Wireless G Router

APRT-2518G/APRT-2518GS

WIRELESS G ROUTER/
SUPER G ROUTER

USER MANUAL

Version 6.0

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

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

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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

The manufacturer declares that APRT-2518G/APRT-2518GS is limited to channel 1~channel 11 by specified firmware controlled in USA.

IMPORTANT NOTE:

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.
This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.
To maintain compliance with FCC RF exposure compliance requirements, please avoid direct contact to the transmitting antenna during transmitting.

Information to User:

The users manual or instruction manual for an intentional or unintentional radiator shall caution the user that changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate the equipment.

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1 INTRODUCTION

The Product

The product is based on the IEEE **802.11g** standard, which is the latest **54Mbps** Wireless LAN (WLAN) standard. This standard is five times faster than the widely deployed **WiFi** (802.11b) products that are found in homes, airport and public wireless hotspots. Because 802.11g uses the same **2.4GHz** frequency band, the product is fully interoperable with existing WiFi cards and devices.
Having two wireless protocols in one product ensure that your investments are protected, while enabling you to enjoy the fastest Wireless LAN speed.

The product is a combination of 3 devices:

a. Wireless LAN Access Point (AP) compliant to 802.11b and 802.11g standards.
b. 4-port Auto MDI/MDIX Switch
c. Router with NAT, DHCP Server built-in.

The product is an all-in-one device that allows multiple PCs to share a common broadband (ADSL/Cable) modem. It can serve up to 4 Ethernet-PCs and many WLAN-notebooks. The built-in NAT and DHCP Servers ensure almost plug-and-play convenience for your home network. Advanced features such as Firewall, DMZ and WPA Encryption make this a product equally suitable for your office needs.

Product Features

- Fully compatibility with **IEEE 802.11g** WLAN standard
- Utilize OFDM (**O**rthogonal **F**requency **D**ivision **M**ultiplexing)
- Wireless data rate of up to **54Mbps** for APRT-2518G and **108Mbps** for APRT-2158GS
- Operates in the **2.4GHz** license-free frequency band
- Connects multiple computers to a broadband modem to share Internet connection
- Equipped with **4 10/100** Ethernet ports and 1 WAN port, Auto MDI/MDIX
- Full backward compatibility with **802.11b** standard (WiFi 11Mbps)
- **WEP** (Wired Equivalent Privacy) authorizes users based on a simple WLAN encryption standard to protect wireless data from sniffers.
- **WPA** (WiFi Protected Access) authorizes users and identifies users based on an improved WLAN encryption standard where the secret key changes dynamically at regular intervals
  - **TKIP** (**T**emporal **K**ey **I**ntegrity **P**rotocol), when used in conjunction with a corporate RADIUS server, ensure higher security for enterprise networks.
  - **Pre Shared Key**, suitable for home user, without a RADIUS server. A new key is generated each time the PC connects to the network, vastly improving the safety of information exchange within the network
- **Advance Firewall** features to protect your network from the Internet.
  - NAT with VPN pass through to provide higher security.
  - MAC filtering
  - IP filtering
- Built-in **DHCP** Servers that distributes IP addresses automatically to computers, simplifying network setup.
- User-friendly web-based interface for managing and configuring the Router

2 PACKAGE CONTENTS

Contents of Package

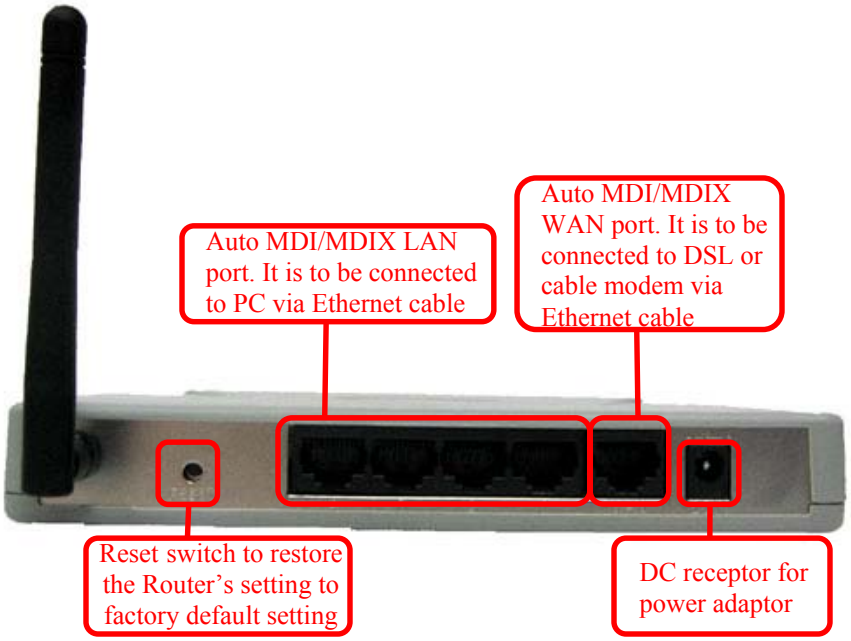
- 2.4GHz High Speed Wireless Router with Antenna
- Power Adaptor-DC
- User Manual

Note: Using a power adaptor with a power rating other than the one included in the package will cause serious damage to the Router and void the warranty for this product.

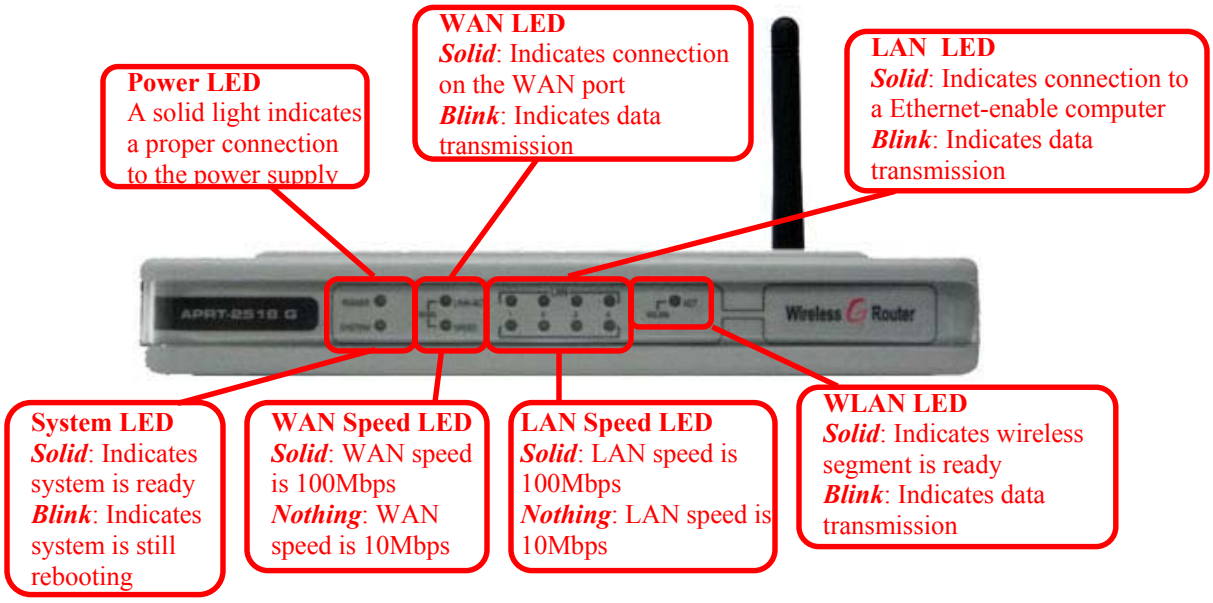
System Requirements for Configuration

- Computers with Windows, Macintosh or Linux-based operating systems and with an Ethernet adaptor
- Internet Explorer version 5.5 and above or Netscape Navigator that supports Java.

3 CONNECTIONS



4 LED



Note: For APRT-2518GS, there will be an additional LED below the WLAN LED. This additional LED indicates the turbo g function. When the Router is in turbo g mode, the LED will light up.

5 BASIC IP NETWORKING

Internet Protocol (IP)

IP stands for Internet Protocol. In an IP network, every device has a **unique** IP Address (For example: 192.168.1.35) to identify itself. There are two ways of assigning an IP address to a PC or Router: Static and Automatic (DHCP). Static IP addresses are keyed-in manually, while Dynamic IPs are distributed by a DHCP Server.

Ports

Every packet of traffic is identified by its Source and Destination Addresses, which would ensure that the packet arrives at the correct destination. A Port Number is also embedded in each packet; to identify which software application that generated and uses that packet. Therefore, if the Router blocks a certain port number, it denies the particular software from using the connection.

Static IP Address

Static IP addressing ensures that the device will always have the same IP address. Static addressing is commonly used for your servers.

Dynamic IP Address

A dynamic IP address is one that is automatically assigned to a PC. These IP addresses are "dynamic" because they are only temporarily leased to the PC when it connects to the network. This is the most convenient and common way of managing IP addresses in a network. The Server that manages this pool of IP addresses is called the DHCP Server. The product has a DHCP Server built-in to simplify the network management.

DHCP (Dynamic Host Configuration Protocol)

The PC obtaining an IP address from the Server is called the DHCP Client. If there is already a DHCP Server running on your network, you must disable one of the two DHCP servers. Running more than one DHCP server together will cause network problems!

What is a Router?

A router is a network device that connects two networks together, to let them communicate. All the PCs in your home or office would be considered to be in one network: the Local Area Network (**LAN**). The Internet (including the ADSL modem) is considered to be another network: the Wide Area Network (**WAN**). The Router serves 2 purposes:

- Connect all the PCs in the LAN together, allowing them to communicate with one another. (File sharing, Printer sharing etc.)
- Connect all the PCs in the LAN to the Internet, allowing them to simultaneously surf the web and access e-mails.

The Router is connected to 2 networks at the same time. Therefore, it has two IP addresses: one for the LAN, and one for the WAN. The Router's LAN IP address can be configured, but it is best to use the default settings. The WAN port is a DHCP client by default.

Wireless LAN Basics

A Wireless LAN (WLAN) is a computer network that transmits and receives data with radio signals instead of using cables. WLANs have become common in homes, offices, airports and public Hotspots. WLAN can support the same applications and software that run on a wired network (LAN). Besides supporting the same software and functions, WLAN brings greater convenience and eliminates the need to lay Ethernet cables in a home or office.

The Router is based on the finalised **802.11g** standard. The IEEE 802.11g standard is an improvement on the 802.11b (WiFi) standard. It increases the data rate up to 54 Mbps within the 2.4GHz band. As the 802.11b standard is also using the 2.4GHz frequency band, the product is fully backward compatible with the older 802.11b devices. WiFi cards can be used to connect to the Router at 11Mbps.

The Router can even support 108Mbps WLAN if the user is using a recommended Turbo-capable Cardbus.

The Router is also known as the Wireless Access Point (**AP**). The PC using the Cardbus is known as the **Client**. WLAN networking involves a few additional parameters to be configured:

SSID

The SSID is the “network name” for the WLAN network. The SSID is any name, and can be any set of characters or numbers, and must be configured on both the AP and Client. The Client sniffs the radio frequencies for an AP with the same SSID with itself. The client locks onto the AP and they are “**associated**”.
To enable plug-and-play convenience, most client cards can sniff the frequencies to extract the available SSIDs to let the user choose from. Alternatively, setting the client’s SSID to “ANY” can allow it to connect to most APs regardless of the AP’s SSID setting.

Encryption

WLAN traffic can be captured by anybody to be read! The solution is to use encryption to make the traffic appear as random characters to the eavesdropper. Both the AP and client must use the same encryption standard and key to enable them to decode the “rubbish”. If the encryption settings are mismatched, the client and AP cannot associate. WEP (Wired Equivalent Privacy) is the most common WLAN encryption standard.

MAC Address Control

Every client card has a unique MAC Address. This MAC Address can be input into the AP (Router), such that the AP only allows this pool of MAC Addresses to use the WLAN.

Channel

There are a total of 11 channels in the 2.4GHz band. Depending on regulation, not all the frequencies may be available in every country. Frequency is configured on the AP only. The client searches for the AP and locks onto that AP’s channel.

Signal Strength

Radio signals drop in power over a distance. Even if all the settings are correct, a low signal strength makes association impossible. The usable distance between the AP and client can range from a few meters indoor to 200m outdoors maximum. When setting up the AP, make sure that you:

- Keep the distance from the AP to the clients as short as possible.
- Make sure that the WLAN signals do not have to pass through too many concrete walls and metal structures to reach the client.

- Make sure that APs are located far away from one another to avoid interference.

Interference

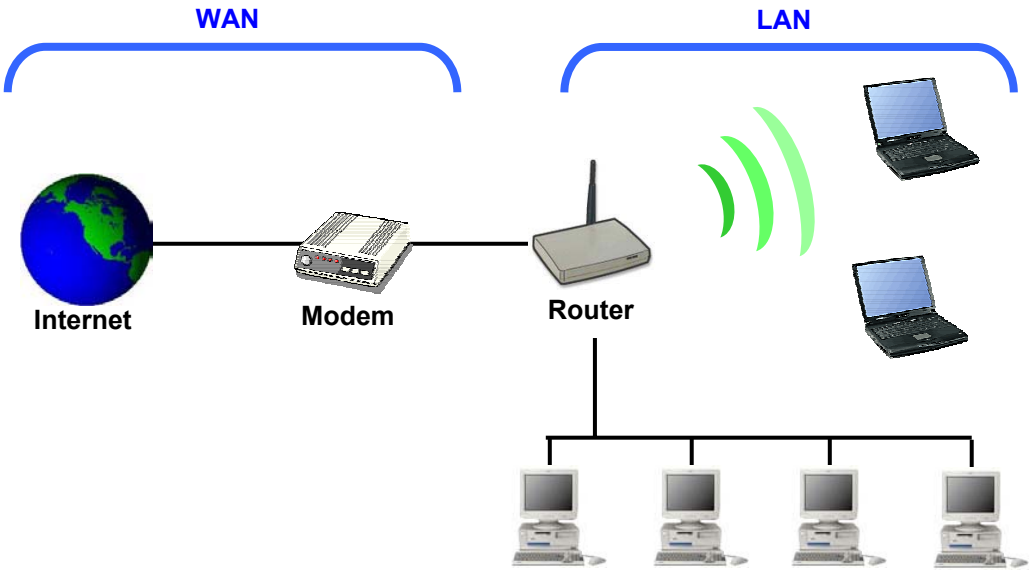
Interference happens when 2 APs with the same channels are placed near to one another. The speed of the network drops and the signal strength fluctuates wildly.

Roaming

Association happens when the SSID, Encryption and MAC Address Control settings are correct between the AP and client. If 2 APs with these same settings are located in the same area, the client would choose to associate to the one which gives it a better signal strength. The client would roam over to the 2nd AP when he moves nearer to it. The client switches AP and frequency as he does so.

6 GETTING STARTED

The router is connected to the WAN and LAN networks.

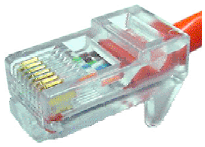


The cables are all connected to the back-panel of the Router. The PCs and Modem are connected to the Router via Ethernet cables. Take note that the head of the Ethernet Cable looks similar to a phone connector but is bigger. Your notebook can also be connected to the Router by installing and plugging in the CardBus Card on your notebook.

Modems that connect using a USB cable cannot be used.

Use only modems that have Ethernet connectors.

USB Modem

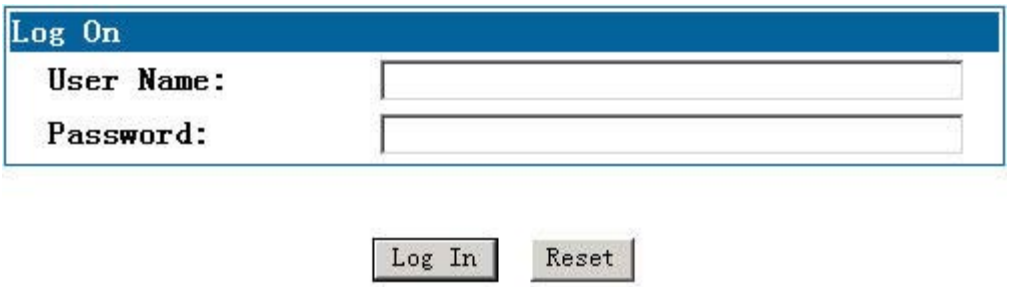


Ethernet connector

To access the *Configuration* menu of the Router, connect the router as shown in the previous section.

- Open the web browser.
- Type the Router's default IP address (**192.168.1.20**) into the browser's Address field.

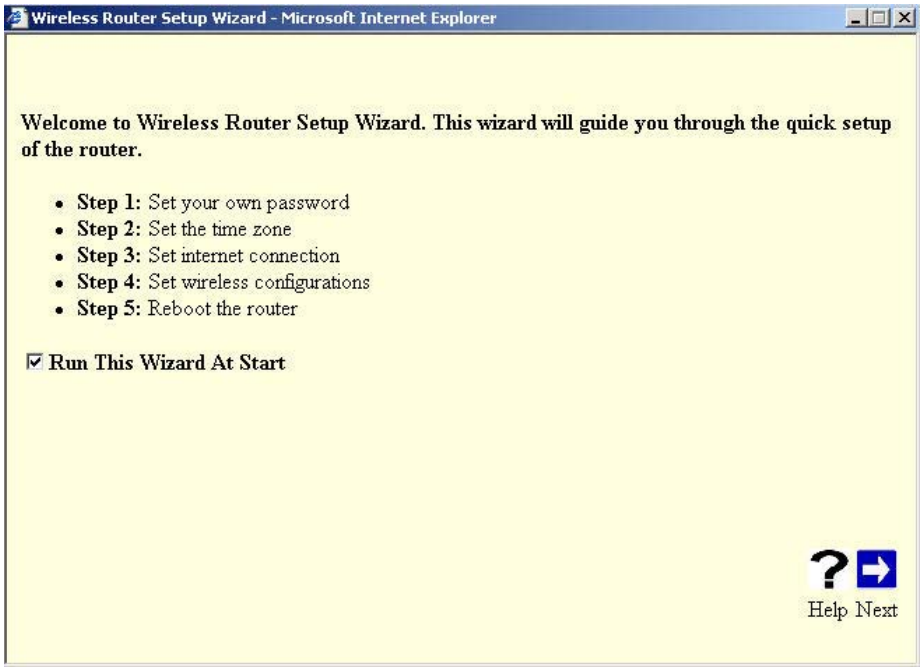
Note: If you have changed the default IP of the Router, make sure you enter the correct IP address.



- Type in **admin** for user name.
- Type in **admin** for the password.
- Click on *Log In*.

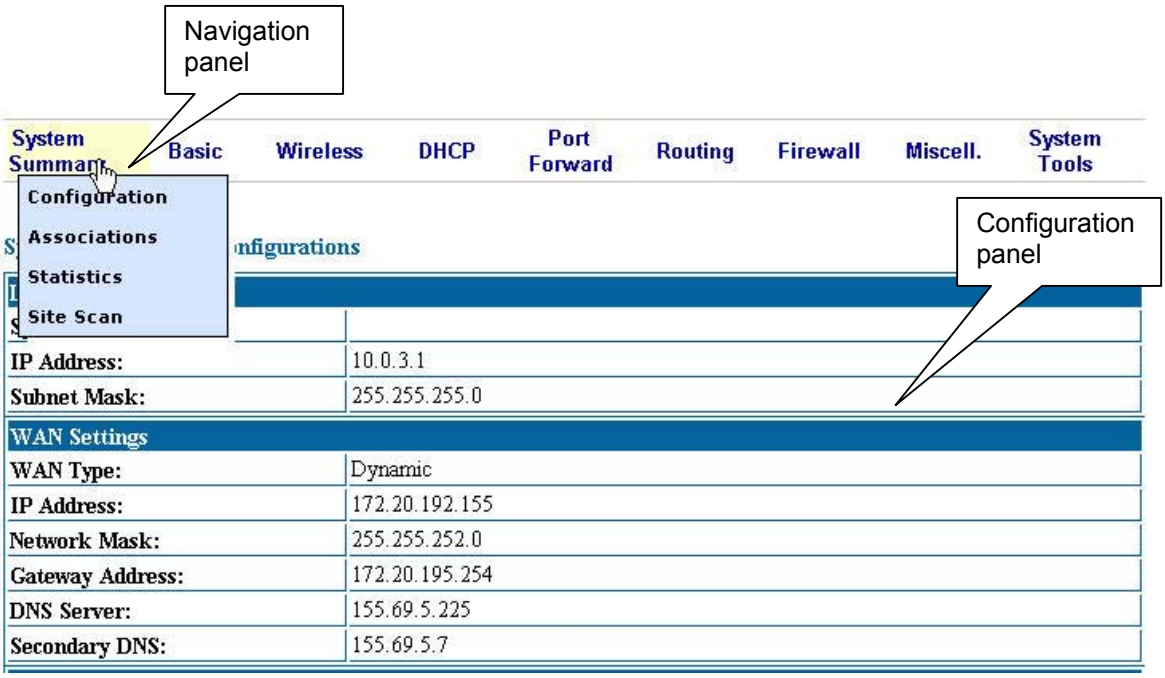
Note: If you have changed the default user name and password of the Router, make sure you enter the correct user name and password.

Once the login is successful, you'll see a configuration menu and a pop up window for wizard setup. The wizard is a quick guide to run you through the configuration process so as to setup your system in the shortest time. After the initial setup, you may wish to turn off the setup wizard by removing the tick on *Run This Wizard At Start*. Click on *Next* to proceed with the setup wizard.



Note: If you have pop-ups blocker installed on your computer, it may prevent the Wizard window from functioning properly.

Detailed configuration for the Router can be found at the configuration menu. The Configuration menu consists of a navigation menu and a configuration panel. The configuration panel is a place to set the entire detailed configuration.

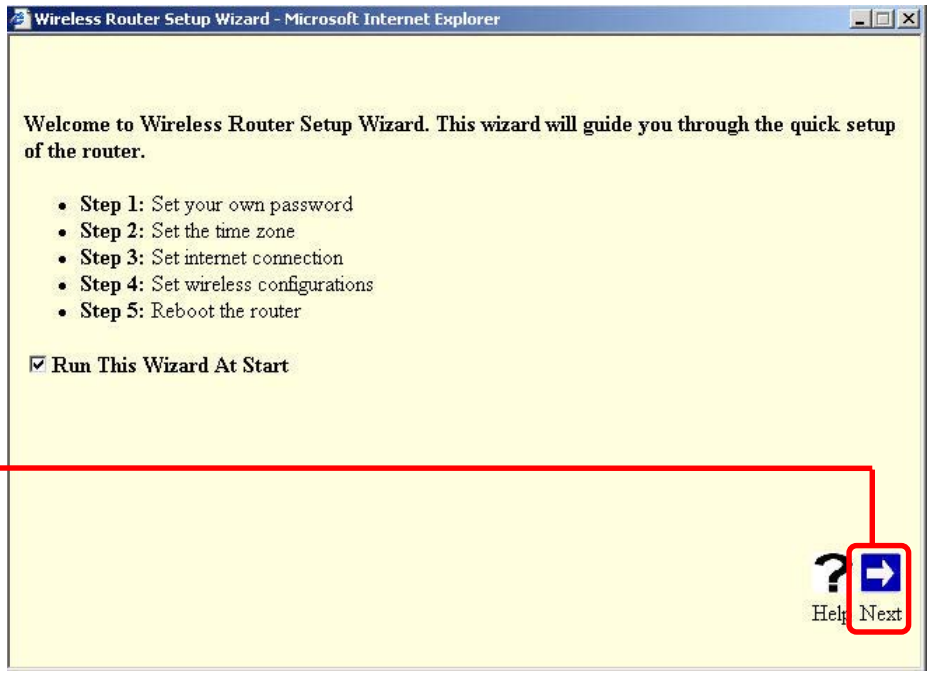


These buttons will appear at most configuration pages.

- **Help:** Clicking help will bring up helpful information on the functions.
- **Save:** Click to save the configuration. Do a reboot when you have configured all the parameters.
- **Reset:** Click to reset all the parameters on the page.

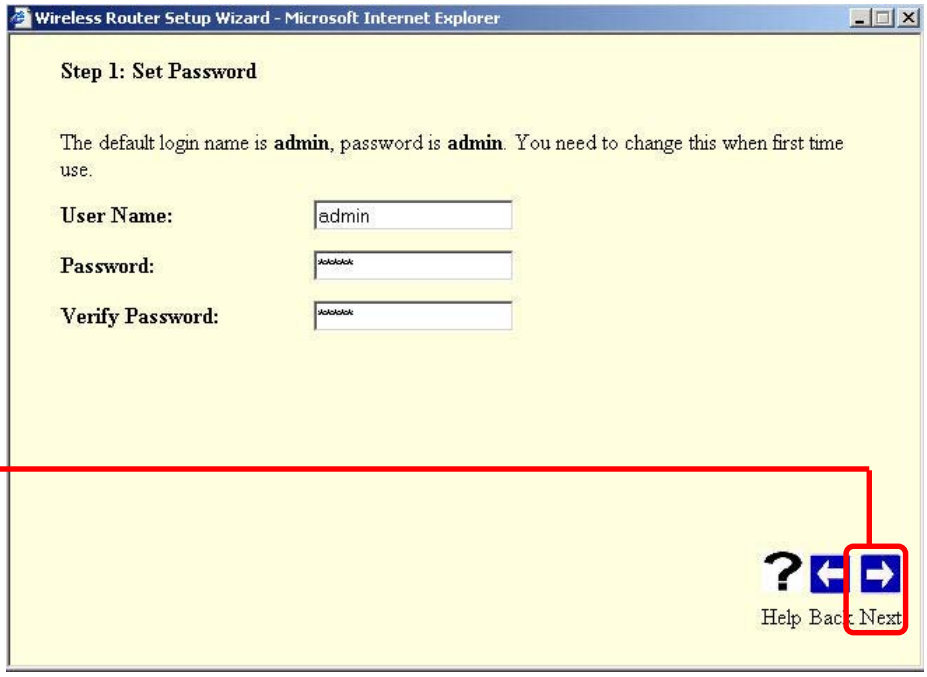
7 CONFIGURATION WIZARD

Once you have logged in, the Wizard screen will appear.



Click Next

Set up your new password
The default User Name and password is admin and admin.

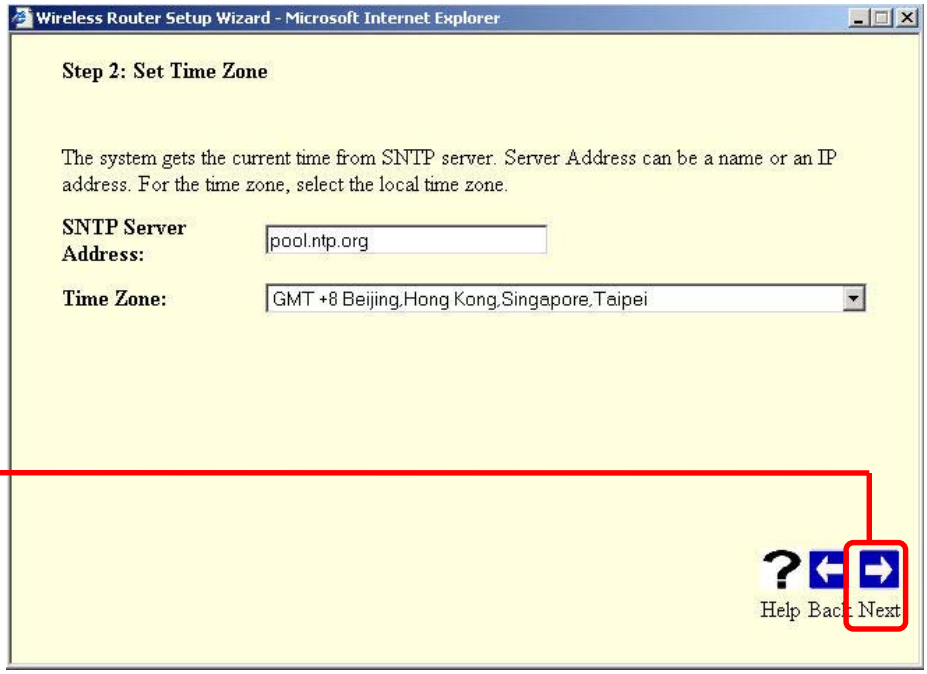


Click Next

Choose your Time Zone
Enter the SNTP Server. If you do not know of any SNTP Server, you can use the default.

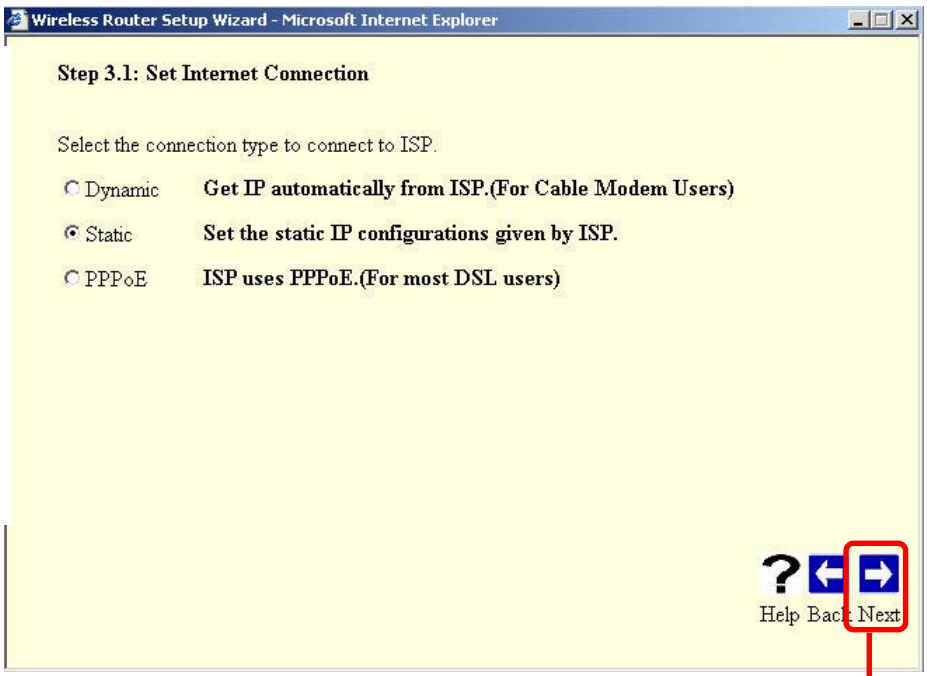
Choose your time zone from the drop down list.

Click Next



Select your Internet connection

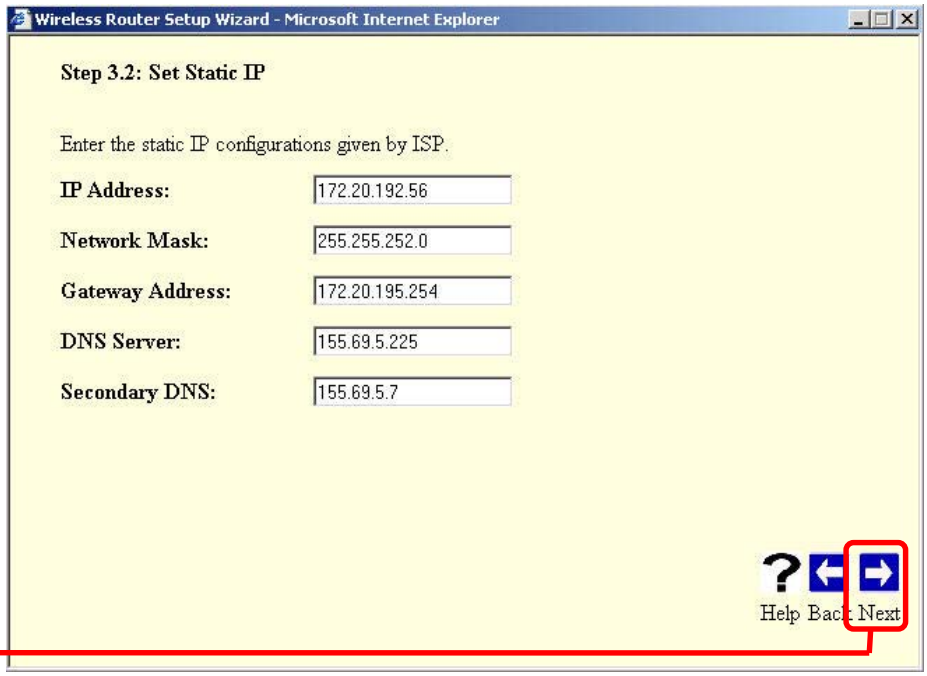
- For *DSL* user, choose PPPoE.
- For *Cable* user, choose Dynamic
- Choose Static connection only if your ISP provide you with the IP address, subnet mask, gateway and DNS server IP address.



Click Next

If your ISP requires **static IP** and you have chosen this option, this screen will appear.

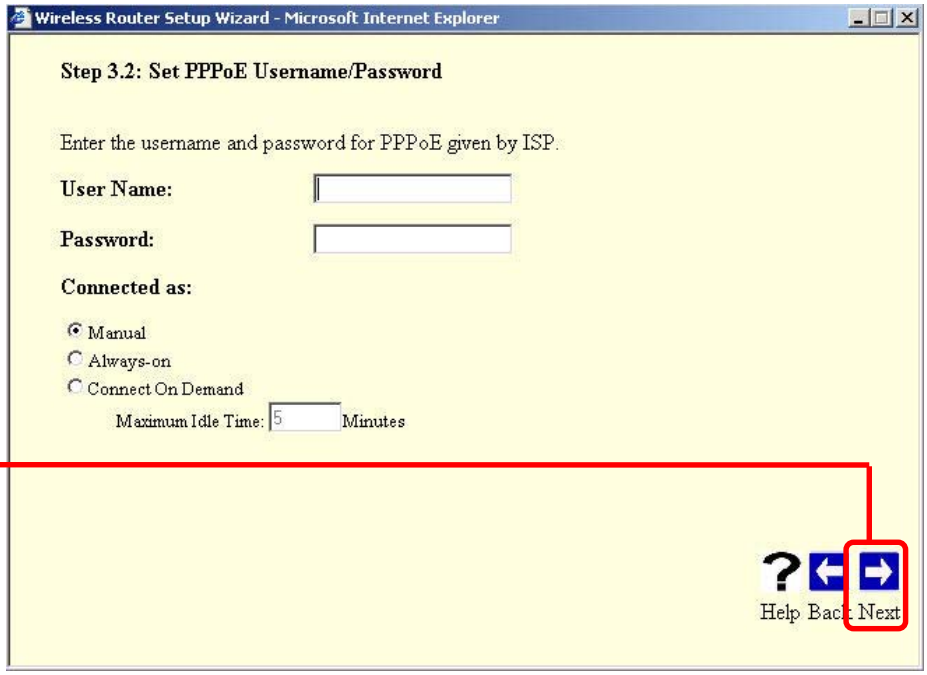
Enter the IP address, network mask, gateway address, DNS server IP address as provided by your ISP in the relevant fields.



Click Next

If you are a **DSL** user and you have chosen PPPoE option, this screen will appear.

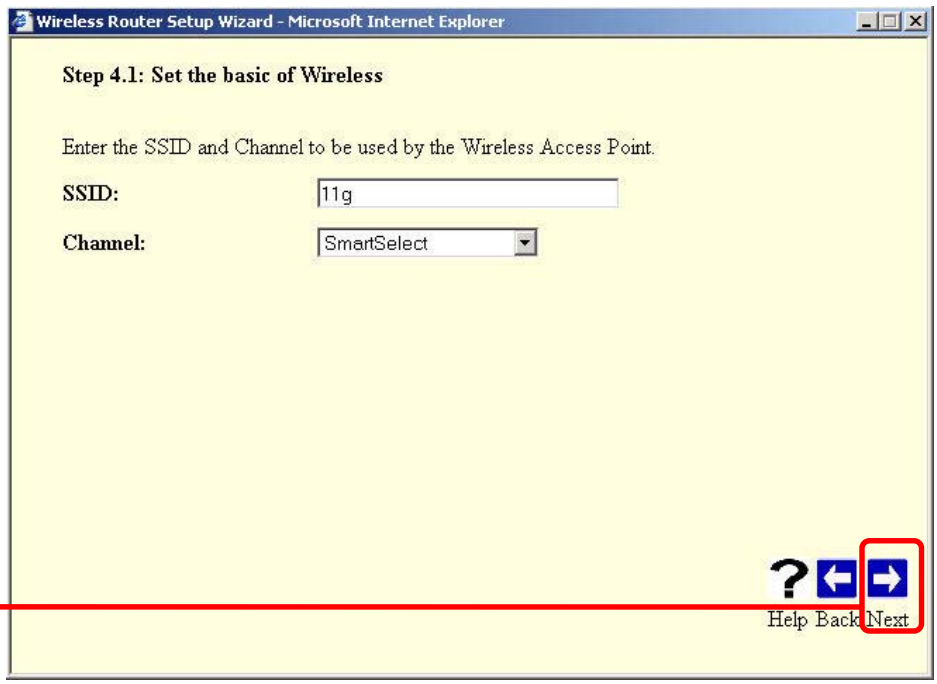
Enter the user name and password provided by your ISP.



Click Next

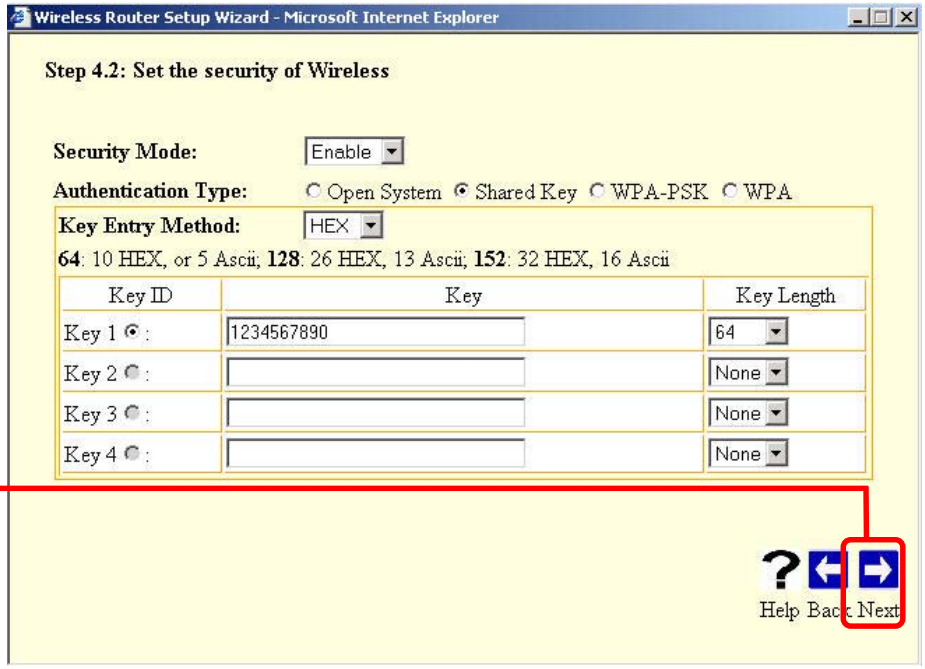
Wireless Setup
Enter the SSID you preferred for your network.
You can manually select the channel you wish to use or allow the Router to select a clean channel to use by selecting *SmartSelect*.

Click Next

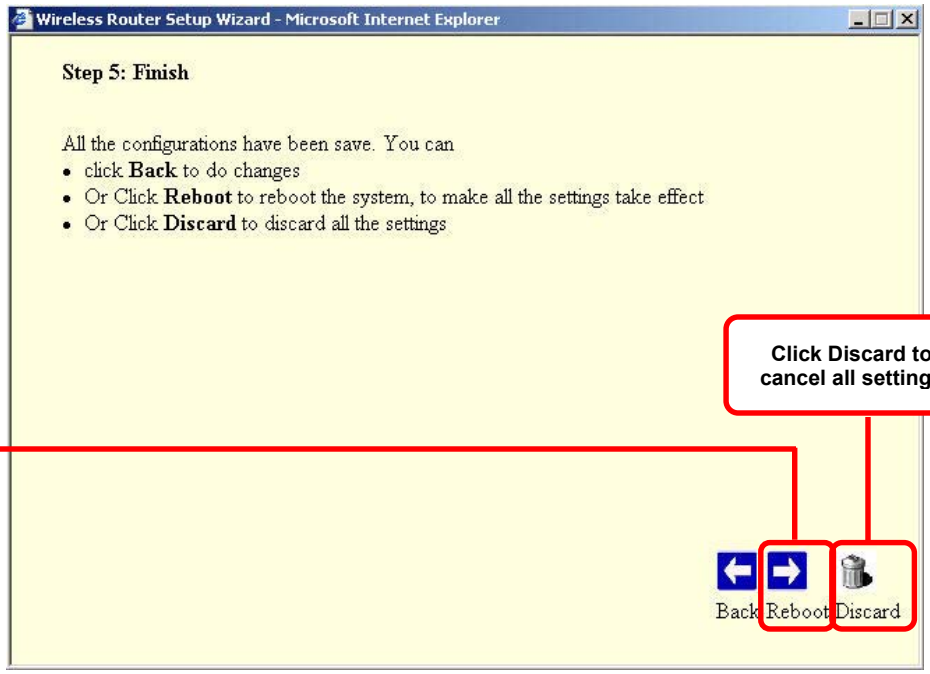


Wireless Security
Enter the type of security mode you wish to use. Take note that if you are using a 802.11b card, it does not support WPA-PSK or WPA.

Click Next



End of Setup
Click on *Reboot* to save the setting and reboot the Router. If you wish to discard all the setting, click on *Discard*.



finish the setup Wizard

Click Discard to cancel all settings

8 CONFIGURATION MENU

System Summary > Configuration

This page presents a convenient overview of the overall status of the Router. The most common configuration parameters are shown here, for a quick look.

LAN Settings	
System Name:	
IP Address:	192.168.1.20
Subnet Mask:	255.255.255.0
WAN Settings	
WAN Type:	Static
IP Address:	172.20.195.240
Network Mask:	255.255.252.0
Gateway Address:	172.20.195.254
DNS Server:	155.69.5.7
Secondary DNS:	
Wireless Setting	
Wireless Mode:	Enable
SSID:	11g
Channel:	Current Channel 1: 2412MHz
Wireless Mode	802.11g
Security Mode:	Disable
Authentication:	Open System
Data Rate(Mbps):	Best
Transmit Power:	Max (18dBm)
Preamble:	Short Preamble
Slot Time:	Short Slot Time
Wireless MAC Control:	Disable
DHCP Server Settings	
DHCP Server:	Enable
Address Pool:	System Define
Start Address:	0.0.0.0
End Address:	0.0.0.0
Lease Time:	2880 Miniute(s)
Port Forwarding	
Virtual Server:	0 Entri(es)
DMZ:	Disable
DMZ Host IP:	0.0.0.0
ICMP:	Disable
ICMP Host IP:	0.0.0.0
UPnP:	Disable
Firewall	
MAC Filter:	Disable with 0 Entri(es)
IP Filter	0 Entri(es)
Deny of Web Access from WAN:	Enable
Miscellaneous	
DDNS:	Disable

System Summary > Associations

This page allows you to view the MAC address of all the wireless laptop and PC connected to the Router. ID AP is the MAC address of the Router itself. Any wireless computers or laptop associated with the Router will have a ID of STA.

ID	MAC Address	Status
AP	00:06:C7:01:01:33	up
STA 1	00:06:C7:0A:02:5F	associated
STA 3	00:06:C7:14:0A:17	associated
STA 4	00:0E:35:60:6D:63	associated
STA 2	00:50:FC:62:9B:2D	associated

Refresh

System Summary > Statistics

This page allows you to view the packets and bytes receive and transmit by the Router.

	Recieve	Transmit
Bytes:	51338773	53669198
Packets:	109817	100630

Up Time: Day 0, 6:39:31

System Summary > Site Scan

Using the site scan, you can scan for the presence of other AP near you. The ESSID, BSSID, wireless mode, channel, signal strength, security mode and network mode of the surrounding AP will be display in the table. You can use this function to select a clean channel for your Router. Take note that there would not be any result if the wireless function of the Router is disable.

ID	ESSID	BSSID	Wireless Mode	Channel	Signal Strength (RSSI)	Security Mode	Network Mode
1	WinuxNet	00:14:BF:0C:DB:32	802.11g	6	37	WEP	Infrastructure
2		00:60:1D:F6:AE:32	802.11b	6	5	NONE	Infrastructure
3	super_g_dynamic	00:06:C7:1F:05:84	802.11g	6	16	NONE	Infrastructure
4	11g	00:06:C7:1F:0B:E6	802.11g	13	29	NONE	Infrastructure

Basic > SNTP Setting

Simple Network Time Protocol (SNTP) allows the Router to set its internal clock based on periodic updates from the specified timeserver (SNTP or NTP). The time is useful in the IP filter section, where you can configure to block certain IP address daily at a certain time.

The system gets the current time from SNTP server.

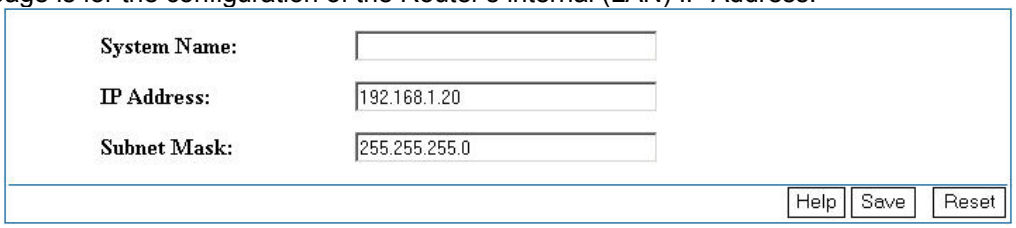
SNTP Server Address: pool.ntp.org

Time Zone: GMT +8 Beijing,Hong Kong,Singapore,Taipei

Help Save Reset

Basic > LAN Setting

This page is for the configuration of the Router's internal (LAN) IP Address.



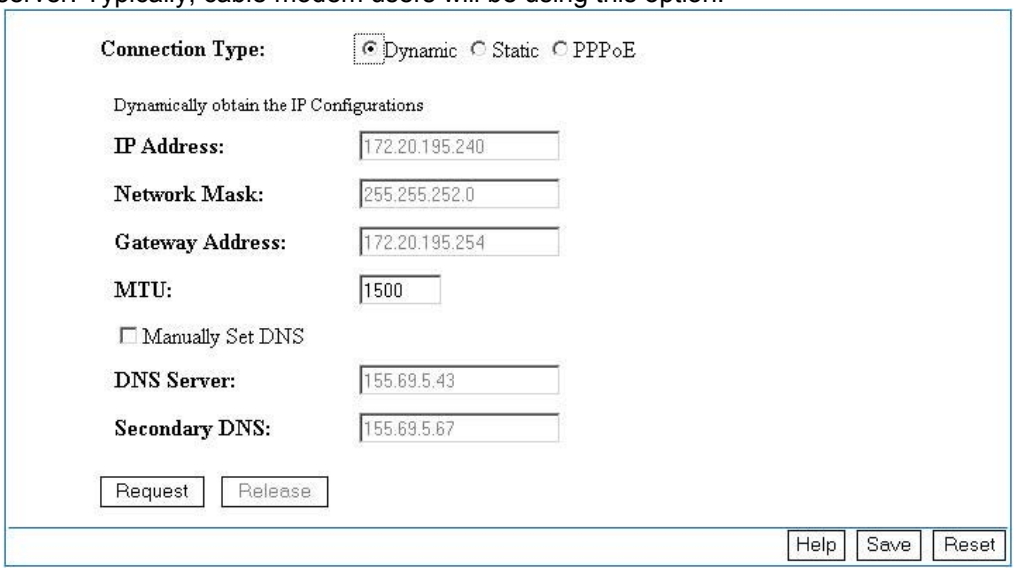
System Name: This is to assign a name to the router so that you can identify the Router.
LAN IP address: This is where you assign a local IP address to your router's LAN port. The factory default value is 192.168.1.20. If you give your computer a static IP address, the gateway of your computer must be set to this IP for you to access the Internet.
Subnet Mask: This is where you assign the corresponding subnet mask. The default subnet mask is 255.255.255.0.
(Note: When you change the LAN Setting of the Router, you need to reset/renew the Local computer IP address.)

Basic > WAN Setting

This page allows you to configure how the WAN is connected. For ADSL modem users, you have to use **PPPoE**. If you connect the WAN to an existing Ethernet network, you have to set either **Static WAN** or **DHCP Client**. The default setting for the router is in DHCP Client mode.

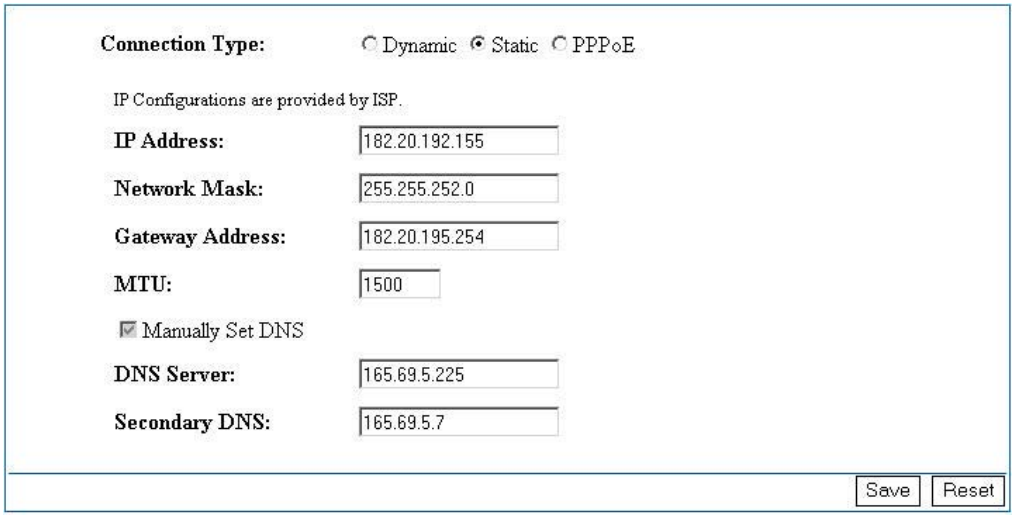
Dynamic WAN

When using dynamic WAN, the Router will automatic request for IP address, network mask, gateway address and DNS server from the network. The acquired IP addresses will reflect in the relevant fields. You can choose to manually set the DNS server if you know the IP address of the DNS server. Typically, cable modem users will be using this option.



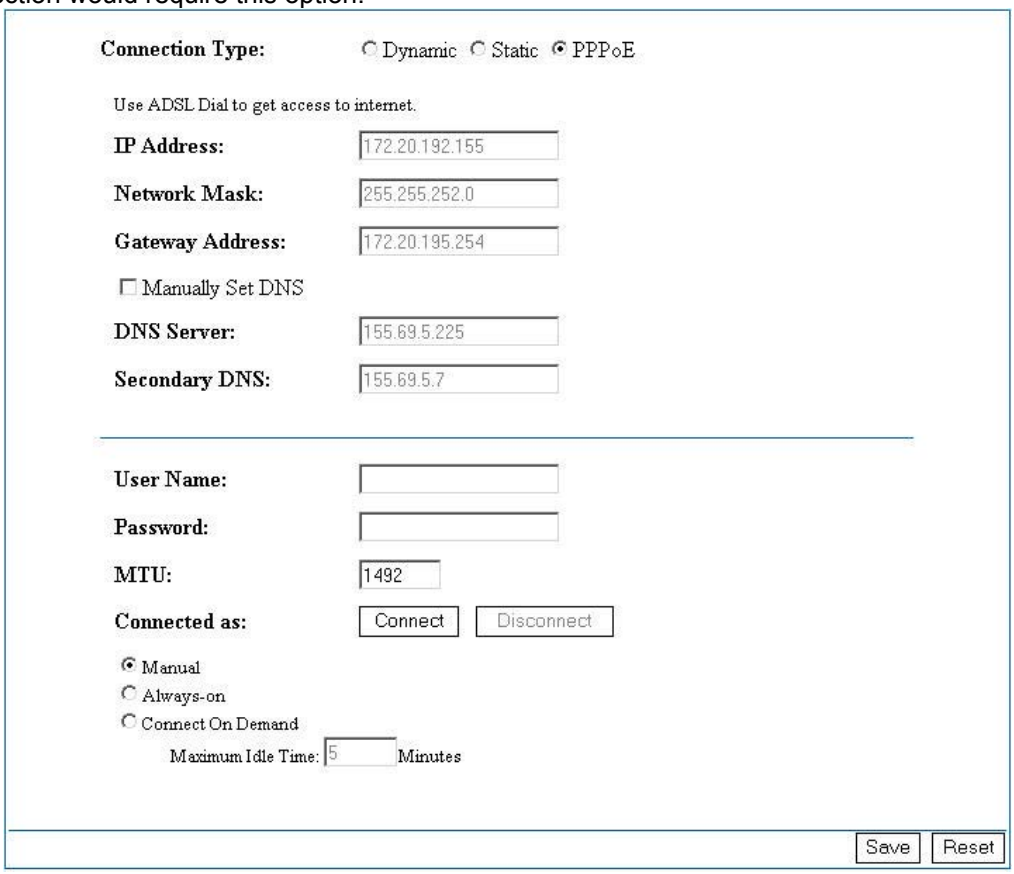
Static WAN

You can choose to manually set all the fields if your ISP or network provides you with the IP address, network mask, gateway and DNS. Do take note that the IP addresses in each field must be of the appropriate format (xxx.xxx.xxx.xxx). The Router will not accept the IP address if it is not in the correct format.



PPPoE Type

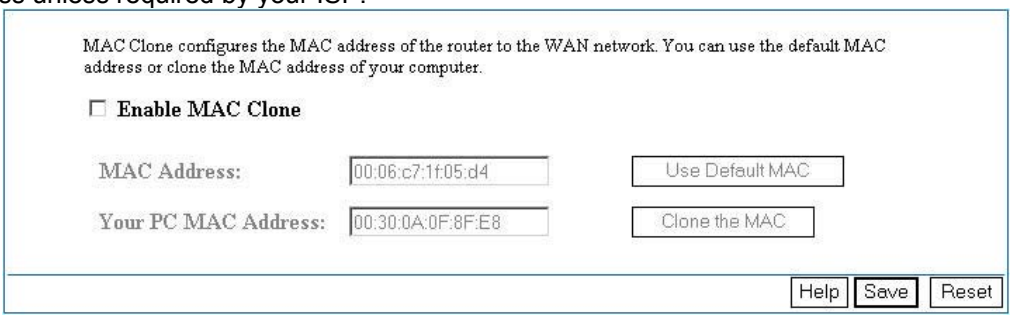
Select this option if your ISP requires you to use a PPPoE connection. Typically, users with DSL connection would require this option.



IP Address: This displays the IP of your WAN as given by the ADSL modem.
Network Mask: This displays the network mask of your WAN as given by the ADSL modem.
Gateway Address: This displays the gateway address of your WAN as given by the ADSL modem.
DNS Server: This displays the IP address of the DNS server as given by the ADSL modem. You can manually set the DNS server if your ISP provides you with the IP address of the DNS server.
Secondary DNS: This displays the IP address of the secondary DNS server as given by the ADSL modem. You can manually set the secondary DNS server if your ISP provides you with the IP address of the secondary DNS server.
Username: Enter the username given by your ISP.
Password: Enter the password given by your ISP.
MTU: Maximum Transmission Unit indicates that packets larger than this size will be fragmented before the transmission. Enter an MTU value only if required by your ISP. Otherwise, leave it as the default setting.
Manual: You will only be connected or disconnect to the Internet when you click on the C*onnect* and *Disconnect* button.
Always on: The Router will auto-connect with the ISP when it restarts or when the PPPoE connection is dropped.
Connect on Demand: Router will auto-connect to ISP when user launches any program that require Internet connection on his PC.
Idle Time before auto-disconnect: You can set the Router in such a way that it will disconnect after a certain period of inactivity. The time can be set in this field.

Basic > MAC CLONE

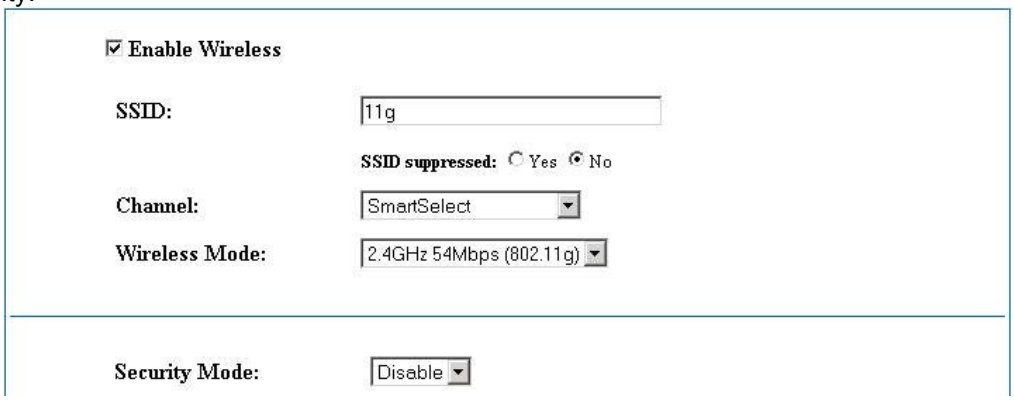
The default WAN MAC address is set to the WAN's physical interface MAC address on the Router. You can use the MAC Clone function to replace the default MAC address to that of the Ethernet Card installed by your ISP. It is not recommended that you change the default MAC address unless required by your ISP.



Enable MAC Clone: Tick to enable MAC Clone function.
MAC Address: Enter the MAC address you wish to clone or use the default MAC by clicking on the *Use Default MAC* button.
Your PC MAC Address: This field reflects the MAC address of your computer.

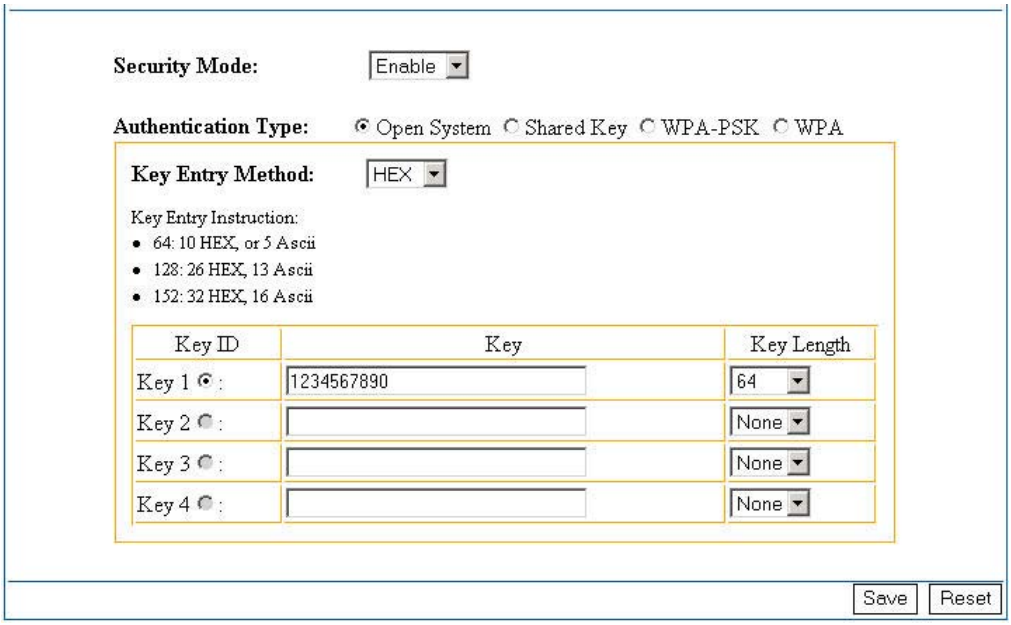
Wireless > Basic Setting

This page lets you configure the Wireless settings of the Router. There are 2 sections: Radio and Security.



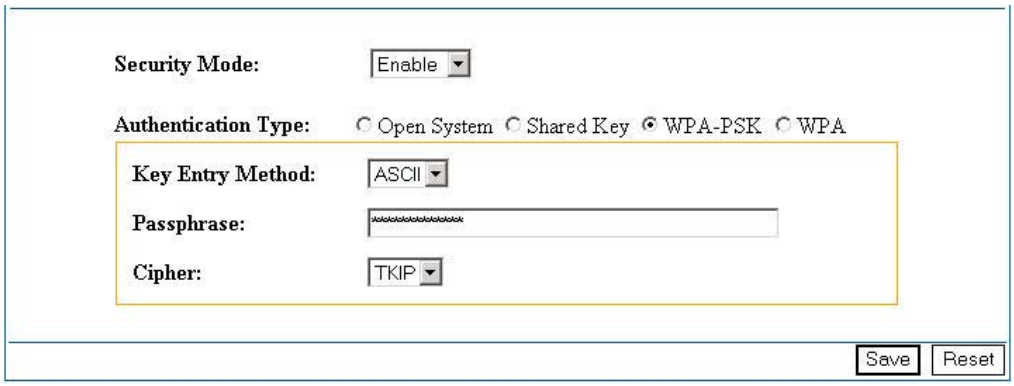
Enable Wireless: Tick to enable wireless function. With this function, laptop with cardbus or in-built wireless function can access the Router wirelessly.
SSID: Service Set Identifier. It is a sequence of characters that uniquely names a Wireless LAN. This name allows PCs to connect to the correct Wireless Access Point when multiple Access Points (or Wireless Routers) operate in the same location.
Channel: The radio channel number. You can select channel 1 to 11 or use SmartSelect, where the Router will select the cleanest channel to use upon booting up. The number of channels varies according to countries.
SSID Suppressed: When SSID is suppressed, the router will not broadcast the SSID. Unwelcome PCs will not be able to scan for the SSID of this Router, and they can only associate if they know exactly what is the SSID.
Wireless Mode: You can choose to operate the Router in **802.11g** or **802.11b** mode. The data rate for 802.11g is 54Mbps while the data rate for 802.11b is 11Mbps. 802.11g is backward compatible with 802.11b.
For model APRT-2518gs, you will be able to select Dynamic Turbo or Static Turbo Mode. Turbo mode operates in 108Mbps.
Security Mode: This section allows you to configure wireless encryption to prevent unwelcome parties from reading your traffic. You must **Enable** the Security Mode before choosing the type of wireless security.

Open-System/Shared Key



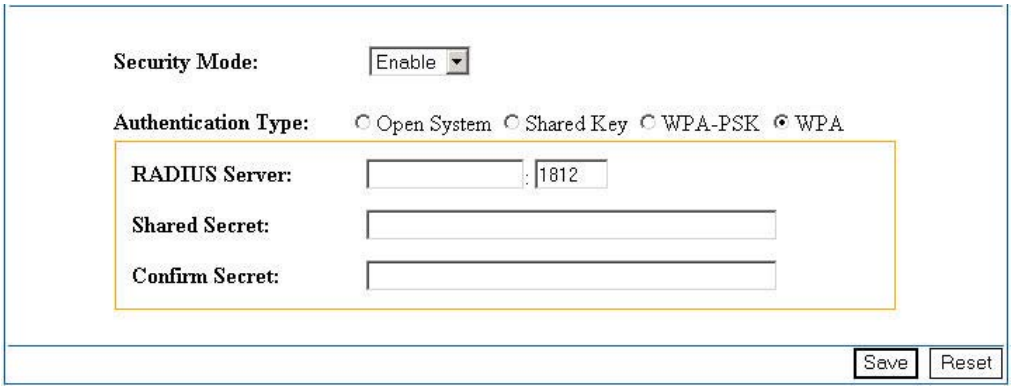
Open-System: When chosen, the Key is not used for authentication. It is only used for encryption. Open-System uses Static Keys for encryption. Static (Shared) Keys are never changed, and a hacker can crack the key after a period of time.
Shared-Key: When chosen, the encryption Key is also used for authentication between the Router and Client. Note that this system is also using Static Keys.
Key Entry Method: Choose **HEX** if you want to enter the Keys in hexadecimal format. Otherwise, enter in ASCII format. ASCII is also called Alphanumeric in some systems. Use the same key format for the Router and Client!
Key 1-4: The Key is to be entered in the boxes. The **SAME Key** must be entered in both the Router and Client. Take note that there is a different Key length for a different number of encryption bits. 152 bits is the most secure, but make sure that your Client card supports it. The last point to take note is that if you use Key 4 on the Router, you must also use Key 4 on the Client, for example. The same logic applies for Keys 1-3.

WPA-PSK



WPA-PSK is also known as WPA-Preset-Key. This implementation is more secure than WEP as the encryption is automatically changed periodically. To configure this feature, just key in a 8-63 ASCII character or 64 HEX character pass-phrase for both the Router and Cards.
Cipher: You can choose to use TKIP or AES for the cipher type.

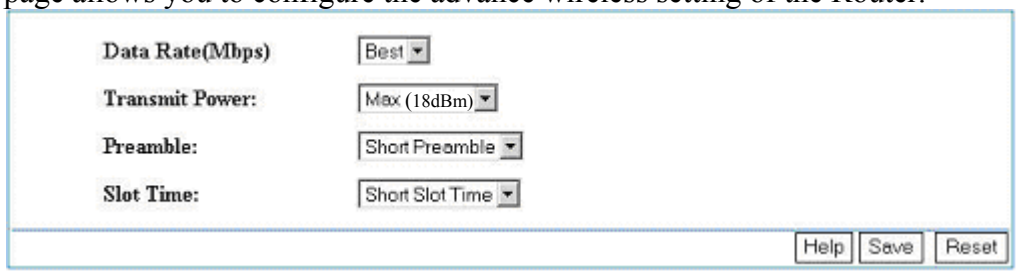
WPA



WPA (**W**iFi **P**rotected **A**ccess) is a standard where the Wireless Card has to authenticate to a RADIUS Server, through the Access Point. The Server can also manage the encryption keys such that they are changed dynamically. You need to have a RADIUS Server to be able to use this feature.
RADIUS Server: Enter the IP Address and the port of the RADIUS Server.
Shared Secret: Enter the Shared Secret of the RADIUS Server.
Confirm Source: Enter the Shared Secret again to confirm.

Wireless > Advance Setting

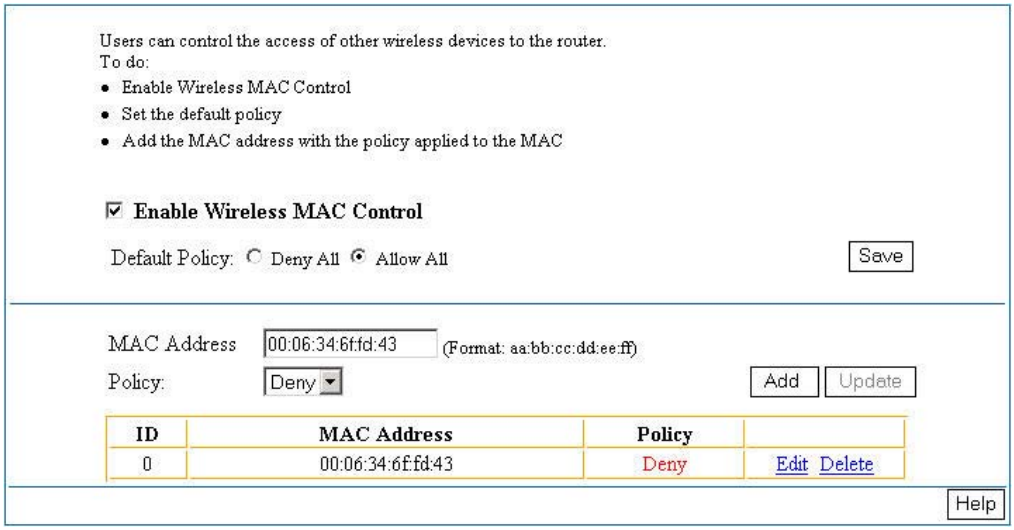
This page allows you to configure the advance wireless setting of the Router.



Data Rate (Mbps): You can set the wireless data rate from the available list or choose Best to allow the Router to choose the most appropriate data rate. When Best is used, the Router will determine the optimal data rate according to the environment.
Transmit Power: This adjust the transmit power of the antenna. Sometimes, it is useful to decrease the coverage range of each Router, so that more Routers can be located together without interfering one another.
Preamble: Choose Short Preamble or Long Preamble. Most manufacturers implement long preambles. Even if there is a mismatch between the Router and the card, they can still connect well and the mismatch may not be noticeable to most users. Do not change this setting without seeking advice.
Slot Time: Choose short or long slot time. The slot time is the amount of time a device waits after a collision before retransmitting.

Wireless > MAC Address Control

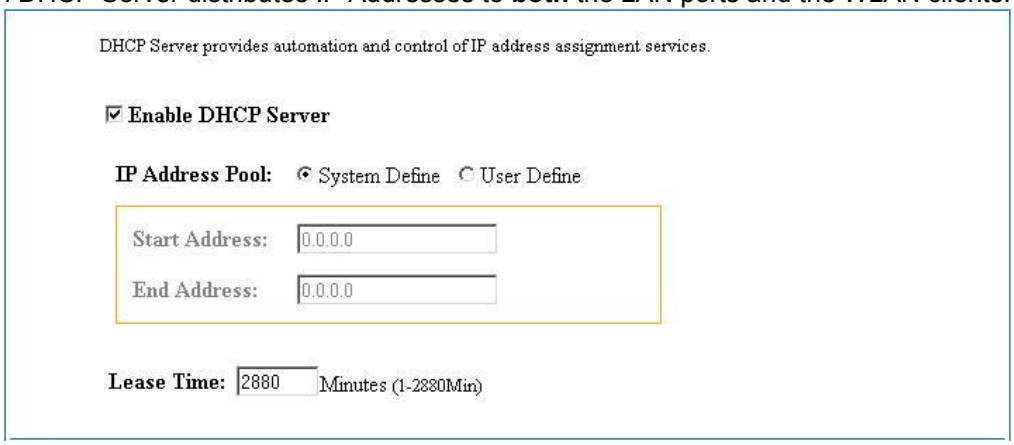
This page allows you to specify which ***wireless*** computer can access the Internet and which ***wireless*** computer cannot access the Internet. The specified MAC address and the policy for the computer are reflected in the table.



Enable Wireless MAC Control: Tick to enable Wireless MAC Control.
Default Policy: This policy determines whether computers, whose MAC addresses are not in the table, are able to access the Internet. If you choose **Deny All**, all computer associated to the Router will not be able to access the Internet other than those specified in the table.
MAC Address: Enter the MAC address of the computer. The format for the MAC address is aa:bb:cc:dd:ee:ff.
Policy: Choose to deny or allow the computer to access the computer. Click on the *Add* button to add the policy.

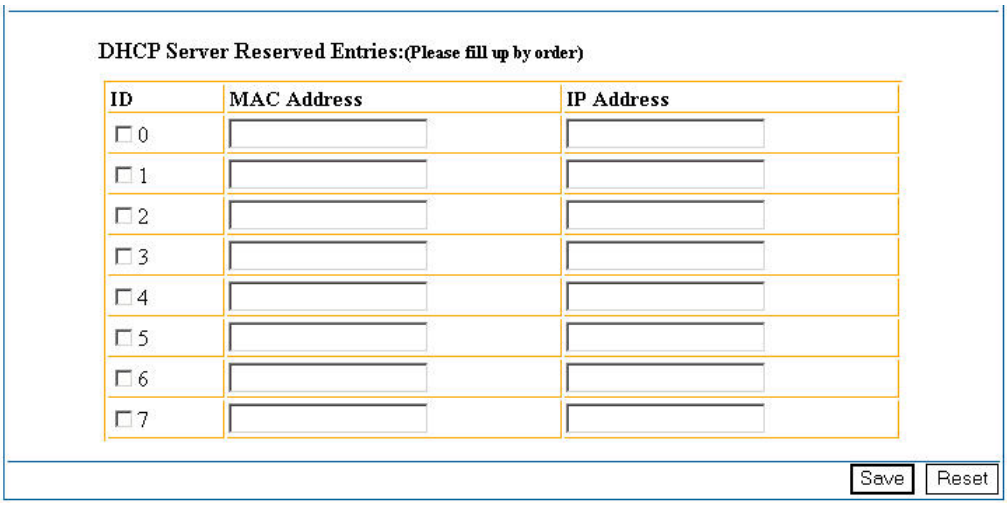
DHCP > DHCP Server

This page is to configure the properties of the Router's built-in DHCP Server. Take note that the built-in DHCP Server distributes IP Addresses to **both** the LAN ports and the WLAN clients.



Enable DHCP Server: Tick to enable the built-in DHCP (**D**ynamic **H**ost **C**onfiguration **P**rotocol) Server. When enabled, the Router will provide IP addresses to the computers connected to the router.
IP Address pool: When 'System Define' is selected, router will assign IP address automatically from the pre-defined pool. If 'User Define' is selected, you would have to define the range of the pool manually.

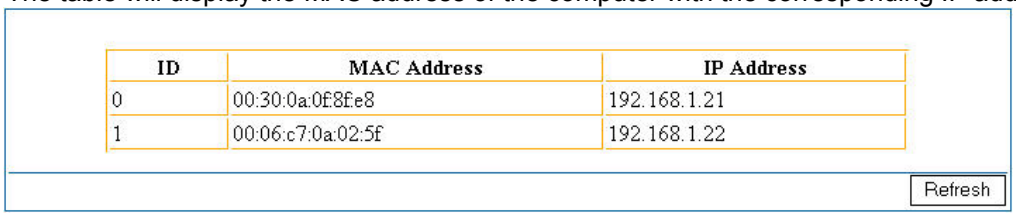
IP Address pool (For User Defined only), Start Address: This is the start address of the DHCP pool. The router will assign this to the first computer connected to the router.
IP Address pool (For User Defined only), End Address: This is the end address that the router will assign to the computers connected to the router.
Lease Time: The amount of time a network computer will be allowed to connect with the DHCP Server. By default, the lease time is 2880 minutes.



DHCP Server Reserved Entries: This feature allows you to reserve up to 8 LAN IP Addresses. These addresses can be assigned to your Servers, so that they always get the same IP Address when they boot up. Fill up the table by order of ID.
ID: Tick to enable this reservation.
MAC Address: Enter the MAC Address of the Server, so that the Router can identify your Server properly. The format for the MAC address is aa:bb:cc:dd:ee:ff.
IP Address: Enter the IP Address that you want to reserve for your Server.

DHCP > DHCP List

This is a log showing all the IP assigned to the computer by the Router in the WLAN and LAN ports. The table will display the MAC address of the computer with the corresponding IP address.

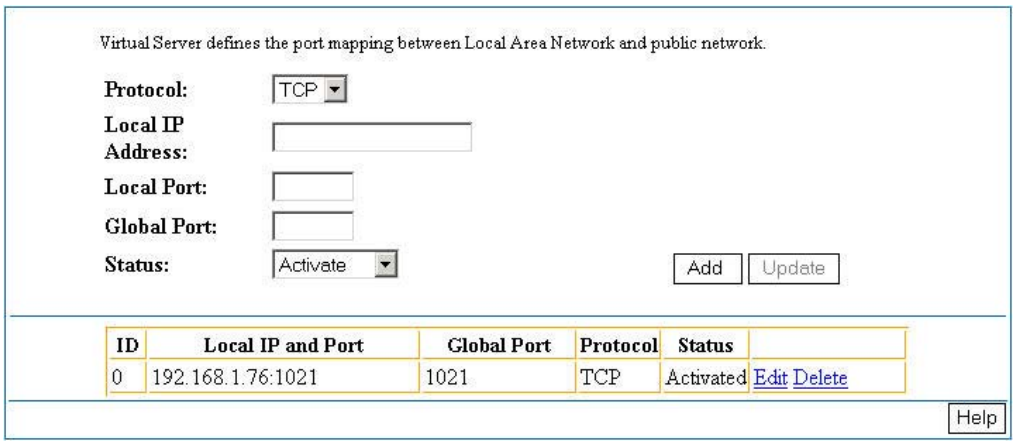


ID	MAC Address	IP Address
0	00:30:0a:0f:8f:e8	192.168.1.21
1	00:06:c7:0a:02:5f	192.168.1.22

Refresh

Port Forward > Virtual Server

This page allows you to configure Virtual Server. This feature is used when you need to allow computers from the Internet to access servers in LAN. Traffic initiated from the WAN (Internet) is normally blocked. Virtual Server allows the specific type of traffic to pass through the Router to reach the Server in the LAN. Examples of these Servers are Web Servers and Game Servers.

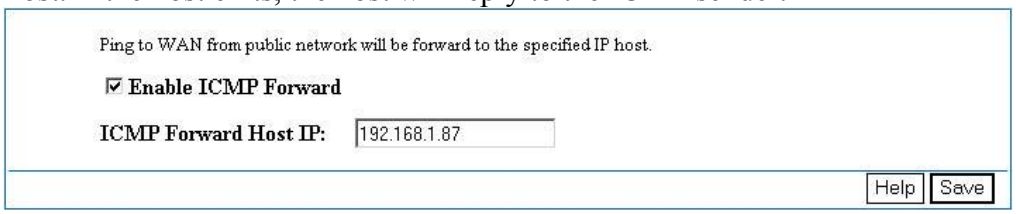


Protocol: Select the type of protocol to be forwarded. Choose between TCP and UDP.
Local IP Address: Enter the IP address of the Local Server.
Local Port: Enter the port value on the LAN side.
Global Port: Enter the port value on the WAN side.
Status: Choose to activate or deactivate this rule.

Click **Add** button to add the rule. The rules will be listed in the table. You can amend the rules in the table by clicking on **Edit** or delete the rules by clicking on **Delete**. Click **Update** button when amending the rule in the table.

Port Forward > ICMP Forward

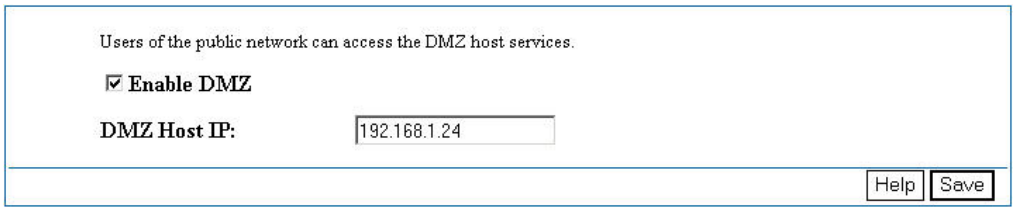
You can forward Ping (a network troubleshooting tool) from the Internet to a specified LAN host. If the host exits, the host will reply to the ICMP sender.



Enable ICMP Forward: Tick to enable ICMP forward.
ICMP Forward Host IP: Enter the IP address of the Host PC. All Ping from the Internet will be forwarded to this specified PC.

Port Forward > DMZ Setting

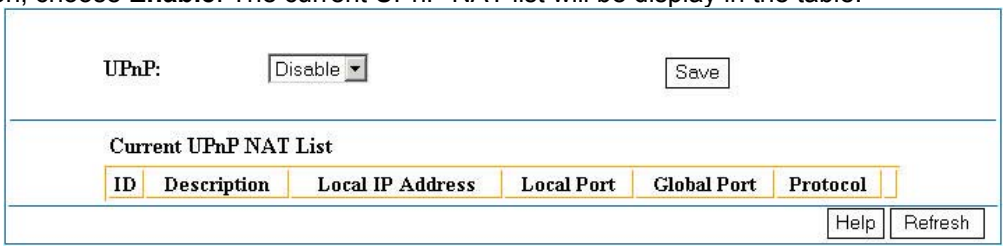
The **DMZ** (De-Militarized Zone) Configuration page lets you map a local computer to this zone. By default, the Router protects the PCs from the Internet. The local PCs can access the Internet (WAN) but not vice versa. Local PCs are hidden behind the NAT and Firewall.
DMZ is used when you want to expose that PC to the Internet. For example, you want to set up a Web Server or Game Server such that outsiders can access from the Internet.



Enable DMZ: Tick to enable DMZ.
DMZ Host IP: Enter the local computer's (Web or Game Server) IP address.

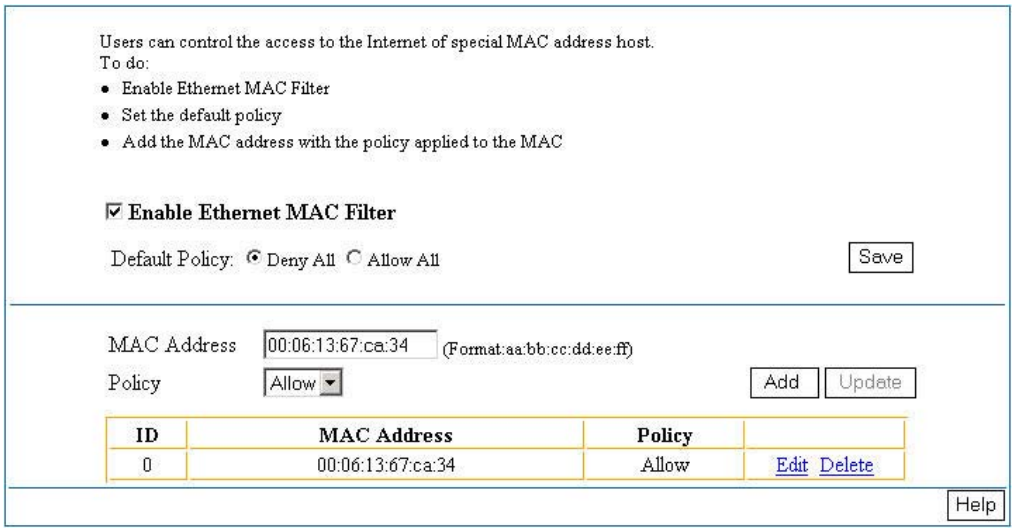
Port Forward > UPnP Setting

Universal Plug and Play (UPnP) is a network feature utilizing the Internet and Web protocols to promote the communicative exchange of information between networking devices. To enable this function, choose **Enable**. The current UPnP NAT list will be display in the table.



Firewall > MAC Filter

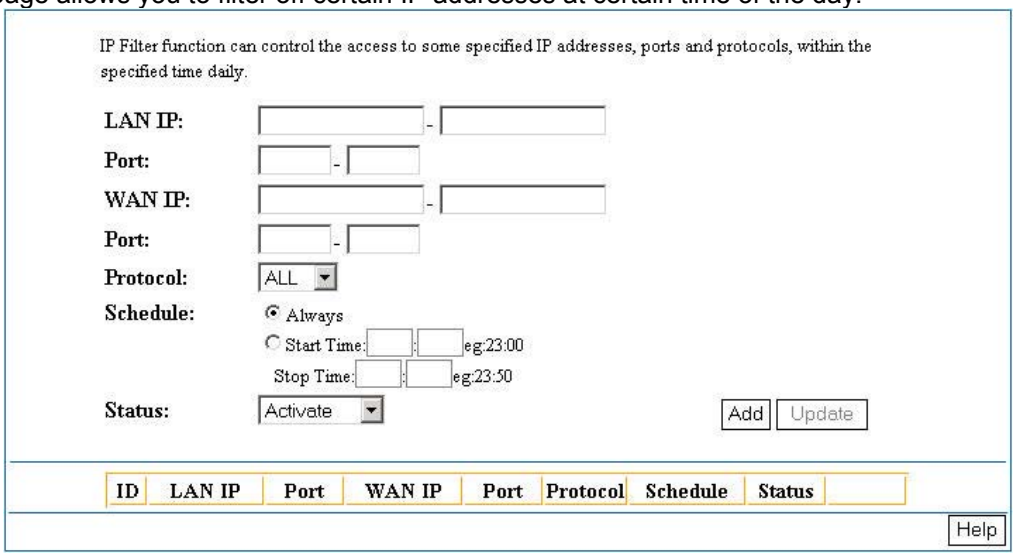
This page allows you to specify which computer can access the Internet and which computer cannot access the Internet. The specified MAC address and the policy for the computer is reflected in the table.



Enable Ethernet MAC Control: Tick to enable Ethernet MAC Control.
Default Policy: This policy determines whether computers, whose MAC addresses are not in the table, are able to access the Internet. If you choose **Deny All**, all computer connected to the Router will not be able to access the Internet other than those specified in the table.
MAC Address: Enter the MAC address of the computer. The format for the MAC address is aa:bb:cc:dd:ee:ff.
Policy: Choose to deny or allow the computer to access the computer. Click on the Add button to add the policy.

Firewall > IP Filter

This page allows you to filter off certain IP addresses at certain time of the day.



LAN IP: Enter the LAN IP address that would be denied access to the Internet. It can be one IP or a range of IP.

Port: The single LAN port or port range that will be denied access to the Internet.

WAN IP: Enter the WAN IP address that would be denied access to the Internet. It can be one IP or a range of IP.

Port: The single WAN port or port range that will be denied access to the Internet.

Protocol:

Schedule (Always): Choose this to keep the filter rule always on.

Schedule (Start time): The time when you would like to start blocking the IP Address.

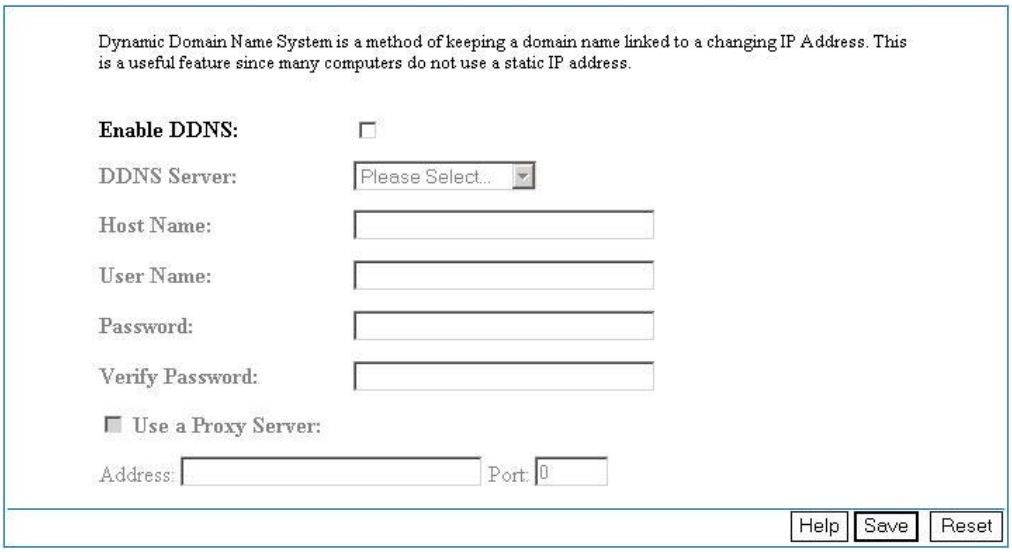
Schedule (Stop time): The time when you would like to stop blocking the IP Address.

Status: Choose to activate or de-activate the filter rule.

Miscellaneous > Dynamic DNS

Dynamic DNS allows you to update your current dynamic IP address with dynamic DNS services so that you can be contactable most of the time. You can also access your FTP server or web page on your own computer using a domain name. Unlike IP address, the domain name will not change with each reconnect.

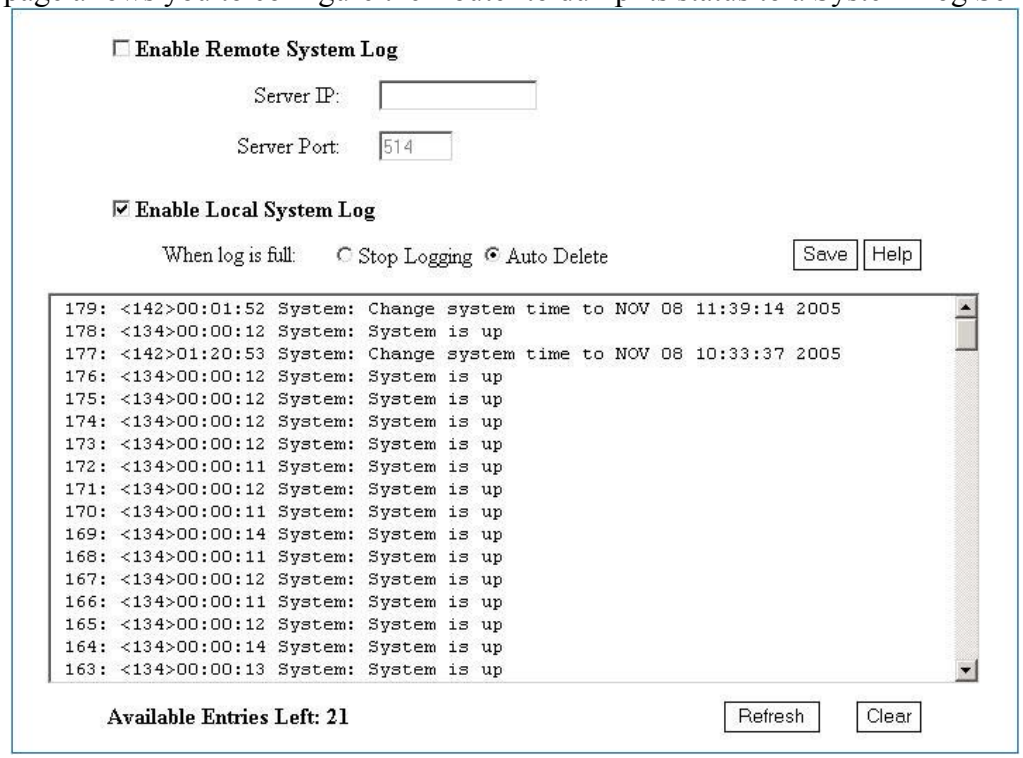
First of all, you would need to register a dynamic DNS account dynamic DNS service provider. The Dynamic DNS service provider will give you a password.



Enable DDNS: Tick to enable dynamic DNS.
DDNS Server: There is a few default DDNS server in the drop down menu; http://www.dyndns.com/, http://www.no-ip.com/, http://freedns.afraid.org/.
Host Name: Enter the host name registered with the dynamic DNS service provider.
User Name: Enter the user name registered with the dynamic DNS service provider.
Password: Enter the password registered with the dynamic DNS service provider.
Verify Password: Verify the password registered with the dynamic DNS service provider.
Use a Proxy Server: Tick this option if your network is using a proxy server.
Address/Port: Address and port of the proxy server.

System Tools > System Log

This page allows you to configure the Router to dump its status to a System Log Server.

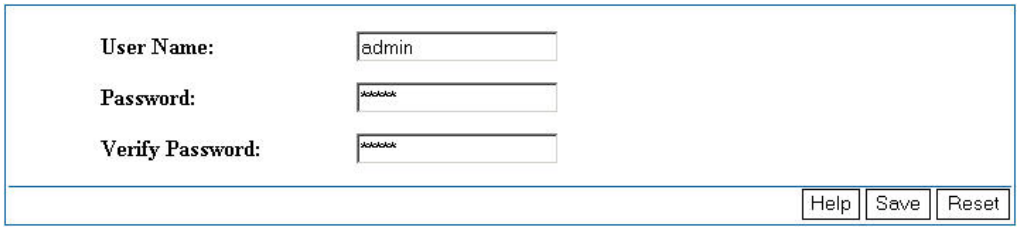


Enable Remote System Log: Enable this feature to allow the Router to constantly update its status on a System log Server.
System Log Server IP: Enter the IP Address of the System Log Server if you had enabled Remote Logging.
System Log Server Port: Enter the port number the System Log Server is using.
Enable Local System Log: Enable this feature if you do not have a System log Server. The events would then be logged locally on the Router.
Log Management when log is full (Stop Logging): When this option is chosen, the Router will stop logging.
Log Management when log is full (Auto Delete): The maximum number of local log entry is 200. When all the 200 entries are used up, the Router will overwrite previous entries with new logs.

Remember to Apply and Reboot for the settings to take effect.

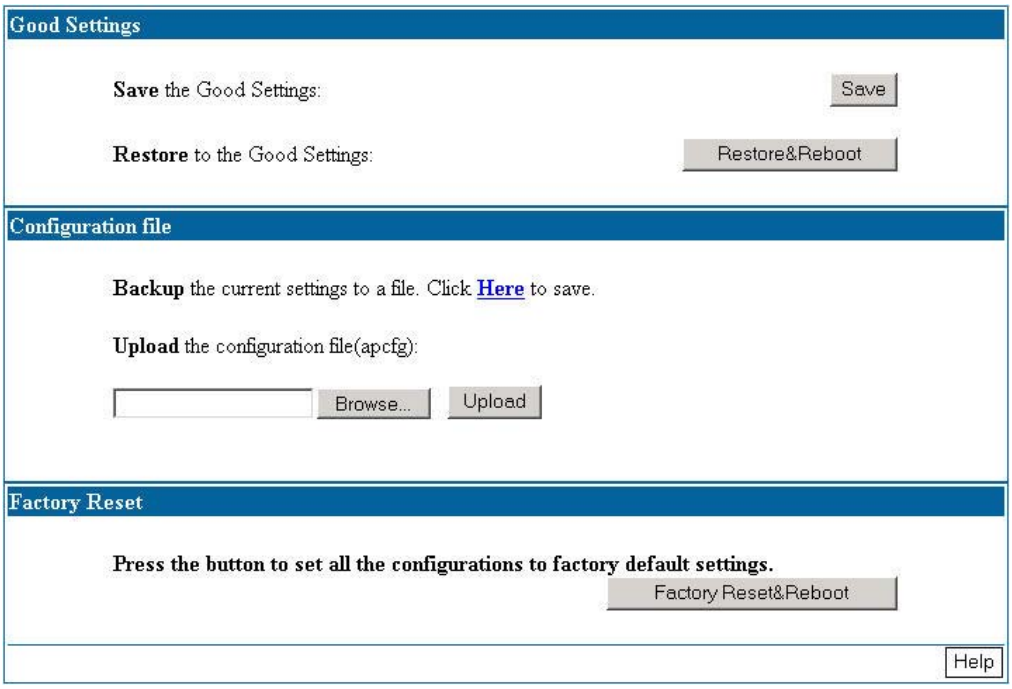
System Tools > System Admin

This page allows you to change the Administrator's Username and Password. The default username and password is admin / admin. After every **Factory Reset**, the Router reverts to this combination.



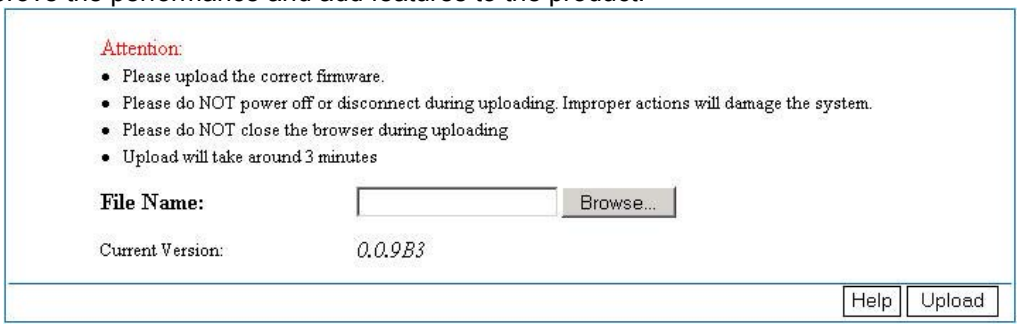
System Tools > Backup/Restore Settings

Use this page to preserve any good setting. You can save the configuration file into your computer and upload it back to the Router when the setting of your Router when necessary. In addition, you can do a factory reset and restore the Router back to factory default setting. The factory default setting is shown in the *Factory Reset* section.



System Tools > Firmware Update

This page allows you to update the firmware (software) in the Router. New firmwares are issued to improve the performance and add features to the product.



1. The new firmware is a file name “apimg1”.
2. Save the file in your PC.
3. **Browse** and select the firmware file.

You will see the following page when firmware upgrading is successful.

Upload Succeeds.

The file has been uploaded.

Back

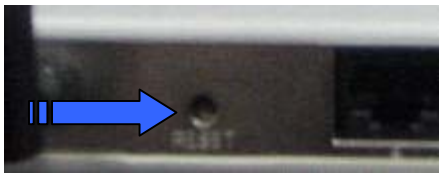
Do not close the browser or shutdown the Router during firmware upgrading. Failure to do so will cause serious damage to Router.

System Tools > Reboot

This page allows you to reboot the Router. You must reboot the Router after you have finished configuring the Router for the new setting to take effect.

9 FACTORY RESET

When you have wrongly configured the Router and wish to start all over again, you can perform a Factory Reset to restore the Router to its original state. Simply use a paper clip or any pointed object to press in the hole for 10 seconds and release.



The Router would be reset to its original Factory Default configuration:

Router's Feature	Factory Default
User Name	admin
Password	admin
WAN IP	-
WAN subnet mask	-
LAN IP	192.168.1.20
LAN subnet mask	255.255.255.0
DHCP Server (including WLAN)	On.
SysLog	Local System logging on
SSID	11g
Channel	SmartSelect
MAC Address Control	Off
Wireless Security	Off
DMZ	Off
Virtual Server	Off
IP Filter	Off.

10 PC CONFIGURATION

The Router's function is to connect multiple PCs to the Internet. In addition to configuring the Router, the PCs' IP settings would also need to be configured.

It is easiest to use DHCP client for the PCs. This is also the default whenever you:

a. Install a new Wireless PCMCIA/Cardbus card, or
b. When you plug an Ethernet cable into your PC for the first time.

Fortunately, in default mode, the Router's DHCP Server is on. This means that when you buy a new Router and install a new Wireless Card, the IP settings on the PC are already correct!

In the event that you need to troubleshoot the IP settings, the easiest method is:

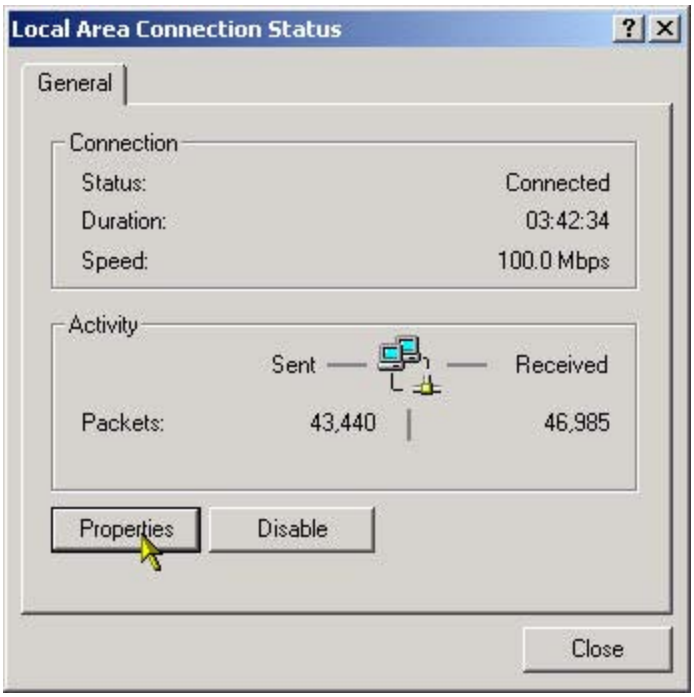
a. Perform a Hardware Reset to the Router, and
b. Perform a following to configure Automatic IP (DHCP Client) on the PC.

Setting DHCP IP Address

The steps outlined are applicable for Windows PCs. The GUI for Windows 98SE and ME may look slightly different, but the steps are the same.

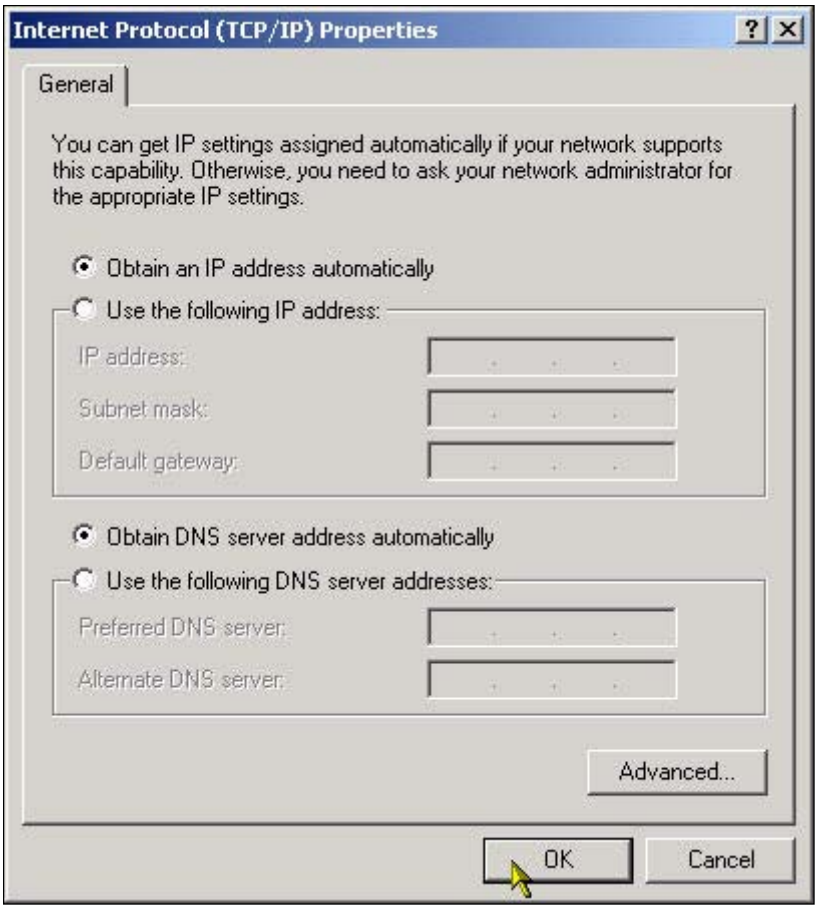
1. Connect the PC to the Router. This can be via Ethernet or Wireless. Do not connect any other networking devices! Do not connect the modem to the PC!
2. Go to **Start** >> **Settings** >> **Control Panel** >> **Network and Dial-Up Connections**
3. Double-click Local Area Connection.

4. Click on Properties.



5. In the box, click on Internet Protocol (TCP/IP). Make sure there is a tick in the box for TCP/IP.

6. Use automatic for both the settings. Click OK and close all windows.



7. Windows 98SE and ME may prompt you for a reboot.

DHCP Client has been set up on your PC. Make sure you do a Factory Reset to the Router and configure your broadband account again.

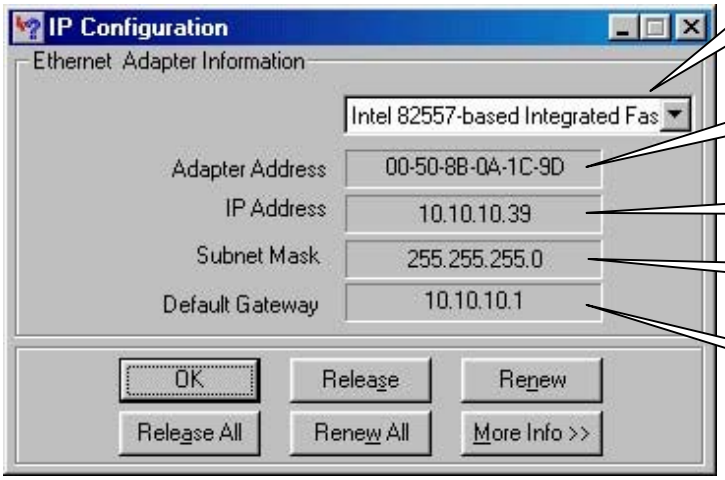
My IP Address

This section describes how to check your PC's IP Address. Every PC in your network must have a unique IP Address. A new Router (or after Factory Reset) would have a default IP Address of **192.168.1.20**.

For Win98 and Windows ME Users

To check your PC's IP Address, go to Start >> Run and type **winipcfg**

Your PC displays your IP properties in a window:

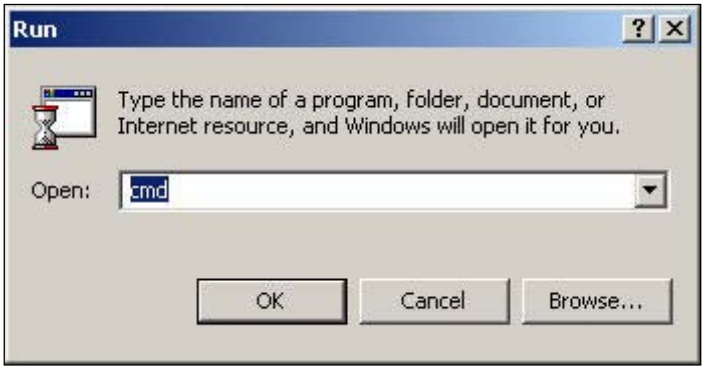


For more information, click **More Info>>**.

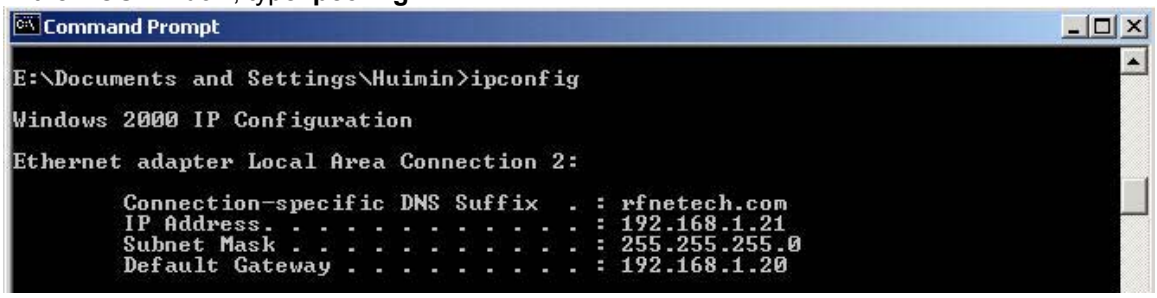
It would be good to know your MAC address if you want to implement MAC address control on your Router.

For Windows 2000 and Windows XP Users

Go to Start >> Run. Type **cmd**



In the DOS-window, type **ipconfig**



In this example, we can see that the PC has an IP Address of 192.168.1.21. The Default Gateway is 192.168.1.20, which is the Router.

For more details, type **ipconfig/all**.

It would be good to know your MAC address if you want to implement MAC address control on your Router.
Your Default Gateway is usually the IP Address of the Router: **192.168.1.20**

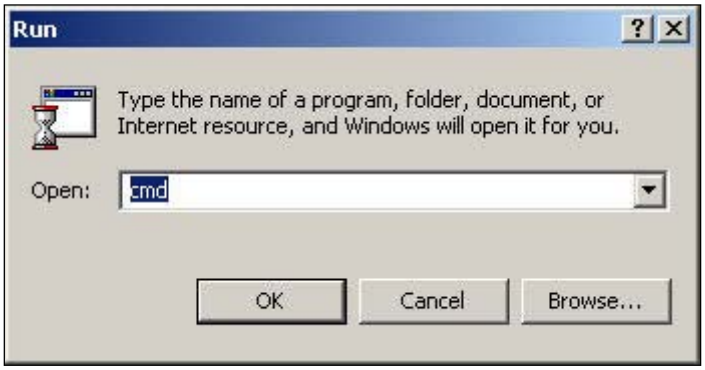
Ping!

Ping is a very useful tool to check network connectivity. Making sure that your PC is physically plugged into your Router is NOT sufficient! They must also be connected in the networking sense: their IP settings must be correct. To check if your PC is connected to the Router, you can perform a Ping to the Router's IP Address (Usually 192.168.1.20).

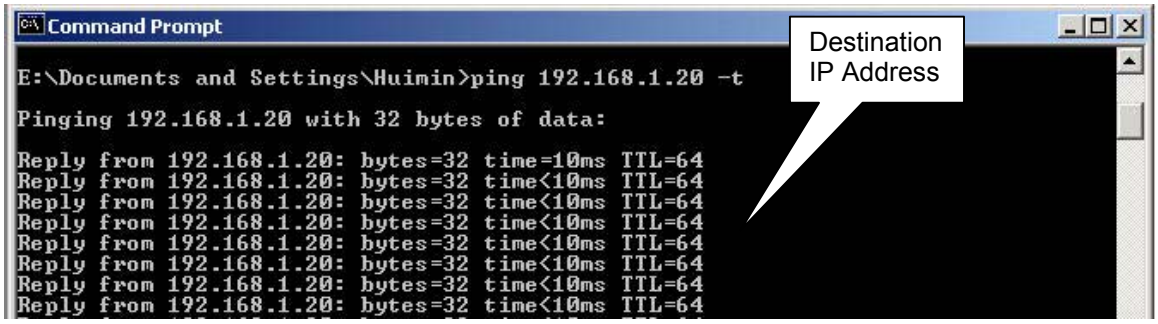
When you perform a ping, your PC sends a message to the destination.

If the destination exists, it would receive the message and send a reply back to you automatically.
If the destination cannot be reached, your PC informs you of the network error.

Go to Start >> Run. Type **cmd** or **command**



In the DOS-window, type **ping 192.168.1.20.**



The connection is good if you are getting replies, as shown above.

Ping also works for a Wireless connection.

But the replies may not be consistent, depending on your distance from the Router.

If the Ethernet cable is unplugged or if the Wireless LAN settings are wrong, it shows Hardware error:

```
Hardware error.
Hardware error.
Hardware error.
Hardware error.
```

If the destination does not exist or cannot be reached because of incorrect IP settings, it would show Request timed out.

```
Request timed out.
Request timed out.
Request timed out.
Request timed out.
```

Ping tests are very useful. If the ping is not successful, you may have:

a. Changed the LAN IP of the Router.
b. Turned off the DHCP Server in the Router.
c. Configured a wrong Static Address for your PC.

You would have to:

a. Check the Ethernet cable and/or check the Wireless LAN settings
b. Perform a Factory Reset to the Router if necessary
c. Ensure that your PC is set to DHCP client (automatic).

If you are not even able to ping the Router, there is no way you can access its Configuration Page.

Web Browser Settings

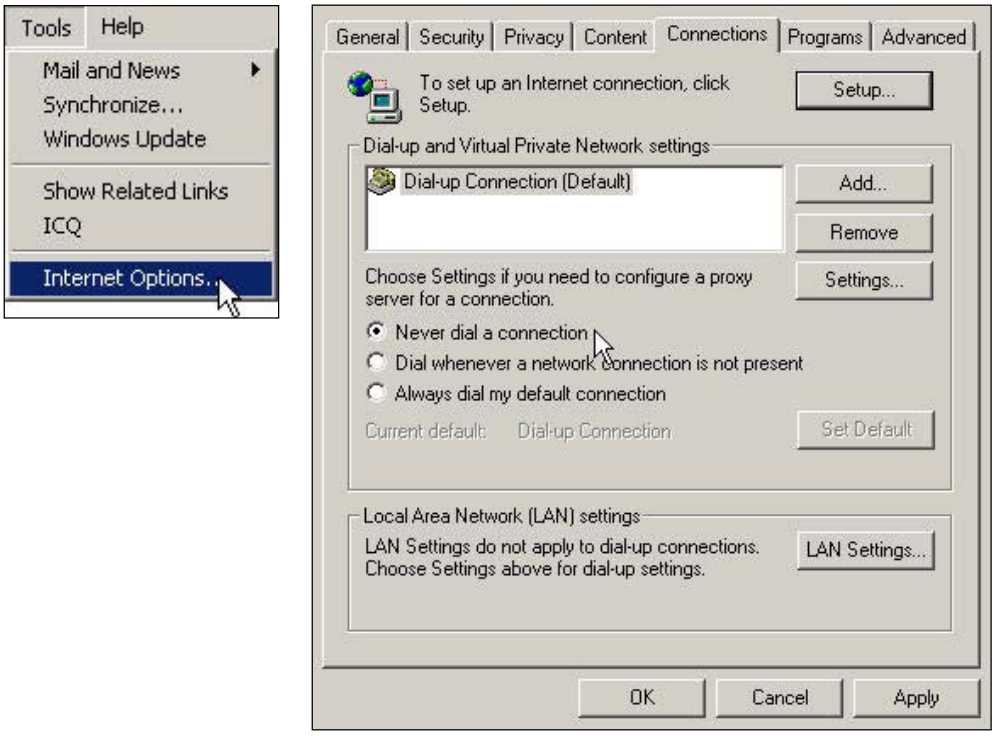
By default, your Web Browser (eg. Microsoft Internet Explorer, Netscape) does not need any setup to use the Router. The default settings would allow you to surf the web using the Router. However, if you have previously used the following methods to access the Internet, you would need to check your browser settings:

- Internal / External 56k modem
- ADSL modem connected to your USB port
- ADSL dialer software (eg. WinPOET)

Never Dial a Connection

The Web Browser is tied to a particular device for accessing the Internet. This is the reason why you have to configure it if you had used another networking device previously. The steps are described for IE6, but the procedure is similar for other Web Browsers.

1. Go to Tools >> Internet Options >> Connections.



2. As seen in the above, the Browser has a Dial-up Connection configured previously. Choose "**Never dial a connection**" and Apply. The Browser will now use your LAN connection (Ethernet or WLAN) to access the Internet instead of the old device.

Proxy Server

Most ISPs do not require you to configure a Proxy Server to surf the Internet. Check with your ISP. If you are required to configure a Proxy Server, you would have to follow these steps:

1. Continue from the previous page. Click on LAN Settings.

2. Enter the Proxy Server Address and Port number. Do NOT use proxy.com.com! Check with your ISP!

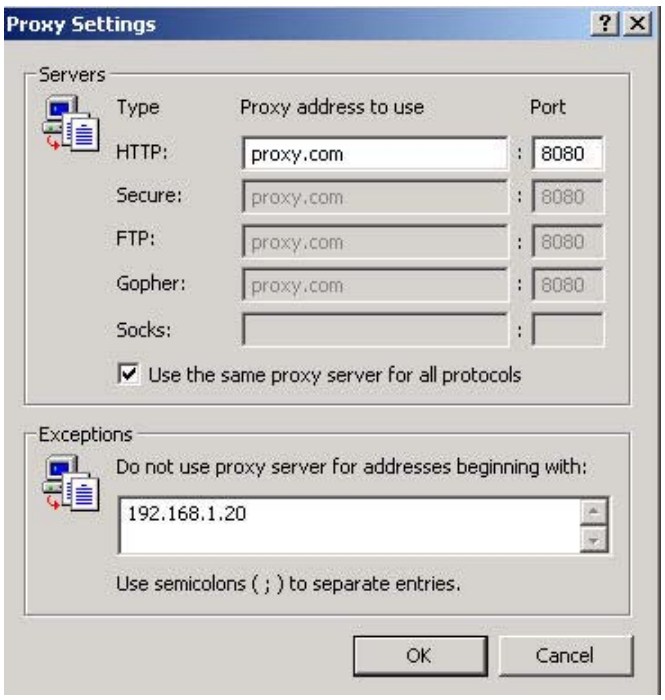
The Browser would now go through the Proxy Server for every Internet session.

However, the Proxy Server would not be able to direct you to your Router's Configuration page (**192.168.1.20**). Therefore, you have to carry out the next few steps to make sure that when you want to configure the Router, you go to 192.168.1.20 directly.

3. Click the Advance button.

4. Enter **192.168.1.20** in the box.

5. Click OK on all the windows.



11 TECHNICAL SUPPORT

For technical support, please contact the following local distributor or reseller.

12 DISCLAIMER

- Manufacturer assumes no responsibility for any damage or loss resulting from the use of this manual.
- Manufacturer assumes no responsibility for any loss or claims by third parties that may arise through the use of this product.
- Manufacturer assumes no responsibility for any damage or loss caused by incorrect use of APRT-2518G / APRT-2518GS.
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