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P/N: 956YQN0001

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Document Version: 1.1

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# Introduction

Congratulations on the purchase of your new TEW-657BRM. The 150Mbps Wireless N ADSL 2/2+ Modem 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, 802.11g and 802.11n (Draft )Wireless Stations.
- **4-Port Switching Hub** for 10BaseT or 100BaseT connections.



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## Features

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The 150Mbps Wireless N ADSL 2/2+ Modem 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 (ADSL 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.

- **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.
- **Access Control.** Using the Access Control feature, you can assign LAN users to different groups, and determine which Internet services are available to each group.
- **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.
- **Port Triggering.** This feature, also called Special Applications, allows you to use Internet applications which normally do not function when used behind a firewall.
- **Port Forwarding.** This feature allows Internet users to access Internet servers on your LAN. The required setup is quick and easy.
- **QoS Support** Quality of Service can be used to handle packets so that more important connections receive priority over less important one.
- **VPN Pass through Support.** PCs with VPN (Virtual Private Networking) software using PPTP, L2TP and IPSec are transparently supported - no configuration is required.

## Wireless Features

- **Standards Compliant.** The Wireless ADSL Router complies with the IEEE802.11g (DSSS) specifications for Wireless LANs.
- **Supports 11n Wireless Stations.** The 802.11n Draft standard provides for backward compatibility with the 802.11b standard, so 802.11n, 802.11b and 802.11g Wireless stations can be used simultaneously.
- **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.
- **WPA2-PSK support.** Support for WPA2 is also included. WPA2 uses the extremely secure AES encryption method.
- **802.1x Support.** Support for 802.1x mode is included, providing for the industrial-strength wireless security of 802.1x authentication and authorization.
- **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.
- **WPS Support.** WPS (Wi-Fi Protected Setup) can simplify the process of connecting any device to the wireless network by using the push button configuration (PBC) on the Wireless Access Point, or entering PIN code if there's no button.
- **WDS Support.** Support for WDS (Wireless Distribution System) allows the Wireless Access Point to act as a Wireless Bridge. Both Point-to-Point and Multi-Point Bridge modes are supported.
- **Simple Configuration.** If the default settings are unsuitable, they can be changed quickly and easily.

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## 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.

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## Package Contents

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

- TEW-657BRM
- CD-ROM (User's Guide)
- Quick Installation Guide
- Power adapter (12V DC, 1A)
- Cat. 5 Ethernet cable (1.5m / 5ft.)
- RJ-11 telephone cable (0.9m / 3ft.)

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# Physical Details

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## Front-mounted LEDs



- WPS Button** Push the WPS button on the device and your other wireless device to perform WPS function that easily creates an encryption-secured wireless connection automatically.
- When WPS button is pressed, the LED will start blinking for 2 minutes. If any client is associated with the router successfully within 2 minutes, the LED will stay On, otherwise the LED will be Off.
- Power LED (Orange)** **On** - Power on.  
**Off** - No power.
- LAN (Blue)** **On** - The LAN port is active.  
**Off** - No active connection on the LAN (Ethernet) port.  
**Flashing** - Data is being transmitted or received via the corresponding LAN port.
- WLAN (Blue)** **On** - When wireless client have connected  
**Off** - No Wireless connections currently exist.  
**Flashing** - Data is being transmitted or received via the Wireless access point. This includes "network traffic" as well as user data.
- ADSL (Green)** **On** - ADSL connection established.  
**Off** - No ADSL connection currently exists.  
**Flashing** - ADSL is synchronizing.
- Internet (Blue/Yellow)** **On (Blue)** - Internet connection is available.  
**Off** - No Internet connection available.  
**Flashing (Blue)** - Data is being transmitted or received via the ADSL connection.

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## Rear Panel



### **ADSL port**

Connect this port to your ADSL line.

### **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.

### **Power port**

Connect the supplied power adapter here.



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## Wireless Performance Considerations

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There are a number of factors that can impact the range of wireless devices.

1. Adjust your wireless devices so that the signal is traveling in a straight path, rather than at an angle. The more material the signal has to pass through the more signal you will lose.
2. Keep the number of obstructions to a minimum. Each obstruction can reduce the range of a wireless device. Position the wireless devices in a manner that will minimize the amount of obstructions between them.
3. Building materials can have a large impact on your wireless signal. In an indoor environment, try to position the wireless devices so that the signal passes through less dense material such as dry wall. Dense materials like metal, solid wood, glass or even furniture may block or degrade the signal.
4. Antenna orientation can also have a large impact on your wireless signal. Use the wireless adapter's site survey tool to determine the best antenna orientation for your wireless devices.
5. Interference from devices that produce RF (radio frequency) noise can also impact your signal. Position your wireless devices away from anything that generates RF noise, such as microwaves, radios and baby monitors.
6. Any device operating on the 2.4GHz frequency will cause interference. Devices such as 2.4GHz cordless phones or other wireless remotes operating on the 2.4GHz frequency can potentially drop the wireless signal. Although the phone may not be in use, the base can still transmit wireless signal. Move the phone's base station as far away as possible from your wireless devices.

If you are still experiencing low or no signal consider repositioning the wireless devices or installing additional access points. The use of higher gain antennas may also provide the necessary coverage depending on the environment.

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# PC Configuration

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## Overview

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

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

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## Windows Clients

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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:**

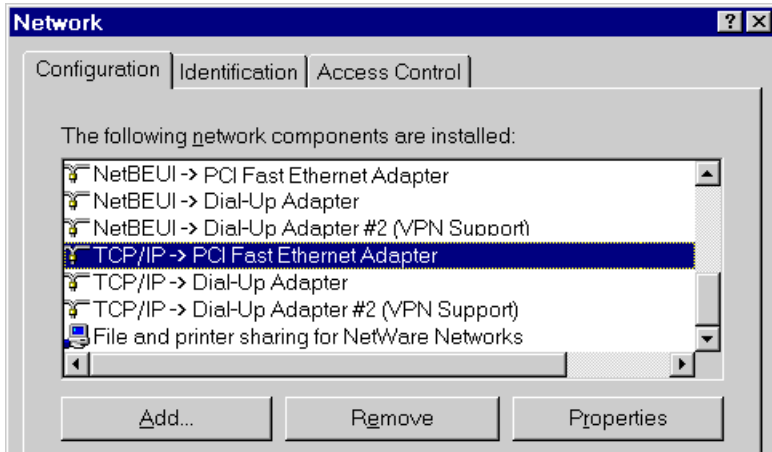
- The *Gateway* must be set to the IP address of the Wireless ADSL Router
- The *DNS* should be set to the address provided by your ISP.



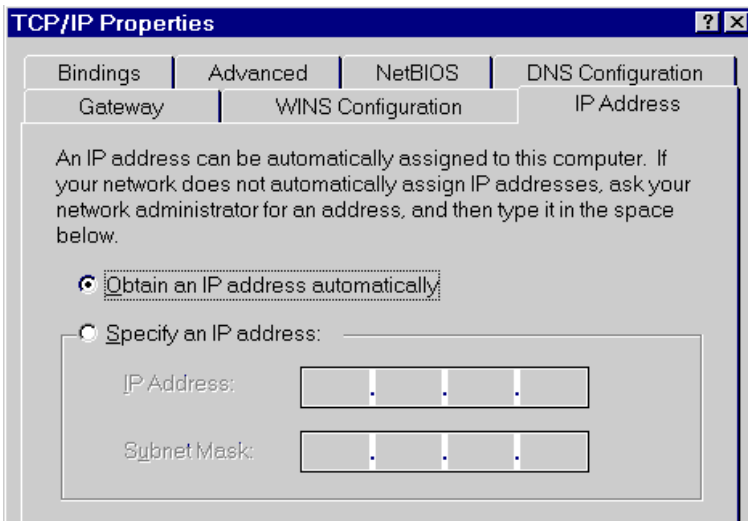
**If your LAN has a Router, the LAN Administrator must re-configure the Router itself. Refer to *Chapter 8 - Advanced Setup* for details.**

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

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



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



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

### Using DHCP

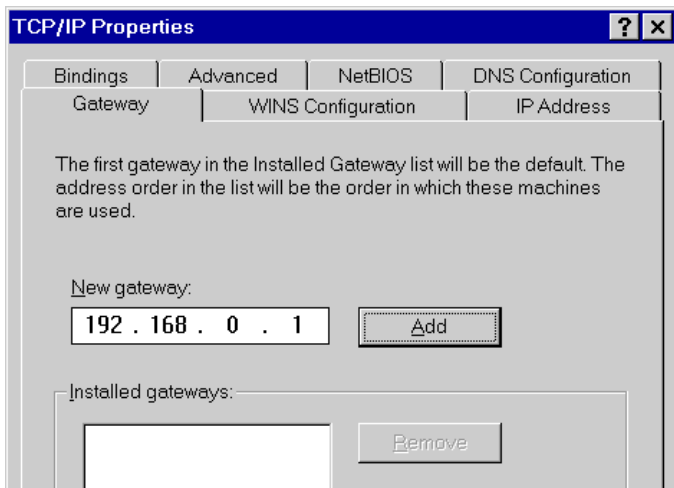
To use DHCP, select the radio button *Obtain an IP Address automatically*. This is the default Windows setting. **Using this is recommended.** By default, the Wireless ADSL Router will act as a DHCP Server.

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

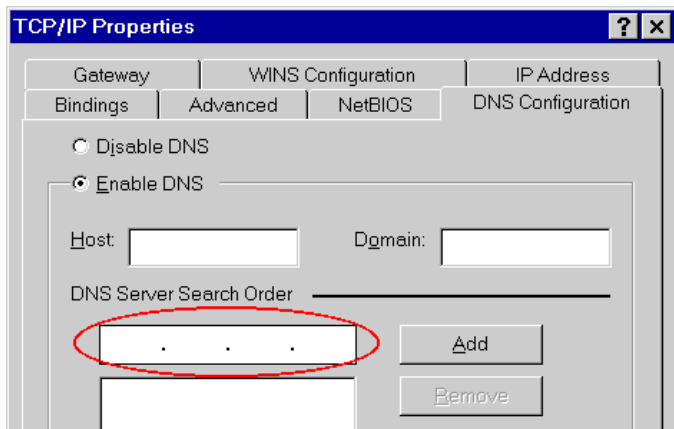
### Using "Specify an IP Address"

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.

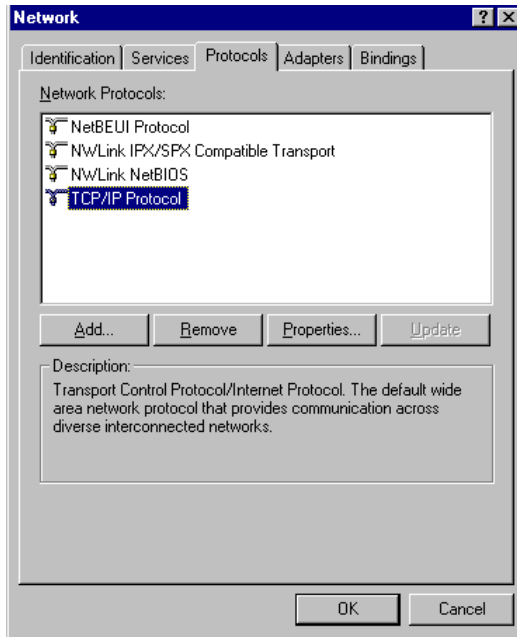


- On the *DNS Configuration* tab, ensure *Enable DNS* is selected. If the *DNS Server Search Order* list is empty, enter the DNS address provided by your ISP in the fields beside the *Add* button, then click *Add*.

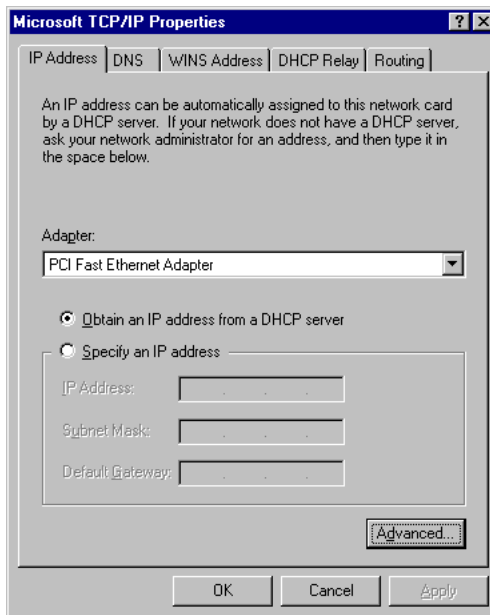


## Checking TCP/IP Settings - Windows NT4.0

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



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



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

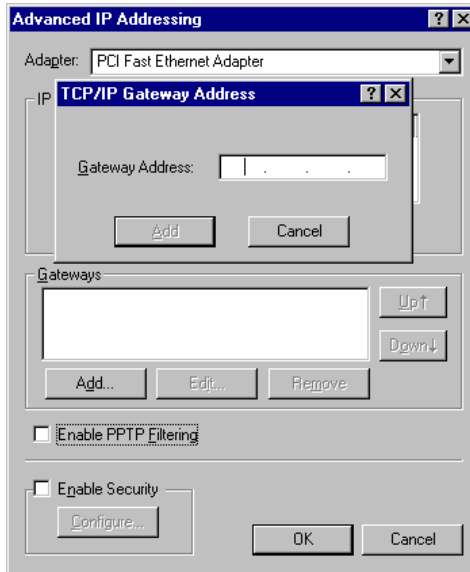
This is the default Windows setting. **Using this is recommended.** By default, the Wireless ADSL Router will act as a DHCP Server.

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

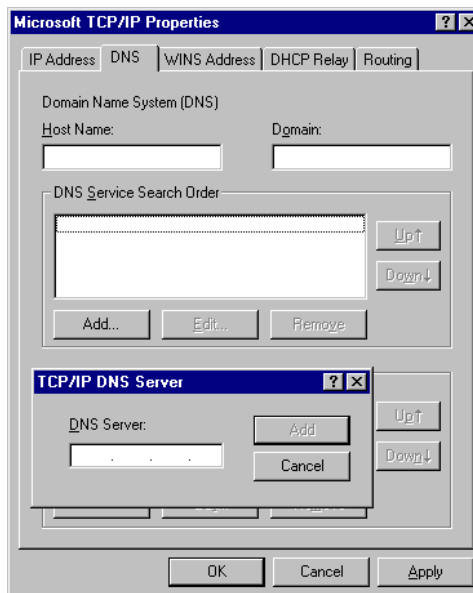
## Specify an IP Address

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 26 below.
  - If necessary, use the *Up* button to make the Wireless ADSL Router the first entry in the *Gateways* list.

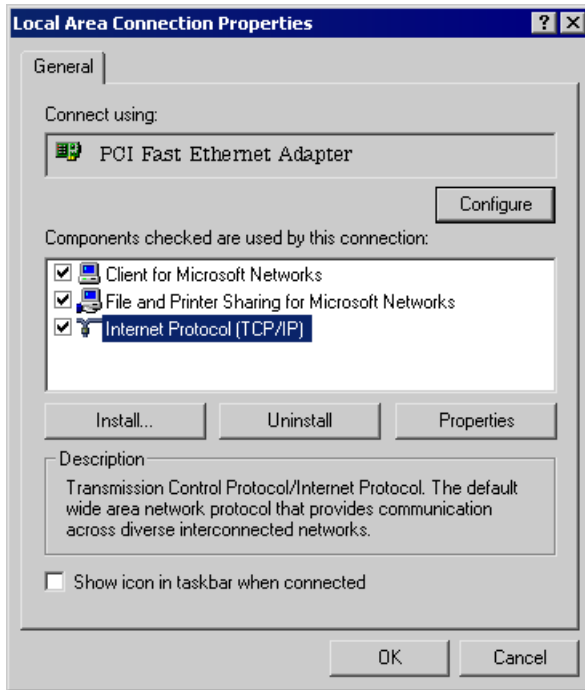


2. The DNS should be set to the address provided by your ISP, as follows:
  - Click the DNS tab.
  - On the DNS screen, shown below, click the *Add* button (under *DNS Service Search Order*), and enter the DNS provided by your ISP.

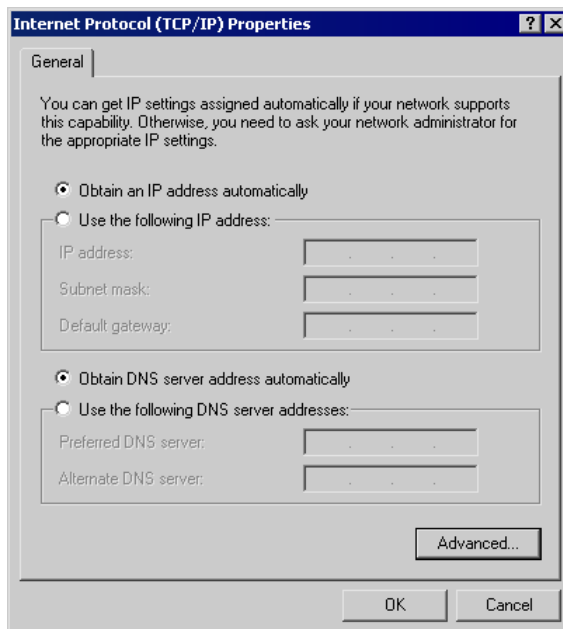


## Checking TCP/IP Settings - Windows 2000:

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:



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.



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.

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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")**

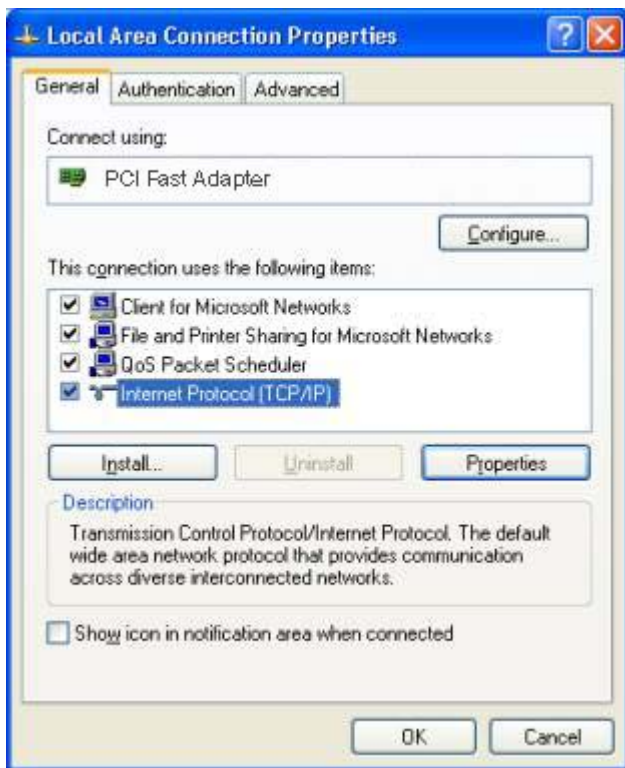
If your PC is already configured, check with your network administrator before making the following changes.

- 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*.

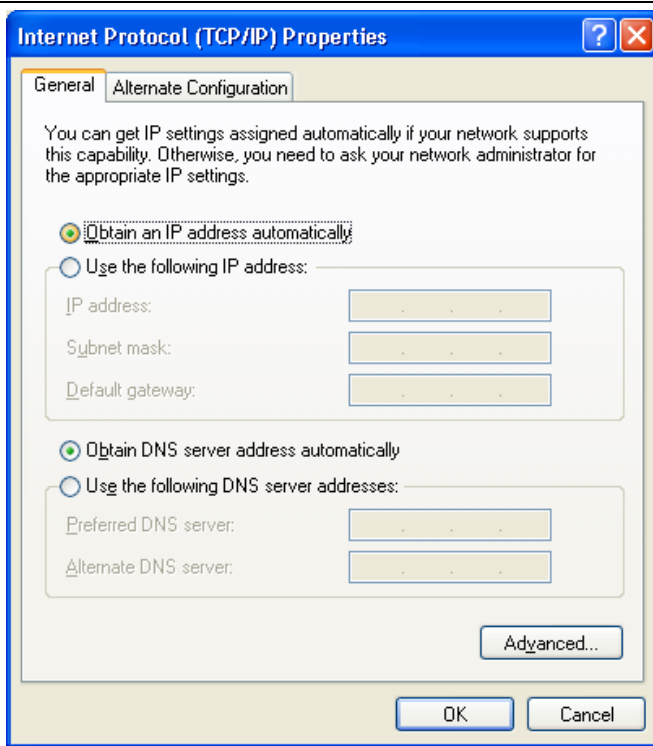


## Checking TCP/IP Settings - Windows XP

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



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.



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*.

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## 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.

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## Macintosh Clients

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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.

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## Linux Clients

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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.

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## Other Unix Systems

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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.

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## Wireless Station Configuration

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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>Admin</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, each station must use the same settings as the Wireless ADLS Router.</li></ul>

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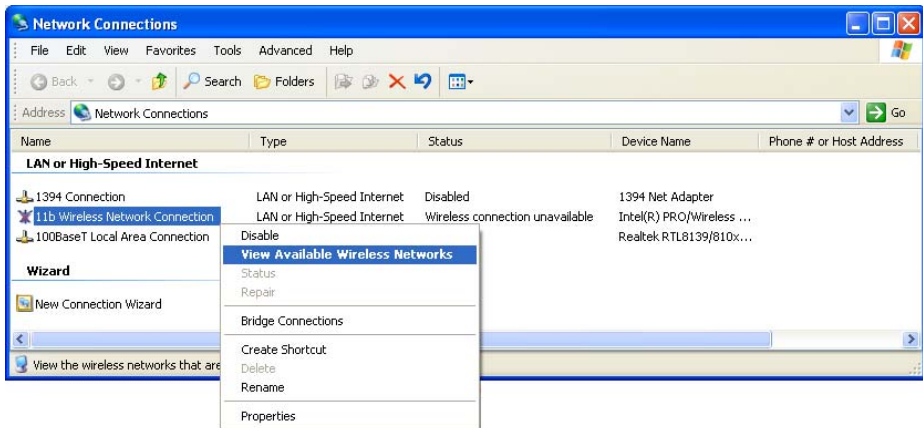
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## Wireless Configuration on Windows XP

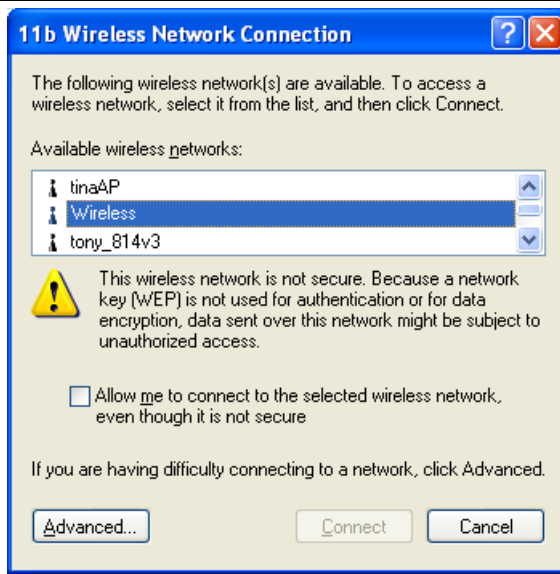
---

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*).



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.

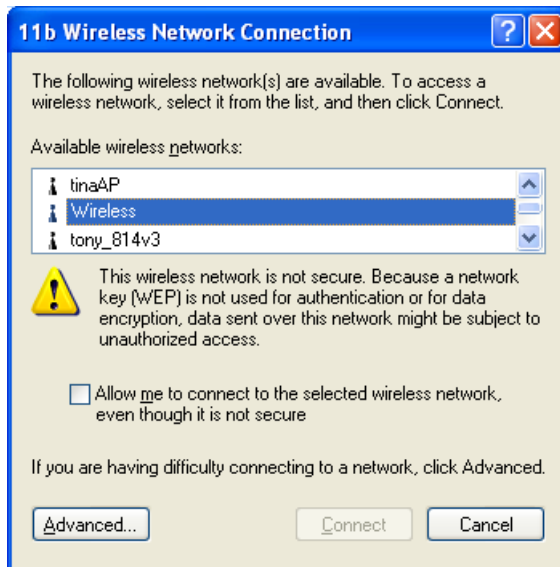


**If the "Broadcast SSID" setting on the Wireless ADSL Router has been disabled, its SSID will NOT be listed. See the following section "If the SSID is not listed" for details of dealing with this situation.**

4. 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.

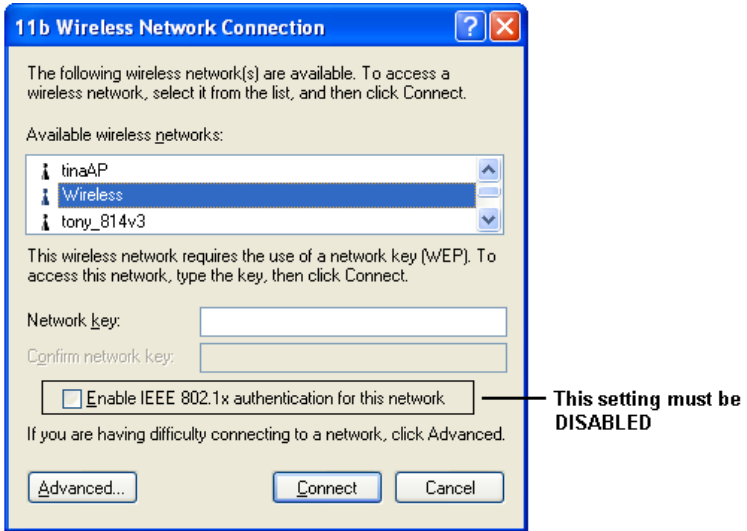


### To connect:

- 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

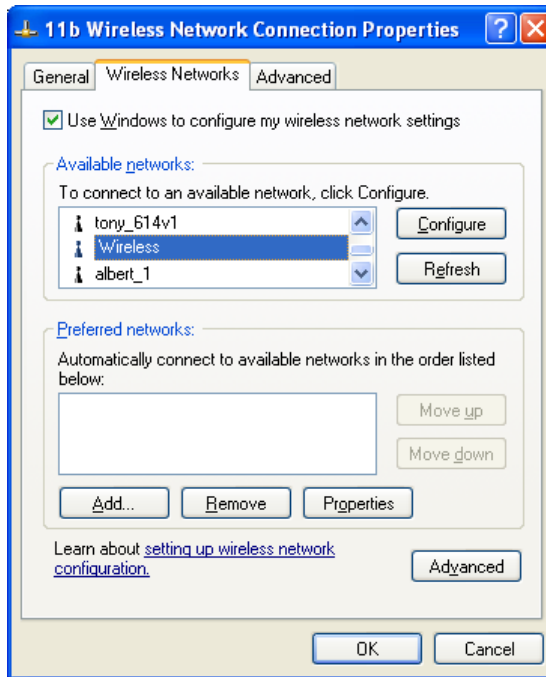
If WEP data encryption has been enabled on the Wireless ADSL Router, Windows will detect this, and show a screen like the following.



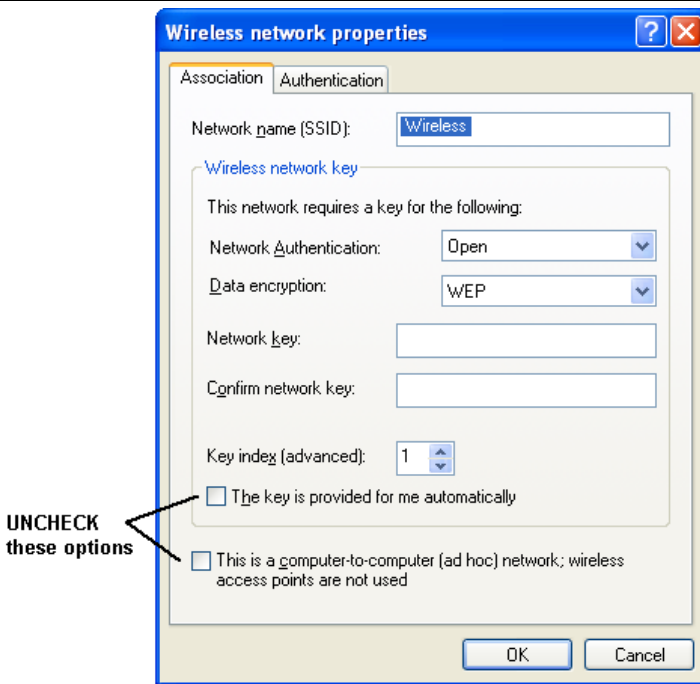
### To connect:

- 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:



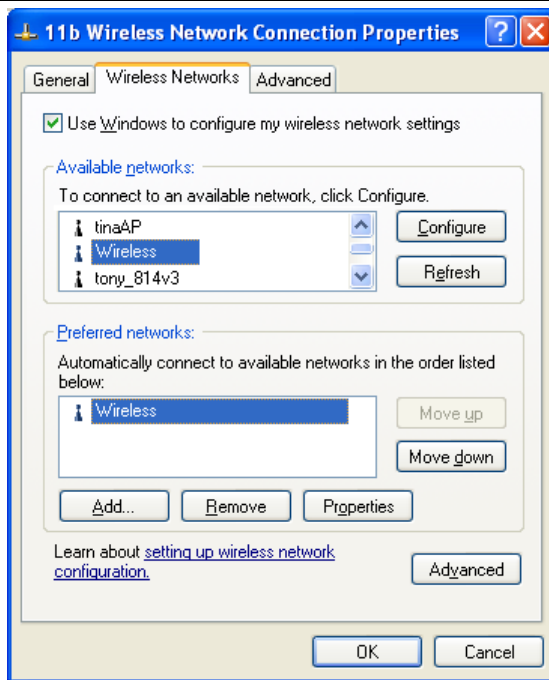
Select the SSID for the Wireless ADSL Router, and click *Configure*, to see a screen like the following:



### 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.

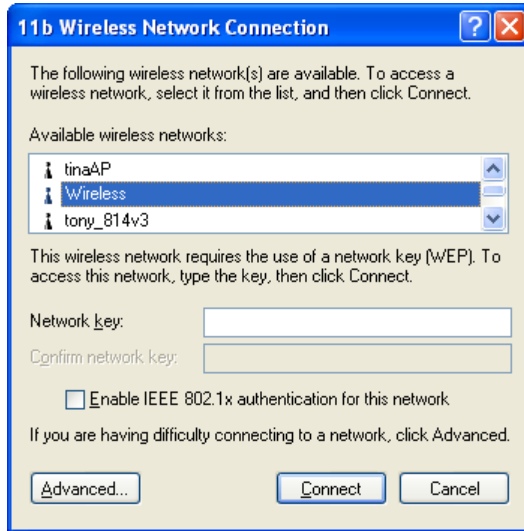




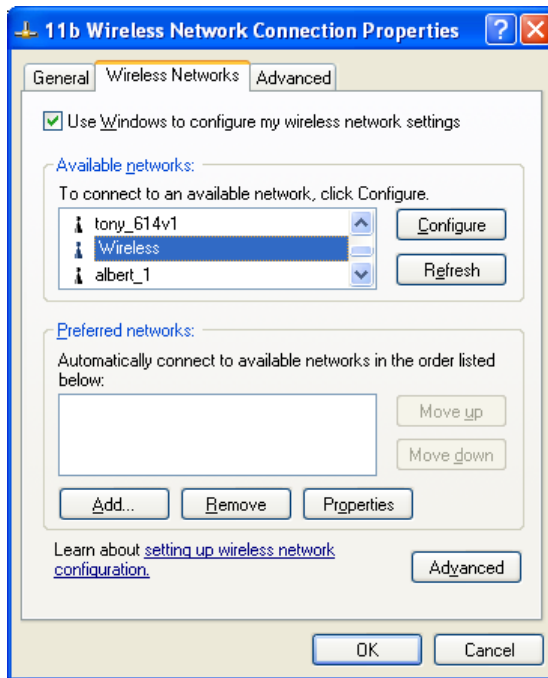
Click OK to establish a connection to the Wireless ADSL Router.

## If using WPA-PSK Data Encryption

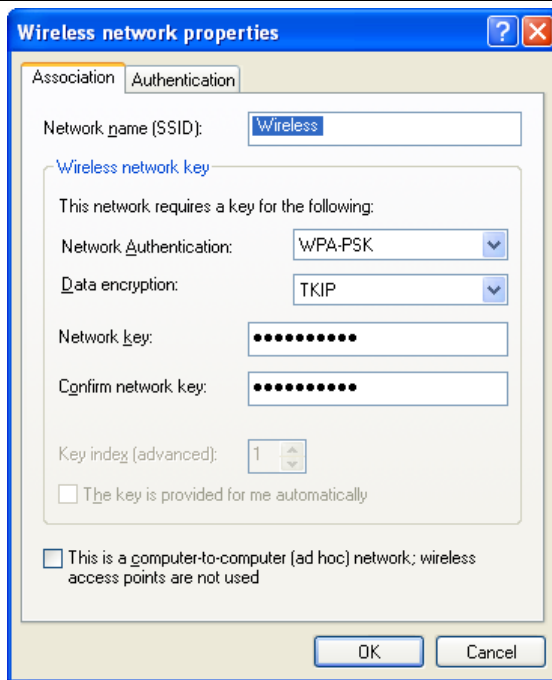
If WPA-PSK data encryption has been enabled on the Wireless ADSL Router, it does not matter which network is selected on the screen below. Just click the *Advanced* button.



You will then see a screen like the example below.

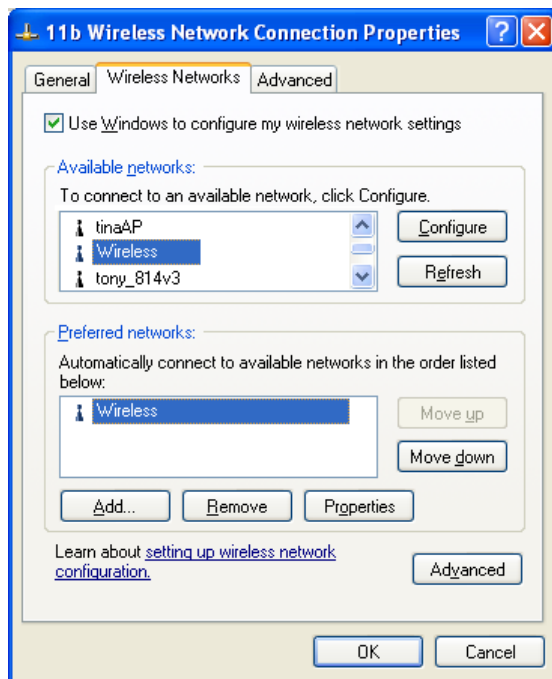


Select the SSID for the Wireless ADSL Router, and click *Configure*, to see a screen like the following:



**Configure this screen as follows:**

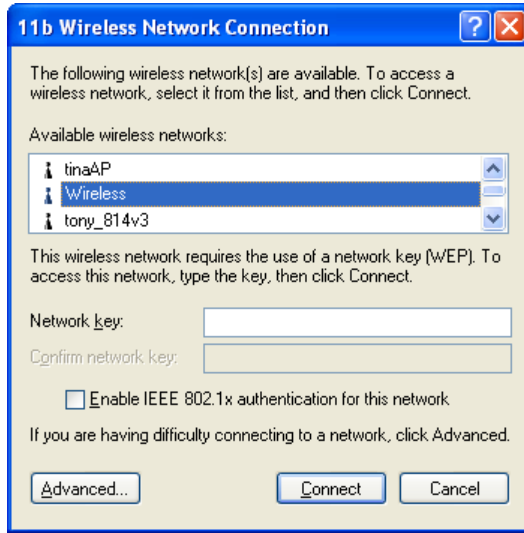
- Set *Network Authentication* to **WPA-PSK**.
- For *Data Encryption*, select **TKIP**.
- For the *Network key* and *Confirm network key*, enter the network key (PSK) used on the Wireless ADSL Router.
- Ensure the option *This is a computer-to-computer (ad hoc) network* is unchecked.
- Click OK to save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



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

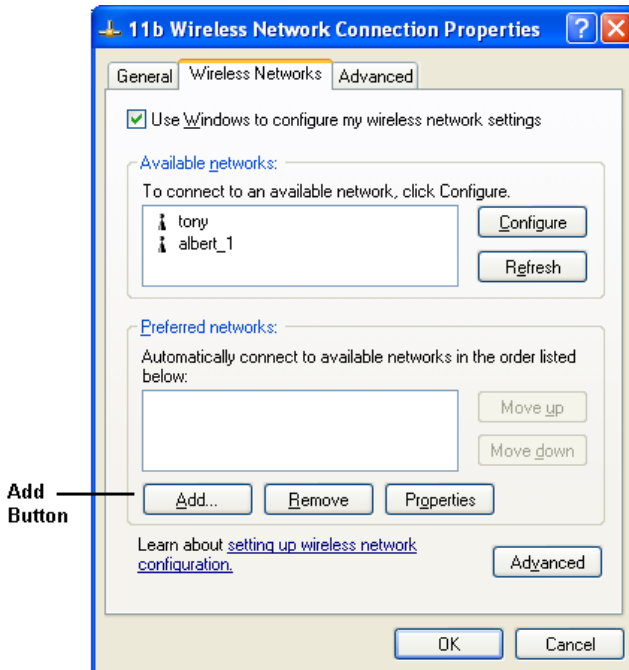
## If the SSID is not listed

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

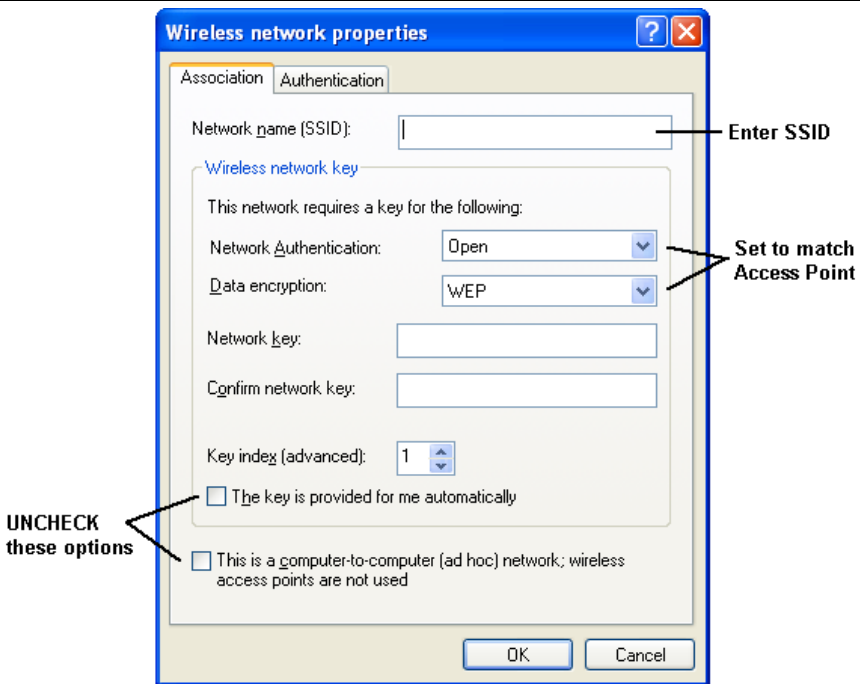


In this situation, you need to obtain the SSID from your network administrator, then follow this procedure:

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



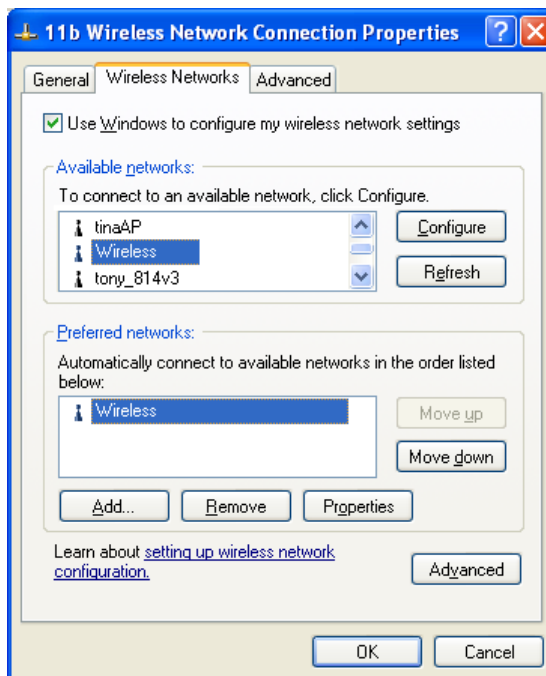
2. Click the *Add* button. You will see a screen like the example below.



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.



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

# Installation

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## Requirements

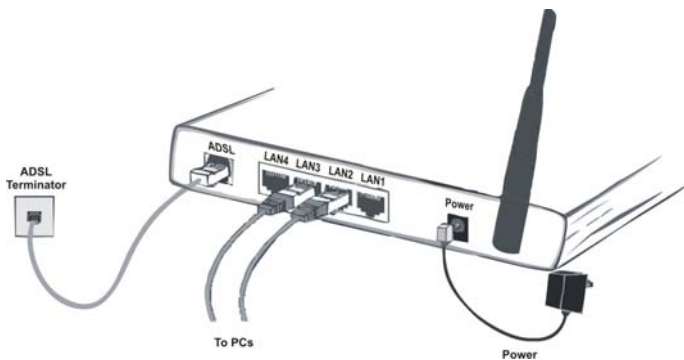
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- Network cables. Use standard 10/100BaseT network (UTP) cables with RJ45 connectors.
- TCP/IP protocol must be installed on all PCs.
- For Internet Access, an Internet Access account with an ISP, and a DSL connection.
- To use the Wireless Access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

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## Procedure

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### 1. Choose an Installation Site

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



**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.

### 3. Connect ADSL Cable

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

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## 4. Power Up

Connect the supplied power adapter to the Wireless ADSL Router. Use only the power adapter provided. Using a different one may cause hardware damage.

## 5. Check the LEDs

- The *Power* LED should be ON.
- 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 *ADSL* LED should be ON if ADSL line is connected.
- The *Internet* LED may be OFF. After configuration, it should come ON.

For more information, refer to *Front-mounted LEDs* in page 5.

# Setup

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## Overview

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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, URL Filter)</li><li>• Access Control</li><li>• Dynamic DNS</li><li>• Options</li><li>• Schedule</li><li>• Port Trigger</li><li>• Port Forward</li><li>• Port Range Forward</li><li>• QoS</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



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## Configuration Program

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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 7.1 or later.
- Mozilla 1.6 or later
- Internet Explorer V5.5 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 TEW-657BRM:

6. After installing the TEW-657BRM in your LAN, start your PC. If your PC is already running, restart it.
7. Start your WEB browser.
8. In the *Address* box, enter "HTTP://" and the IP Address of the TEW-657BRM, as in this example, which uses the Wireless ADSL Router's default IP Address:  
`HTTP://192.168.10.1`
9. When prompted for the User name and Password, enter values as follows:
  - User name     admin
  - Password     admin

## 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:  

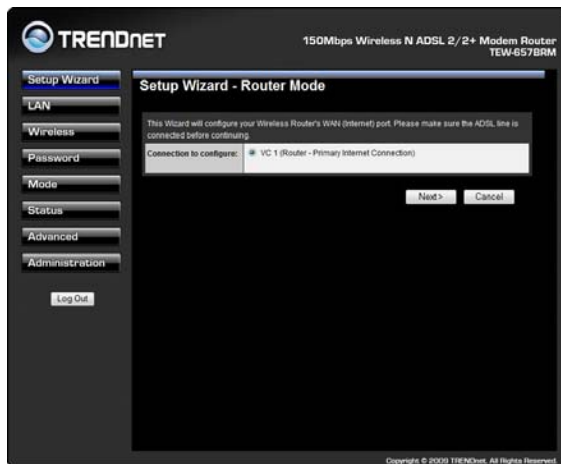
```
ping 192.168.10.1
```

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 192.168.10.2 to 192.168.10.254 to be compatible with the Wireless ADSL Router's default IP Address of 192.168.10.1. 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.

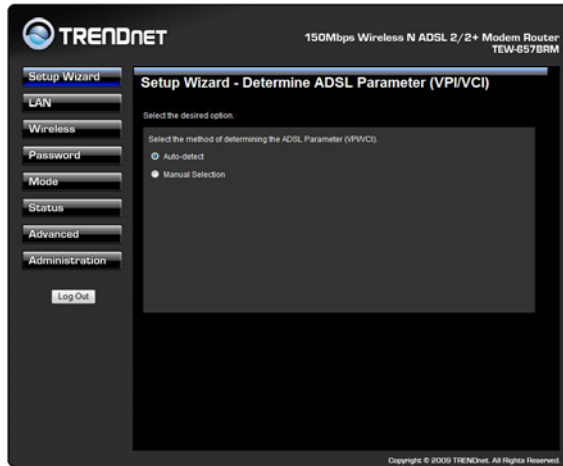
## Setup Wizard

The first time you connect to the Wireless ADSL Router, you should run the *Setup Wizard* to configure the ADSL and Internet Connection.

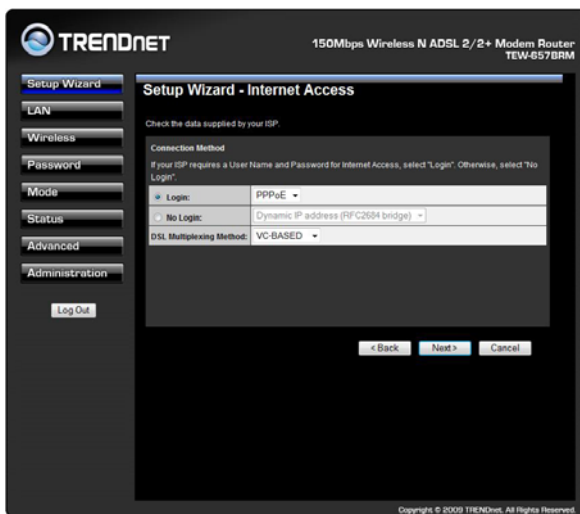
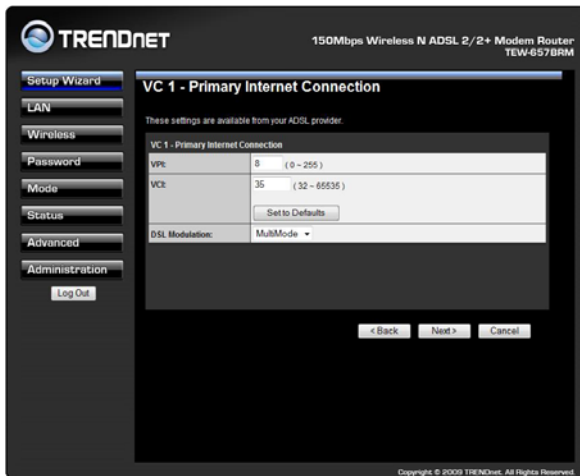
1. Click the *Setup Wizard* link on the main menu and click "Next".



2. On the below screen, select *Auto-detect* or *Manual Selection*, then click "Next"



3. If *Manual Selection* is selected, you will see the VC 1 screen shown below. Enter the VPI and VCI values provided by your ISP, then click "Next".



4. On the Internet Access Screen, shown above, select the correct connection type, as used by your ISP. Click "Next" and complete the configuration for your connection method.
  - You need the data supplied by your ISP. Your ISP's data will also have the *DSL Multiplexing Method* ( LLC or VC )

- The common connection types are explained in the following table..

Connection Type	Details	ISP Data required
Dynamic IP Address	Your IP Address is allocated automatically, when you connect to you ISP.	Often, none. Some ISP's may require you to use a particular <i>Hostname</i> or <i>Domain</i> name, or MAC (physical) address.
Static (Fixed) IP Address	Your ISP allocates a permanent IP Address to you. Usually, the connection is "Always on".	IP Address allocated to you, and related information, such as Network Mask, Gateway IP address, and DNS address.
PPPoE, PPPoA	You connect to the ISP only when required. The IP address is usually allocated automatically.	a) User name and password are always required. b) If using a Static (Fixed) IP address, you need the IP address and related information (Network Mask, Gateway IP address, and DNS address)
IPoA (IP over ATM)	Normally, the connection is "Always on".	IP Address allocated to you, and related information, such as Network Mask, Gateway IP address, and DNS address.

5. Step through the Wizard until finished.
6. On the final screen of the Wizard, run the test and check that an Internet connection can be established.
7. If the connection test fails:
  - Check all connections, and the front panel LEDs.
  - Check that you have entered all data correctly.

---

## Home Screen

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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.

The screenshot shows the home screen of a TRENDnet 150Mbps Wireless N ADSL 2/2+ Modem Router (TEW-657BRM). The interface is dark-themed with a left-hand navigation menu and a main content area. The main content area is titled "Status" and contains several sections:

- ADSL:** Modem Status: Negotiating; Down Stream Connection Speed: 0 kbps; Up Stream Connection Speed: 0 kbps. Includes an "ADSL Details" button.
- Internet(VC 1):** Connection Method: PPPoE; Connection Status: Idle; Internet IP Address: ---; Wan MAC Address: 00:c0:02:ff:ca:e9. Includes a "Connection Details" button.
- LAN:** IP Address: 192.168.10.1; Network Mask: 255.255.255.0; DHCP Server: On; MAC Address: 00:C0:02:FF:CA:E8.
- Wireless:** SSID1: TEW-657BRM; MAC Address: 00:C0:02:FF:CA:E8; SSID2: TEW-657\_1; MAC Address: 00:c0:02:ff:ca:e9; Region: --; Channel: 6; Wireless AP: enable; Broadcast Name: enable.
- System:** Device Name: TEW-657BRM; Firmware Version: 1.00.00. Includes an "Attached Devices" button.

At the bottom of the screen, there are "Refresh Screen" and "Help" buttons. The footer contains the text: "Copyright © 2009 TRENDnet. All Rights Reserved."

## 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.

## Navigation & Data Input

- Use the menu bar on the left of the screen, and the "Back" button on your Browser, for navigation.

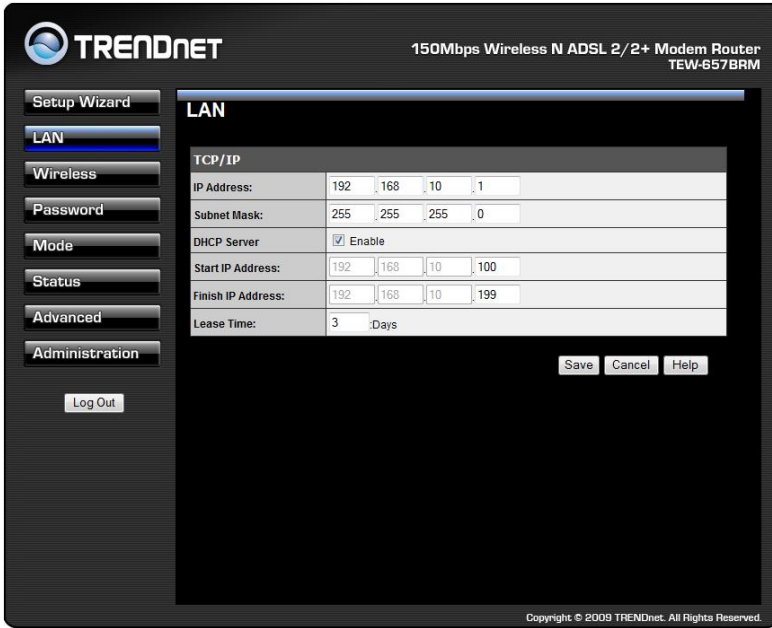
- 
- Changing to another screen without clicking "Save" does NOT save any changes you may have made. You must "Save" before changing screens or your data will be ignored.



**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.



## 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>, <b>Finish IP Address</b> and <b>Lease Time</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>

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# DHCP

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## 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.**

125B

## 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.



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## Wireless Screen

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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.

Setup Wizard

LAN

**Wireless**

Password

Mode

Status

Advanced

Administration

Log Out

**Wireless**
**Region**

Region: --- Select Region ---

**Multi SSID**

 SSID: TEW-657BRM
   
 SSID1 (Service Set Identifier) TEW-657BRM
   
 Broadcast SSID
   
 Isolation Within SSID
   
 Security Setting:
   
 SSID1 :Mixed WPA-PSK/WPA2-PSK
   
 Configure SSID1

**Options**

 802.11 Mode: 11b+g+n
   
 Channel NO. 6
   
 Extension Channel. Down channel
   
 Isolation Between SSID
   
 WMM support
   
 Bandwidth: 20MHZ only

**Mac Address Filter**

 Allow access by:
   
 ALL Wireless stations
   
 Trusted Wireless stations only

Set Stations

**Wifi Protect Setup**
 Enable WPS
   
 AP PIN Code: 39827951
   
 Regenerate
   
 Join Wireless Client
   
 Input Client PIN Code: 12345670
   
 OK

**WDS Setup**
 Enable WDS
   
 MAC Address List
   
 AP 1:
   
 AP 2:
   
 AP 3:
   
 AP 4:

Save Cancel Help

**Data - Wireless Screen**
**Region**
**Region**

Select the correct domain for your location. It is your responsibility to ensure:

- That the Wireless ADSL Router is only used in domains for which is licensed.
- That you select the correct domain, so that only the legal channels for that domain can be selected.

<b>Multi SSID</b>	
<b>SSID</b>	<p>With Multiple SSIDs, you can have 2 SSIDs on one AP. For example, a Guest SSID without encryption for visitors to have Internet access only, and a Admin SSID with encryption for private use to secure your company resources.</p> <p>Select the desired SSID from the list to configure.</p>
<b>SSID 1/2</b>	<p>This is also called the "Network Name".</p> <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>
<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>
<b>Isolation within SSID</b>	<p>If Enabled, devices that have the same SSID will not be able to see each other.</p>
<b>Security Setting</b>	<p>The current Wireless security is displayed. The default value is Disabled.</p>
<b>Configure SSID 1/2 Button</b>	<p>Click this button to access the Wireless security sub-screen, and view or change the settings. See the following section for details.</p>
<b>Options</b>	
<b>802.11 Mode</b>	<p>Select the desired mode:</p> <ul style="list-style-type: none"> <li>• <b>Off</b> - Wireless is disabled.</li> <li>• <b>B only</b> - Only 802.11b connections are available. 802.11g Wireless Stations will only be able to use the Wireless Router if they are fully backward-compatible with the 802.11b standard.</li> <li>• <b>G only</b> - Only 802.11g Wireless stations can use the Wireless Router.</li> <li>• <b>11b/g/n</b> - 802.11.g, 802.11b and 802.11n Wireless stations can use the Wireless Broadband Router.</li> </ul>
<b>Channel NO.</b>	<p>Select the Channel you wish to use on your Wireless LAN.</p> <ul style="list-style-type: none"> <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>Isolation between SSID</b>	<p>If Enabled, devices that have the different SSIDs will not be able to communicate with each other.</p>
<b>WMM Support</b>	<p>Enable or disable this feature as required.</p>
<b>Bandwidth</b>	<p>Select the desired bandwidth from the list.</p>

<b>MAC Address Filter</b>	
<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.
<b>WiFi Protect Setup</b>	
<b>Enable WPS</b>	Enable this if you want to use Wireless WPS function.
<b>AP PIN Code</b>	Use the default displayed value or click the <i>Regenerate</i> button to have the new pin code in the field.
<b>Input Client PIN Code</b>	Enter the client's PIN code in the field and click <i>OK</i> to add the client device.
<b>WDS</b>	
<b>Enable WDS</b>	<p>This feature allows you to make a completely wireless network by using multiple access points without connecting them with a wire LAN.</p> <p>In order to make the WDS working successfully, the access point must use the same channel, SSID, as well as the wireless encryption method.</p>
<b>MAC Address List</b>	Enter the MAC address(es) of the AP(s) into the fields to allow the following access points to be connected to the wireless router.

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## Wireless Security

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This screen is accessed by clicking the "Configure SSID" button on the *Wireless* screen. There are 6 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.
- **WPA2-PSK** - This is a further development of WPA-PSK, and offers even greater security, using the AES (Advanced Encryption Standard) method of encryption.
- **WPA-PSK and WPA2-PSK** - This method, sometimes called "Mixed Mode", allows clients to use EITHER WPA-PSK OR WPA2-PSK.
- **802.1x** - This uses the 802.1x standard for client authentication, and WEP for data encryption.

If this option is selected:

- This Access Point must have a "client login" on the Radius Server.
- Each user must have a "user login" on the Radius Server.
- Each user's wireless client must support 802.1x and provide the login data when required.
- All data transmission is encrypted using the WEP standard. You only have to select the WEP key size; the WEP key is automatically generated.

### WEP Wireless Security

The screenshot shows the "Wireless Security" configuration window. At the top, the title "Wireless Security" is displayed. Below the title, there is a "Security System" dropdown menu set to "WEP". Underneath, the "Authentication Type" is set to "Automatic" and "WEP Data Encryption" is set to "64 bit (10 Hex chars)". There are four radio buttons labeled "Key 1" through "Key 4", each followed by an empty text input field. Below these is a "Passphrase" field and a "Generate Keys" button. At the bottom, there are "Save", "Cancel", "Help", and "Close" buttons.

### Data - WEP Screen

#### WEP Data Encryption

<b>Authentication Type</b>	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.
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<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>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>	<p>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.</p>
<b>Passphrase</b>	<p>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.</p>

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## WPA-PSK Wireless Security

The screenshot shows a 'Wireless Security' dialog box with a dark background. At the top, the title 'Wireless Security' is displayed in white. Below the title, there is a 'Security System' dropdown menu currently showing 'WPA-PSK'. Underneath, there is a 'PSK:' label followed by a white text input field. Below that is an 'Encryption:' label followed by a dropdown menu showing 'TKIP'. At the bottom of the dialog, there are four buttons: 'Save' (highlighted in blue), 'Cancel', 'Help', and 'Close'.

### Data - WPA-PSK Screen

<b>Security System</b>	<p><b>WPA-PSK</b></p> <p>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.</p>
<b>PSK</b>	<p>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.</p>
<b>WPA Encryption</b>	<p>The WPA-PSK standard allows different encryption methods to be used. Select the desired option. Wireless Stations must use the same encryption method.</p>

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## Security Settings - WPA2-PSK

This is a further development of WPA-PSK, and offers even greater security, using the AES (Advanced Encryption Standard) method of encryption.



Figure 1: WPA2-PSK Wireless Security Screen

### Data - WPA2-PSK Screen

WPA2-PSK	
<b>PSK</b>	Enter the key value. Data is encrypted using a 256Bit key derived from this key. Other Wireless Stations must use the same key.
<b>Encryption</b>	The WPA2-PSK standard allows different encryption methods to be used. Select the desired option. Wireless Stations must use the same encryption method.

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## Security Settings - Mixed WPA-PSK/WPA2-PSK

This method, sometimes called "Mixed Mode", allows clients to use EITHER WPA-PSK OR WPA2-PSK.

**Wireless Security**

Security System: **Mixed WPA-PSK/WPA2-PSK** ▼

PSK:

Encryption: **AES/TKIP** ▼

### Data - WPA2-PSK Screen

WPA2-PSK	
<b>PSK</b>	Enter the key value. Data is encrypted using a 256Bit key derived from this key. Other Wireless Stations must use the same key.
<b>Encryption</b>	This standard allows different encryption methods to be used. Select the desired option. Wireless Stations must use the same encryption method.



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## Security Settings - 802.1x

This uses the 802.1x standard for client authentication, and WEP for data encryption. If this option is selected:

- This Access Point must have a "client login" on the Radius Server.
- Each user must have a "user login" on the Radius Server. Normally, a Certificate is used to authenticate each user. See Chapter4 for details of user configuration.
- Each user's wireless client must support 802.1x.
- All data transmission is encrypted using the WEP standard. You only have to select the WEP key size; the WEP key is automatically generated.

**Wireless Security**

Security System: WPA-802.1x

Server Address:

Radius Port: 1812

Shared Key:

Encryption: TKIP

Save Cancel Help Close

### Data - 802.1x Screen

<b>Server Address</b>	Enter the server address here.
<b>Radius Port</b>	Enter the port number used for connections to the Radius Server.
<b>Shared Key</b>	Enter the shared key. Data is encrypted using a key derived from the network key. Other Wireless Stations must use the same key. The key must be from 8 to 63 characters in length.
<b>Encryption</b>	The encryption method is TKIP. Wireless Stations must also use TKIP.

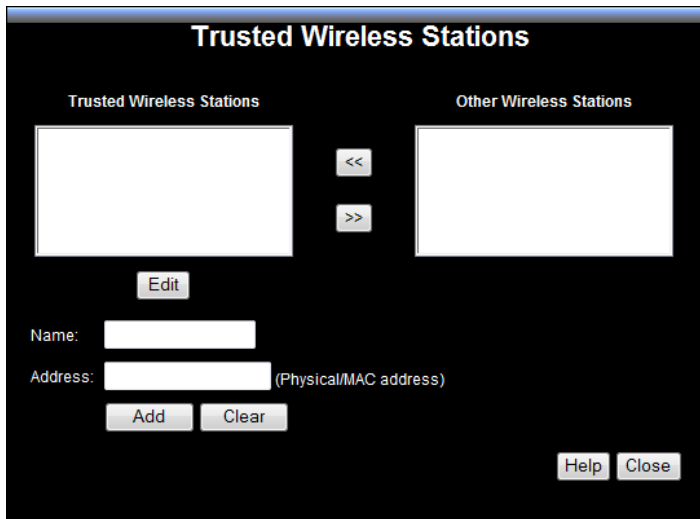
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## Trusted Wireless Stations

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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.



### 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.

### Buttons

<<	Add a Trusted Wireless Station to the list (move from the "Other Stations" list). <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>
>>	Delete a Trusted Wireless Station from the list (move to the "Other Stations" list). <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>

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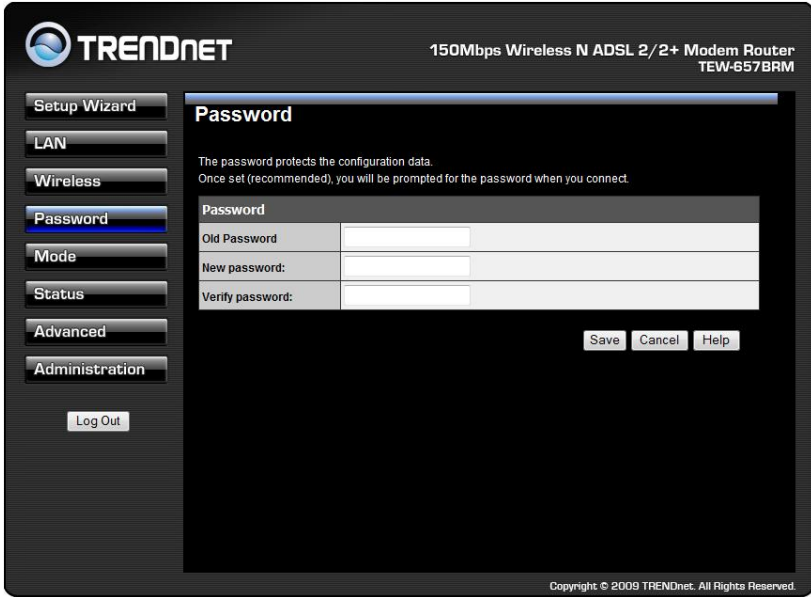
<b>Edit</b>	Use this to change an existing entry in the "Trusted Stations" list: <ol style="list-style-type: none"><li>1. Select the Station in the <i>Trusted Station</i> list.</li><li>2. Click the <i>Edit</i> button. The address will be copied to the "Address" field, and the <i>Add</i> button will change 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.

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## Password Screen

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



<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.

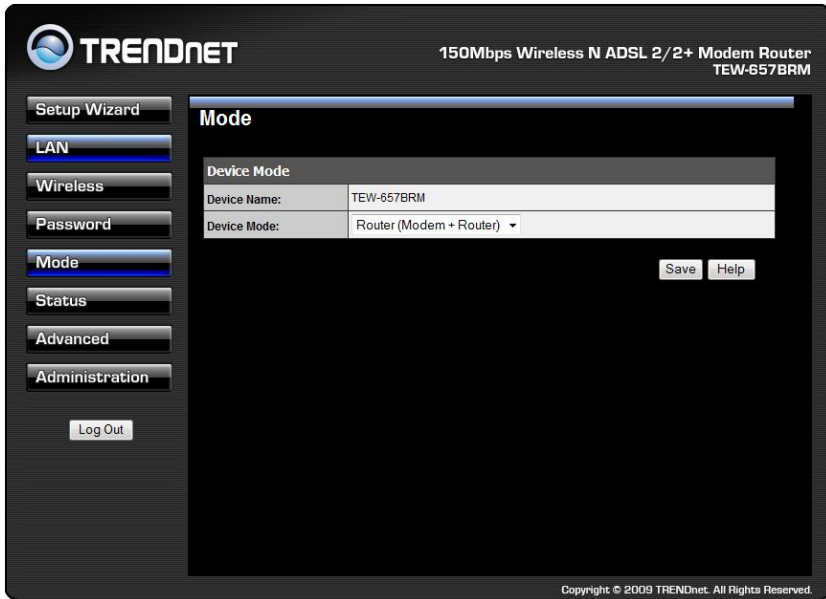
You will be prompted for the password when you re-connect. The "User Name" is always admin and enter the new password applied.

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## Mode Screen

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



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>	Only the ADSL Modem component is operational. <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 be changed, 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.

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# Operation and Status

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## Operation - Router Mode

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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.

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## Status Screen

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

The screenshot displays the 'Status' page of a TrendNet 150Mbps Wireless N ADSL 2+/2+ Modem Router (TEW-657BRM). The interface includes a left-hand navigation menu with options: Setup Wizard, LAN, Wireless, Password, Mode, Status (highlighted), Advanced, and Administration, along with a Log Out button. The main content area is divided into several sections:

- ADSL:** Modem Status: Negotiating; Down Stream Connection Speed: 0 kbps; Up Stream Connection Speed: 0 kbps. Includes an 'ADSL Details' button.
- Internet(VC 1):** Connection Method: PPPoE; Connection Status: Idle; Internet IP Address: ---; Wan MAC Address: 00:c0:02:ff:ca:e9. Includes a 'Connection Details' button.
- LAN:** IP Address: 192.168.10.1; Network Mask: 255.255.255.0; DHCP Server: On; MAC Address: 00:C0:02:FF:CA:E8.
- Wireless:** SSID1: TEW-657BRM; MAC Address: 00:C0:02:FF:CA:E8; SSID2: TEW-657\_1; MAC Address: 00:c0:02:ff:ca:e9; Region: --; Channel: 6; Wireless AP: enable; Broadcast Name: enable.
- System:** Device Name: TEW-657BRM; Firmware Version: 1.00.00. Includes an 'Attached Devices' button.

At the bottom of the screen, there are 'Refresh Screen' and 'Help' buttons, and a copyright notice: Copyright © 2009 TRENDnet. All Rights Reserved.

## Data - Status Screen

ADSL	
Modem Status	This indicates the status of the ADSL modem component.
DownStream Connection Speed	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>Internet</b>	
<b>Connection Method</b>	Displays the current connection method, as set in the <i>Setup Wizard</i> .
<b>Connection Status</b>	<p>This indicates the current status of the Internet Connection</p> <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>WAN MAC Address</b>	It displays the MAC address for the WAN.
<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.
<b>LAN</b>	
<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>SSID 1</b>	It displays the name of the SSID 1.
<b>MAC Address</b>	It displays the MAC address of the SSID 1.
<b>SSID 2</b>	It displays the name of the SSID 2.
<b>MAC Address</b>	It displays the MAC address of the SSID 2.
<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.