EDIMAX
NETWORKING PEOPLE TOGETHER

BR-6478AC

User Manual

02-2013 / v1.0

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The product you have purchased and the setup screen may appear slightly different from those shown in this QIG. For more information about this product, please refer to the user manual on the CD-ROM. The software and specifications are subject to change without notice. Please visit our website www.edimax.com for updates. All brand and product names mentioned in this manual are trademarks and/or registered trademarks of their respective holders.

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I. PRODUCT INFORMATION

Thank you for purchasing an Edimax BR-6478AC AC1200 wireless concurrent dual-band gigabit router.

I-1. Package Contents

Before you start using this product, please check if there is anything missing in the package, and contact your dealer to claim the missing item(s):

BR-6478AC

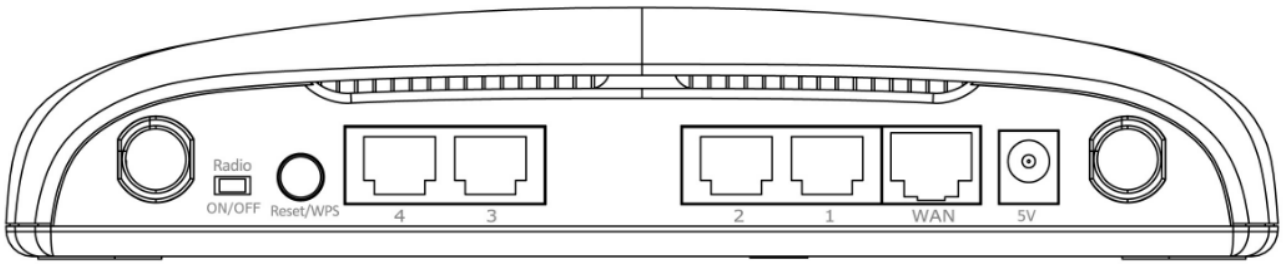
CD-ROM

Ethernet

Quick Installation Guide

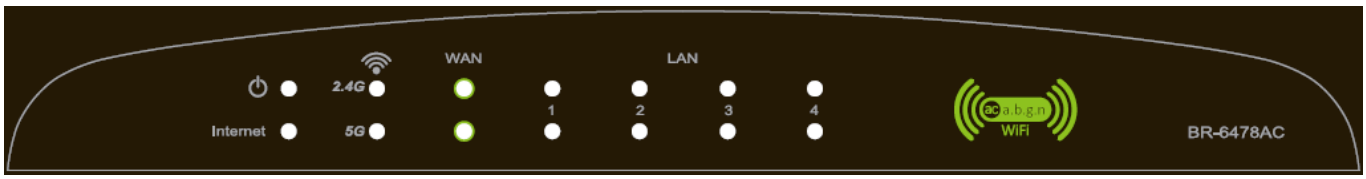
Power Adapter

I-2. Hardware



Item Name	Description
Antenna	Connects the supplied 3dBi antennas.
Radio ON/OFF Switch	Switch the wireless signal on/off accordingly.
Reset / WPS Button	**Resets** the router to factory default settings (clears all settings) **or** starts the **WPS** function. **Reset:** Press and hold for 12 seconds to restore all settings to factory defaults. **WPS:** Press this button for 2–5 seconds to activate the WPS function.
Gigabit LAN Ports	Connects via Ethernet cable to a computer or other network devices.
Gigabit WAN Port	Connects to cable/xDSL modems.
5V Power Port	Connects to the supplied power adapter.

I-3. LED Status



LED	LED Status	Description
Power	On	Router is on.
	Off	Router is off.
Internet	On	Internet connection is active.
	Flashing	Router is connecting to internet.
	Off	No internet connection.
2.4 GHz	On	2.4GHz wireless is active.
	Flashing	2.4GHz LAN activity (transferring/receiving data).
	Off	2.4GHz wireless is not active.
5 GHz	On	5GHz wireless is active.
	Flashing	5GHz LAN activity (transferring/receiving data).
	Off	5GHz wireless is not active.
WAN	On	WAN port connected.
	Flashing	WAN activity (transferring/receiving data)
	Off	WAN port not connected.
LAN 1–4	On	LAN port connected.
	Flashing	LAN activity (transferring or receiving data).
	Off	LAN port not connected.

I-4. Safety Information

In order to ensure the safe operation of the device and its users, please read and act in accordance with the following safety instructions.

1. The router is designed for indoor use only; do not place the router outdoors.

2. Do not place the router in or near hot/humid places, such as a kitchen or bathroom.

3. Do not pull any connected cable with force; carefully disconnect it from the router.

4. The device contains small parts which are a danger to small children under 3 years old. Please keep the router out of reach of children.

5. Do not place the router on paper, cloth, or other flammable materials. The router will become hot during use.

6. There are no user-serviceable parts inside the router. If you experience problems with the router, please contact your dealer of purchase and ask for help.

7. The router is an electrical device and as such, if it becomes wet for any reason, do not attempt to touch it without switching the power supply off. Contact an experienced electrical technician for further help.

8. If you smell burning or see smoke coming from the router then unplug the router immediately, as far as it is safely possible to do so. Call your dealer of purchase for help.

I-5. Features

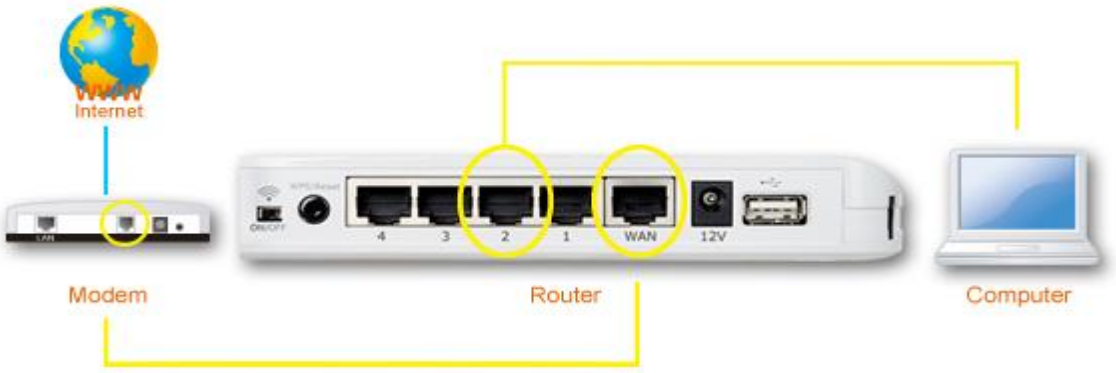
- Supports IEEE 802.11ac & IEEE 802.11a/b/g/n concurrent dual-band connections on 2.4GHz and 5GHz bands.
- Wireless data transmission rate up to 1167Mbps (2.4GHz 300Mbps + 5GHz 867Mbps).
- 4 gigabit LAN ports (data transmission rates up to 1000Mbps).
- Comply with IEEE 802.3/ 802.3u/ 802.3ab standards.
- Smart and automated iQ Setup.
- iQoS for quick and easy bandwidth management.
- Build-in hardware button to enable/disable the wireless signal.
- Wireless signal on/off scheduling function.
- Supports DHCP, Static IP, PPPoE, PPTP, L2TP and WISP connection modes.

- Supports WMM, WEP, WPA, WPA2, DDNS, QoS, IP/MAC filter, DMZ and virtual server.

II. HARDWARE INSTALLATION & NETWORK SETTINGS

II-1. Hardware Installation

Please setup your router, computer, modem and other network devices as shown below.



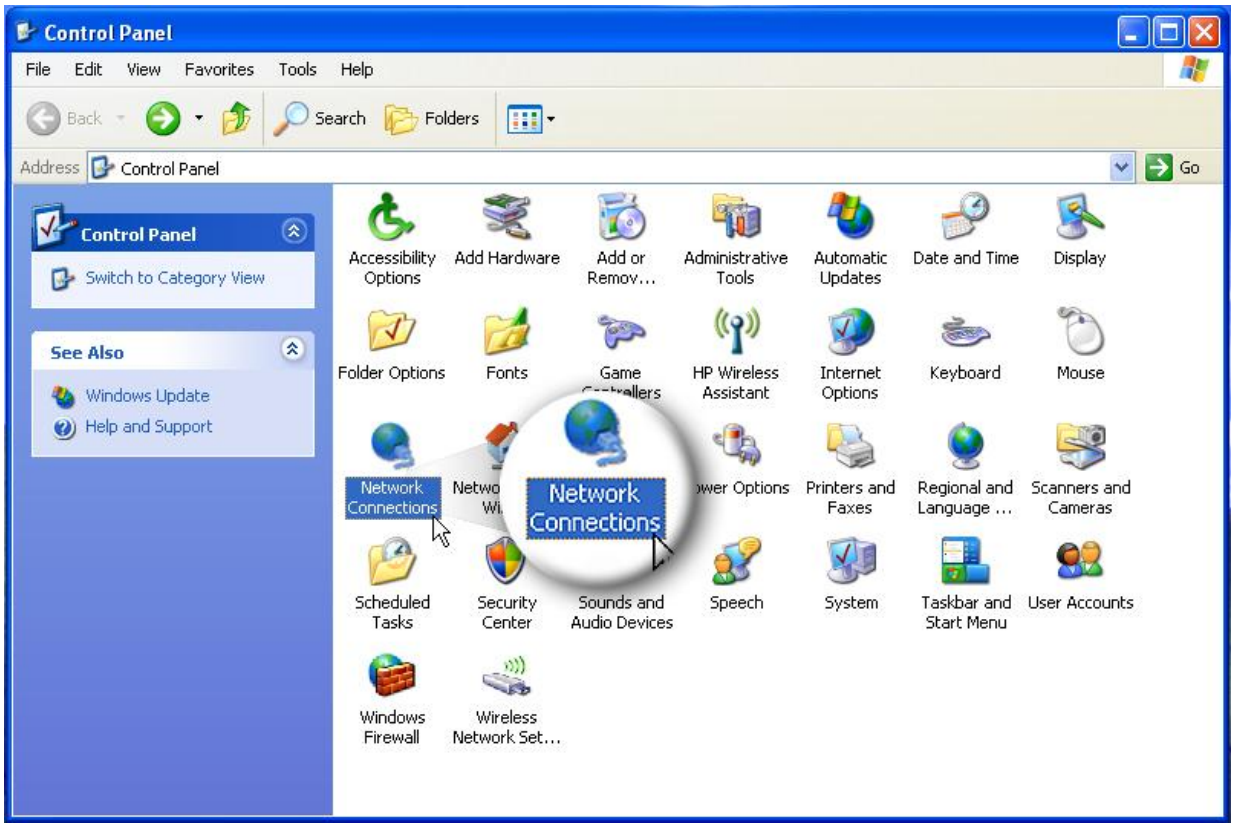
Before using the BR-6478AC, please make sure your computer is set to use a **dynamic IP address**. This means your computer can obtain an IP address automatically from a DHCP server. Please refer to instructions appropriate for your operating system.

II-2. Network Settings

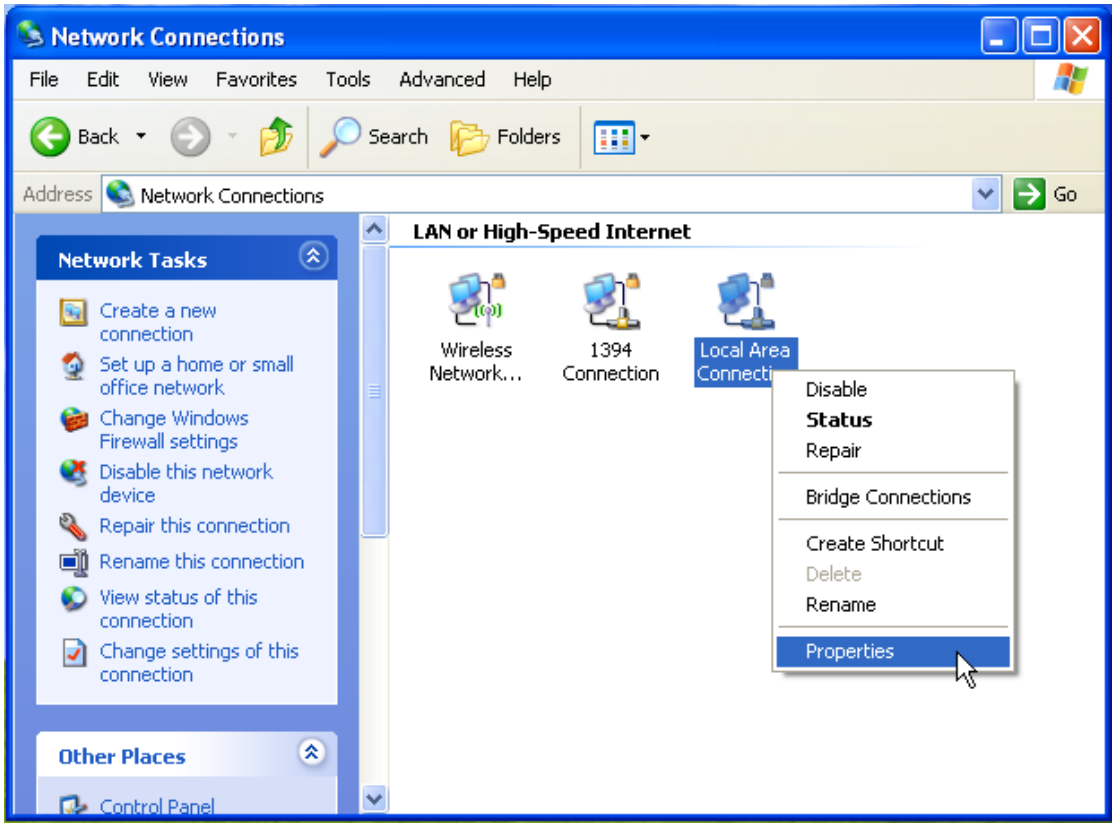
II-2-1. Windows XP

1. Click the “Start” button, then click “Control Panel”.

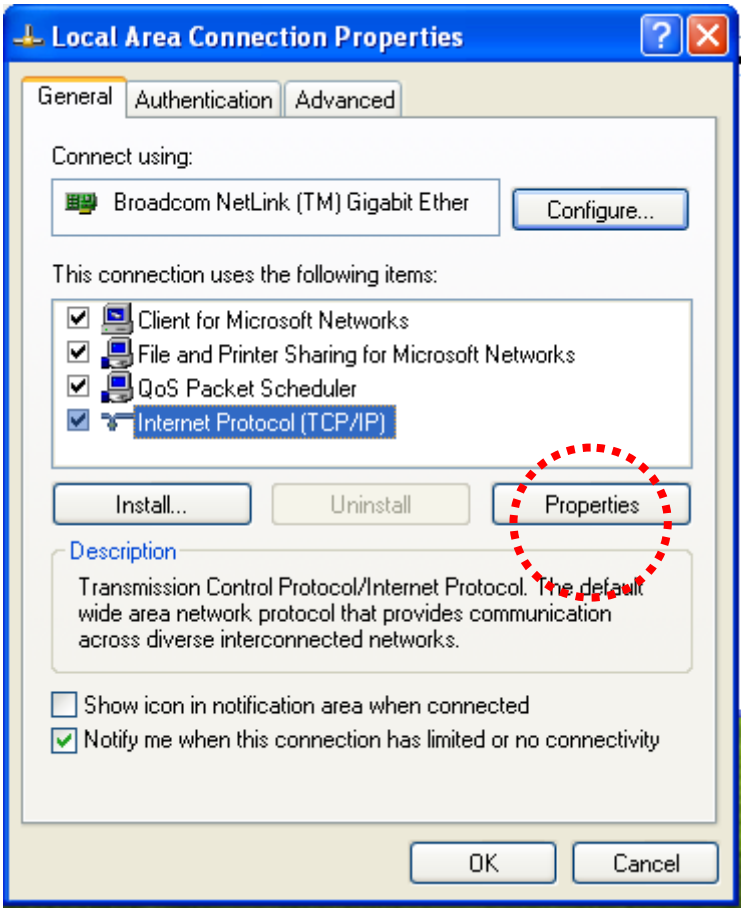
2. Double click the “Network Connections” icon and the “Network Connections” window will appear.



3. Right click “Local Area Connection” on the mouse. When the “Local Area Connection Properties” window appears, click “Properties”.

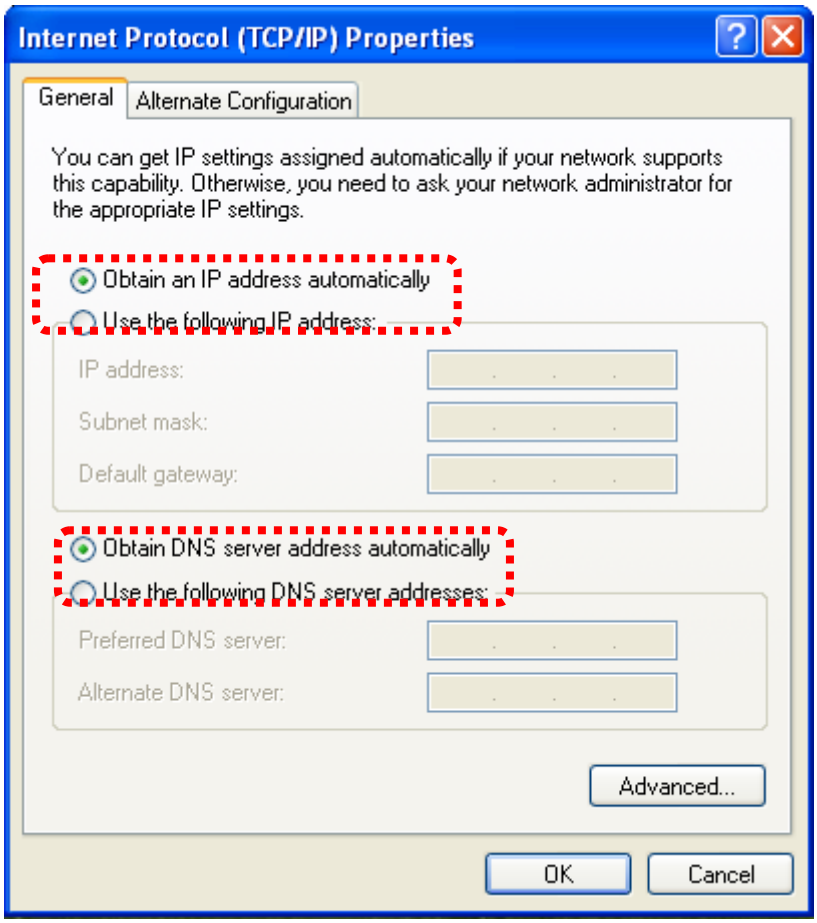


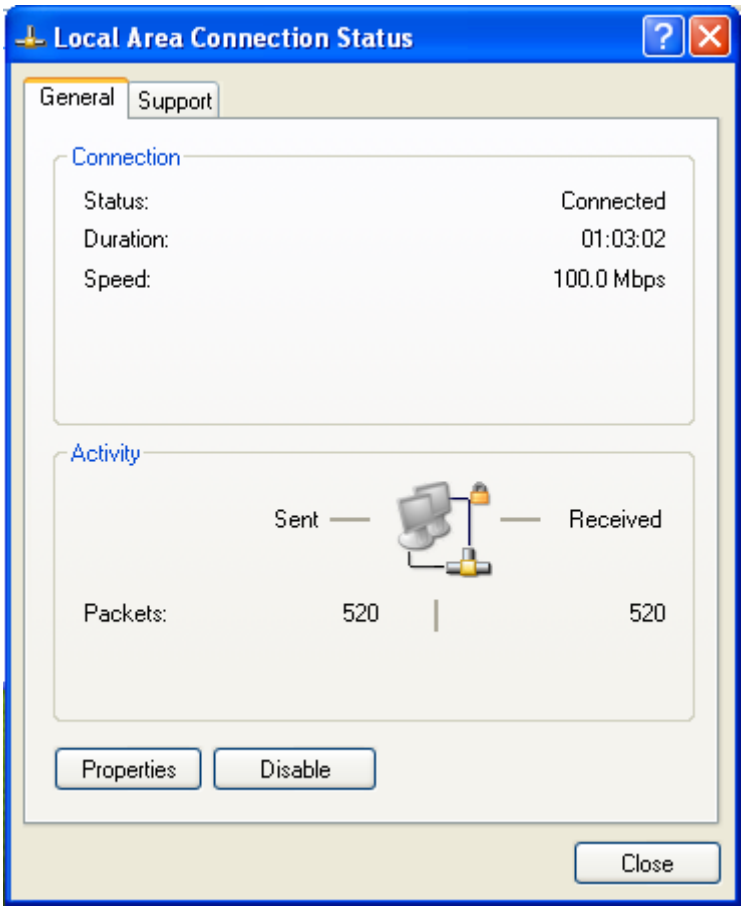
4. Select “TCP/IP” and click “Properties”.



5. Select “Obtain an IP address automatically” and “Obtain DNS server

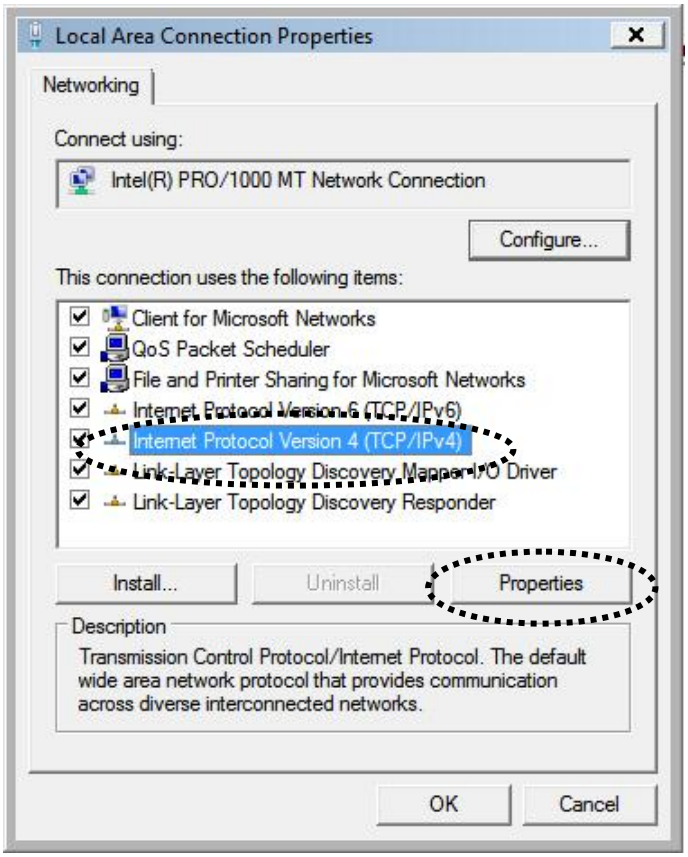
address automatically", then click "OK".



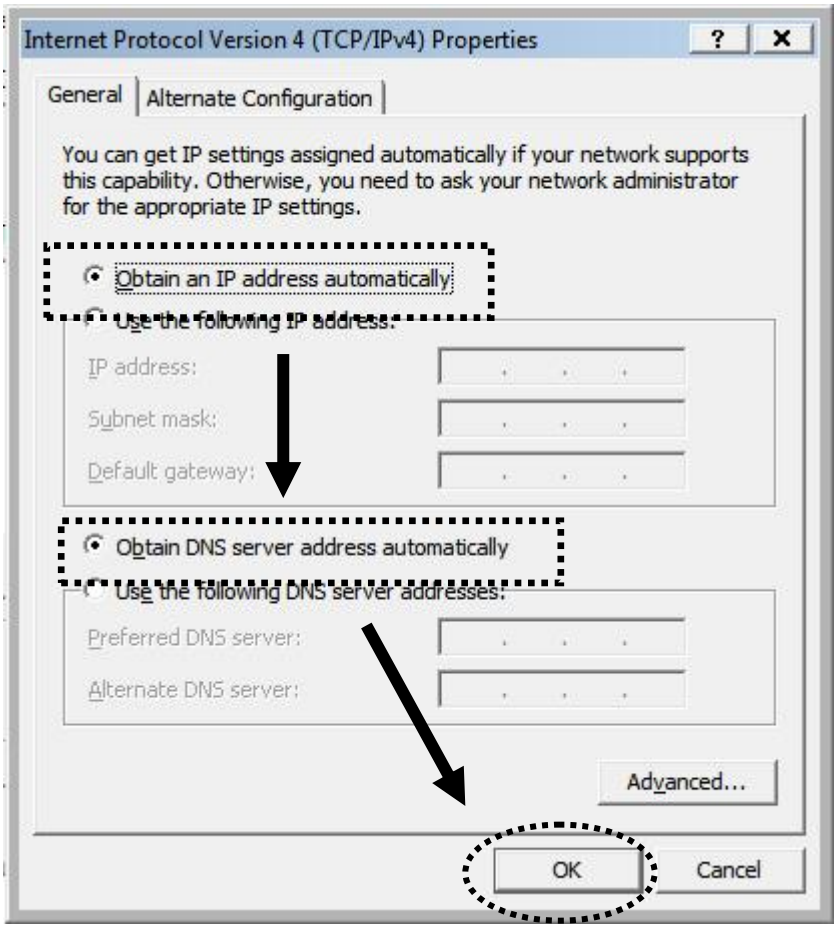


II-2-2. Windows Vista

1. Click the “Start” button (it should be located in the lower-left corner of your computer), then click “Control Panel”. Click “View Network Status and Tasks”, then click “Manage Network Connections”. Right-click “Local Area Network”, then select “Properties”. The “Local Area Connection Properties” window will then appear, select “Internet Protocol Version 4 (TCP / IPv4)”, and then click “Properties”.

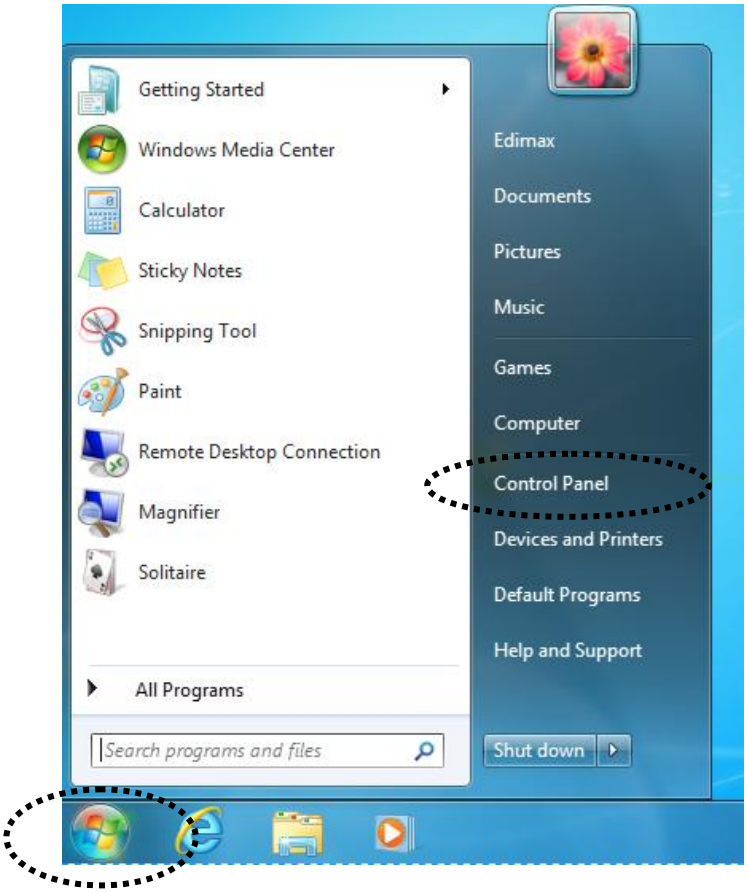


2. Select “Obtain an IP address automatically” and “Obtain DNS server address automatically”, then click “OK”.



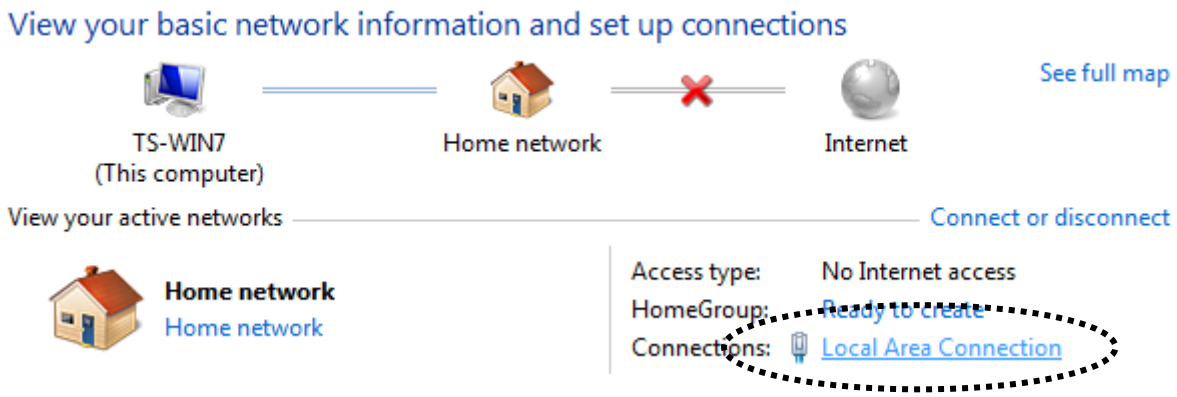
II-2-3. Windows 7

1. Click the “Start” button (it should be located in the lower-left corner of your computer), then click “Control Panel”.

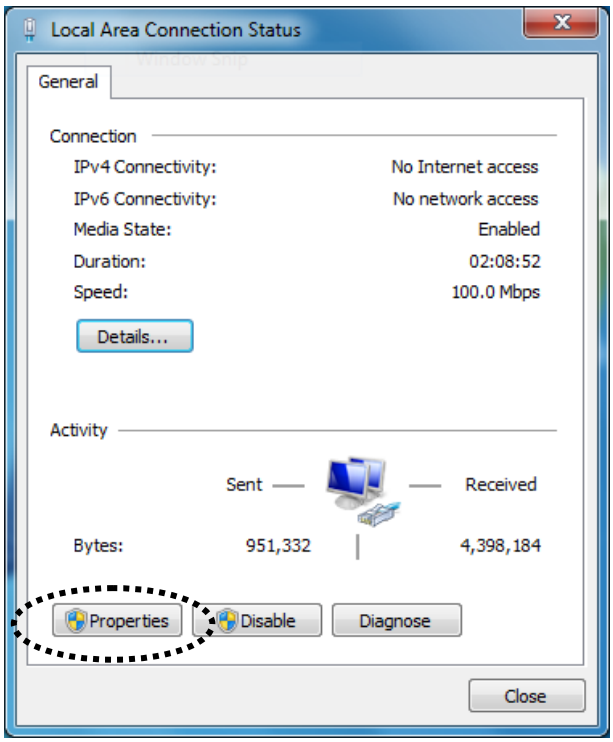


2. Under “Network and Internet” click “View network status and tasks”.

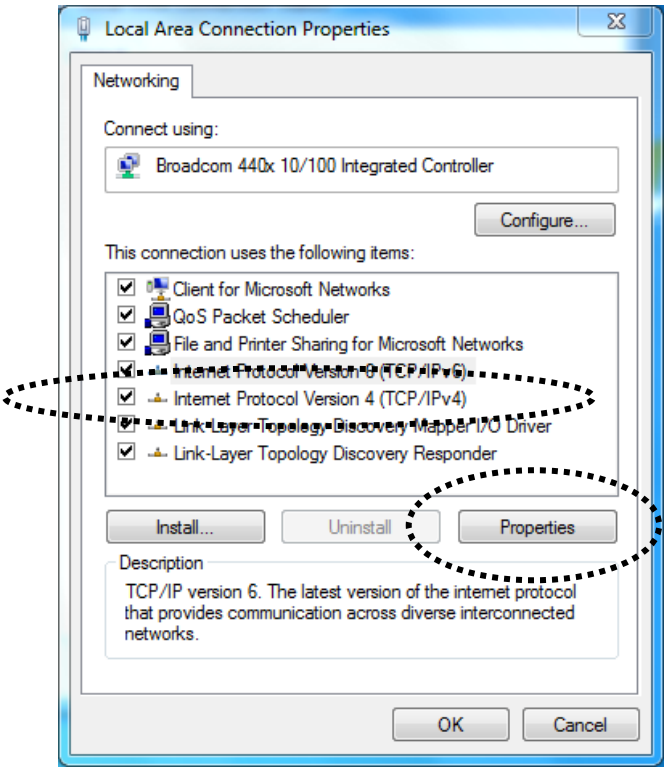
3. Click “Local Area Connection”.



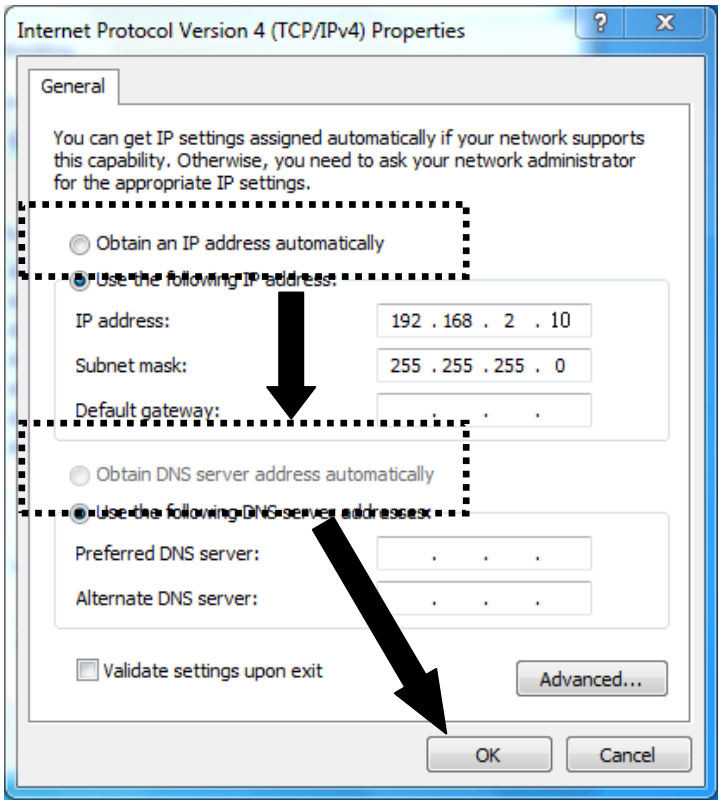
4. Click “Properties”.



5. Select “Internet Protocol Version 4 (TCP/IPv6) and then click “Properties”.

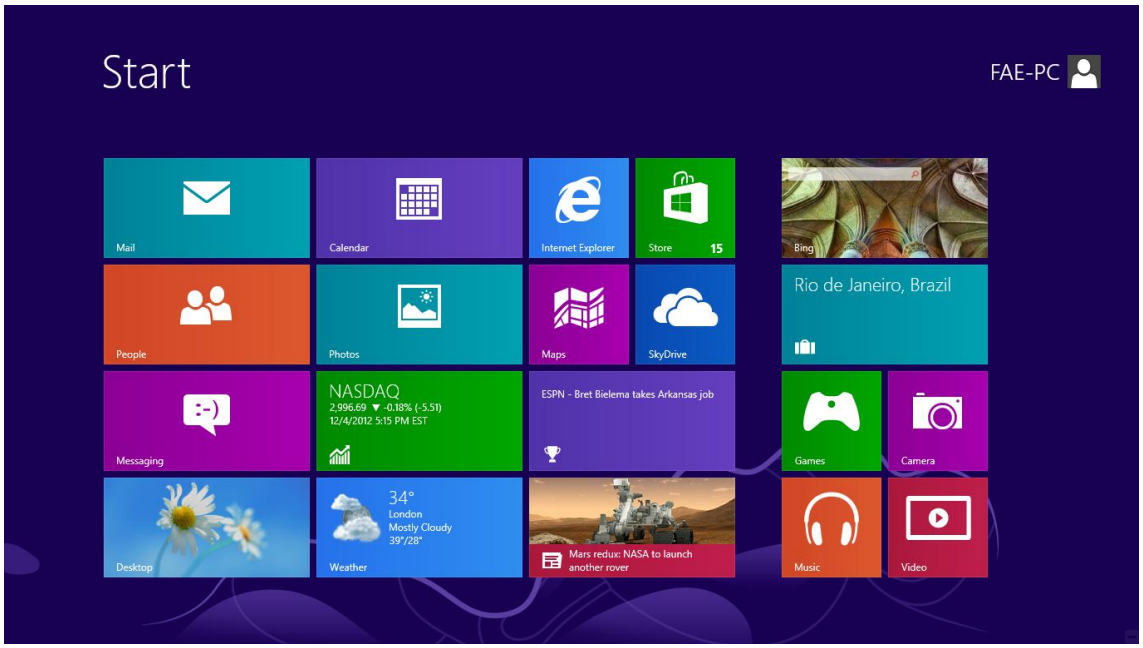


6. Select “Obtain an IP address automatically” and “Obtain DNS server address automatically”, then click “OK”.

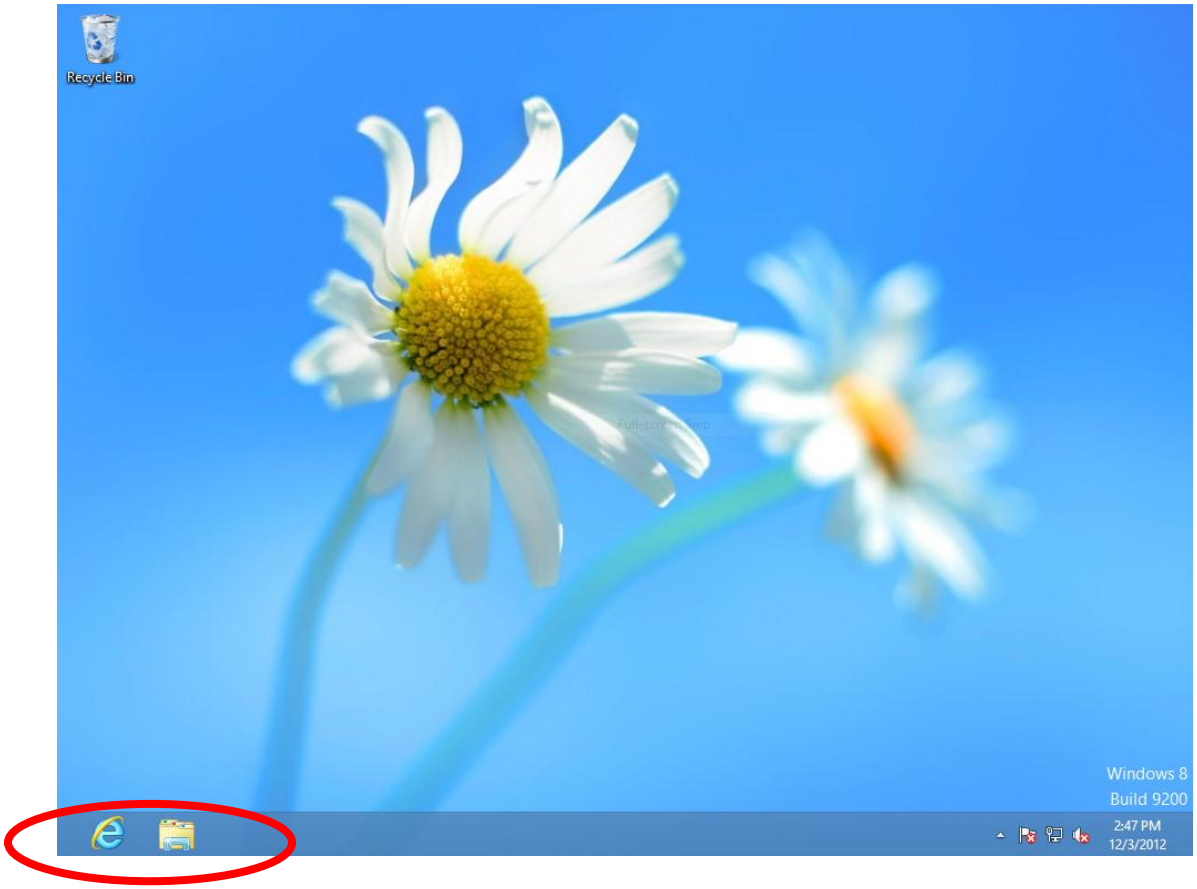


II-2-4. Windows 8

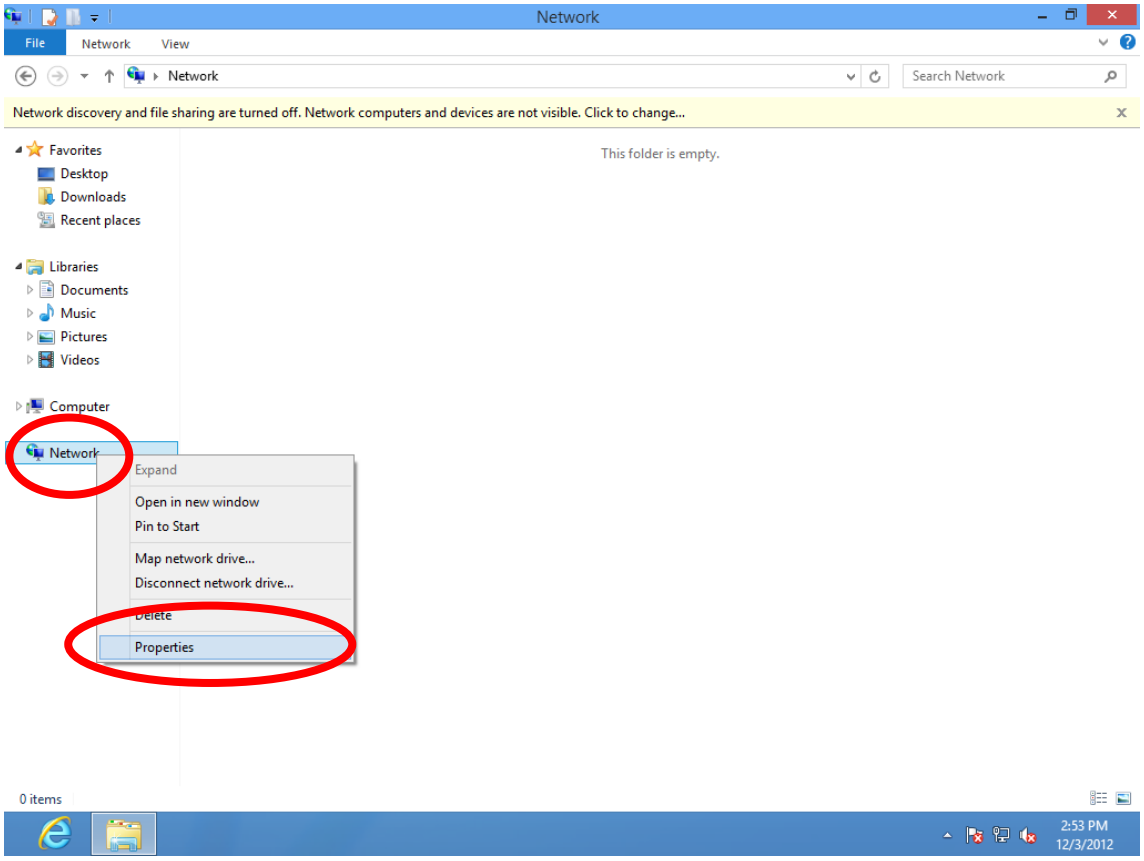
1. From the Windows 8 Start screen, you need to switch to desktop mode. Move your curser to the bottom left of the screen and click.



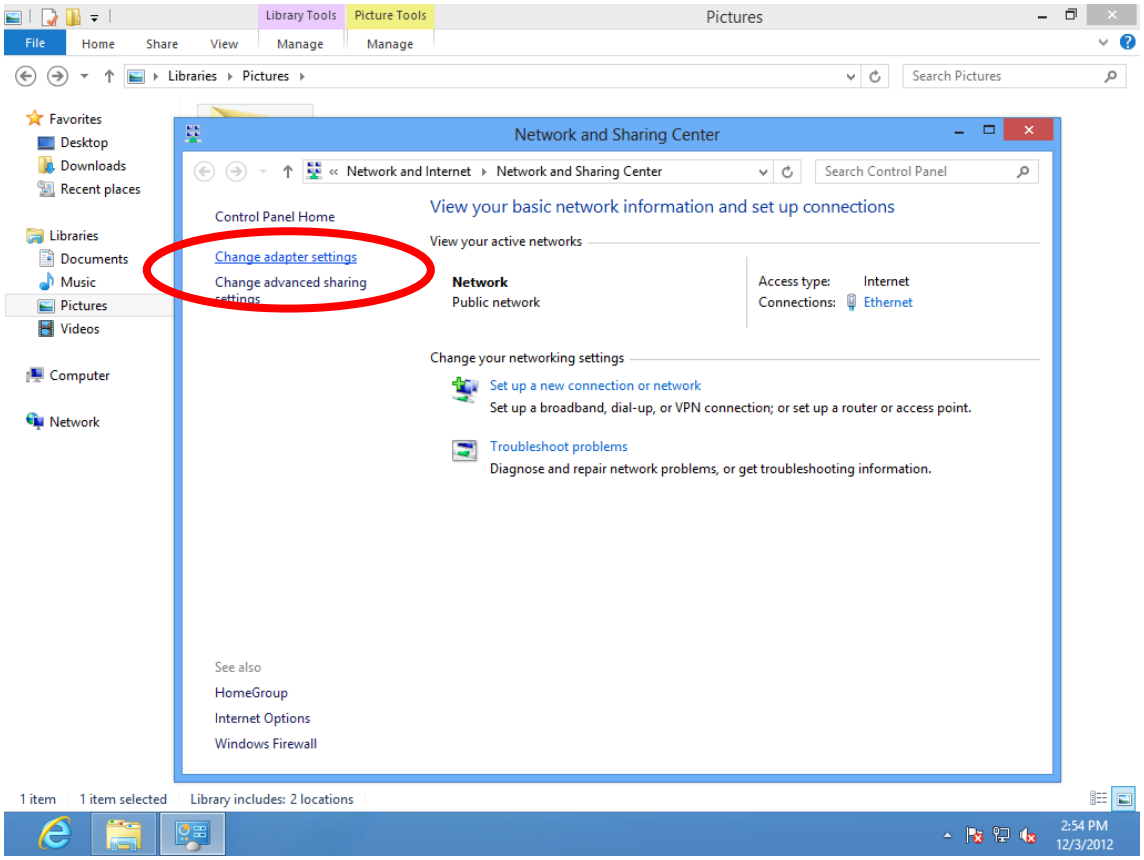
2. In desktop mode, click the File Explorer icon in the bottom left of the screen, as shown below.



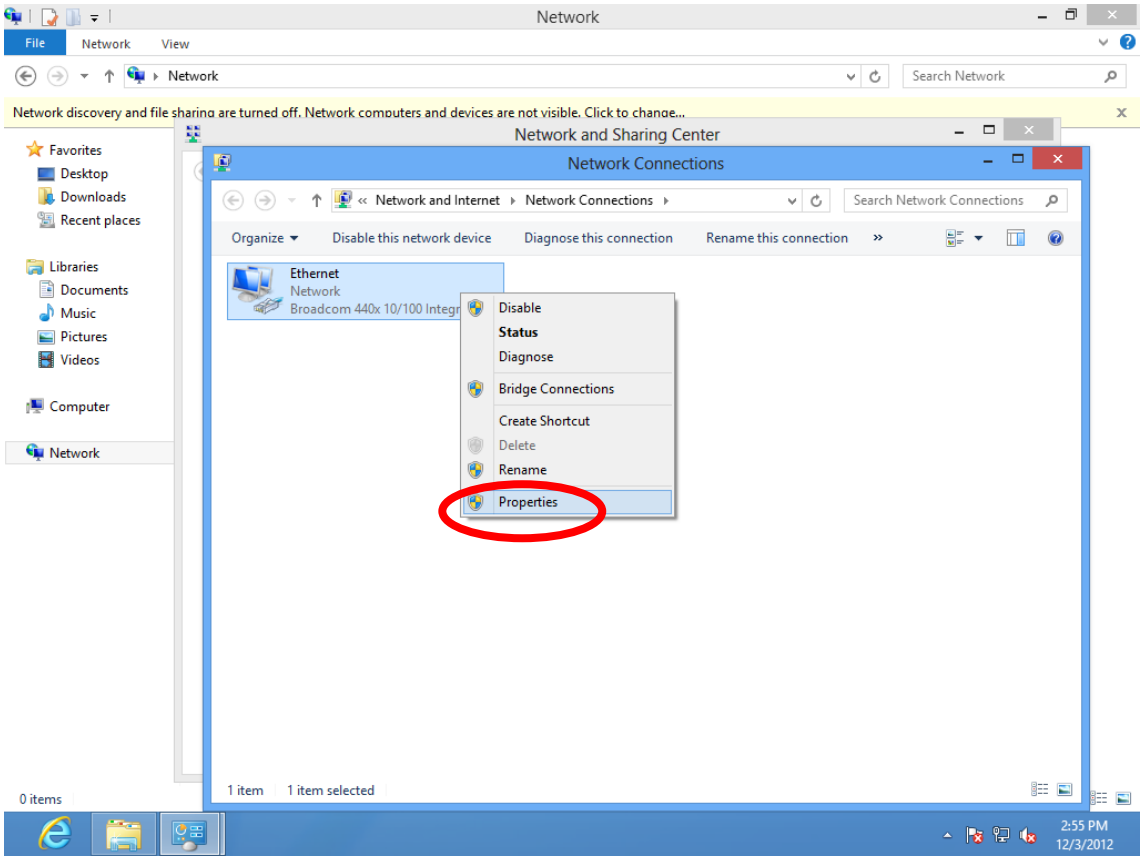
3. Right click “Network” and then select “Properties”.



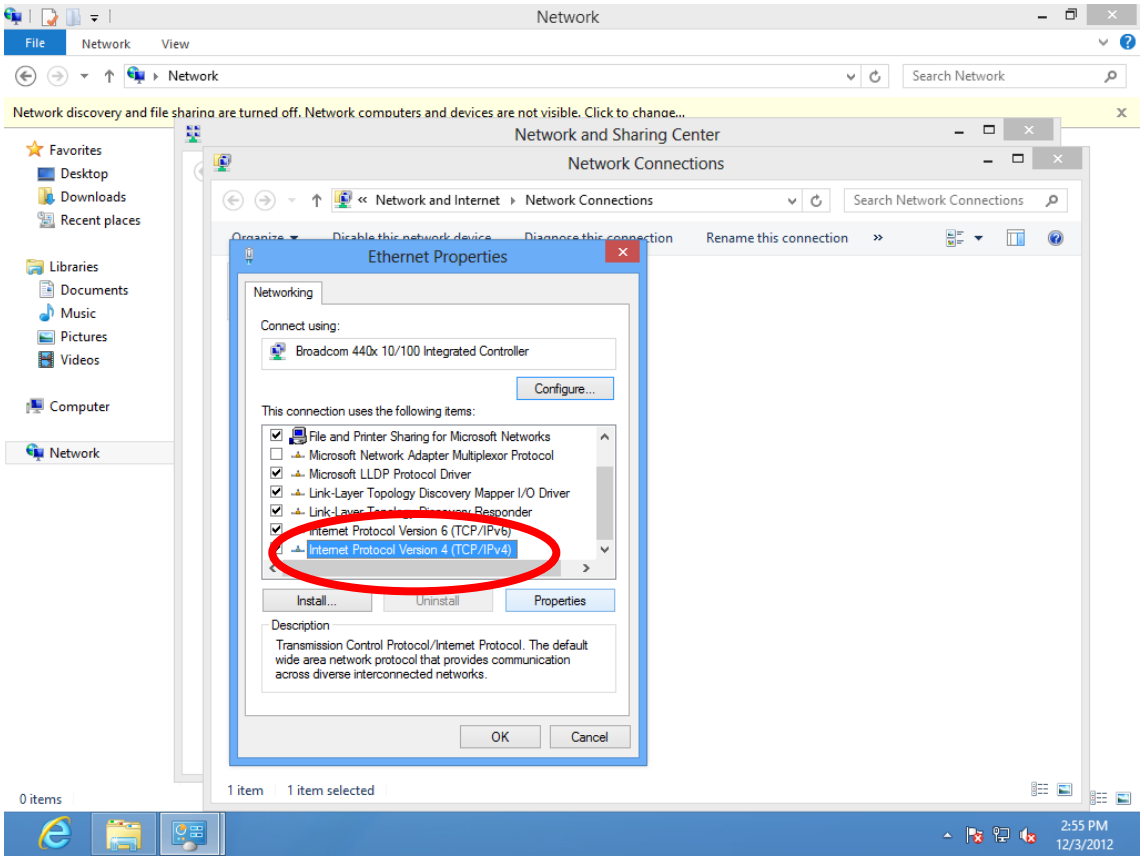
4. In the window that opens, select “Change adapter settings” from the left side.



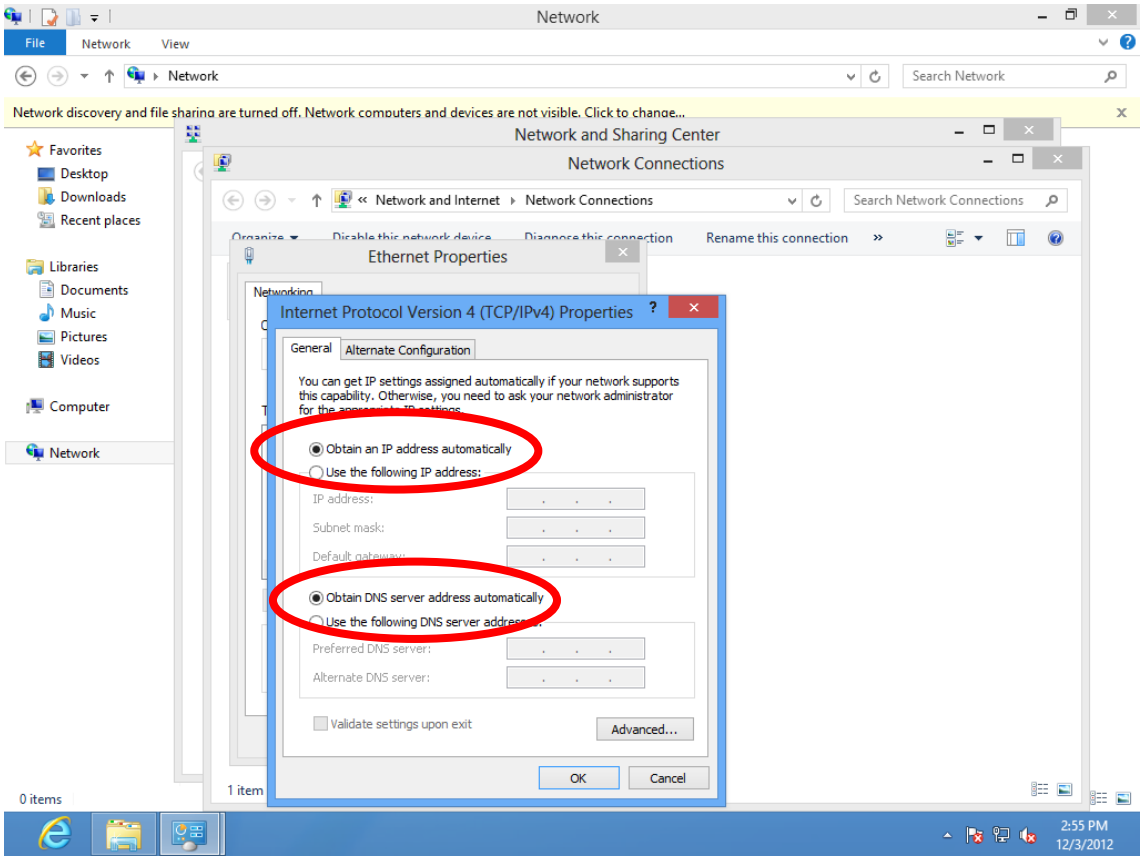
5. Choose your connection and right click, then select “Properties”.



6. Select “Internet Protocol Version 4 (TCP/IPv6) and then click “Properties”.



7. Select “Obtain an IP address automatically” and “Obtain DNS server address automatically”, then click “OK”.



III. SETTING UP

III-1. iQ Setup

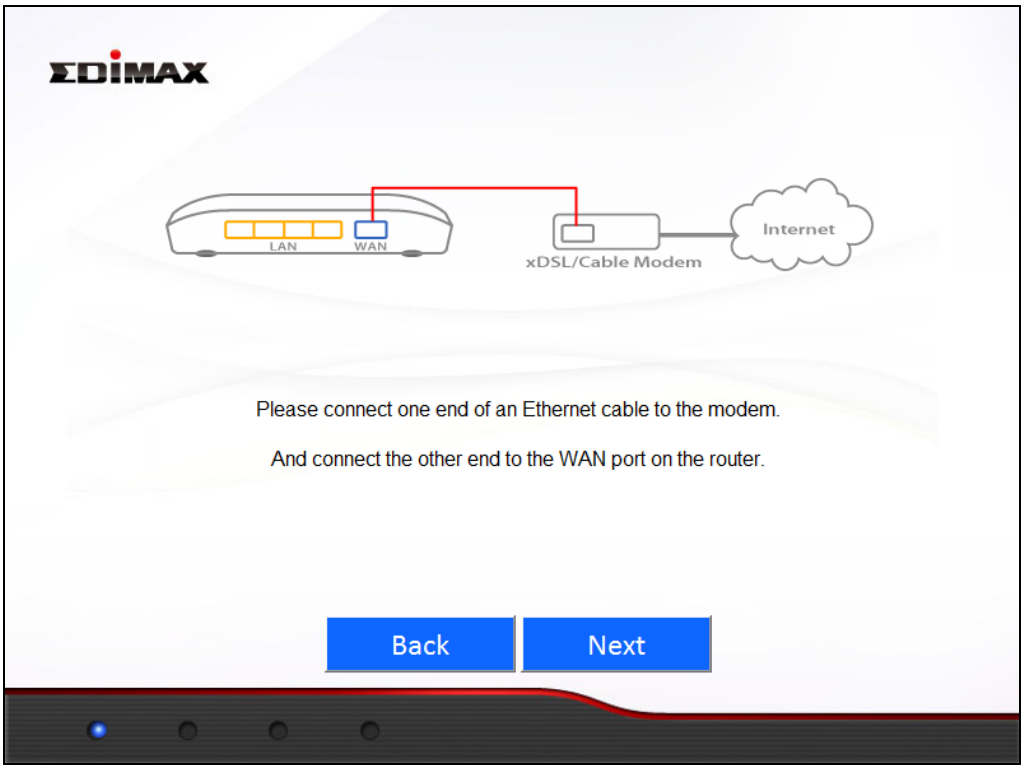
iQ Setup is a simple and intelligent WAN detection tool. Please follow the instructions below.

1. Use a Wi-Fi device (e.g. computer, tablet, smartphone) to search for a Wi-Fi network with the SSID “edimax.setup” and connect to it.

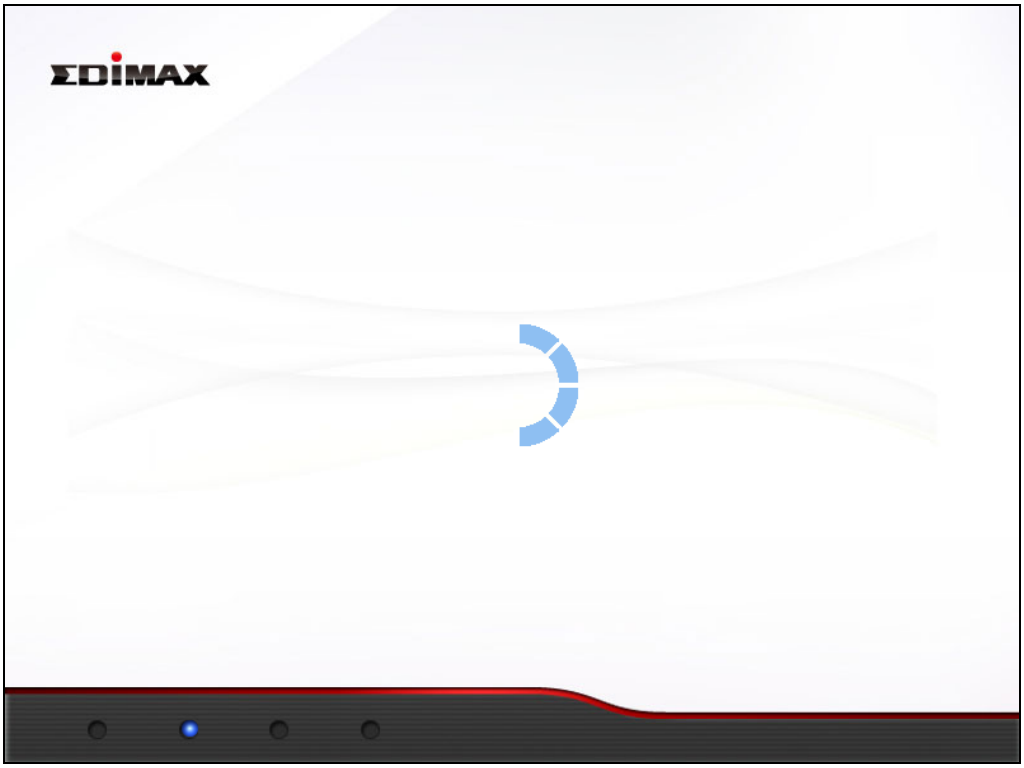
2. Open a web browser and if you do not automatically arrive at the “Get Started” screen shown below, enter the URL ***http://edimax.setup***. Select your language from the drop down menu and click **“Get Started”** to begin the setup process.

***Note:** If you cannot access http://edimax.setup , please make sure your computer is set to use a dynamic IP address. See II. NETWORK SETTINGS*

3. Ensure that your router is properly connected to your modem as shown on the screen, and click **"Next"** to continue.

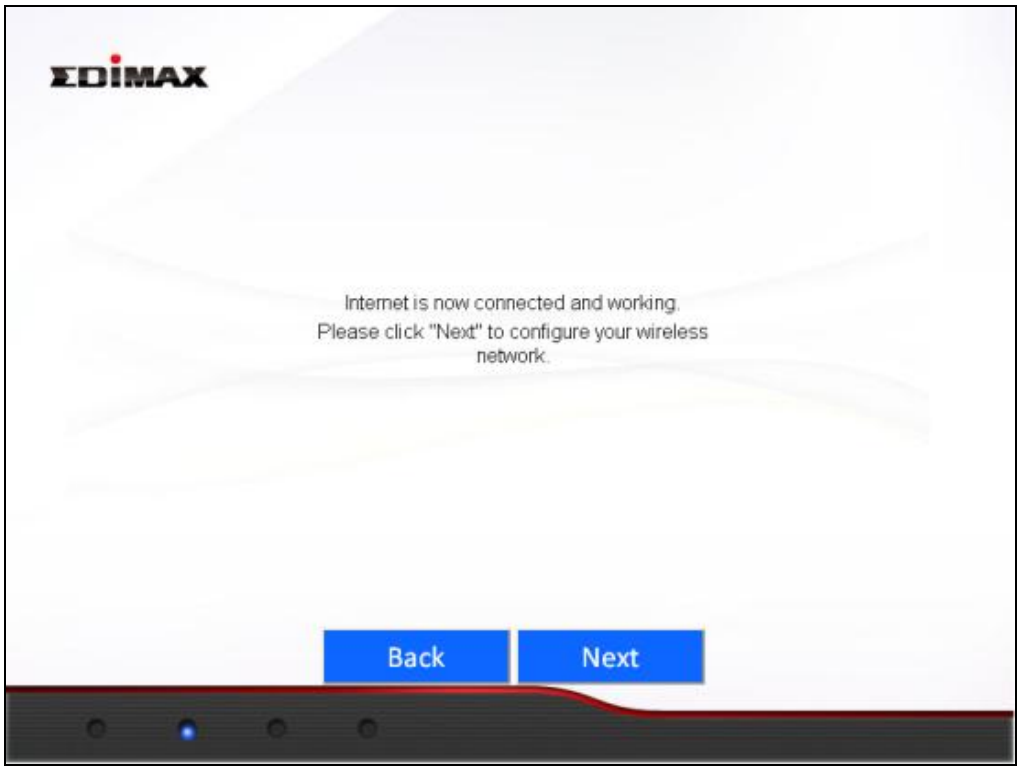


4. Please wait a moment while the BR-6478AC detects your WAN connection type.

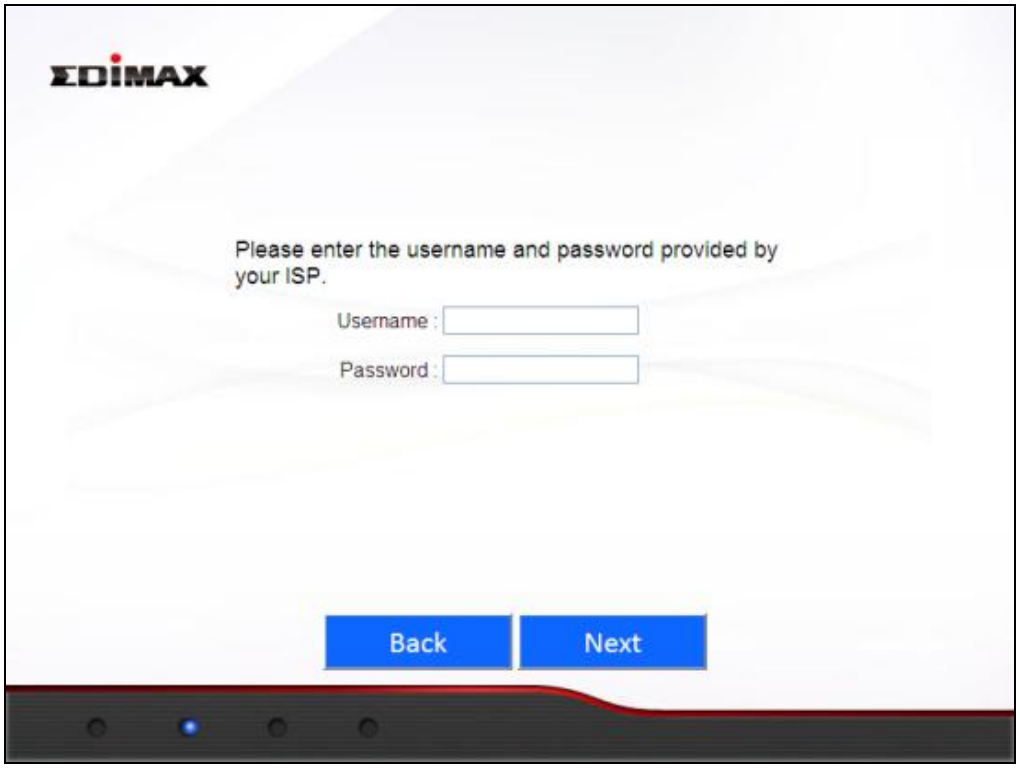


5. The BR-6478AC will display the next screen depending on your WAN connection type.

For **Dynamic IP** users please click **"Next"** to continue:



For **PPPoE** users please enter the username and password provided by your ISP and click **"Next"** to continue:

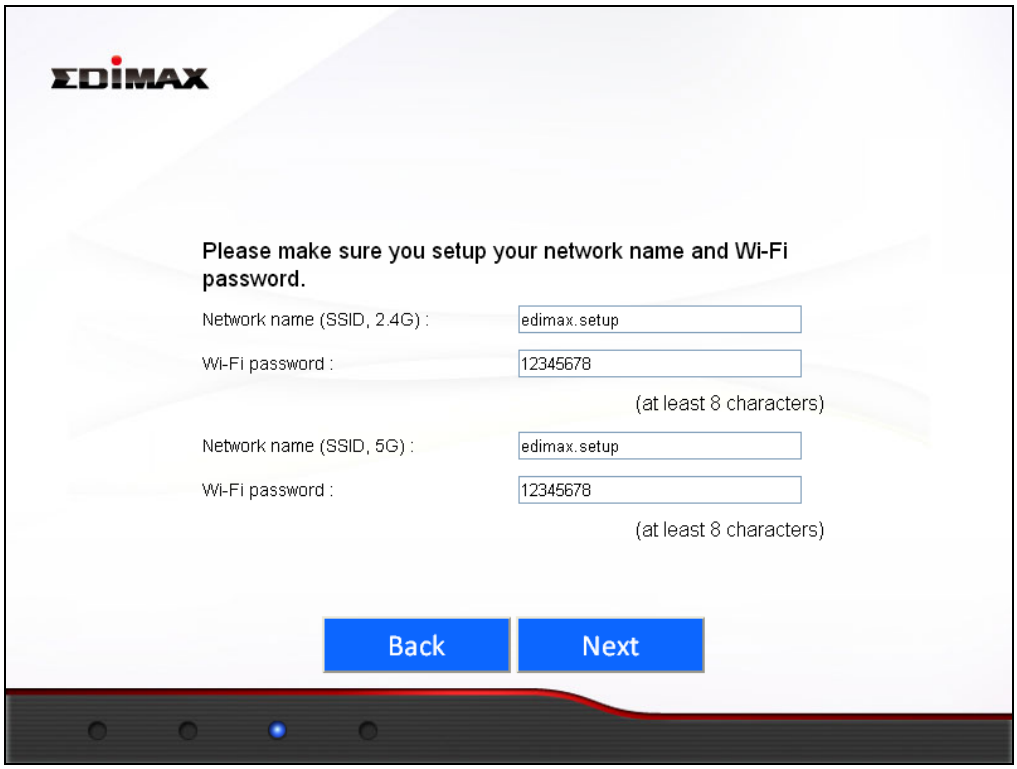


For **other** users please select your WAN connection type manually from the drop down menu, click **"Next"** to continue and follow the on-screen instructions.

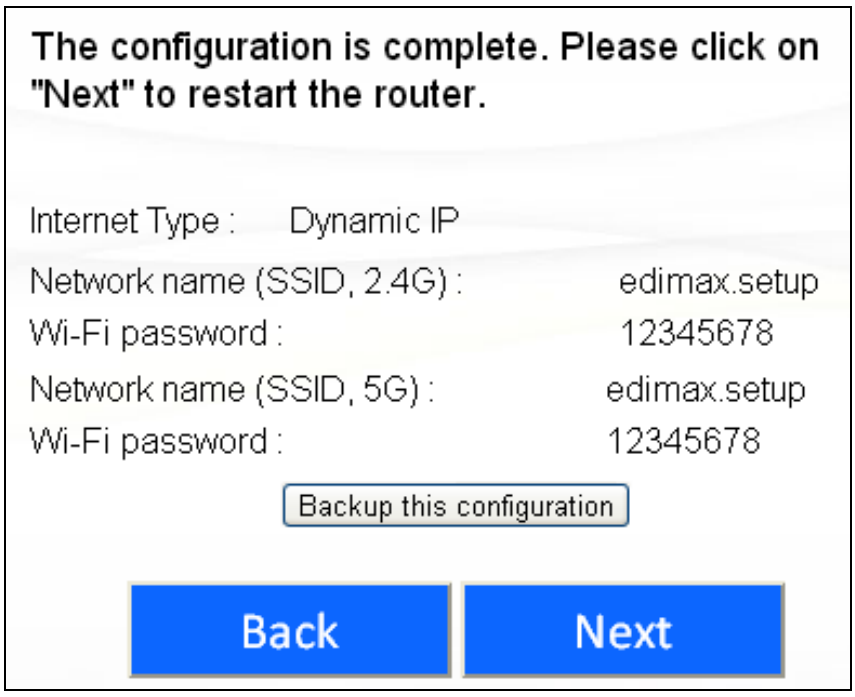
***Note:** If you are not sure which WAN connection type to choose, please contact your ISP.*

6. Please enter a network name (SSID) and Wi-Fi Password for each of the BR-6478AC's 2.4GHz and 5GHz Wi-Fi networks and click **"Next"** to continue.

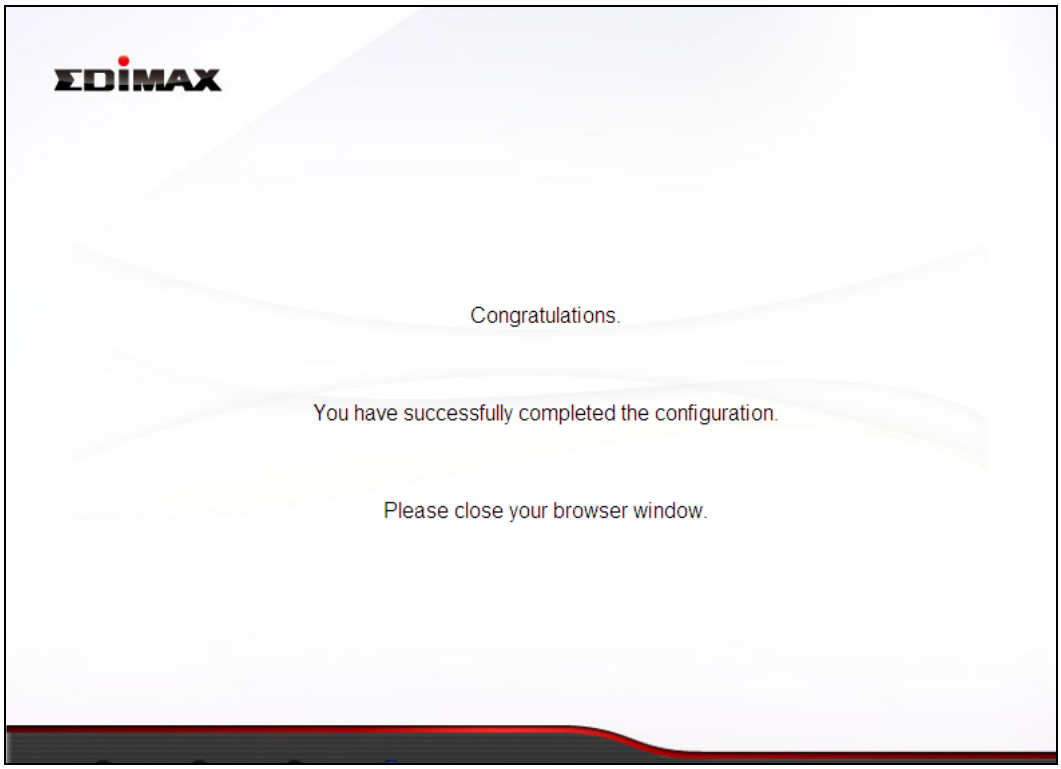
> ***Note:** Please remember these details. For your convenience, you can write them down at the end of this QIG in "Wi-Fi Settings".*



7. You will see the screen below, displaying a summary of your W-Fi settings and that configuration is now complete. Please click **"Next"** to continue.

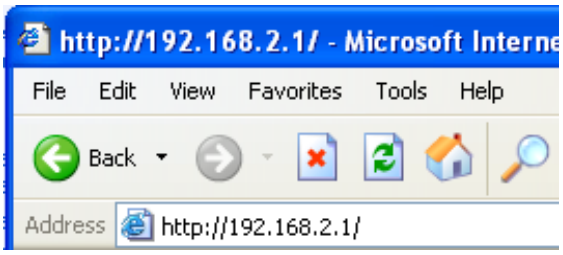


8. You will see a final “Congratulations” screen and configuration is now complete. Please close your browser window.

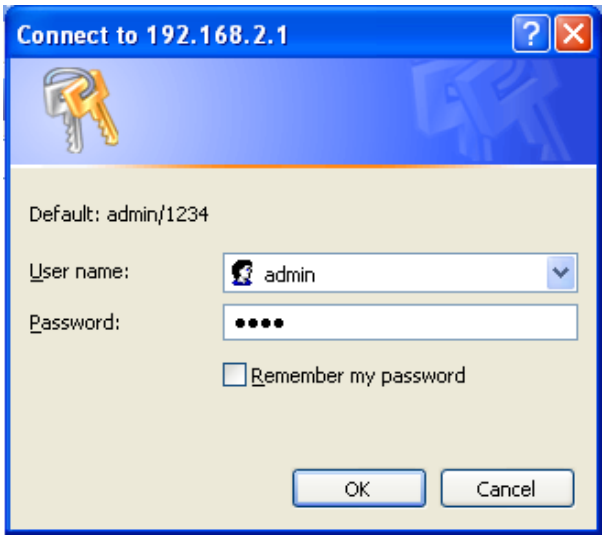


III-2. Manual Setup via Web Browser

1. Enter “192.168.2.1” in the web browser’s address bar and press “Enter”.



2. Input the username “admin” and the password “1234” and click “OK”..



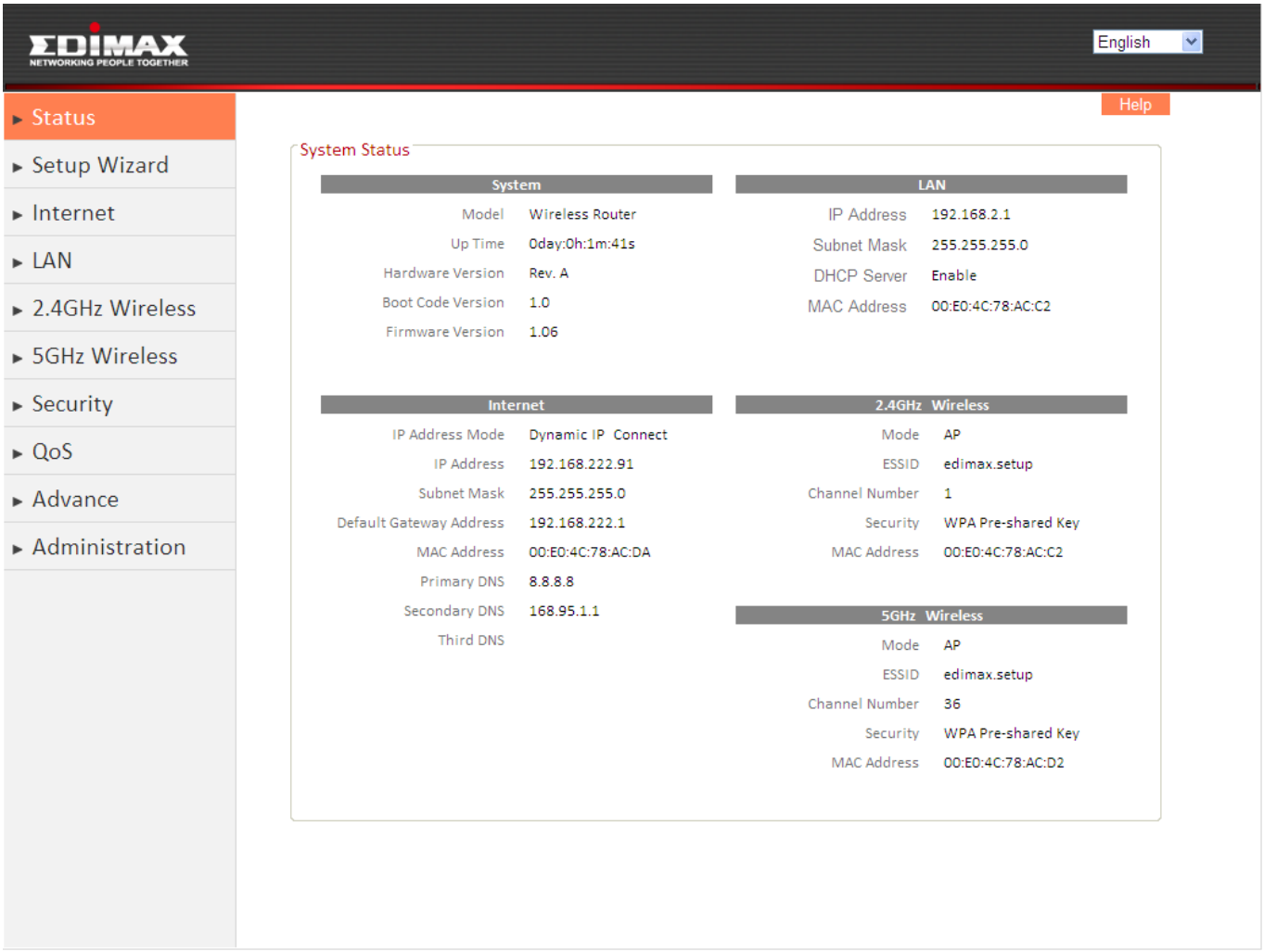
3. Input the username “admin” and the password “1234” and click “OK”. You will arrive the at Status page, use the menu on the left side of the screen to navigate. You can also change the language using the drop down menu in the top right corner. Refer to **IV. BROWSER BASED CONFIGURATION INTERFACE.**

IV. BROWSER BASED CONFIGURATION INTERFACE

Once you have setup the router as detailed in **III-1. iQ Setup** or the included **QIG**, you can further configure the settings of the router or run iQ Setup again using the browser based configuration interface. If you prefer, you can also skip iQ Setup and configure the router manually.

IV-1. Status

The Status page shows the basic status and information of the router.

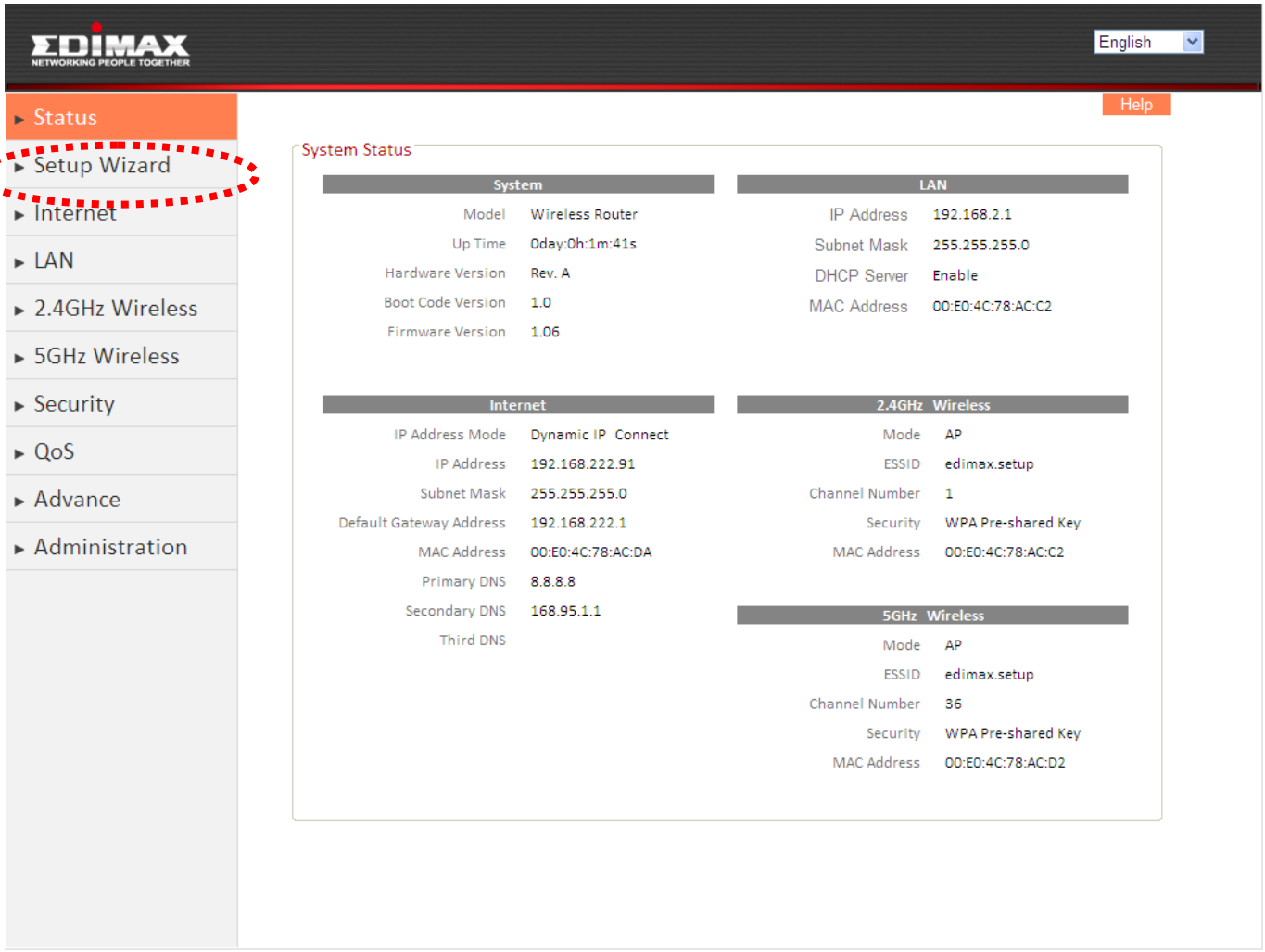


***Note:** Screenshots shown in this manual are examples. The information you see on your screen will be unique to your configuration.*

IV-2. Setup Wizard

To perform iQ Setup again and reconfigure the router, select “Setup Wizard” from the menu on the left side.

You will see the screen below. Please refer back to **III-I iQ Setup** onwards for guidance on iQ Setup.

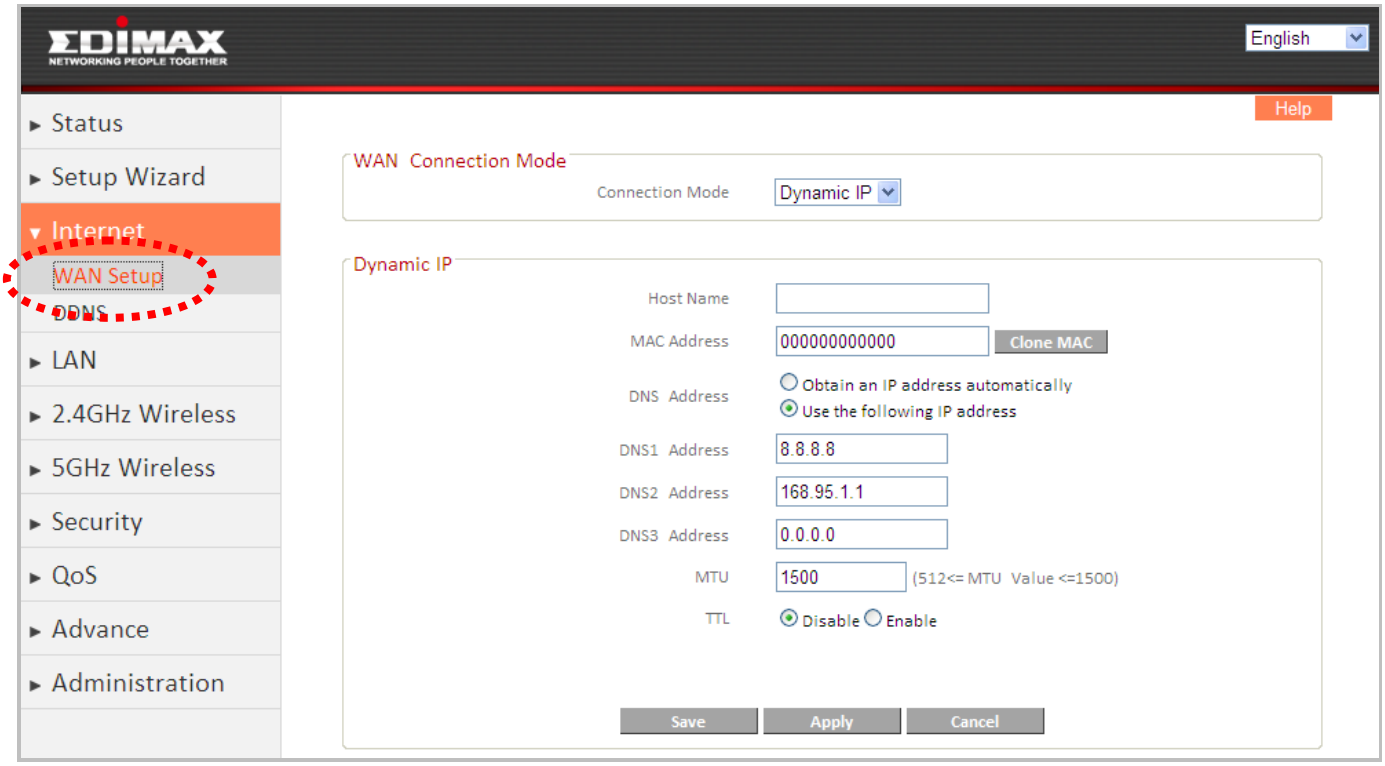


IV-3. Internet

IV-3-1. WAN Setup

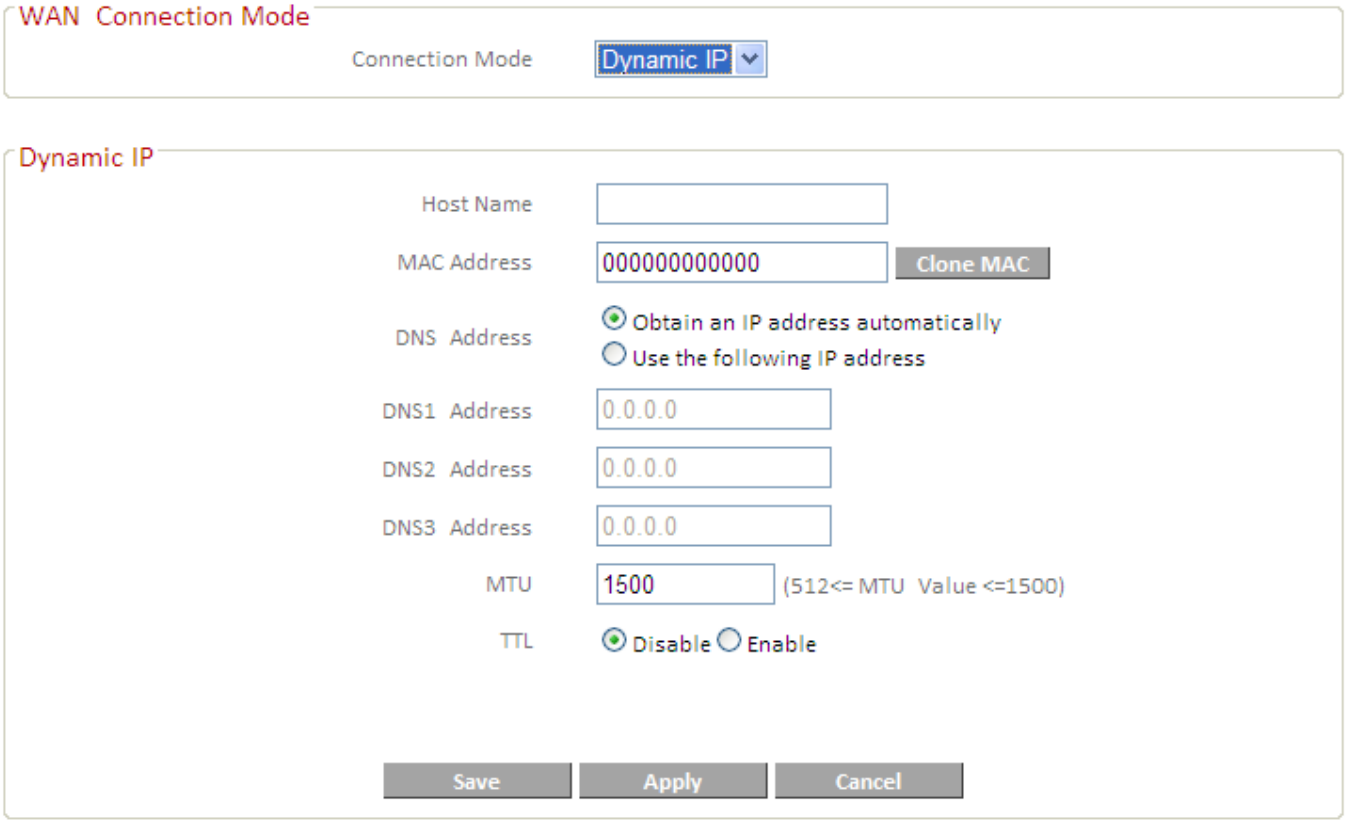
Select a Wide Area Network (WAN) connection mode from the drop down menu. After you select your connection mode and complete the configuration, the router will restart for the changes to take effect.

***Note:** If you are not sure which WAN connection mode you should use, please contact your Internet Service Provider (ISP).*



Dynamic IP	Select “Dynamic IP” if your Internet Service Provider assigns an IP address to you automatically using DHCP (Dynamic Host Configuration Protocol) (e.g. cable internet providers).
Static IP	Select “Static IP” if your ISP provides you with a fixed IP address.
PPPoE	Select “PPPoE” if your ISP provides internet access via Point-to-Point Protocol over Ethernet (PPPoE) (usually ADSL users).
PPTP	Select “PPTP” if your ISP provides internet access via Point-to-Point Tunneling Protocol (PPTP).
L2TP	Select “L2TP” if your ISP provides internet access via Layer 2 Tunneling Protocol (L2TP)
WISP	Select “WISP” if your ISP provides wireless internet access.

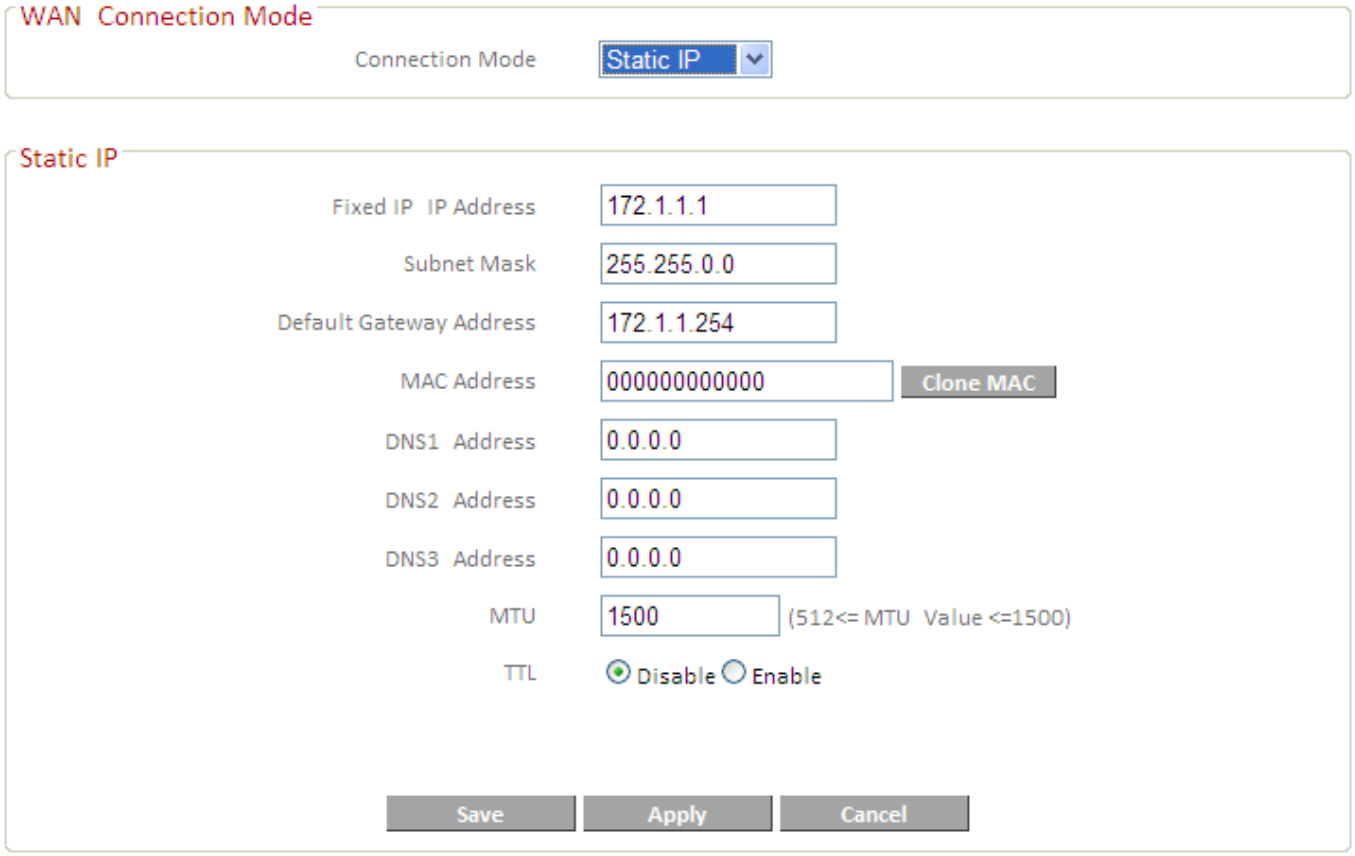
IV-3-1-1. Dynamic IP



Host Name	Input the host name of your computer (only required if your ISP instructs you to do so).
MAC Address	If your ISP only permits computers with certain MAC addresses to access the internet, input the MAC address of your computer here. If your computer is connected to internet via cable modem, click “Clone Mac address” to enter the MAC address automatically.
DNS address	Select “Obtain an IP address automatically” or “Use the following IP address”. If you choose “Use the following IP address”, you will need to complete the “DNS1 Address”, “DNS2 Address” and “DNS3 Address” fields below.
DNS1	Input the address of DNS1 assigned by your ISP.
DNS2	Input the address of DNS2 assigned by your ISP.
DNS3	Input the address of DNS3 assigned by your ISP.
MTU	Input the MTU (maximum transmission unit) value of your network connection. The default value, which is typical for a dynamic IP or static IP, is 1500.
TTL	Enable the “TTL” function if your ISP requires you to do so.

Most Dynamic IPs assigned to users by ISPs are configuration free

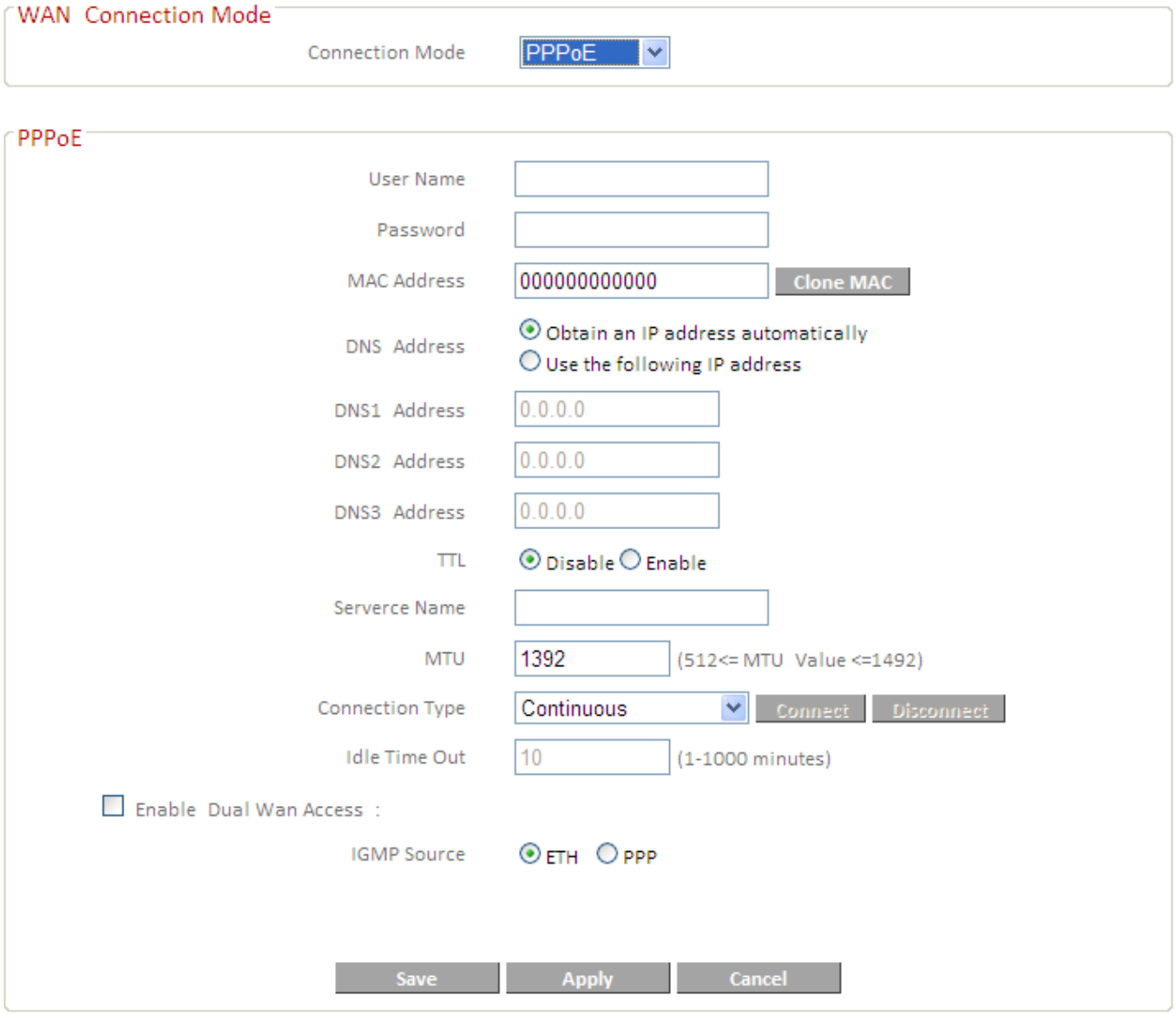
IV-3-1-2. Static IP



IP Address	Input the static IP address assigned by your ISP.
Subnet Mask	Input the subnet mask assigned by your ISP.
Default Gateway Address	Input the default gateway address assigned by your ISP.
MAC Address	If your ISP only permits computers with certain MAC addresses to access the internet, input the MAC address of your computer here. If your computer is connected to internet via cable modem, click “Clone Mac address” to enter the MAC address automatically.
DNS1	Input the address of DNS1 assigned by your ISP.
DNS2	Input the address of DNS2 assigned by your ISP.
DNS3	Input the address of DNS3 assigned by your ISP.
MTU	Input the MTU (maximum transmission unit)

	value of your network connection. The default value, which is typical for a dynamic IP or static IP, is 1500.
TTL	Enable the “TTL” function if your ISP requires you to do so.

IV-3-1-3. PPPoE

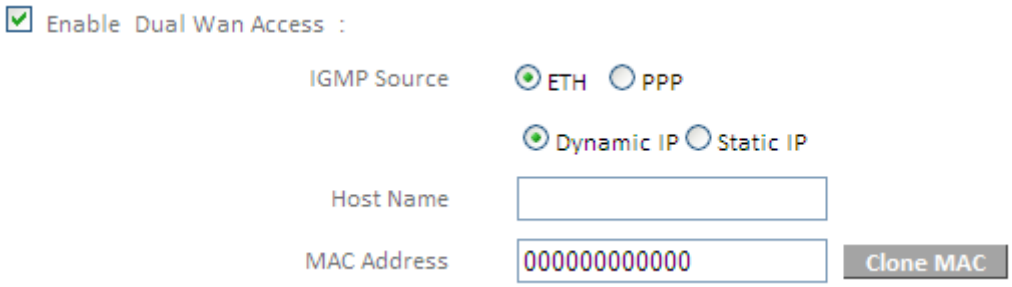


User Name	Enter the user name assigned by your ISP.
Password	Enter the password assigned by your ISP.
MAC Address	If your ISP only permits computers with certain MAC addresses to access the internet, input the MAC address of your computer here. If your computer is connected to internet via cable modem, click “Clone Mac address” to enter the MAC address automatically.

DNS address	Select “Obtain an IP address automatically” or “Use the following IP address”. If you choose “Use the following IP address”, you will need to complete the “DNS1 Address”, “DNS2 Address” and “DNS3 Address” fields below.
DNS1	Input the address of DNS1 assigned by your ISP.
DNS2	Input the address of DNS2 assigned by your ISP.
DNS3	Input the address of DNS3 assigned by your ISP.
TTL	Enable the “TTL” function if your ISP requires you to do so.
Service Name	Input the Service Name assigned by your ISP.
MTU	Input the MTU (maximum transmission unit) value of your network connection. The default value is 1392. Typical values for ADSL are 1392 or 1492.
Connection Type	Select connection type from: “Continuous” – always connected. “Connect on Demand” – connect when required. “Manual” – connect and disconnect manually.
Idle Time Out	For ”Connect on Demand” connection type, specify the length of inactivity required to disconnect.

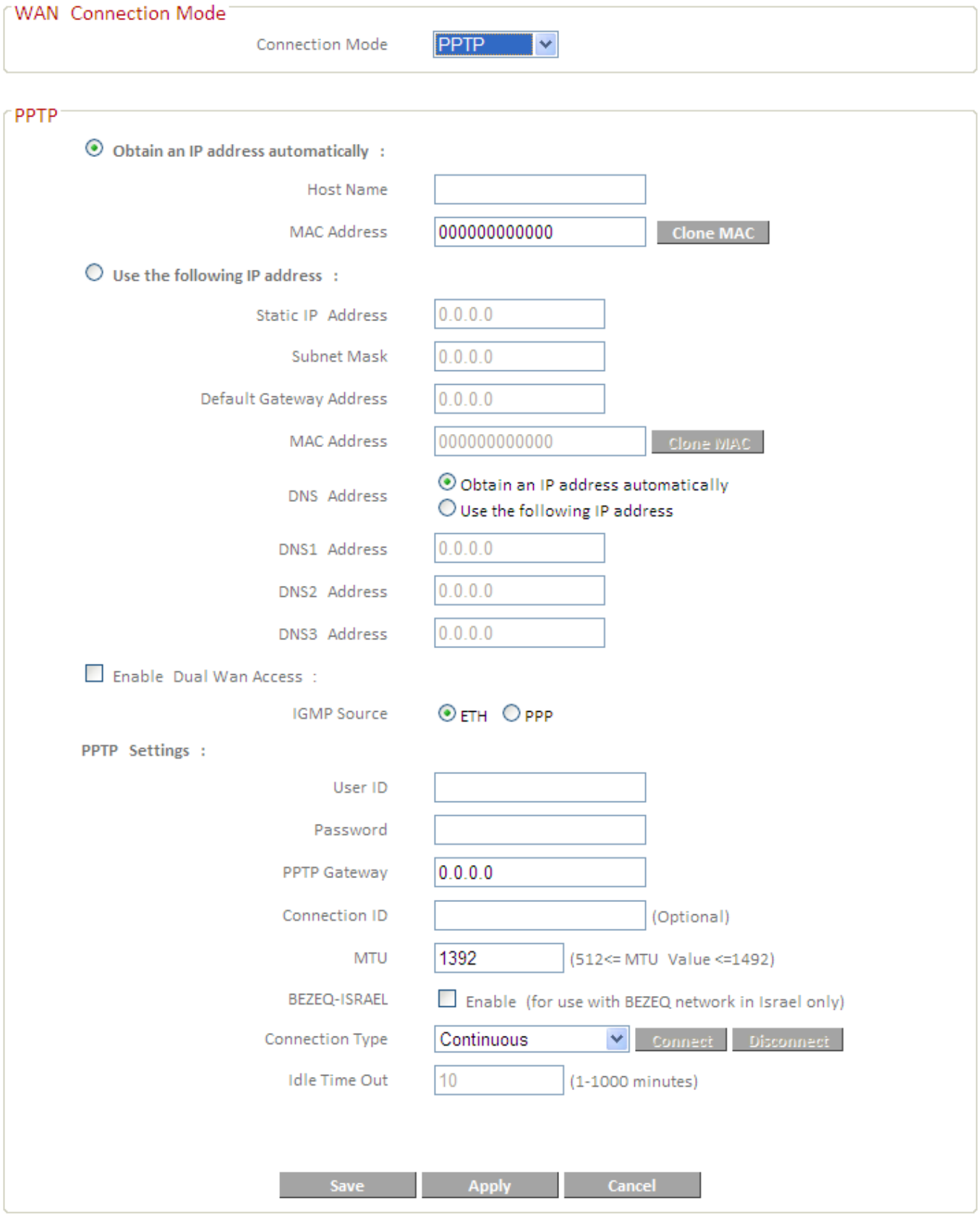
Enable Dual Wan Access

If your ISP provides a dual-WAN service, then check the box “Enable Dual Wan Access” and enter the required information.



IV-3-1-4. PPTP/L2TP

Fields for PPTP and L2TP connections are the same – PPTP is used as an example below.



Obtain an IP address automatically:

Host Name	Input the host name of your computer (only required if your ISP instructs you to do so).
MAC Address	If your ISP only permits computers with certain MAC

addresses to access the internet, input the MAC address of your computer here. If your computer is connected to internet via cable modem, click “Clone Mac address” to enter the MAC address automatically.

Use the following IP address:

Static IP Address	Input the static IP address assigned by your ISP.
Subnet Mask	Input the subnet mask assigned by your ISP.
Default Gateway Address	Input the default gateway address assigned by your ISP.
MAC Address	If your ISP only permits computers with certain MAC addresses to access the internet, input the MAC address of your computer here. If your computer is connected to internet via cable modem, click “Clone Mac address” to enter the MAC address automatically.
DNS address	Select “Obtain an IP address automatically” or “Use the following IP address”. If you choose “Use the following IP address”, you will need to complete the “DNS1 Address”, “DNS2 Address” and “DNS3 Address” fields below.
DNS1	Input the address of DNS1 assigned by your ISP.
DNS2	Input the address of DNS2 assigned by your ISP.
DNS3	Input the address of DNS3 assigned by your ISP.

Enable Dual Wan Access:

If your ISP provides a dual-WAN service, then check the box “Enable Dual Wan Access” and enter the required information.

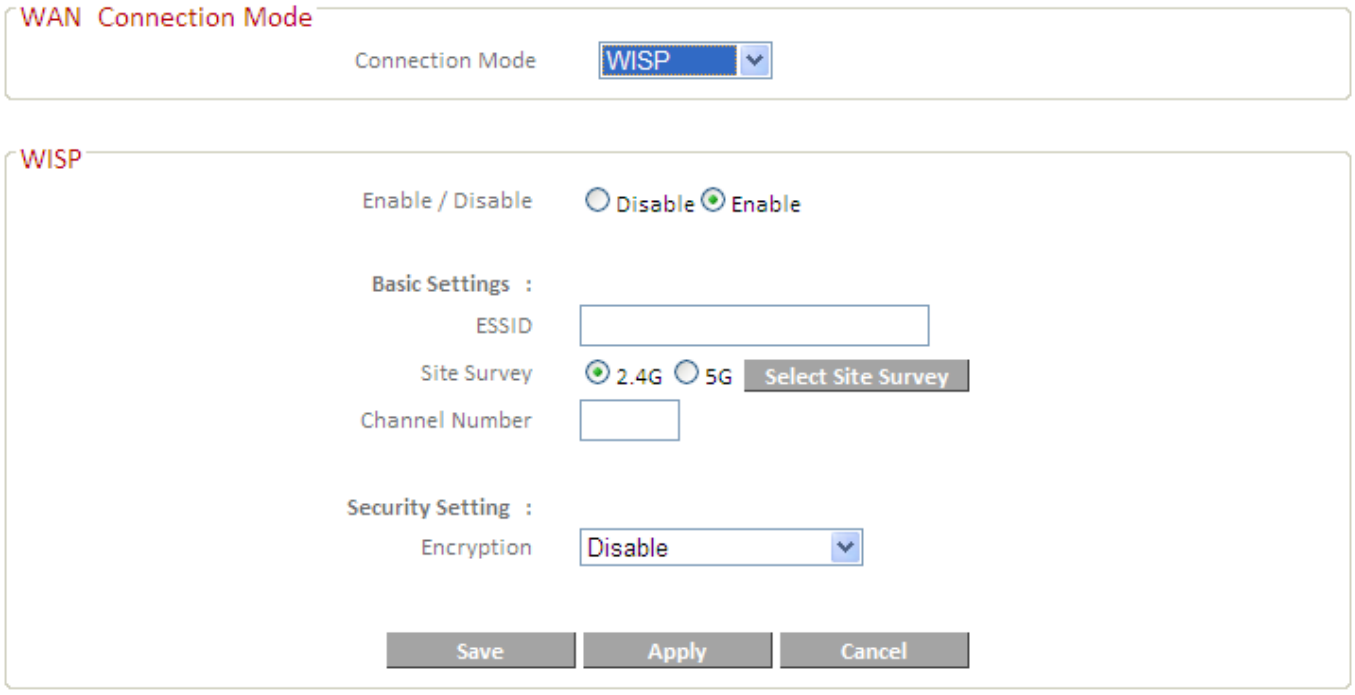
PPTP Setting:

User ID	Input the user ID assigned by your ISP.
Password	Input the password assigned by your ISP.
PPTP Gateway	Input the PPTP gateway assigned by your ISP.
Connection ID	Input the connection ID assigned by your ISP. (usually not use)
MTU	Input the MTU (maximum transmission unit) value of your network connection. The default value is 1392.
Connection Type	Select connection type from:

	“Continuous” – always connected. “Connect on Demand” – connect when required. “Manual” – connect and disconnect manually.
Idle Time Out	For ”Connect on Demand” connection type, specify the length of inactivity required to disconnect.

BEZEQ-ISRAEL	Check this box to enable use with the BEZEQ network in Israel.

IV-3-1-5. WISP



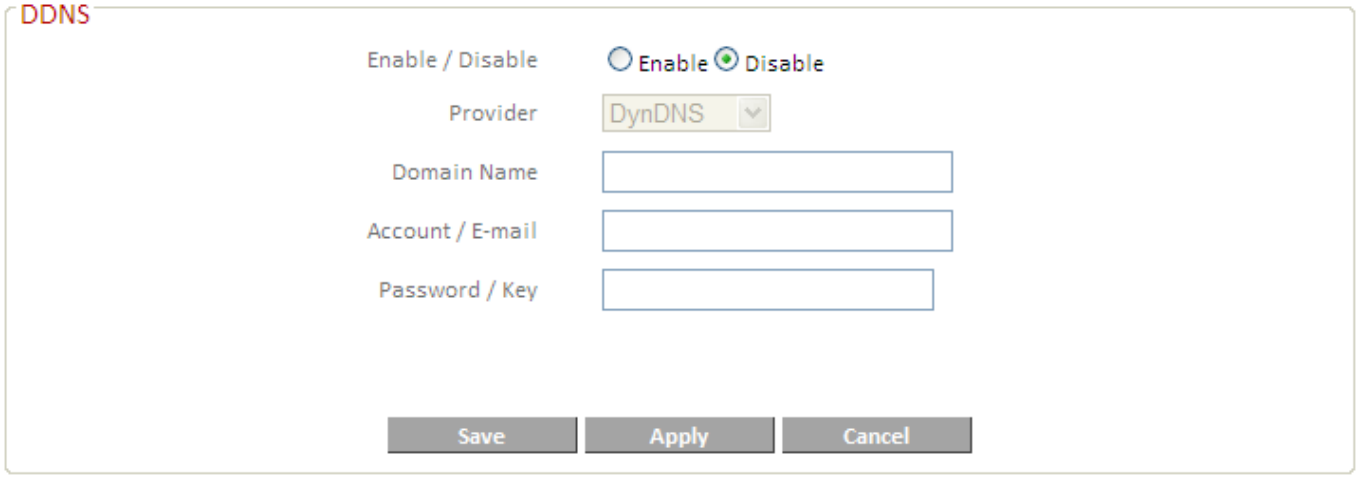
Select “Enable” or “Disable” to enable/disable the WISP function accordingly.

ESSID	Enter the ESSID of the WISP network, or click “Select Site Survey” to view all available networks and select the WISP network.
Site Survey	Select “2.4G” or “5G” to specify the 2.4GHz or 5GHz frequency band for the site survey.
Channel Number	Enter the channel number of the WISP network.
Encryption	If your WISP service uses encryption, select “Enable” from the drop down menu and enter the appropriate information.

IV-3-2. DDNS

Dynamic DNS (DDNS) is a service which provides a hostname-to-IP service for dynamic IP users. The changing nature of dynamic IPs means that it can be

difficult to access a service provided by a dynamic IP user; a DDNS service though can map such dynamic IP addresses to a fixed hostname, for easier access. The router supports several DDNS service providers, for more details and to register for a DDNS account please visit the DDNS providers website(s), examples of which are listed below.



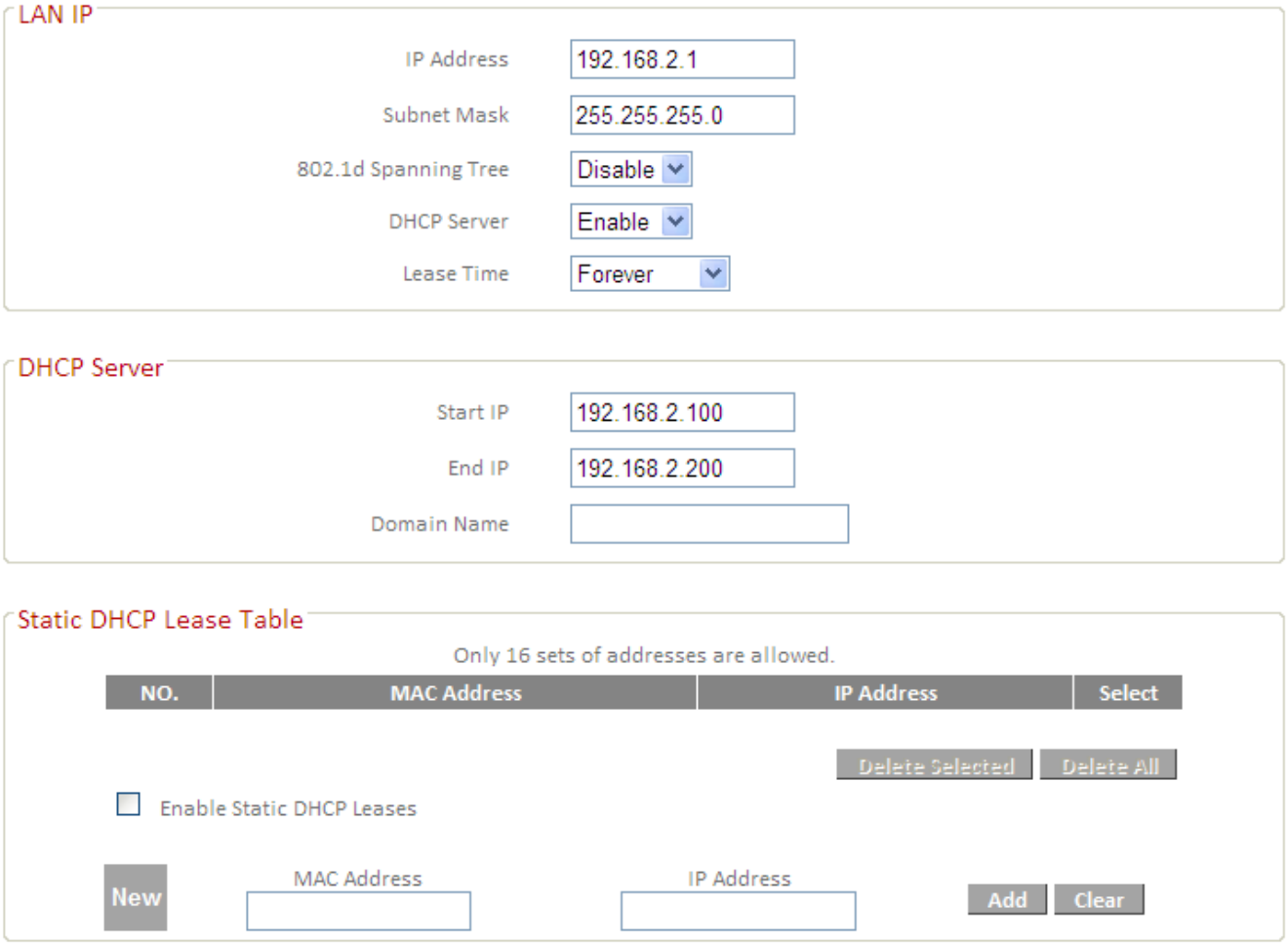
Enable/Disable	Select “Enable” or “Disable” to enable/disable DDNS.
Provider	Select DDNS service provider.
Domain Name	Enter the domain name provided by the DDNS provider.
Account/E-Mail	Please enter the Account or Email which has been applied from DDNS provider.
Password/Key	Please enter the Password or Key which has been applied from DDNS provider.

This router supports the following DDNS services:

3322 http://www.3322.org
DHS http://www.dhs.org
DynDNS http://www.dyndns.org
ODS http://ods.org
TZO http://www.tzo.com
GnuDIP http://gnudip2.sourceforge.net
DyNS http://www.dyns.cx/
ZoneEdit http://www.zoneedit.com
DHIS http://www.dhis.org/
CyberGate http://cybergate.planex.co.jp/ddns/
NS2GO http://www.ns2go.com/
NO-IP http://www.noip.com/

IV-4. LAN

Here you can configure your Local Area Network (LAN). You can enable the router to dynamically allocate IP addresses to your LAN clients, and you can modify the IP address of the router.

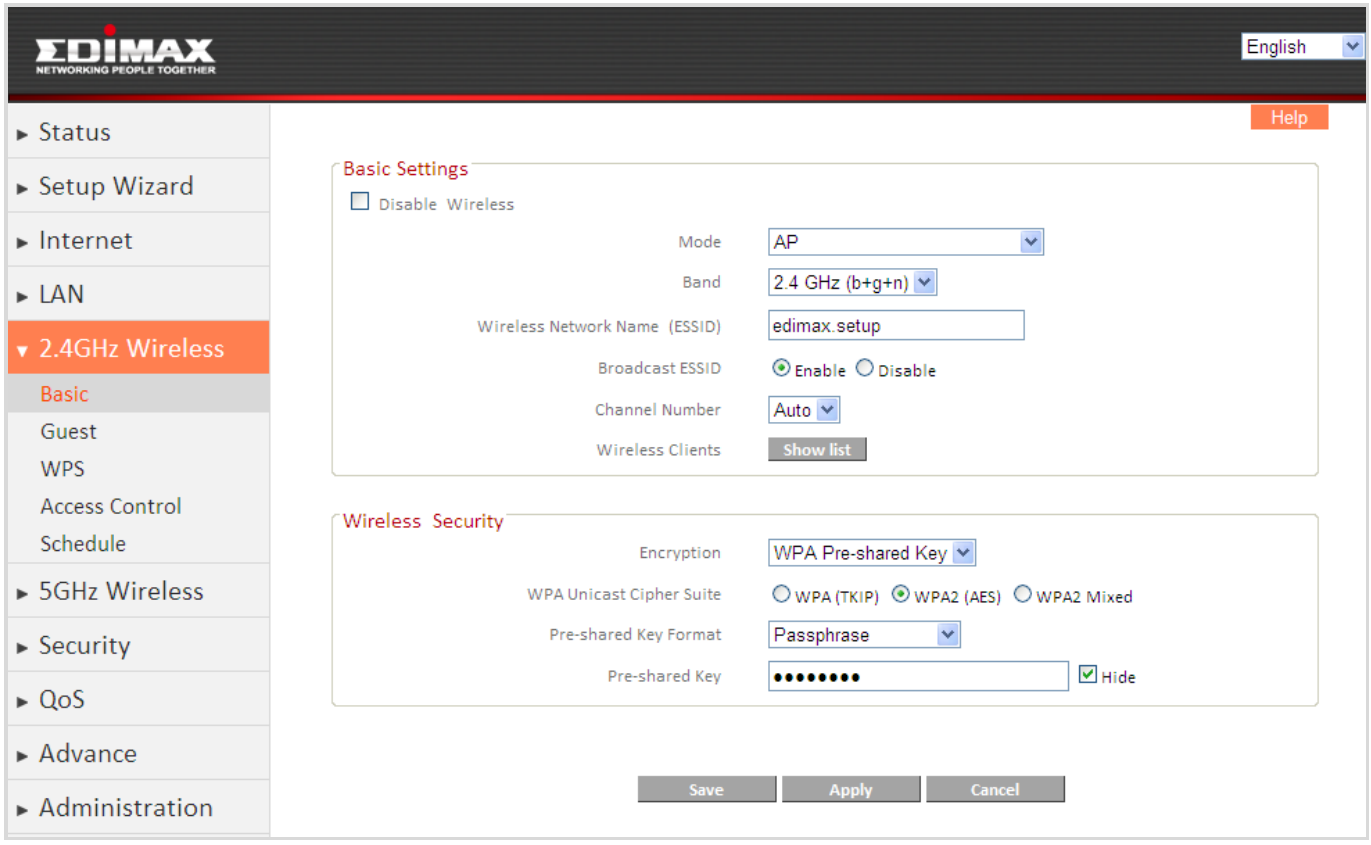


IP Address	Specify an IP address here. This IP address will be assigned to your router and will replace the default IP address.
Subnet Mask	Specify a subnet mast – the default value is 255.255.255.0
802.1d Spanning Tree	Select “Enable” or “Disable” to enable/disable 802.1d Spanning Tree. This creates a tree of connected layer-2 bridges (typically Ethernet switches) within a mesh network, and disables those links that are not part of the tree, leaving

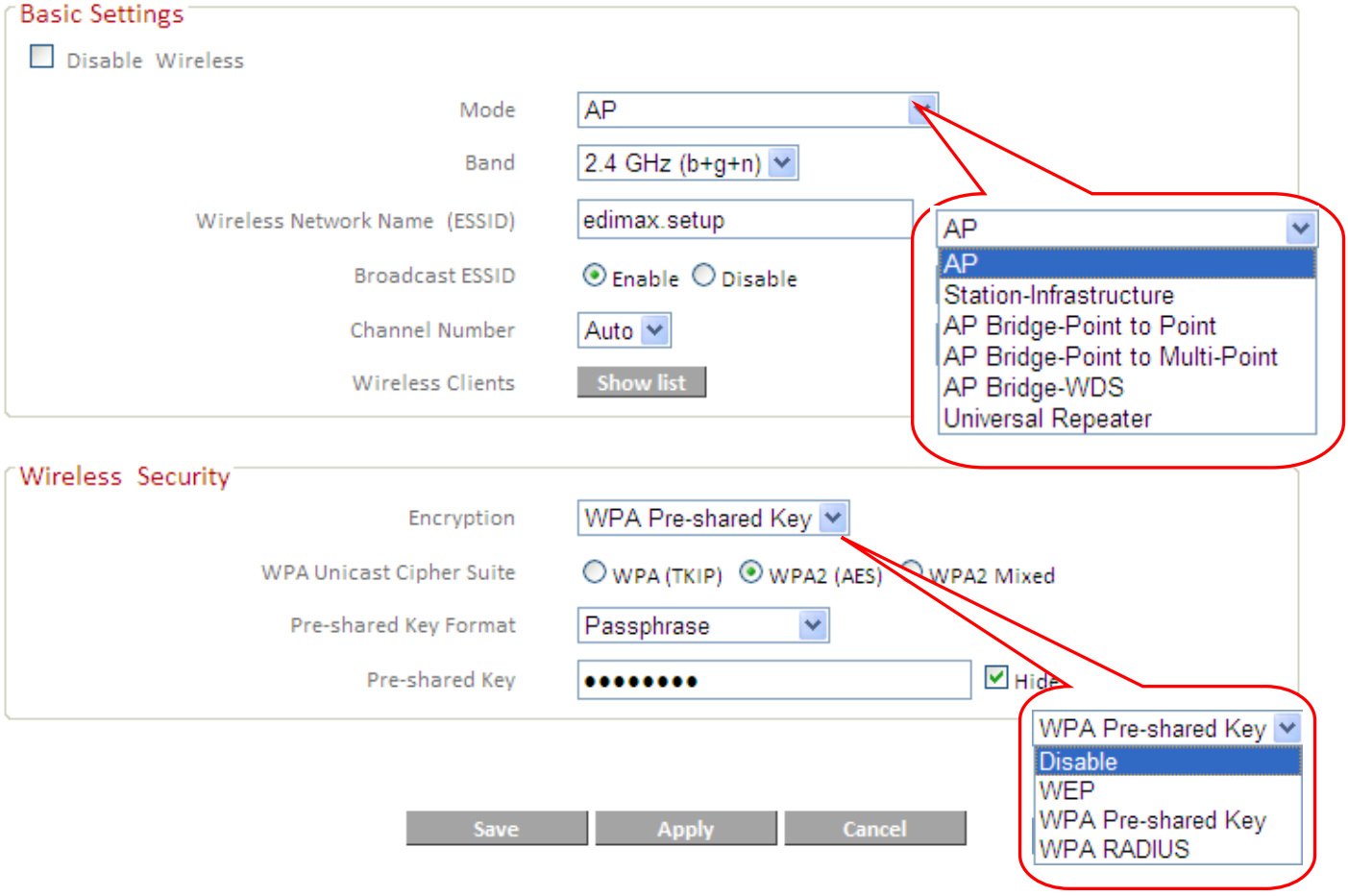
	a single active path between any two network nodes.
DHCP Server	Select “Enable” or “Disable” to enable/disable DCHP server accordingly.
Lease Time	Select a lease time for the DHCP leases here. The DHCP client will obtain a new IP address after the period expires. If there are less than 30 computers connected to the router, you can select “Forever”.
Start IP	Input the start IP address for the DHCP server’s IP address leases.
End IP	Input the end IP address for the DHCP server’s address leases.
Domain Name	Input the end IP address for the DHCP server’s address leases.
Enable Static DHCP Leases	Check this box to enable static DHCP leases (up to 16 leases).

IV-5. 2.4GHz Wireless

You can setup the 2.4GHz wireless LAN connection on this page.



IV-5-1. Basic Settings



Mode	Select a mode from the drop down menu: AP, Station-Infrastructure, AP Bridge-Point to Point, AP Bridge-Point to Multi-Point, AP Bridge-WDS, Universal Repeater.
Wireless Standard	Select a wireless standard from: 2.4GHz(b+g+n) 2.4GHz(b) 2.4GHz(g) 2.4GHz(n) 2.4GHz(b+g)
Wireless Network name	Specify a name for your router/wireless network for identification. The default ESSID is name “edimax.setup”.
Broadcast ESSID	Select “Enable” or Disable” to enable or disable ESSID broadcast accordingly. When enabled, the ESSID will be visible as an available Wi-Fi network. When disabled, the ESSID will still be available but not visible.

Channel Number	Select a channel number or set to “Auto”. North America uses channels 1–11 and Europe uses channels 1–13.
Wireless Clients	Click the “Show List” button to show the list of all connected wireless clients. Click “Refresh” in the new window to refresh the list or click “Close” to close the window.

Active Wireless Client Table

This table shows the MAC address, transmission and receiption packet counters for each associated wireless client.

MAC Address	802.11 PhyMode	Tx Packets	Rx Packets	Tx Rate (Mbps)	Power Saving	Expired Time (s)
00:1b:77:51:d9:26	11g	9728	48	36	yes	300

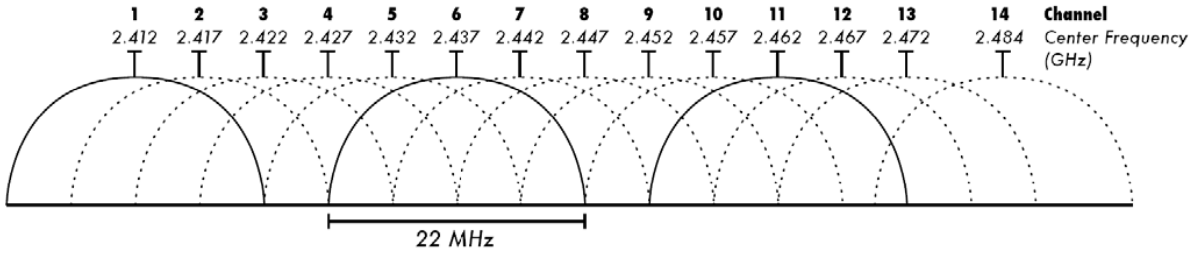
Encryption	Select an encryption type from the drop down menu. “WPA Pre-shared Key” is recommended. Refer to the following pages for more details on each encryption type.

Wireless Standard - IEEE 802.11b/g/n

For best performance, 2.4GHz(b+g+n) is recommended for indoor environments. For long distance data transmission, 2.4GHz(11b) is recommended.

Channel Number

Channel numbers vary depending on your country. The table below is intended as a guide if you wish to manually set the channel number for the 2.4GHz network.



Channel	Frequency (MHz)	China	North America	Europe	Japan	Australia	Israel
1	2412	Y	Y	Y	Y	Y	N
2	2417	Y	Y	Y	Y	Y	N
3	2422	Y	Y	Y	Y	Y	Y
4	2427	Y	Y	Y	Y	Y	Y

5	2432	Y	Y	Y	Y	Y	Y
6	2437	Y	Y	Y	Y	Y	Y
7	2442	Y	Y	Y	Y	Y	Y
8	2447	Y	Y	Y	Y	Y	Y
9	2452	Y	Y	Y	Y	Y	Y
10	2457	Y	Y	Y	Y	Y	N
11	2462	Y	Y	Y	Y	Y	N
12	2467	Y	N	Y	Y	Y	N
13	2472	Y	N	Y	Y	Y	N
14	2484	N	N	N	Only 802.11b	N	N

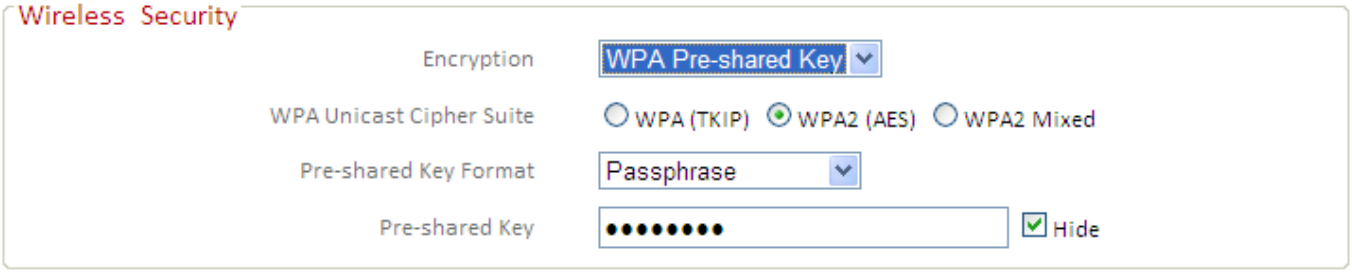
IV-5-1-1. Wireless Security

WPA Pre-shared key is the recommended and most secure encryption type.

IV-5-1-1-1. WEP

Key Length	Select 64-bit or 128bit. Using 128-bit is more secure than 64-bit.
Key Format	Choose from ASCII or Hex.
Default Tx Key	You can set up to four sets of WEP keys, and select which is used as the default. The default value is “Key 1”.
Encryption Key	Enter 4 sets of encryption keys here.
Enable 802.1x Authentication	Enable/disable 802.1x user authentication.

IV-5-1-1-2. WPA pre-shared key

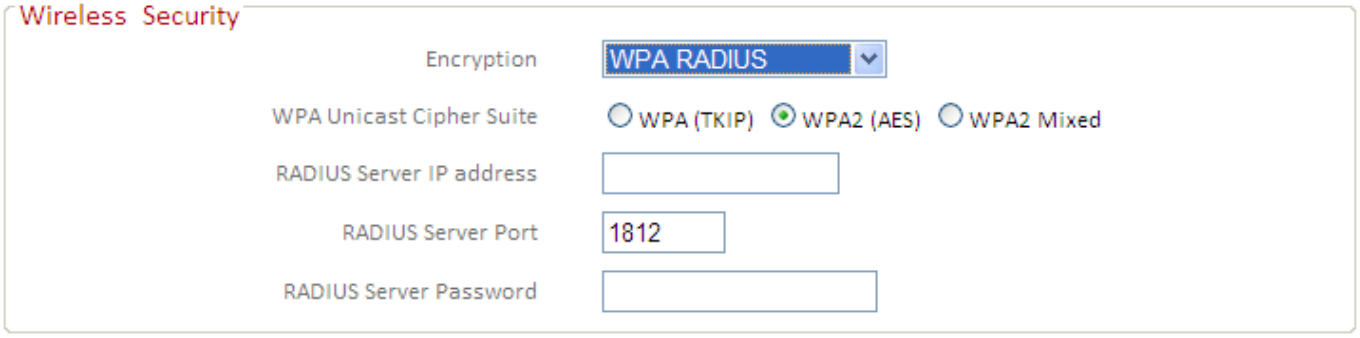


WPA Unicast Cipher Suite	Select from WPA (TKIP), WPA2 (AES) or WPA2 Mixed. WPA2 (AES) is safer than WPA (TKIP), but not supported by all

	wireless clients. Please make sure your wireless client supports your selection. WPA2 (AES) is recommended followed by WPA2 Mixed if your client does not support WPA2 (AES).
Pre-shared key format	Select the pre-shared key format from “Passphrase” (8 to 63 alphanumerical characters) or “Hex (64 characters 0 to 9 and a to f.)
Pre-shared Key	Please enter a key according to the format you selected above. A complex, hard-to-guess key is recommended.

IV-5-1-1-3. WPA RADIUS

WPA RADIUS is a combination of WPA encryption and RADIUS user authentication. If you have a RADIUS authentication server, you can authenticate the identity of every wireless client against a user database.

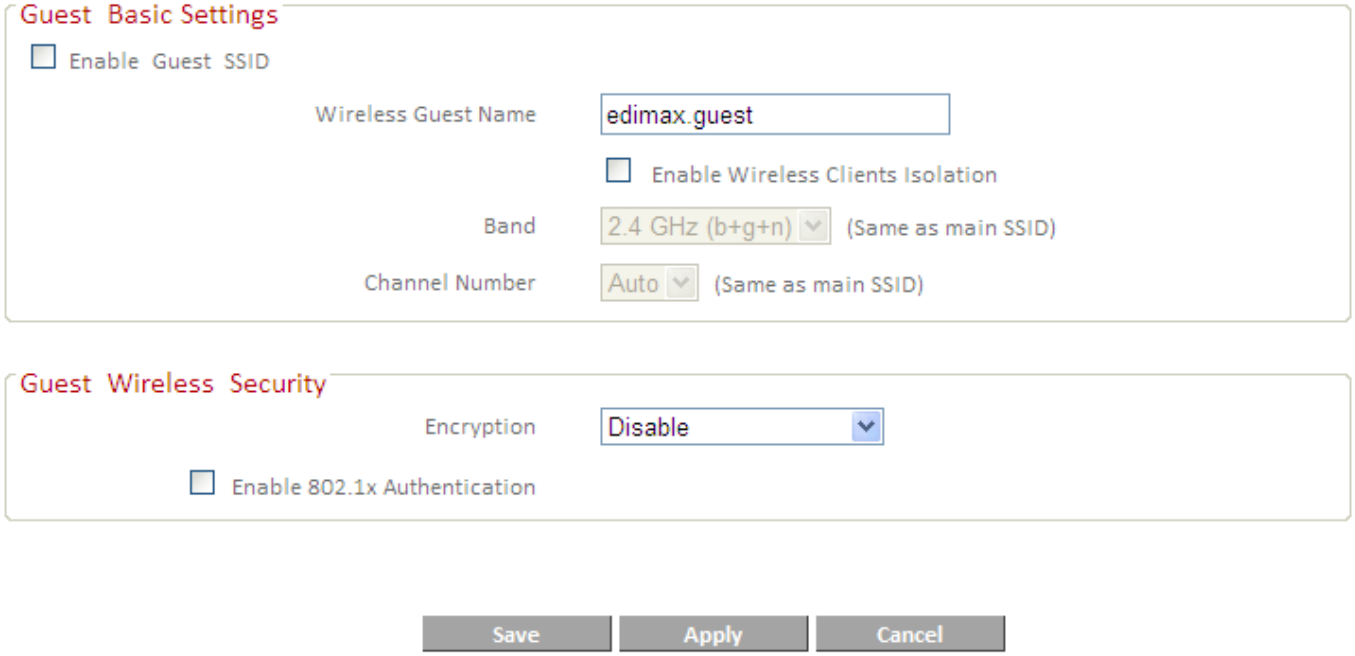


WPA Unicast Cipher Suite	Select from WPA (TKIP), WPA2 (AES) or WPA2 Mixed. WPA2 (AES) is safer than WPA (TKIP), but not supported by all wireless clients. Please make sure your wireless client supports your selection. WPA2 (AES) is recommended followed by WPA2 Mixed if your client does not support WPA2 (AES).
RADIUS Server IP address	Input the IP address of the RADIUS authentication server here.
RADIUS Server Port	Input the port number of the RADIUS authentication server here.

	The default value is 1812.
RADIUS Server Password	Input the password of the RADIUS authentication server here.

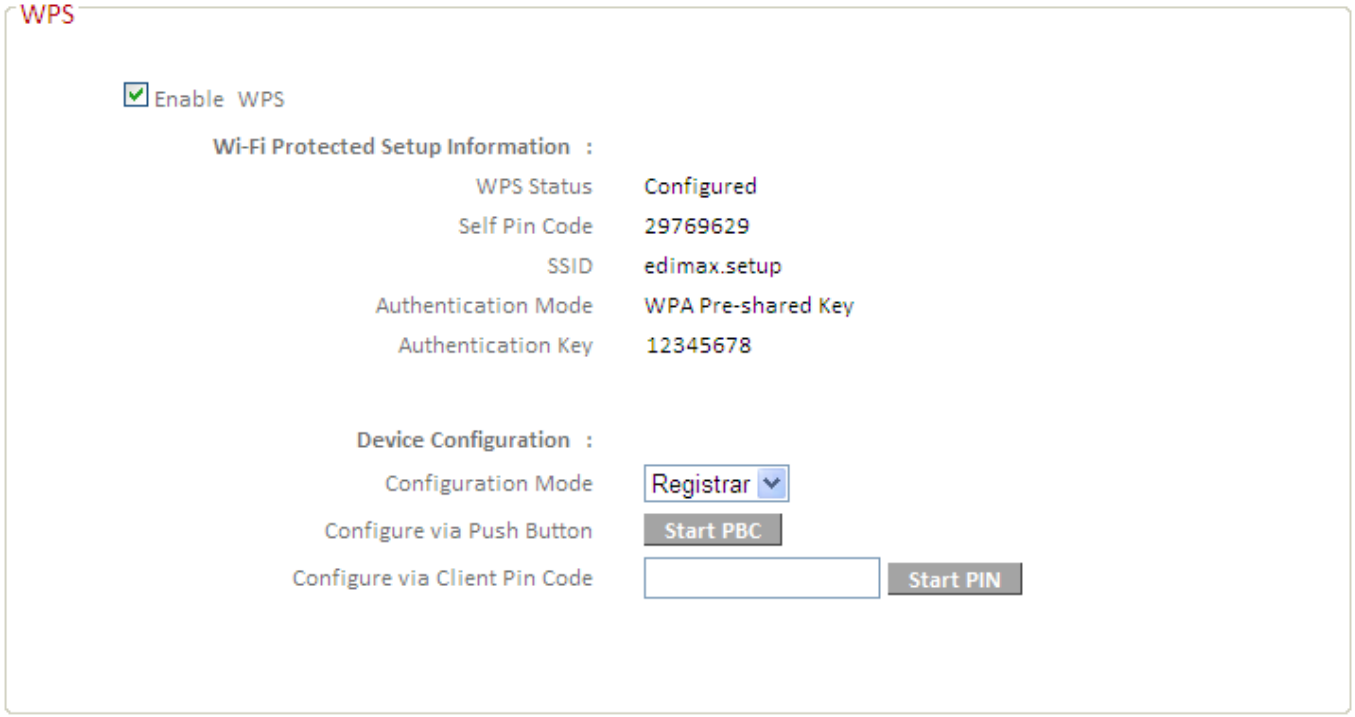
IV-5-2. Guest Wireless Settings

Here you can setup a “Guest” wireless network which permits users to browse the Internet but doesn’t allow users to modify the router’s settings – ideal for guests in your home or office. Check the box “Enable Guest SSID” to enable this network, then enter the necessary information in the fields below.



Wireless Guest Name	Enter a name to identify the guest wireless network. The default value is “edimax.guest”.
Wireless Clients Isolation	Check the box to enable wireless clients isolation.
Band	This value is the same as for the main SSID and can not be modified.
Channel Number	This value is the same as for the main SSID and can not be modified.
Guest Wireless Security	Configure the wireless security settings for the guest network, in the same way as explained in **IV-5-1-1. Wireless Security** for the main SSID.

IV-5-3. WPS



WPS (Wi-Fi Protected Setup) provides an easy and secure way to establish the connection between BR-6478AC and wireless clients. Any WPS-compatible wireless clients can establish secure connection with BR-6478AC using simple push-button type configuration or Pin Code type configuration.

We recommend you use WPA2 encryption with WPS.

1. Ensure you have already configured SSID and WPA2 encryption settings. When you use WPS the connection will be configured according to these settings.

2. Click" Start PBC" or press the WPS button on the router.

3. Activate WPS on the wireless client within 2 minutes to establish a connection.

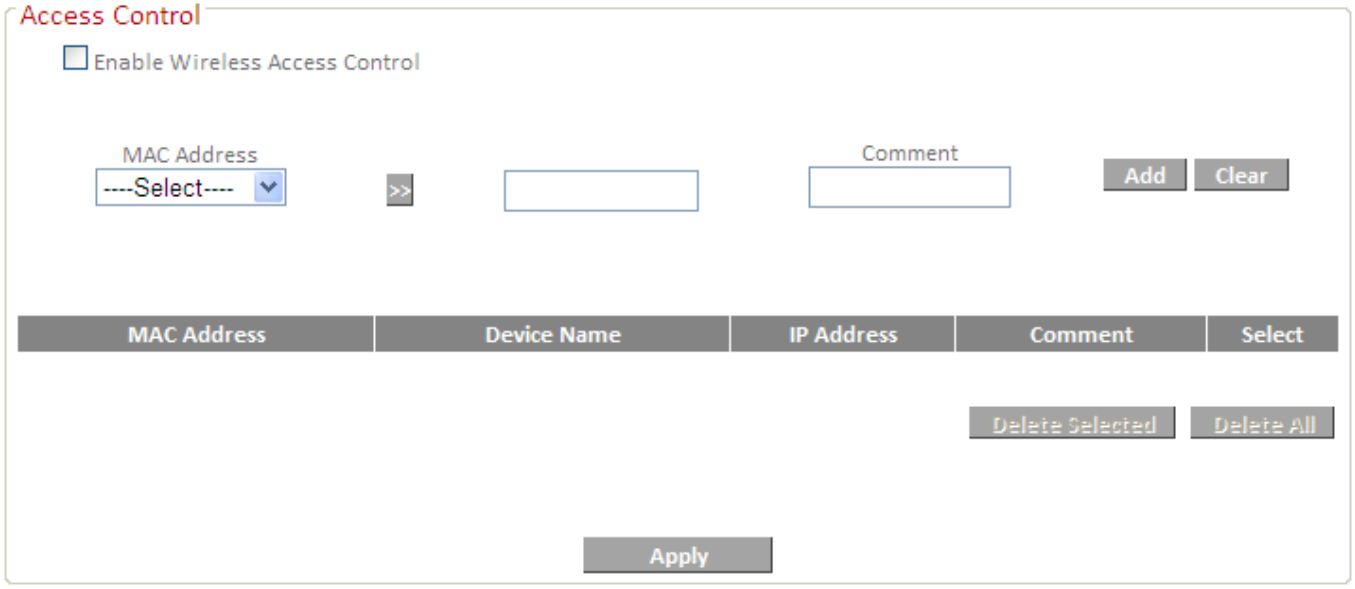
IV-5-4. Access Control

Access Control is a security feature that can help to prevent unauthorized users from connecting to your wireless router.

This function allows you to define a list of wireless devices permitted to connect to the router. Devices are each identified by their unique MAC address. If a device which is not on the list of permitted MAC addresses attempts to

connect to the router, it will be denied.

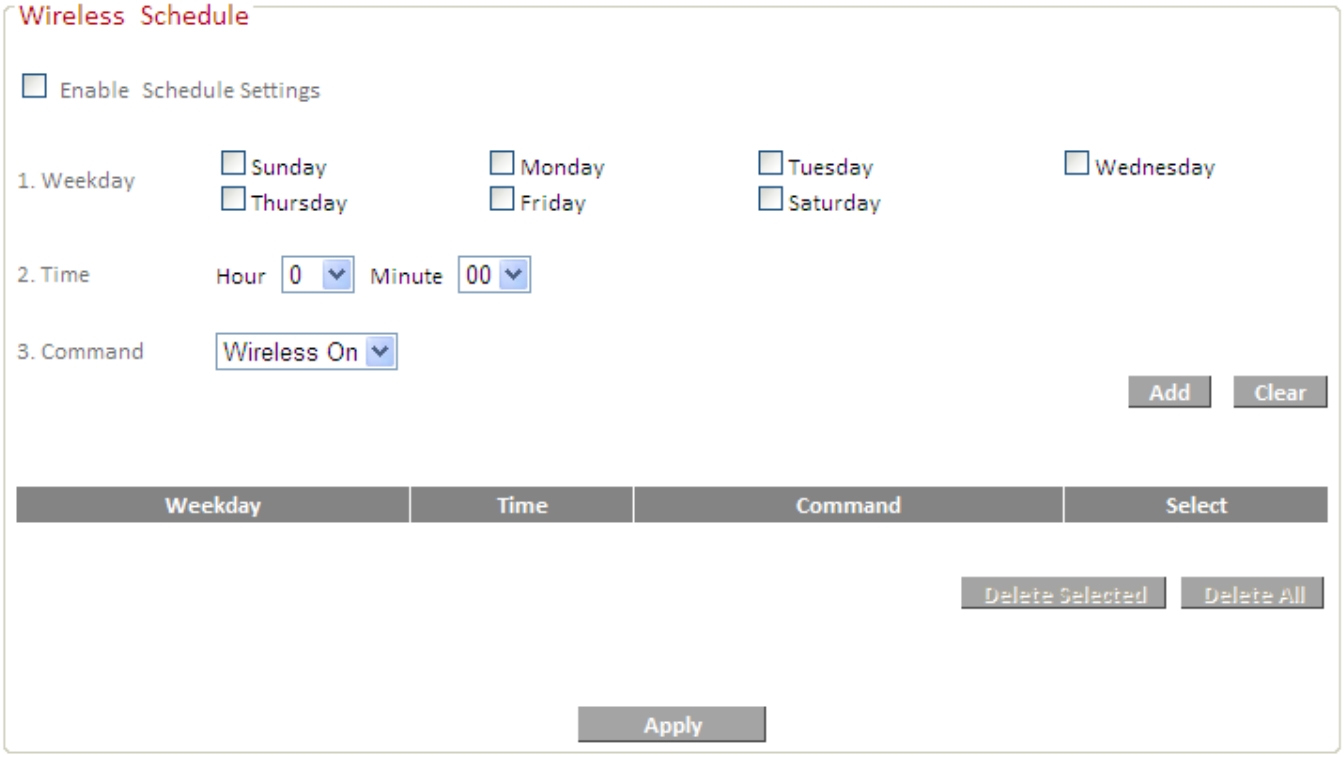
To enable this function, check the box labeled “Enable Access Control”.



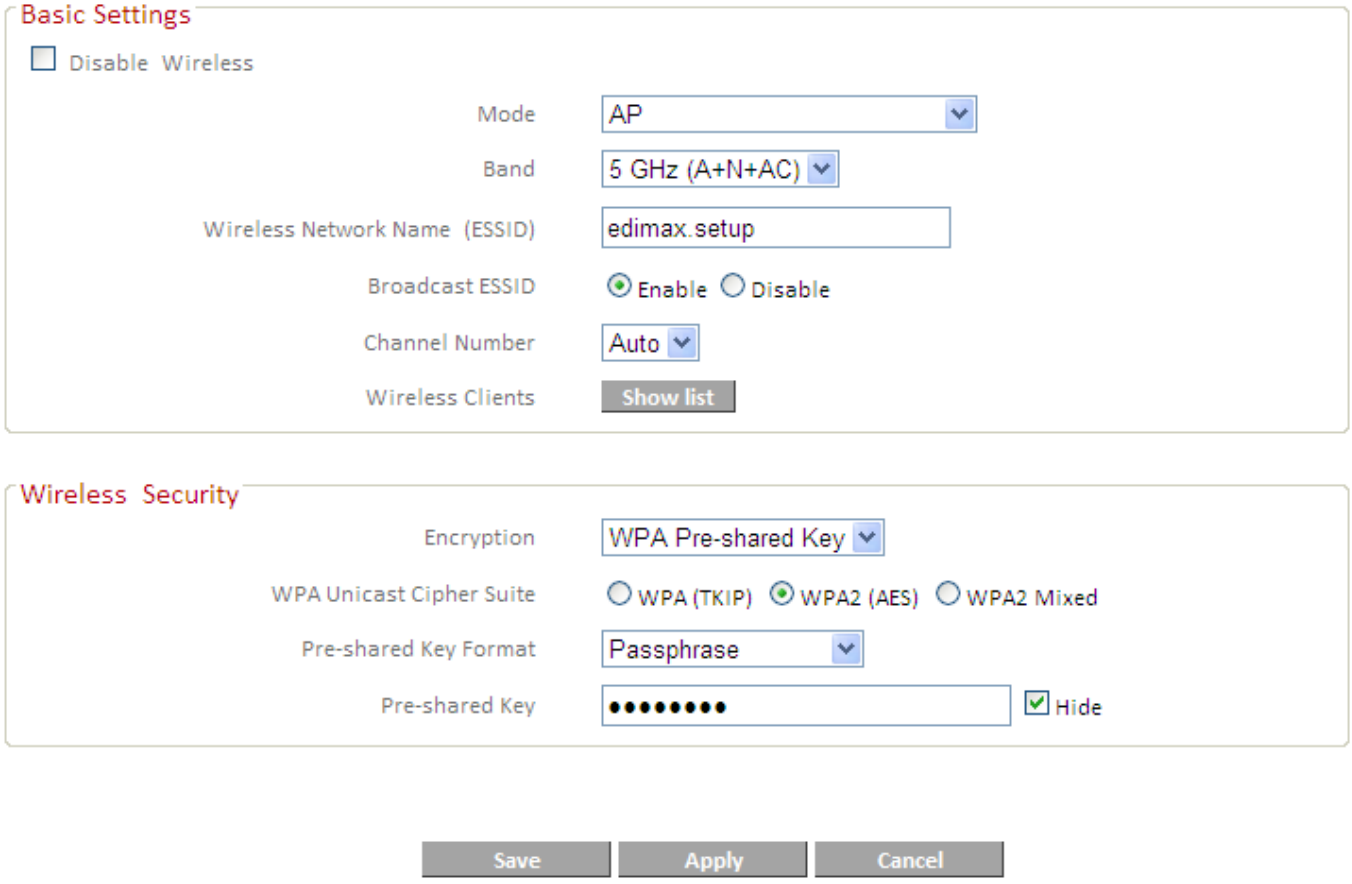
IV-5-5. Wireless Schedule

Check the box “Enable Schedule Settings” to enable a wireless schedule. A wireless schedule enables you to automate the wireless network on or off at specified times. Select days, times and commands appropriately to configure your schedule.

The router must remain connected to the internet, and be used together with an NTP Server for this feature to function correctly.



IV-6. 5GHz Wireless



2.5GHz and 5GHz are different frequency bands for your concurrent Wi-Fi networks. The configuration settings for 5GHz are the same as 2.4GHz - for more detailed guidance, please refer back to **IV-5. 2.4G Wireless.** When

selecting which wireless standard to use under “Band”, 5 GHz (A+N+AC) is recommended for best performance.

> ***Note:*** ***It is recommended to assign different SSIDs to your 2.4GHz & 5GHz Wi-Fi networks for identification purposes.***

The table below is intended as guidance if you wish to manually set a channel number for the 5GHz Wi-Fi network.

Channel	頻率 (MHz)	USA	Europe	Japan		Singapore	China	Taiwan
		20 MHz	20 MHz	20 MHz	10 MHz	20 MHz	20 MHz	20MHz
7	5035	No	No	No	Yes	No	No	No
8	5040	No	No	No	Yes	No	No	No
9	5045	No	No	No	Yes	No	No	No
11	5055	No	No	No	Yes	No	No	No
12	5060	No	No	No	No	No	No	No
16	5080	No	No	No	No	No	No	No
34	5170	No	No	No	No	No	No	No
36	5180	Yes	Yes	Yes	No	Yes	No	No
38	5190	No	No	No	No	No	No	No
40	5200	Yes	Yes	Yes	No	Yes	No	No
42	5210	No	No	No	No	No	No	No
44	5220	Yes	Yes	Yes	No	Yes	No	No
46	5230	No	No	No	No	No	No	No
48	5240	Yes	Yes	Yes	No	No	No	No
52	5260	Yes	Yes	Yes	No	No	No	Yes
56	5280	Yes	Yes	Yes	No	No	No	Yes
60	5300	Yes	Yes	Yes	No	No	No	Yes
64	5320	Yes	Yes	Yes	No	No	No	Yes
100	5500	Yes	Yes	Yes	No	No	No	Yes
104	5520	Yes	Yes	Yes	No	No	No	Yes
108	5540	Yes	Yes	Yes	No	No	No	Yes
112	5560	Yes	Yes	Yes	No	No	No	Yes
116	5580	Yes	Yes	Yes	No	No	No	Yes
120	5600	Yes	Yes	Yes	No	No	No	Yes
124	5620	Yes	Yes	Yes	No	No	No	Yes

128	5640	Yes	Yes	Yes	No	No	No	Yes
132	5660	Yes	Yes	Yes	No	No	No	Yes
136	5680	Yes	Yes	Yes	No	No	No	Yes
140	5700	Yes	Yes	Yes	No	No	No	Yes
149	5745	Yes	No	No	No	Yes	Yes	Yes
153	5765	Yes	No	No	No	Yes	Yes	Yes
157	5785	Yes	No	No	No	Yes	Yes	Yes
161	5805	Yes	No	No	No	Yes	Yes	Yes
165	5825	Yes	No	No	No	Yes	Yes	Yes
183	4915	No	No	No	Yes	No	No	No
184	4920	No	No	Yes	Yes	No	No	No
185	4925	No	No	No	Yes	No	No	No
187	4935	No	No	No	Yes	No	No	No
188	4940	No	No	Yes	Yes	No	No	No
189	4945	No	No	No	Yes	No	No	No
192	4960	No	No	Yes	No	No	No	No
196	4980	No	No	Yes	No	No	No	No

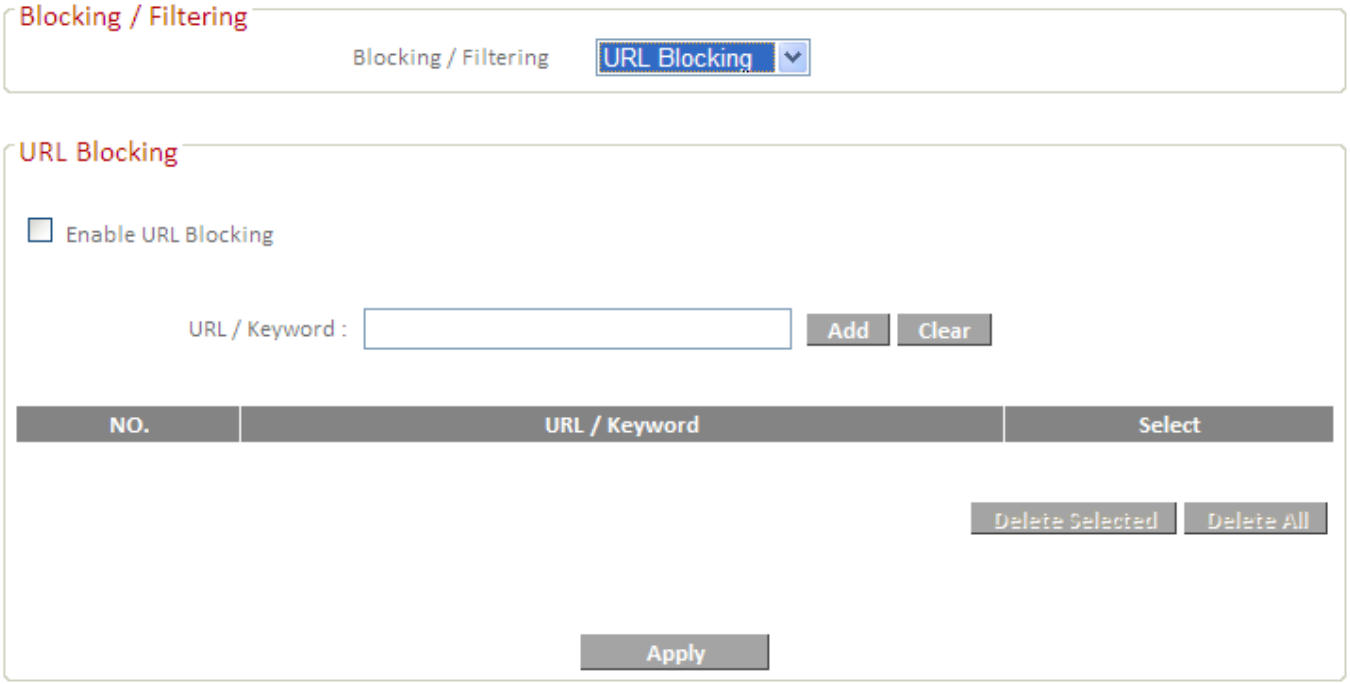
IV-7. Security

The BR-6478AC's security features provide two functions, "URL Blocking" and "Access Control". "URL Blocking" allows Internet content to be blocked by URL or keyword, while "Access Control" enables you to specify which computer's can or cannot access your network, identified by IP or MAC address.

IV-7-1. URL Blocking

This feature can restrict access to specified websites for computers on your local network, for example as a parental control function.

Check the "Enable URL Blocking" box to enable the function. You can block specific websites or URLs containing a specified keyword. Input the URL/IP address/host name of a website, or your chosen keyword, into the URL/Keyword box field and click "Add".



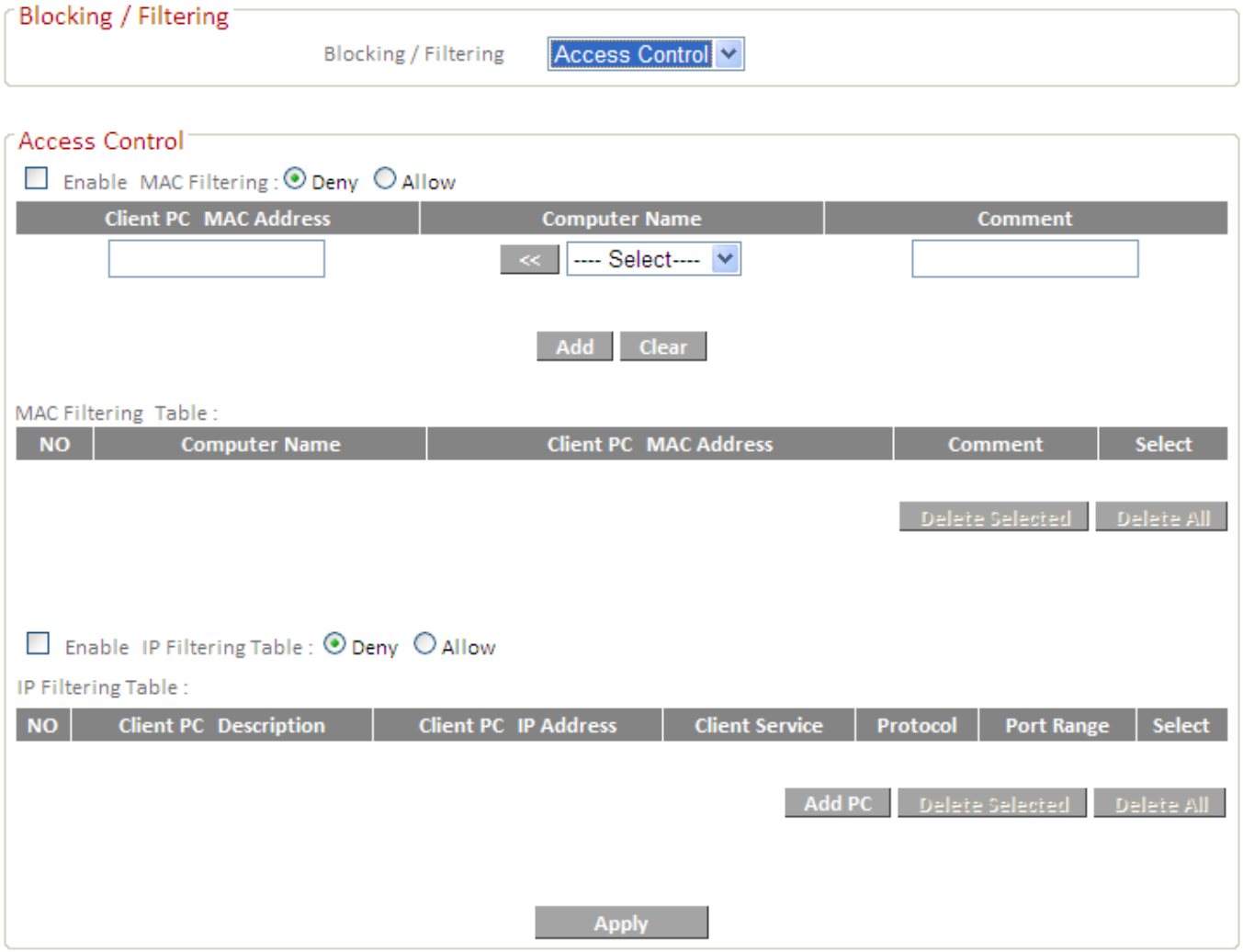
IV-7-2. Access Control

Access Control is a security feature that can help to prevent unauthorized users from connecting to your wireless router.

This function allows you to define a list of wireless devices permitted or not permitted to connect to the router, identified by their unique MAC address or IP address. If a device which is not on the list of permitted MAC or IP addresses attempts to connect to the travel router, it will be denied.

To enable MAC filtering, check the box labeled “Enable Mac Filtering”.

To enable IP filtering, check the box labeled “Enable IP Filtering”.



Enable MAC Filtering Table:
Choose “Deny” or “Allow” next to “Enable MAC Filtering”, to deny or allow a specific MAC address accordingly, then enter the required information.

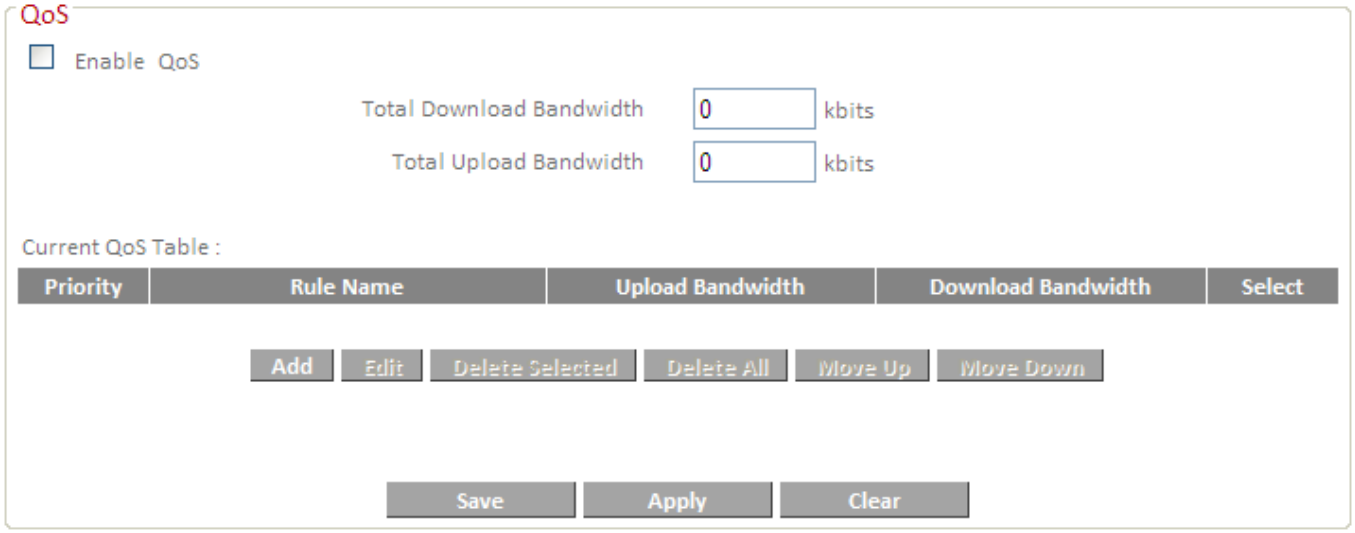
Enable IP Filtering Table:
Choose “Deny” or “Allow” next to “Enable MAC Filtering”, to deny or allow a specific IP address accordingly, then enter the required information.

IV-8. QoS (Quality of Service)

IV-8-1. QoS

Quality of service (QoS) is a function which allows you to allocate a certain amount of bandwidth to specific computer. This can ensure that applications which require guaranteed bandwidth e.g. video conference or network telephone applications, are able to function properly and without interruption. Conversely, you can also limit the maximum bandwidth available to a specific computer or application.

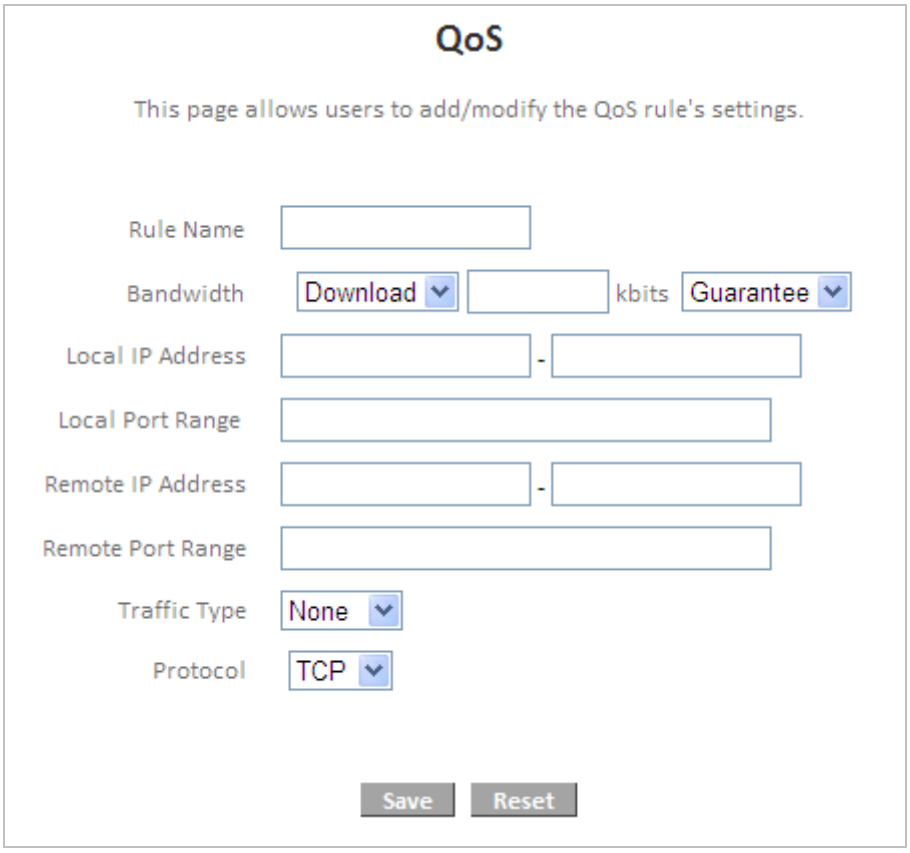
Check the “Enable QoS” box to enable this function and then enter the desired values.



Total Download Bandwidth	Set the limit of total download bandwidth in kbits. To disable download bandwidth limitation, input “0” here.
Total Upload Bandwidth	Set the limit of total upload bandwidth in kbits. To disable upload bandwidth limitation, input “0” here.
Current QoS Table	The current QoS rule table.

When you assign a particular bandwidth guarantee/limit to a specific computer, it is known as a rule. Existing rules will be listed in the table “Current QoS Table”.

QoS Rule settings：
Click “Add” and to create a new rule in a new window.

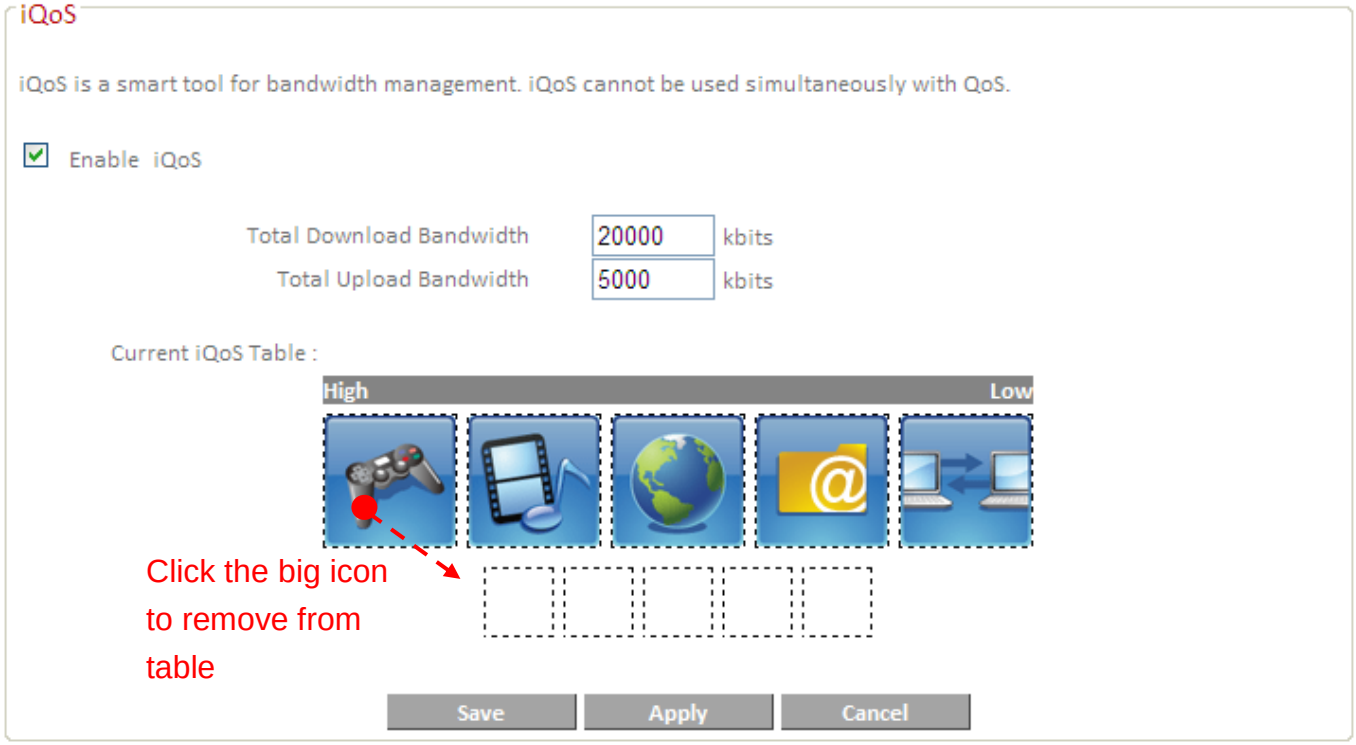


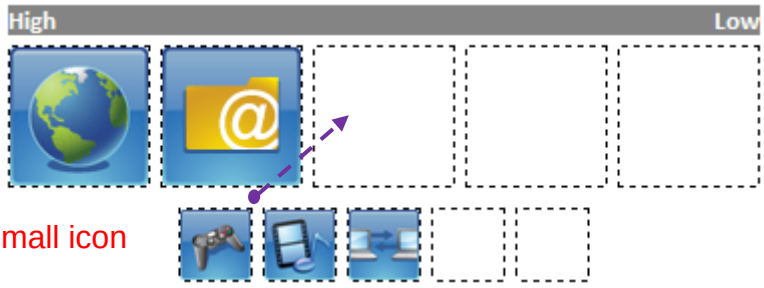
Rule Name	Input a unique name for this QoS rule for reference.
Bandwidth	Download/upload bandwidth (guarantee or maximum).
Local IP Address	Set the IP address range that will be affected by this QoS rule. If only one IP address is involved, input the IP address in the left field only.
Local Port Range	Set the port range that will activate this QoS rule. If only one port is involved, input a single number here (1 to 65535); if multiple ports are involved, input starting/ending port number in x-y format (e.g. 10-20).
Remote IP Address	Set remote IP addresses that will trigger this QoS rule (if only one IP address is involved, input the IP address in the left field only).
Remote Port Range	Set the remote port range that will activate this QoS rule.
Traffic Type	If you're creating a QoS rule for a specific type of traffic, select it from this menu and a port range (above) is not required.
Protocol	Select the protocol type here (TCP or UDP).

IV-8-2. iQoS

iQoS is a more intuitive and automated tool to manage internet bandwidth than manually configuring the settings using QoS. For online gamers, or users with bandwidth requirements for audio/video, iQoS is useful and effective function.

iQoS cannot be used in conjunction with QoS and vice-versa. When one is enabled, the other is automatically disabled.





Check the box “Enable iQoS” to enable this feature. Specify the total upload and download bandwidth and then arrange the network application icons in priority order. Network applications are grouped into the following five categories:

Internet Browsing	P2P/ BT Download	FTP	Multimedia Transmission	Online Gaming

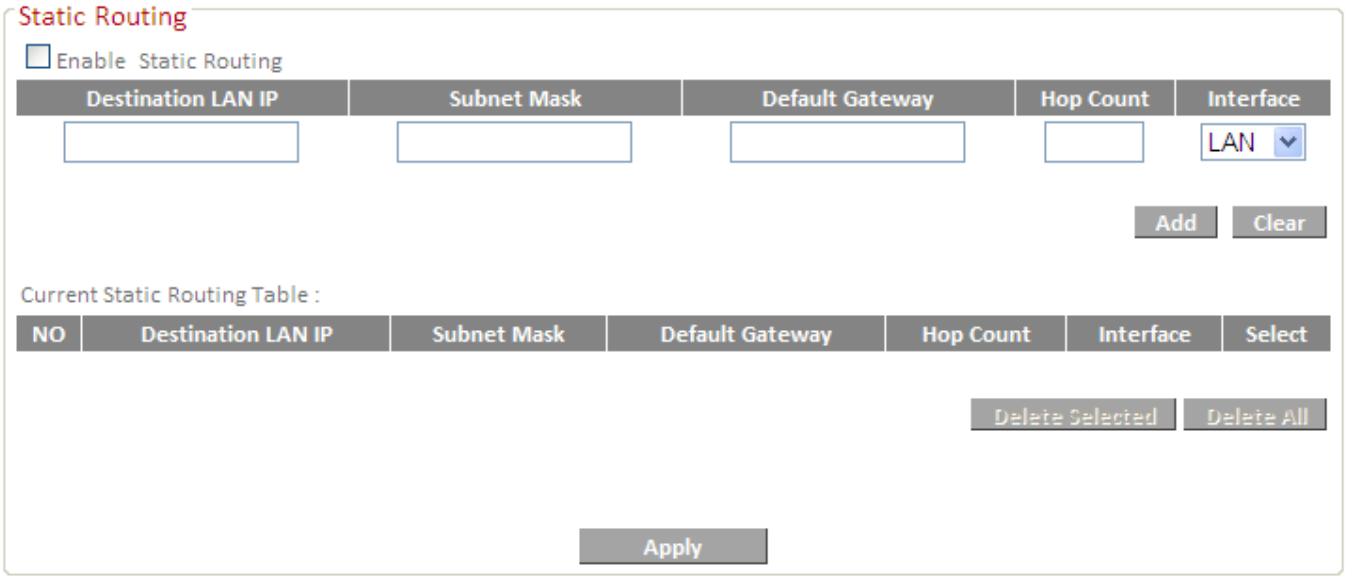
The priority table (large icons) is ordered from left to right, high to low priority. Double click a large icon to remove it from the priority table, and the other large icons will move left. Double click a small icon to insert the icon to the highest priority vacancy in the table. All spaces in the priority table must be filled.

IV-9. Advanced

IV-9-1. Static Routing

Static routing is a method of configuring path selection of routers, characterized by the absence of communication between routers regarding the current topology of the network. The opposite of static routing is dynamic routing, sometimes also referred to as adaptive routing.

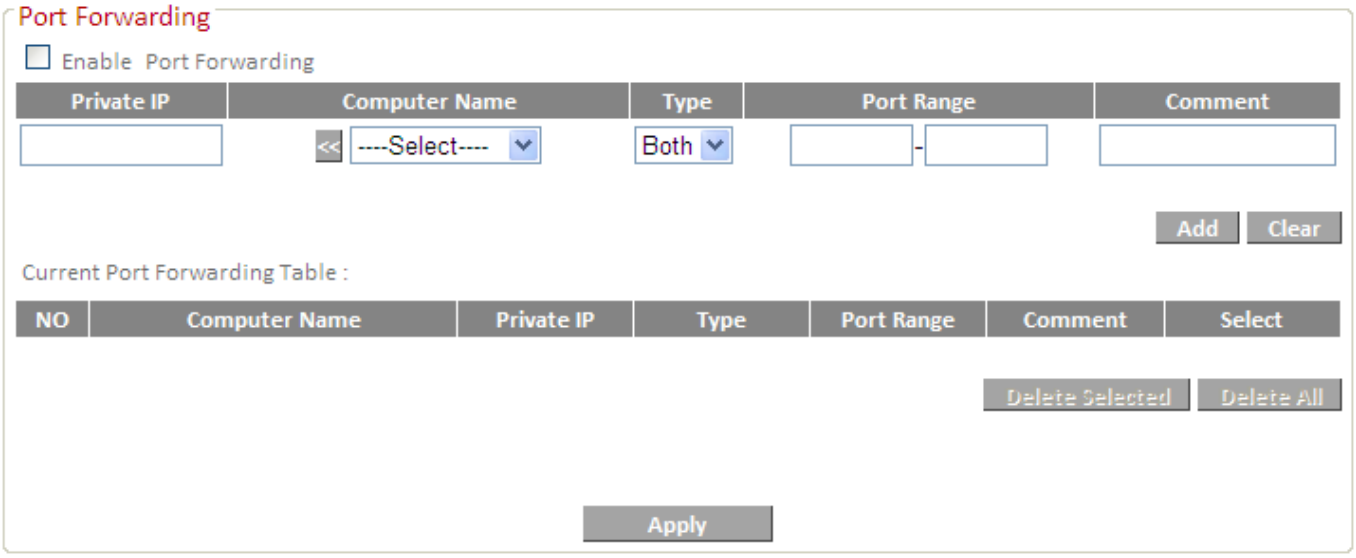
You can configure static routing and manually add routes to the routing table on this page.



IV-9-2. Port Forwarding

This function allows you to redirect a single port or consecutive ports of an internet IP address to the same port of a local IP address. The port number(s) of the internet IP address and local IP address must be the same.

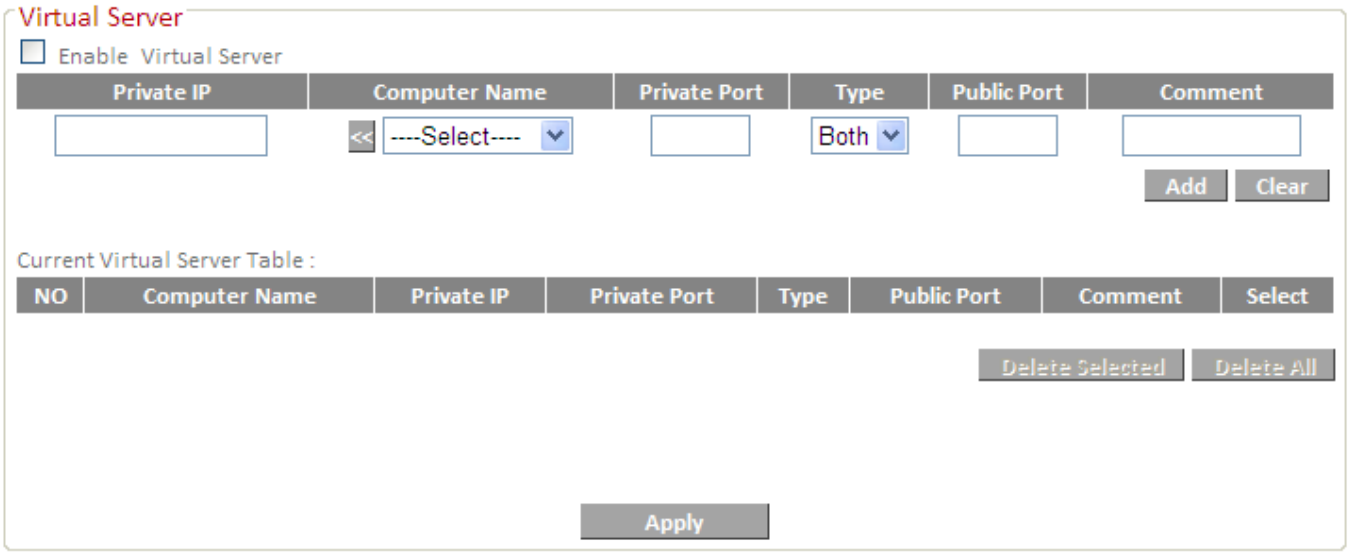
If the port number of the internet IP address and local IP address is different, please use the “Virtual Server” function instead.



Private IP	Enter the IP address of the computer on the local network.
Computer Name	Windows computers on the local network will be listed here – select a computer from the list and click << to automatically add the IP address to the “Private IP” field.
Type	Select the type of connection, “TCP”, “UDP” or “Both”.
Port Range	Input the starting port number in the left field, and input the ending port number in the right field. If you only want to redirect a single port number, only enter a port number in the left field.
Comment	Enter a comment for reference or identification.

IV-9-3. Virtual Server

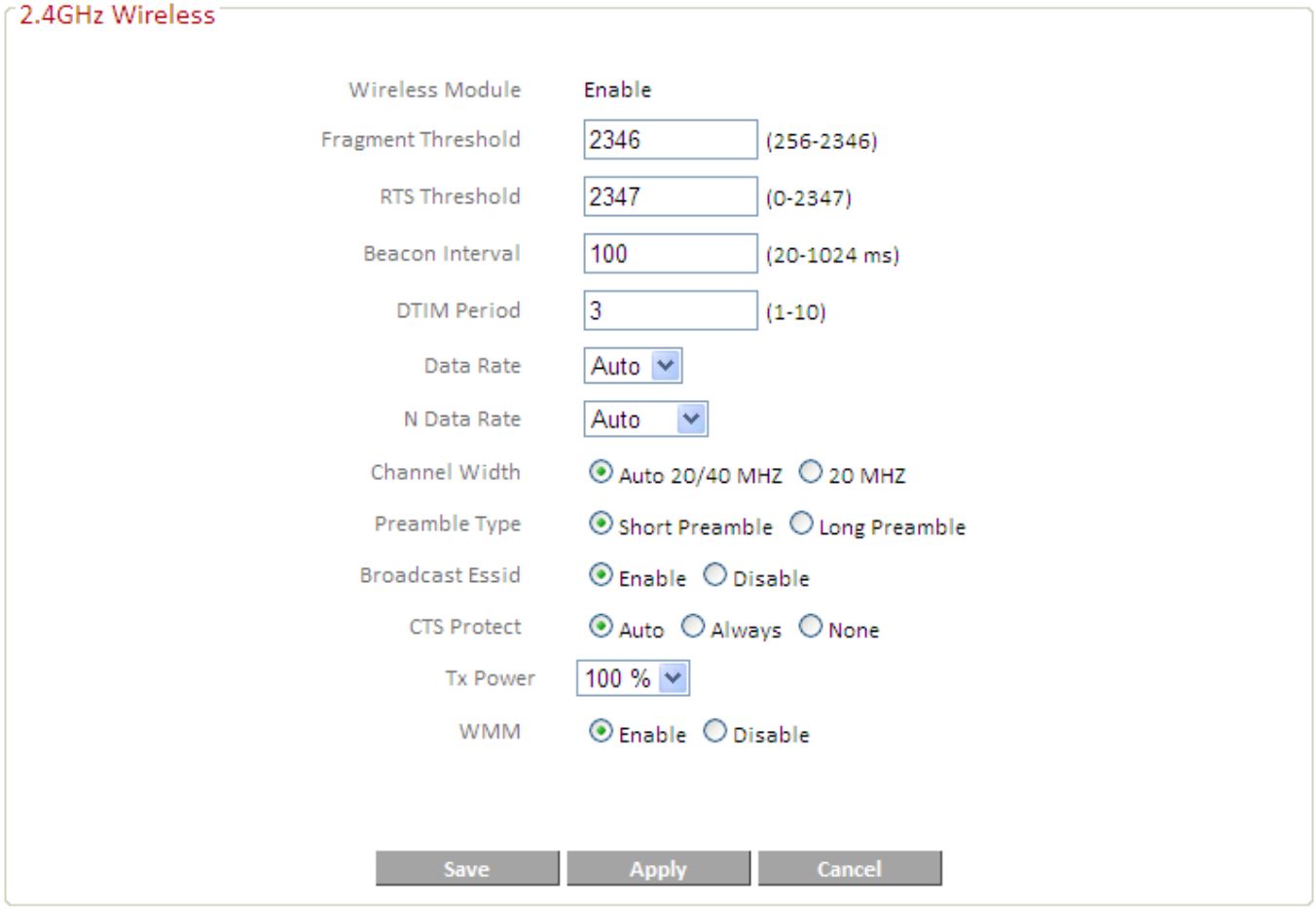
This function allows you to set up an internet service on a local computer, without exposing the local computer to the internet. You can also build various sets of port redirection, to provide various internet services on different local computers via a single internet IP address.



Private IP	Specify the IP address of the computer on your local network.
Computer Name	Select the name of a Windows computer from the drop-down menu and click << to auto-input its IP address in the “Private IP” field.
Private Port	Specify the private port you wish to use on the computer in your local network.
Type	Select the type of Internet Protocol.
Public Port	Specify a public port to access the computer on your local network.
Comment	Enter a comment for reference or identification.

IV-9-4. 2.4GHz Wireless

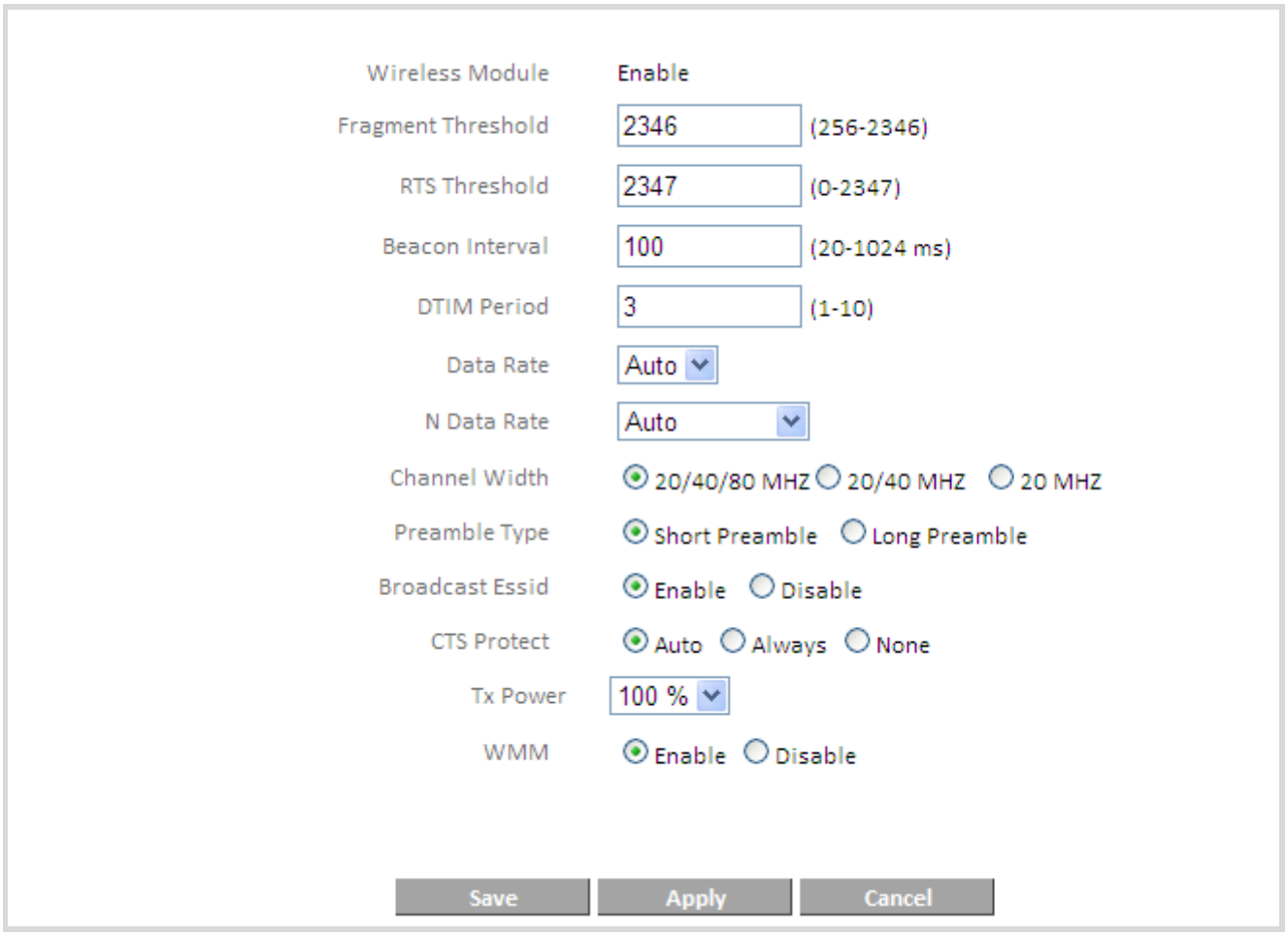
These settings are for experienced users only. Please do not change any of the values on this page unless you are already familiar with these functions.



Fragment Threshold	Set the Fragment threshold of the wireless radio. (Default: 2346)
RTS Threshold	Set the RTS threshold of the wireless radio. (Default: 2347)
Beacon Interval	Set the beacon interval of the wireless radio. (Default: 100ms)
DTIM Period	Set the DTIM period of wireless radio. (Default: 3)
Data Rate	Set the wireless data transfer rate. (Default: Auto)
MSC index	Set the MSC index value. (Default: Auto)
Channel Width	Set the wireless channel width of the 2.4GHz wireless.
Preamble Type	Set the wireless radio preamble type
Broadcast ESSID	Enable or disable broadcast ESSID.
CTS Protect	Enabling this setting will reduce the chance of radio signal collisions between 802.11b and 802.11g wireless access points. It's recommended to set this option to "Auto".
Tx Power	Set the output power of the wireless radio.
WMM	Enable or disable WMM.

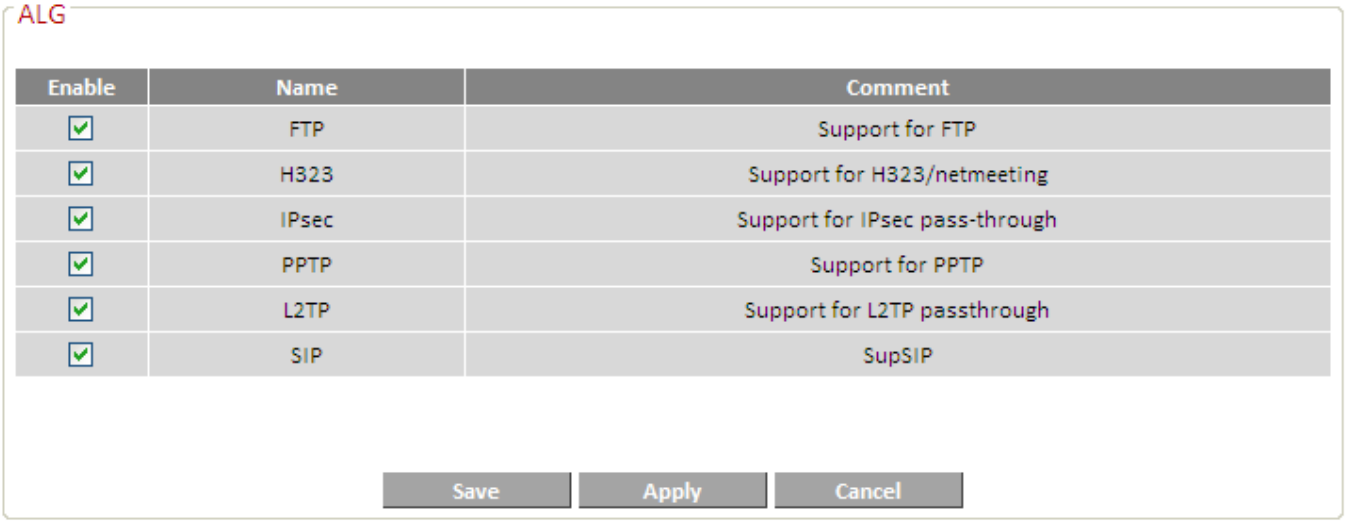
IV-9-5. 5GHz Wireless

These settings are for experienced users only. Please do not change any of the values on this page unless you are already familiar with these functions. Please refer back to **IV-9-4. 2.4GHz Wireless.**

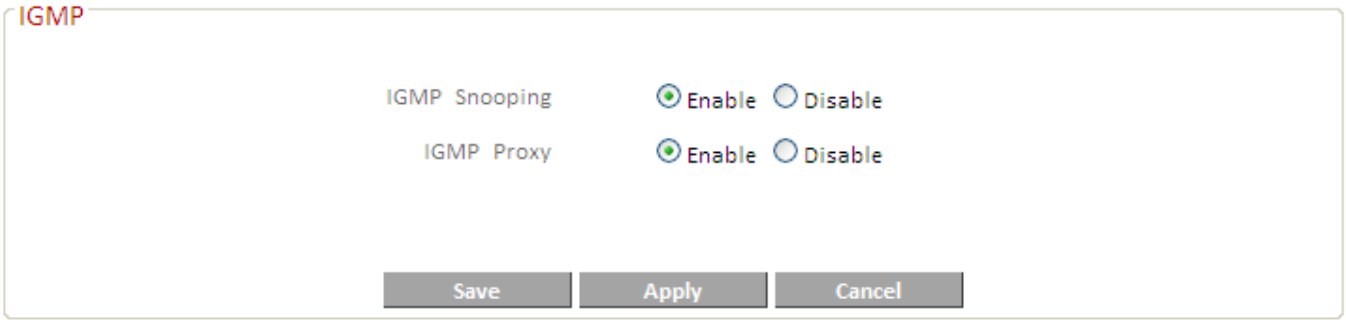


IV-9-6. ALG

Application Layer Gateway (ALG) is a network security gateway which supports specific network applications such as gaming and instant messaging. ALG enables these applications to communicate with their server.



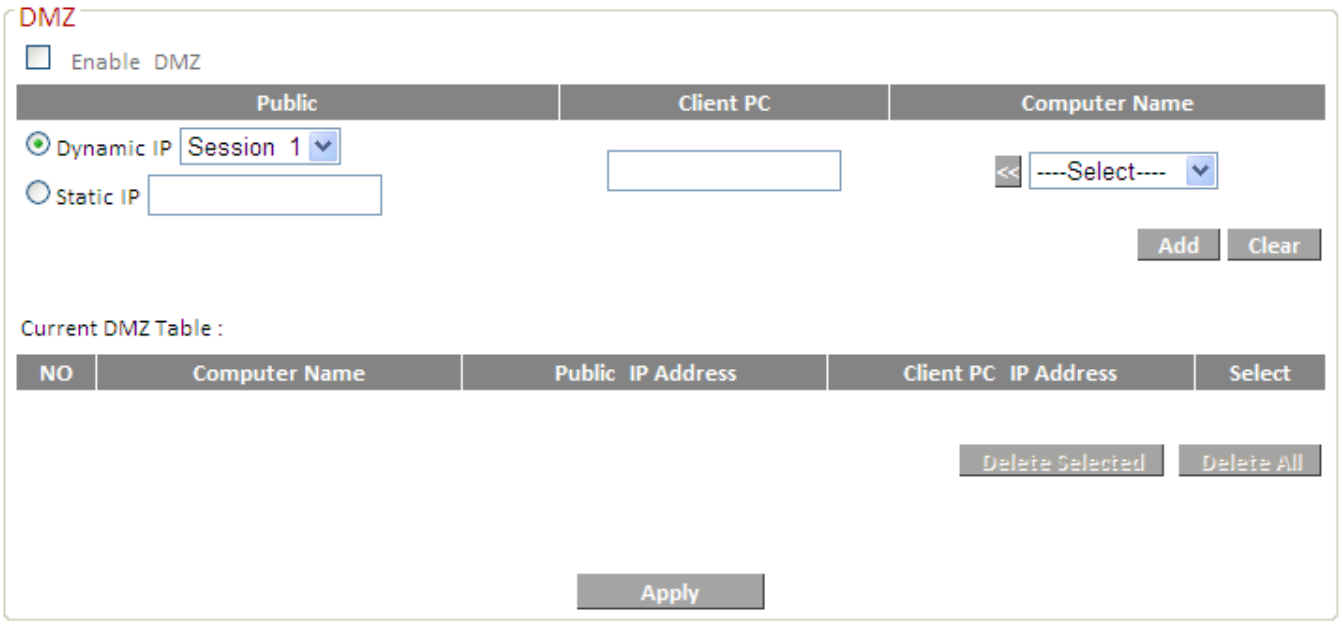
IV-9-7. IGMP



IV-9-8. DMZ

A Demilitarized Zone (DMZ) is an isolated area in your local network where private IP addresses are mapped to specified internet IP addresses, allowing unrestricted access to the private IP addresses but not to the wider local network.

You can define a virtual DMZ host here. This is useful for example, if a network client PC cannot run an application properly from behind an NAT firewall, since it opens the client up to unrestricted two-way access.



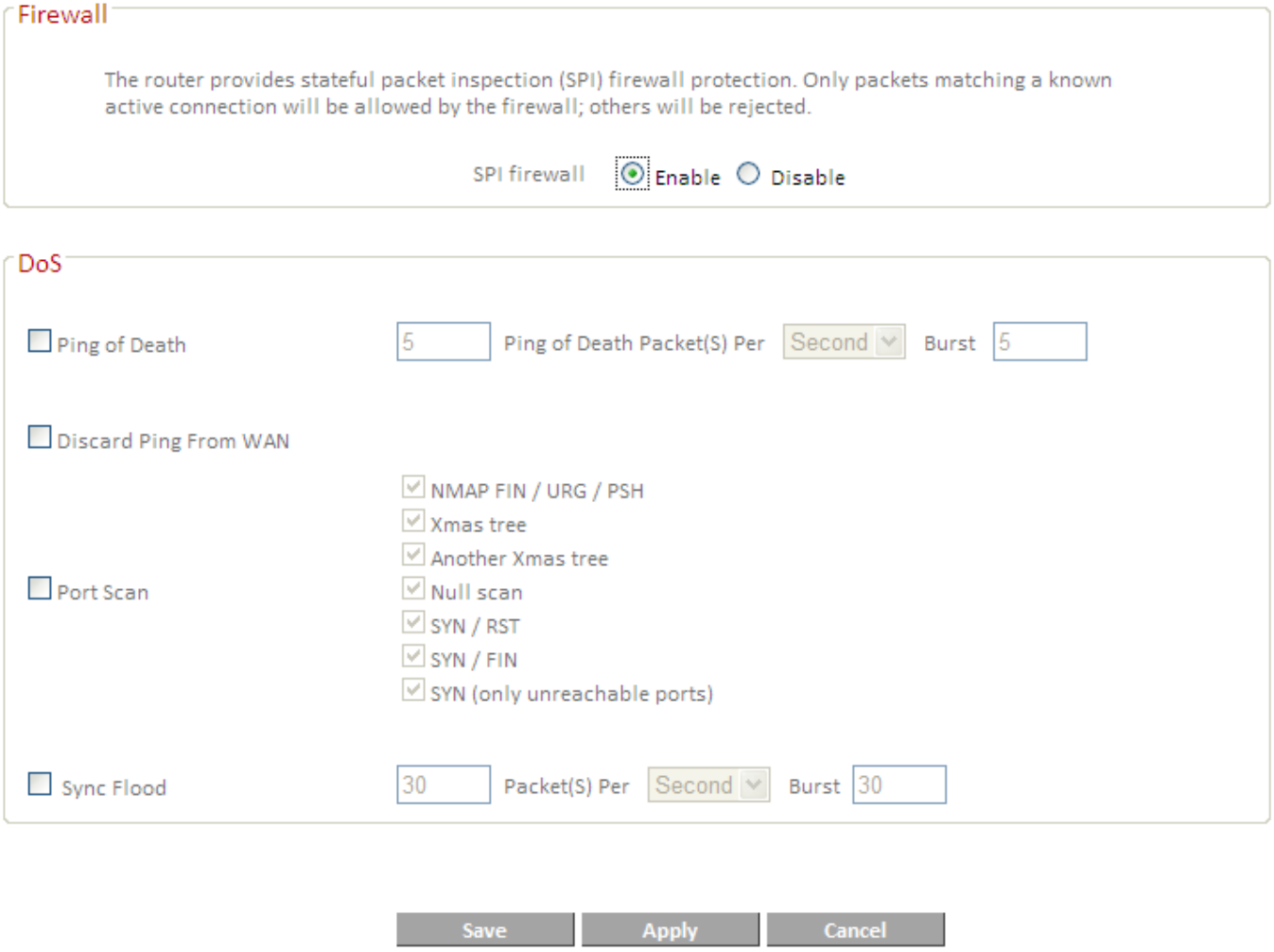
Public IP Address	You can select ‘Dynamic IP’ or ‘Static IP’ here. If you select ‘Dynamic IP’, you have to select an Internet connection session from dropdown menu; if you select ‘Static IP’, please input the IP address that you want to map to a specific private IP address.
Client PC IP address	Input the private IP address that the internet IP address will be mapped to.
Add	Click “Add” to add the client to the “Current DMZ Table”.
Reset	Clear all values.

IV-9-9. Firewall

The router supports firewall functions which can protect your network and computer from malicious intruders.

Denial-of-Service (DoS) is a common form of malicious attack against a network. The router’s firewall can protect against such attacks.

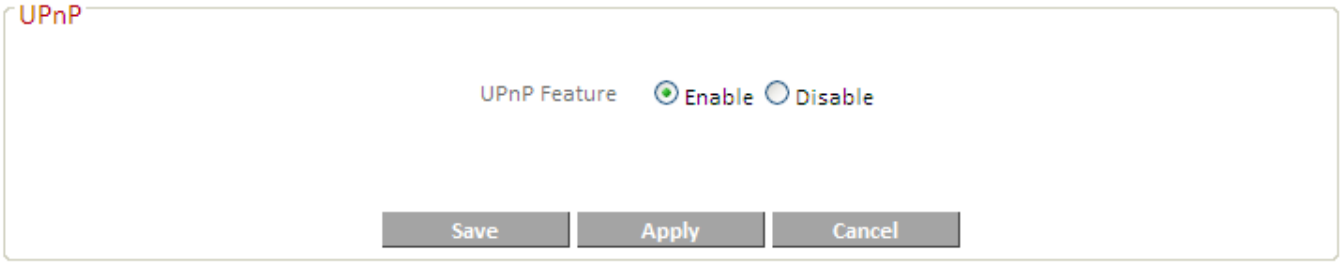
If you are not familiar with these functions, it is recommended you keep the default settings.



Ping of Death	Specify the frequency of ping of death packets which will trigger the router's DoS protection function.
Discard Ping from WAN	Check this box and the router will not answer ping requests from the internet.
Port Scan	Intruders use "port scanners" to detect open internet IP address ports. Check each type of port scan to prevent.
Sync Flood	Specify the frequency of sync flood packets which will trigger the DoS protection function.

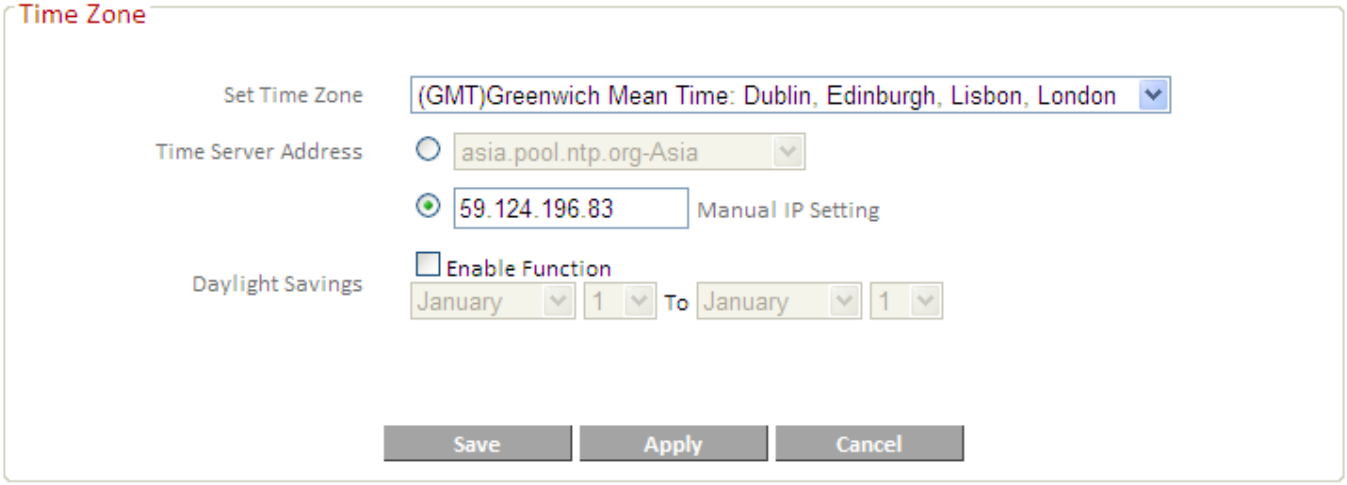
IV-9-10. UPnP

Universal plug-and-play (UPnP) is a set of networking protocols which enables network devices to communicate and automatically establish working configurations with each other.



IV-10. Administration

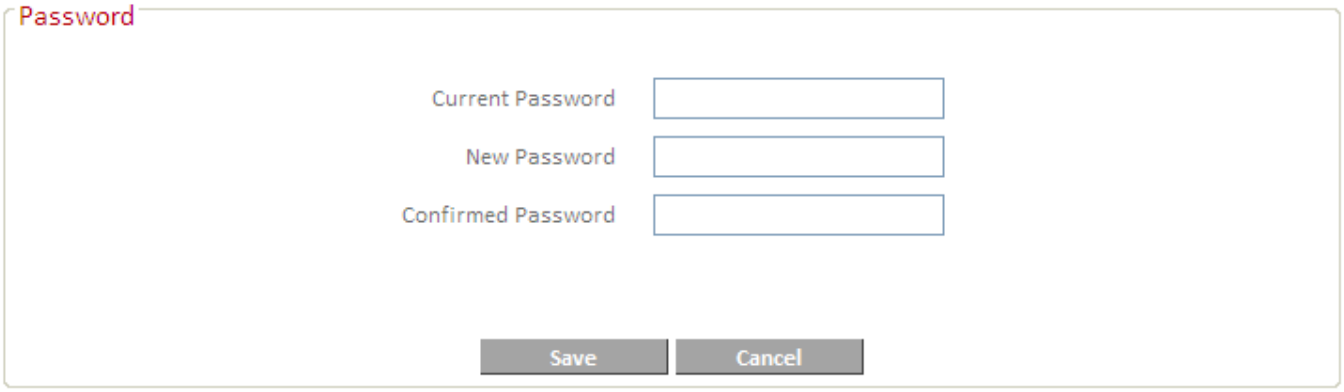
IV-10-1. Time Zone



Set Time Zone	Select the time zone of your country or region.
Time Server Address	The travel router supports NTP (Network Time Protocol) for automatic time and date setup. Input the host name or IP address of the IP server manually.
Daylight Saving	If your country/region uses daylight saving time, please check the “Enable Function” box, and select the start and end date.

IV-10-2. Password

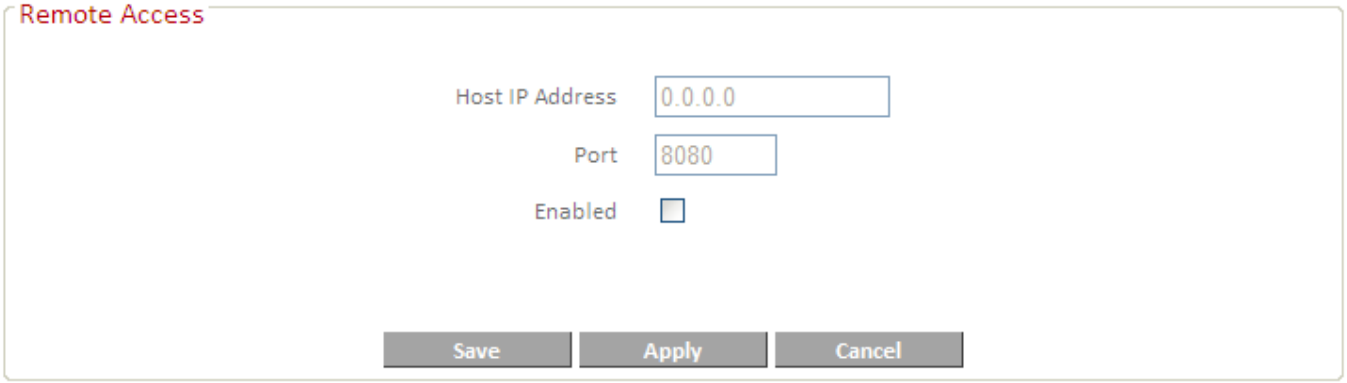
You can change the password used to login to the browser-based configuration interface here. It is advised to do so for security purposes.



Current Password	Enter your current password.
New Password	Enter your new password.
Confirmed Password	Confirm your new password.

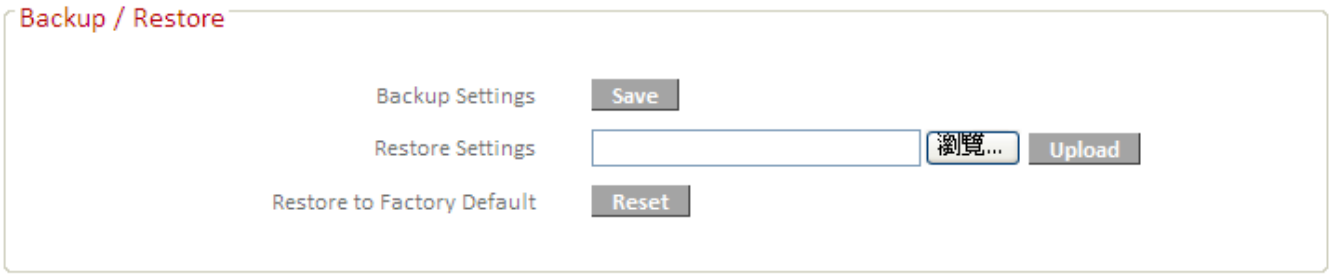
IV-10-3. Remote Access

Check “Enabled” to enable the remote access feature and then input the required values.



Host IP Address	Specify the IP address allowed remote access.
Port	Specify a port number (0–65535) used for remote access.

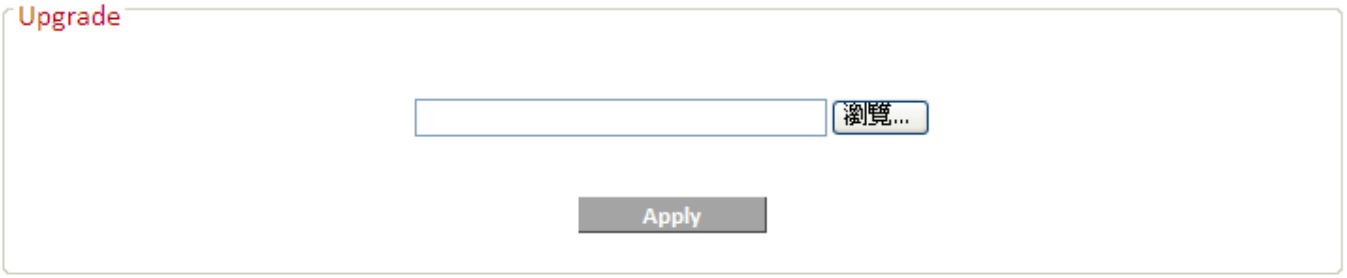
IV-10-4. Backup / Restore



Backup Settings	Click “Save” to save the current settings on your computer as config.bin file.
Restore Settings	Click the browse button to find a previously saved config.bin file and then click “Upload” to replace your current settings.
Restore to Factory Default	Click “Reset” to restore settings to the factory default. A pop-up window will appear and ask you to confirm and enter your log in details. Enter your username and password and click “Ok”. See below for more information.

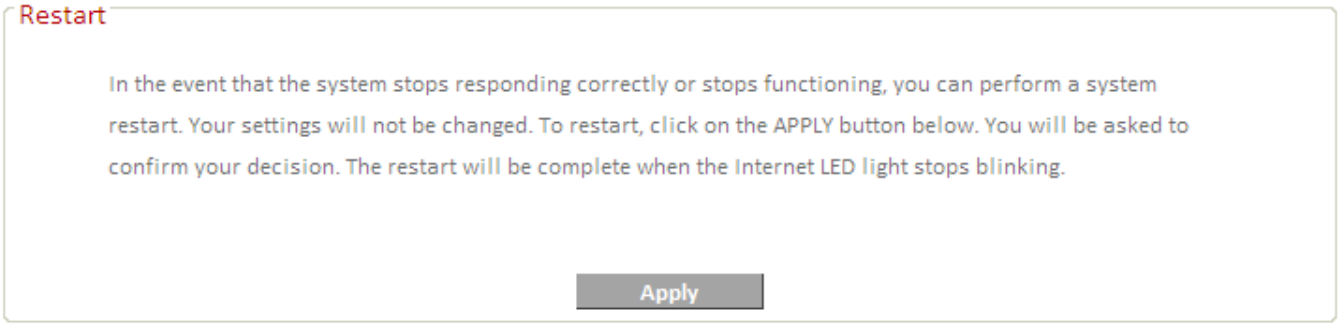
IV-10-5. Upgrade

This page allows you to upgrade the firmware for the BR-6478AC. After the upgrade, the system will restart.



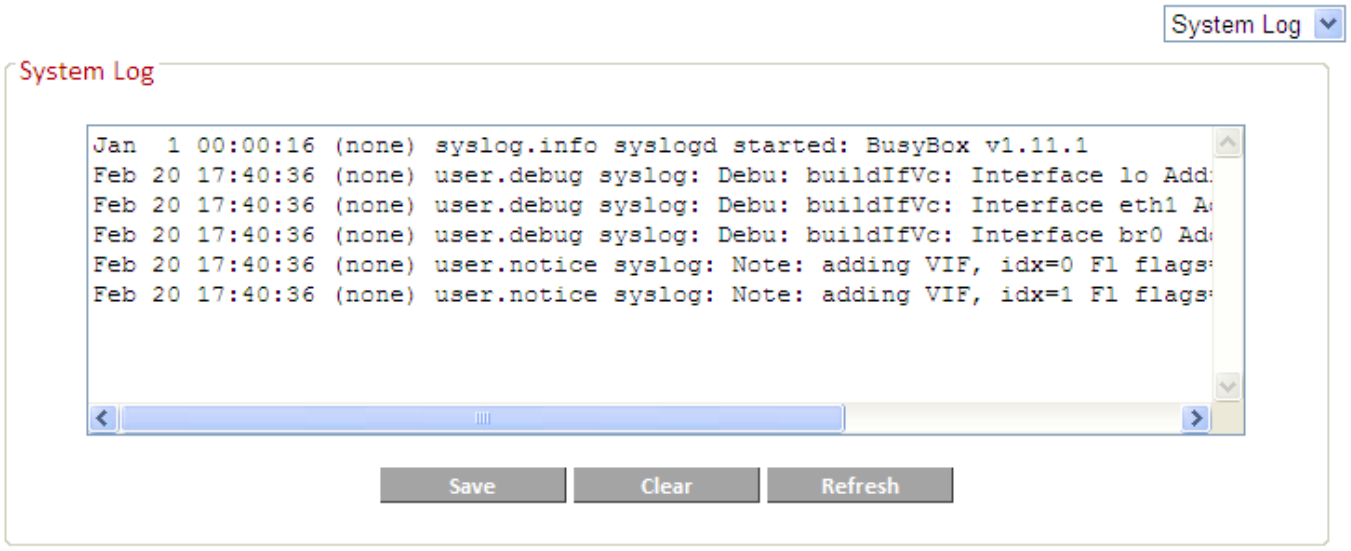
IV-10-6. Restart

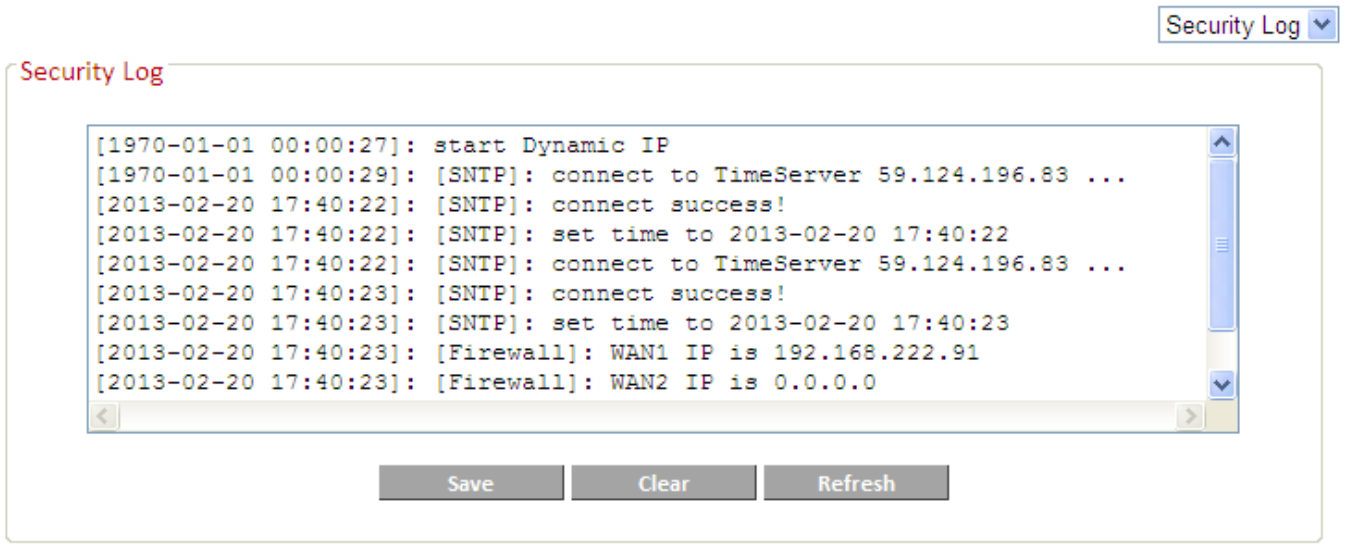
In the event that the router malfunctions or is not responding, then it is recommended that you restart the device.



IV-10-7. Logs

Here you can view the system status/system log and security log.





IV-10-8. Active DHCP Client

Displays the DHCP Server assigned IP address, MAC address and time for each computer or device on the local network.

Active DHCP Client

IP Address	MAC Address	Time Expired (Sec)
192.168.2.100	00:15:c5:7b:88:90	forever

Refresh

IV-10-9. Statistics

Displays sent and received packet network statistics.

Statistics

2.4GHz Wireless	Sent Packets	38
	Received Packets	17868
5GHz Wireless	Sent Packets	13
	Received Packets	77
Ethernet LAN	Sent Packets	1101
	Received Packets	1259
Ethernet WAN	Sent Packets	875
	Received Packets	1070

Refresh

V. TROUBLESHOOTING

If you are experiencing problems with your router, please refer to this troubleshooting guide before contacting your dealer of purchase for help.

***Note:** If you are experiencing problems immediately after a firmware upgrade, please contact your dealer of purchase for help.*

Scenario	Solution
I can't log onto the browser-based configuration interface.	a. Please check that the router is correctly powered and check the LEDs on the front panel. If the router is initializing after being switched off or restarted, wait for a 2 minutes and try again. b. Make sure you are using the full, correct URL: **http://edimax.setup** c. If you are using a MAC or IP address filter, try to connect the router using a different computer. d. Set your computer to obtain an IP address automatically (DHCP), and see if your computer can obtain an IP address.
I can't log onto the browser-based configuration interface: incorrect password.	a. Password is case-sensitive. Make sure the "Caps Lock" light is not illuminated. b. If you do not know your password, restore the device to factory settings.
I can't establish a connection to my router.	a. If encryption is enabled, please re-check WEP or WPA passphrase settings on your wireless client. The password is case-sensitive. Make sure the "Caps Lock" light is not illuminated. b. Try moving closer to the router. c. Switch off the router and switch it back on after 10 seconds. e. Please check that the router is correctly inserted into a power socket and check the LEDs on the front panel.
File downloads are very slow or frequently interrupted.	a. Reset the router. b. Try again later. Your local network may be experiencing technical difficulties or very high usage.

	c. Change channel number.
The router is extremely hot.	a. It is normal for the router to heat up during frequent use. If you can safely place your hand on the router, the temperature of the device is at a normal level. b. If you smell burning or see smoke coming from router then disconnect the extender immediately, as far as it is safely possible to do so. Call your dealer of purchase for help.
My network device can't access the Internet.	a. Ensure that your broadband router is fully functional. b. Switch off both your network device and router and switch back on again. c. Ensure that the router is powered on (check the PWR LED).
Can I use the same SSID as my current gateway router for my Wi-Fi extender?	Yes, but it is not recommended as it will be difficult to distinguish between two SSIDs with the same name.
The date and time of event logs are incorrect.	Check the internal clock of the router and adjust if necessary.

VI. GLOSSARY

Default Gateway (Wireless bridge): Every non-access point IP device needs to configure a default gateway's IP address. When the device sends out an IP packet, if the destination is not on the same network, the device has to send the packet to its default gateway, which will then send it out towards the destination.

DHCP: Dynamic Host Configuration Protocol. This protocol automatically gives every computer on your home network an IP address.

DNS Server IP Address: DNS stands for Domain Name System, which allows Internet servers to have a domain name (such as www.Broadbandaccess point.com) and one or more IP addresses (such as 192.34.45.8). A DNS server keeps a database of Internet servers and their respective domain names and IP addresses, so that when a domain name is requested (as in typing "Broadbandaccess point.com" into your Internet browser), the user is sent to the proper IP address. The DNS server IP address used by the computers on

your home network is the location of the DNS server your ISP has assigned to you.

DSL Modem: DSL stands for Digital Subscriber Line. A DSL modem uses your existing phone lines to transmit data at high speeds.

Ethernet: A standard for computer networks. Ethernet networks are connected by special cables and hubs, and move data around at up to 10/100 million bits per second (Mbps).

IP Address and Network (Subnet) Mask: IP stands for Internet Protocol. An IP address consists of a series of four numbers separated by periods, that identifies a single, unique Internet computer host in an IP network. Example: 192.168.2.1. It consists of 2 portions: the IP network address, and the host identifier.

The IP address is a 32-bit binary pattern, which can be represented as four cascaded decimal numbers separated by ".": aaa.aaa.aaa.aaa, where each "aaa" can be anything from 000 to 255, or as four cascaded binary numbers separated by ".": bbbbbbbb.bbbbbbbb.bbbbbbbb.bbbbbbbb, where each "b" can either be 0 or 1.

A network mask is also a 32-bit binary pattern, and consists of consecutive leading 1's followed by consecutive trailing 0's, such as 11111111.11111111.11111111.00000000. Therefore sometimes a network mask can also be described simply as "x" number of leading 1's.
When both are represented side by side in their binary forms, all bits in the IP address that correspond to 1's in the network mask become part of the IP network address, and the remaining bits correspond to the host ID.

For example, if the IP address for a device is, in its binary form, 11011001.10110000.10010000.00000111, and if its network mask is, 11111111.11111111.11110000.00000000
It means the device's network address is 11011001.10110000.10010000.00000000, and its host ID is, 00000000.00000000.00000000.00000111. This is a convenient and efficient method for access points to route IP packets to their destination.

ISP Gateway Address: (see ISP for definition). The ISP Gateway Address is an IP address for the Internet access point located at the ISP's office.

ISP: Internet Service Provider. An ISP is a business that provides connectivity to the Internet for individuals and other businesses or organizations.

LAN: Local Area Network. A LAN is a group of computers and devices connected together in a relatively small area (such as a house or an office). Your home network is considered a LAN.

MAC Address: MAC stands for Media Access Control. A MAC address is the hardware address of a device connected to a network. The MAC address is a unique identifier for a device with an Ethernet interface. It is comprised of two parts: 3 bytes of data that corresponds to the Manufacturer ID (unique for each manufacturer), plus 3 bytes that are often used as the product's serial number.

NAT: Network Address Translation. This process allows all of the computers on your home network to use one IP address. Using the broadband access point's NAT capability, you can access the Internet from any computer on your home network without having to purchase more IP addresses from your ISP.

Port: Network Clients (LAN PC) uses port numbers to distinguish one network application/protocol over another. Below is a list of common applications and protocol/port numbers:

Application	Protocol	Port Number
Telnet	TCP	23
FTP	TCP	21
SMTP	TCP	25
POP3	TCP	110
H.323	TCP	1720
SNMP	UCP	161
SNMP Trap	UDP	162
HTTP	TCP	80
PPTP	TCP	1723
PC Anywhere	TCP	5631
PC Anywhere	UDP	5632

Access point: A access point is an intelligent network device that forwards packets between different networks based on network layer address information such as IP addresses.

Subnet Mask: A subnet mask, which may be a part of the TCP/IP information provided by your ISP, is a set of four numbers (e.g. 255.255.255.0) configured like an IP address. It is used to create IP address numbers used only within a particular network (as opposed to valid IP address numbers recognized by the Internet, which must be assigned by InterNIC).
TCP/IP, UDP: Transmission Control Protocol/Internet Protocol (TCP/IP) and Unreliable Datagram Protocol (UDP). TCP/IP is the standard protocol for data transmission over the Internet. Both TCP and UDP are transport layer protocol. TCP performs proper error detection and error recovery, and thus is reliable. UDP on the other hand is not reliable. They both run on top of the IP (Internet Protocol), a network layer protocol.

WAN: Wide Area Network. A network that connects computers located in geographically separate areas (e.g. different buildings, cities, countries). The Internet is a wide area network.

Web-based management Graphical User Interface (GUI): Many devices support a graphical user interface that is based on the web browser. This means the user can use the familiar Netscape or Microsoft Internet Explorer to Control/configure or monitor the device being managed.

EDIMAX

NETWORKING PEOPLE TOGETHER

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