

IEEE 802.11g Wireless ADSL Router

With 4 Port 10/100Mbps Fast Ethernet Switch

User's Manual

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FCC Interference 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 radio interference in a residential environment. This equipment can generate, use and radiate radio frequency energy and, if not installed and used in accordance with the instructions in this manual, may cause harmful interference to radio communications.

However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which is found by turning the equipment ON and OFF, the user is encouraged to try to reduce the interference by one or more of the following measures:

- Adjust or relocate the receiving antenna
- Increase the separation between the equipment or device
- Consult a dealer or an experienced technician for assistance

CE Declaration of Conformity

This is to certify that this device complies the essential protection requirements of the European Council Directive 89/336/EEC, Article 4a. Conformity is declared by the application of EN 55 022 Class B (CISPR 22). Compliance with the applicable regulations is dependent upon the use of shielded cables. It is the responsibility of the user to procure the appropriate cables.

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Chapter 1 Introduction

Congratulations on your purchase of this outstanding IEEE 802.11g Wireless ADSL Router. **PTI-840G** is an IEEE 802.11g Wireless and 4 Port Switch built-in ADSL Router that allows ADSL connectivity while providing Wireless LAN capabilities for residential, industries and SOHO environments. Wireless-G or the so-called 11g is the upcoming 54Mbps wireless networking standard that's almost 5 times faster than the widely deployed Wireless-B or the so-called 11b products found in homes, businesses, and public wireless hotspots around the world.

PTI-840G allows ADSL connectivity while providing Wireless LAN capabilities for home or office users. It provides a downstream rate of up to 8Mbps and upstream rate of up to 1Mbps for ADSL connection and 54Mbps transfer data rate for the 11g connection. With minimum setup, you can install and use the router within minutes.

1.1 Features

➤ **The IEEE 802.11g Wireless ADSL Router provides the following features:**

- ⊕ Full rate ANSI T1.413 Issue 2, ITU-T G.992.1 and ITU-T G.992.2 standards compliant.
- ⊕ Fully compliant with Annex A/B/B(U-R2) ADSL specifications.
- ⊕ Downstream and Upstream data rates up to 8Mbps and 1Mbps.
- ⊕ PPPoE/PPP protocol for dial-up ADSL service.
- ⊕ IEEE 802.11g standards compliant.
- ⊕ 802.11g wireless networking, with the ability to operate in 802.11g-only or 802.11b+g modes.
- ⊕ OFDM modulation with data rate up to 54Mbps.
- ⊕ 64/128 Bit RC-4 WEP Encryption.
- ⊕ Web-based setup for installation and management.
- ⊕ Built in 4*10/100 Mbps Switch port for LAN connection.
- ⊕ Compliant with IEEE 802.3/802.3u and auto-negotiation.
- ⊕ Support full-duplex 802.3 flow control.
- ⊕ Support packet filtering functionality.
- ⊕ Flash memory for firmware upgrade.
- ⊕ Hardware Reset button for fast default setting recovery.
- ⊕ LEDs indicator indicates connection status.

➤ **ADSL Standards**

- ⊕ Full rate ANSI T1.413 Issue2, ITU-T G.992.1 and ITU-T G.992.2 standards compliant.
- ⊕ Downstream and Upstream data rates up to 8Mbps and 1Mbps.
- ⊕ Support Dying Gasp functionality.

➤ **ATM Protocols**

- ⊕ Support PPPoA (RFC2364).
- ⊕ Support PPPoE (RFC2516).
- ⊕ Router/Bridged Ethernet over ATM (RFC1483).
- ⊕ Classical IP over ATM (RFC1577).
- ⊕ ATM Forum UNI 3.1/4.0 PVC, ATM SAR, ATM AAL5 and OFM F4/F5.

➤ **802.11g Wireless Networking**

- ⊕ IEEE 802.11g standard compliant.
- ⊕ OFDM modulation with data rate up to 54Mbps.
- ⊕ Support 2.412GHz ~ 2.484GHz frequency ranges.
- ⊕ 64-bit and 128-bit WEP encryption security.
- ⊕ Wireless access can be restricted by MAC address
- ⊕ Wireless network name broadcast can be turned off so that only devices that have the net-work name (SSID) can connect.
- ⊕ Built-in dual dipole diversity antenna.

➤ **Router Mode**

- ⊕ IP Routing – RIPv1 and RIPv2.
- ⊕ Static Routing.
- ⊕ DHCP Server and Client.
- ⊕ Support DNS proxy.
- ⊕ Support NAT and NATPT functionality.
- ⊕ Support IPSec, L2TP, PPTP Pass-Through.
- ⊕ Support ICMP and IGMP.

➤ **Ethernet Standards**

- ⊕ Built-in 4 Port 10/100Mbps Ethernet Switch which compliant with IEEE 802.3x standards
- ⊕ Automatic MDI/MDI-X crossover for 10/100Base-T/port.

➤ **Web-Based Management**

- ⊕ Firmware upgrade via FTP.
- ⊕ WAN and LAN connection statistics.
- ⊕ Configuration of static routes and routing table, NAT/NAPT and VCs.

- ✚ PPP user ID and password.

➤ **Security Support**

- ✚ Hidden by NAT. NAT opens a temporary path to the Internet for requests originating from the local network. Requests originating from outside the LAN are discarded, preventing users out-side the LAN from finding and directly accessing the PCs on the LAN.
- ✚ Port Forwarding with NAT. The IEEE 802.11g Wireless ADSL Router allows you to direct incoming traffic to specific PCs based on the service port number of the incoming request, or to one designated "DMZ" host computer. Forwarding of single ports or ranges of ports are configurable.
- ✚ Support URL Blocking. Prevent any LAN clients from accessing specific Internet site by setting the URL keywords. The IEEE 802.11g Wireless ADSL Router will reject all those web site whose URL names are matched or partially matched with the keywords.
- ✚ Support MAC Filtering function. This function enable the administrator to control the LAN client computers to access the Internet by the hardware MAC Address.

➤ **Content Filtering**

- ✚ Blocks unwanted traffic from the Internet to your LAN.
- ✚ Blocks access from your LAN to Internet locations or services that you'd specified.
- ✚ Logs security incidents. The IEEE 802.11g Wireless ADSL Router will log security events such as blocked incoming traffic, port scans, attacks, and administrator logins.

➤ **Extensive Protocol Support**

- ✚ IP Address Sharing by NAT. The IEEE 802.11g Wireless ADSL Router allows several networked PCs to share an Internet account using only a single IP address, which may be statically or dynamically assign -ed by your Internet service provider (ISP).
- ✚ Automatic Configuration of DHCP. The IEEE 802.11g Wireless ADSL Router dynamically assigns network con- figuration information, including IP Address, WAN Gateway, Domain Name Server (DNS) Addresses, ... etc. This greatly simplifies configuration of PCs on your local network.
- ✚ Dynamic DNS. This is a method of keeping a domain name linked to a changing IP Address as not all computers use Static IP addresses. Typically, when a user connects to the Internet, the user's ISP assigns an unused IP address from a pool of IP addresses, and this address is used only for the duration of that specific connection.
- ✚ PPP over Ethernet (PPPoE). PPPoE is a method for the encapsulation of PPP packets over Ethernet frames from the user to the ISP over the Internet. One reason PPPoE is preferred by ISPs is because it provides authentication (username and password) in addition to data transport. A PPPoE session can be initiated by either a client application residing on a PC, or by client firmware residing on a modem or router.

- ✦ PPTP (Point-to-Point Tunneling Protocol) – PPTP is a protocol (set of communication rules) that allows corporations to extend their own corporate network through private " Tunnels " over the public Internet. Effectively, a corporation uses a wide-area network as a single large local area network. A company no longer needs to lease its own lines for wide-area communication but can securely use the public networks. This kind of interconnection is known as a virtual private network.
- ✦ Support UPnP. Universal Plug and Play (UPnP) enhances peer-to-peer network connectivity for personal computers, wireless devices, and other intelligent appliances, in a distributed, open networking architecture. UPnP provides an architectural framework for creating self-configuring, self-describing devices and services. Networks managed by UPnP require no configuration by users or network administrators because “ UPnP ” supports automatic discovery. UPnP enables a device to dynamically join a network , obtain an IP address , and convey its capabilities on request.

➤ **Easy Installation and Management**

- ✦ Quick Setup. The Quick Setup is meant to help you install the product quickly and easily.
- ✦ Browser-based management. Browser-based configuration allows you to easily configure your router from almost any type of personal computer, such as Windows, Macintosh or Linux.
- ✦ Visual monitoring. The IEEE 802.11g Wireless ADSL Router's front panel's LEDs provide an easy way to monitor the connection status and activity.

1.2 Package Contents

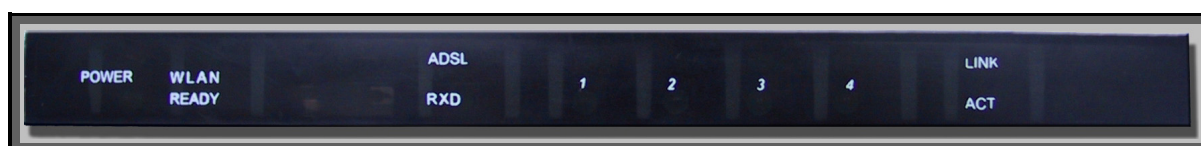
- One IEEE 802.11g Wireless ADSL Router
- One CD-ROM (Manual/Utility/Installation Guide)
- One Power Adapter
- One RJ-11 ADSL Cable
- One CAT-5 Ethernet Cable (Optional)

1.3 System Requirement

- One PC with a NIC card or Wireless 802.11g/b adaptor, and installed TCP/IP protocol stack.
- Microsoft Internet Explorer 5 or later (Netscape V6/7 or later) web browser.
- All TCP/IP networked computers in LAN.

1.4 Panel Description

1.4.1 Front Panel



Device Indicators

| | |
|--------------|---|
| POWER | Lights up when the IEEE 802.11g Wireless ADSL Router is powered on. |
|--------------|---|

Wireless

| | |
|-------------------|---|
| WLAN READY | Lit when the IEEE 802.11g Wireless ADSL Router is ready for services. |
| | Blinking when Wireless communication is active. |

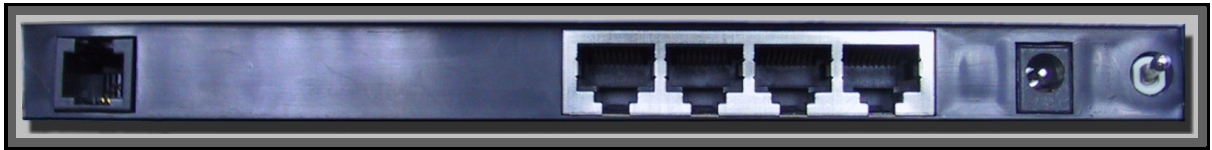
WAN Indicator

| | |
|-------------|---|
| ADSL | Lit when a successful ADSL connection is established. |
| RXD | Blinking when data communication is active. |

LAN Indicators

| | |
|-------------------|--|
| 1 LINK/ACT | Blinking when the IEEE 802.11g ADSL Router is actively sending/receiving data. |
| 2 LINK/ACT | Blinking when the IEEE 802.11g ADSL Router is actively sending/receiving data. |
| 3 LINK/ACT | Blinking when the IEEE 802.11g ADSL Router is actively sending/receiving data. |
| 4 LINK/ACT | Blinking when the IEEE 802.11g ADSL Router is actively sending/receiving data. |

1.4.2 Rear Panel



| | |
|------------------|--|
| WAN | Connect to ADSL Line. |
| Ports 1~4 | Connect to network device. Support auto crossover functionality. |
| Power | Connect to DC power adaptor. |

Chapter 2 Installation

This chapter describes the hardware connection mechanism of your IEEE 802.11g Wireless ADSL Router on your Local Area Network (LAN), connect to the Internet, how to configure your IEEE 802.11g Wireless ADSL Router for Internet access or how to manually configure your Internet connection.

You need to prepare the following items before you can establish an Internet connection through your IEEE 802.11g Wireless ADSL Router :

1. A computer which must have an installed Ethernet Adaptor and an Ethernet Cable, or an Wireless-b or Wireless-g Wireless Adaptor.
2. An ADSL service account and configuration information provided by your Internet Service Provider (ISP). You will need one or more of the following configuration parameters to connect your IEEE 802.11g Wireless ADSL Router to the Internet :
 - i. VPI/VCI parameters
 - ii. Multiplexing Method
 - iii. Host and Domain Names
 - iv. ISP Login Name and Password
 - v. ISP Domain Name Server (DNS) Address
 - vi. Fixed or Static IP Address.

2.1 Hardware Connection Mechanism

Figure 2-1 shows the overall hardware connection mechanism of your IEEE 802.11g Wireless ADSL Router.



Figure 0-1 : The hardware connection mechanism.



All the Ethernet port of the IEEE 802.11g Wireless ADSL Router supports auto crossover capability.

Continuously press or hold down the “**Reset**” button for 10 seconds to restore the Wireless Router’s factory default setting.

2.2 How to connect your IEEE 802.11g Wireless ADSL Router

Follow the following steps or instruction for connecting your IEEE 802.11g Wireless ADSL Router :

1. Turn off your computer.
2. Connect the WAN port of your IEEE 802.11g Wireless ADSL Router to the splitter DSL port with a RJ-11 cable.
3. Connect the Ethernet cable (RJ-45) from your IEEE 802.11g Wireless ADSL Router to the Ethernet Adaptor in your computer.
4. Connect the Power adaptor to the IEEE 802.11g Wireless ADSL Router and plug it into a Power outlet.
5. Turn on your IEEE 802.11g Wireless ADSL Router.

Note : The Power light will lit after turning on the IEEE 802.11g Wireless ADSL Router.

Auto and self diagnostic process will turn the LED indicators ON and OFF during the process.

6. Turn on your computer.
7. Refer to the next section to setup or configure your Network Adaptor.

2.3 Network Setting in Administrator's computer

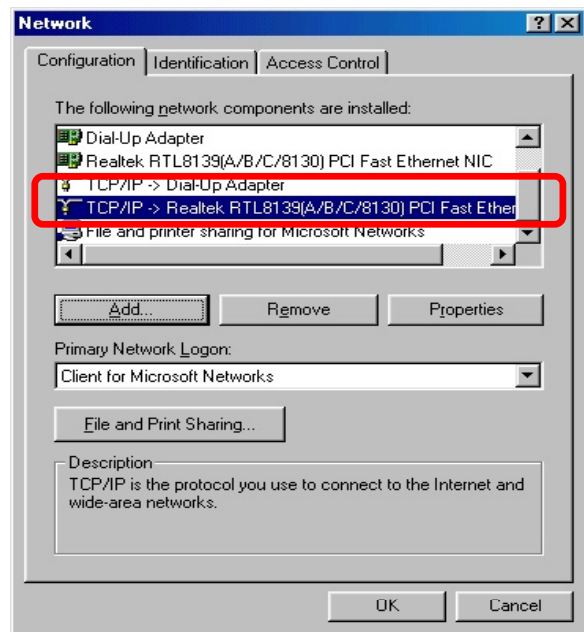
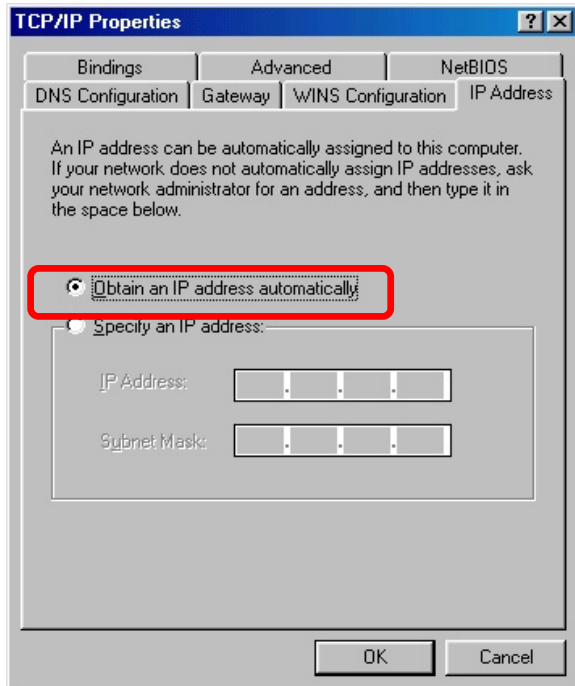
The instruction in this section will help you configure your computers to be able to communicate with this IEEE 802.11g Wireless ADSL Router.

Computers access the Internet using a protocol called TCP/IP (Transmission Control Protocol/ Internet Protocol). Each computer on your network must have TCP/IP installed and selected as its networking protocol. If a Network Interface Card (NIC) is already installed in your PC, then TCP/IP is probably already installed as well.

The following description assumes the IEEE 802.11g Wireless ADSL Router been set to factory default. (If not, please hold the reset button down for 10 seconds). The default IEEE 802.11g Wireless ADSL Router's LAN IP is **192.168.8.1** and the DHCP server setting for LAN user is on (offered IP range from 192.168.8.17 to 192.168.8.128 by default).

Follow the procedures below to set your computer function as a **DHCP Client**.

1. Click **Start** button, select **Settings**, and click the **Control Panel** icon. Double click **Network** icon. Choose **Configuration** item. Select the **TCP/IP** option, which is associated with your network card/adaptor.

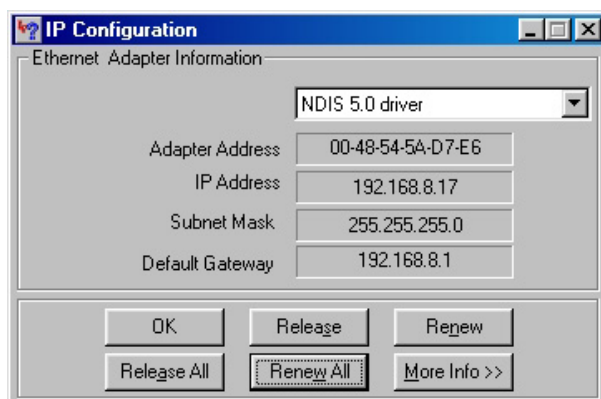
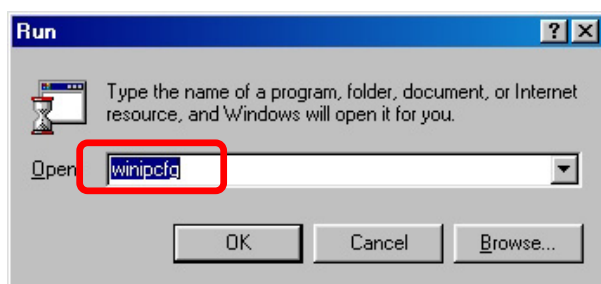


2. Click the **Properties** button, and then press the **IP Address** tab. Select **Obtain an IP address automatically**.
3. Press **OK** to continue. Windows may ask for the original Windows installation disk or additional files. Check for the files located at C:\windows\options\cabs, or insert your Windows CD-ROM into your CD-ROM drive and locate the right file location (e.g. D:\win9x or E:\win9x etc)
4. System may request to restart the Windows operating system. Press **Yes** to restart your computer.
5. After restart your computer, check the connection between your IEEE 802.11g Wireless ADSL Router & Windows system with the following steps:

A. For Windows 9x / Me :

After your PC is configured and has rebooted, you can check the TCP/IP configuration using the utility “**winipcfg**” provided by your Windows System. Follow the steps below to do the verifications:

1. Click on **Start** and **Run**.
2. In the Open field, enter “**winipcfg**”, and then press “**OK**”.



All the Ethernet adapter information will be shown in the appear Windows. Check if you can get the following setting:

- IP address as **192.168.8.x**
- The Subnet Mask as **255.255.255.0**
- the default gateway as **192.168.8.1**.

B. For Windows XP/2000/NT :

After your PC is configured and has rebooted, you can check the TCP/IP configuration using the utility “**ipconfig**” provided by your Windows System. Follow the steps below to do the verifications:

1. Click **Start** and **Run**. In the open field, enter “**cmd**”. Click the **OK** button.
2. In the command prompt, type “**ipconfig /all**”, then press “**Enter**”

```
C:\>ipconfig /all

Windows 2000 IP Configuration

    Host Name . . . . . : sw
    Primary DNS Suffix . . . . . : eglx.com.tw
    Node Type . . . . . : Hybrid
    IP Routing Enabled. . . . . : Yes
    WINS Proxy Enabled. . . . . : No

Ethernet adapter Local Area Connection 2:

    Connection-specific DNS Suffix  . : 
    Description . . . . . : Realtek RTL8139(A) PCI Fast Ethernet
    Adapter #2
    Physical Address. . . . . : 00-48-54-5A-D7-E6
    DHCP Enabled. . . . . : No
    IP Address. . . . . : 192.168.8.1
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 
    DNS Servers . . . . . :
```

All the Ethernet adapter information will be shown in the appear Windows. Check if you can get the following setting:

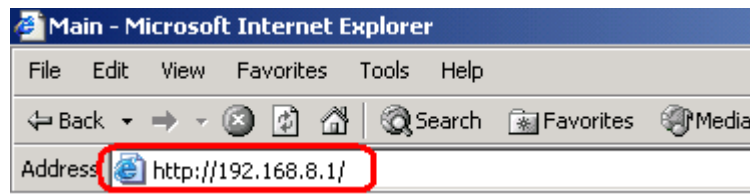
- IP address as **192.168.8.x**
 - The Subnet Mask as **255.255.255.0**
 - the default gateway as **192.168.8.1**.
3. Type “**Exit**” to end up the process.

Chapter 3 Device Administration

For your convenience, an Administrative Utility has been programmed into the IEEE 802.11g Wireless ADSL Router. This chapter will explain all the functions in this utility. All IEEE 802.11g Wireless ADSL Router based administrative tasks are performed through this web utility.

3.1 Web Based Configuration

To access the web-based utility, launch Microsoft Internet Explorer or Netscape Navigator, and enter the IEEE 802.11g Wireless ADSL Router's default IP address, <http://192.168.8.1> in the Address field, then press Enter.



Upon entering the address into the web browser, the configurable main page with all the device status information will pop up as shown in Figure below.

IEEE 802.11g Wireless ADSL Router

Device Status

| Item | Description | Status | Note |
|-----------------|------------------------------|-------------------------|------------|
| WAN IP Address | 192.168.1.222 | DHCP Client (Connected) | ISP Side |
| WAN Subnet Mask | 255.255.255.0 | | ISP Side |
| WAN Gateway | 192.168.1.3 | | ISP Side |
| WAN DNS | 192.168.1.3 , 139.175.252.16 | | ISP Side |
| LAN IP Address | 192.168.8.1 | | Local Side |
| DHCP Server | 192.168.8.17 - 128 | On | Local Side |

Last Updated : Thursday, December 04, 2003 9:36:01 PM

Refresh

Administrator Password (Default : admin)

Login

Enter the default Administrator password **"admin"**. Then press **"Enter"** to login.

3.2 IEEE 802.11g Wireless ADSL Router System Information

After login, the IEEE 802.11g Wireless ADSL Router System Information will pop up.

1. **System Information** : Show the current IEEE 802.11g Wireless ADSL Router Firmware version.
2. **Menu** : Describe the way to Setup/Configuration your IEEE 802.11g Wireless ADSL Router.
 - A. **Quick Setup** : The Quick Setup is meant to help you install the IEEE 802.11g Wireless ADSL Router Quickly and easily.
 - B. **Advanced Setting** : The Advanced Setting describe the detail instruction on installation /configurations for advance user. No changes should be made to this section without a thorough understanding of networking concepts.
 - C. **Status** : Display the IEEE 802.11g Wireless ADSL Router's current or previous connection, setting and configuration status. All the information provided under the Status tab are read only and can be changed upon setting/configuration of the IEEE 802.11g Wireless ADSL Router.
 - D. **Logout** : Exit the configuration system of the IEEE 802.11g Wireless ADSL Router.

The screenshot displays the configuration interface for an IEEE 802.11g Wireless ADSL Router. The interface is organized into several sections with red and blue headers. The 'System Information' section shows the 'Firmware Version' as 'V1.94.03'. The 'Menu' section contains three main options: 'Quick Setup' (described as 'Follow These Quick Steps To Install Your Broadband Router.'), 'Advanced Mode' (containing 'Advanced Setting' described as 'For Advanced User ONLY.'), and 'Status' (containing 'Device Info' (Show The Current Device And System Status.), 'ADSL Status' (Show ADSL Connection Status.), and 'System Log' (Show Events Triggered By The System.)). The 'Logout' section at the bottom contains a 'Logout' option described as 'Exit.'.

| IEEE 802.11g Wireless ADSL Router | |
|-----------------------------------|--|
| System Information | |
| Firmware Version : | V1.94.03 |
| Menu | |
| Quick Setup | |
| → Quick Setup | Follow These Quick Steps To Install Your Broadband Router. |
| Advanced Mode | |
| → Advanced Setting | For Advanced User ONLY. |
| Status | |
| → Device Info | Show The Current Device And System Status. |
| → ADSL Status | Show ADSL Connection Status. |
| → System Log | Show Events Triggered By The System. |
| Logout | |
| → Logout | Exit. |

3.3 Quick Setup

The Quick Setup is meant to help you install the IEEE 802.11g Wireless ADSL Router Quickly and easily. Follow the steps describe below to complete your installation :

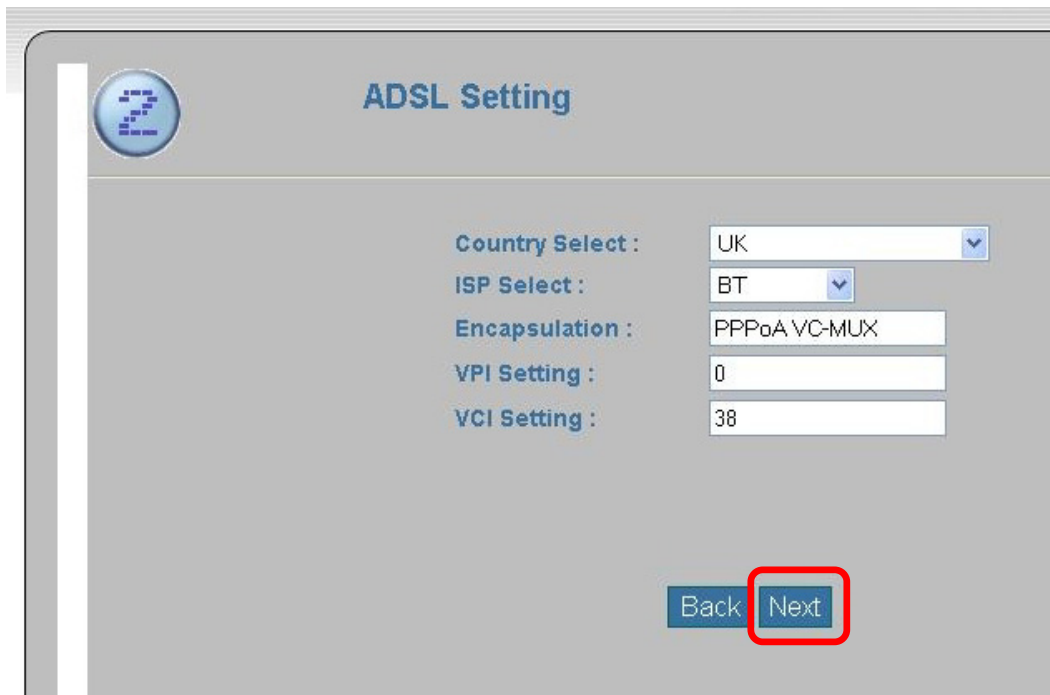
STEP 1. Select System Time Zone or Country. Click “**Next**” after your selection.



- If your region uses Daylight Savings Time, click this box to activate this feature. Enabling Daylight Savings Time will cause one hour to be added to the standard time.

STEP 2.

Select ADSL Service Region then click “Next” to continue.

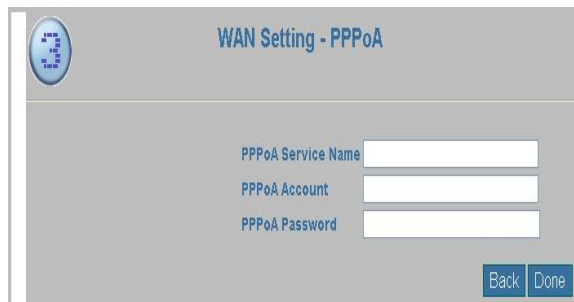


1. **Country :**
 - ◆ Select the ADSL Service Country from the list. This list shows the most command ADSL setting/configuration in that particular country.
2. **ISP :**
 - ◆ Select the Internet Service Provider. The VPI and VCI settings will automatically assigned upon your ISP selecting.
3. **Encapsulation :**
 - ◆ The inclusion of one data structure within another. The different types of encapsulation include PPPoA VC-MUX, PPPoA LLC, 1483 Bridged IP LLC, 1483 Routed IP LLC, 1483 Bridged IP VC-MUX, 1483 Routed IP VC-MUX, Classical IP over ATM, PPPoE VC-MUX, PPPoE LLC, and PPPoE None.
4. **VPI :**
 - ◆ Virtual Path Identifier. Together with the VCI, defines a Virtual Channel through an ATM network. Used by ATM switching equipment to route data through the network.
5. **VCI :**
 - ◆ Virtual Channel Identifier. Together with the VPI, defines a Virtual Channel through an ATM network. Used by ATM switching equipment to route data through the network.



You must select a country before clicking “Next” to proceed the “Quick Setup” installation process.

STEP 3. Click “Done” after your choice and setting.



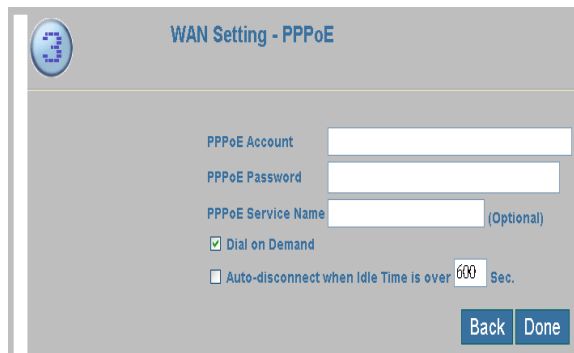
WAN Setting - PPPoA

PPPoA Service Name

PPPoA Account

PPPoA Password

Back Done



WAN Setting - PPPoE

PPPoE Account

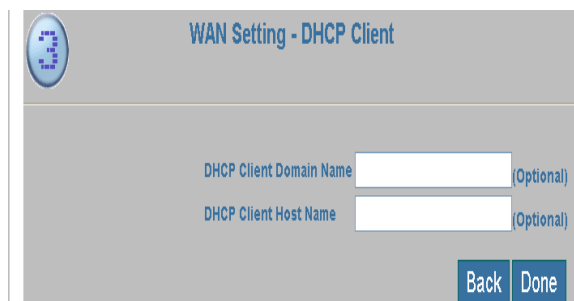
PPPoE Password

PPPoE Service Name (Optional)

☒ Dial on Demand

☐ Auto-disconnect when Idle Time is over Sec.

Back Done



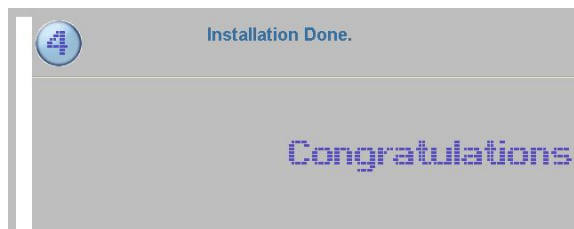
WAN Setting - DHCP Client

DHCP Client Domain Name (Optional)

DHCP Client Host Name (Optional)

Back Done

STEP 4. “Congratulations”. System will automatically restart and activate all your setting.



Installation Done.

Congratulations

3.4 Advance Setting

The Advanced Setting describe the detail instruction on installation/configurations for advance user.

3.4.1 Device Info

After login, click “**Advanced Setting**”. The device Information, “**Device Info**” of this IEEE 802.11g Wireless ADSL Router will pop up.

Device Info

| | | |
|---------------------|-----------------------------|-------|
| Hardware Release ID | R1.02EDIm | |
| Firmware Version | V1.95.2m | |
| WAN Connection Type | PPPoA (Connected) | |
| Dial-up Duration | 00:00:00 / 00:00:00 | |
| WAN MAC Address | 00-D0-41-00-00-0E | |
| WAN IP Address | 172.16.1.2 | |
| WAN Subnet Mask | 255.255.255.0 | |
| WAN Gateway | 172.16.1.1 | |
| WAN DNS | 172.16.1.1 , 139.175.55.244 | |
| LAN MAC Address | 00-D0-41-00-00-0F | |
| LAN IP Address | 192.168.8.1 | |
| DHCP Server | 192.168.8.17 - 128 | On |
| WAN Traffic(Bytes) | Tx : 4,586 | Clear |
| | Rx : 2,480 | |
| | Time Duration : 00:00:56 | |

Last Updated : Tuesday, December 09, 2003 12:57:04 AM Refresh

| | |
|----------------------------|---|
| Hardware Release ID | Shows the hardware version of the IEEE 802.11g Wireless ADSL Router. |
| Firmware Version | Shows the firmware version you are using. Future version of this IEEE 802.11g Wireless ADSL Router will be posted and available for download on the PTI website at www.paradigm.com.tw . |
| Wan Connection Type | The IEEE 802.11g Wireless ADSL Router's WAN connection. |
| Dial-up Duration | Shows the connected time duration of the device. |
| WAN MAC Address | Display the WAN MAC address of the Internet interface. |

| | |
|----------------------------|--|
| WAN IP Address | Shows the IEEE 802.11g Wireless ADSL Router's WAN IP Address as seen by external users on the Internet. |
| WAN Subnet Mask | Show the IEEE 802.11g Wireless ADSL Router's Subnet Mask as seen by external users on the Internet. |
| WAN Gateway | Show the IEEE 802.11g Wireless ADSL Router's WAN Gateway IP Address as seen by external users on the Internet. |
| WAN DNS | Shows the WAN DNS (Domain Name System) IP Address/Addresses of the DNS currently used by the IEEE 802.11g Wireless ADSL Router. Multiple DNS IP settings are common. In most cases, the first available DNS entry is used. |
| LAN MAC Address | Shows the LAN MAC Address of the LAN interface. |
| LAN IP Address | Shows the IEEE 802.11g Wireless ADSL Router's IP Address. The default value is 192.168.8.1. |
| DHCP Server | Shows the ranges of the DHCP (Dynamic Host Configuration Protocol) Server IP addresses to each computer on its network. |
| WAN Traffic (Bytes) | Shows the packets/data been Transmitted/Received. Press the [Clear] button to clear the WAN traffic counter |
| Refresh | Press the [Refresh] button to refresh the last update |

3.4.2 Administration

Press the “**Administration**” option on the left frame of this page to assign/change/configure the setting of this IEEE 802.11g Wireless ADSL Router.

Device Info

Device Info

Administration

Administration

Advanced

WAN

LAN

Wireless(802.11g)

Access Control

MAC Filter

Service Time

LAN PC Management

URL Blocking

Virtual Server

DMZ

Auto 2-Way Applications

Dynamic DNS

UPnP

Back to Home

Administration

System Setting

Reset System Setting to Factory Default and Restart Automatically after Completion.

Reset to Default

Backup System Setting.

Backup Setting

Restore System Setting.

Browse...

Restore Setting

Administrator

Old Password

New Password

Confirm Password

OK

Clear

Auto Logout, when Idle Time is over

300

Sec.

Upgrade Firmware

Current Firmware Version : V1.95.2m

Browse...

Go

Miscellaneous Commands

View System Event Log.

View System Log

Current WAN MAC Address : 00-D0-41-00-00-0E

New WAN MAC Address :

Clone PC MAC

Change

Restore

Restart System.

Restart

System Setting :

| | |
|-------------------------|---|
| Reset to Default | Restore Factory Default, and Restart Automatically after Completion. |
| Backup Setting | Save the current system setting/configurations into a file in order to restore all setting/configurations when needed in the future. |
| Restore Setting | Restore the previous system setting/configurations from a saved backup file. System will restart automatically after the upgrading process. |
| Browse | Browse the location of the system setting/configuration file when proceed the upgrading process. |



The IEEE 802.11g Wireless ADSL Router allow system setting **Backup/Restore “ONLY”** when both firmware are of the same Version.

Administrator :

This section allow you to change the IEEE 802.11g Wireless ADSL Router's password whenever. For greater security, you should set a password for the IEEE 802.11g Wireless ADSL Router. If you don't set the password, all users on your network will be able to access the IEEE 802.11g Wireless ADSL Router using the default password ("**admin**"). We recommend that you change your password often for security purpose.

| | |
|-------------------------|---|
| Old Password | Type in your old password. Then press OK to confirm the request. |
| New Password | Type in your new password whenever password changes are necessary. |
| Confirm Password | Type in your new password to confirm the changes. Then press OK to confirm the changes. |
| Auto Logout | Whenever administrator is idle for more than a specified period of time, (Default is 300 seconds), for security purpose, the IEEE 802.11g Wireless ADSL Router will logout automatically. |



When there are problems/difficulties in changing the device password, Reset the Wireless Router to factory default by pressing the **Reset** button for 10 seconds, then proceed the changes again. If you are still getting prompted for a password when saving/changing settings, please perform the following steps:

1. Access the IEEE 802.11g Wireless ADSL Router's web interface by going to **http://192.168.8.1** or the **IP address** of the device. Enter the default password "**admin**" to login and click the **Administration** tab.
2. Enter a **different password** in the IEEE 802.11g Wireless ADSL Router Password field, and enter the same password in the second field to confirm the password.
3. Click the "**OK**" tab to confirm the changes.

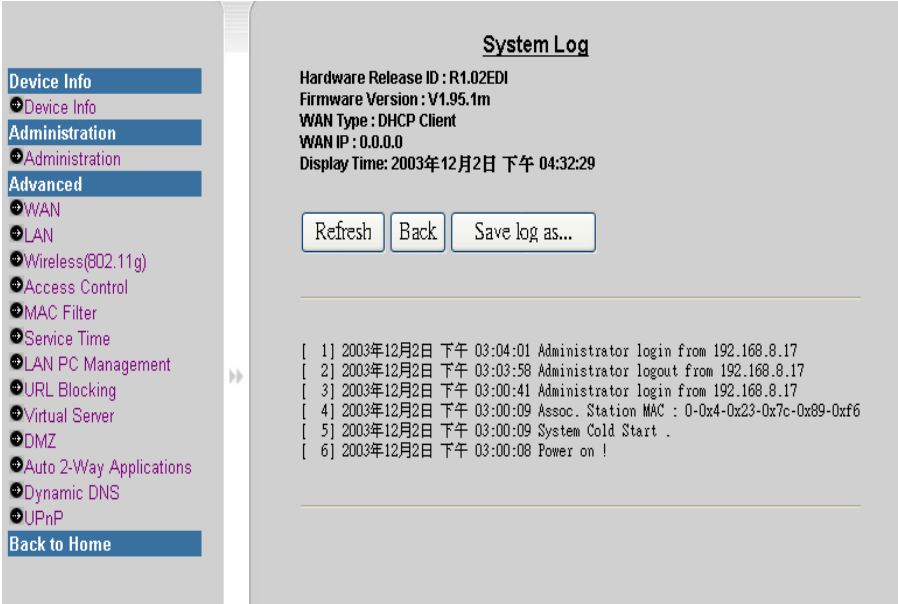
Upgrade Firmware :

Press [**Browse**] to select the location of the upgrade file (***.upg**). Click [**Go**] to confirm the request. The firmware upgrading process will carry out immediately.



After upgrading process (about 4~5 second), the IEEE 802.11g Wireless ADSL Router will restart automatically.

Miscellaneous Commands :

| | |
|---------------------------------------|--|
| <p>View System Event log</p> | <p>Record all the system events such as system start, administrator log-in/log-out, dial/hang-up, hacker intrusion event, etc. This function provides administrator a convenient diagnostic method for trouble shooting. Press [View System Log] to browse the log record. Press the [Refresh] tab to upgrade all the events and press the [Back] tab to the Administration page. Press [Save log as ...] to save the log file in your hard drive.</p>  |
| <p>Current WAN MAC Address</p> | <p>Shows the current WAN MAC address of this IEEE 802.11g Wireless ADSL Router. Press [Clone MAC] to duplicate the MAC address of administrator's PC into WAN MAC of the IEEE 802.11g Wireless ADSL Router.</p> |
| <p>Restart System</p> | <p>Force the IEEE 802.11g Wireless ADSL Router to restart and activate your setting immediately.</p> |

3.4.3 Advanced -- WAN

Click the **Advanced -- WAN** option in the left frame. The IEEE 802.11g Wireless ADSL Router supports 5 connection types :

1. **Static IP** : If you are connecting through a static IP (Fixed IP) address, perform the following steps :
 - A. Enter IP Address in the **WAN IP Address**. This is the IP Address as seen by external users on the Internet (Including your ISP).
 - B. Enter the **WAN Subnet Mask**.
 - C. Enter the **WAN Gateway Address**. The ISP will provide the Gateway IP Address.
 - D. Enter the **WAN 1st DNS** and/or **WAN 2nd DNS**. You must enter at least “**One DNS Address**”. Check your ISP provider for details.
 - E. Enter your **Encapsulation** type provided by your ISP.
 - F. Enter the **VPI/VCI** setting provided by your ISP.
 - G. Click “**Save & Restart**” to save the settings.

EZ Setup (WAN)

WAN Connection Type

- ☒ Static (Fixed IP by ISP)
- ☐ DHCP Client (Get IP dynamically from ISP)
- ☐ PPPoE (Get IP dynamically from xDSL ISP)
- ☐ PPTP Client (Used by Layer-2 VPN or some specific xDSL ISP)
- ☐ PPPoA (Get IP dynamically from xDSL ISP)

WAN IP Address 192.168.1.254

WAN Subnet Mask 255.255.255.0

WAN Gateway 192.168.1.1

WAN 1st DNS 168.95.1.1

WAN 2nd DNS 139.175.55.244

Encapsulation 1483 Bridged IP LLC

VPI 0

VCI 38

Save & Restart

2. **DHCP Client** : If you are connecting through a **Dynamic IP Address** or **DHCP Client**, perform the following steps :

- A. Once DHCP Client is set, your ISP provider will automatically and dynamically assign the **IP Address** and other setting for your IEEE 802.11g Wireless ADSL Router.
- B. Keep the “**DHCP Client Domain Name**” and “**DHCP Client Host Name**” blank (Contact your ISP for details if needed for advance setting).
- C. Enter your **Encapsulation** type provided by your ISP.
- D. Enter the **VPI/VCI** setting provided by your ISP.
- E. Click “**Save & Restart**” to save the settings.

EZ Setup (WAN)

WAN Connection Type

- ☐ Static (Fixed IP by ISP)
- ☒ DHCP Client (Get IP dynamically from ISP)
- ☐ PPPoE (Get IP dynamically from xDSL ISP)
- ☐ PPTP Client (Used by Layer-2 VPN or some specific xDSL ISP)
- ☐ PPPoA (Get IP dynamically from xDSL ISP)

WAN IP Address 172.16.1.2 Release

WAN Subnet Mask 255.255.255.0

WAN Gateway 172.16.1.1

WAN 1st DNS 172.16.1.1

WAN 2nd DNS 139.175.55.244

Lease Time 00 0H 0M 30S

DHCP Client Domain Name (Optional)

DHCP Client Host Name (Optional)

Encapsulation 1483 Bridged IP LLC ▼

VPI 0

VCI 38

Save & Restart

3. **PPPoE** : If you are connecting through PPPoE or if you are normally enter a user name and password to access the Internet, perform the following steps :
 - A. Enter the **PPPoE Account** provided by your ISP provider.
 - B. Enter the **PPPoE Password** provided by your ISP provider.
 - C. The **PPPoE Service Name** may keep blank (Please check the ISP for details).
 - D. Click the “**Dial on Demand**” tab for simulating a dial-up connection.
 - E. Click the “**Auto-disconnect when Idle Time is over...**” tab to fill in the time period in seconds if you want to disconnect automatically when your Internet connection is idle for specific time duration.
 - F. Enter your **Encapsulation** type provided by your ISP.
 - G. Enter the **VPI/VCI** setting provided by your ISP.
 - H. Click “**Save & Restart**” to save the settings.

Device Info

➤ Device Info

Administration

➤ Administration

Advanced

➤ **WAN**

➤ LAN

➤ Wireless(802.11g)

➤ Access Control

➤ MAC Filter

➤ Service Time

➤ LAN PC Management

➤ URL Blocking

➤ Virtual Server

➤ DMZ

➤ Auto 2-Way Applications

➤ Dynamic DNS

➤ UPnP

Back to Home

EZ Setup (WAN)

WAN Connection Type

☐ Static (Fixed IP by ISP)
☐ DHCP Client (Get IP dynamically from ISP)
☒ PPPoE (Get IP dynamically from xDSL ISP)
☐ PPTP Client (Used by Layer-2 VPN or some specific xDSL ISP)
☐ PPPoA (Get IP dynamically from xDSL ISP)

WAN IP Address 0.0.0.0 (Not in PPPoE Mode!)
WAN Subnet Mask 0.0.0.0
WAN Gateway 0.0.0.0
WAN 1st DNS 0.0.0.0
WAN 2nd DNS 0.0.0.0

PPPoE Account
PPPoE Password
PPPoE Service Name (Optional)

☒ Dial on Demand
☐ Auto-disconnect when Idle Time is over Sec.

Encapsulation

VPI
VCI

Save & Restart

4. PPTP Client : PPTP is a special service with some specific ISP. Check with your ISP for the necessary set up information.

- A. **My IP Address / Server IP Address :** Manually enter the IEEE 802.11g Wireless ADSL Router **PPTP client** and **PPTP server** IP Address respectively.
- B. **My Subnet Mask :** Enter the IEEE 802.11g Wireless ADSL Router Subnet Mask .
- C. **My Gateway :** Optional if PPTP client and server are in the same subnet. For Layer-2 VPN application, this field is typically necessary. Check with your ISP provider for the setting details.
- D. **PPTP Account / PPTP Password :** Provided by your ISP. Check with your ISP provider for the setting details.
- E. **PPTP Connection ID :** Left blank for most application. Check with your ISP provider for the correct setting.
- F. **Dial on Demand :** When enable, the IEEE 802.11g Wireless ADSL Router will attempt to connect with the specific ISP if :
 - i. At least one LAN user would like to access Internet and/or
 - ii. The current WAN connection is on disconnected condition.
- G. **Auto-disconnect when Idle Time is over.....sec :** Fill in a time period in seconds if you want to disconnect automatically when your Internet connection is idle for more than a specific time duration.
- H. Enter your **Encapsulation** type provided by your ISP.
- I. Enter the **VPI/VCI** setting provided by your ISP.
- J. Click **“Save & Restart”** to save the settings.

Device Info

→ Device Info

Administration

→ Administration

Advanced

→ WAN

→ LAN

→ Wireless(802.11g)

→ Access Control

→ MAC Filter

→ Service Time

→ LAN PC Management

→ URL Blocking

→ Virtual Server

→ DMZ

→ Auto 2-Way Applications

→ Dynamic DNS

→ UPnP

Back to Home

EZ Setup (WAN)

WAN Connection Type

☐ Static (Fixed IP by ISP)
☐ DHCP Client (Get IP dynamically from ISP)
☐ PPPoE (Get IP dynamically from xDSL ISP)
☒ PPTP Client (Used by Layer-2 VPN or some specific xDSL ISP)
☐ PPPoA (Get IP dynamically from xDSL ISP)

WAN IP Address 0.0.0.0 (Not in PPTP Model!)
WAN Subnet Mask 0.0.0.0
WAN Gateway 0.0.0.0
WAN 1st DNS 0.0.0.0
WAN 2nd DNS 0.0.0.0

My IP Address
Server IP Address
My Subnet Mask
My Gateway (Optional)
PPTP Account
PPTP Password
PPTP Connection ID (Optional)
☒ Dial on Demand
☐ Auto-disconnect when Idle Time is over Sec.

Encapsulation
VPI
VCI

5. **PPPoA** : PPPoA (PPP over ATM) is a protocol for connecting remote hosts to the Internet over an always-on connection by simulating a dial-up connection.

- A. **PPPoA Service Name** : Check with your ISP provider for the setting details.
- B. **PPPoA Account** : Check with your ISP provider for the setting details.
- C. **PPPoA Password** : Check with your ISP provider for the setting details.
- D. Enter your **Encapsulation** type provided by your ISP.
- E. Enter the **VPI/VCI** setting provided by your ISP.
- F. Click **“Save & Restart”** to save the settings.

The screenshot displays the 'EZ Setup (WAN)' configuration interface. On the left is a sidebar menu with options: Device Info, Administration, Advanced, WAN (selected), LAN, Wireless(802.11g), Access Control, MAC Filter, Service Time, LAN PC Management, URL Blocking, Virtual Server, DMZ, Auto 2-Way Applications, Dynamic DNS, UPnP, and Back to Home. The main content area is titled 'EZ Setup (WAN)' and contains the following sections:

- WAN Connection Type**: A list of radio buttons with 'PPPoA (Get IP dynamically from xDSL ISP)' selected.
 - Static (Fixed IP by ISP)
 - DHCP Client (Get IP dynamically from ISP)
 - PPPoE (Get IP dynamically from xDSL ISP)
 - PPTP Client (Used by Layer-2 VPN or some specific xDSL ISP)
 - PPPoA (Get IP dynamically from xDSL ISP)
- WAN IP Address**: 172.16.1.2, with a 'Release' button.
- WAN Subnet Mask**: 255.255.255.0
- WAN Gateway**: 172.16.1.1
- WAN 1st DNS**: 172.16.1.1
- WAN 2nd DNS**: 139.175.55.244
- PPPoA Service Name**: [Text input field]
- PPPoA Account**: [Text input field]
- PPPoA Password**: [Text input field]
- Encapsulation**: A dropdown menu showing 'PPPoA VC-Mux'.
- VPI**: [Text input field with value 0]
- VCI**: [Text input field with value 38]
- Save & Restart**: A button at the bottom.

3.4.4 Advanced -- LAN

Click the **Advanced -- LAN** option to Configure/Setup LAN setting.

EZ Setup (LAN)

LAN IP Address

DHCP Server ☒ Enable ☐ Disable

IP pool from 192.168.8. to 192.168.8.

Lease time Day Hour Minute

DNS Proxy ☒ Enable ☐ Disable

Offer DNS ☒ Use DNS Proxy or Auto Discovered DNS
☐ Use Preferred DNS

DNS 1

DNS 2 (Optional)

(Example : Assign IP 192.168.8.123 to MAC 00-11-22-AA-BB-CC)

Assign fixed IP1 192.168.8. to MAC1

Assign fixed IP2 192.168.8. to MAC2

Assign fixed IP3 192.168.8. to MAC3

Assign fixed IP4 192.168.8. to MAC4

For Internet traffic distribution, more gateways can be assigned.

Offer cyclical gateway 1. 192.168.8.

Offer cyclical gateway 2. 192.168.8.

Offer cyclical gateway 3. 192.168.8.

Offer cyclical gateway 4. 192.168.8.

- A. **LAN IP Address** : The IEEE 802.11g Wireless ADSL Router's IP Address as seen on the internal LAN. The default value is **192.168.8.1**.
- B. **DHCP Server** : Click "**Enable**" option to enable the Router's DHCP server function.
- C. **IP Pool from 192.168.8.x to 192.168.8.y** : Whenever there is a request, the DHCP server will offer unused IP from the IP address pool to the requesting computer. Noted that, the **End Address** must be greater than the **Starting Address**.
- D. **Lease time** : The assigned IP will be valid during the lease time interval.
- E. **DNS Proxy** : Click "**Enable**" option to enable the DNS Proxy.

- F. **Offer DNS** : The gateway contains a client that can connect to a dynamic DNS service provider. To use this feature, you must select a service provider and obtain an account with them. After you have configured your account information in the gateway, whenever your ISP-assigned IP address changes, your gateway will automatically contact your dynamic DNS service provider, log in to your account, and register your new IP address.
- G. **Assign fixed IP 192.168.8.x to MACx** : DHCP server can assign a fixed IP Address to the clients such as Web/E-mail server computers. Those computers will be identified by their MAC address.
- H. **Offer cyclical gateway** : In a multiple routers application environment (Up to Four), “**ONLY**” one of the routers can be assigned as a DHCP server, the rest will set as LAN clients. This is a very simple mechanism for Internet/WAN traffic distribution evenly among those routers within a network.



Offer cyclical gateway :

1. This application is used **ONLY** for those network having more than one routers in the same subnet.
2. There is One and Only One DHCP Server allowed in a specific subnet. Choose either one as a DHCP server and set the others as LAN clients and disable the DHCP Server function.
 - Press **[DHCP Client List]** tab to show the current DHCP Client list.

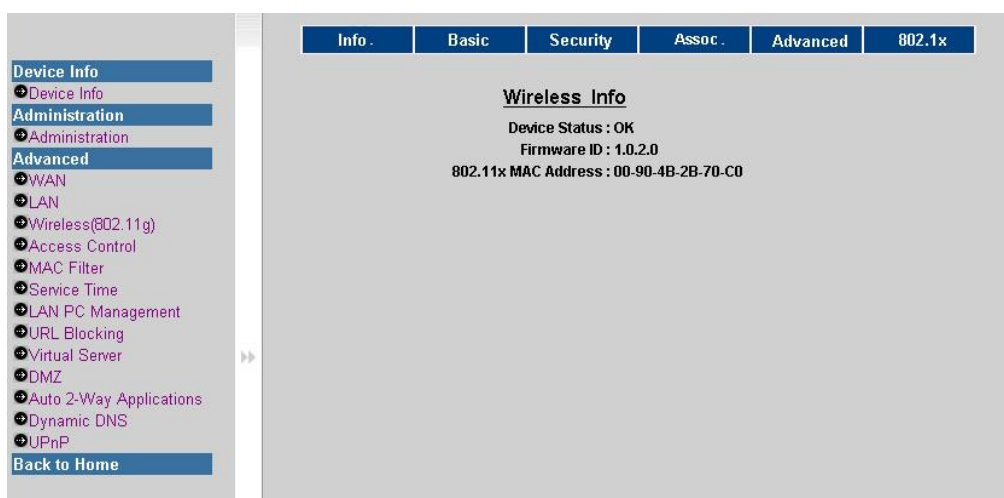
- H. Press **[Save & Restart]** tab to save and activate all the setting.

3.4.5 Advanced -- Wireless (802.11g)

Click the **Advanced -- Wireless (802.11g)** option to Configure/Setup Wireless LAN setting. All the IEEE 802.11g Wireless setting/configuration and status will be shown in this page.

1. **Info** : Show the IEEE 802.11g Wireless LAN Status and Information :

- F. **Device Status** : Indicates IEEE 802.11g Wireless LAN status.
- G. **Firmware ID** : Show the identification version of the IEEE 802.11g Wireless LAN.
- H. **802.11 MAC Address** : Show the IEEE 802.11g Wireless LAN MAC Address.



2. **Basic** : Basic Wireless LAN setting/configuration.

- A. **Wireless Device Name** : Set the device identifier string. Leave Blank for default setting.
- B. **SSID** : The SSID is a unique name for your Wireless network. The default SSID is “AP_Router”, but you can change this to a personal Wireless network name.



The SSID in the IEEE 802.11g Wireless ADSL Router is the SSID you configure in the wireless adapter card. For the access point and wireless nodes to communicate with each other, all the Wireless points in your network must have the same SSID

- C. **Wireless Access Point** : Enable/Disable your IEEE 802.11g Wireless ADSL Router's Access Point function.
- D. **Mode** : Set the Mode to “802.11b+g” for most Wireless compatible application environment. Set to “802.11g only” to gain the best Wireless performance.

- E. **Region** : Since the allowed RF Band is not globally the same, select the appropriate region from the list provided to correspond with your network settings. There are five region in the option list :
- ◆ North American (NA (1~11)).
 - ◆ ETSI: Pan Europe (ETS (1~13)).
 - ◆ France (FR (10~13)).
 - ◆ Japan (JP (1~14)).
 - ◆ Spain (SP (10~11)).
- F. **Channel** : Select the appropriate channel from the list provided to correspond with your network settings. All points in your wireless network must use the same channel in order to function properly.
- G. Click [**Save & Restart**] to confirm all your setting.

The screenshot shows the 'Wireless - Basic' configuration page. At the top, there are six tabs: 'Info .', 'Basic', 'Security', 'Assoc .', 'Advanced', and '802.1x'. The 'Basic' tab is currently selected. Below the tabs, the title 'Wireless - Basic' is centered. The configuration fields are as follows: 'Wireless Device Name' is an empty text box; 'SSID' is a text box containing 'AP_Router'; 'Wireless Access Point' is a dropdown menu set to 'Enable'; 'Mode' is a dropdown menu set to '802.11b+g'; 'Region' is a dropdown menu set to 'NA(1-11)'; and 'Channel' is a dropdown menu set to '6'. At the bottom of the form is a button labeled 'Save & Restart'.

3. **Security** : Enables configuration of the IEEE 802.11g Wireless ADSL Router to provide parental controls.
- A. **Disable Broadcast of SSID** : With this function enabled, someone could easily obtain the SSID information with site survey software and gain unauthorized access to your network. Leave "**Blank**" to enable broadcast. Click to increase network security and prevent the SSID from being seen on networked PCs.
- B. **WEP Enabled** : Click to Enables/Disable the Wired Equivalent Privacy security function.
- C. **WEP key Length** : Selects 64-bit or 128-bit key WEP encryption. Be sure that all of your wireless device are using the same encryption level.



A 128-bit WEP encrypted wireless network "**WILL NOT**" communicate with a 64-bit WEP encrypted wireless network.

- D. **PassPhrase** : The WEP Encryption key is generated in one of two ways :
- I. You may create an encryption key by using a **PassPhrase**:
 - ◆ Enter a word or group of printable characters in the **PassPhrase** field. The **PassPhrase** can be letters, symbols or numbers. No space can be used in this field.
 - ◆ Click “**Generate WEP Key**” tab to create the key. The Key will be a 10 digits/numbers if you chose the 64-bit encryption, or a 26 digits/numbers if you chose the 128-bit encryption.
 - II. You may enter the encryption key manually.
- E. **WEP Key** : A data privacy mechanism based on a 64-bit (10 Hexadecimal characters in length) or 128-bit (26 Hexadecimal characters in length) shared key algorithm, as described in the IEEE 802.11 standard.
- F. **WEP Key to Use** : Select one of the four WEP Key set to be used for data encryption.
- G. **Authentication** : The Authentication setting, “**Open**”, “**Shared Key**” and “**Both**” is unrelated to encryption of transmissions. To provide a certain level of security, the IEEE 802.11 standard has defined two types of authentication methods, “**Open System**” and “**Shared Key**”.
- i **Open** : With “**Open**” authentication, a wireless PC can join any network and receive any messages that are not encrypted.
 - ii **Shared Key** : With “**Shared Key**” authentication, only those PCs that possess the correct authentication key can join the network.
 - iii **Both**.
- H. Click [**Save & Restart**] to confirm all your setting.

| | | | | | |
|--------|-------|----------|---------|----------|--------|
| Info . | Basic | Security | Assoc . | Advanced | 802.1x |
|--------|-------|----------|---------|----------|--------|

Wireless - Security

Disable Broadcast of SSID : ☐

WEP Configuration

For 64 bit keys, you must enter 10 hexadecimal digits or 5 alphanumeric(ASCII) characters into the key fields.
 For 128 bit keys, you must enter 26 hexadecimal digits or 13 alphanumeric(ASCII) characters into the key fields.
 Leaving the key fields to blank means no change to the key.

WEP Enabled : ☐

WEP Key Length : 64 bit key

PassPhrase :

☒ Hex Key ☐ ASCII Key

WEP Key 1 :

WEP Key 2 :

WEP Key 3 :

WEP Key 4 :

WEP Key to Use : 1

Authentication : ☐ Open ☐ Shared Key ☒ Both

4. **Assoc. :** The Wireless-Association shows the current associated client list. The IEEE 802.11g Wireless ADSL Router will show the MAC Address list of all the detected clients. Click the **[Refresh List]** tab to display the most current information. Click **[Add selected to list]** tab to invite the selected stations.
 - MAC Filtering :** This features filters the Ethernet Adaptor's specific MAC Address from going out to the Internet. There are two mechanism for this features:
 - ◆ Allow all wireless client PCs except the following MAC address stations.
 - ◆ Deny all wireless client PCs except the following MAC address stations.



Noted that the allowed/denied list could be filled from the upper associated MAC list or enter manually.

- B. Click **[Save & Restart]** to confirm all your setting.

The screenshot shows the 'Wireless - Association' configuration page. At the top, there is a navigation bar with tabs: 'Info .', 'Basic', 'Security', 'Assoc .', 'Advanced', and '802.1x'. The 'Assoc .' tab is selected. Below the navigation bar, the page title is 'Wireless - Association'. Under this title, there is a section 'Current Association List' which contains an empty list box. To the right of this list box is a button labeled 'Add selected to list'. Below the 'Current Association List' section, there is a 'Refresh List' button. Further down, there is a 'MAC Filtering' section with two radio button options: 'Allow all except listed below.' (which is unselected) and 'Deny all except listed below.' (which is selected). Below these options is another empty list box. To the right of this list box is a button labeled 'Remove selected from list'. Below this list box is a text input field and a button labeled 'Add to list'. At the bottom of the page is a button labeled 'Save & Restart'.

5. **Advanced** : Before making any changes to the Wireless-Advanced, please check the wireless settings for all your wireless PCs, as these changes will alter/change the IEEE 802.11g Wireless ADSL Router's effectiveness. In most cases, these settings do not need to be changed.
- A. **Max Connected Stations** : Specify the Maximum allowed wireless stations to the IEEE 802.11g Wireless ADSL Router.
 - B. **Fragmentation Threshold** : This value indicates how much of the IEEE 802.11g Wireless ADSL Router's resources are devoted to recovering packet errors. The default setting is 2346. Only minor modifications of this value are recommended.
 - C. **RTS Threshold** : The default setting is 2,347. Only minor modifications of this value are recommended.
 - D. **Beacon Period** : A beacon is a packet broadcast by the IEEE 802.11g Wireless ADSL Router to keep the network synchronized. This value indicates the frequency interval of the Beacon signal.

- E. **DTIM Period** : This value indicates the interval of the Delivery Traffic Indication Message (DTIM). A DTIM field is a countdown field informing clients of the next window for listening to broadcast and multicast messages.
- F. **Preamble Type** : The preamble defines the length of the CRC block for communication between the IEEE 802.11g Wireless ADSL Router and the roaming Network Card. There are three option for the setting, **[Long]**, **[Short]** and **[Dynamic]**. Normally the high network traffic areas should use the shorter preamble type. Select the appropriate preamble type.
- G. Click **[Save & Restart]** to confirm all your setting.

Info . Basic Security Assoc . Advanced 802.1x

Wireless - Advanced

Max Connected Stations : (1 - 64)

Fragmentation Threshold : (256 - 2346, even number only)

RTS Threshold : (256 - 2347)

Beacon Period : (1 - 1000 milliseconds)

DTIM Period : (number of beacons per DTIM, 1 - 255)

Preamble Type : ▼

- 6. **802.1x** : 802.1x defines port-based, network access control used to provide authenticated network access and automated data encryption key management. The IEEE 802.1x standard offers an effective framework for authenticating and controlling user traffic to a protected network, as well as dynamically varying encryption keys.

| | | | | | |
|--------|-------|----------|---------|----------|--------|
| Info . | Basic | Security | Assoc . | Advanced | 802.1x |
|--------|-------|----------|---------|----------|--------|

Wireless - 802.1x

Enable 802.1x : ☐ Yes ☒ No

Re-Authentication Period : Seconds (0 for no re-authentication)

Quiet Period : Seconds after authentication failed

Server Type : ☒ Radius Server ☐ MD5 Tiny Server

Radius Server IP : 192.168.8.

Radius Server Port : (default : 1812)

Secret Key :

NAS-ID : (server dependent)

- A. **Enable 802.1x** : Click **[Yes]/[No]** to enable the 802.1x functions.
- B. **Re-Authentication Period** : Fill in the time (In Seconds) ranges for the Re-authentication process.
- C. **Quite Period** : Fill in the time (In Seconds) duration after the authentication process fail.
- D. **Server Type** :

i **Radius Server** : RADIUS, short for Remote Authentication Dial-In User Service. RADIUS is an authentication system. Using RADIUS, you must enter your user name and password before gaining access to a network. This information is passed to a RADIUS Server, which will checks the correctness of the incoming information, and then authorizes access.

ii **MD5 Tiny Server** : MD5 is an algorithm for security applications in which a large message is compressed and then signed with a private key. MD5 takes a message of an arbitrary length and creates a 128-bit message digest. MD5 provides the same secure authentication mechanism, and works even in the absent of the RADIUS server environment.

- ◆ If the MD5 Tiny Server is enable, please **[Save & Restart]** button to activate the setting.
- ◆ Click **[Setup]** to add new “**Username**”, “**New Password**” and “**Confirm password**”

- E. **Radius Server IP** : Fill in the Radius Server IP Address.
- F. **Radius Server Port** : Enter your Radius Server Port number. The default is 1812.
- G. **Secret Key** : Enter your secret Key for this mechanism.
- H. **NAS-ID** : Enter your Network Access Server ID, which provides the LAN and WAN access for the network.
- I. Click [**Save & Restart**] to confirm all your setting.

3.4.6 Advanced – Access Control

The IEEE 802.11g Wireless ADSL Router provides lots of advanced functions such as MAC address filtering, IP address filtering, TCP/UDP service port blocking, URL keyword blocking, virtual server, DMZ, etc. Please note that Filtering is an advanced function and no changes are recommended without a thorough understanding of network concepts. “**Access Control**” allow you to control the **WAN-to-LAN** or **LAN-to-WAN** access capability of this IEEE 802.11g Wireless ADSL Router. Click the “**Access Control**” tab for further configuration/setup of this IEEE 802.11g Wireless ADSL Router.

Device Info

→ Device Info

Administration

→ Administration

Advanced

→ WAN

→ LAN

→ Wireless(802.11g)

→ **Access Control**

→ MAC Filter

→ Service Time

→ LAN PC Management

→ URL Blocking

→ Virtual Server

→ DMZ

→ Auto 2-Way Applications

→ Dynamic DNS

→ UPnP

Back to Home

Access Control

Response to Ping from WAN ☒ Deny ☐ Allow

Web Management from WAN ☒ Deny ☐ Allow Port

Block Client in LAN ☒ Disable ☐ Enable

Blocked Group 1 from 192.168.8. to

Blocked Group 2 from 192.168.8. to

Filter Packets from LAN ☒ Disable ☐ Enable

1.Block port

2.Block port

3.Block port

4.Block port

5.Block port

6.Block port

7.Block port

8.Block port

| Port | Well Known Service |
|------|--------------------|
| 21 | FTP |
| 23 | Telnet |
| 25 | SMTP |
| 53 | DNS |
| 80 | HTTP |
| 110 | POP3 |
| 113 | AUTH |
| 1723 | PPTP |

1. **Response to Ping from WAN** : Allow or Deny the responding if there are any **PING** packets to the WAN Port of the IEEE 802.11g Wireless ADSL Router remotely.
2. **Web Management from WAN** : This feature allow the administrator to manage the IEEE 802.11g Wireless ADSL Router from a remote location via the Internet. Click “**Allow**” and enter the “**Port number**” you want to use when accessing the IEEE 802.11g Wireless ADSL Router remotely.
3. **Block Client in LAN** : To set up a filter using IP Address, using the ranges of the IP Address you wish to filter in the IP Address fields. Users who have filtered IP Addresses will no longer be able to access the Internet. Click “**Enable**” or “**Disable**” to activate this function.
4. **Filter Packets from LAN** : To filter users by network port number, enter a network port number or a range of network ports. Users connected to the IEEE 802.11g Wireless ADSL Router will no longer be able to access any port number as listed. Click “**Enable**” or “**Disable**” to activate this functions and enter the port manually as listed.
 - ◆ **FTP** : An Application-layer protocol that enables you to transfer files from one device to another over a network.
 - ◆ **Telnet** : A protocol that links two computers in order to provide a terminal connection to the remote machine. Instead of dialing into the computer, you connect to it over the Internet using Telnet. When you issue a Telnet session, you connect to the Telnet host and log in. The connection enables you to work with the remote machine as though you were a terminal connected to it.
 - ◆ **SMTP** : Simple Mail Transfer Protocol. In the TCP/IP protocol suite, SMTP is an Application-layer protocol that uses the TCP Transport-layer protocol to send and receive e-mail.
 - ◆ **DNS** : DNS is a TCP/IP service for centralized management of address resolution. Using DNS, you can specify a symbolic name instead of an IP address.
 - ◆ **HTTP** : Hypertext Transfer Protocol. HTTP enables Internet users to request, receive, and provide documents on the World Wide Web.
 - ◆ **POP3** : A standard mail server commonly used on the Internet. It provides a message store that holds incoming e-mail until users log on and download it. POP3 is a simple system with little selectivity. All pending messages and attachments are downloaded at the same time. POP3 uses the SMTP messaging protocol.
 - ◆ **AUTH** : Services such as e-mail and ftp uses Ident (Port 113) for logging and authentication purpose.
 - ◆ **PPTP** : Point-to-Point Tunneling Protocol. PPTP is a protocol that enables a PPP client to connect to a remote server as if the connection were directly terminated at the server.
5. Click [**Save & Restart**] to confirm all your setting.

3.4.7 Advanced – MAC Filter

“MAC Filter” filters the Ethernet adaptor’s specific MAC Address from going out to the Internet. Click “Enable” or “Disable” to activate these features.

There are two mechanisms supported in these features. But “One and Only One” can be chose/activated at one time.

1. Allow all clients to access the Internet, “EXCEPT” those with the MAC Address as listed.
2. Allow “ONLY” those clients with the MAC Address as listed to access the Internet.

To check your Ethernet adapter’s MAC address, run “winipcfg” or “ipconfig/all” in the command prompt (Depending on which Windows Operating System you are using). To set the MAC filter, click [Refresh List] or [Add to list] to list/select all the detected MAC Address and click [Add selected to list] or [Remove selected from list] to enable/disable the MAC Filtering function.

The screenshot shows the 'MAC Filter' configuration page. On the left is a sidebar menu with options: Device Info, Administration, Advanced (selected), WAN, LAN, Wireless(802.11g), Access Control, MAC Filter, Service Time, LAN PC Management, URL Blocking, Virtual Server, DMZ, Auto 2-Way Applications, Dynamic DNS, UPnP, and Back to Home. The main content area is titled 'MAC Filter' and includes the description: 'Filters the Ethernet Adaptor's specific MAC Address from going out to the Internet.' Below this are radio buttons for 'Disable' (selected) and 'Enable'. A section titled 'Current Client List' contains a text box with the entry '00-40-95-0a-c7-43(steven,192.168.8.18)' and an 'Add selected to list' button. Below the list is a 'Refresh List' button. The 'MAC Filtering' section has two radio buttons: 'Allow all except listed below.' (selected) and 'Deny all except listed below.'. Below these are two buttons: 'Remove selected from list' and 'Add to list'. At the bottom is a text input field for a MAC address with the example '(e.g. 001122aabbcc or 00-11-22-AA-BB-CC)' and a 'Save & Restart' button.

3.4.8 Advanced – Service Time

The “**Service Time Allocation**” define a specified period of time a network user will be allowed connection to the Internet. There are three mechanisms for this feature:

1. If you want your Internet connection to remain on at all times, click “**Normal**” to activate this function.



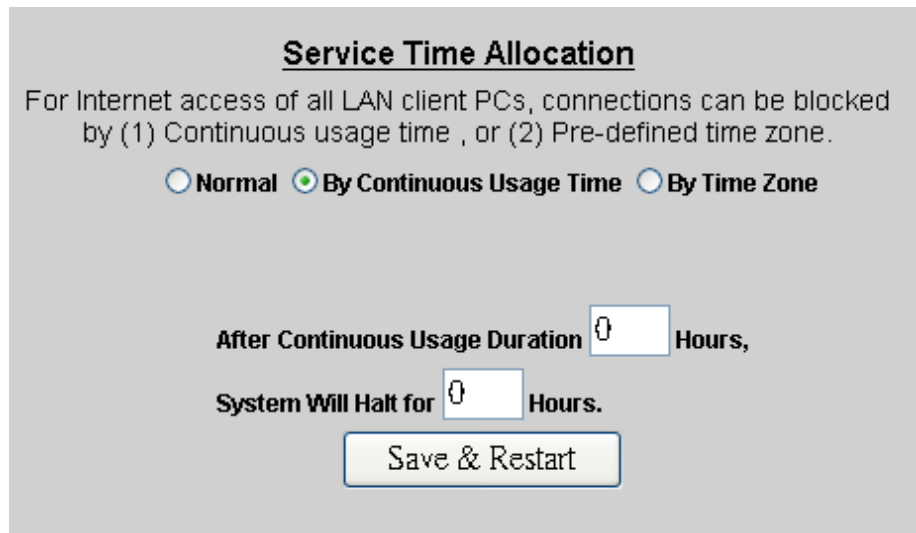
Service Time Allocation

For Internet access of all LAN client PCs, connections can be blocked by (1) Continuous usage time, or (2) Pre-defined time zone.

☒ **Normal** ☐ **By Continuous Usage Time** ☐ **By Time Zone**

Save & Restart

2. Click “**By Continuous Usage Time**” if you wish to activate the connection to the Internet “**ONLY**” in a certain period of time (In hours). Manually enter the time period for connection.



Service Time Allocation

For Internet access of all LAN client PCs, connections can be blocked by (1) Continuous usage time, or (2) Pre-defined time zone.

☐ **Normal** ☒ **By Continuous Usage Time** ☐ **By Time Zone**

After Continuous Usage Duration Hours,

System Will Halt for Hours.

Save & Restart

3. Select **“By Time Zone”** to set the system’s pre-defined time zone for your Internet access. This setting will be used for the blocking schedule and for time-stamping log entries.

Service Time Allocation

For Internet access of all LAN client PCs, connections can be blocked by (1) Continuous usage time, or (2) Pre-defined time zone.

☐ Normal ☐ By Continuous Usage Time ☒ By Time Zone

Allowed Zone

| | |
|--|--|
| <input type="checkbox"/> 08:00 - 10:00 | <input type="checkbox"/> 20:00 - 22:00 |
| <input type="checkbox"/> 10:00 - 12:00 | <input type="checkbox"/> 22:00 - 24:00 |
| <input type="checkbox"/> 12:00 - 14:00 | <input type="checkbox"/> 00:00 - 02:00 |
| <input type="checkbox"/> 14:00 - 16:00 | <input type="checkbox"/> 02:00 - 04:00 |
| <input type="checkbox"/> 16:00 - 18:00 | <input type="checkbox"/> 04:00 - 06:00 |
| <input type="checkbox"/> 18:00 - 20:00 | <input type="checkbox"/> 06:00 - 08:00 |

4. Click **[Save & Restart]** to confirm all your setting.

3.4.9 Advanced – LAN PC Management

Besides the “**Service Time Allocation**” mechanism, the IEEE 802.11g Wireless ADSL Router also provides time base management for each individual LAN client PCs (up to 8 PCs). The IEEE 802.11g Wireless ADSL Router allows you to specify when blocking will be enforced.

To enable the service blocking by schedule, follow the procedures listed below:

1. Click “**Enable**” to activate the management features.
2. Select the PCs (From 1 to 8) to enable the blocking service.
3. Click “**MAC Address**”. Enter the MAC Address manually or click [Refresh List] to list all the MAC Address of the current clients, then click “**Select**” to enable the blocking service.
4. Click the specified time period in the schedule manual. The time duration for each specified time period start with **XX:00** Hour and ending with **XX:59**.
5. Click [Save & Restart] to confirm all your setting.

Device Info

Device Info

Administration

Administration

Advanced

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LAN

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Access Control

MAC Filter

Service Time

LAN PC Management

URL Blocking

Virtual Server

DMZ

Auto 2-Way Applications

Dynamic DNS

UPnP

Back to Home

LAN PC Service Time Management

Choose a specific PC (by computer name or MAC address), and assign the allowed time slot for Internet access.

☒ Disable
 ☐ Enable

PC No. 1

☒ Name (Valid for Windows system)

☐ MAC Address

Current Client List

| Hour | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | 21 | 22 | 23 |
|-------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| Mon. - Fri. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| Sat. - Sun. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

3.4.10 Advanced – URL Blocking

In order to prevent LAN user from accessing several specific websites, the IEEE 802.11g Wireless ADSL Router allow the administrator to restrict access based on web address keywords.

1. Click **“Enable”** to activate this feature and enter the URL keywords manually.
 - A. Keyword application examples:
 - If the keyword, **“XYZ”** is specified, the URL; www.XYZ.com, ftp.XYZ.com, www.abc.com/XYZ.html are all blocked.
 - If the keyword, **“.com”** is specified, only website with other domain suffixes, such as **“.edu”**, **“.gov”**, etc can be viewed.
 - Enter **“.”** Will block all Internet access.
2. Click **[Save & Restart]** to confirm all your setting.

URL Blocking

Prevent any LAN client PC from accessing unwanted Internet site by partially matched URL keywords.

☒ Disable ☐ Enable

(Example 1 : xxx , Example 2 : yyy.com)

Block URL with Name 1

Block URL with Name 2

Block URL with Name 3

Block URL with Name 4

Block URL with Name 5

Block URL with Name 6

Block URL with Name 7

Block URL with Name 8

3.4.11 Advanced – Virtual Server

To use a server like a “**WEB**”, “**FTP**”, or “**Mail Server**”, you need to know the respective port numbers they are using. For example, Port 80 is used for web; Port 21 is used for FTP, and Port 25 is used for SMTP and Port 110 is used for POP3. Whenever packets coming in from WAN port, whose destination port number matches the Virtual Server's ports of the IEEE 802.11g Wireless ADSL Router, these packets will be forwarded to the pre-defined LAN's IP.

Consider the example below :

If you have an FTP server (Port 21) at 192.168.8.5, a mail server (Port 110) at 192.168.8.6, and a VPN server at 192.168.8.7, you need to specify the virtual server as listed below :

| Service Port | Server IP in LAN | Port in LAN | Protocol | | |
|--------------|------------------|-------------|----------|-----|------|
| | | | TCP | UDP | Both |
| FTP (21) | 192.168.8.5 | 21 | X | | |
| POP3 (110) | 192.168.8.6 | 110 | | | X |
| HTTP (80) | 192.168.8.100 | 80 | | | X |
| VPN (1723) | 192.168.8.7 | 1273 | | | X |

If there are 2 Web servers in LAN at 2 different computers :

| Service Port | Server IP in LAN | Port in LAN | Protocol | | |
|--------------|------------------|-------------|----------|-----|------|
| | | | TCP | UDP | Both |
| HTTP (80) | 192.168.8.100 | 80 | | | X |
| HTTP (8080) | 192.168.8.200 | 80 | | | X |

Follow the following steps to set up port forwarding through the IEEE 802.11g Wireless ADSL Router's web-based utility.

1. Click “**Enable**” to setup the feature.
2. Enter the “**Server IP in LAN**”, “**Port in LAN**” and “**Protocol**” (TCP, UDP or Both).
3. You can create your own “**Service Port**” that you want the port server to go by repeat the above procedure. Check with the Internet application software documentation for more information.
4. Click [**Save & Restart**] to confirm all your setting.

Device Info

Device Info

Administration

Administration

Advanced

WAN

LAN

Wireless(802.11g)

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Dynamic DNS

UPnP

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Virtual Server

For some specific well-known service ports in WAN , router can forward the incoming packets to the specified PCs in LAN. Instead of requiring a separate computer for each server, dozens of virtual server can co-reside on the same computer. LAN PC(s).

☒ Disable
 ☐ Enable

| Service Port | Server IP in LAN | Port in LAN | Protocol |
|------------------|------------------|-------------|----------|
| FTP(21) | 192.168.8. | | TCP |
| TELNET(23) | 192.168.8. | | TCP |
| SMTP(25) | 192.168.8. | | TCP |
| DNS(53) | 192.168.8. | | Both |
| HTTP(80) | 192.168.8. | | TCP |
| POP3(110) | 192.168.8. | | TCP |
| NetMeeting(1720) | 192.168.8. | | TCP |
| | 192.168.8. | | |
| | 192.168.8. | | |
| | 192.168.8. | | |
| | 192.168.8. | | |
| | 192.168.8. | | |
| | 192.168.8. | | |
| | 192.168.8. | | |
| | 192.168.8. | | |
| | 192.168.8. | | |
| | 192.168.8. | | |
| | 192.168.8. | | |
| | 192.168.8. | | |
| | 192.168.8. | | |

Save & Restart

3.4.12 Advanced – DMZ

A. DMZ Host:

A DMZ host is a computer which has been nominated to receive all the packets that do not match anything in your NAT or Port Forwarding tables. When a packet is sent to your IEEE 802.11g Wireless ADSL Router, the IEEE 802.11g Wireless ADSL Router will check the NAT or Port Forwarding tables to see if there's a match for that packet, and then send the packet on to whatever it matches. If there is no matches information on the configuration, then the IEEE 802.11g Wireless ADSL Router won't know where to forward the packet onto, and the packet will be dropped and lost. The main reason for having a DMZ host is so that no packets, which are sent to your network, will be rejected and received by at least one computer. Effectively a DMZ host acts as a “**Lost & Found**” for network packets, where they all go if they would otherwise be lost.

If you're using “**DHCP Client**” (Get IP dynamically from ISP) for your WAN Connection Type, click “**Enable**” and enter the “**WAN IP Address**” then click [**Save & Restart**] to confirm all your setting.

The screenshot shows the router's web interface with the 'DMZ' configuration page selected. On the left is a sidebar menu with categories: 'Device Info' (containing 'Device Info'), 'Administration' (containing 'Administration'), and 'Advanced' (containing 'WAN', 'LAN', 'Wireless(802.11g)', 'Access Control', 'MAC Filter', 'Service Time', 'LAN PC Management', 'URL Blocking', 'Virtual Server', 'DMZ', 'Auto 2-Way Applications', 'Dynamic DNS', and 'UPnP'). The 'DMZ' option is highlighted. The main content area is titled 'DMZ' and contains the text: 'All inbound packets from WAN are sent to the following specific LAN client PC(s)'. Below this text are two radio buttons: 'Disable' (selected) and 'Enable'. Underneath is a label 'WAN IP Map to 192.168.8.' followed by a text input field. At the bottom of the main area is a 'Save & Restart' button.

B. DMZ Host:

If **“Static IP”** is set at **“WAN Connection Type”** where there are ranges of IP Address assigned to the WAN interface instead of a single IP Address, this IEEE 802.11g Wireless ADSL Router allow 8 computers (at most) in LAN to become DMZ host.

The default DMZ server feature is helpful when using some online games and videoconferencing applications that are incompatible with NAT. Incoming traffic from the Internet is normally discarded by the router unless the traffic is a response to one of your local computers or a service that you have configured in the Ports menu. Instead of discarding this traffic, you can have it forwarded to one computer on your network. This computer is called the Default DMZ Server.

The mechanism of multiple DMZ host is based on the mapping relation between **“WAN IP Address”** and **“LAN IP Address”**. These DMZ host IP will skip NAT port translation to gain unrestricted 2-way communication capability.

To assign a computer or server to be a DMZ server, follow the following steps:

1. Click the **“WAN”** tab and set your **WAN Connection Type** to **“Static IP”** mode.
2. Manually enter your WAN IP address, WAN Subnet Mask, WAN Gateway and WAN DNS.
3. Click **“Save & Restart”** button to activate your setting.
4. Click **“DMZ”** tab and click **“Enable”** to activate the DMZ function.
5. Enter **“WAN IP Address”** and the **“LAN IP Address”**.
6. Click **“WAN Connected with Bridging Mode”** if Bridging Mode configuration is supported by the ISP. Leave this item **“Blank”** if Routing Mode is supported by ISP.

Consider the example below:

| WAN IP | IEEE 802.11g Wireless ADSL Router | Sent to LAN IP |
|---------------------------|--------------------------------------|----------------|
| WAN IP1 (210.65.226.17) | ↔ | 192.168.8.17 |
| WAN IP1 (210.65.226.18) | ↔ | 192.168.8.18 |
| WAN IP1 (210.65.226.19) | ↔ | 192.168.8.19 |
| WAN IP1 (210.65.226.20) | ↔ | 192.168.8.20 |

7. Click **“Save & Restart”** button to activate your setting.

3.4.13 Advanced – Auto 2-Way Applications

For some special applications (e.g. MS messenger, MS game zone, ..etc), they always connect to an outside server with a fixed destination port. Then the server would communicate with the application in LAN by using a predefined incoming port (or a specific range of incoming ports). In this case, the IEEE 802.11g Wireless ADSL Router can provide a fully automatic mechanism to support such kind of applications.

The screenshot shows the 'Auto 2-Way Applications' configuration page. On the left is a sidebar menu with options: Device Info, Administration, Advanced, WAN, LAN, Wireless(802.11g), Access Control, MAC Filter, Service Time, LAN PC Management, URL Blocking, Virtual Server, DMZ, Auto 2-Way Applications (selected), Dynamic DNS, UPnP, and Back to Home. The main content area is titled 'Auto 2-Way Applications' and includes a description: 'Auto 2-Way Applications is used for special Internet applications whose outgoing ports differ from the incoming ports. The Router will watch outgoing data for specific port numbers.' Below the description are radio buttons for 'Disable' (selected) and 'Enable'. A 'Well Known Application' dropdown menu is set to '- select one -', followed by a 'Copy to' button and an 'ID' dropdown menu. A table with 3 columns (ID, Trigger Port, Incoming Ports) and 6 rows is present. The 'ID' column contains numbers 1 through 6. The 'Trigger Port' and 'Incoming Ports' columns contain empty text input fields. At the bottom right of the table is a 'Save & Restart' button.

| ID | Trigger Port | Incoming Ports |
|----|--------------|----------------|
| 1 | | |
| 2 | | |
| 3 | | |
| 4 | | |
| 5 | | |
| 6 | | |

Click the “Auto 2-Way Application” tab, click “Enable” button to allow the IEEE 802.11g Wireless ADSL Router to watch outgoing data for specific port numbers. The IP address of the computer that sends the matching data is remembered by the IEEE 802.11g Wireless ADSL Router, so that when the requested data returns through the IEEE 802.11g Wireless ADSL Router, the data is pulled back to the proper computer by way of IP address and port mapping rules.

1. Click “Enable” to activate the “Auto 2-Way Application”.
2. Select the “Well Known Application” from the provided list and click “Copy to” a dedicated ID as listed.
3. Enter the “Trigger Port” and “Incoming Ports” used by the application.
4. Click [Save & Restart] to confirm all your setting.

3.4.14 Advanced – Dynamic DNS

Dynamic DNS (Domain Name System) is a method of keeping a domain name linked to a changing IP Address as not all computers use Static IP addresses. Typically, when a user connects to the Internet, the user's ISP assigns an unused IP address from a pool of IP addresses, and this address is used only for the duration of that specific connection. This method of dynamically assigning addresses extends the usable pool of available IP addresses. A dynamic DNS service provider uses a special program that runs on the user's computer, contacting the DNS service each time the IP address provided by the ISP changes and subsequently updating the DNS database to reflect the change in IP address. In this way, even though a domain name's IP address will change often, other users do not have to know the changed IP address in order to connect with the other computer.

1. Click **“Enable”** to activate the Dynamic DNS function.
2. Enter your **“User Name”**, **“Password”** and **“Domain Name”**.
3. Click **[Save & Restart]** to confirm all your setting.

The screenshot shows the 'Dynamic DNS' configuration page. On the left is a sidebar menu with categories: 'Device Info' (containing 'Device Info'), 'Administration' (containing 'Administration'), and 'Advanced' (containing 'WAN', 'LAN', 'Wireless(802.11g)', 'Access Control', 'MAC Filter', 'Service Time', 'LAN PC Management', 'URL Blocking', 'Virtual Server', 'DMZ', 'Auto 2-Way Applications', 'Dynamic DNS', and 'UPnP'). The 'Dynamic DNS' option is highlighted. The main content area is titled 'Dynamic DNS' and includes a description: 'Registered via www.dyndns.org, a DDNS service provider, which allow a network device with a dynamic Internet IP Address to have a fixed Host and Domain Name.' Below this is a radio button selection for 'Disable' (selected) and 'Enable'. There are four input fields: 'Username', 'Password', 'Domain Name 1', and 'Domain Name 2'. A 'Save & Restart' button is at the bottom right of the form.

3.4.15 Advanced – UPnP

Universal Plug and Play (UPnP) enhances peer-to-peer network connectivity for personal computers, wireless devices, and other intelligent appliances, in a distributed, open networking architecture. UPnP uses existing standard protocols, such as TCP/IP, Hypertext Transfer Protocol (HTTP), and Extensible Markup Language (XML) to seamlessly connect networked devices and to manage data transfer among connected devices. UPnP provides an architectural framework for creating self-configuring, self-describing devices and services. Networks managed by UPnP require no configuration by users or network administrators because UPnP supports automatic discovery. UPnP enables a device to dynamically join a network, obtain an IP address, and convey its capabilities on request.

Click **[Enable]** to activate the UPnP functions and enter the “**Advertisement Period**” in seconds.

Click **[Save & Restart]** to confirm all your setting.

The screenshot shows a web interface for configuring UPnP. On the left is a sidebar menu with categories: Device Info, Administration, and Advanced. Under Advanced, several options are listed with expand/collapse icons: WAN, LAN, Wireless(802.11g), Access Control, MAC Filter, Service Time, LAN PC Management, URL Blocking, Virtual Server, DMZ, Auto 2-Way Applications, Dynamic DNS, and UPnP. A 'Back to Home' button is at the bottom of the sidebar. The main content area is titled 'UPnP' and contains the following text: '"Universal Plug and Play" : Enables a device to dynamically join a network, obtain an IP address, and convey its capabilities on request.' Below this text are two radio buttons: 'Disable' (selected) and 'Enable'. Underneath is a text input field for 'Advertisement Period' with the value '60' and a range '(30 - 1800 seconds)' in parentheses. At the bottom of the main area is a 'Save & Restart' button.

Chapter 4 Troubleshooting

4.1 Common Problems & Solutions

This chapter provides possible solutions to problems regarding the installation and operation of the IEEE 802.11g Wireless ADSL Router. After each problem description, instructions are provided to help you diagnose and solve the problem.

1. IEEE 802.11g Wireless ADSL Router LAN port connection fail

- Make sure your IEEE 802.11g Wireless ADSL Router been power on.
- Check the LED indicator which will lit when a proper connection is made on the LAN port.
- Ensure that your PC and the IEEE 802.11g Wireless ADSL Router are on the same network segment. Initiate the DHCP function to let your PC automatically getting the IP Address from the IEEE 802.11g Wireless ADSL Router.
- Make sure the IP Address of your PC is **192.168.8.17 (~ 128)**.
- Check the Subnet Mask setting. The setting should be **255.255.255.0**.
- Press the **“Reset”** button for 10 seconds to restore the factory default setting of the IEEE 802.11g Wireless ADSL Router. Repeat the above steps.

2. Failed to configure the IEEE 802.11g Wireless ADSL Router through web browser (by a client PC in LAN)

- Check the hardware connection of the IEEE 802.11g Wireless ADSL Router's LAN port. The LED will lit when a proper connection is made.
- Check your TCP/IP setting.
 - i. **For Windows 9x/ME:**
 - ◆ Click **Start → Settings→Control Panel**
 - ◆ Double-click the **Network** icon
 - ◆ Select your network adapter's TCP/IP entry and click on **Properties** button.
 - ◆ Select **Obtain an IP address automatically**.
 - ◆ Click the **Gateway** tab and verify that the Installed Gateway field is blank. Click the **OK** button.
 - ◆ Click the **OK** button again. Windows may ask you for the original Windows installation disk or additional files. Supply them by pointing to the correct file location.
 - ◆ Restart your Windows system by clicking the **Yes** button.
 - ii. **For Windows 2000:**
 - ◆ Click **Start → Settings→Control Panel**
 - ◆ Double-click the **Network and Dial-up Connections** icon.

- ◆ Select the **Local Area Connection** icon, then click the **Properties** button.
- ◆ Select **Internet Protocol (TCP/IP)** and click the **Properties** button.
- ◆ Select **Obtain an IP address automatically** and verify that **Obtain DNS server address automatically** is selected. Then, click the **OK** button and click the **OK** button on the subsequent screens to complete the PC's configuration.

iii. **For Windows XP:**

- ◆ Click **Start → Control Panel**
 - ◆ Click the **Network Connections** icon
 - ◆ Right Click on the **Local Area Connection** and select **Properties**.
 - ◆ Select **Internet Protocol (TCP/IP)** and click **Properties**.
 - ◆ Select **Obtain an IP address automatically** and **Obtain DNS server address automatically**. Then click on **OK**.
- Open the Windows System Command Prompt:
- i. For Windows 9x/ME :
 - ◆ Click **Start** and **Run**.
 - ◆ In the Open field, type in **Command** then press **Enter**.
 - ii. For Windows 2000/XP/NT :
 - ◆ Click **Start** and **Run**.
 - ◆ In the Open field, type in **Cmd** then press **Enter**.
- You should have the following information listed on your Window System:
- i. **IP address : 192.168.8.xxx (xxx is from 17 to 128).**
 - ii. **Submask : 255.255.255.0**
 - iii. **Default Gateway IP : 192.168.8.1**

3. IEEE 802.11g Wireless ADSL Router is unable to access the Internet

- Check whether the IEEE 802.11g Wireless ADSL Router is able to obtain a WAN IP Address from the ISP.
- i. Launch your browser and access the main menu of the router's configuration at <http://192.168.8.1>
 - ii. Select WAN and check the WAN Connection Type. Refer to Chapter 3 for the setting details.
- If your IEEE 802.11g Wireless ADSL Router still unable to obtain an IP Address from the ISP
- i. Your ISP may require a Login process. Ask your ISP whether they require PPPoE or PPTP connection.
 - ii. Inform your ISP and gives your Ethernet MAC address of your PC or your IEEE 802.11g Wireless ADSL Router.
 - iii. Manually enter your Login name and password.

- If your IEEE 802.11g Wireless ADSL Router can obtain an IP Address from the ISP, but is unable to load any web pages from the Internet
 - i. Refer to Chapter 3 for the LAN/WAN setting details.

4. I forgot or lost Administrator Password

- Reset the IEEE 802.11g Wireless ADSL Router to factory default by pressing the **Reset** button for 10 seconds.
- If you are still getting prompted for a password when saving settings:
 - i. Access the Router's web interface by going to **http://192.168.8.1**.
 - ii. Enter the default password **admin**, and click the **Administrator** tab.
 - iii. Enter a **New Password** in the Router Password field, and enter the same password in the second field to confirm the password.
 - iv. Click OK after your setting.

5. I need to upgrade the Firmware

- In order to upgrade the Firmware with the latest features, go to the PTI's website and download the latest Firmware at www.paradigm.com.tw.
 - i. Download the latest Firmware and save at your pointed location.
 - ii. Refer to Chapter 3 for the upgrading process.

6. Testing LAN path to your IEEE 802.11g Wireless ADSL Router

- To verify whether the LAN path from your PC to your IEEE 802.11g Wireless ADSL Router is properly connected, you can "**Ping**" the IEEE 802.11g Wireless ADSL Router with the following procedures:
 - i. From the Windows toolbar, click "**Start**" and select "**Run**".
 - ii. In the open field, type "**Ping 192.168.8.1**" and click "**OK**".
 - iii. If the path is working, you should see the message in the following format: **Reply from 192.168.8.1 bytes=32 time<10ms TTL=60**
 - iv. If the path is not working, you should see the following message:
Request timed out
- If the path is not functioning correctly
 - i. Make sure the LAN port LED indicator is on.
 - ii. Check whether you are using the correct LAN cable.
 - iii. Check your Ethernet Adaptor installation and configurations.
 - iv. Verify that the IP address for your IEEE 802.11g Wireless ADSL Router and your workstation are correct and that the addresses are on the same subnet.

7. Failed to connect with the IEEE 802.11g Wireless ADSL Router via Wireless LAN card

- Ensure that the wireless LED indicator of the IEEE 802.11g Wireless ADSL Router is correctly illuminated.
- Check whether your Wireless LAN setting (e.g. SSID, Channel Number) is the same as your IEEE 802.11g Wireless ADSL Router.
- Check whether you'd used the same WEP Key Encryption for both your Wireless LAN and your IEEE 802.11g Wireless ADSL Router.

4.2 Frequently Asked Questions

The Frequently Asked Questions addresses common questions regarding IEEE 802.11g Wireless ADSL Router settings. Some of these questions are also found throughout the guide, in the sections to which they reference.

1. How do I determine if a link between the Ethernet card (NIC) and the IEEE Wireless ADSL Router has been established?

A ping test would determine if a connection is established between your IEEE 802.11g Wireless ADSL Router and computer. Using, the ping command, ping the IP address of the IEEE 802.11g Wireless ADSL Router, in this case, 192.168.8.1 (Default). Alternatively, if the Ethernet LINK/ACT LED is solidly on, then the Ethernet link is established.

2. How do I determine if a link between the IEEE 802.11g Wireless ADSL Router and the Internet has been established?

Similar to the previous question, a ping test would determine whether or not a connection is established. However, this time use a URL instead of an IP Address, such as <http://www.google.com>. Alternatively, if the ADSL RXD LED is solidly on, then the ADSL link is established.

3. What is the maximum IP addresses supported by this IEEE 802.11g Wireless ADSL Router?

The IEEE 802.11g Wireless ADSL Router will support up to 253 IP addresses.

4. What is MAC Address?

Short for **Media Access Control Address**. It is a hardware address that uniquely identifies each node of a Ethernet networking device. This address is usually permanent.

5. Can the IEEE 802.11g Wireless ADSL Router act as a DHCP Server?

Yes. This IEEE 802.11g Wireless ADSL Router has DHCP Server functionality built-in.

6. What is IEEE 802.11b standard?

IEEE 802.11b is an extension standards to 802.11 that applies to Wireless LAN and provides 11Mbps transmission speed in the 2.4 GHz band.

7. What is IEEE 802.11g standard?

IEEE 802.11g is an extension standards to 802.11 that applies to Wireless LAN and provides 54Mbps transmission speed in the 2.4 GHz band.

8. What is NAT (Network Address Translation) and what is it used for?

NAT translates multiple IP Address on the private LAN to one public IP Address (in WAN) that is sent out to the Internet. NAT adds a level security since the IP address of a PC connected to the private LAN is never transmitted on the Internet.

9. What can I do when I am not able to get the web configuration screen for this IEEE 802.11g Wireless ADSL Router?

Remove the proxy settings on your Internet Browsers or remove the dial-up settings on your browser.

10. What is DMZ (DeMilitarized zone)?

DMZ allows one IP Address (computer) to be exposed to the Internet. Some applications require multiple TCP/IP ports to be open. It is recommended that you set your computer with a static IP if you want to use DMZ features.

11. What is BSS ID?

A specific Ad-Hoc LAN is called a Basic Service Set (BSS). Computers in a BSS must be configured with the same BSS ID.

12. What is SSID?

Short for Service Set Identifier. SSID is a 32 character unique identifier attached to the header of packets sent over a WLAN that acts as a password when a mobile device tries to connect to the BSS. The SSID differentiates one WLAN from another, so all Access Point and all devices attempting to connect to a specific WLAN must use the same SSID. A device will not be permitted to join the BSS unless it can provide the unique SSID.

13. What is WEP?

Short for **W**ired **E**quivalent **P**rivacy. WEP is a security protocol for wireless local area networks defined in the 802.11b standard. WEP is designed to provide the same level of security as that of a wired LAN. WEP aims to provide security by encrypting data over radio waves so that it is protected as it is transmitted from one end point to another.