireless Stations

<b>Trusted Wireless Stations</b>	This lists any Wireless Stations which you have designated as "Trusted".
<b>Other Wireless Stations</b>	This list any Wireless Stations detected by the Access Point, which you have not designated as "Trusted".
<b>Name</b>	The name assigned to the Trusted Wireless Station. Use this when adding or editing a Trusted Station.
<b>Address</b>	The MAC (physical) address of the Trusted Wireless Station. Use this when adding or editing a Trusted Station.
<b>Buttons</b>	
<<	<p>Add a Trusted Wireless Station to the list (move from the "Other Stations" list).</p> <ul style="list-style-type: none"> <li>Select an entry (or entries) in the "Other Stations" list, and click the "&lt;&lt;" button.</li> <li>Enter the Address (MAC or physical address) of the wireless station, and click the "Add" button.</li> </ul>
>>	<p>Delete a Trusted Wireless Station from the list (move to the "Other Stations" list).</p> <ul style="list-style-type: none"> <li>Select an entry (or entries) in the "Trusted Stations" list.</li> <li>Click the "&gt;&gt;" button.</li> </ul>

<b>Edit</b>	Use this to change an existing entry in the "Trusted Stations" list: <ol style="list-style-type: none"><li>1. Select the Station in the <i>Trusted Station</i> list.</li><li>2. Click the <i>Edit</i> button. The address will be copied to the "Address" field, and the <i>Add</i> button will change to <i>Update</i>.</li><li>3. Edit the address (MAC or physical address) as required.</li><li>4. Click <i>Update</i> to save your changes.</li></ol>
<b>Add (Update)</b>	To add a Trusted Station which is not in the "Other Wireless Stations" list, enter the required data and click this button.  When editing an existing Wireless Station, this button will change from <i>Add</i> to <i>Update</i> .
<b>Clear</b>	Clear the <i>Name</i> and <i>Address</i> fields.

## Password Screen

The password screen allows you to assign a password to the Wireless ADSL Router.

**Figure 11: Password Screen**

<b>Old Password</b>	Enter the existing password in this field.
<b>New password</b>	Enter the new password here.
<b>Verify password</b>	Re-enter the new password here.

You will be prompted for the password when you connect, as shown below.

**Figure 12: Password Dialog**

- The "User Name" is always `admin`
- Enter the password for the Wireless ADSL Router, as set on the *Password* screen above.

## Mode Screen

Use this screen to change the mode between Router mode and Modem (Bridge) mode.

**Figure 13: Mode Screen**

Select the desired option, and click "Save".

<b>Router</b>	Both the ADSL Modem and the Router features are operational. In this mode, this device can provide shared Internet Access to all your LAN users. Also, by default, it acts a DHCP Server, providing an IP address and related information to all Wireless and LAN users.
<b>Modem</b>	<p>Only the ADSL Modem component is operational.</p> <ul style="list-style-type: none"> <li>• All Router features are disabled. This device is "transparent" - it does not perform any operations or make any changes to the network traffic passing through it.</li> <li>• You need to have a DHCP Server on your LAN to provide IP addresses to the Wireless clients using this Access Point.</li> <li>• All traffic received on either the Wireless or LAN interface will be sent over the ADSL connection.</li> </ul>

### Notes:

- Generally, you should NOT use modem mode. Only select this mode if you are sure this is what you want.
- After changing the mode, this device will restart, which will take a few seconds. The menu will also change, depending on the mode you are in.
- The Wireless Access Point can function in either Router or Modem mode. But generally it is not a good idea to combine a Modem with an Access Point, because all data received from the wireless stations will be sent over the modem connection. (Since the modem is transparent, it does not examine the traffic to determine whether the traffic is for the LAN or the WAN.)
- For details on using Modem Mode, see Chapter 8.

# Chapter 4

## PC Configuration

# 4

*This Chapter details the PC Configuration required on the local ("Internal") LAN.*

### Overview

For each PC, the following may need to be configured:

- TCP/IP network settings
- Internet Access configuration
- Wireless configuration

### Windows Clients

This section describes how to configure Windows clients for Internet access via the Wireless ADSL Router.

The first step is to check the PC's TCP/IP settings.

The Wireless ADSL Router uses the TCP/IP network protocol for all functions, so it is essential that the TCP/IP protocol be installed and configured on each PC.

### TCP/IP Settings - Overview

**If using the default Wireless ADSL Router settings, and the default Windows TCP/IP settings, no changes need to be made.**

- By default, the Wireless ADSL Router will act as a DHCP Server, automatically providing a suitable IP Address (and related information) to each PC when the PC boots.
- For all non-Server versions of Windows, the default TCP/IP setting is to act as a DHCP client.

**If using a Fixed (specified) IP address, the following changes are required:**

- The *Gateway* must be set to the IP address of the Wireless ADSL Router
- The *DNS* should be set to the address provided by your ISP.

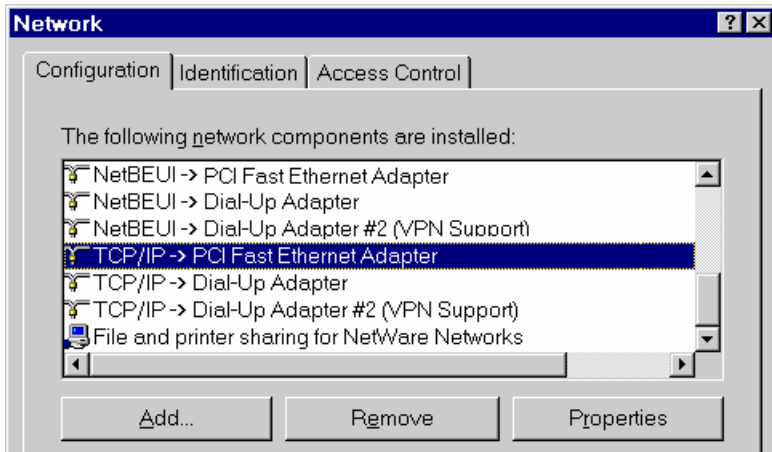


**Note!**

**If your LAN has a Router, the LAN Administrator must re-configure the Router itself. Refer to *Chapter 8 - Advanced Setup* for details.**

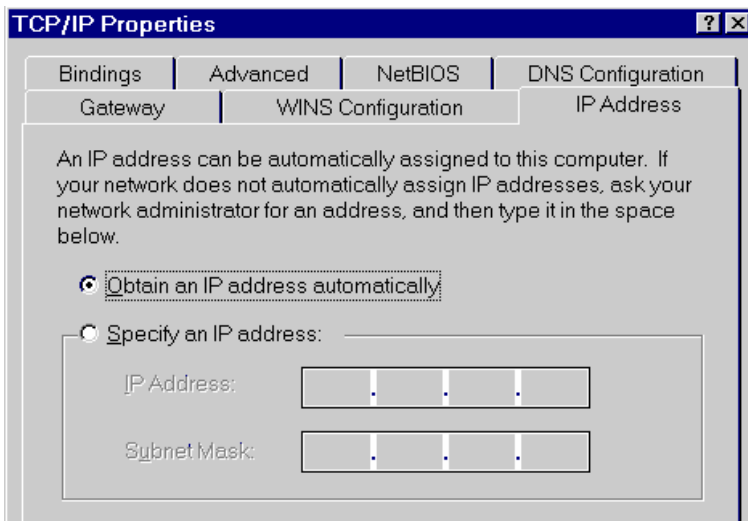
## Checking TCP/IP Settings - Windows 9x/ME:

5. Select *Control Panel - Network*. You should see a screen like the following:



**Figure 14: Network Configuration**

6. Select the *TCP/IP* protocol for your network card.  
 7. Click on the *Properties* button. You should then see a screen like the following.



**Figure 15: IP Address (Win 95)**

Ensure your TCP/IP settings are correct, as follows:

### Using DHCP

To use DHCP, select the radio button *Obtain an IP Address automatically*. This is the default Windows setting. **Using this is recommended.** By default, the Wireless ADSL Router will act as a DHCP Server.

Restart your PC to ensure it obtains an IP Address from the Wireless ADSL Router.

### Using "Specify an IP Address"

If your PC is already configured, check with your network administrator before making the following changes:

- On the *Gateway* tab, enter the Wireless ADSL Router's IP address in the *New Gateway* field and click *Add*, as shown below. Your LAN administrator can advise you of the IP Address they assigned to the Wireless ADSL Router.

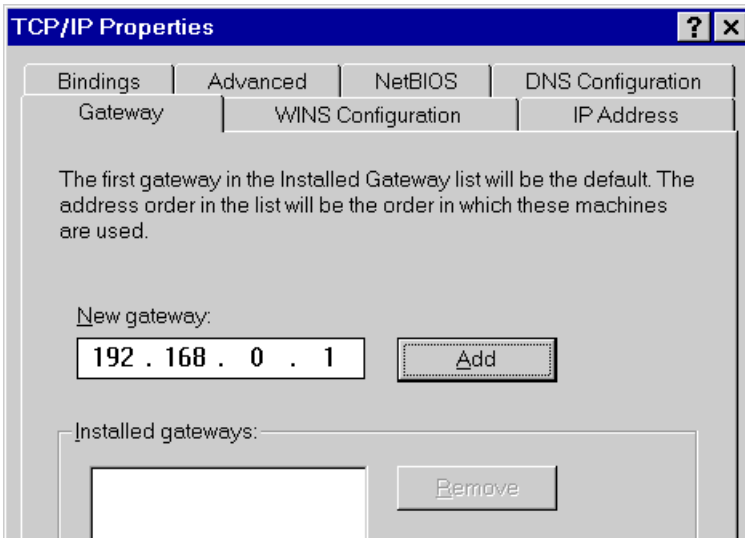


Figure 16: Gateway Tab (Win 95/98)

- On the *DNS Configuration* tab, ensure *Enable DNS* is selected. If the *DNS Server Search Order* list is empty, enter the DNS address provided by your ISP in the fields beside the *Add* button, then click *Add*.

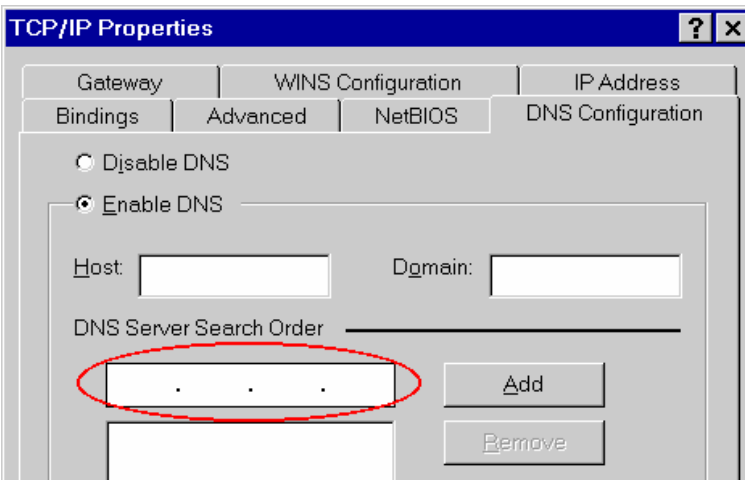
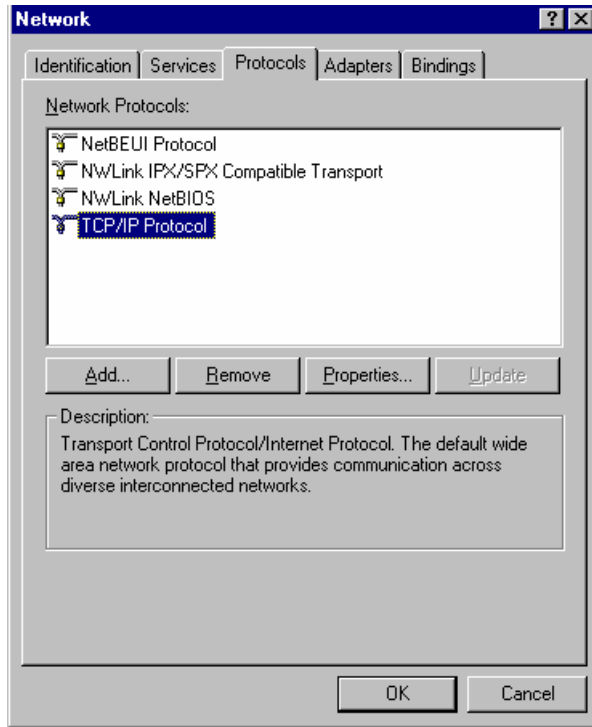


Figure 17: DNS Tab (Win 95/98)

## Checking TCP/IP Settings - Windows NT4.0

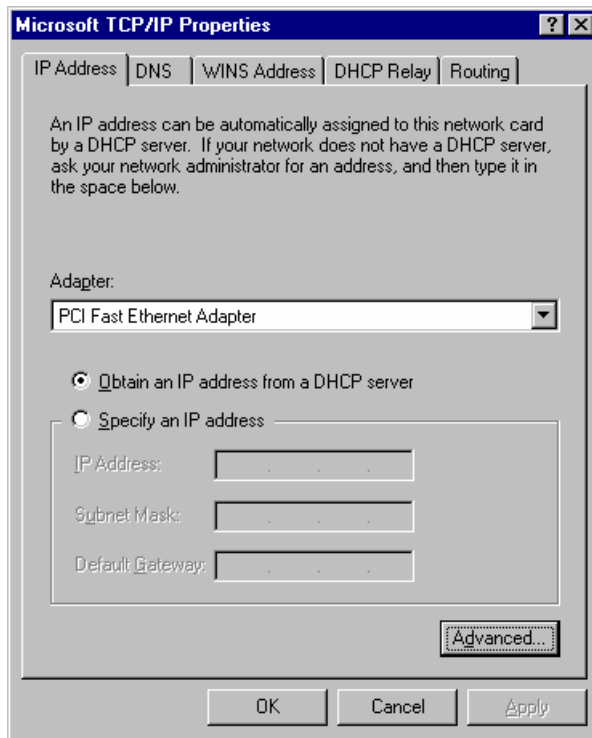
1. Select *Control Panel - Network*, and, on the *Protocols* tab, select the TCP/IP protocol, as shown below.



**Figure 18: Windows NT4.0 - TCP/IP**

2. Click the *Properties* button to see a screen like the one below.





**Figure 19: Windows NT4.0 - IP Address**

3. Select the network card for your LAN.
4. Select the appropriate radio button - *Obtain an IP address from a DHCP Server* or *Specify an IP Address*, as explained below.

### Obtain an IP address from a DHCP Server

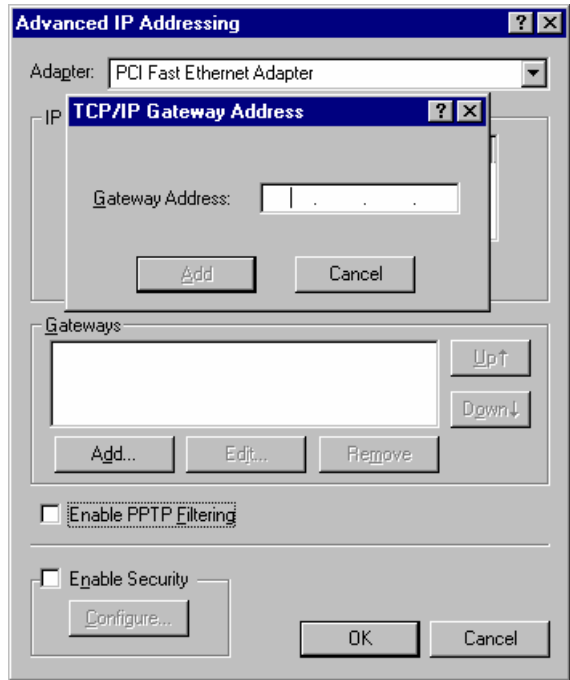
This is the default Windows setting. **Using this is recommended.** By default, the Wireless ADSL Router will act as a DHCP Server.

Restart your PC to ensure it obtains an IP Address from the Wireless ADSL Router.

### Specify an IP Address

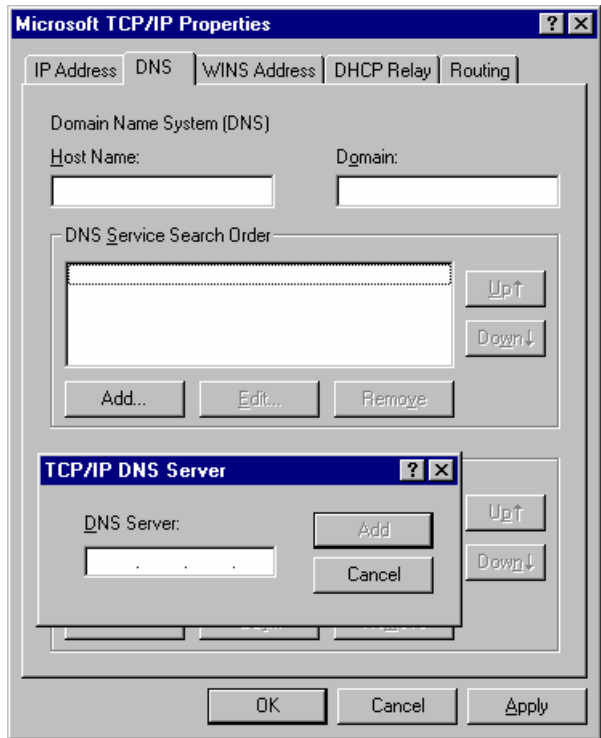
If your PC is already configured, check with your network administrator before making the following changes.

1. The *Default Gateway* must be set to the IP address of the Wireless ADSL Router. To set this:
  - Click the *Advanced* button on the screen above.
  - On the following screen, click the *Add* button in the *Gateways* panel, and enter the Wireless ADSL Router's IP address, as shown in Figure 20 below.
  - If necessary, use the *Up* button to make the Wireless ADSL Router the first entry in the *Gateways* list.



**Figure 20 - Windows NT4.0 - Add Gateway**

2. The DNS should be set to the address provided by your ISP, as follows:
  - Click the DNS tab.
  - On the DNS screen, shown below, click the *Add* button (under *DNS Service Search Order*), and enter the DNS provided by your ISP.



**Figure 21: Windows NT4.0 - DNS**

## Checking TCP/IP Settings - Windows 2000:

1. Select *Control Panel - Network and Dial-up Connection*.
2. Right - click the *Local Area Connection* icon and select *Properties*. You should see a screen like the following:

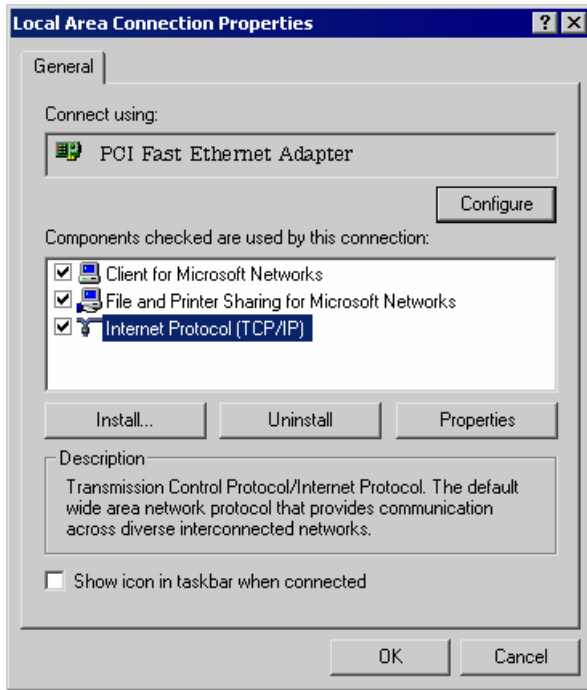


Figure 22: Network Configuration (Win 2000)

3. Select the *TCP/IP* protocol for your network card.
4. Click on the *Properties* button. You should then see a screen like the following.

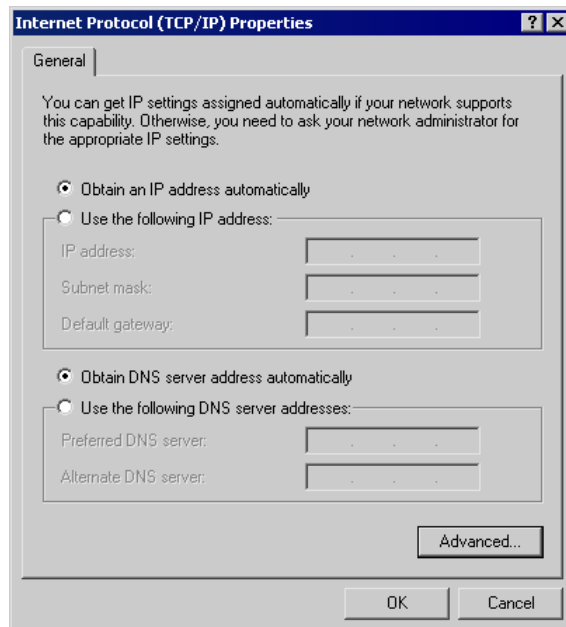


Figure 23: TCP/IP Properties (Win 2000)

5. Ensure your TCP/IP settings are correct, as described below.

### Using DHCP

To use DHCP, select the radio button *Obtain an IP Address automatically*. This is the default Windows setting. **Using this is recommended.** By default, the Wireless ADSL Router will act as a DHCP Server.

Restart your PC to ensure it obtains an IP Address from the Wireless ADSL Router.

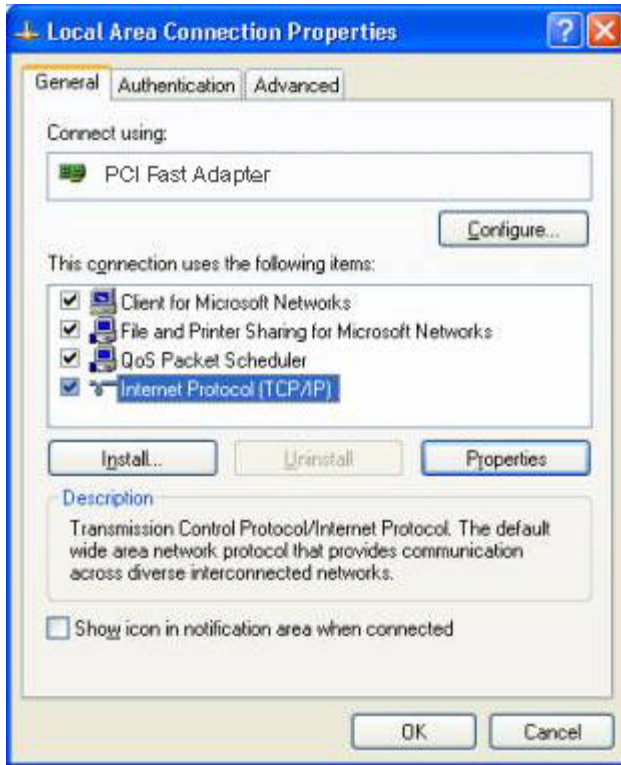
### Using a fixed IP Address ("Use the following IP Address")

If your PC is already configured, check with your network administrator before making the following changes.

- Enter the Wireless ADSL Router's IP address in the *Default gateway* field and click *OK*. (Your LAN administrator can advise you of the IP Address they assigned to the Wireless ADSL Router.)
- If the *DNS Server* fields are empty, select *Use the following DNS server addresses*, and enter the DNS address or addresses provided by your ISP, then click *OK*.

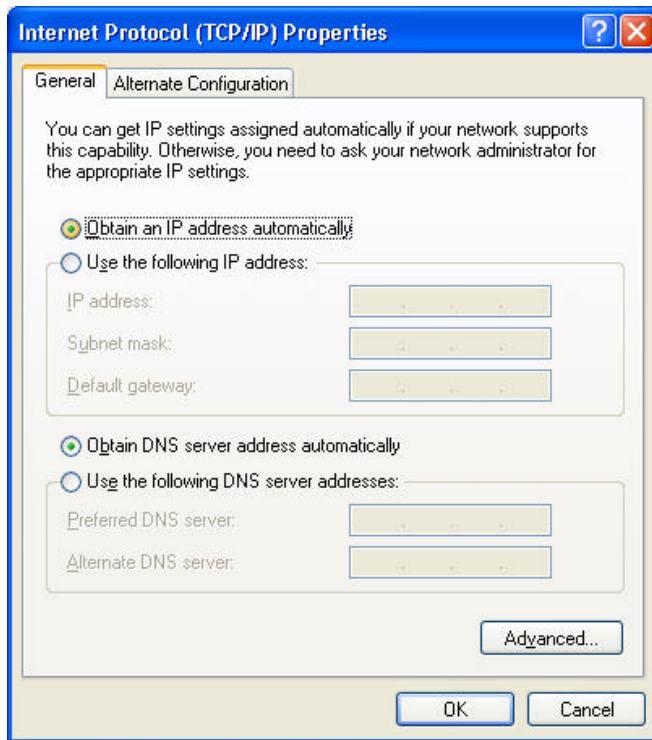
## Checking TCP/IP Settings - Windows XP

1. Select *Control Panel - Network Connection*.
2. Right click the *Local Area Connection* and choose *Properties*. You should see a screen like the following:



**Figure 24: Network Configuration (Windows XP)**

3. Select the *TCP/IP* protocol for your network card.
4. Click on the *Properties* button. You should then see a screen like the following.



**Figure 25: TCP/IP Properties (Windows XP)**

5. Ensure your TCP/IP settings are correct.

## Using DHCP

To use DHCP, select the radio button *Obtain an IP Address automatically*. This is the default Windows setting. **Using this is recommended.** By default, the Wireless ADSL Router will act as a DHCP Server.

Restart your PC to ensure it obtains an IP Address from the Wireless ADSL Router.

## Using a fixed IP Address ("Use the following IP Address")

If your PC is already configured, check with your network administrator before making the following changes.

- In the *Default gateway* field, enter the Wireless ADSL Router's IP address and click *OK*. Your LAN administrator can advise you of the IP Address they assigned to the Wireless ADSL Router.
- If the *DNS Server* fields are empty, select *Use the following DNS server addresses*, and enter the DNS address or addresses provided by your ISP, then click *OK*.

## Internet Access

To configure your PCs to use the Wireless ADSL Router for Internet access:

- Ensure that the DSL modem, Cable modem, or other permanent connection is functional.
- Use the following procedure to configure your Browser to access the Internet via the LAN, rather than by a Dial-up connection.

### For Windows 9x/ME/2000

1. Select *Start Menu - Settings - Control Panel - Internet Options*.
2. Select the *Connection* tab, and click the *Setup* button.
3. Select "I want to set up my Internet connection manually, or I want to connect through a local area network (LAN)" and click *Next*.
4. Select "I connect through a local area network (LAN)" and click *Next*.
5. Ensure all of the boxes on the following Local area network Internet Configuration screen are **unchecked**.
6. Check the "No" option when prompted "Do you want to set up an Internet mail account now?".
7. Click *Finish* to close the Internet Connection Wizard.  
Setup is now completed.

### For Windows XP

1. Select *Start Menu - Control Panel - Network and Internet Connections*.
2. Select *Set up or change your Internet Connection*.
3. Select the *Connection* tab, and click the *Setup* button.
4. Cancel the pop-up "Location Information" screen.
5. Click *Next* on the "New Connection Wizard" screen.
6. Select "Connect to the Internet" and click *Next*.
7. Select "Set up my connection manually" and click *Next*.
8. Check "Connect using a broadband connection that is always on" and click *Next*.
9. Click *Finish* to close the New Connection Wizard.  
Setup is now completed.

### Accessing AOL

To access AOL (America On Line) through the Wireless ADSL Router, the *AOL for Windows* software must be configured to use TCP/IP network access, rather than a dial-up connection. The configuration process is as follows:

- Start the *AOL for Windows* communication software. Ensure that it is Version 2.5, 3.0 or later. This procedure will not work with earlier versions.
- Click the *Setup* button.
- Select *Create Location*, and change the location name from "New Locality" to "Wireless ADSL Router".
- Click *Edit Location*. Select *TCP/IP* for the *Network* field. (Leave the *Phone Number* blank.)
- Click *Save*, then *OK*.  
Configuration is now complete.
- Before clicking "Sign On", always ensure that you are using the "Wireless ADSL Router" location.

## Macintosh Clients

From your Macintosh, you can access the Internet via the Wireless ADSL Router. The procedure is as follows.

1. Open the TCP/IP Control Panel.
2. Select *Ethernet* from the *Connect via* pop-up menu.
3. Select *Using DHCP Server* from the *Configure* pop-up menu. The DHCP Client ID field can be left blank.
4. Close the TCP/IP panel, saving your settings.

### Note:

If using manually assigned IP addresses instead of DHCP, the required changes are:

- Set the *Router Address* field to the Wireless ADSL Router's IP Address.
- Ensure your DNS settings are correct.

## Linux Clients

To access the Internet via the Wireless ADSL Router, it is only necessary to set the Wireless ADSL Router as the "Gateway".

**Ensure you are logged in as "root" before attempting any changes.**

### Fixed IP Address

By default, most Unix installations use a fixed IP Address. If you wish to continue using a fixed IP Address, make the following changes to your configuration.

- Set your "Default Gateway" to the IP Address of the Wireless ADSL Router.
- Ensure your DNS (Name server) settings are correct.

### To act as a DHCP Client (recommended)

The procedure below may vary according to your version of Linux and X -windows shell.

1. Start your X Windows client.
2. Select *Control Panel - Network*
3. Select the "Interface" entry for your Network card. Normally, this will be called "eth0".
4. Click the *Edit* button, set the "protocol" to "DHCP", and save this data.
5. To apply your changes
  - Use the "Deactivate" and "Activate" buttons, if available.
  - OR, restart your system.

## Other Unix Systems

To access the Internet via the Wireless ADSL Router:

- Ensure the "Gateway" field for your network card is set to the IP Address of the Wireless ADSL Router.
- Ensure your DNS (Name Server) settings are correct.



## Wireless Station Configuration

This section applies to all Wireless stations wishing to use the Wireless ADSL Router's Access Point, regardless of the operating system which is used on the client.

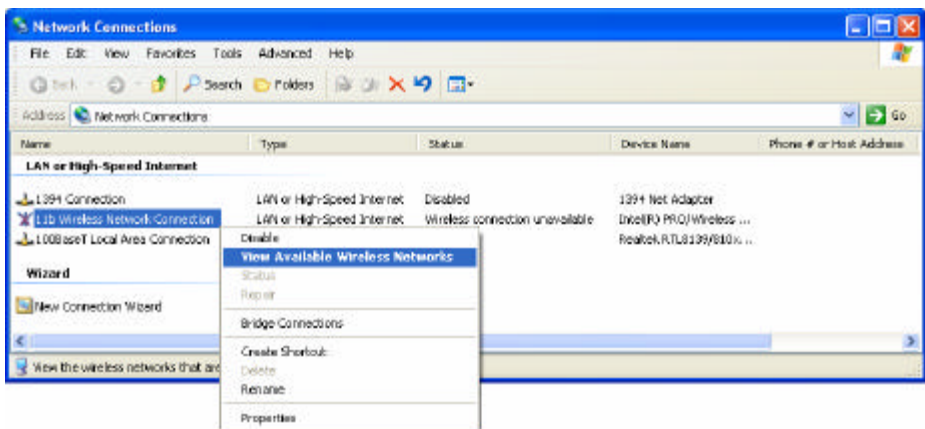
To use the Wireless Access Point in the Wireless ADSL Router, each Wireless Station must have compatible settings, as follows:

<b>Mode</b>	The mode must be set to <i>Infrastructure</i> (rather than Ad-hoc) Access points only operate in <i>Infrastructure</i> mode.
<b>SSID (ESSID)</b>	This must match the value used on the Wireless ADSL Router. The default value is <b>Wireless</b> . <b>Note! The SSID is case sensitive.</b>
<b>Wireless Security</b>	By default, Wireless security on the Wireless ADSL Router is disabled. <ul style="list-style-type: none"> <li>• If Wireless security remains disabled on the Wireless ADSL Router, all stations must have wireless security disabled.</li> <li>• If Wireless security is enabled on the Wireless Router (either WEP or WPA-PSK), each station must use the same settings as the Wireless ADSL Router.</li> </ul>

## Wireless Configuration on Windows XP

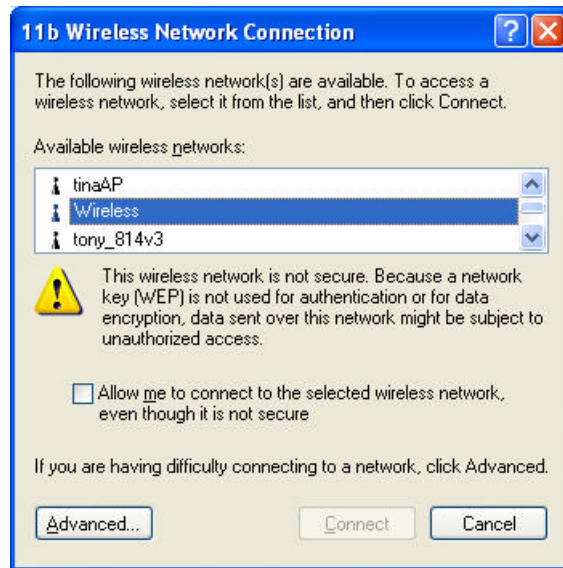
If using Windows XP to configure the Wireless interface on your PC, the configuration procedure is as follows:

1. Open the Network Connections folder. (*Start - Settings - Network Connections*).



**Figure 26: Network Connections (Windows XP)**

2. Right-click the Wireless Network Connection, check that it is enabled (menu option says *Disable*, rather than *Enable*) and then select *View Available Wireless Networks*.
3. You will then see a list of wireless networks.



**Figure 27 Wireless Networks (Windows XP)**



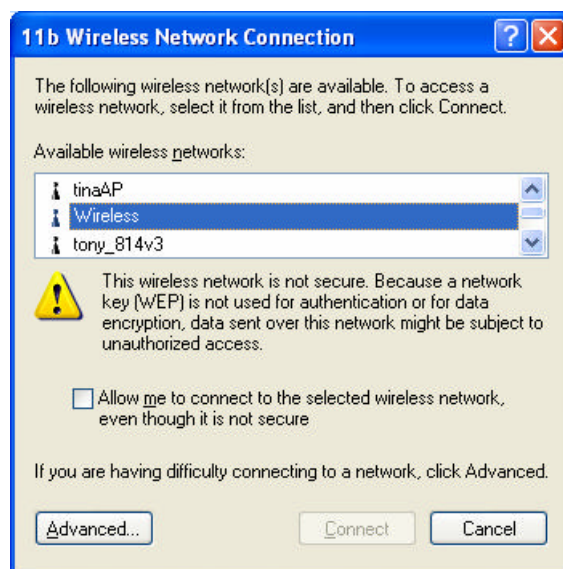
**Note!**

**If the "Broadcast SSID" setting on the Wireless ADSL Router has been disabled, its SSID will NOT be listed. See the following section "If the SSID is not listed" for details of dealing with this situation.**

- The next step depends on whether or not Wireless security has been enabled on the Wireless ADSL Router.

## If Wireless Security is Disabled

If Wireless security on the Wireless ADSL Router is disabled, Windows will warn you that the Wireless network is not secure.



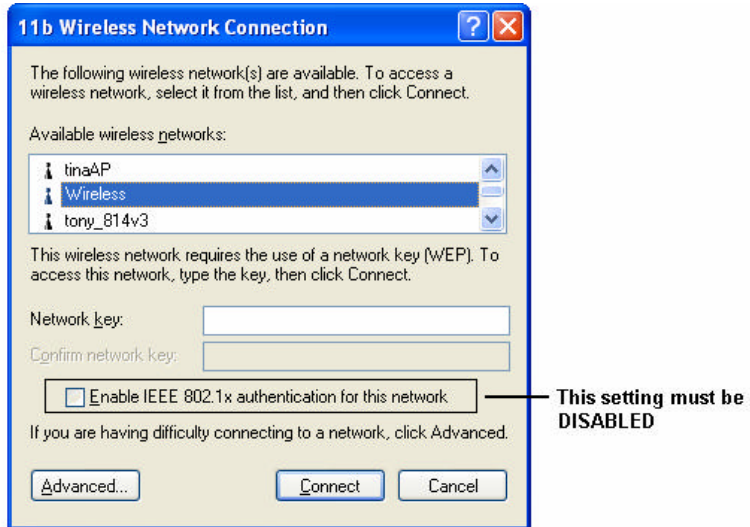
**Figure 28 Insecure Wireless Network (Windows XP)**

**To connect:**

- Check the checkbox *Allow me to connect to the selected wireless network, even though it is not secure.*
- The *Connect* button will then be available. Click the *Connect* button, and wait a few seconds for the connection to be established.

**If using WEP Data Encryption**

If WEP data encryption has been enabled on the Wireless ADSL Router, Windows will detect this, and show a screen like the following.

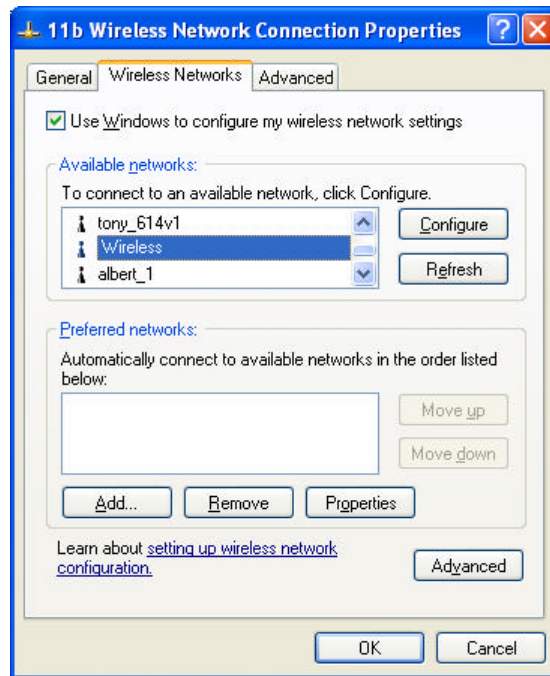


**Figure 29: WEP (Windows XP)**

**To connect:**

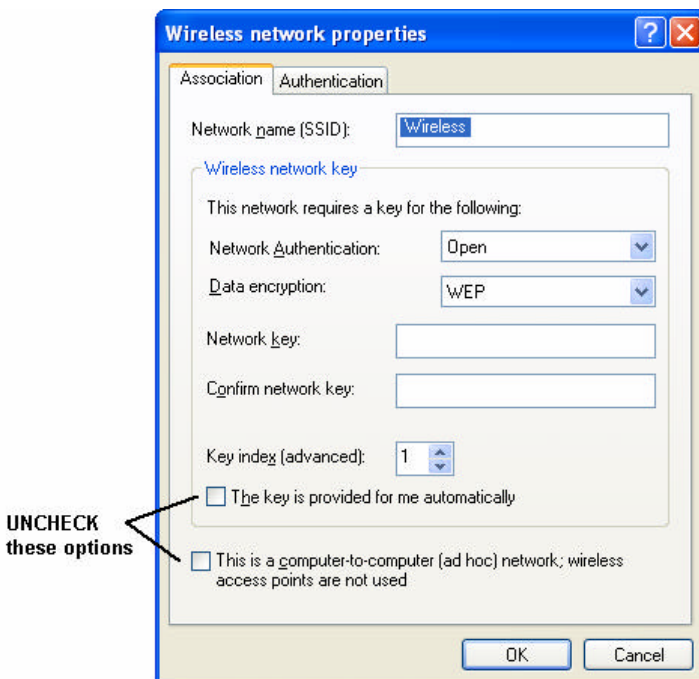
- Enter the WEP key, as set on the Wireless ADSL Router, in the *Network Key* field.
- Re-enter the WEP key into the *Confirm Network key* field.
- **Disable** the checkbox *Enable IEEE 802.1x authentication for this network.*
- Click the *Connect* button.

If this fails, click the *Advanced* button, to see a screen like the following:



**Figure 30: Advanced - Wireless Networks**

Select the SSID for the Wireless ADSL Router, and click *Configure*, to see a screen like the following:

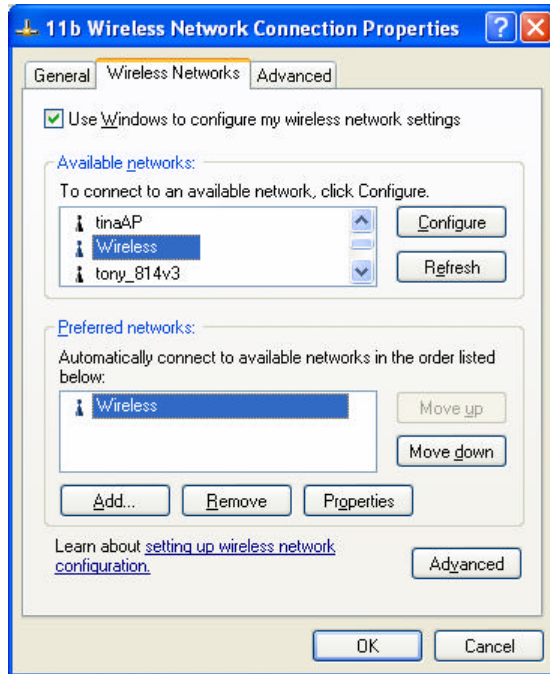


**Figure 31: Wireless Network Properties - WEP**

**Configure this screen as follows:**

- Set *Network Authentication* to match the Wireless ADSL Router. (If the setting on the Wireless ADSL Router is "Auto", then either *Open* or *Shared* can be used.)
- For *Data Encryption*, select **WEP**.

- For the *Network key* and *Confirm network key*, enter the **default key value** used on the Wireless ADSL Router. (Windows will determine if 64bit or 128bit encryption is used.)
- The *Key index* must match the **default key index** on the Wireless ADSL Router. The default value is 1.
- Ensure the options *The key is provided for me automatically* and *This is a computer-to-computer (ad hoc) network* are unchecked.
- Click OK to save and close this dialog.
- This wireless network will now be listed in *Preferred Networks* on the screen below.

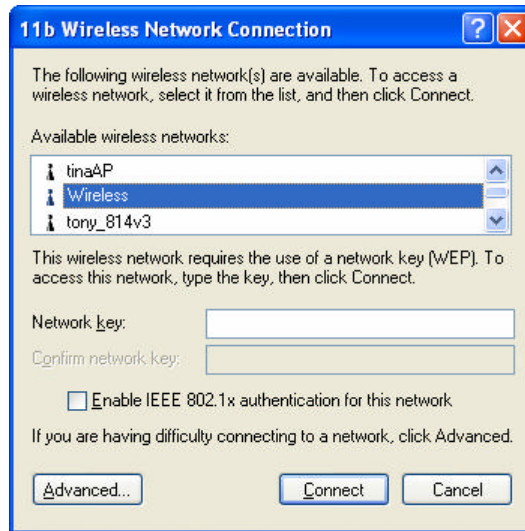


**Figure 32: Preferred Networks**

Click OK to establish a connection to the Wireless ADSL Router.

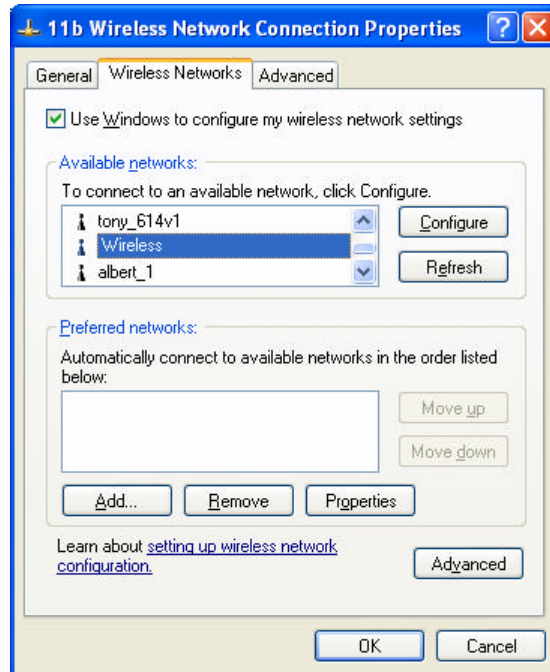
## If using WPA-PSK Data Encryption

If WPA-PSK data encryption has been enabled on the Wireless ADSL Router, it does not matter which network is selected on the screen below. Just click the *Advanced* button.



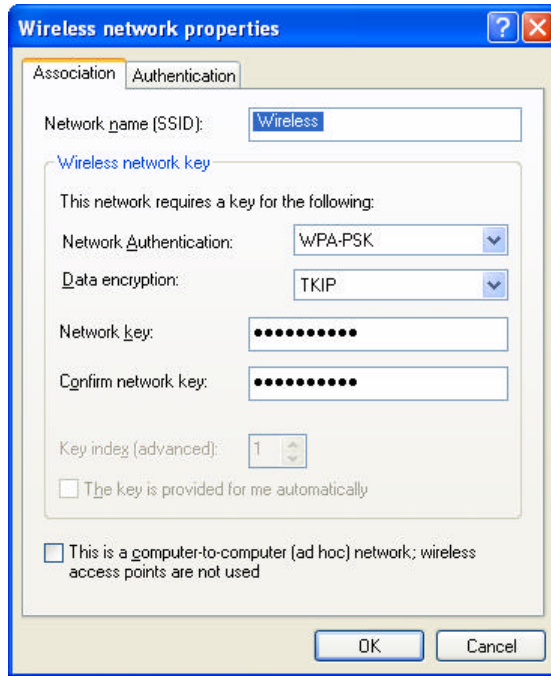
**Figure 33: Wireless Networks (Windows XP)**

You will then see a screen like the example below.



**Figure 34: Advanced - Wireless Networks**

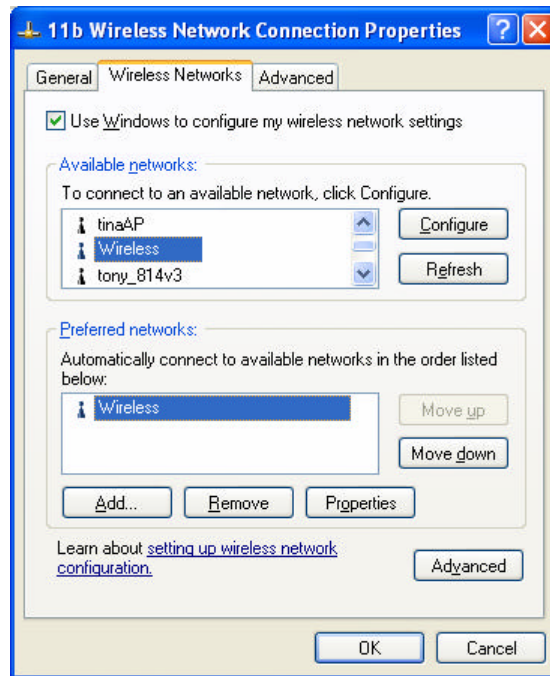
Select the SSID for the Wireless ADSL Router, and click *Configure*, to see a screen like the following:



**Figure 35: Wireless Network Properties- WPA-PSK**

**Configure this screen as follows:**

- Set *Network Authentication* to **WPA-PSK**.
- For *Data Encryption*, select **TKIP**.
- For the *Network key* and *Confirm network key*, enter the network key (PSK) used on the Wireless ADSL Router.
- Ensure the option *This is a computer-to-computer (ad hoc) network* is unchecked.
- Click OK to save and close this dialog.
- This wireless network will now be listed in *Preferred Networks* on the screen below.

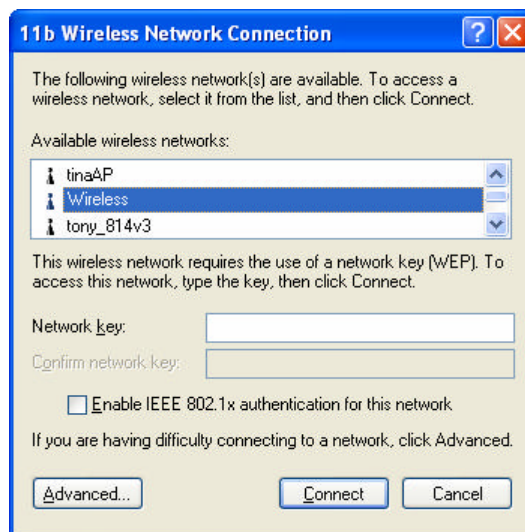


**Figure 36: Preferred Networks**

Click OK to establish a connection to the Wireless ADSL Router.

### If the SSID is not listed

If the "Broadcast SSID" setting on the Wireless ADSL Router has been disabled, its SSID will NOT be listed on the screen below.

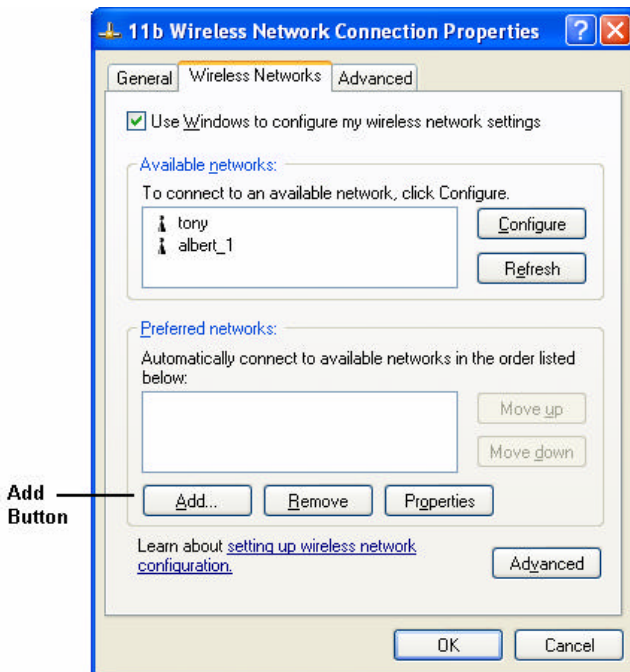


**Figure 37: Wireless Networks (Windows XP)**

In this situation, you need to obtain the SSID from your network administrator, then follow this procedure:

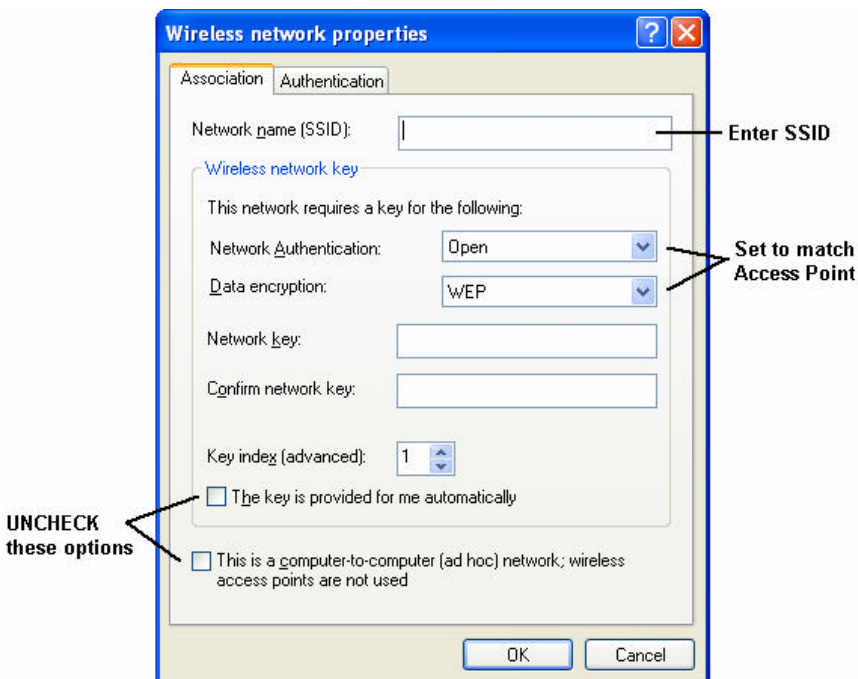


1. Click the *Advanced* button to see a screen like the example below.



**Figure 38: Unlisted Wireless Network**

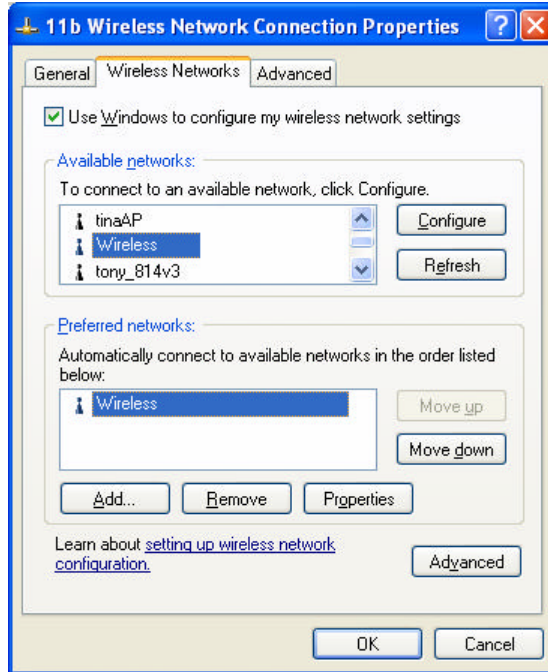
2. Click the *Add* button. You will see a screen like the example below.



**Figure 39: Add Wireless Network**

3. Configure this screen as follows:
  - Enter the correct SSID, as used on the Wireless ADSL Router. Remember the SSID is case-sensitive, so be sure to match the case, not just the spelling.

- Set *Network Authentication* and *Data Encryption* to match the Wireless ADSL Router.
  - If using data encryption (WEP or WPA-PSK), enter the key used on the Wireless ADSL Router. See the preceding sections for details of WEP and WPA-PSK.
  - Uncheck the options *The key is provided for me automatically* and *This is a computer-to-computer (ad hoc) network*.
  - Click OK to save and exit.
4. This wireless network will then be listed in *Preferred Networks* on the screen below.



**Figure 40: Preferred Networks**

5. Click OK to establish a connection to the Wireless ADSL Router.

## Chapter 5

# Operation and Status

# 5

*This Chapter details the operation of the Wireless ADSL Router and the status screens. For Details of operation in Bridge (Modem) mode, see Chapter 8 - Modem Mode.*

## Operation - Router Mode

Once both the Wireless ADSL Router and the PCs are configured, operation is automatic.

However, there are some situations where additional Internet configuration may be required. Refer to *Chapter 6 - Advanced Features* for further details.

## Status Screen

Use the *Status* link on the main menu to view this screen.

The screenshot shows the 'Status' screen with a green header. The content is organized into sections with a green sidebar on the left:

- System**: Device Name: ADSL Router (ANNEX A), Firmware Version: 0.03.08
- ADSL**: Modem Status: Connecting, DownStream Connection Speed: 0 kbps, UpStream Connection Speed: 0 kbps, VC 1 Status: Enabled, VC 2 Status: Disabled, VC 3 Status: Disabled, VC 4 Status: Disabled. Includes an 'ADSL Details' button.
- Internet (VC 1)**: Connection Method: None, Connection Status: Idle, Internet IP Address: ---. Includes a 'Connection Details' button.
- LAN**: IP Address: 192.168.0.1, Network Mask: 255.255.255.0, DHCP Server: On, MAC Address: 00:C0:02:22:44:66
- Wireless**: Name (SSID): Wireless, Region: Europe, Channel: 11, Wireless AP: enable, Broadcast Name: enable. Includes 'Attached Devices' and 'VPN Status' buttons.

At the bottom right, there are 'Refresh Screen' and 'Help' buttons.

**Figure 41: Status Screen**

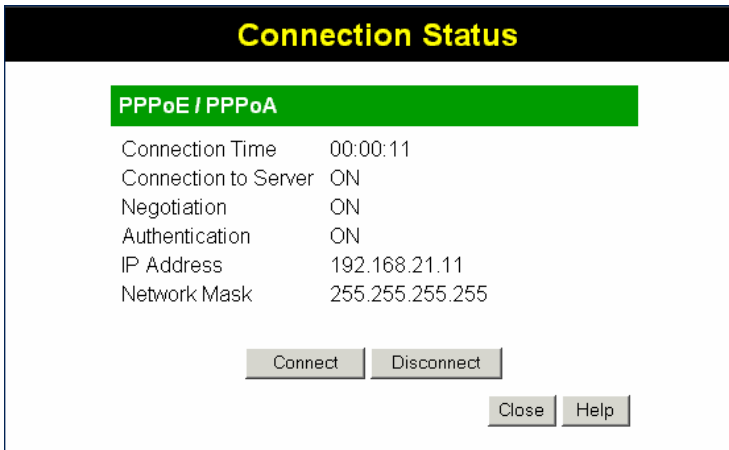
## Data - Status Screen

System	
<b>Device Name</b>	The current name of the Router. This name is also the "hostname" for users with an "@Home" type connection.
<b>Firmware Version</b>	The version of the current firmware installed.
ADSL	
<b>Modem Status</b>	This indicates the status of the ADSL modem component.
<b>DownStream Connection Speed</b>	Displays the speed for the DownStream Connection.
<b>UpStream Connection Speed</b>	If connected, displays the speed for the Up Stream (upload) ADSL Connection.
<b>VC 1 Status</b> <b>VC 2 Status</b> <b>VC 3 Status</b> <b>VC 4 Status</b>	For each VC (Virtual Circuit), the current status is displayed. This will be either "Enabled" or "Disabled".  <b>Note:</b> VC 1 is a standard (Routed) Internet connection. VC 2, VC 3 and VC 4 are Bridge-mode connections.
<b>ADSL Details</b>	Click this button to open a sub-window and view the details of each VC (Virtual Circuit).
Internet (VC1)	
<b>Connection Method</b>	Displays the current connection method, as set in the <i>Setup Wizard</i> .
<b>Connection Status</b>	This indicates the current status of the Internet Connection <ul style="list-style-type: none"> <li>• <b>Active</b> - Connection exists</li> <li>• <b>Idle</b> - No current connection, but no error has been detected. This condition normally arises when an idle connection is automatically terminated.</li> <li>• <b>Failed</b> - The connection was terminated abnormally. This could be caused by Modem failure, or the loss of the connection to the ISP's server.</li> </ul> <p>If there is an error, you can click the "Connection Details" button to find out more information.</p>
<b>Internet IP Address</b>	This IP Address is allocated by the ISP (Internet Service Provider). If using a dynamic IP address, and no connection currently exists, this information is unavailable.
<b>Connection Details</b>	Click this button to open a sub-window and view a detailed description of the current connection. Depending on the type of connection, a "log" may also be available.
LAN	
<b>IP Address</b>	The IP Address of the Wireless ADSL Router.
<b>Network Mask</b>	The Network Mask (Subnet Mask) for the IP Address above.
<b>DHCP Server</b>	This shows the status of the DHCP Server function. The value will be "Enabled" or "Disabled".

<b>MAC Address</b>	This shows the MAC Address for the Wireless ADSL Router, as seen on the LAN interface.
<b>Wireless</b>	
<b>Name (SSID)</b>	If using an ESS (Extended Service Set, with multiple access points) this ID is called an ESSID (Extended Service Set Identifier).
<b>Region</b>	The current region, as set on the Wireless screen.
<b>Channel</b>	This shows the Channel currently used, as set on the Wireless screen.
<b>Wireless AP</b>	This indicates whether or not the Wireless Access Point feature is enabled.
<b>Broadcast Name</b>	This indicates whether or not the SSID is Broadcast. This setting is on the Wireless screen.
<b>Buttons</b>	
<b>ADSL Details</b>	View the details of each VC (Virtual Circuit).
<b>Connection Details</b>	Click this button to open a sub-window and view a detailed description of the current connection.
<b>Attached Devices</b>	This will open a sub-window, showing all LAN and Wireless devices currently on the network.
<b>VPN Status</b>	View details of each current VPN Tunnel in a sub-window. You also have the option of viewing the VPN Log.  For further details about VPN, see the VPN section in <i>Chapter 6 - Advanced Features</i> .
<b>Refresh Screen</b>	Update the data displayed on screen.

## Connection Status - PPPoE & PPPoA

If using PPPoE (PPP over Ethernet) or PPPoA (PPP over ATM), a screen like the following example will be displayed when the "Connection Details" button is clicked.



**Figure 42: PPPoE Status Screen**

### Data - PPPoE/PPPoA Screen

<b>Connection Time</b>	This indicates how long the current connection has been established.
<b>PPPoE Link Status</b>	This indicates whether or not the connection is currently established. <ul style="list-style-type: none"> <li>• If the connection does not exist, the "Connect" button can be used to establish a connection.</li> <li>• If the connection currently exists, the "Disconnect" button can be used to break the connection.</li> </ul>
<b>Negotiation</b>	This indicates the status of the PPPoE Server login.
<b>IP Address</b>	The IP Address of this device, as seen by Internet users. This address is allocated by your ISP (Internet Service Provider).
<b>Network Mask</b>	The Network Mask associated with the IP Address above.
<b>Buttons</b>	
<b>Connect</b>	If not connected, establish a connection to your ISP.
<b>Disconnect</b>	If connected to your ISP, hang up the connection.
<b>Close</b>	Close this window.

## Connection Details - Dynamic IP Address

If your access method is "Direct" (no login), with a Dynamic IP address, a screen like the following example will be displayed when the "Connection Details" button is clicked.

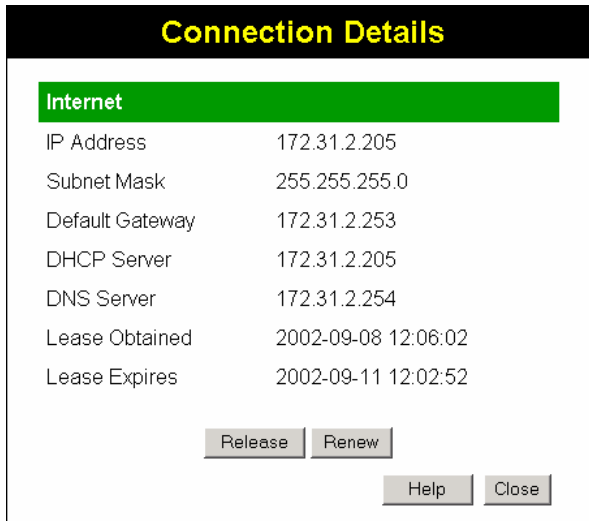


Figure 43: Connection Details - Fixed/Dynamic IP Address

### Data - Dynamic IP address

Internet	
<b>IP Address</b>	The current IP Address of this device, as seen by Internet users. This address is allocated by your ISP (Internet Service Provider).
<b>Network Mask</b>	The Network Mask associated with the IP Address above.
<b>Default Gateway</b>	The IP address of the remote Gateway or Router associated with the IP Address above.
<b>DHCP Server</b>	The IP address of your ISP's DHCP Server.
<b>DNS Server</b>	The IP address of the Domain Name Server which is currently used.
<b>Lease Obtained</b> <b>Lease Expires</b>	This indicates when the current IP address was obtained, and how long before this IP address allocation (the DHCP lease) expires.
Buttons	
<b>Release</b>	If an IP Address has been allocated to the Wireless ADSL Router (by the ISP's DHCP Server, clicking the "Release" button will break the connection and release the IP Address.
<b>Renew</b>	If the ISP's DHCP Server has NOT allocated an IP Address for the Wireless ADSL Router, clicking the "Renew" button will attempt to re-establish the connection and obtain an IP Address from the ISP's DHCP Server.
<b>Close</b>	Close this window.

## Connection Details - Fixed IP Address

If your access method is "Direct" (no login), with a fixed IP address, a screen like the following example will be displayed when the "Connection Details" button is clicked.

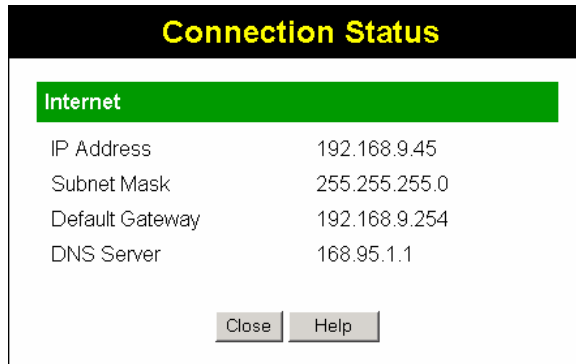


Figure 44: Connection Details - Fixed/Dynamic IP Address

### Data - Fixed IP address Screen

Internet	
<b>IP Address</b>	The IP Address of this device, as seen by Internet users. This address is allocated by your ISP (Internet Service Provider).
<b>Network Mask</b>	The Network Mask associated with the IP Address above.
<b>Default Gateway</b>	The IP Address of the remote Gateway or Router associated with the IP Address above.
<b>DNS Server</b>	The IP Address of the Domain Name Server which is currently used.



# Chapter 6

## Advanced Features

# 6

*This Chapter explains when and how to use the Wireless ADSL Router's "Advanced" Features.*

### Overview

The following advanced features are provided:

- Internet:
  - DMZ
  - Special Applications
  - URL filter
- Dynamic DNS
- Firewall Rules
- Firewall Services
- Schedule
- Virtual Servers
- VPN

### Internet

This screen provides access to the DMZ, Special Applications and URL Filter features.

The screenshot shows a web interface for configuring Internet features. On the left is a green sidebar with the title "Internet" and three menu items: "DMZ", "Special Applications", and "URL Filter". The main content area is white and contains the following elements:

- DMZ:** A checkbox labeled "Enable DMZ, using" followed by a dropdown menu currently showing "Select a PC". Below the dropdown is a link that says "My PC is not listed".
- Special Applications:** A text block stating "If an application does not work, you can define it as a Special Application." followed by a "Special Applications" button.
- URL Filter:** Three radio button options: "Disable", "Block Always" (which is selected), and "Block By Schedule". Below these is a "Configure URL Filter" button.
- At the bottom right are three buttons: "Save", "Cancel", and "Help".

**Figure 45: Internet Screen**

### DMZ

This feature, if enabled, allows the DMZ computer on your LAN to be exposed to all users on the Internet.

- This allows almost any application to be used on the "DMZ PC".

- The "DMZ PC" will receive all "Unknown" connections and data.
- If the DMZ feature is enabled, you must select the PC to be used as the "DMZ PC".



**The "DMZ PC" is effectively outside the Firewall, making it more vulnerable to attacks. For this reason, you should only enable the DMZ feature when required.**

## Special Applications

If you use Internet applications which use non-standard connections or port numbers, you may find that they do not function correctly because they are blocked by the Wireless Router's firewall. In this case, you can define the application as a "Special Application".

The *Special Applications* screen can be reached by clicking the *Special Applications* button on the *Internet* screen.

You can then define your Special Applications. You will need detailed information about the application; this is normally available from the supplier of the application.

Also, note that the terms "Incoming" and "Outgoing" on this screen refer to traffic from the client (PC) viewpoint

### Special Applications

Enable	Name	Outgoing Ports			Incoming Ports		
		Type	Start	Finish	Type	Start	Finish
1. <input type="checkbox"/>	<input type="text"/>	TCP ▾	<input type="text"/>	<input type="text"/>	TCP ▾	<input type="text"/>	<input type="text"/>
2. <input type="checkbox"/>	<input type="text"/>	TCP ▾	<input type="text"/>	<input type="text"/>	TCP ▾	<input type="text"/>	<input type="text"/>
3. <input type="checkbox"/>	<input type="text"/>	TCP ▾	<input type="text"/>	<input type="text"/>	TCP ▾	<input type="text"/>	<input type="text"/>
4. <input type="checkbox"/>	<input type="text"/>	TCP ▾	<input type="text"/>	<input type="text"/>	TCP ▾	<input type="text"/>	<input type="text"/>
5. <input type="checkbox"/>	<input type="text"/>	TCP ▾	<input type="text"/>	<input type="text"/>	TCP ▾	<input type="text"/>	<input type="text"/>
6. <input type="checkbox"/>	<input type="text"/>	TCP ▾	<input type="text"/>	<input type="text"/>	TCP ▾	<input type="text"/>	<input type="text"/>
7. <input type="checkbox"/>	<input type="text"/>	TCP ▾	<input type="text"/>	<input type="text"/>	TCP ▾	<input type="text"/>	<input type="text"/>
8. <input type="checkbox"/>	<input type="text"/>	TCP ▾	<input type="text"/>	<input type="text"/>	TCP ▾	<input type="text"/>	<input type="text"/>
9. <input type="checkbox"/>	<input type="text"/>	TCP ▾	<input type="text"/>	<input type="text"/>	TCP ▾	<input type="text"/>	<input type="text"/>
10. <input type="checkbox"/>	<input type="text"/>	TCP ▾	<input type="text"/>	<input type="text"/>	TCP ▾	<input type="text"/>	<input type="text"/>
11. <input type="checkbox"/>	<input type="text"/>	TCP ▾	<input type="text"/>	<input type="text"/>	TCP ▾	<input type="text"/>	<input type="text"/>
12. <input type="checkbox"/>	<input type="text"/>	TCP ▾	<input type="text"/>	<input type="text"/>	TCP ▾	<input type="text"/>	<input type="text"/>

**Figure 46: Special Applications Screen**

### Data - Special Applications Screen

<b>Checkbox</b>	Use this to Enable or Disable this Special Application as required.
<b>Name</b>	Enter a descriptive name to identify this Special Application.

<b>Incoming Ports</b>	<ul style="list-style-type: none"> <li>• <b>Type</b> - Select the protocol (TCP or UDP) used when you receive data from the special application or service. (Note: Some applications use different protocols for outgoing and incoming data).</li> <li>• <b>Start</b> - Enter the beginning of the range of port numbers used by the application server, for data you receive. If the application uses a single port number, enter it in both the "Start" and "Finish" fields.</li> <li>• <b>Finish</b> - Enter the end of the range of port numbers used by the application server, for data you receive.</li> </ul>
<b>Outgoing Ports</b>	<ul style="list-style-type: none"> <li>• <b>Type</b> - Select the protocol (TCP or UDP) used when you send data to the remote system or service.</li> <li>• <b>Start</b> - Enter the beginning of the range of port numbers used by the application server, for data you send to it. If the application uses a single port number, enter it in both the "Start" and "Finish" fields.</li> <li>• <b>Finish</b> - Enter the end of the range of port numbers used by the application server, for data you send to it. If the application uses a single port number, enter it in both the "Start" and "Finish" fields.</li> </ul>

## Using a Special Application

- Configure the *Special Applications* screen as required.
- On your PC, use the application normally. Remember that only one (1) PC can use each Special application at any time. Also, when 1 PC is finished using a particular Special Application, there may need to be a "Time-out" before another PC can use the same Special Application. The "Time-out" period may be up to 3 minutes.

## URL Filter

If you want to limit access to certain sites on the Internet, you can use this feature. The URL filter will check each Web site access. If the address, or part of the address, is included in the block site list, access will be denied.

On the *Advanced Internet* screen, select the desired setting:

- **Disable** - disable this feature.
- **Block By Schedule** - block according to the settings on the *Schedule* page.
- **Block Always** - allow blocking all of the time, independent of the *Schedule* page.

Click the **Configure URL Filter** button to open the URL Filter screen, allowing you to create or modify the filter strings which determine which sites will be blocked.

The *URL Filter* screen is displayed when the **Configure URL Filter** button on the *Advanced Internet* screen is clicked.

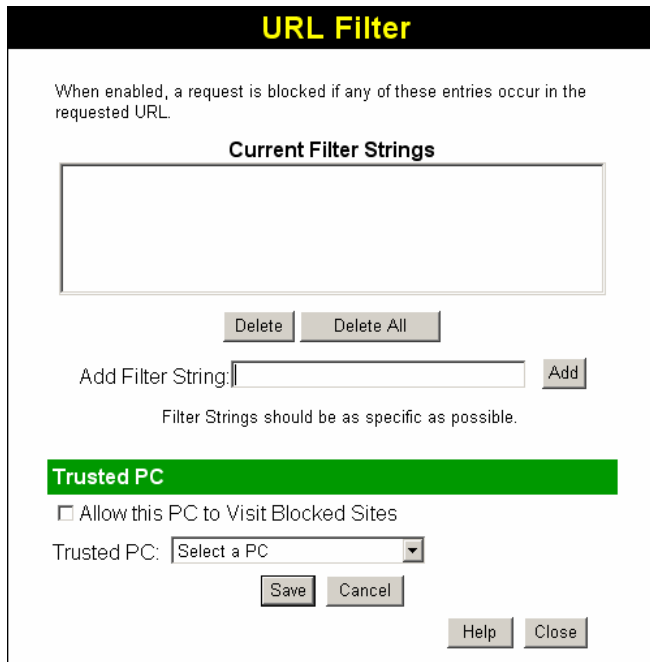


Figure 47: URL Filter Screen

Data - URL Filter Screen

Current Filter Strings	
<b>Current Filter Strings</b>	<p>The list contains the current list of items to block.</p> <ul style="list-style-type: none"> <li>To add to the list, use the "Add" option below.</li> <li>To delete an entry, select it and click <b>Delete</b> button.</li> <li>To delete all entries, click the <b>Delete All</b> button.</li> </ul>
<b>Add Filter String</b>	<p>To add to the current list, type the word or domain name you want to block into the field provided, then click the <b>Add</b> button.</p> <p>Filter strings should be as specific as possible. Otherwise, you may block access to many more sites than intended.</p>
Trusted PC	
<b>Allow Trusted PC</b>	<p>Enable this to allow one computer to have unrestricted access to the Internet. For this PC, the URL filter will be ignored.</p> <p>If enabled, you must select the PC to be the trusted PC.</p>
<b>Trusted PC</b>	<p>Select the PC to be the Trusted PC.</p>