User Guide

AIP-W512

802.11n Packet Travel Router

Rev: 1.0.0

FCC STATEMENT

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/ TV technician for help.

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

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

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

NOTE: THE MANUFACTURER IS NOT RESPONSIBLE FOR ANY RADIO OR TV INTERFERENCE CAUSED BY UNAUTHORIZED MODIFICATIONS TO THIS EQUIPMENT. SUCH MODIFICATIONS COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

FCC RF Radiation Exposure Statement

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.

"To comply with FCC RF exposure compliance requirements, this grant is applicable to only Mobile Configurations. The antennas used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter."

CE Mark Warning

This is a class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

National restrictions

This device is intended for home and office use in all EU countries (and other countries following the EU directive 1999/5/EC) without any limitation except for the countries mentioned below:

Country	Restriction	Reason/remark
Bulgaria	None	General authorization required for outdoor use and public service
France	Outdoor use limited to 10 mW e.i.r.p. within the band 2454-2483.5 MHz	Military Radiolocation use. Reframing of the 2.4 GHz band has been ongoing in recent years to allow current relaxed regulation. Full implementation planned 2012
Italy	None	If used outside of own premises, general authorization is required
Luxembourg	None	General authorization required for network and service supply(not for spectrum)
Norway	Implemented	This subsection does not apply for the geographical area within a radius of 20 km from the centre of Ny-Ålesund
Russian Federation	None	Only for indoor applications

CONTENTS

Package Contents

The following items should be found in your package:

- AIP-W512
- USB power adapter x 1
- Quick Installation Guide x 1
- RJ-45 Ethernet cable x1

☞ **Note:**

If any of the listed items are damaged or missing, please contact your distributor.

Chapter 1. Introduction

Thank you for choosing the AIP-W512.

1.1 Overview

The AIP-W512 delivers exceptional range and speed, which can fully meet the need of residential / home Internet access and users that demand mobile network access.

Incredible Speed

The AIP-W512 provides up to 150M wireless connection with other 802.11n wireless clients. The speed makes it ideal for handling multiple data streams at the same time ensuring your network stability. It is compatible with all IEEE 802.11g and IEEE 802.11b products.

Multiple Security Protections

The multiple protection measures include SSID broadcast control and wireless LAN 64/128-bit WEP encryption, Wi-Fi protected Access (WPA2- PSK, WPA- PSK), as well as advanced firewall protections.

Flexible Access Control

AIP-W512 provides IP/MAC address control, URL, communication port filtering for parents and network administrators to apply network restriction for children or staff members. The network administrators can manage and monitor the network in real time with the remote management function.

Product Installation

AIP-W512 is compatible with all the major operating systems, it is easy to manage and operate. With built-in wizard, Internet access or WLAN connections can be established in minutes.

More setup information can be referred in quick installation guide, and detailed step by step instructions are documented in this user guide. Before installing the router, please look through the user guide to know all the router's functions.

1.2 Main Features

- IEEE 802.11n wireless technology to provide a wireless data rate of up to 150Mbps.
- One 10/100M auto-negotiation RJ45 WAN port, one 10/100M Auto-Negotiation RJ45 LAN port, supporting auto MDI/MDIX.
- Provides WPA/WPA2, WPA-PSK/WPA2-PSK authentication, TKIP/AES encryption security.
- Shares data and Internet access for users, supporting dynamic IP/Static IP/PPPoE Internet access.
- Supports port forwarding, and DMZ host.
- Supports UPnP, dynamic DNS (DDNS), static routing, dynamic routing (RIPv1, RIPv2).
- Up/downstream QoS with limit control, plus guaranteed bandwidth mode for IP/MAC addresses, providing smooth network experience.
- Built-in NAT and DHCP server supporting static IP address distribution.
- Supports stateful packet inspection (SPI).
- Supports IPSec / PPTP / L2TP VPN pass-through.
- Provides 64/128-bit WEP encryption security and wireless LAN ACL (Access Control List).
- Supports IPv6 pass-through
- Supports firmware upgrade and web management.
- Powered by micro-USB interface.

1.3 Product Overview

1.3.1 LED definitions

The router's LEDs and the WPS Button are located on the side panel.

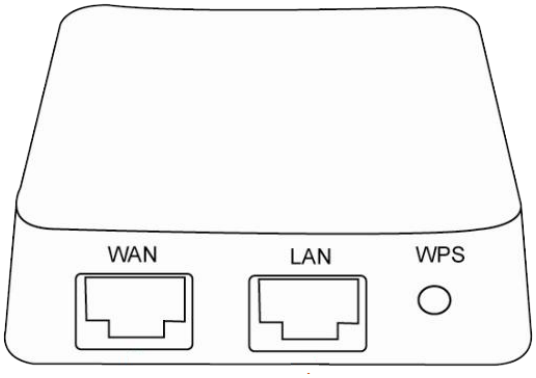
Name	Status	Indication
PWR (Blue)	Off	Power is off.
	On	Power is on.
WLAN (Blue)	Off	The Wireless function is disabled or not active
	Flashing	The Wireless active
LAN, (Orange)	Off	There is no device linked to the corresponding port.
	On	There is a device linked to the corresponding port but there is no activity.
	Flashing	Data is being transmitted or received via the corresponding port.
WAN, (Orange)	Off	There is no device linked to the corresponding port.
	On	There is a device linked to the corresponding port but there is no activity.
	Flashing	Data is being transmitted or received via the corresponding port.

Table 1-1 LEDs Description

1.3.2 Router outlook

Figure 1-2 AIP-W512 outlook

Connectivity interfaces are shown below:



- **WAN:** The WAN port is where you will connect the xDSL/cable modem.
- **LAN:** One LAN 10/100Mbps RJ45 port connects to a network device, such as a switch.
- **WPS:** Press for 5 seconds to activate WPS (Wi-Fi Protected Setup) configuration

REST button is located in the bottom of router, position is shown below:

Chapter 2. Connecting the router

2.1 System Requirement

- Broadband Internet Access Service (DSL/Cable/Ethernet)
- One DSL/Cable Modem that has an RJ45 connector (which is not necessary if the router is connected directly to the Ethernet.)
- PCs with a working Ethernet adapter and an Ethernet cable with RJ45 connectors
- PCs with a working wireless adapter, which should be complied to IEEE802.11 b/g/n standards.
- TCP/IP protocol on each PC
- Web browser, such as Microsoft Internet Explorer.

2.2 Installation Environment Requirements

- Place the router in a well-ventilated place away from any heater or heating vent
- Avoid direct irradiation of any strong light (such as sunlight)
- Keep at least 2 inches (5 cm) of clear space around the router
- Operating Temperature: -20℃~60℃
- Operating Humidity: 10%~90%RH, Non-condensing

2.3 Connecting the router

Before installing the router, make sure your PC is connected to the Internet through the broadband service successfully. If there is any problem, please contact your ISP. Install the router according to the following steps. Don't forget to pull out the power plug and keep your hands dry.

1. Turn the power off for your PC, Cable/DSL Modem, and the router.
2. Locate an optimum location for the router. The best place is usually at the center of your wireless network environment.
3. Adjust the direction of the antenna. Normally, upright is a good direction.
4. Connect the PC(s) and each Switch/Hub in your LAN to the LAN Ports on the router, shown in Figure 2-1. (If you have the wireless NIC and want to use the wireless function, you can skip this step.)
5. Connect the DSL/Cable Modem to the WAN port on the router, shown in Figure 2-1.
6. Connect the power adapter to the power socket on the router, and the other end into an electrical outlet. Press the power switch, and then the router will start to work.

7. Turn the power on for your PC and Cable/DSL Modem.

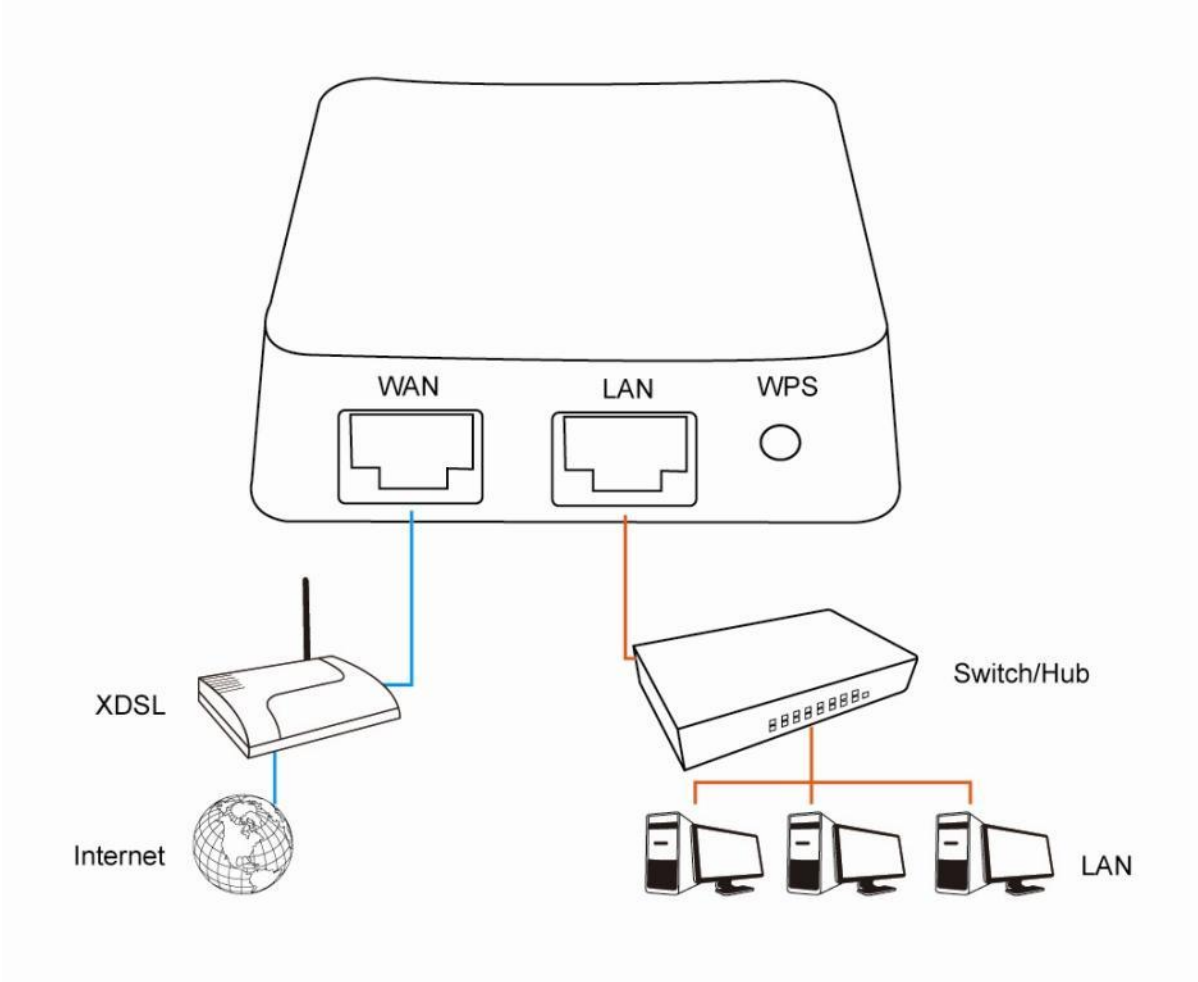


Figure 2-1 Hardware Installation of the AIP-W512

Chapter 3. Quick Installation Guide

This chapter will show you how to configure the basic functions of your AIP-W512 using **Quick Setup Wizard** within minutes.

3.1 TCP/IP Configuration

The default IP address for AIP-W512 is **192.168.11.1**, default subnet mask is 255.255.255.0. These values can be changed to your preference.

Connect the local PC to the LAN port of AIP-W512. You can configure the IP address for your PC with the following options.

- Configure the IP address manually

  1) Set up the TCP/IP Protocol for your PC. If you need instructions as to how to do this, please refer to Appendix B: Configuring the PC.

  2) Configure the network parameters. The IP address is 192.168.11.x ("x" represents any number from 2 to 254), Subnet Mask is 255.255.255.0, and Gateway is 192.168.11.1 (The router's default IP address).

- Obtain an IP address automatically

  1) Set up the TCP/IP Protocol in "**Obtain an IP address automatically**" mode on your PC. If you need instructions as to how to do this, please refer to Appendix B: Configuring the PC.

  2) The built-in DHCP server will assign an IP address for the PC.

Now, you can run the Ping command in the **command prompt** to verify the network connection between your PC and the router. The following example is in Windows XP OS.

Open a command prompt, and type *ping 192.168.11.1*, and then press **Enter**.

- If the result displayed is similar to the Figure 3-1, it means the connection between your PC and the router has been established well.

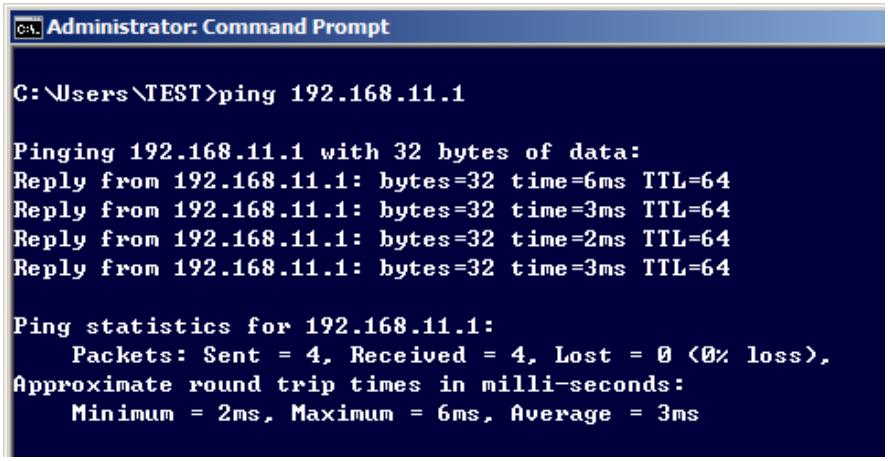


Figure 3-1 Success result of Ping command

- If the result displayed is similar to the Figure 3-2, it means the connection between your PC and the router has failed.

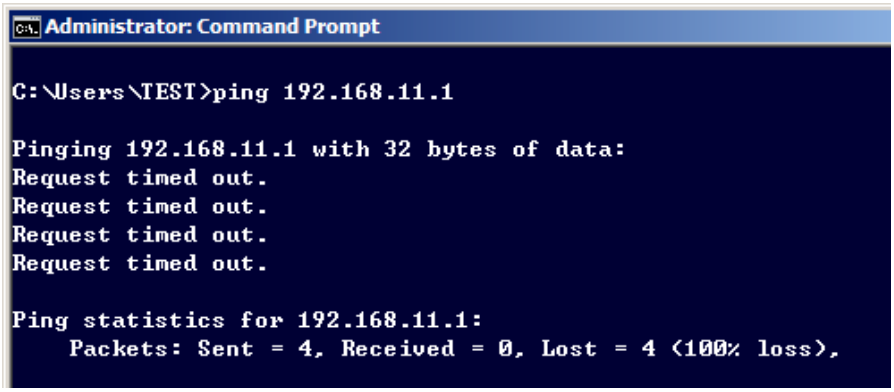


Figure 3-2 Failure result of Ping command

To check the connection follows these steps:

1. Is the connection between your PC and the router correct?

☞ **Note:**

LAN LED will be lit when you link the router with your PC's via Ethernet (RJ-45) cable.

2. Is the TCP/IP configuration for your PC correct?

☞ **Note:**

The router's default IP address is 192.168.11.1. Your PC's IP address must be configured in the range of 192.168.11.2 ~ 192.168.11.254. Or automatically obtain IP address from router via DHCP service in both parties.

3.2 Quick Installation Guide

With a Web-based utility, it is easy to configure and manage AIP-W512. The Web-based utility can be used on any Windows, Macintosh or UNIX OS with a Web browser, such as Microsoft Internet Explorer, Mozilla Firefox or Apple Safari.

1. To access the configuration utility, open a web-browser and type in the default address http://192.168.11.1 in the address field of the browser.

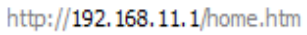


Figure 3-3 Log in the router

2. After successfully logging in, click the **Setup Wizard** in left control panel to start router configurations.

Figure 3-4 Setup Wizard

3. Click **Next**, and then **Operation Mode** page will appear, shown in Figure 3-5.

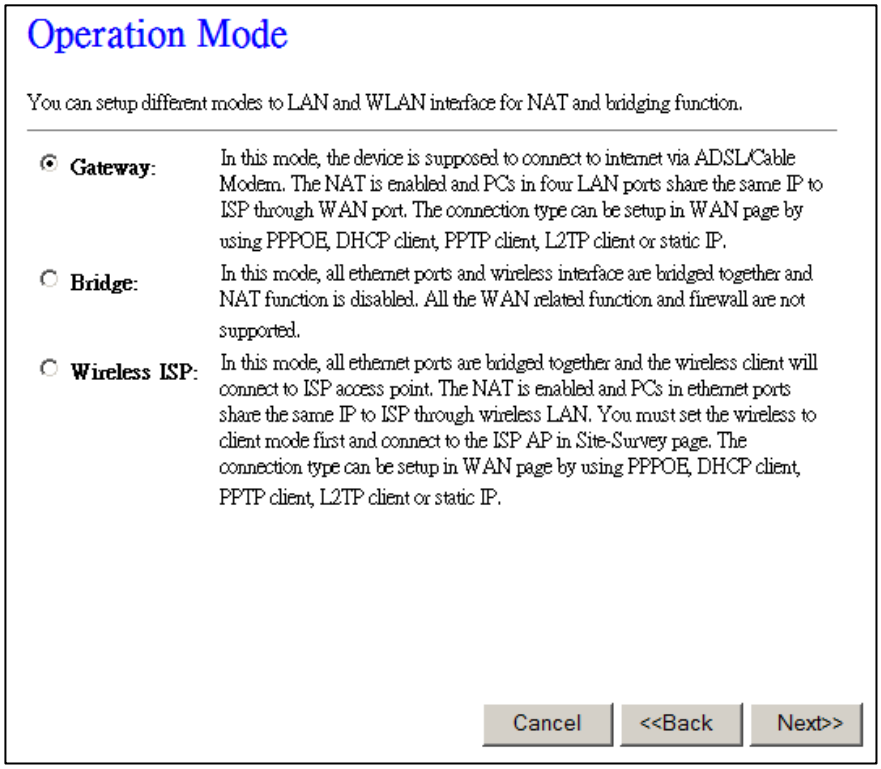


Figure 3-5 WAN Connection Type

The router provides three popular ways **Gateway**, **Bridge** and **Wireless ISP** to connect to the Internet. In most scenarios, it's recommended to select **Gateway** function. If you are sure of what kind of connection type your ISP provides, you can select the connection type and click **Next** to go on configuring.

4. If you are sure of what kind of NTP server your router, you can select the very type and click **Next** to go on configuring as shown in Figure 3-6.

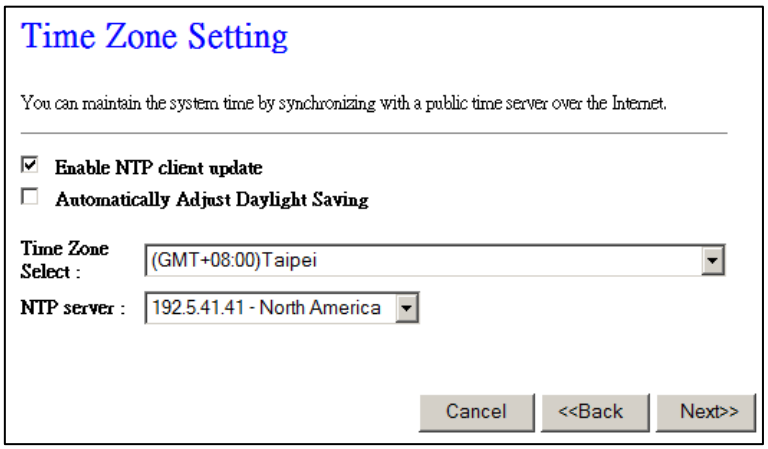


Figure 3-6 Time Zone Setting

5. Confirm the IP address for your router and click **Next** to continue configuration.

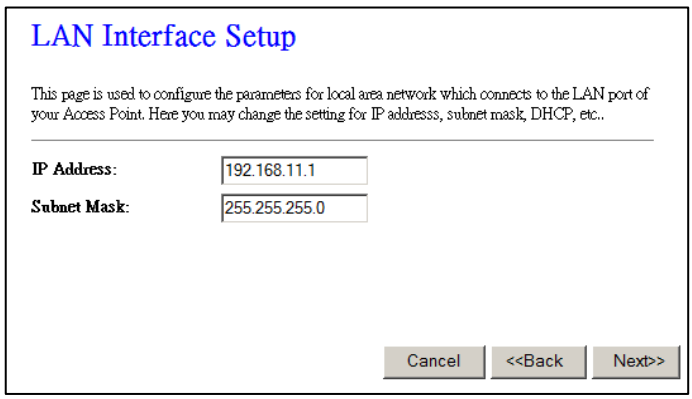


Figure 3-7 LAN Interface Setting

6. If you select **Gateway**, the router provides five connection types for Internet access. Make sure the carrier device is securely connected to the WAN interface on the router.
   a) If the connection type is **PPPoE**, then select it from drop down menu as shown below. Enter the **User Name** and **Password** provided by your ISP, and click **Next**.

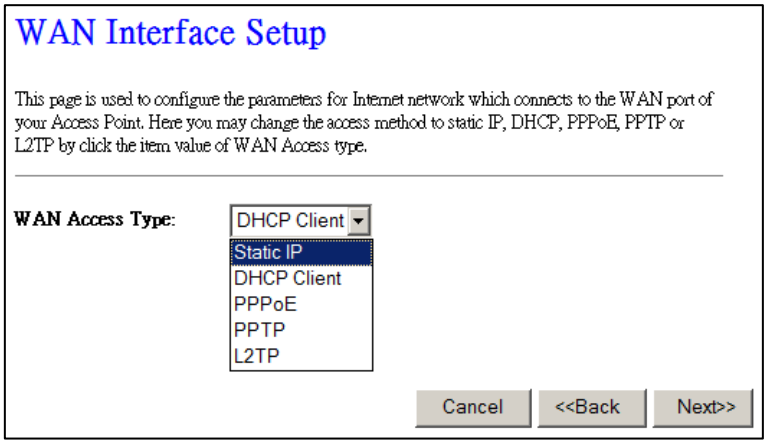
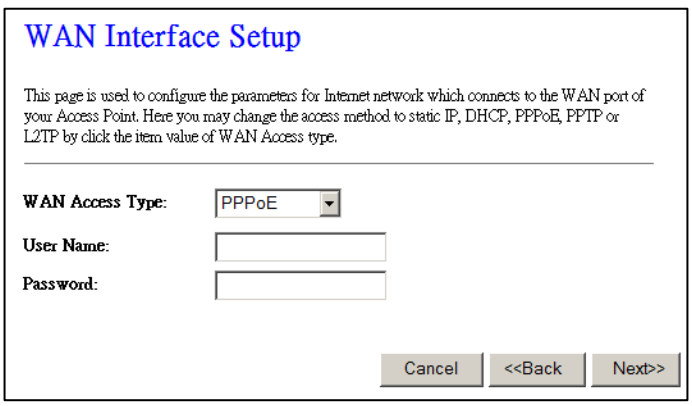


Figure 3-8 WAN connection type menu

- **User Name/Password -** Enter the **User Name** and **Password** provided by your ISP. These fields are case sensitive. If you have difficulty with this process, please contact your ISP.



   b) If selected connection type is **DHCP Client**, the next screen will appear as shown in Figure 3-9. You can then proceed with the wireless configuration.

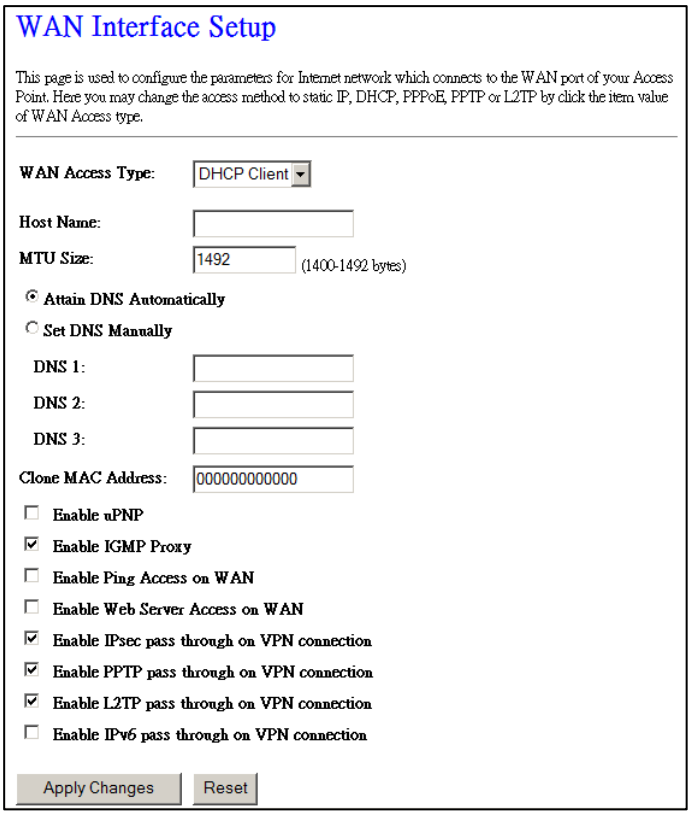


Figure 3-9 DHCP client configuration

c) If selected connection type is **Static IP**, the next screen will appear as shown in Figure 3-10.

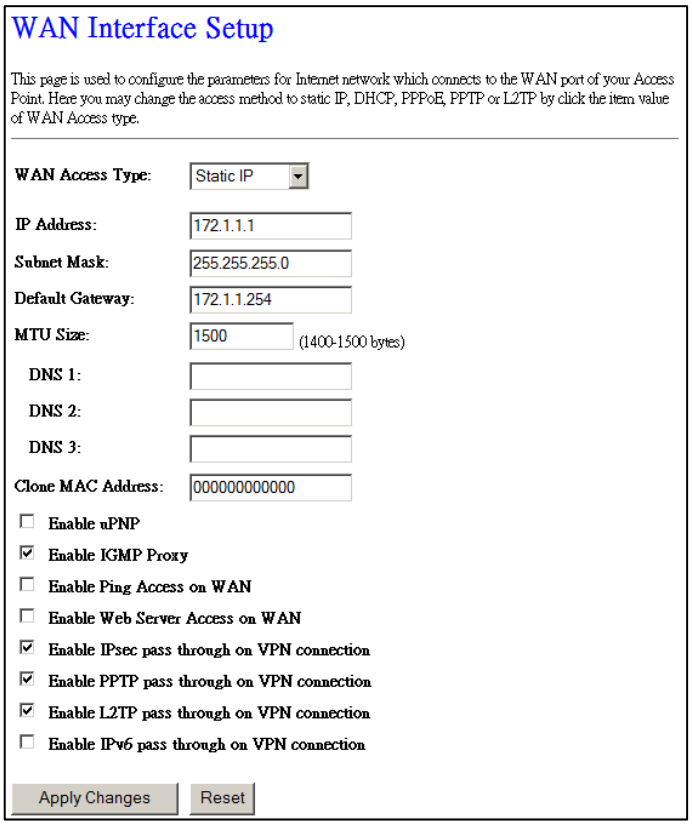


Figure 3-10 Static IP

- **IP Address -** This is the WAN IP address as seen by external users on the Internet (including your ISP). Enter the IP address into the field.
- **Subnet Mask -** The Subnet Mask is used for the WAN IP address, usually 255.255.255.0.
- **Default Gateway -** Enter the gateway IP address into the box if required.
- **Primary DNS -** Enter the DNS Server IP address into the box if required.

7. Click **Next** to continue, the Wireless settings page will appear as shown in Figure 3-11.

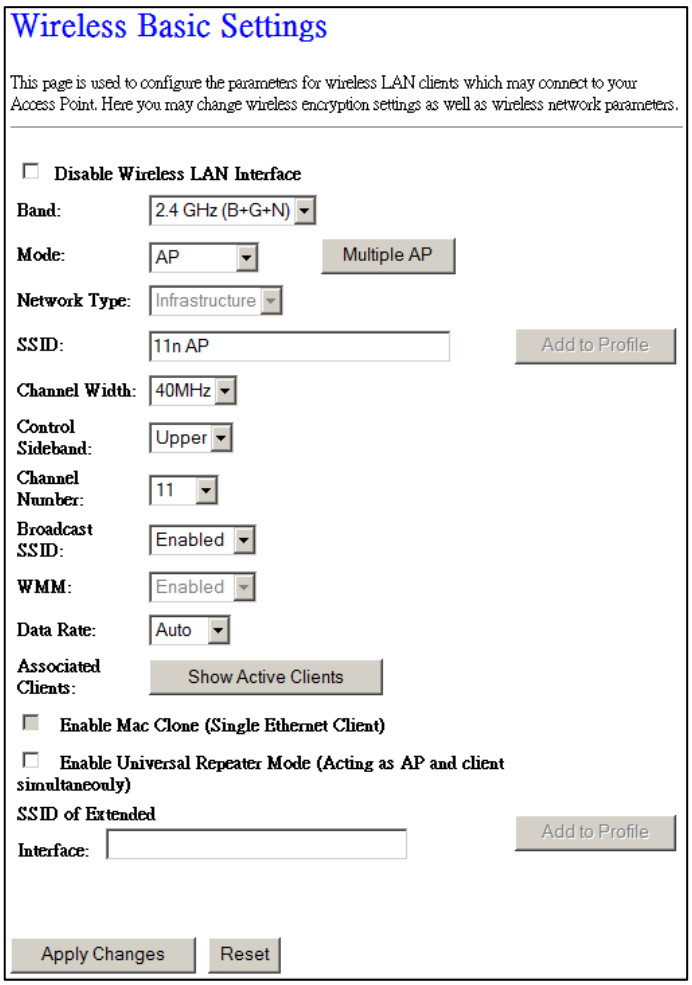


Figure 3-11 Wireless

- **Band**: Keep the default setting: **2.4GHz (B+G+N)**. If you just want to use a specific protocol, please use the drop down menu to select it.
- **Mode**: This field determines the wireless mode which the AIP-W512 works on.
- **Network Type**: Keep the default setting: **Infrastructure**. If you just want to use another operation mode, please use the drop down menu to select it.
- **SSID**: Create a unique and easy way to remember the name of your wireless network. You can also keep default settings without the device being affected.
- **Channel Width -** Select any channel width from the pull-down list. The default setting is automatic therefore it can adjust the channel width for your clients automatically.

- **Channel Number-** This field determines which operating frequency will be used. The default channel is set to Auto allowing the AIP-W512 to choose the best channel automatically. It is not necessary to change the wireless channel unless you notice interference problems with another nearby access point.

8. Set your security preference then click the **Finished** button.

Wireless Security: Recommend to choose **WPA-PSK/WPA2-PSK** and enter a Security Key using ASCII characters between 8 and 63 characters or 64 hexadecimal characters in the **PSK Password** filed. For advanced settings, please refer to Section 4.6: "Wireless".

- **WPA-PSK/WPA2-PSK -** Select WPA based on pre-shared passphrase.
  - **PSK Password** - You can enter **ASCII** or **Hexadecimal** characters.

    For **ASCII**, the key can be made up of any numbers from 0 to 9 and any letters from A to Z, the length should be between 8 and 63 characters.

    For **Hexadecimal**, the key can be made up of any numbers 0 to 9 and letters A to F, the length should be between 8 and 64 characters.

    Please note the key is case sensitive, therefore the upper and lower case keys will affect the outcome. It is highly recommended to write down the key and all related wireless security settings.

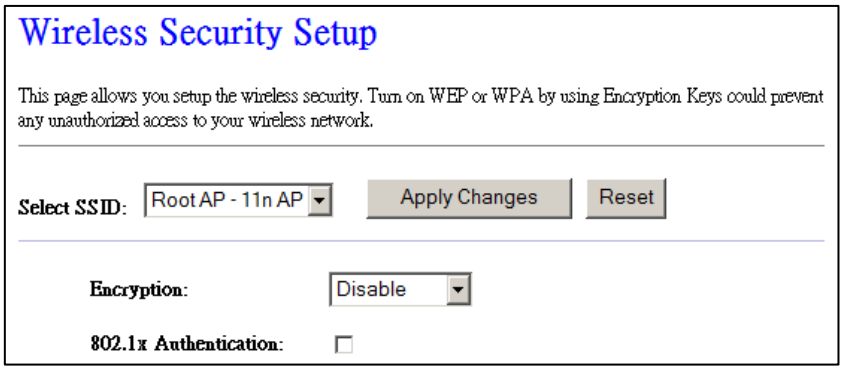


Figure 3-12 WLAN Security configurations

Chapter 4. Configuring the router

This chapter will show each Web page's key functions and configuration.

4.1 Login

After successfully logging in, you will see the seven main menus on the left hand-side of the Web-based utility. On the right, there are corresponding explanations and instructions.

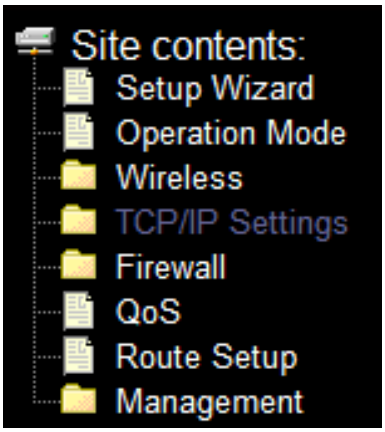


Figure 4-1 the main menu

The detailed explanations for each Web page's key function are listed below.

4.2 Status

The Status page provides the current status information about the router. All information is read-only.

Access Point Status

This page shows the current status and some basic settings of the device.

System	
Uptime	0day:2h:0m:49s
Firmware Version	v3.2.2.2.2
Build Time	Mon Jun 10 04:32:25 EDT 2013
Wireless Configuration	
Mode	AP
Band	2.4 GHz (B+G+N)
SSID	AIP-W512
Channel Number	11
Encryption	Disabled
BSSID	00:c0:ca:6f:9c:48
Associated Clients	2
TCP/IP Configuration	
Attain IP Protocol	Fixed IP
IP Address	192.168.11.1
Subnet Mask	255.255.255.0
Default Gateway	192.168.11.1
DHCP Server	Enabled
MAC Address	00:c0:ca:6f:9c:46
WAN Configuration	
Attain IP Protocol	Getting IP from DHCP server...
IP Address	0.0.0.0
Subnet Mask	0.0.0.0
Default Gateway	0.0.0.0
MAC Address	00:c0:ca:6f:9c:47

Figure 4-2 router Status

4.3 Quick Setup

Please refer to Section 3.2: "Quick Installation Guide".

4.4 WPS

This section will help guide you into adding a new wireless device to an existing network quickly with the **WPS (Wi-Fi Protect Setup)** function.

a) Choose **WPS** from the **Security** menu in the next screen (shown in Figure 4-3).

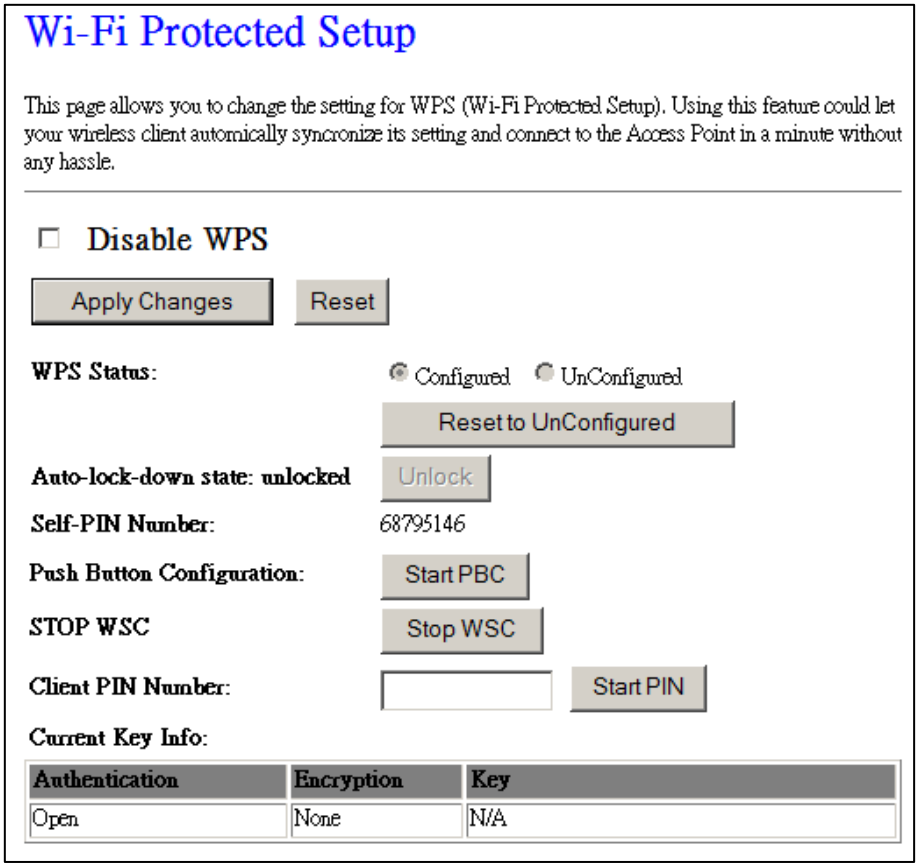


Figure 4-3 WPS

- **WPS Status -** Configure or Un-configured the WPS function here.
- **Self-PIN Number -** The current value of the router's PIN is displayed here.
- **Push Button Configuration –** Push this button to synchronize the router and your Wi-Fi adapter
- **Client PIN Number –** To synchronize the Wi-Fi adapter by entering adapter's PIN.

b) To add a new device:

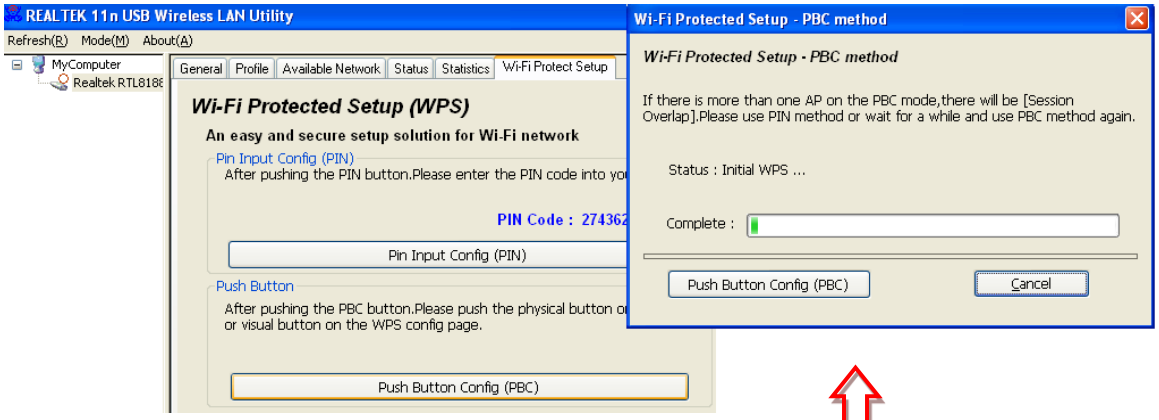
If the wireless adapter supports Wi-Fi Protected Setup (WPS), you can establish a wireless connection between the wireless adapter and router using either Push Button Configuration (PBC) method or PIN method.

Note:

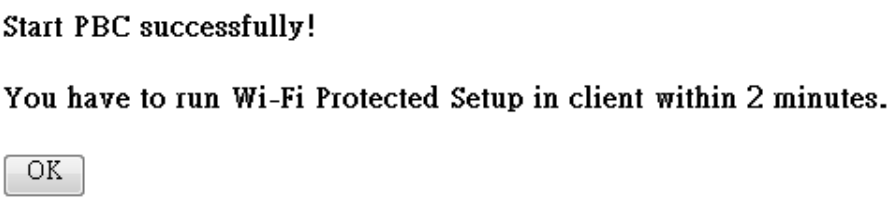
To build a successful connection by WPS, you should also do the corresponding configuration of the new device for WPS function.

Configuring a new device (ex. AWUS036NHR), please follow the steps below.

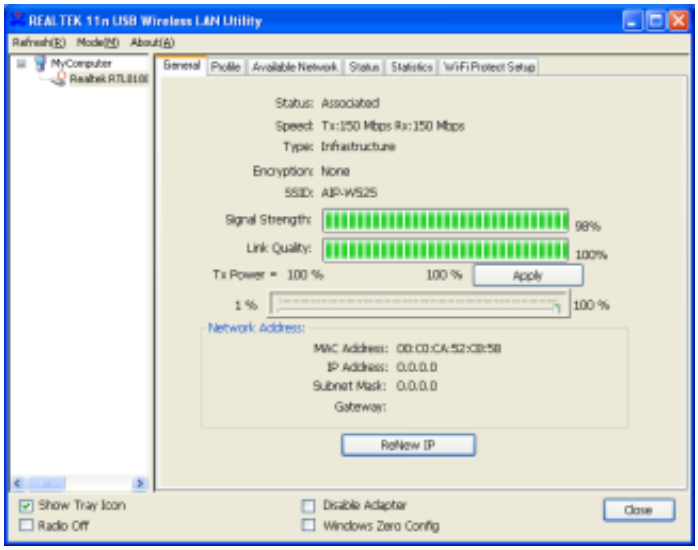
Step 1: Press **PBC** button from the Wireless LAN Utility then the **Wi-Fi Protected Setup – PBC method** will pop up and wait for an authentication.



Step 2: Press **Start PBC** button on your router for authentication.



Step 3: Wait for a minute then you'll discover your AWUS036NHR is connected to AIP-W512 automatically.



4.5 TCP/IP Settings

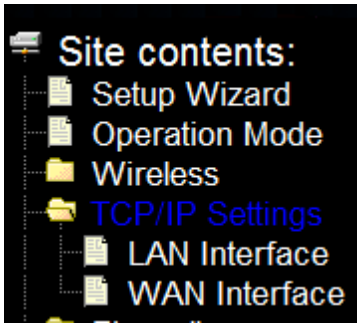


Figure 4-5 The Network Menu

There are two submenus under the TCP/IP Settings menu (shown in Figure 4-5): **LAN Interface**, and **WAN** Interface**.** Click any of them, and you will be able to configure the corresponding function.

4.5.1 LAN

Choose menu "**TCP/IP Settings → LAN**", to configure the IP parameters of the LAN on the screen as shown below.

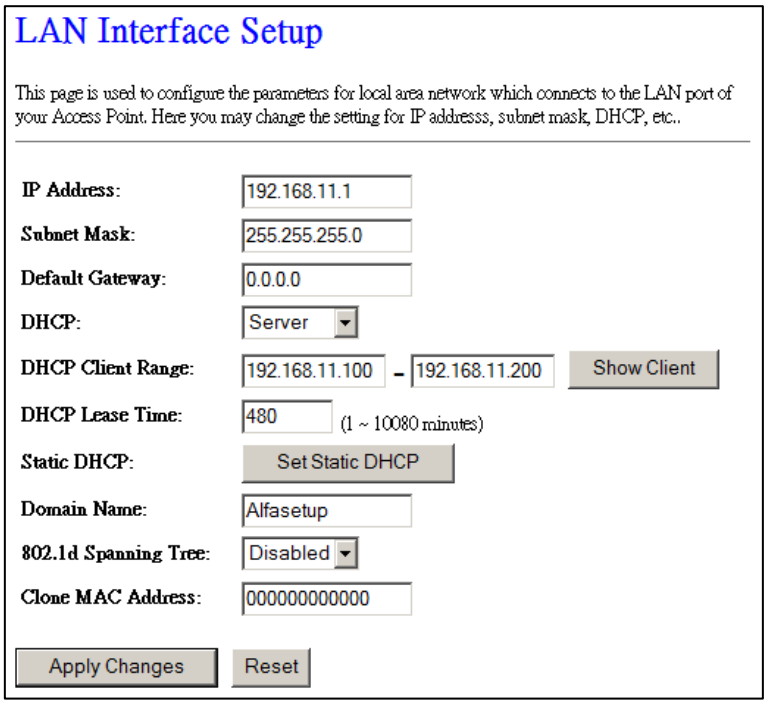


Figure 4-6 LAN Interface

- **IP Address -** Enter the IP address of your router or reset it in dotted-decimal notation (factory default: 192.168.11.1).
- **Subnet Mask -** An address code that determines the size of the network. Normally used, 255.255.255.0 as the subnet mask.

Note:

1. If you change the IP Address of LAN, you must use the new IP Address to log into the router.
2. If the new LAN IP Address you set is not in the same subnet, the IP Address pool of the DHCP

server will change accordingly at the same time，while the Virtual Server and DMZ Host will not take effect until they have been re-configured.

- **Default Gateway -** Enter the gateway IP address in dotted-decimal notation provided by your system administrator.
- **DHCP** – Select Disabled, Client or Server in different operation mode for AIP-W512
- **DHCP Client Range** - Fill in the start IP address and end IP address to allocate a range of IP addresses; client with DHCP function set will be assigned an IP address automatically.
- **Show Client** – Press open to active the DHCP Client Table window that shows the active clients with their assigned IP address, MAC address and time expired information. [Server mode only]
- **DHCP Lease Time** – Amount of time the IP address is leased for.
- **Set Static DHCP** - Manual setup Static DHCP IP address for specific MAC address. [Server mode only]
- **Domain Name -** Assign Domain Name and dispatch to DHCP clients [optional]
- **802.1d Spanning Tree** - Enable or disable the IEEE 802.1d Spanning Tree function from pull-down menu.
- **Clone MAC Address** - Fill in the MAC address for the MAC address to be cloned.

4.5.2 WAN Interface

Choose menu "**TCP/IP Settings → WAN**", you can configure the IP parameters of the WAN on the screen shown below.

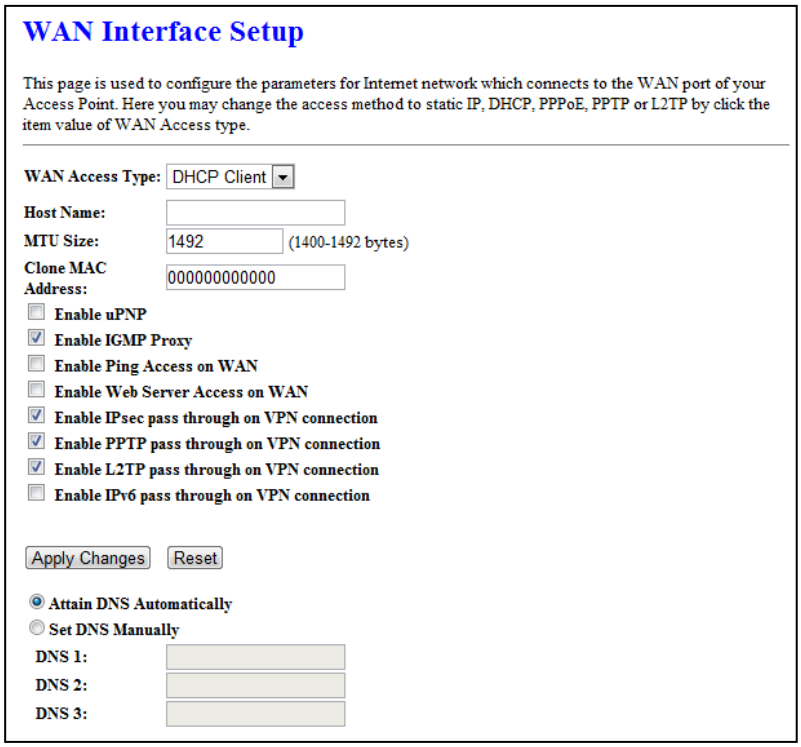


Figure 4-7 WAN – Static IP

- **Clone MAC Address** - Fill in the MAC address for the MAC address to be cloned
- **Enable uPNP** - Click the checkbox to enable uPNP function.
- **Enable IGMP Proxy** - Click the checkbox to enable IGMP proxy
- **Enable Ping Access on WAN** - Click the checkbox to enable WAN IGMP response.
- **Enable Web server Access on WAN** - Click the checkbox to enable web configuration from
- **Enable IPsec pass through on VPN connection** - Click the checkbox to enable IPSec packet pass through
- **Enable PPTP pass through on VPN connection** - Click the checkbox to enable PPTP packet pass through
- **Enable L2TP pass through on VPN connection** - Click the checkbox to enable L2TP packet pass through

1. If your ISP provides a static or fixed IP Address, Subnet Mask, Gateway and DNS setting, select **Static IP**. The Static IP settings page will appear, shown in Figure 4-7.

   - **IP Address -** Enter the IP address in dotted-decimal notation provided by your ISP.
   - **Subnet Mask -** Enter the subnet Mask in dotted-decimal notation provided by your ISP, usually 255.255.255.0.
   - **Default Gateway -** (Optional) Enter the gateway IP address in dotted-decimal notation provided by your ISP.
   - **MTU Size -** The normal **MTU** (Maximum Transmission Unit) value for most Ethernet networks is 1500 Bytes. It is not recommended that you change the default **MTU Size** unless required by your ISP.
   - **DNS 1 / DNS 2 / DNS 3 -** (Optional) Enter one or two DNS addresses in dotted-decimal notation provided by your ISP.

   Click the **Apply Changes** button to save your settings.

2. If your ISP provides the DHCP service, please choose **DHCP Client** type, and the router will automatically get IP parameters from your ISP (shown in Figure 4-8).

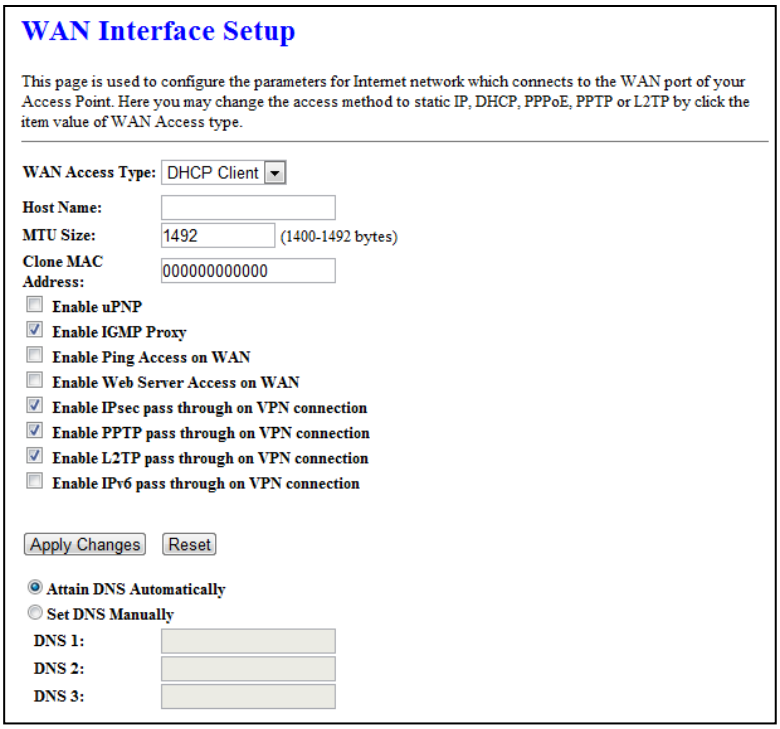


Figure 4-8 WAN – Dynamic IP

- **Host Name** – Enter the host name provided by your ISP, default value is blank.
- **MTU Size -** The normal **MTU** (Maximum Transmission Unit) value for most Ethernet networks is 1500 Bytes. It is not recommended that you change the default **MTU Size** unless required by your ISP.
- **Attain DNS Automatically** – Receives DNS address automatically from the ISP.

- **Set DNS Manually -** If your ISP gives you one or two DNS addresses, select **Set DNS Manually** and enter the primary and secondary addresses into the correct fields. Otherwise, the DNS servers will be assigned dynamically from your ISP.

  Note:

  If you find an error message on the website after entering the DNS addresses, it is likely that your DNS server has been set up improperly. You should contact your ISP to get DNS server addresses.

3. If your ISP provides a PPPoE connection, select **PPPoE** option and enter the following parameters (Figure 4-9):

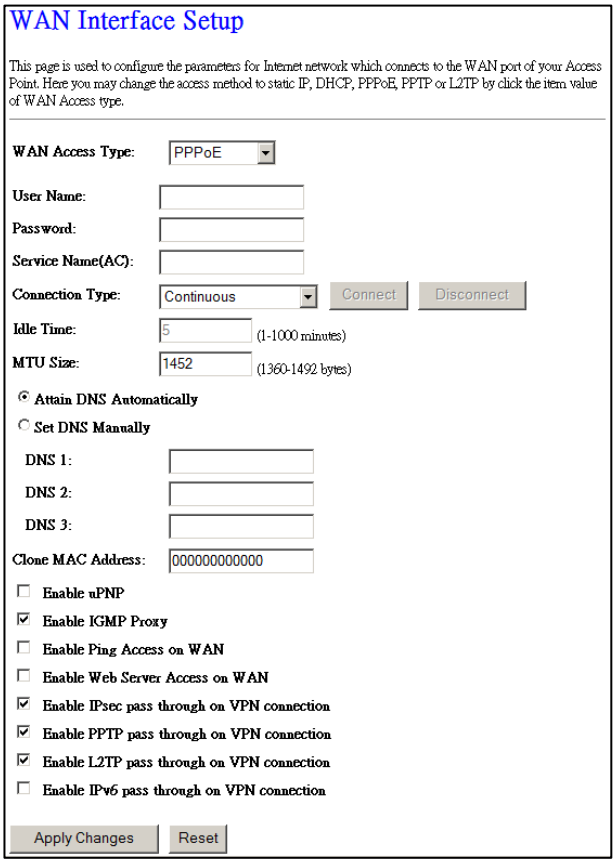


Figure 4-9 WAN setting - PPPoE

- **User Name/Password -** Enter the User Name and Password provided by your ISP. These fields are case-sensitive.
- **Service Name -** The service name should not be configured unless you are sure it is necessary for your ISP. In most cases, leaving these fields blank.
- **Connection Type**
  - **Continuous –** Continuous connection type means to setup the connection through PPPoE protocol whenever this WLAN Broadband router is powered on.

- **Connect on Demand –** In this mode, the Internet connection can be terminated automatically after a specified inactivity period (**Max Idle Time**) and be re-established when you attempt to access the Internet again.
- **Manual -** You can click the **Connect/Disconnect** button to connect/disconnect immediately. This mode also supports the **Max Idle Time** function as **Connect on Demand** mode. The Internet connection can be disconnected automatically after a specified inactivity period and re-established when you attempt to access the Internet again.

●☞ **Note:**

Sometimes the connection cannot be terminated although you specify a time to Max Idle Time because some applications are visiting the Internet continually in the background.

- **Idle Time -** If you want your Internet connection to be active constantly, please enter “0” in the **Max Idle Time** field. Otherwise, enter the number of minutes you want to have elapsed before your Internet access disconnects.
- **MTU Size -** The default MTU size is “1452” bytes. It is not recommended that you change the default **MTU Size** unless required by your ISP.
- **Attain DNS Automatically** – Receives DNS address automatically from the ISP.
- **Set DNS Manually -** If your ISP gives you one or two DNS address, select **Set DNS Manually** and enter the primary and secondary addresses into the correct fields. Otherwise, the DNS servers will be assigned dynamically from your ISP.

☞ **Note:**

If you find an error on the website after entering the DNS addresses, it is likely that your DNS server has been set up improperly. You should contact your ISP to get DNS server addresses.

Click the **Apply Changes** button to save your settings.

4. If your ISP provides PPTP connection, please select **PPTP** option and enter the following parameters (Figure 4-11):

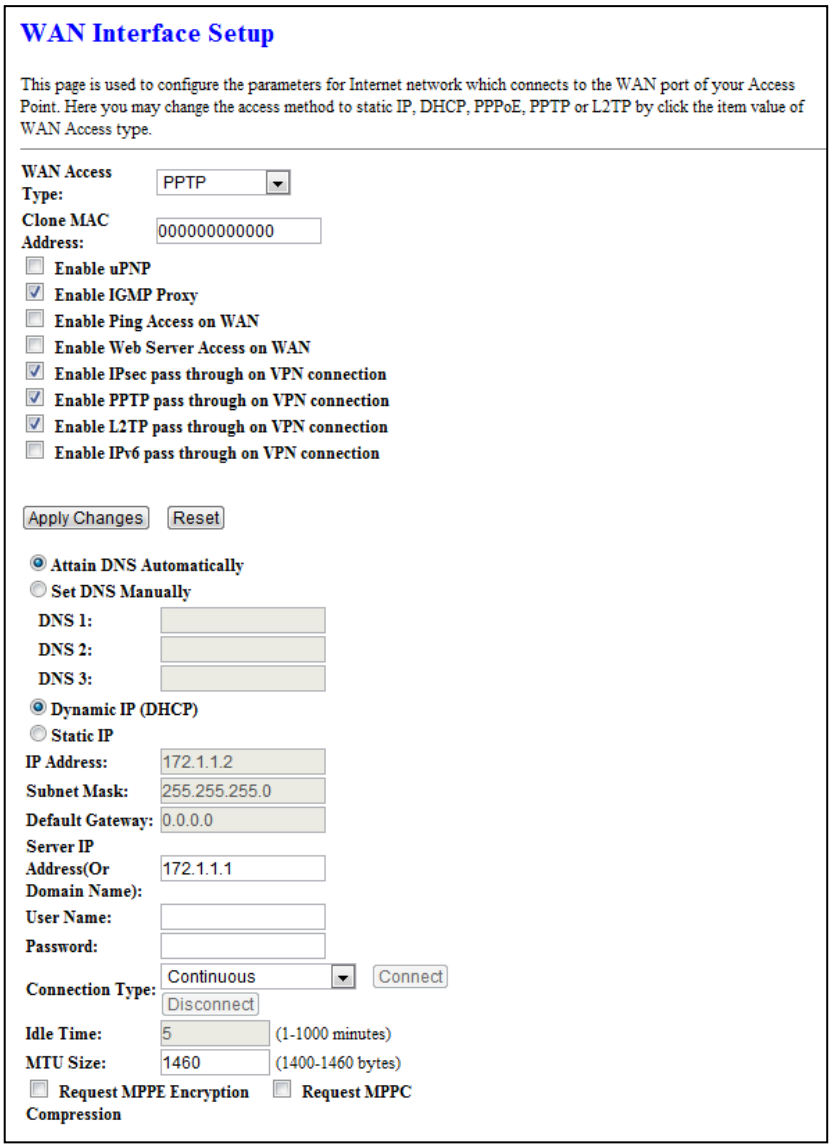


Figure 4-11 L2TP Settings

- **User Name/Password -** Enter the User Name and Password provided by your ISP. These fields are case-sensitive.
- **Dynamic IP/ Static IP -** Choose either as you are given by your ISP and enter the ISP's IP address or the domain name.

  If you choose static IP, enter the domain name and enter the DNS assigned by your ISP. Click the **Save** button.

  Click the **Connect** button to connect immediately. Click the **Disconnect** button to disconnect immediately.
- **Connection Type –**
  - **Connect on Demand -** You can configure the router to disconnect from your Internet connection after a specified period of inactivity (**Max Idle Time**). If your Internet

connection has been terminated due to inactivity, **Connect on Demand** enables the router to automatically re-establish your connection as soon as you attempt to access the Internet again. If you wish to activate **Connect on Demand**, check the radio button. If you want your Internet connection to remain active at all times, enter “0” in the **Max Idle Time** field. Otherwise, enter the number of minutes you want to have elapsed before your Internet connection terminates.

- **Continuous -** Connect automatically after the router is disconnected. To use this option, check the radio button.
- **Connect Manually -** You can configure the router to connect or disconnect manually. After a specified period of inactivity (**Max Idle Time**), the router will disconnect from your Internet connection. You will not be able to re-establish your connection automatically when attempting to access the Internet again. To use this option, click the radio button. If you want your Internet connection to remain active at all times, enter "0" in the **Max Idle Time** field. Otherwise, enter the number in minutes that you wish to have the Internet connecting last unless a new link is requested.

Caution: Sometimes the connection cannot be disconnected although you specify a time to **Max Idle Time** because some applications are visiting the Internet continually in the background.

MTU Size - The default MTU size is “1460” bytes. It is not recommended that you change the default **MTU Size** unless required by your ISP.

Click the **Save** button to save your settings.

5. If your ISP provides L2TP connection, please select **L2TP** option. Enter the following parameters (Figure 4-12):

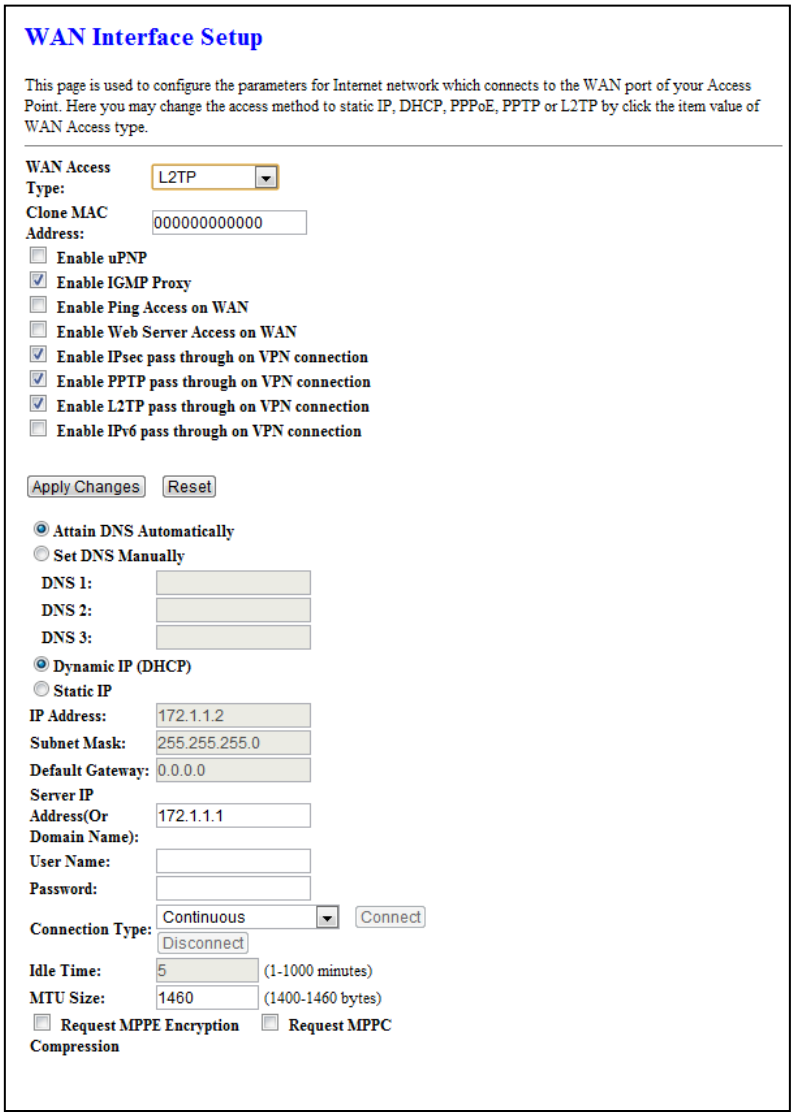


Figure 4-12 L2TP Settings

- **User Name/Password -** Enter the User Name and Password provided by your ISP. These fields are case-sensitive.
- **Dynamic IP/ Static IP -** Choose either as you are given by your ISP. Click the **Connect** button to connect immediately. Click the **Disconnect** button to disconnect immediately.
- **Connection Type –**
  - **Connect on Demand -** You can configure the router to disconnect from your Internet connection after a specified period of inactivity (**Max Idle Time**). If your Internet connection has been terminated due to inactivity, **Connect on Demand** enables the router to automatically re-establish your connection as soon as you attempt to access

the Internet again. If you wish to activate **Connect on Demand**, check the radio button. If you want your Internet connection to remain active at all times, enter 0 in the **Max Idle Time** field. Otherwise, enter the number of minutes you want to have elapsed before your Internet connection terminates.

- **Continuous -** Connect automatically after the router is disconnected. To use this option, check the radio button.
- **Connect Manually -** You can configure the router to connect or disconnect manually. After a specified period of inactivity (**Max Idle Time**), the router will disconnect from your Internet connection, and you will not be able to re-establish your connection automatically when attempting to access the Internet again. To use this option, check the radio button. If you want your Internet connection to remain active at all times, enter "0" in the **Max Idle Time** field. Otherwise, enter the number of minutes that you wish to have the Internet connecting last unless a new link is requested.

Caution: Sometimes the connection cannot be disconnected although you specify a time to **Max Idle Time**, because some applications are visiting the Internet continually in the background.

MTU Size - The default MTU size is “1460” bytes. It is not recommended that you change the default **MTU Size** unless required by your ISP.

Click the **Save** button to save your settings.

4.6 Wireless

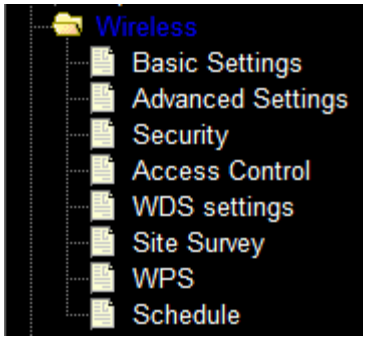


Figure 4-15 Wireless menu

There are eight submenus under the Wireless menu (shown in Figure 4-15): **Basic Settings**, **Advanced Settings**, **Security, Access Control, WDS Setting, Site Survey, WPS,** and **Schedule.** Click any of them, and you will be able to configure the corresponding function.

4.6.1 Basic Settings

Choose menu "**Wireless → Basic Settings**", you can configure the basic settings for the wireless network on this page.

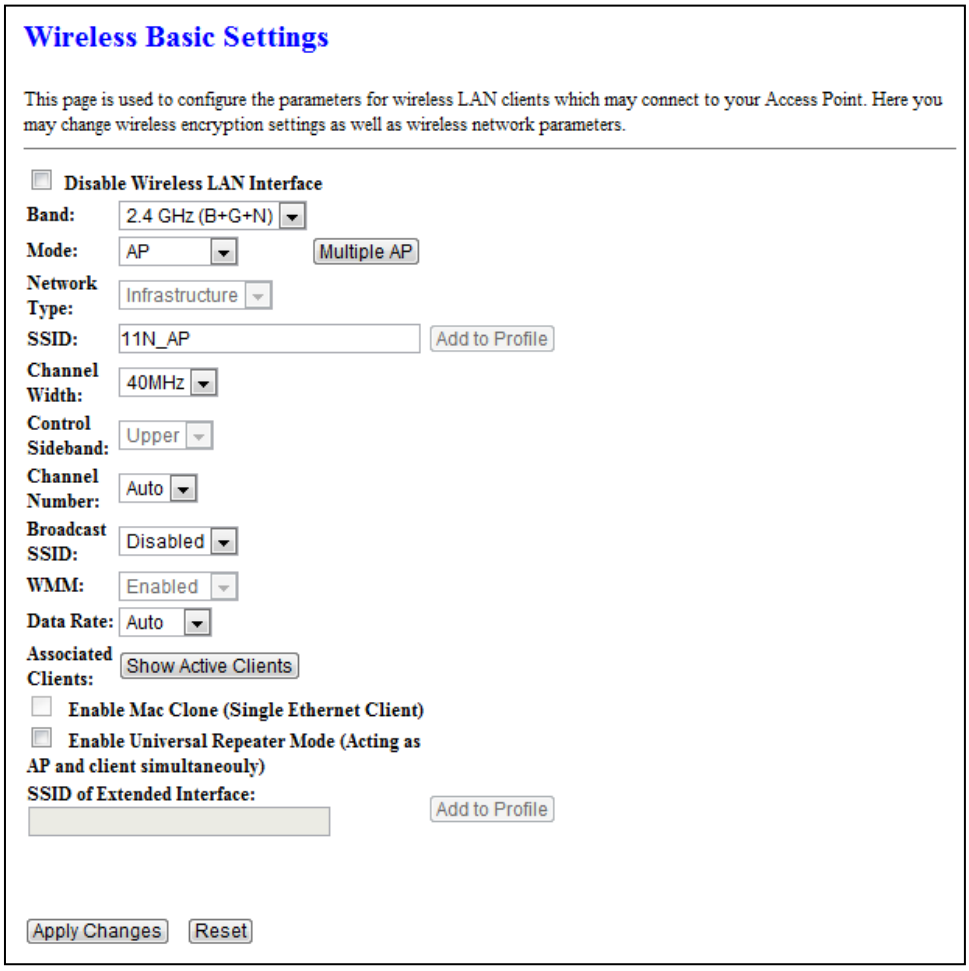


Figure 4-16 Wireless Settings

- **Band -** Select the desired protocol. The default setting is 2.4GHz (B+G+N).

  2.4GHz (B) - Select if all of your wireless clients are 802.11b.

  2.4GHZ (G) - Select if all of your wireless clients are 802.11g.

  2.4GHz (N) - Select if all of your wireless clients are 802.11n.

  2.4GHz (B+G) - Select if you are using both 802.11b and 802.11g wireless clients.

  2.4GHz (G+N) - Select if you are using both 802.11g and 802.11n wireless clients.

  2.4GHz (B+G+N) – Select if you are using a mix of 802.11b, 11g, and 11n wireless clients.

- **Mode -** Select the desired wireless mode. AIP-W512 offers AP, Client, WDS, and AP + WDS. When 802.11g mode is selected, only 802.11g wireless stations can connect to the router. When 802.11n mode is selected, only 802.11n wireless stations can connect to the AP. It is strongly recommended that you set the Mode to **2.4GHz (B+G+N)** and all of 802.11b, 802.11g, and 802.11n wireless stations can connect to the router.

- **Network Type -** After network mode is selected to "Client" set network type as infrastructure or Ad-Hoc.

- **SSID -** Enter a value of up to 32 characters. The same name of SSID (Service Set Identification) must be assigned to all wireless devices in your network. Considering your wireless network security.

- **Channel width -** Select the channel width from the pull-down list. The default setting is 40MHz.

  ☞ **Note:**

  If **2.4GHz (B)**, **2.4GHz (G)**, or **2.4GHz (B+G)** is selected in the **Mode** field, the **Channel Width** selecting field will disappear and the value will become 20M, which is unable to be changed.

- **Control Sideband –** Select the sideband with upper or lower for channel width 40MHz.

- **Channel Number-** This field determines which operating frequency will be used. The default channel is CH11. You can set to Auto where the AP will choose the best channel automatically, it is not necessary to change the wireless channel unless you notice interference problems with another nearby access point.

- **Broadcast SSID -** When wireless clients survey the local area for wireless networks to associate with, they will detect the SSID broadcast by the router. If you select **Enable** for **Broadcast SSID** then router will broadcast its name (SSID) on the air.

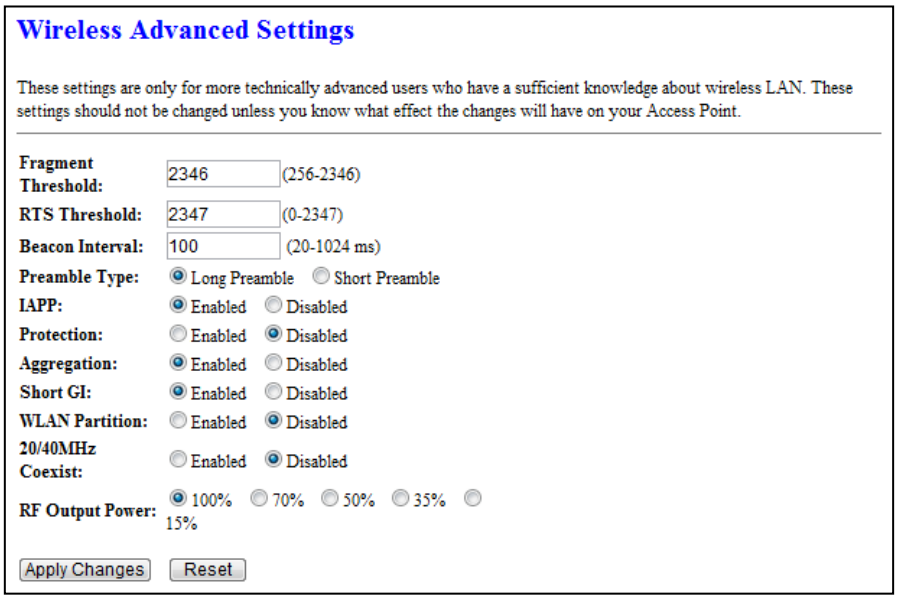
- **WMM –** Click on Enable or Disable Wireless Multimedia (WMM).

- **Data Rate -** Select transmission data rate from pull-down menu. Data rate can be auto select, 1M to 54Mbps or MCS. The default option is AUTO.

- **Associate Clients –** Click **Show Active Clients** button to open Active Wireless Client Table that shows the MAC address, transmit-packet, receive-packet and transmission-rate for each associated wireless client.
- **Enable Mac Clone (Single Ethernet Client) –** Copy your system's NIC MAC address as wireless client's MAC address, this function only works if **Client** mode is selected.
- **Enable Universal Repeater Mode –** Check to enable Universal Repeater Mode where router acts as AP and client simultaneously in this mode).
- **SSID for Extended Interface** – Assign a SSID when Universal Repeater Mode is enabled.

4.6.2 Advanced Settings

Choose menu "**Wireless → Security**", you can configure the security settings of your wireless network.



- **Fragmentation Threshold -** This value is the maximum size determining whether packets will be fragmented. Setting the Fragmentation Threshold too low may result in poor network performance due to excessive packets, 2346 is the recommended default setting.
- **RTS Threshold -** Here you can specify the RTS (Request to Send) Threshold. If the packet is larger than the specified RTS Threshold size, the router will send RTS frames to a particular receiving station and negotiate the sending of a data frame. The default value is 2346.
- **Beacon Interval -** Enter a value between 20-1000 milliseconds for the Beacon Interval. The beacons are the packets sent by the router to synchronize a wireless network. Beacon Interval value determines the time interval of the beacons. The default value is 100.

4.6.3 Security

Choose menu "**Wireless → Security**", you can configure the security settings of your wireless network.

There are four wireless security modes supported by the router: WEP (Wired Equivalent Privacy), WPA (Wi-Fi Protected Access), WPA2 (Wi-Fi Protected Access 2), WPA-Mixed (Pre-Shared Key or Enterprise).

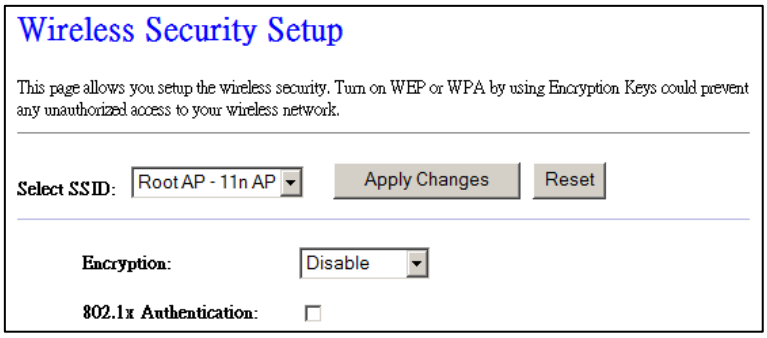


Figure 4-18 Wireless Security

- **Disable -** If you do not want to use wireless security, check this radio button. It's strongly recommended to choose one of the following modes to enable security.
- **WEP -** It is based on the IEEE 802.11 standard. If you check this radio button, you will find a notice in red as shown in Figure 4-19.

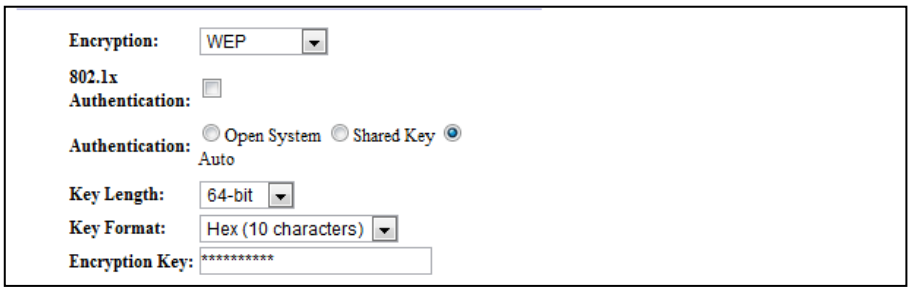


Figure 4-19

- **802.1x Authentication –** Check to enable 802.1x authentication via RADIUS server.
- **Authentication -** You can choose the type for the WEP security on the pull-down list. The default setting is **Auto**, which can select **Shared Key** or **Open System** authentication type automatically based on the wireless station's capability and request.
- **Key Length -** You can select the WEP key length (64-bit, or 128-bit) for encryption.

  64-bit - You can enter 10 hexadecimal digits (any combination of 0-9, a-f, A-F, zero key is not recommended) or 5 ASCII characters.

  128-bit - You can enter 26 hexadecimal digits (any combination of 0-9, a-f, A-F, zero key is not recommended) or 13 ASCII characters.

  Note:

  If you do not set the key, the wireless security function will still be disabled even if you have selected Shared Key as Authentication Type.

- **Key Format - Hexadecimal** and **ASCII** formats are provided here. **Hexadecimal** format stands for any combination of hexadecimal digits (0-9, a-f, A-F) in the specified length. **ASCII** format stands for any combination of keyboard characters in the specified length.
- **Encryption Key -** Select which of the four keys will be used and enter the matching WEP key you have created. Make sure these values are identical on all the wireless stations in your network.
- **Radius Server IP Address -** Enter the IP address of the Radius server, if **802.1x Authentication** is selected.
- **Radius Server Port -** Enter the port number of the Radius server, if **802.1x Authentication** is selected.
- **Radius Server Password -** Enter the password for the Radius server, if **802.1x Authentication** is selected.

Be sure to click the **Apply Changes** button to save your settings on this page

➢ **WPA -** It's the WPA authentication type based on pre-shared passphrase or RADIUS server.

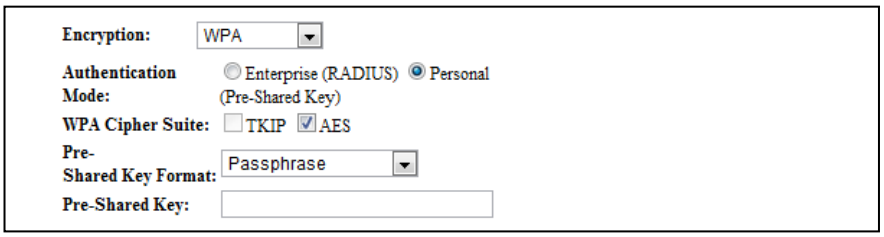


Figure 4-20

- **Authentication Mode -** You can choose either **Enterprise (RADIUS)** or **Personal (Pre-Shared Key)**. The default setting is **Personal (Pre-Share Key)**, it's a passphrase between 8 and 63 characters. **Enterprise (RADIUS),** is an authentication via RADIUS server.
- **WPA Cipher Suite -** When **WPA** is set as the Authentication Type, you can select **TKIP** or **AES** or AUTO if both encryptions are checked.
- **Pre-Shared Key Format -** You can enter chose either **Passphrase** (8 ~ 63 characters) or **HEX(64 Characters)**.
- **Pre-Shared Key -** Enter the matching WEP key you created. Make sure these values are identical on all the wireless stations in your network.
- **Radius Server IP Address -** Enter the IP address of the Radius server, if **Enterprise (RADIUS)** is selected.
- **Radius Server Port -** Enter the port number of the Radius server, if **Enterprise (RADIUS)** is selected.

- **Radius Server Password -** Enter the password for the Radius server, if **Enterprise (RADIUS)** is selected.

Be sure to click the **Apply Changes** button to save your settings on this page.

➢ **WPA2 -** Authentication type based on pre-shared passphrase or RADIUS server.

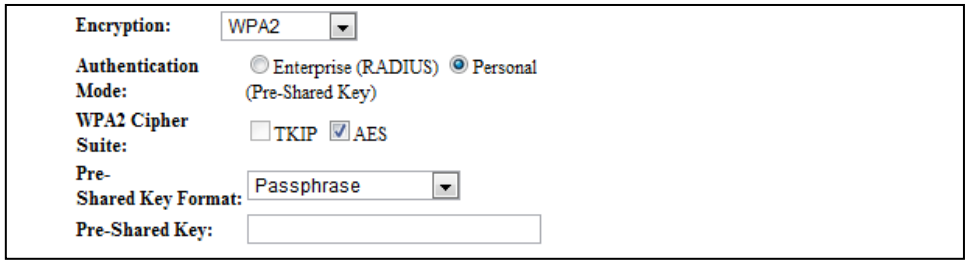


Figure 4-21

- **Authentication Mode -** You can choose either **Enterprise (RADIUS)** or **Personal (Pre-Shared Key)**. The default setting is **Personal (Pre-Share Key)**, it's a passphrase between 8 and 63 characters. **Enterprise (RADIUS),** is an authentication via RADIUS server.
- **WPA2 Cipher Suite -** When **WPA2** is set as the Authentication Type, you can select **TKIP** or **AES** or AUTO if both encryption is checked..
- **Pre-Shared Key Format -** You can enter either **Passphrase** (8 ~ 63 characters) or **HEX (64 Characters)**.
- **Pre-Shared Key -** Enter the matching WEP key that you've create. Make sure these values are identical on all the wireless stations in your network.
- **Radius Server IP Address -** Enter the IP address of the Radius server, if **Enterprise (RADIUS)** is selected.
- **Radius Server Port -** Enter the port number of the Radius server, if **Enterprise (RADIUS)** is selected.
- **Radius Server Password -** Enter the password for the Radius server, if **Enterprise (RADIUS)** is selected.

Be sure to click the **Apply Changes** button to save your settings on this page.

➢ **WPA-Mixed -** Authentication type based on pre-shared passphrase or RADIUS server.

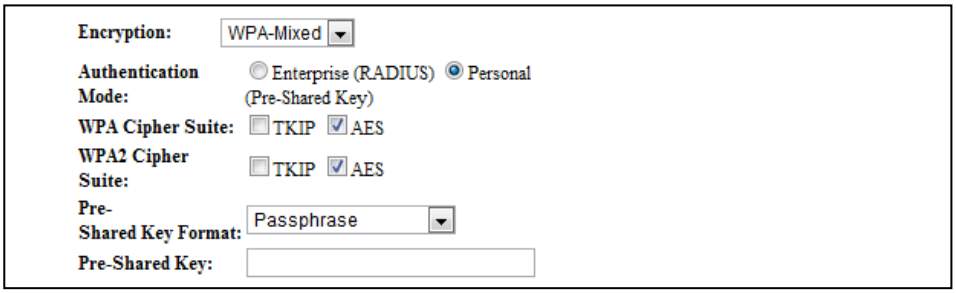


Figure 4-22

- **Authentication Mode -** You can choose either **Enterprise (RADIUS)** or **Personal (Pre-Shared Key)**. The default setting is **Personal (Pre-Share Key)**, it is a passphrase between 8 and 63 characters. **Enterprise (RADIUS)** is an authentication via RADIUS server.
- **WPA Cipher Suite -** When **WPA** is set as the Authentication Type, you can select either **TKIP** or **AES** as Encryption.
- **WPA2 Cipher Suite -** When **WPA2** is set as the Authentication Type, you can select either **TKIP** or **AES** as Encryption.
- **Pre-Shared Key Format -** You can enter either **Passphrase** (8 ~ 63 characters) or **HEX (64 Characters)**.
- **Pre-Shared Key -** Enter the matching WEP key that you have create. Make sure these values are identical on all the wireless stations in your network.
- **Radius Server IP Address -** Enter the IP address of the Radius server, if **Enterprise (RADIUS)** is selected.
- **Radius Server Port -** Enter the port number of the Radius server, if **Enterprise (RADIUS)** is selected.
- **Radius Server Password -** Enter the password for the Radius server, if **Enterprise (RADIUS)** is selected.

Be sure to click the **Apply Changes** button to save your settings on this page.

4.6.4 Access Control

Choose menu "**Wireless → Access Control**", you can control the wireless access by configuring the **Wireless Access Control** function, shown in Figure 4-23.

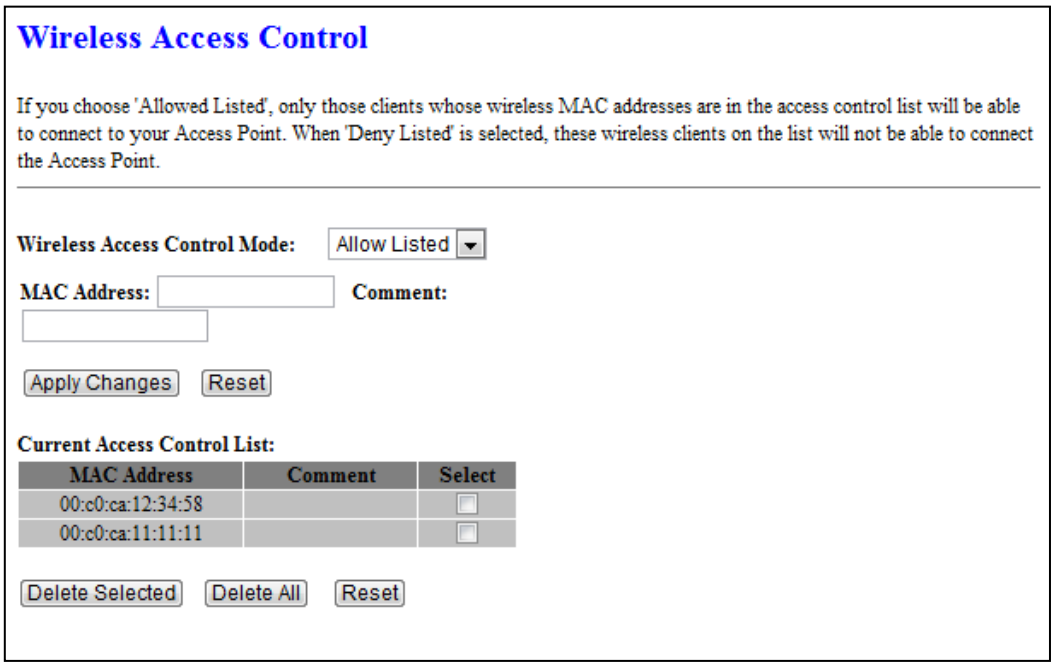


Figure 4-23 Wireless Access Control

To allow wireless users by MAC Address, click **Allow Listed,** or prohibited wireless users by MAC Address by click **Deny Listed**. The default setting is **Disable**.

- **MAC Address -** The wireless station's MAC address that you want to filter.
- **Comment -** A simple description of the wireless station.

  Be sure to click the **Apply Changes** button to save your settings on this page
- **Current Access Control List -** Displays the registered clients that are allowed to link to this WLAN Broadband router.

4.6.5 WDS Settings

Choose menu "**Wireless → WDS Settings**", you can configure the advanced settings of your wireless network.

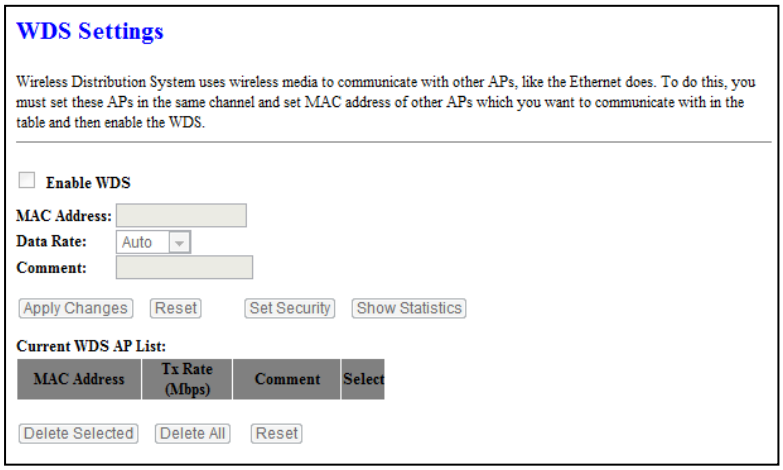
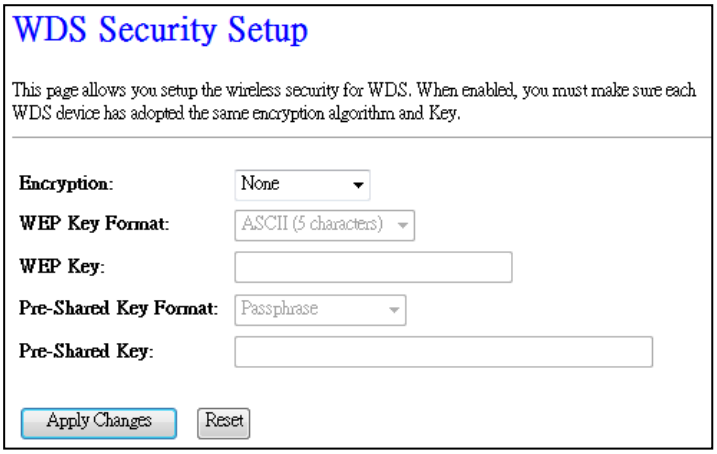


Figure 4-24 Wireless Advanced

To add wireless AP by MAC Address, click **Enable WDS**.

- **MAC Address -** The wireless station's MAC address that you want to add.
- **Data Rate -** Select transmission data rate from the drop down menu. Data rate can be auto-selected, 1Mbps to 54Mbps or MCS.
- **Set Security** - There are two wireless security modes supported by the WDS: WEP (Wired Equivalent Privacy), and WPA2 (Wi-Fi Protected Access 2).



- Encryption – Use drop down menu to configure WDS security, you can select it from **None**, **WEP 64-bits**, **WEP 128-bits**, or **WPA2 (AES)**.
- **WEP Key Format** – **Hexadecimal** and **ASCII** formats are provided here. **Hexadecimal** format stands for any combination of hexadecimal digits (0-9, a-f, A-F) in the specified length. **ASCII** format stands for any combination of keyboard characters in the specified length. **64-bit -** You can enter 10 hexadecimal digits (any combination of 0-9, a-f, A-F, zero key is not promoted) or 5 ASCII characters. **128-bit -** You can enter 26 hexadecimal digits (any combination of 0-9, a-f, A-F, zero key is not promoted) or 13 ASCII characters.

- **Encryption Key -** Select which of the four keys will be used and enter the matching WEP key that you create. Make sure these values are identical on all wireless stations in your WDS network
- **Pre-Shared Key Format -** You can enter chose either **Passphrase** (8 ~ 63 characters) or **HEX(64 Characters)**.
- **Pre-Shared Key -** Enter the matching WEP key that you create. Make sure these values are identical on all wireless stations in your WDS network

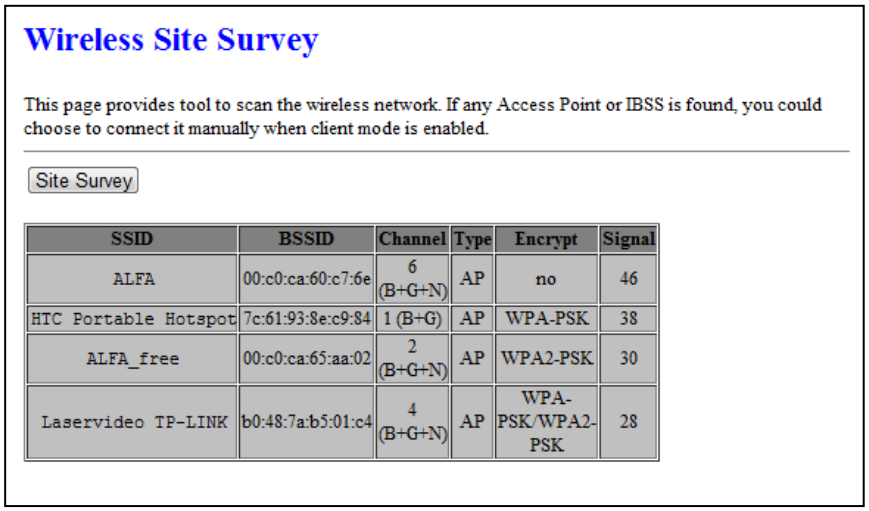
Comment - A simple description of the wireless station.

Be sure to click the **Apply Changes** button to save your settings on this page

Current WDS AP List - Displays the registered APs that are allowed to link to this WLAN Broadband router.

4.6.6 Site Survey

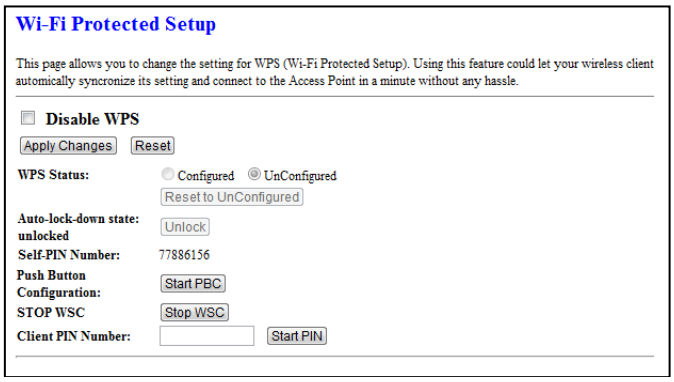
Choose menu "**Wireless → Site Survey**", you scan and connect nearby APs when operate at client mode.



- **SSID(to be WDS)** - The SSID of the AP your router is going to connect to as a client. You can also use the search function to select the SSID to join.
- **BSSID(to be WDS)** - The BSSID of the AP your router is going to connect to as a client. You can also use the search function to select the BSSID to join.
- **Channel -** This field displayed operating frequency of the AP your router is going to connect to as a client.
- **Type –** Type of the AP your router is going to connect to as a client, AP or AD-HOC.
- **Encryption –** Shows encryption type of the AP your router is going to connect to as a client.
- **Signal –** Shows the signal strength of the AP your router is going to connect to as a client.

4.6.7 WPS

Choose menu "**Wireless → WPS**", where you to add a new wireless device to an existing network quickly.



- **Self-PIN Number -** The current value of the router's PIN is displayed here.
- **PIN Configuration -** You will need to enter **Self-PIN Number** into adapter's configuration utility or on the adapter itself. Press the **Start PIN** button on the router and on the adapter.

  Note: You will have two minutes to push the PIN button on the router and device(s) you want to connect.
- **Push Button Configuration -** You will need an adapter that supports it via a utility or on the adapter itself. Press the **Start PBC** button on the router and on the adapter.

  Note: You will have two minutes to push the PIN button on the router and device(s) you want to connect.

4.6.8 Schedule

Choose menu "**Wireless → Schedule**", time period allowed for the PC controlled to access the Internet.

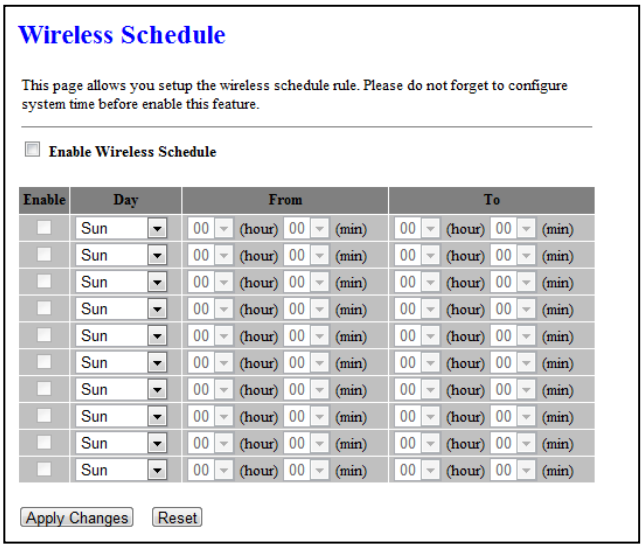


Figure 4-25 Schedule

4.7 Firewall

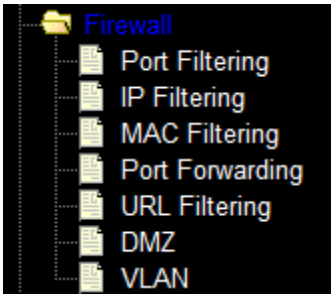


Figure 4-26 The Firewall menu

There are seven submenus under the Firewall menu (shown in Figure 4-26), **Port Filtering, IP Filtering, MAC Filtering, Port Forwarding, URL Filtering, DMZ, and VLAN.** Click any of them, and you will be able to configure the corresponding function.

4.7.1 Port Filtering

Choose menu "**Firewall → Port Filtering**", you can control the wireless access by configuring the **Port Filtering** function as shown in Figure 4-27.

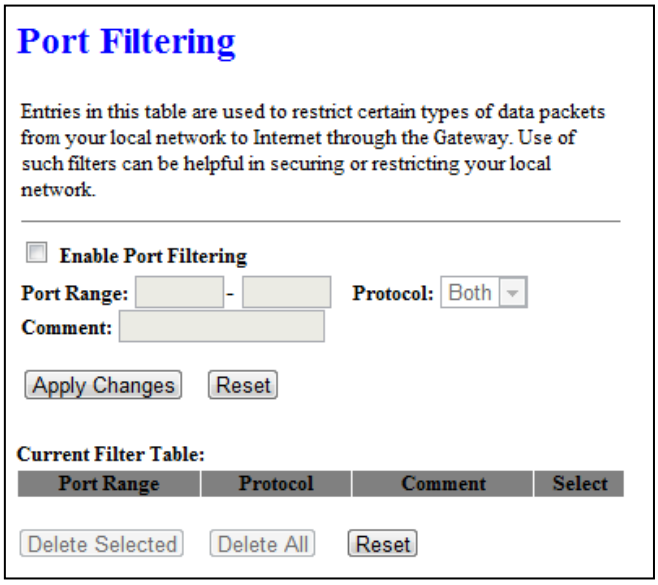


Figure 4-27 Port Filtering

- **Enable Port Filtering –** Check to **Enable** port filtering feature.
- **Port Range / Protocol / Comment -** Specify the port range from start-port to end-port and put your comment to remind you why you have restriction on these ports. You can restricted TCP, UDP, or both protocol.

Be sure to click the **Apply Changes** button to save your settings on this page

4.7.2 IP Filtering

Choose menu "**Firewall → IP Filtering**", you can control the wireless access by configuring the **IP Filtering** function as shown in Figure 4-28.

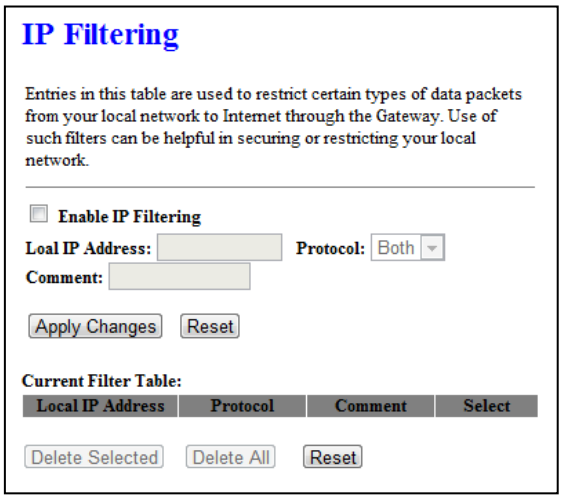


Figure 4-28 IP Filtering

- **Enable IP Filtering –** Check to **Enable** IP filtering feature.
- **Local IP Address / Protocol / Comment -** Specify the local IP address that you wish to put restriction and mark your comment to remind you why you have restriction on this IP address. You can restrict the traffic from TCP, UDP, or both protocol.

Be sure to click the **Apply Changes** button to save your settings on this page

4.7.3 MAC Filtering

Choose menu "**Firewall → MAC Filtering**", you can control the wireless access by configuring the **MAC Filtering** function as shown in Figure 4-29.

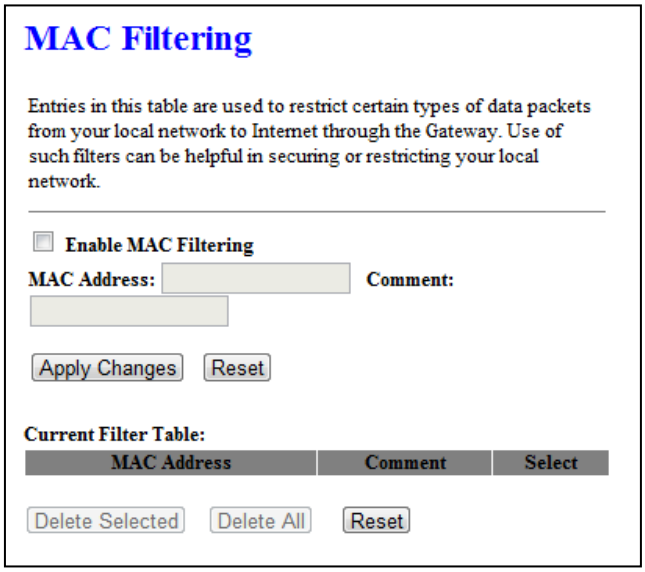


Figure 4-29 MAC Filtering

- **Enable MAC Filtering –** Check to **Enable** MAC filtering feature.
- **MAC Address -** The wireless station's MAC address that you want to filter.

Be sure to click the **Apply Changes** button to save your settings on this page.

4.7.4 Port Forwarding

Choose menu "**Firewall → Port Forwarding**", you can redirect the network traffic by configuring the **Port Forwarding** function as shown in Figure 4-30.

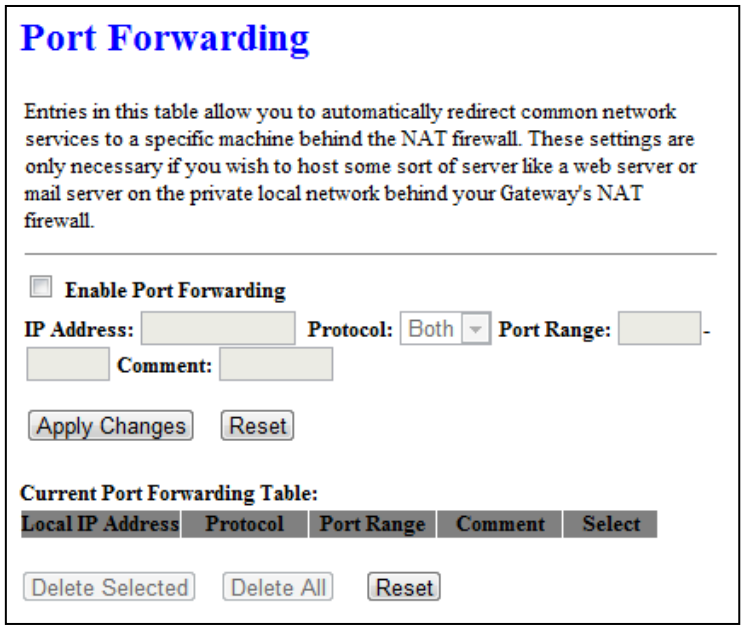


Figure 4-30 Port Forwarding

- **Enable Port Forwarding –** Check to **Enable** port forwarding feature.
- **IP Address –** Forward data packets to specific IP address in your local area network.
- **Protocol -** The protocol used for forwarding data packets, either **TCP** or **UDP**, or **BOTH**
- **Port Range -** The port range used by the remote system when it responds to the forwarding request. A response using one of these ports will be forwarded to the PC that triggered this rule.

Be sure to click the **Apply Changes** button to save your settings on this page.

4.7.5 URL Filtering

Choose menu "**Firewall → URL Filtering**", you can restrict user to access specific web page by configuring the **URL Filtering** function as shown in Figure 4-31.

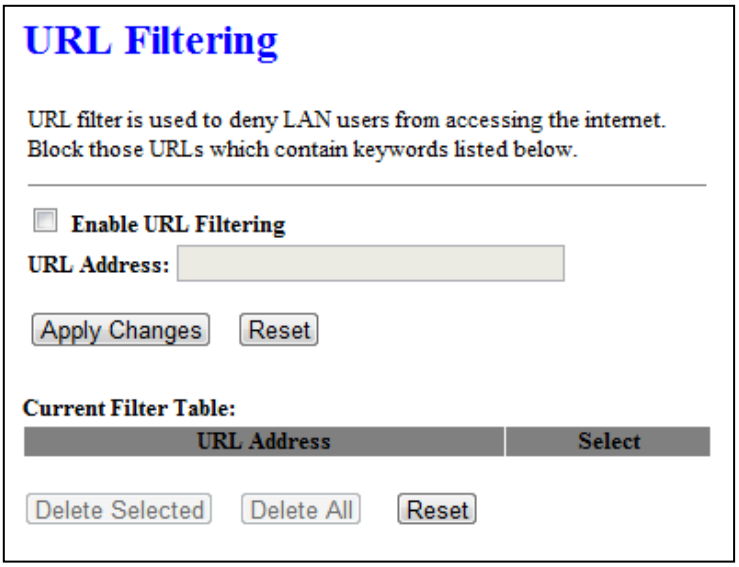


Figure 4-31 URL Filtering

- **Enable URL Filtering –** Check to **Enable** URL filtering feature.
- **URL Address -** The address that you want to restrict user to access.

Be sure to click the **Apply Changes** button to save your settings on this page.

4.7.6 DMZ

Choose menu "**Firewall → DMZ**", you can view and configure DMZ host in the screen as shown in Figure 4-32. The DMZ host feature allows one local host to be exposed to the Internet for a special-purpose service such as Internet gaming or videoconferencing. DMZ host forwards all the ports at the same time. Any PC whose port is being forwarded must have its DHCP client function disabled and should have a new static IP Address assigned to it because its IP Address may be changed when using the DHCP function.

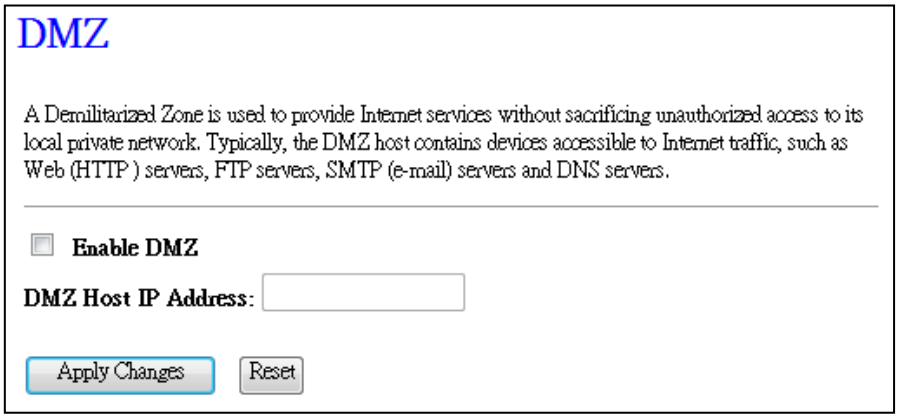


Figure 4-32 DMZ

To assign a computer or server to be a DMZ server:

1. Check the **Enable DMZ** checkbox.
2. Enter the IP Address of a local host in the **DMZ Host IP Address** field.
3. Click the **Apply Changes** button.

Note: After you set the DMZ host, the firewall related to the host will not work.

4.7.7 VLAN

Choose menu "**Firewall → VLAN**", if you want to configure the Guest and Internal networks on VLAN, the switch you are using must support VLAN. As a prerequisite step, configure a port on the switch for handling VLAN tagged packets as described in the IEEE802.1Q standard, and enable this field as shown in Figure 4-33.

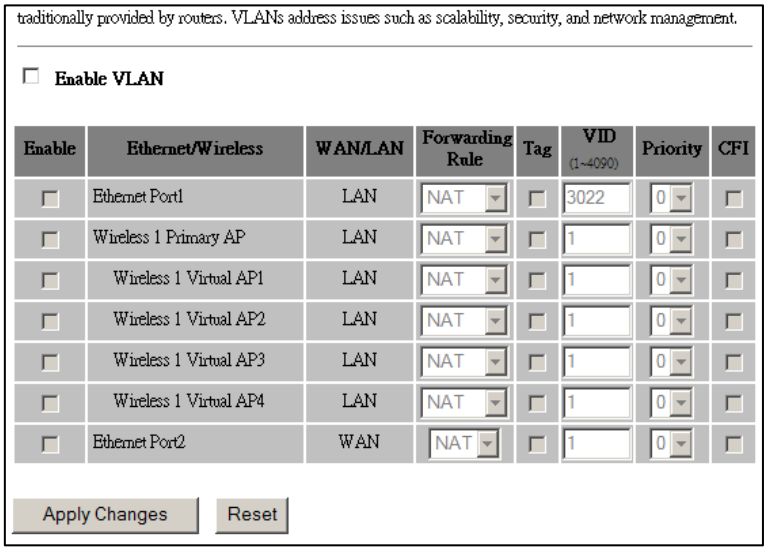


Figure 4-33 VLAN

- Be sure to click the **Apply Changes** button to save your settings on this page.

4.8 QoS

QoS in AIP-W512 provides uploading/downloading bandwidth management feature to control the packet flow through the router in order to allocate a specific amount of bandwidth for a computer (IP) or a particular application (Port)

☞ **Note:** Please refer to actual network scenario carefully before setting up the QoS parameters, improper bandwidth assignment may cause QoS to work in-effectively.

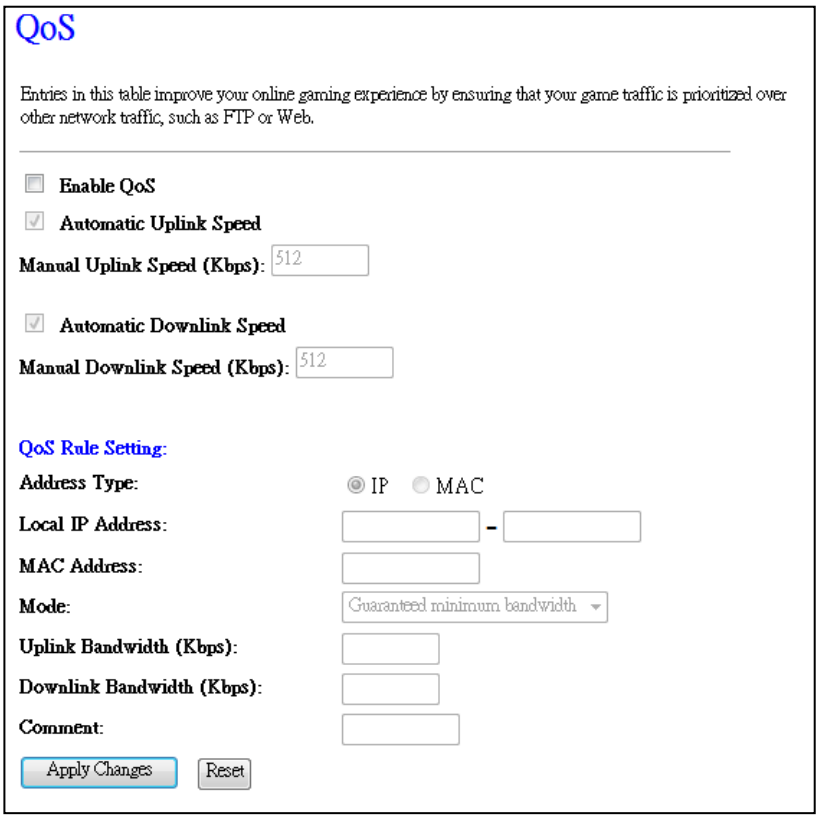


Figure 4-34 The QoS menu

4.9 Route Setup

AIP-W512 supports static and dynamic routing protocol. routing table is often used in multi-segment network; for a single network segment or daily Internet access, it is not necessary to change routing parameters in this page.

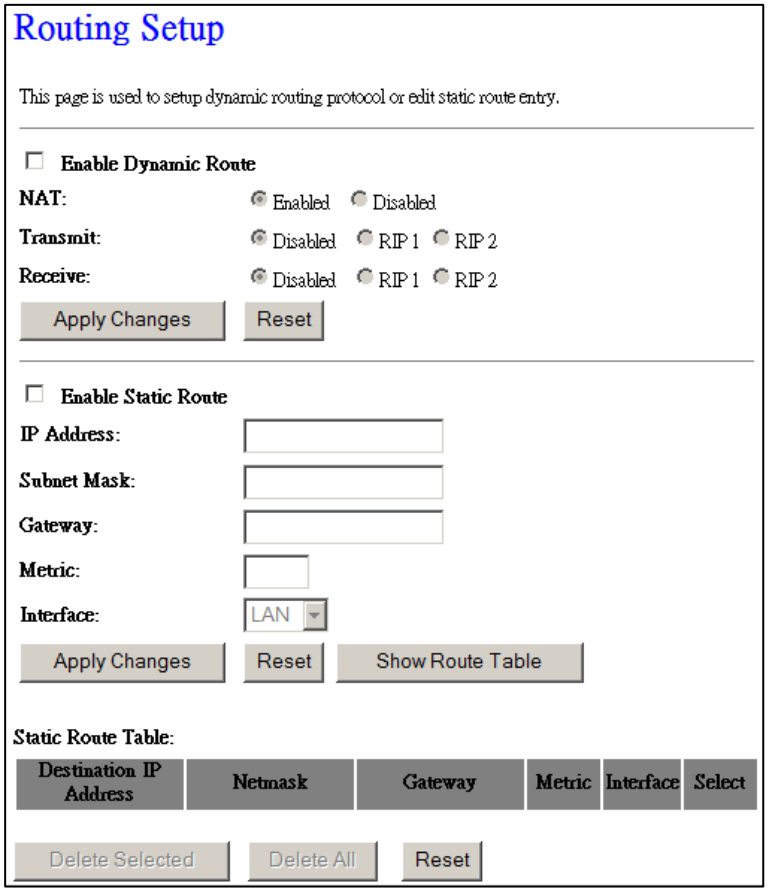
☞ **Note:** Routing features in AIP-W512 are dynamic routing (RIPv1, and RIPv2) and static routing.

Dynamic Route

If dynamic routing is enabled, router will cache and learn network routes via routing protocols, allowing automation of routing info exchanges. The router utilizes the RIP (Routing Information Protocol) protocol, to determine the network traffic route based on the fewest number of hops between the source and the destination. This is useful when there are physical changes in the network layout (in this scenario, all the routers in this network should have RIP support).

Static Route

A static route is a pre-determined pathway that network information must travel to reach a specific host or network. (For example: Destination Network IP: 192.168.12.1, Subnet Mask: 255.255.255.0, Gateway IP: 192.168.11.1)



4.10 Management

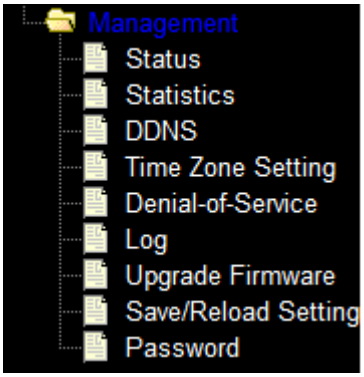


Figure 4-35 The Management menu

There are nine submenus under the Management menu as shown in Figure 4-35: **Status**, **Statists**, **DDNS, Time Zone Setting, Denial-of-Service, Log, Upgrade Firmware, Save/Reload Setting,** and **Password.** Click any of them, and you will be able to configure the corresponding function.

4.10.1 Status

Choose menu "**Management → Status**", display the current status of AIP-W512 as shown in Figure 4-39.

System	
Uptime	0day:2h:0m:49s
Firmware Version	v3.2.2.2.2
Build Time	Mon Jun 10 04:32:25 EDT 2013
Wireless Configuration	
Mode	AP
Band	2.4 GHz (B+G+N)
SSID	AIP-W512
Channel Number	11
Encryption	Disabled
BSSID	00:c0:ca:6f:9c:48
Associated Clients	2
TCP/IP Configuration	
Attain IP Protocol	Fixed IP
IP Address	192.168.11.1
Subnet Mask	255.255.255.0
Default Gateway	192.168.11.1
DHCP Server	Enabled
MAC Address	00:c0:ca:6f:9c:46
WAN Configuration	
Attain IP Protocol	Getting IP from DHCP server...
IP Address	0.0.0.0
Subnet Mask	0.0.0.0
Default Gateway	0.0.0.0
MAC Address	00:c0:ca:6f:9c:47

Figure 4-35 Status

4.10.2 Statistics

Choose menu "**Management → Statistics**", you can view the network traffic on the router as shown in Figure 4-36.

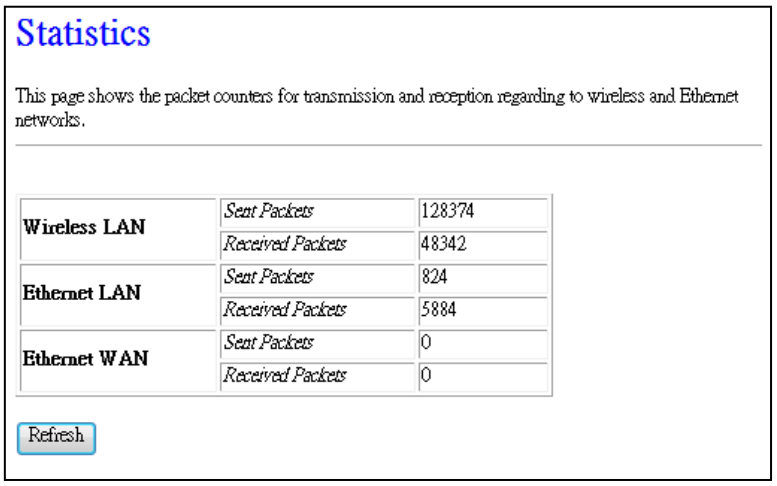


Figure 4-36 Network activity statistics

4.10.3 DDNS

Choose menu "**Management -> DDNS**", you can configure the Dynamic DNS function.

The router offers the **DDNS** (Dynamic Domain Name System) feature, which allows the hosting of a website, FTP server, or e-mail server with a fixed domain name (named by yourself) and a dynamic IP address, and then your friends can connect to your server by entering your domain name no matter what your IP address is. Before using this feature, you need to sign up for DDNS service providers such as www.dyndns.org, or TZO. The Dynamic DNS client service provider will give you a password or key.

If the dynamic DNS **Service Provider** your select is www.dyndns.org, the page will appear as shown in Figure 4-41.

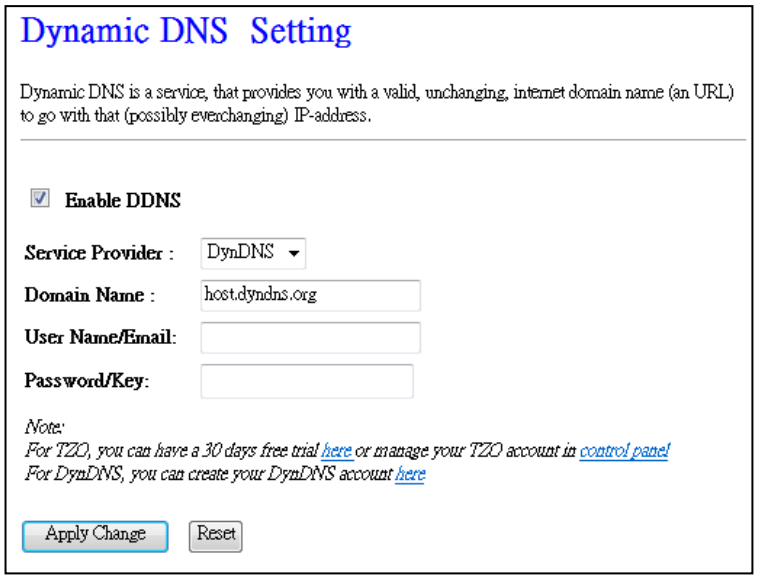


Figure 4-41 Dyndns.org DDNS Settings

To set up for DDNS, follow these instructions:

1. Type the **User Name** for your DDNS account.
2. Type the **Password** for your DDNS account.
3. Type the **Domain Name** you received from dynamic DNS service provider here.
4. Click the **Apply Change** button to log in to the DDNS service.

4.10.4 Time Zone Setting

Choose menu "**Management → Time Zone Settings**", you can configure the time on the following screen.

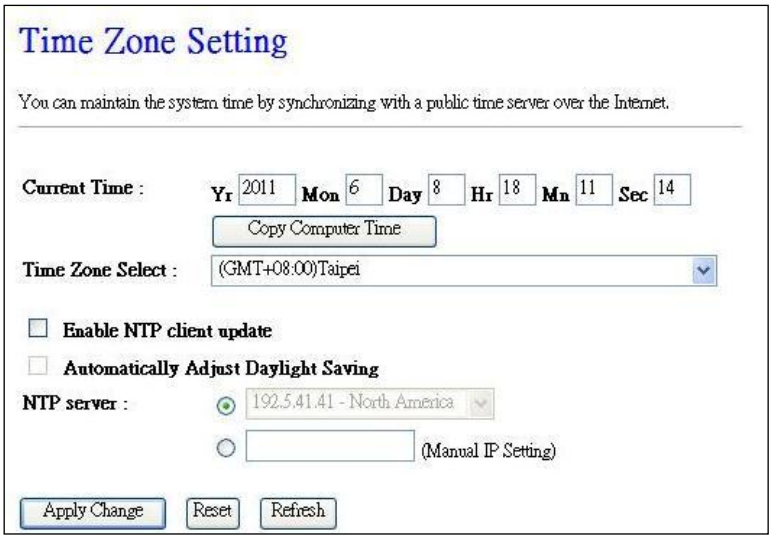


Figure 4-42 Time zone settings

- **Current Time –** Type in the current time into the blanks or click "Copy Computer Time" to get the current time from computer.
- **Time Zone Select –** select the time zone.
- **Enable NTP client update –** click to enable the NTP client update.

☞ **Note:**

1. This setting will be used for some time-based functions such as firewall. You must specify your time zone once you log in to the AIP-W512 successfully, otherwise, these functions will not take effect.
2. The time will be lost if the AIP-W512 is turned off.
3. The AIP-W512 will obtain GMT automatically from Internet if it has already connected to Internet.

4.10.5 Denial-of-Service (DoS)

DoS Protection will take effect only when the **Enable DoS Preventation** in "**Management → DoS**" is enabled as shown in Figure 4-43.

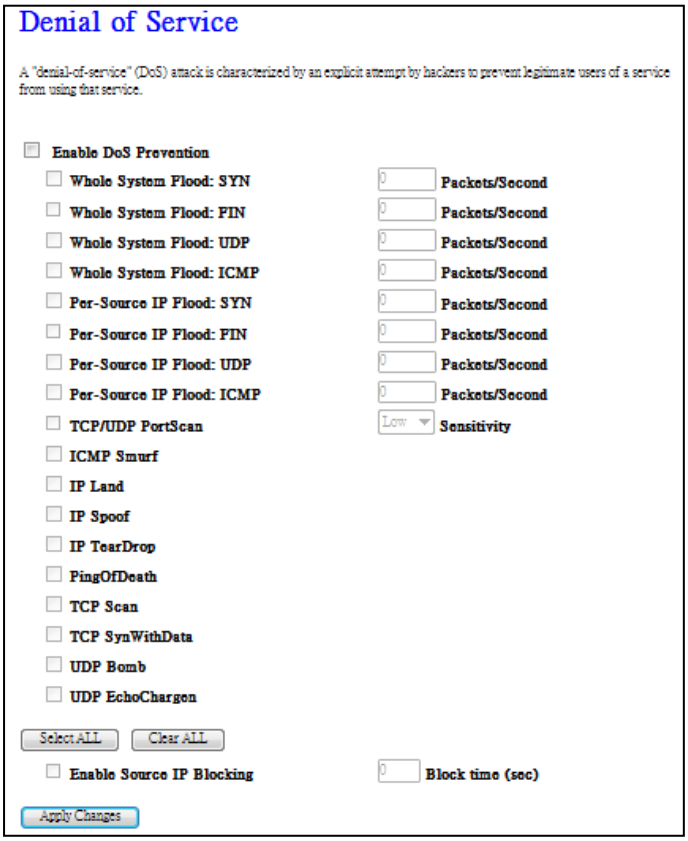


Figure 4-43 DoS

Denial of Service protection. Check the Enable or Disable button to enable or disable the DoS protection function. Only when it is enabled, will the flood filters be enabled.

4.10.6 Log

Choose menu "**Management →Log**", you can view the logs of the AIP-W512.

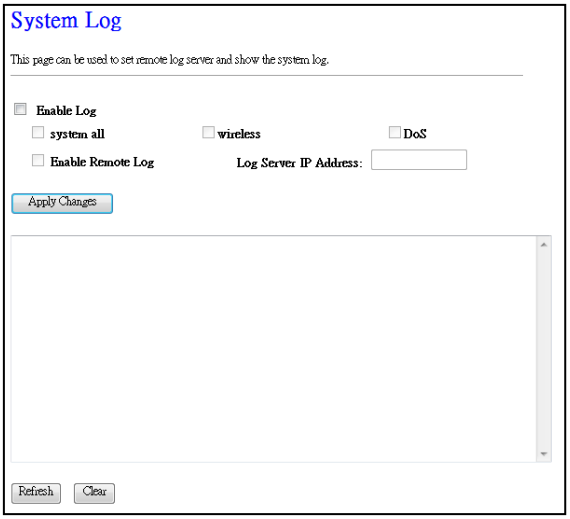


Figure 4-44 System Log

- **System all –** Display all the log file on the router .
- **Wireless –** Display just the wireless log on the router.
- **DoS –** Display just Denial-of-Service log on the router.
- **Enable Remote Log -** Click to enable remote log service.
- **Log Server IP Address –** Please enter the IP address to store your log file when **Enable Remote Log** is enabled.

4.10.7 Upgrade Firmware

Choose menu "**Management → Upgrade Firmware**", you can update the latest version of firmware for the router on the following screen.

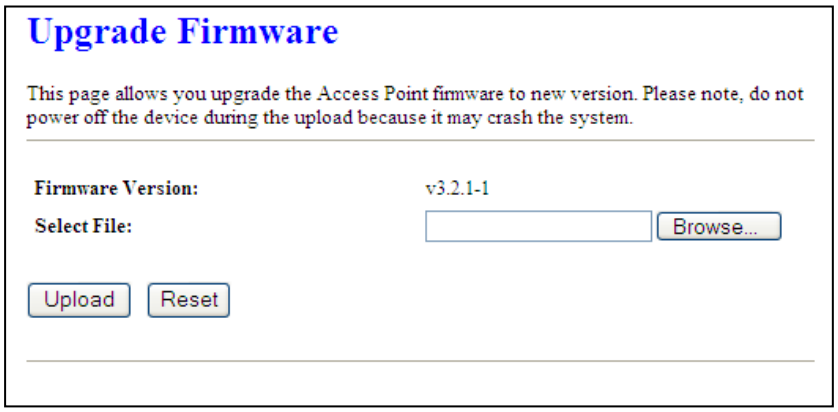


Figure 4-45 Firmware Upgrade

- **Firmware Version -** This displays the current firmware version.

To upgrade the router's firmware, follow these instructions below:

1. Download a more recent firmware upgrade file from our website.
2. Type the path and file name of the update file into the **File** field. Or click the **Browse** button to locate the update file.
3. Click the **Upgrade** button.

Note:

1. New firmware versions are posted at our website and can be downloaded for free. There is no need to upgrade the firmware unless the new firmware has a new feature you want to use. However, when experiencing problems caused by the router rather than the configuration, you can try to upgrade the firmware.
2. When you upgrade the router's firmware, you may lose its current configurations, so before upgrading the firmware please write down some of your customized settings to avoid losing important settings.
3. Do not turn off the router or press the Reset button while the firmware is being upgraded, otherwise, the router may be damaged.
4. The router will reboot after the upgrading has been finished.

4.10.8 Save/Reload Setting

Choose menu "**Management → Save/Reload Setting**", you can save the current configuration of the router as a backup file and restore the configuration via a backup file as shown in Figure 4-46.

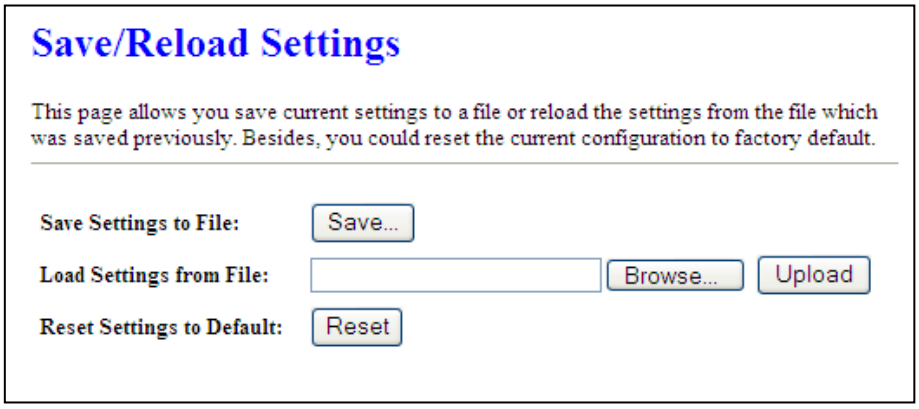


Figure 4-46 Backup & Restore Configuration

- Click the **Save** button to save all configuration settings as a backup file in your local computer.
- To upgrade the router's configuration, follow these instructions.
  - Click the **Browse…** button to locate the update file for the router, or enter the exact path to the Setting file in the text box.
  - Click the **Upload** button.
- Click the **Reset** button restore the configurations of the router to factory defaults.

4.10.9 Password

Choose menu "**Management → Password**", you can change the factory default user name and password of the router in the next screen as shown in Figure 4-47.

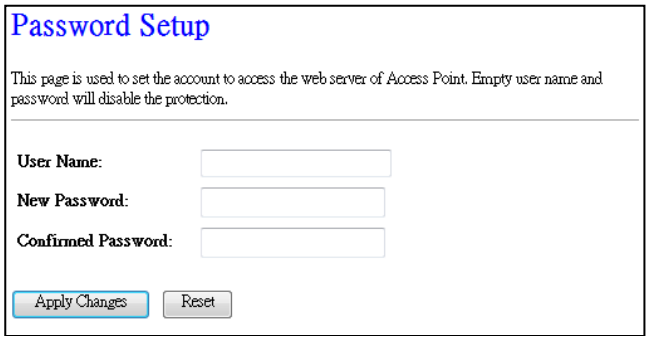


Figure 4-47 Password

It is strongly recommended that you should change the factory default user name and password of the router, because all users who try to access the router's Web-based utility or Quick Setup will be prompted for the router's default user name and password.

Click the **Apply Change** button when finished.

Click the **Reset** button to clear all.

Appendix A: FAQ

1. How do I configure the router to access the Internet by ADSL users?

1) First, configure the ADSL Modem configured in RFC1483 bridge model.

2) Connect the Ethernet cable from your ADSL Modem to the WAN port on the router. The telephone cord plugs into the Line port of the ADSL Modem.

3) Log in to the router, click the “**Network**” menu on the left of your browser, and click "**WAN**" submenu. On the **WAN** page, select “PPPoE” for WAN Connection Type. Type user name in the “User Name” field and password in the “Password” field, finish by clicking **Connect**.

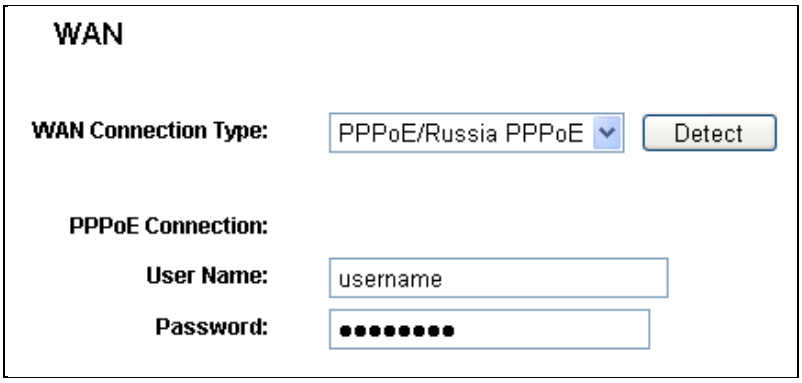


Figure A-1 PPPoE Connection Type

2. How do I configure the router to access the Internet by Ethernet users?

1) Log in to the router, click the “**TCP/CP Settings**” menu on the left of your browser, and click "**WAN**" submenu. On the **WAN** page, select “DHCP Client” for "WAN Connection Type", finish by clicking **Save**.

3. The wireless stations cannot connect to the router.

1) Make sure the "**Enable Wireless router Radio**" is checked.

2) Make sure that the wireless stations' SSID accord with the router's SSID.

3) Make sure the wireless stations have right KEY for encryption when the router is encrypted.

4) If the wireless connection is ready, but you can’t access the router, check the IP Address of your wireless stations.

Appendix B: Configuring the PC

In this section, we'll introduce how to install and configure the TCP/IP correctly in Windows XP. First make sure your Ethernet Adapter is working, refer to the adapter's manual if necessary.

1. Configure TCP/IP component

1) On the Windows taskbar, click the **Start** button, and then click **Control Panel**.
2) Click the **Network and Internet Connections** icon, and then click on the **Network Connections** tab in the appearing window.
3) Right click the icon that showed below, select Properties on the prompt page.

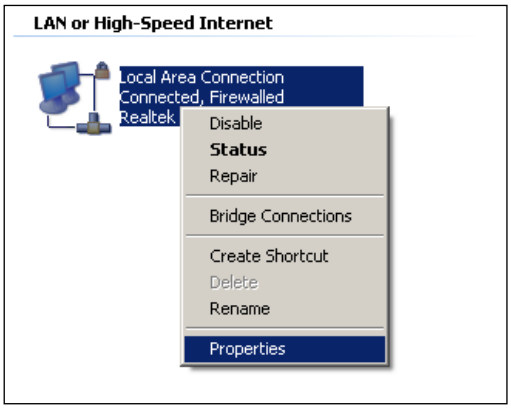


Figure B-1

4) In the prompt page that showed below, double click on the **Internet Protocol (TCP/IP)**.

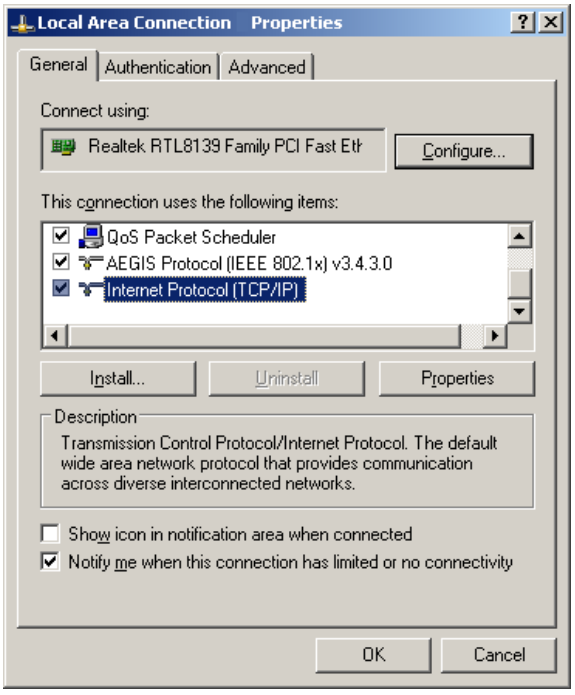


Figure B-2

5) The following **TCP/IP Properties** window will display and the **IP Address** tab is open on this window by default.

Now you have two ways to configure the **TCP/IP** protocol below:

➢ **Setting IP address automatically**

Select **Obtain an IP address automatically**, Choose **Obtain DNS server automatically**, as shown in the Figure below:

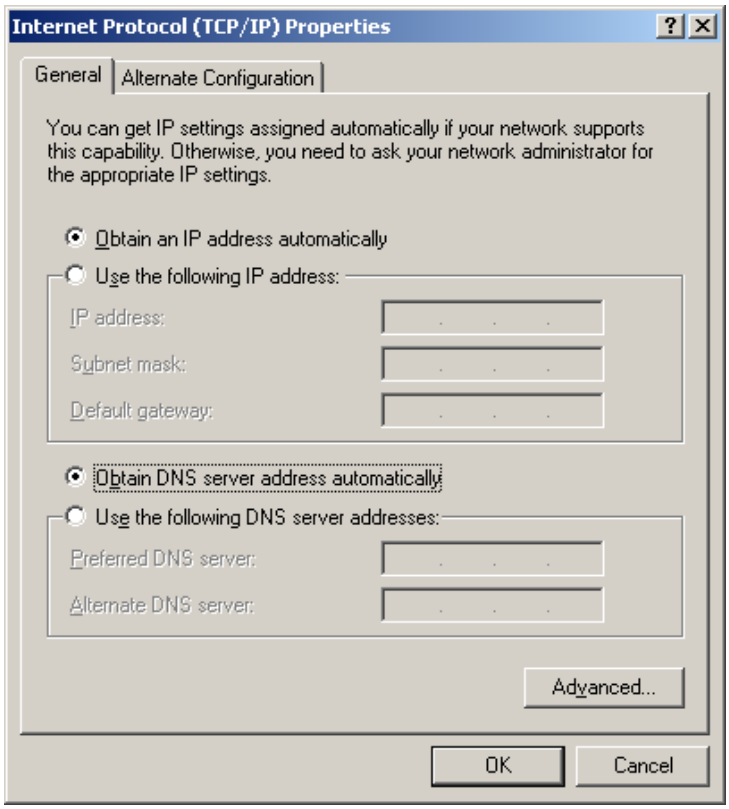


Figure B-3

☞ **Note:** For Windows 98 OS or before, the PC and router may need to be restarted.

➢ **Setting IP address manually**

1 Select **Use the following IP address** radio button. And the following items available.

2 If the router's LAN IP address is 192.168.11.1, specify the **IP address** as 192.168.2.x (x is from 2 to 254), and the **Subnet mask** as 255.255.255.0.

3 Type the router's LAN IP address (the default IP is 192.168.11.1) into the **Default gateway** field.

4 Select **Use the following DNS server addresses**. In the **Preferred DNS Server** field you can enter the same value as the **Default gateway** or type the local DNS server IP address.

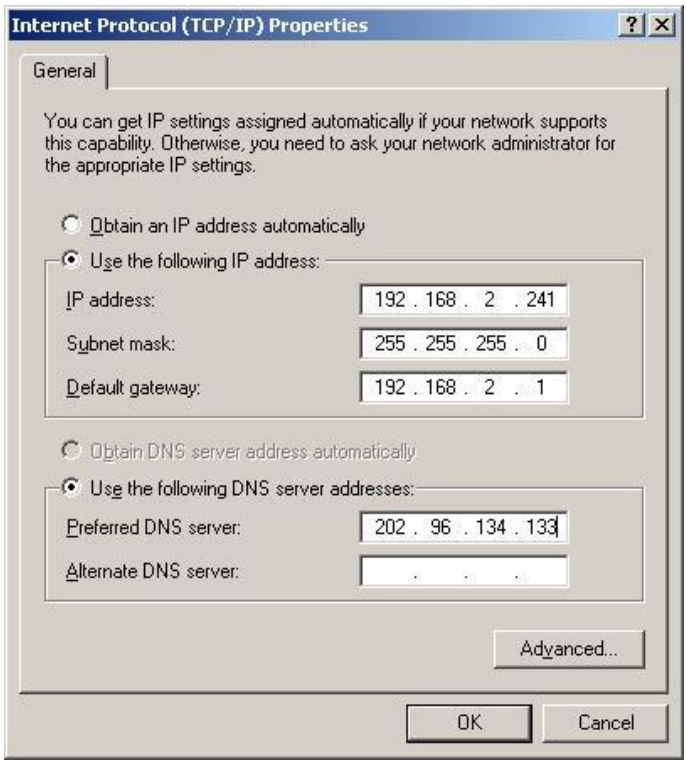


Figure B-4

Now, click **OK** to keep your settings.

Appendix C: Specifications

General	
Standards	IEEE 802.3, 802.3u, 802.11b, 802.11g, 802.11n
Protocols	TCP/IP, PPPoE, DHCP, ICMP, NAT, SNTP
Ports	One 10/100M Auto-Negotiation WAN RJ45 port, one 10/100M Auto-Negotiation LAN RJ45 port supporting Auto MDI/MDIX
Cabling Type	10BASE-T: UTP category 3, 4, 5 cable (maximum 100m) EIA/TIA-568 100Ω STP (maximum 100m)
	100BASE-TX: UTP category 5, 5e cable (maximum 100m) EIA/TIA-568 100Ω STP (maximum 100m)
LEDs	PWR x1, WLAN x1, LAN x1, WAN x1
Safety & Emissions	FCC, CE
Wireless	
Frequency Band	2.4~2.4835GHz
Radio Data Rate	11n：up to 150Mbps（Automatic） 11g：54/48/36/24/18/12/9/6M（Automatic） 11b：11/5.5/2/1M（Automatic）
Channels	1~13
Frequency Expansion	DSSS(Direct Sequence Spread Spectrum)
Modulation	DBPSK, DQPSK, CCK, OFDM, 16-QAM, 64-QAM
Security	WEP/WPA/WPA2/WPA2-PSK/WPA-PSK
Sensitivity @PER	130M: -68dBm@10% PER 108M: -68dBm@10% PER; 54M: -68dBm@10% PER 11M: -85dBm@8% PER; 6M: -88dBm@10% PER 1M: -90dBm@8% PER
Antenna Gain	2dBi
Environmental and Physical	
Temperature.	Operating : 0℃~50℃
	Storage: -20℃~70℃
Humidity	Operating: 10% - 90% RH, Non-condensing
	Storage: 5% - 90% RH, Non-condensing

Appendix D: Glossary

- **802.11b -** The 802.11b standard specifies a wireless networking at 11 Mbps using direct-sequence spread-spectrum (DSSS) technology and operating in the unlicensed radio spectrum at 2.4GHz, and WEP encryption for security. 802.11b networks are also referred to as Wi-Fi networks.
- **802.11g -** specification for wireless networking at 54 Mbps using direct-sequence spread-spectrum (DSSS) technology, using OFDM modulation and operating in the unlicensed radio spectrum at 2.4GHz, and backward compatibility with IEEE 802.11b devices, and WEP encryption for security.
- **DDNS** (**D**ynamic **D**omain **N**ame **S**ystem) **-** The capability of assigning a fixed host and domain name to a dynamic Internet IP Address.
- **DHCP** (**D**ynamic **H**ost **C**onfiguration **P**rotocol) **-** A protocol that automatically configure the TCP/IP parameters for the all the PC(s) that are connected to a DHCP server.
- **DMZ** (**D**e**m**ilitarized **Z**one) **-** A Demilitarized Zone allows one local host to be exposed to the Internet for a special-purpose service such as Internet gaming or videoconferencing.
- **DNS** (**D**omain **N**ame **S**ystem) **–** An Internet Service that translates the names of websites into IP addresses.
- **Domain Name -** A descriptive name for an address or group of addresses on the Internet.
- **DSL** (**D**igital **S**ubscriber **L**ine) **-** A technology that allows data to be sent or received over existing traditional phone lines.
- **ISP** (**I**nternet **S**ervice **P**rovider) **-** A company that provides access to the Internet.
- **MTU** (**Maximum Transmission Unit**) **-** The size in bytes of the largest packet that can be transmitted.
- **NAT** (**N**etwork **A**ddress **T**ranslation) **-** NAT technology translates IP addresses of a local area network to a different IP address for the Internet.
- **PPPoE** (**P**oint to **P**oint **P**rotocol **o**ver **E**thernet) **-** PPPoE is a protocol for connecting remote hosts to the Internet over an always-on connection by simulating a dial-up connection.
- **SSID -** A **S**ervice **S**et **Id**entification is a thirty-two character (maximum) alphanumeric key identifying a wireless local area network. For the wireless devices in a network to communicate with each other, all devices must be configured with the same SSID. This is typically the configuration parameter for a wireless PC card. It corresponds to the ESSID in the wireless Access Point and to the wireless network name.

- **WEP** (**W**ired **E**quivalent **P**rivacy) **-** A data privacy mechanism based on a 64-bit or 128-bit or 152-bit shared key algorithm, as described in the IEEE 802.11 standard.
- **Wi-Fi -** A trade name for the 802.11b wireless networking standard, given by the Wireless Ethernet Compatibility Alliance (WECA, see http://www.wi-fi.net), an industry standards group promoting interoperability among 802.11b devices.
- **WLAN** (**W**ireless **L**ocal **A**rea **N**etwork) **-** A group of computers and associated devices communicate with each other wirelessly, which network serving users are limited in a local area.