COMTREND

WR-5931

AC2600 Wireless Router

User Manual

Version A1.0, January 22, 2018

Preface

This manual provides information related to the installation and operation of this AC2600 Dual-Band Wireless Router. The individual reading this manual is presumed to have a basic understanding of home networking terminology and concepts.

If you find the product to be inoperable or malfunctioning, please contact technical support for immediate service by email at homesupport@comtrend.com

For product updates, new product release, manual revision, or software upgrades, please visit our website at http://www.comtrend.com

Important Safety Instructions

With reference to unpacking, installation, use, and maintenance of your electronic AC2600 Dual-Band Wireless Router, the following basic guidelines are recommended:

Do not use or install this product near water, to avoid fire or shock hazard. For example, near a bathtub, kitchen sink or laundry tub, or near a swimming pool. Also, do not expose the equipment to rain or damp areas (e.g. a wet basement).

WARNING

- Disconnect the power line from the device before servicing.
- Do not stack equipment or place equipment in tight spaces, in drawers, or on carpets. Be sure that your equipment is surrounded by at least 2 inches of air space.

Power supply specifications: Input: 12VDC ⎓ 1.5A ⊖-●-⊕

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NOTE:	This document is subject to change without notice.

Protect Our Environment

	This symbol indicates that when the equipment has reached the end of its useful life, it must be taken to a recycling center and processed separately from domestic waste.

The cardboard box, the plastic contained in the packaging, and the parts that make up this wireless router can be recycled in accordance with regionally established regulations. Never dispose of this electronic equipment along with your household waste; you may be subject to penalties or sanctions under the law. Instead, please be responsible and ask for disposal instructions from your local government.

Save Our Environment

When this equipment has reached the end of its useful life, it must be taken to a recycling centre and processed separately from domestic waste.
The cardboard box, the plastic in the packaging, and the parts that make up this device can be recycled in accordance with regionally established regulations. Never dispose of this electronic equipment along with your household waste.
You may be subject to penalties or sanctions under the law. Instead, ask for disposal instructions from your municipal government.

Please be responsible and protect our environment.

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 FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications.
However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
4. Consult the dealer or an experienced radio technician for help.

15.21

You are cautioned that changes or modifications not expressly approved by the part responsible for compliance could void the user's authority to operate the equipment.

FCC Caution
This device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.
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.
Any changes or modifications not expressly approved by the party responsible for compliance could void the authority to operate equipment.

Federal Communications Commission (FCC) Radiation Exposure Statement
This equipment complies with FCC radiation exposure set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20cm (8 inch) during normal operation.

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Chapter 1 Product Information

1.1 Introduction and Feature Overview

This Comtrend AC2600 Dual-Band Wireless Router is an excellent choice for ***Small office / Home office*** users, allowing computers and network devices to easily share a single xDSL / cable modem Internet connection. Easy installation procedures allow any computer user to setup a network environment in a very short time. And when the number of computers and network-enabled devices increase, you can expand the number of network ports by simply attaching a Comtrend switch to extend the scope of your network.

In addition all computers and wireless-enabled network devices (including PDA, cellular phone, game console…etc.) can connect to this wireless router without additional cabling.

Other features of this router include:

- Supports 2.4GHz and 5GHz wireless devices simultaneously.
- High speed transmit and receive data rate – up to 1733Mbps while operating in IEEE 802.11ac (5GHz, 80MHz) mode and up to 800Mbps while operating in IEEE 802.11 in (5GHz, 40MHz) or b/g/n (2.4GHz) mode
- Allows multiple users to share a single Internet line.
- Share a single Cable or xDSL Internet connection.
- Access private LAN servers from the Internet.
- Four wired LAN ports (10/100M) and one WAN port (10/100M).
- Works with IEEE 802.11a/b/g/n/ac wireless LAN devices.
- Supports DHCP (Server/Client) for easy IP-address setup.
- Supports multiple wireless modes like: AP, Station-Infrastructure, Wireless Bridge and Universal Repeater.
- Advanced network and security features like: Special Applications, QoS, DMZ, Virtual Servers, Access Control, Firewall.
- Easily monitor the router's status with built-in functions such as: DHCP Client Log, System Log, Security Log and Device/Connection Status.
- Easy to use Web-based GUI for network configuration and management purposes.
- Remote management function allows configuration and upgrades from a remote computer (over the Internet).
- Auto MDI / MDI-X function for all wired Ethernet ports.
- Supports Beamforming technology to enhance wireless performance. (Beamforming enabled by default and Beamforming Always turned on)

1.2 System Requirements

- An Internet connection, provided by xDSL or cable modem with an RJ-45 Ethernet port.
- Computer or network devices with wired or wireless network interface card.
- Web browser (*Microsoft Internet Explorer, Google Chrome or Safari web browser).*
- An available AC power socket (100 – 240V, 50/60Hz).

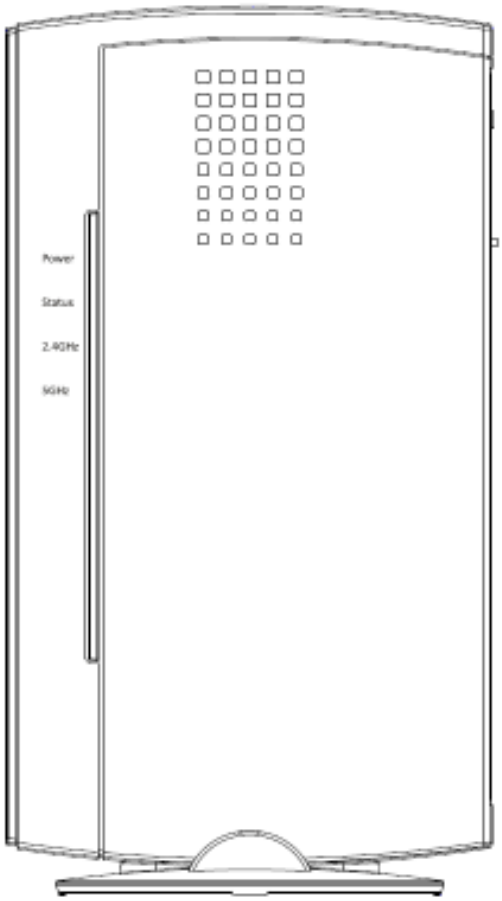
1.3 Package Contents

Before starting to use this AC2600 Dual-Band Wireless Router, please check if there's anything missing in the package, and contact your place of purchase to claim for missing items:

- Wireless Router (1 pcs)
- Quick Installation Guide (1 pcs)
- Power Adapter (Output: DC 5V/1.5A) (1 pcs)
- Ethernet (RJ-45) cable

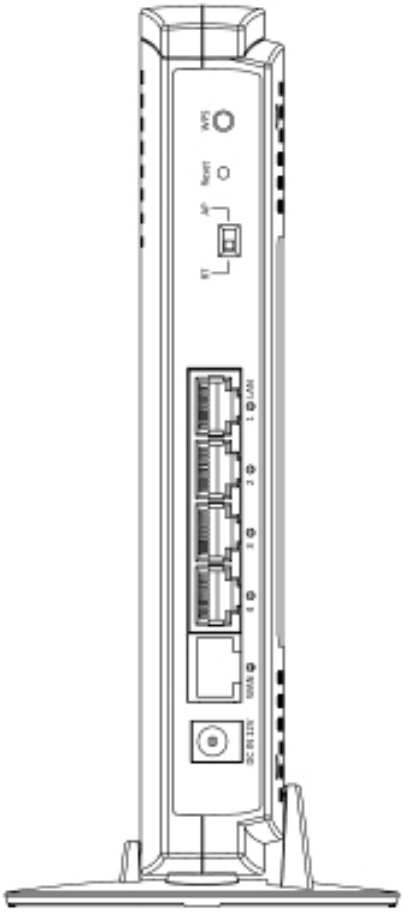
1.4 Get familiar with your new wireless router

Front Panel



LED Name	Light Status	Description
PWR	On	Router is switched on and correctly powered.
Status	On	Router is connected to Internet.
2.4G	On	2.4GHz Wireless WPS function is enabled.
	Off	2.4GHz Wireless network is switched off.
	Flashing	2.4GHz Wireless LAN activity (transferring or receiving data).
5G	On	5GHz Wireless WPS function is enabled.
	Off	5GHz Wireless network is switched off.
	Flashing	5GHz Wireless LAN activity (transferring or receiving data).

Back Panel



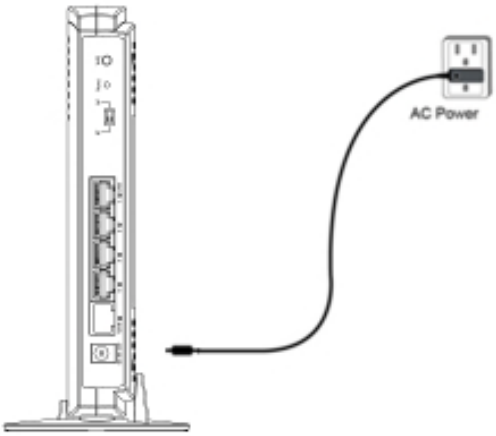
Item Name	Description
Power Jack	Power connector, connects to A/C power adapter.
WAN	Wide Area Network (WAN / Internet) port.
LAN 4 – 1	Local Area Network (LAN) ports 4 to 1.
RT/AP	**RT (Router Mode)** Working as a standard WiFi router. Working with Comtrend WiFi Mesh Points. **AP (Access Point Mode)** Working with a Comtrend WiFi Mesh Gateway.
Reset / WPS	Reset the router to factory default settings (clear all settings) or start WPS function. Press this button and hold for 10 seconds to restore all settings to factory defaults; press this button for less than 5 seconds once to start the 2.4GHz & 5GHz wireless WPS function.

Chapter 2 System and Network Setup

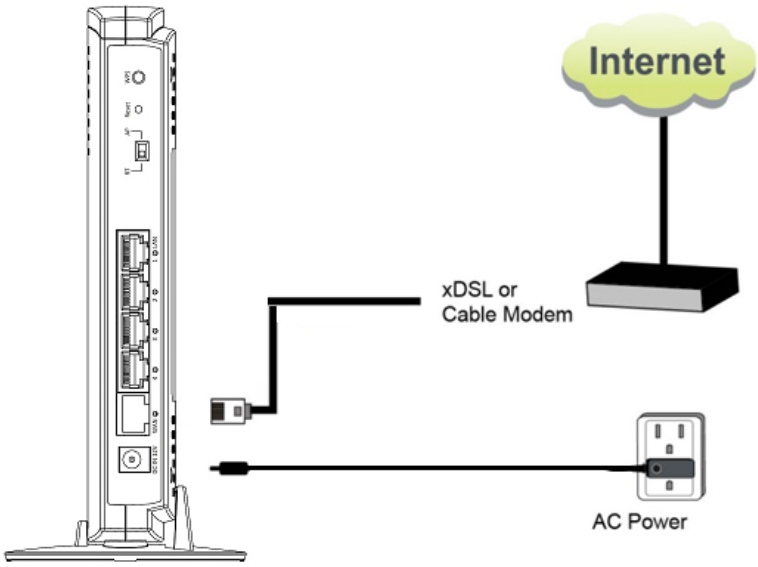
2.1 Connecting the Components

Follow the instructions below to build the network connection between your new wireless router and your computers, network devices:

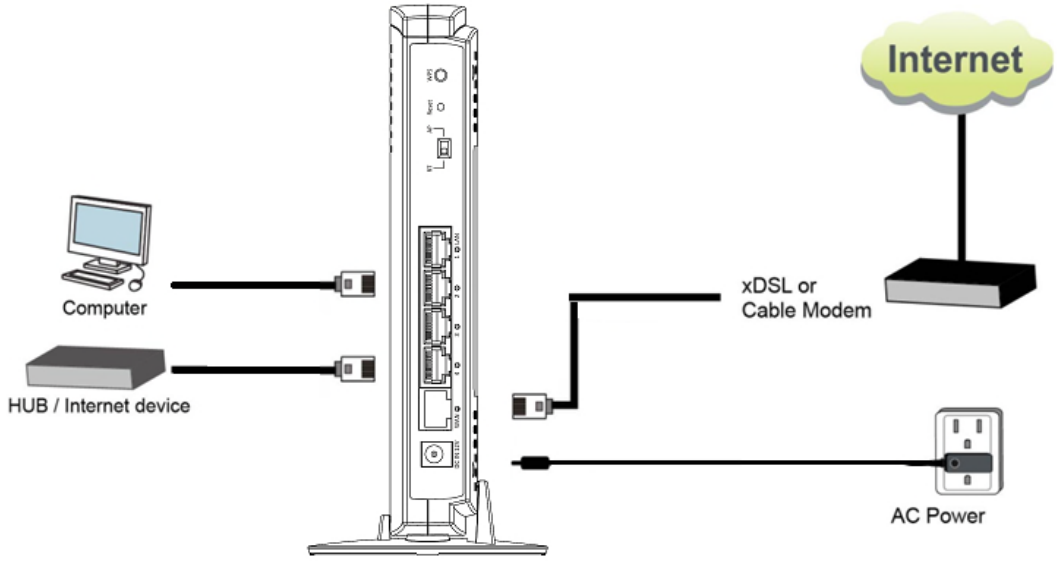
1. Insert the A/C power adapter into the wall socket, and then connect it to the 'Power socket' of the router.



2. Connect your xDSL / cable modem to the WAN port of the router by Ethernet cable.



3. Connect your computers and network devices (network-enabled consumer devices other than computers, like game consoles, or a switch / hub) to an available LAN port of the router.



4. Check all LEDs on the front panel. The 'Power' LED should be steadily on, WAN and LAN LEDs should be on if the computer / network devices connected to the respective port of the router are powered on and correctly connected. If the Power LED is not on, or any LED you expected to be on is not on, check the cabling, or jump to ***'4-2 Troubleshooting'*** for possible reasons and solutions.

2.2 Connecting to your router using the web browser

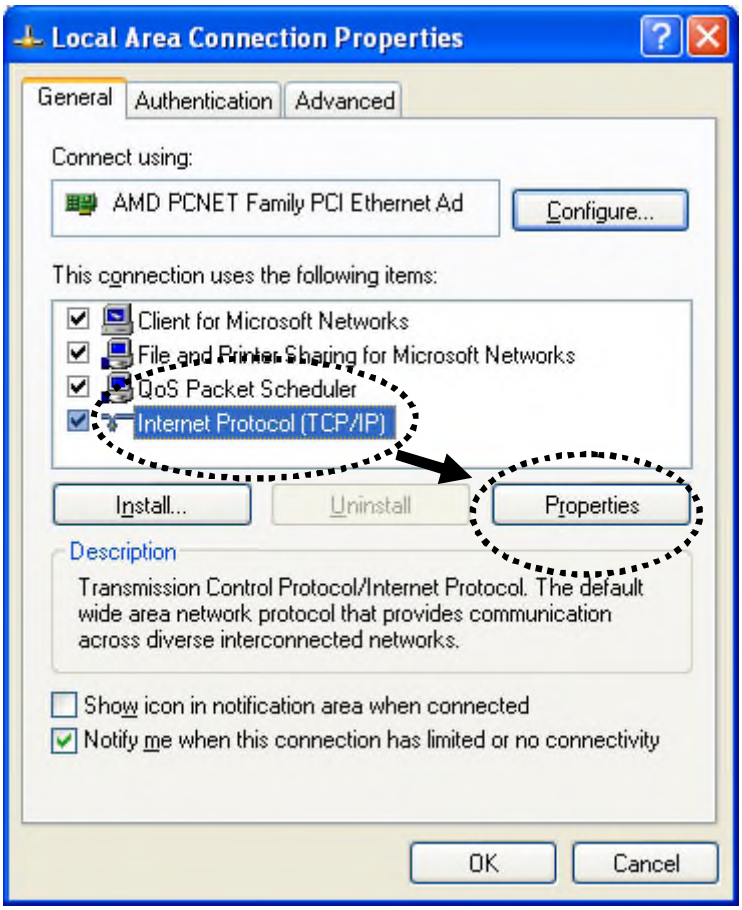
Before you can connect to the router and start configuration procedures, your computer must be able to get an IP address automatically (using a dynamic IP address). If it's set to use a static IP address, or you're unsure, follow the instructions below to configure your computer to use dynamic IP address:

If the operating system of your computer is….

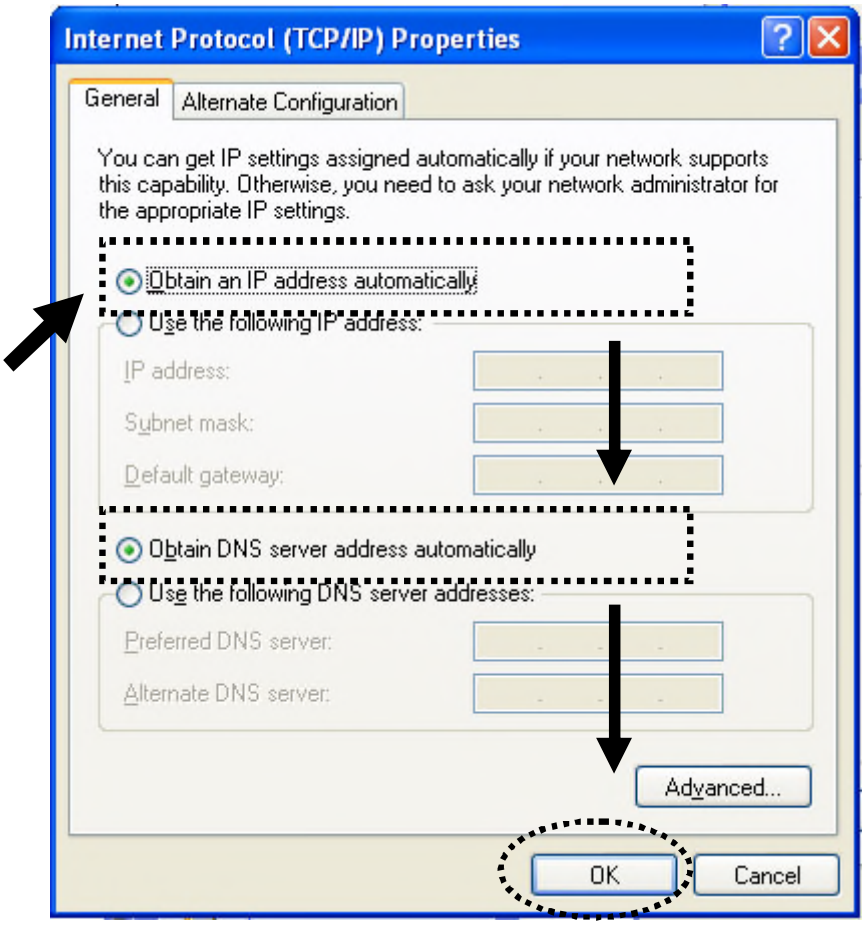
Windows XP	**- Go to section 2-2-1**
Windows Vista/Windows 7	**- Go to section 2-2-2**
Windows 8	**- Go to section 2-2-3**

2.2.1 Windows XP IP address setup

1. Click the 'Start' button (it should be located at the lower-left corner of your computer screen), then click control panel. Double-click the ***Network and Internet Connections*** icon, click ***Network Connections,*** then double-click ***Local Area Connection,*** the ***Local Area Connection Status*** window will appear, and then click the 'Properties' button.

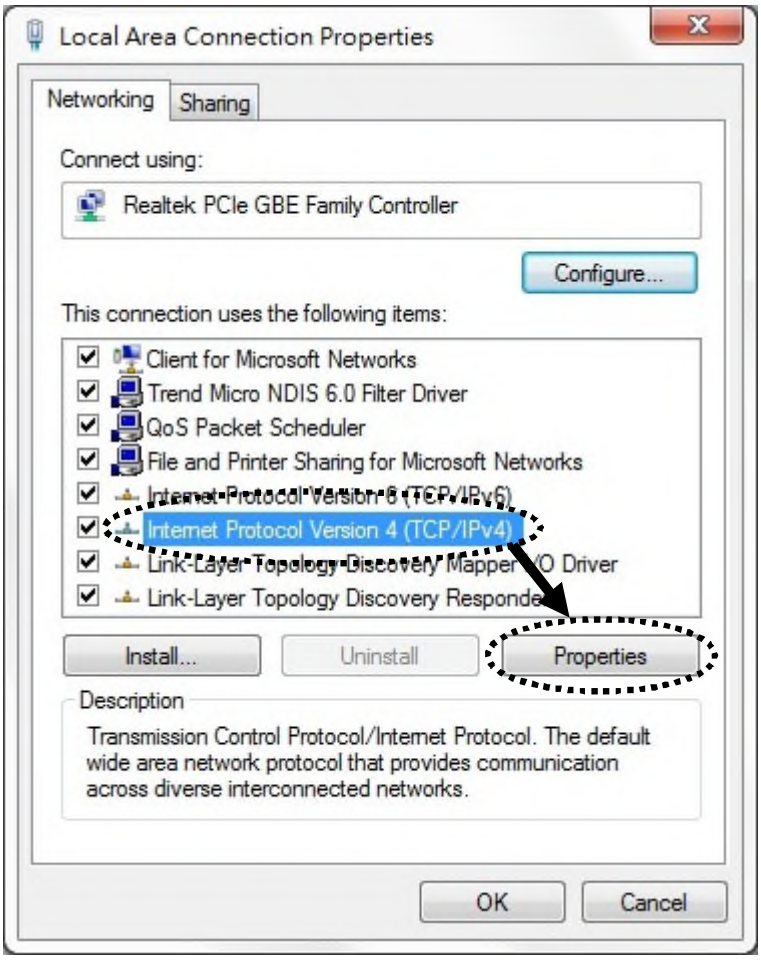


2. Select 'Obtain an IP address automatically' and 'Obtain DNS server address automatically', then click the 'OK' button.

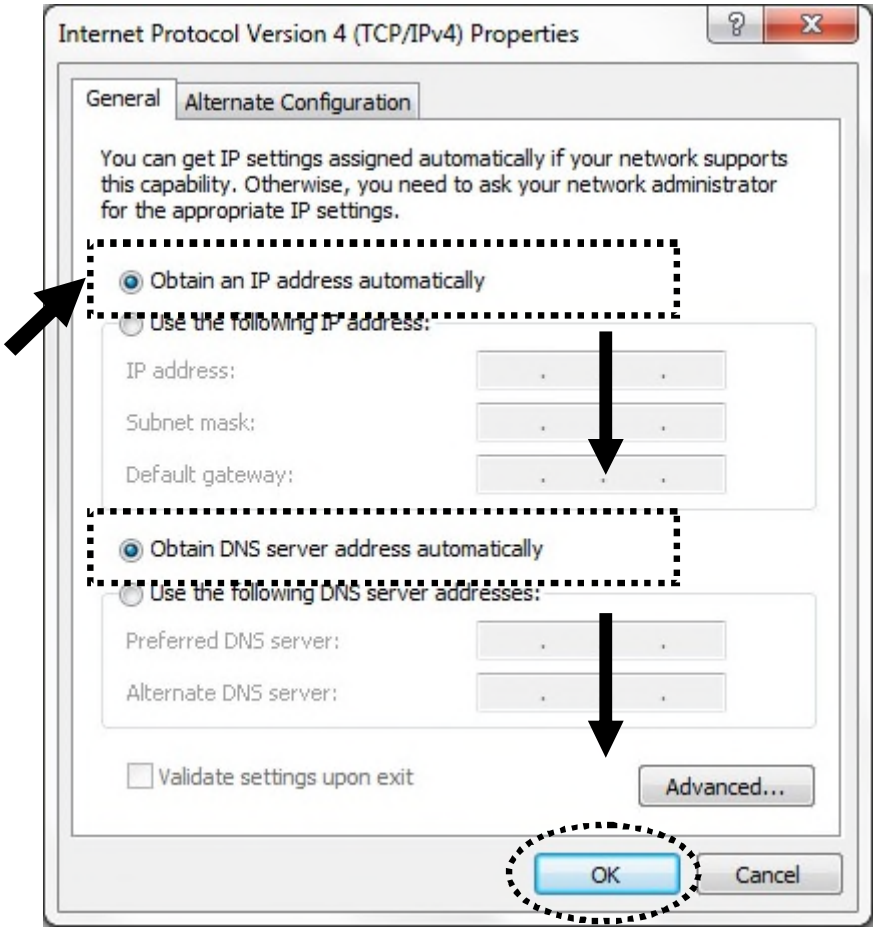

Internet Protocol (TCP/IP) Properties
General
Alternate Configuration
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
Subnet mask:
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Advanced...
OK
Cancel

2.2.2 Windows Vista/Windows 7 IP address setup

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



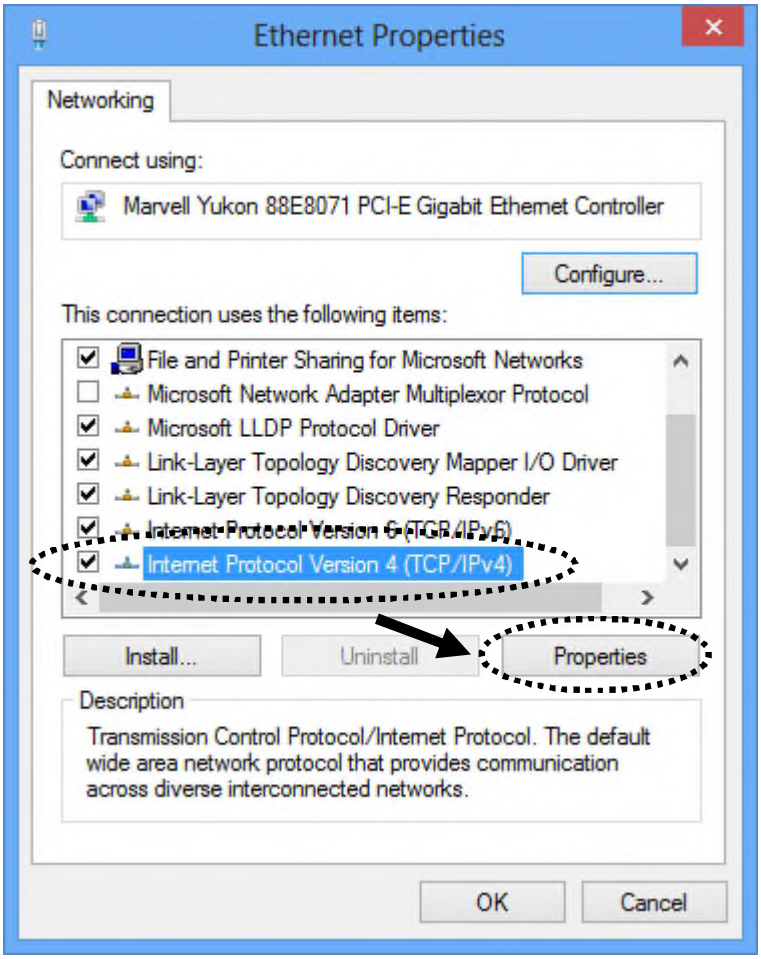
2. Select 'Obtain an IP address automatically' and 'Obtain DNS server address automatically', then click the 'OK button'.


Internet Protocol Version 4 (TCP/IPv4) Properties
General
Alternate Configuration
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.
Obtain an IP address automatically
Use the following IP address:
IP address:
Subnet mask:
Default gateway:
Obtain DNS server address automatically
Use the following DNS server addresses:
Preferred DNS server:
Alternate DNS server:
Validate settings upon exit
Advanced...
OK
Cancel

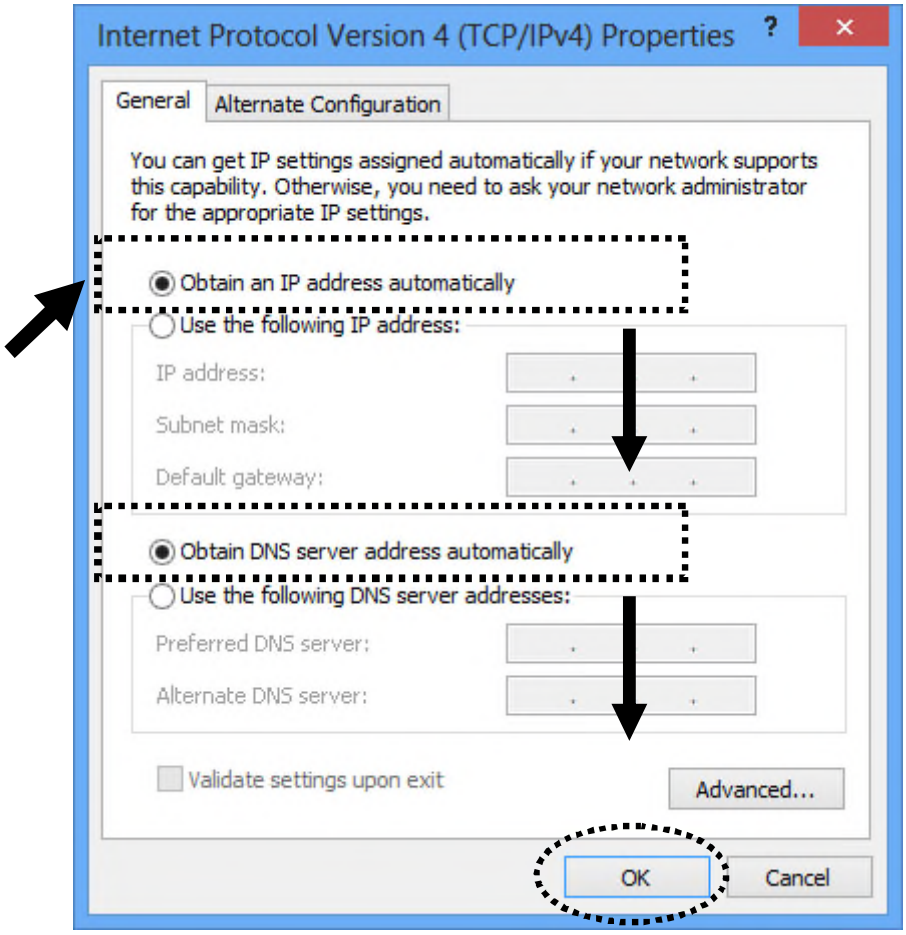
2.2.3 Windows 8 IP address setup

1. Click the 'Start' button (it should be located at the lower-left corner of your computer screen), then click control panel. Double-click the ***Network and Internet Connections*** icon, click ***Network Connections,*** then double-click ***Local Area Connection,*** the ***Local Area Connection Status*** window will appear, and then click the 'Properties' button.

2. Click the 'Start' button (it should be located at lower-left corner of your computer screen), then click control panel. Click ***Network and Sharing Center***, and then click ***Change adapter settings.*** Right-click ***Ethernet,*** then select ***'Properties'.*** *the* ***Ethernet Properties*** window will appear, select 'Internet Protocol Version 4 (TCP / IPv4), and then click the 'Properties' button.

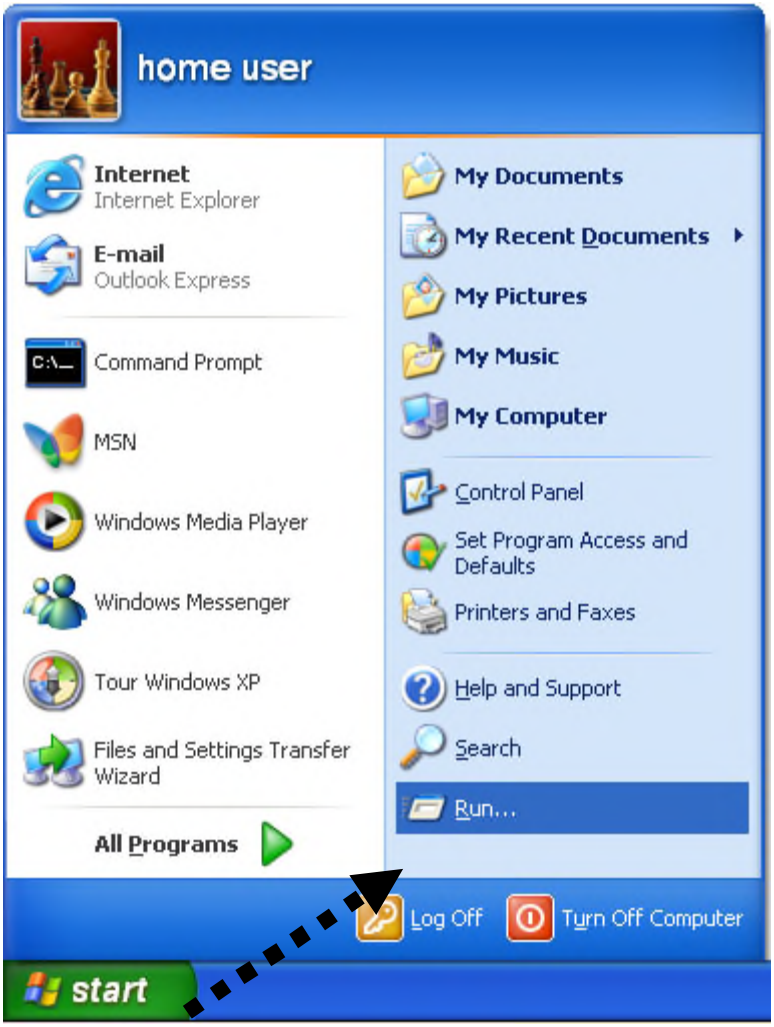


3. Select 'Obtain an IP address automatically' and 'Obtain DNS server address automatically', then click the 'OK' button.

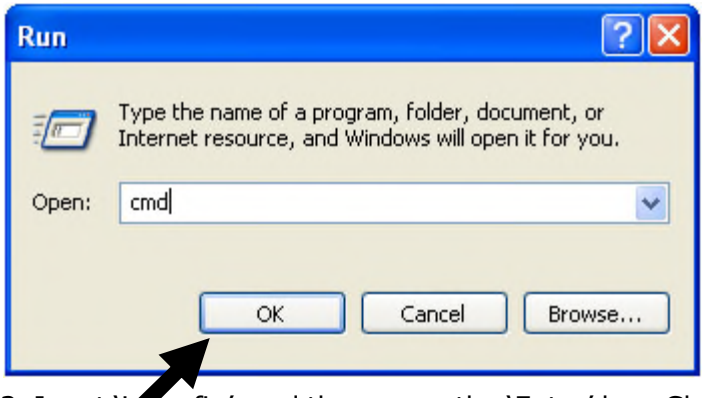


2.2.4 Router IP address lookup

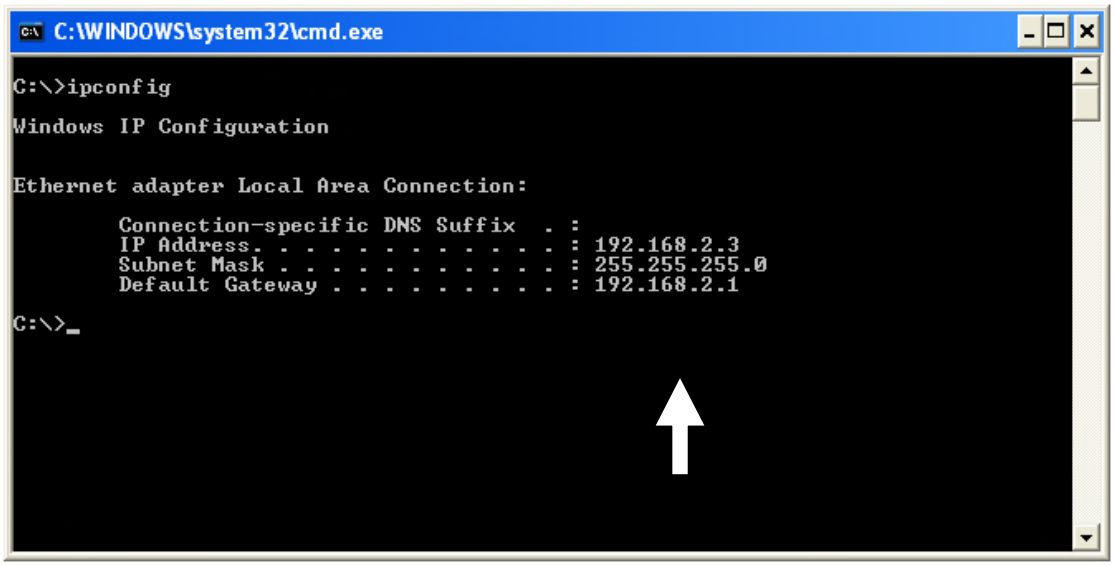
1. After the IP address setup is complete, click 'start' -> 'run' at the bottom-lower corner of your desktop:



2. Input 'cmd', then click the 'OK' button.



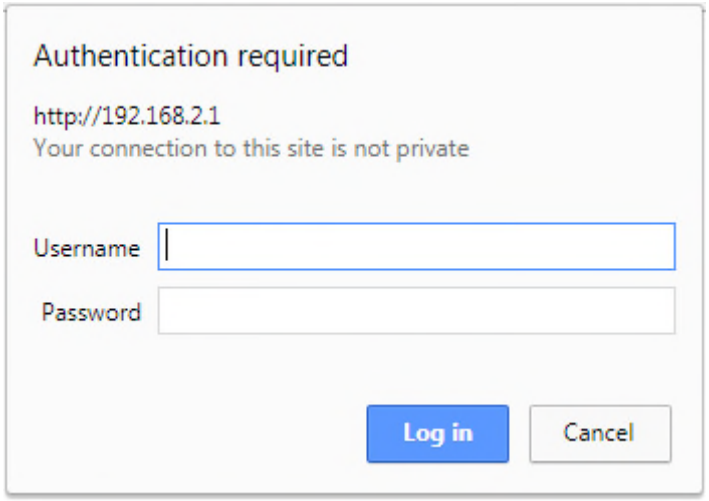
3. Input 'ipconfig', and then press the 'Enter' key. Check the IP address followed by 'Default Gateway' (In this example, the IP address of the router is 192.168.2.1)



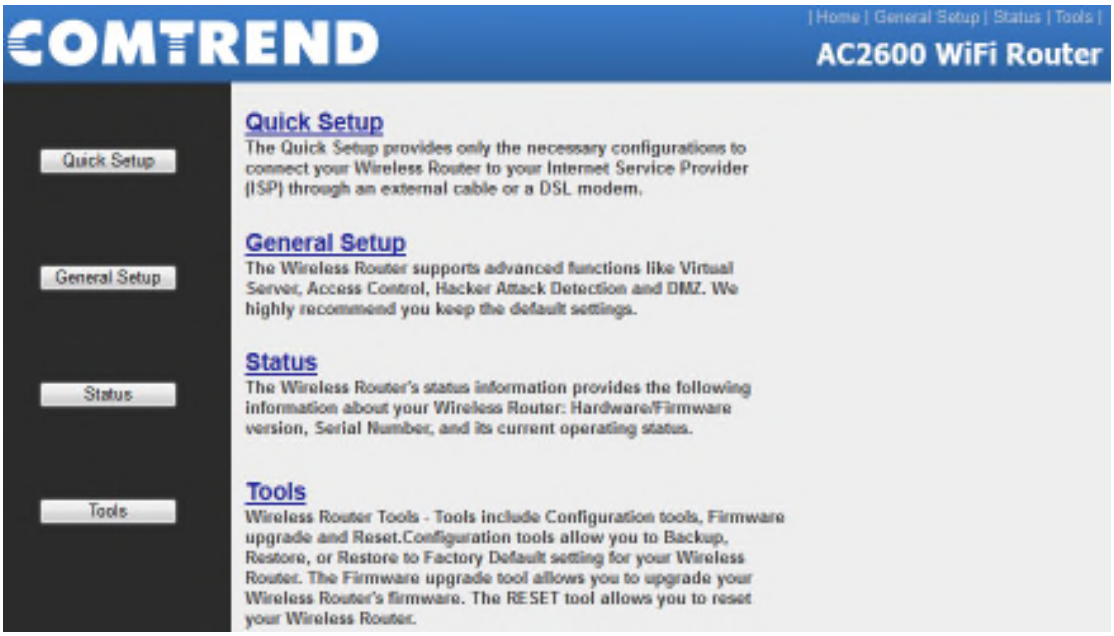
NOTE: If the IP address of Gateway is not displayed, or the address followed by 'IP Address' begins with '169', please recheck network connection between your computer and router, and / or go to the beginning of this chapter, to recheck every step of network setup procedure.

2.2.5 Connect to the router's management interface by web browser

After your computer has obtained an IP address from the router, start your web browser, and input the IP address of the router in the address bar. The following should be shown:



Input the user name and password in their respective fields, the default user name is **'admin'**, and the default password is **'1234'**, then press the 'OK' button, and you can see the web management interface of this router:



NOTE: If you can't see the web management interface, and you're being prompted to input user name and password again, it means you didn't input username and password correctly. Please retype user name and password again. If you're certain about the user name and password you type are correct, please go to '4.2 Troubleshooting' to perform a factory reset, to set the password back to its default value.

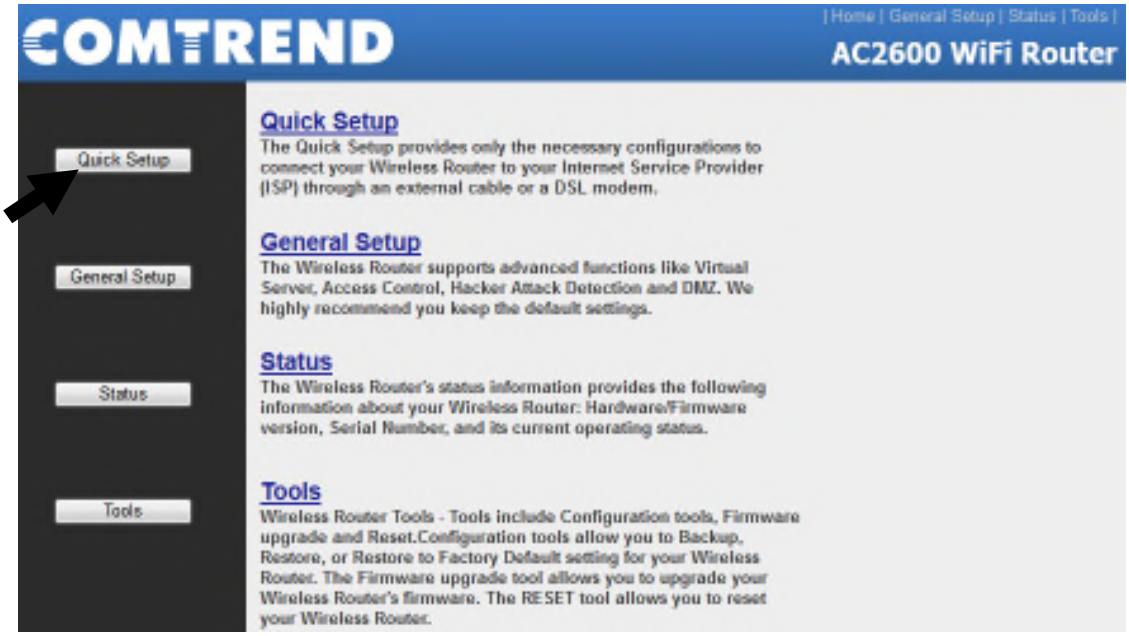
TIP: This page shows the four major setting categories: Quick Setup, General Setup, Status, and Tools. You can find the shortcut which leads to these setting categories at the upper-right side of every page, and you can jump to another category directly by clicking the link.

2.3 Using 'Quick Setup'

This router provides a 'Quick Setup' procedure, which will help you to complete all the required settings you need to access the Internet in a very short time. Follow these instructions to complete the 'Quick Setup':

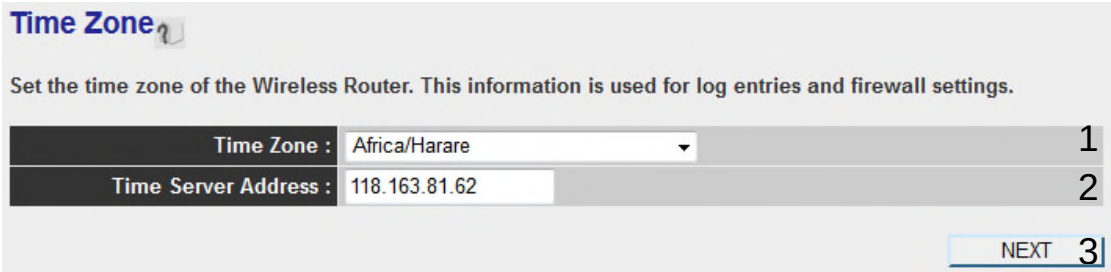
Go to Quick Setup menu by clicking the 'Quick Setup' button.

HERE!



The following will be displayed:

1. Set Time Zone



Here are descriptions of every setup item:

Time Zone (1):	*Press the button, a drop-down list will be shown, and you can choose the time zone of the location in which you live.*
Time Server Address (2):	*Input the IP address / host name of the time server you use if you do want to use the default one.*

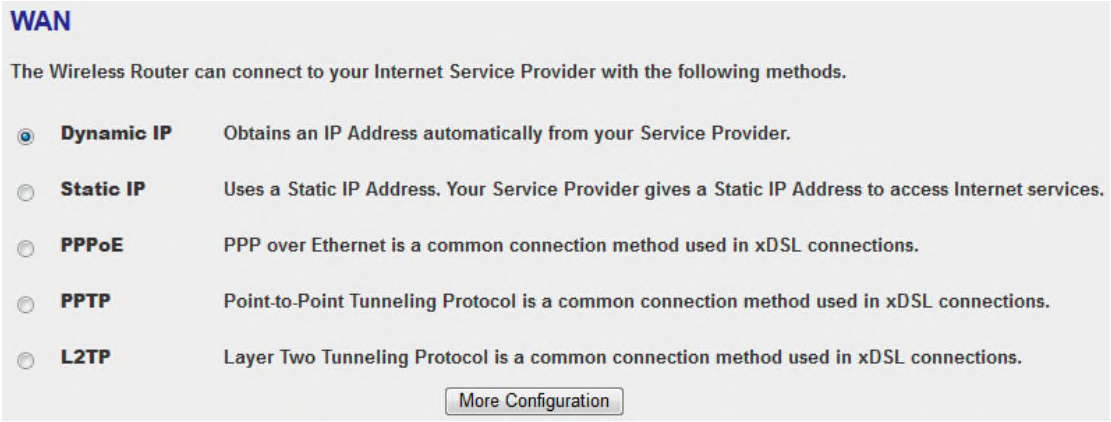
After you complete all settings, click the 'NEXT' (3) button.

NOTE: There are several time servers available on Internet:

129.6.15.28 (time-a.nist.gov)
132.163.4.101 (time-a.timefreq.bldrdoc.gov)
131.107.1.10 (time-nw.nist.gov)

If you found that the time of the router is incorrect, try another time server.

2. WAN Type



Choose the WAN (Internet connection) type you're using on this page. There are six options for the type of Internet connection:

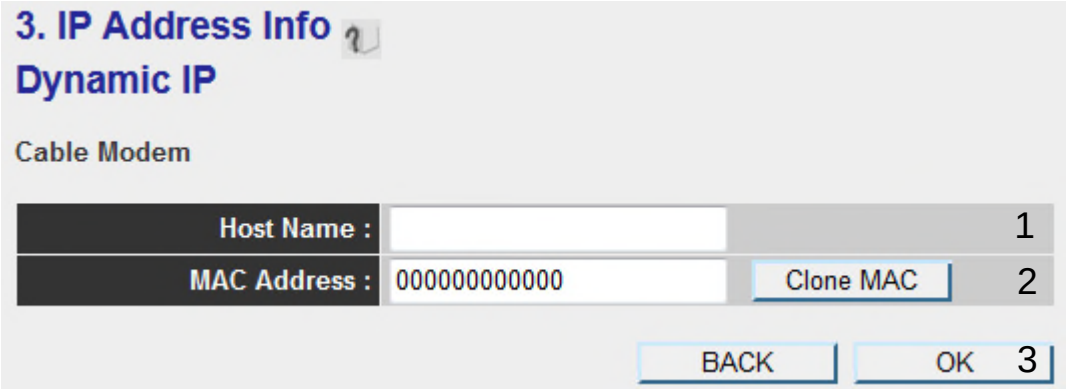
Dynamic IP	- Go to section 2.3.1
Static IP	- Go to section 2.3.2
PPPoE	- Go to section 2.3.3
PPTP	- Go to section 2.3.4
L2TP	- Go to section 2.3.5

If you're not sure, contact your Internet service provider. A wrong Internet connection type will cause a connection problem, and you will not be able to connect to the Internet.

If you want to go back to the previous step, press the 'Back' button on the bottom of this page.

NOTE: Some service providers use 'DHCP' (Dynamic Host Configuration Protocol) to assign an IP address to you. In this case, you can choose 'Dynamic *IP*' as the Internet connection type, even if you're using another connection type, like xDSL.

2.3.1 Setup procedure for 'Dynamic IP':

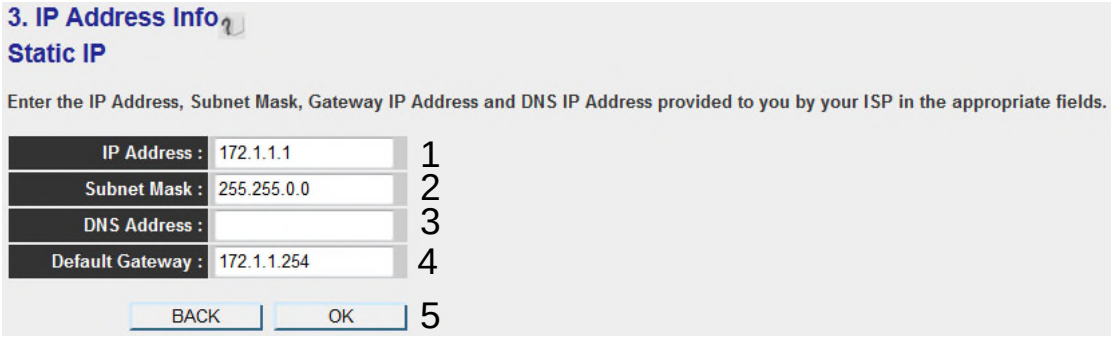


Here are descriptions of every setup item:

Host Name (1):	*Input the host name of your computer, this is optional, and only required if your service provider asks you to do so.*
MAC Address (2):	*Input the MAC address of your computer, if your service provider only permits computers with a certain MAC address to access the Internet. If you're using the computer which was used to connect to the Internet via cable modem, you can simply press the 'Clone Mac' address button to fill the MAC address field with the MAC address of your computer.*

After you complete all settings, click the 'OK' (3) button; if you want to go back to previous menu, click the 'Back' button.

2.3.2 Setup procedure for 'Static IP':



Here are descriptions of every setup item:

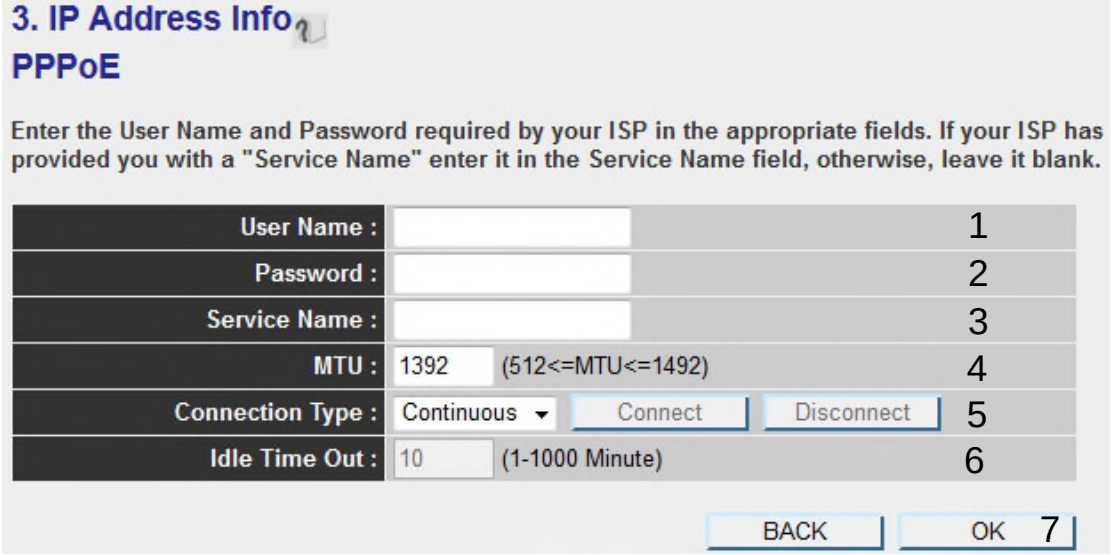
IP Address (1):	*Input the IP address assigned by your service provider.*
Subnet Mask (2):	*Input the subnet mask assigned by your service provider.*
DNS Address (3):	*Input the IP address of the DNS server provided by your service provider.*
Default Gateway (4):	*Input the IP address of the DNS server gateway address provided by your service provider.*

You must use the addresses provided by your Internet service provider. Incorrect setting values will cause connection problems.

When you complete all settings, press the 'OK' button (5); if you want to go back to previous menu, click the 'Back' button.

NOTE: You can choose this Internet connection method if your service provider assigns a fixed IP address (also known as a static address) to you, and not using DHCP or PPPoE protocol. Please contact your service provider for further information.

2.3.3 Setup procedure for 'PPPoE':



Here are descriptions of every setup item:

User Name (1):	*Input the user name assigned by your Internet service provider.*
Password (2):	*Input the password assigned by your Internet service provider.*
Service Name (3):	*Give a name to this Internet service. This is optional.*
MTU (4):	*Input the MTU value of your network connection. If you don't know, you can use the default value.*
Connection Type (5):	*Select the Internet connection type you wish to use (detailed explanation listed below).*
Idle Time Out (6):	*Input the idle time out, (detailed explanation listed below).*

When you complete all settings, click the 'OK' button (7); if you want to go back to the previous menu, click the 'Back' button.

MTU - Please use the default value if you don't know what it is, or ask your service provider for a proper value.

Connection Type - There are 4 options:
'Continuous' - keep the Internet connection alive, do not disconnect.

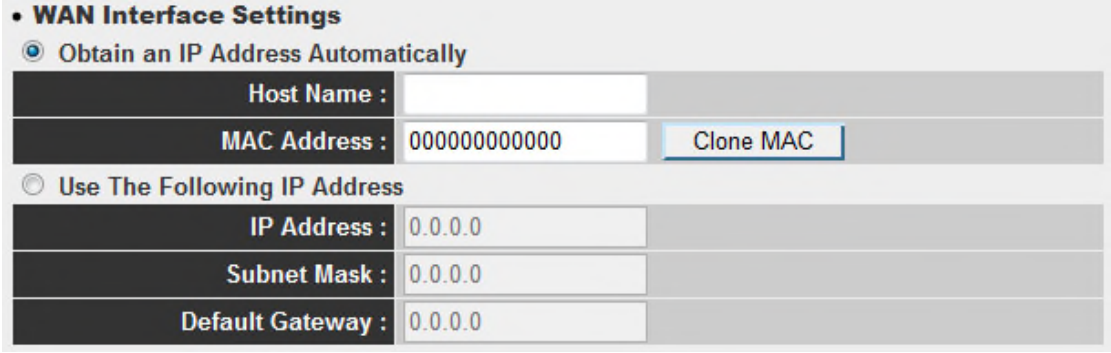
Connect on Demand - only connects to the Internet when there's a connection attempt,

'Manual' - only connects to the Internet when the 'Connect' button on this page is pressed, and disconnects when the 'Disconnect' button is pressed.

Idle Time Out: Specify the time to shutdown the Internet connection after no Internet activity is detected by minute. This option is only available when connection type is 'Connect on Demand'.

2.3.4 Setup procedure for 'PPTP':

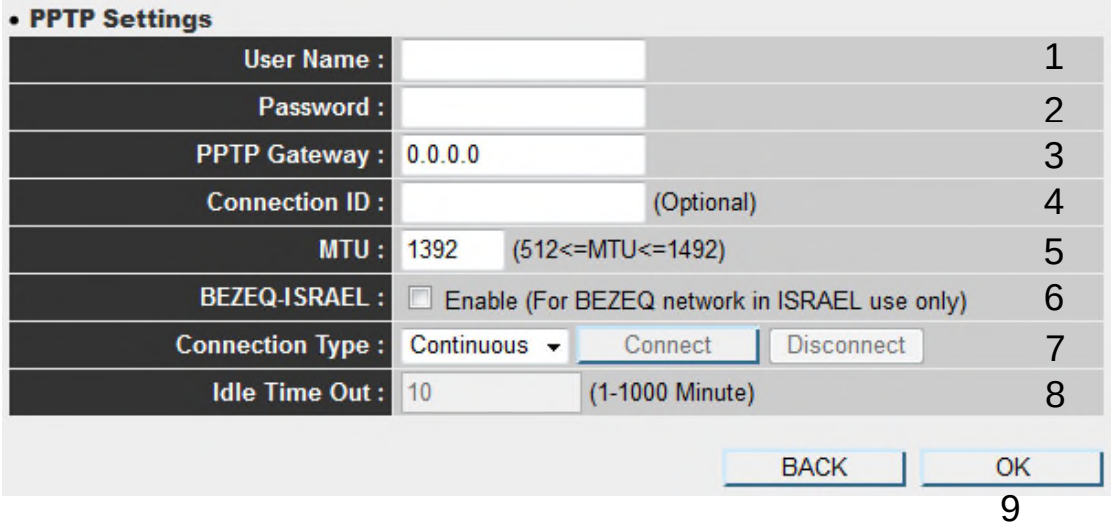
PPTP requires two kinds of settings: WAN interface setting (setup IP address) and PPTP setting (PPTP user name and password). Here we start from the WAN interface setting:



Select how you obtain an IP address from your service provider. You can choose 'Obtain an IP address automatically' (equal to DHCP, refer to the 'Dynamic IP' section above), or 'Use the following IP address' (i.e. static IP address).

WAN interface settings must be correctly set, or the Internet connection will fail even though the PPTP settings are correct. Contact your Internet service provider if you don't know how to fill in these fields.

Now go to the PPTP settings section:



Here are descriptions of every setup item:

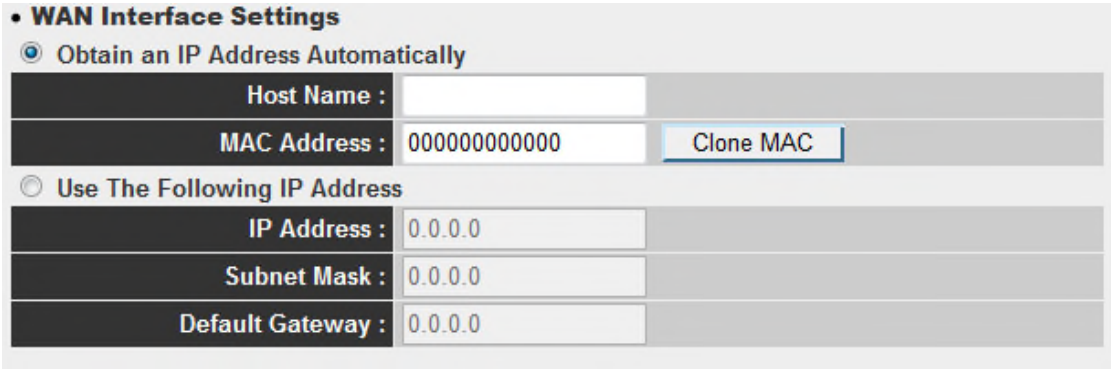
User Name (1):	*Input the user ID (user name) assigned by your Internet service provider.*
Password (2):	*Input the password assigned by your Internet service provider.*
PPTP Gateway (3):	*Input the IP address of PPTP gateway assigned by your Internet service provider.*
Connection ID (4):	*Input the connection ID. This is optional and you can leave it blank.*
MTU (5):	*Input the MTU value of your network connection. If you don't know, you can use the default value.*
BEZEQ-ISRAEL (6):	*Setting item 'BEZEQ-ISRAEL' is only required to Check if you're using the service provided by the BEZEQ network in Israel.*
Connection type (7):	*Select the type of Internet connection you wish to use, refer to the previous section for detailed descriptions.*
Idle Time Out (8):	*Input the idle time out of the Internet connection you wish to use, and refer to the previous section for detailed descriptions.*

When you complete all settings, click the 'OK (9) button; if you want to go back to previous menu, click the 'Back' button.

2.3.5 Setup procedure for 'L2TP':

L2TP is another popular connection method for xDSL and other Internet connection types, and all required setting items are the same as a PPTP connection.

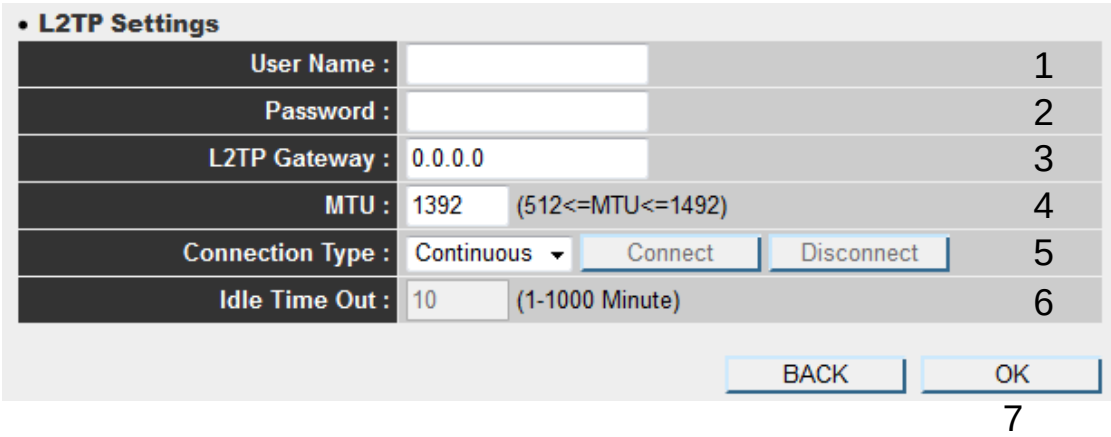
Like PPTP, there are two kinds of required settings, we'll start from 'WAN Interface Settings':



Select how you obtain IP address from your service provider. You can choose 'Obtain an IP address automatically' (equal to DHCP, refer to the 'Dynamic IP' section above), or 'Use the following IP address' (equal to static IP address, refer to the 'PPPoE' section above).

WAN interface settings must be correctly set, or the Internet connection will fail even though the PPTP settings are correct. Contact your Internet service provider if you don't know how to fill in these fields.

Now go to the L2TP settings section:

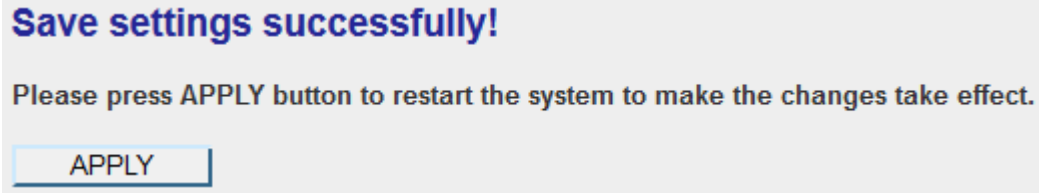


Here are descriptions of every setup item:

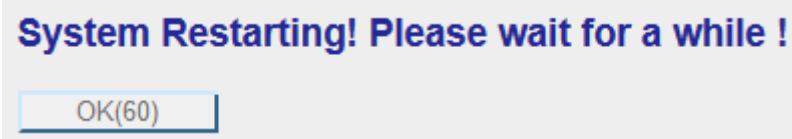
User Name (1):	*Input the user ID (user name) assigned by your Internet service provider.*
Password (2):	*Input the password assigned by your Internet service provider.*
L2TP Gateway (3):	*Input the IP address of the L2TP gateway assigned by your Internet service provider.*
MTU (4):	*Input the MTU value of your network connection. If you don't know, you can use the default value.*
Connection Type (5):	*Select the type of Internet connection you wish to use. Refer to the previous section for detailed descriptions.*
Idle Time Out (6):	*Input the idle time out of Internet connection you wish to use, and refer to the previous section for detailed descriptions.*

When you complete all settings, click the 'OK (7) button; if you want to go back to previous menu, click the 'Back' button.

When all settings are complete, you'll see the following displayed on your web browser:



Click the 'Apply' button to prepare to restart the router, and you'll see this message:



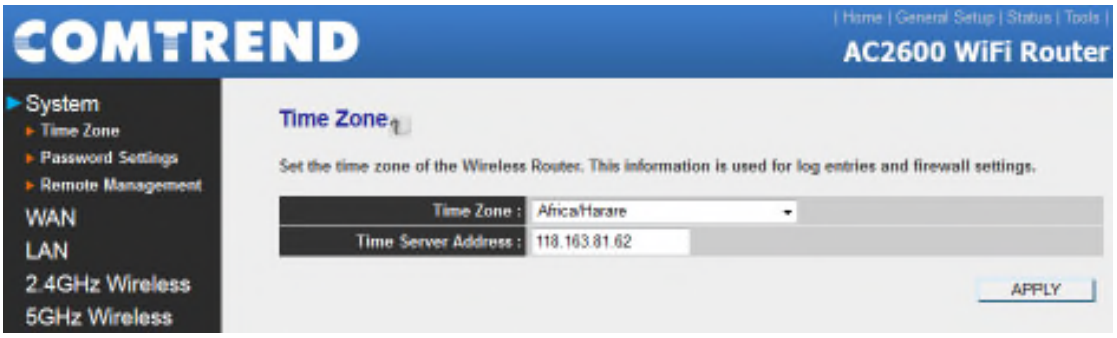
After the countdown click the 'OK!' button. You'll be brought back to the router management interface again, and the router is ready with new settings.

2.4 General Setup

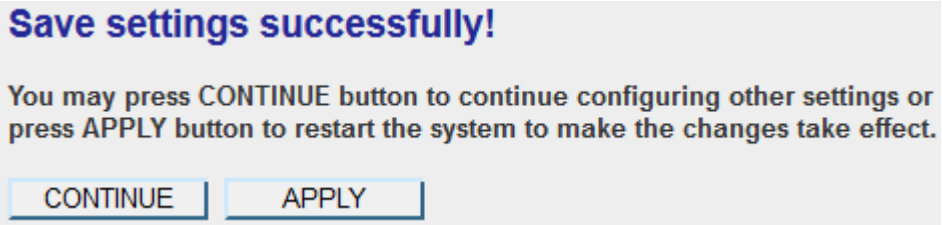
In this chapter, you'll learn how to change the time zone, password, and remote management settings. Start your web browser and log into the router's web management interface, and then click the 'General Setup' link at the upper-right side of the web management interface.

2.4.1 Time zone and time auto-synchronization

Click the 'System' on the left of the web management interface, then click 'Time Zone'.



Select the time zone from the 'Set time zone' drop-down list, and input the IP address or host name of the time server. When you finish, click the 'Apply' button. You'll see the following displayed on the web browser:

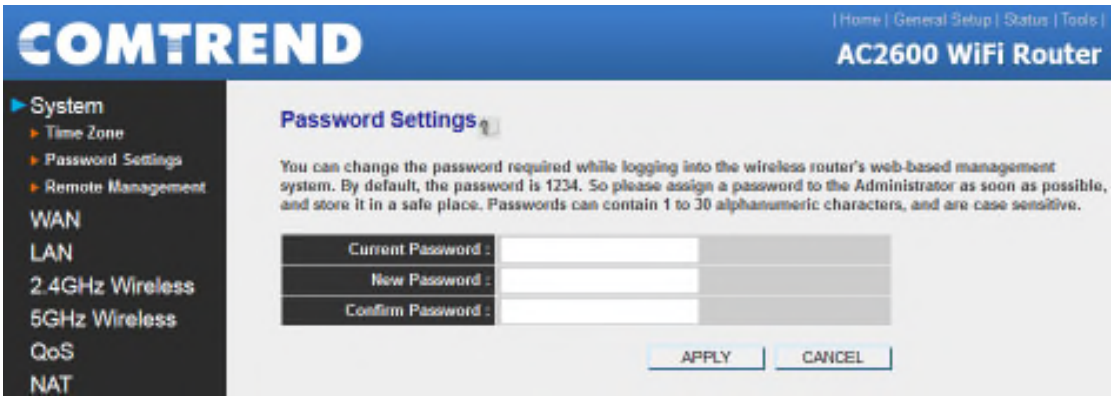


Press the 'Continue' button to save the settings and go back to the web management interface; press the 'Apply' button to save the settings made and restart the router so the settings will take effect after it reboots.

NOTE: You can refer to the instructions given in the last chapter: 'Using Quick Setup', for detailed descriptions on time zone settings.

2.4.2 Change management password

Click the 'System' menu on the left of the web management interface, then click 'Password Settings'.



The default password of this router is 1234, and it's displayed on the login prompt when accessed from the web browser.

To change the password, follow the instructions below:

Here are descriptions of every setup item:

Current Password:	*Input the current password.*
New Password:	*Input the new password.*
Confirmed Password:	*Input the new password again.*

When you finish, click the 'Apply' button. If you want to keep the original password unchanged, click the 'Cancel' button.

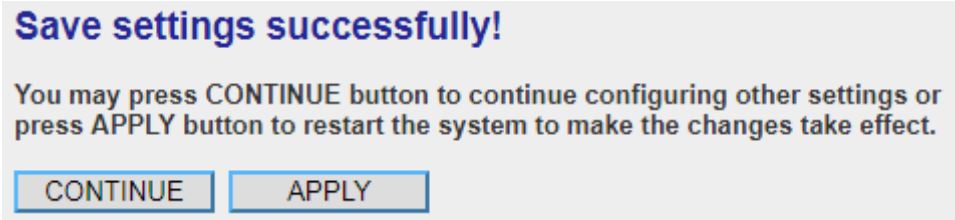
If the password you typed in 'New Password' (2) and 'Confirmed Password' (3) field are not the same, you'll see the following message:

Retype the new password again when you see the above message.

If you see the following message:

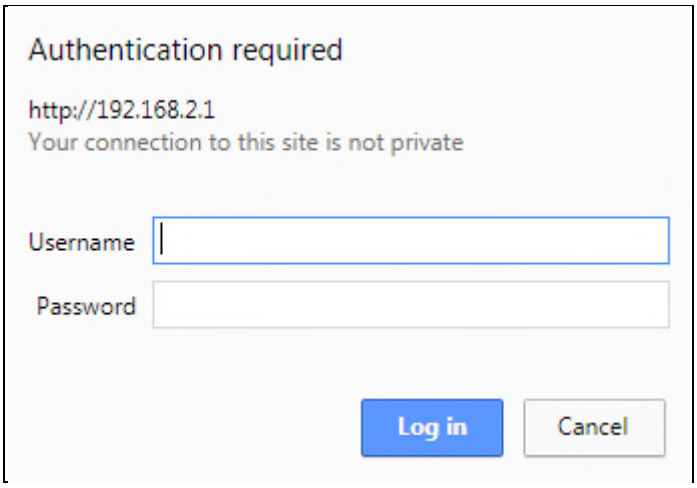
It means the content in the 'Current Password' field is wrong, click the 'OK' button to go back to previous menu, and try to input the current password again.

If the current and new passwords are correctly inputted, click the 'Apply' button, and the following will be displayed.



Click the 'Apply' button to make the changes take effect.
Then you will see the following.

After the system restarts, you'll be prompted to input your new password:



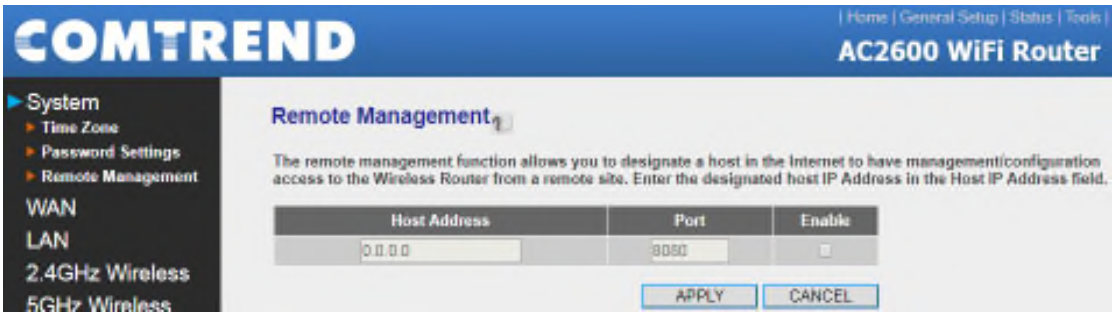
Use the new password to enter the web management interface again.

2.4.3 Remote Management

This router does not allow remote management access from the Internet by default. However, you can still manage this router from a specific IP address by enabling the 'Remote Management' Function.

To do so, follow the instructions below:

Click the 'System' menu on the left of the web management interface, then click 'Remote Management', and the following will be displayed on your web browser:

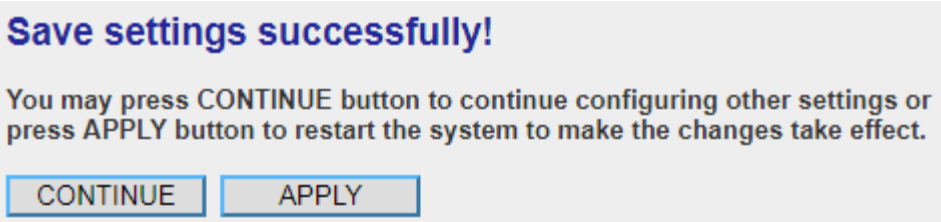


Here are descriptions of every setup item:

Host Address:	*Input the IP address of the remote host you wish to initiate management access with.*

Port:	*You can define the port number this router should expect an incoming request from. If you're providing a web service (default port number is 80), you should try to use another port number. You can use the default port setting '8080', or something like '32245' or '1429'. (Any integer between 1 and 65534)*
Enable:	*Select the field to enable the configuration.*

When you complete all settings, click the 'Apply' button, and you'll see the following displayed on the web browser:



Press the 'Continue' button to save the settings made and go back to the web management interface; press 'Apply' to save the settings made and restart the router so the settings will take effect after it reboots.

NOTE: When you want to manage this router from another computer on the Internet, you have to input the IP address and port number of this router. If your Internet service provider assigns you with a static IP address, it will not be a problem; but if the IP address your service provider assigns to you will vary every time you establish an Internet connection, this will be a problem.

Please either ask your service provider to give you a static IP address, or use dynamic IP to host name mapping services like DDNS. Please refer to chapter 2-5-8 'DDNS client' for details.

NOTE: The default port number the web browser will use is '80'. If the 'Port' setting in this page is not '80', you have to assign the port number in the address bar of the web browser manually. For example, if the IP address of this router is 1.2.3.4, and the port number you set is 8888, you have to input following address in the address bar of web browser:

http://1.2.3.4:8888

2-5 Setup Internet Connection (WAN Setup)

The Internet connection setup can be completed by using the 'Quick Setup' procedure as described in section 2-3. However, you can setup WAN connections by using the WAN configuration menu. You can also set advanced functions like DDNS (Dynamic DNS) here.

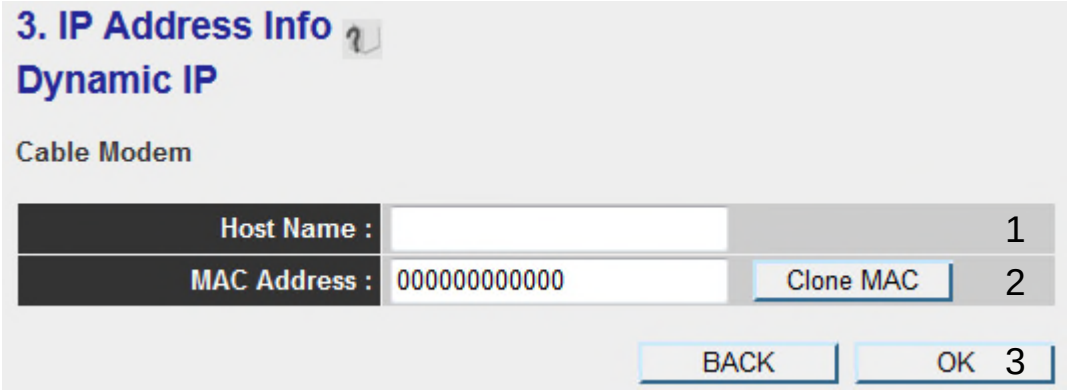
For WAN setup, follow these instructions:

Click the 'WAN' menu on the left of the web management interface:

Select an Internet connection method depending on the type of connection you're using. You can either click the connection method on the left (1) or right (2). If you select the connection method on the right, click the 'More Configuration' button after a method is selected.

Dynamic IP	- Go to section 2.5.1
Static IP	- Go to section 2.5.2
PPPoE	- Go to section 2.5.3
PPTP	- Go to section 2.5.4
L2TP	- Go to section 2.5.5
DNS	- Go to section 2.5.6
DDNS	- Go to section 2.5.7

2.5.1 Setup procedure for 'Dynamic IP':

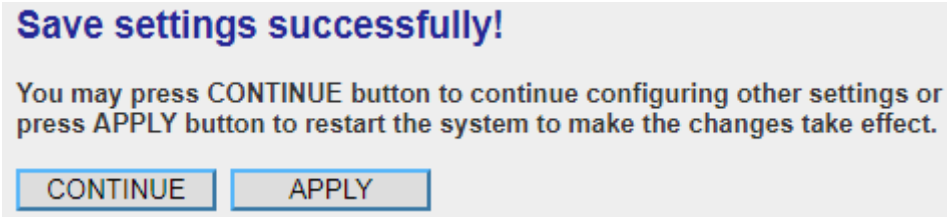


Here are descriptions of every setup item:

Host Name (1):	*Input the host name of your computer, this is optional, and only required if your service provider asks you to do so.*
MAC Address (2):	*Input the MAC address of your computer, if your service provider only permits computers with certain MAC addresses to access the Internet. If you're using a computer which is used to connect to Internet via cable modem, you can simply press the 'Clone Mac address' button to fill the MAC address field with the MAC address of your computer.*

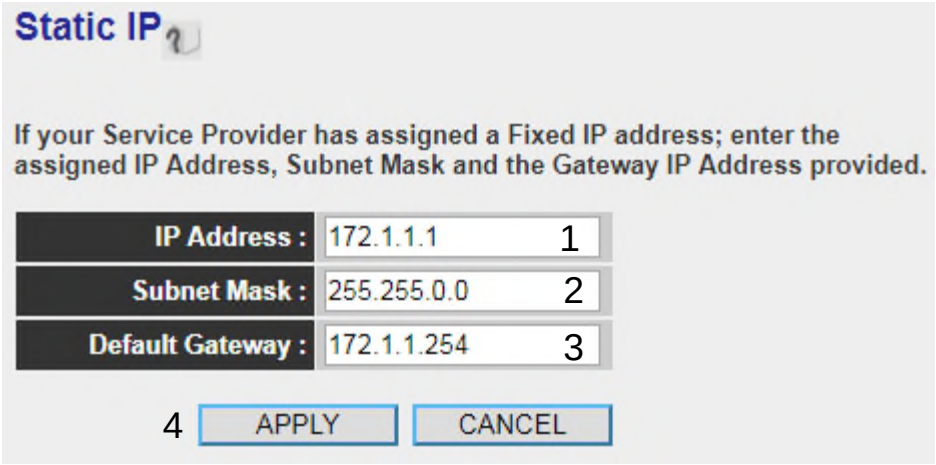
After you complete all settings, click the 'OK' (3) button; if you want to go back to previous menu, click the 'Back' button.

After you click the 'Apply' button, the following will be displayed on your web browser:



Click the 'Continue' button to go back to the previous setup menu; to continue on router setup, or click the 'Apply' button to reboot the router so the settings will take effect (Wait for about 60 seconds while the router is rebooting).

2.5.2 Setup procedure for 'Static IP':



Here are descriptions of every setup item:

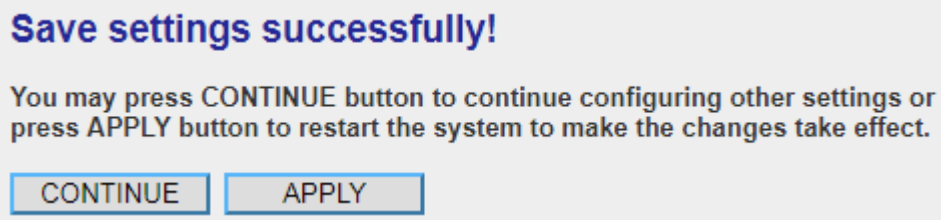
IP Address (1):	*Input the IP address assigned by your service provider.*
Subnet Mask (2):	*Input the subnet mask assigned by your service provider.*
Default Gateway (3):	*Input the IP address of the DNS server provided by your service provider.*

You must use the addresses provided by your Internet service provider. Incorrect setting values will cause connection problems.

When you complete all settings, press the 'Apply' button (4); click the 'Cancel' reset the page.

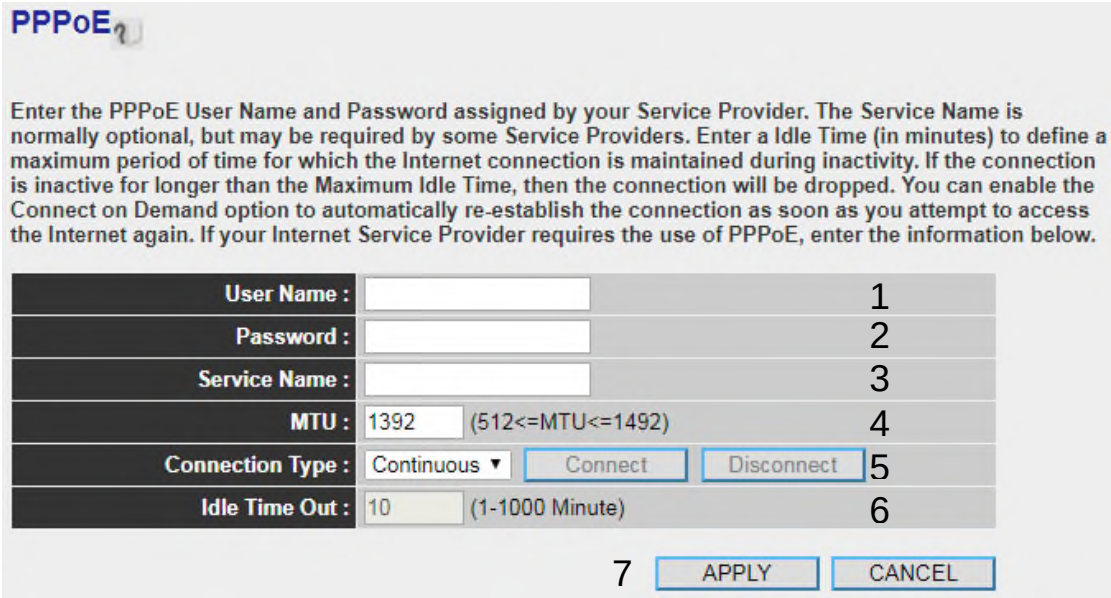
NOTE: You can choose this Internet connection method if your service provider assigns a fixed IP address (also known as a static address) to you, and not using DHCP or PPPoE protocol. Please contact your service

After you complete all settings, click the 'Apply' (4) button and the following will be displayed on your web browser:



Click the 'Continue' button to go back to the previous setup menu; to continue on other setup procedures, or click the 'Apply' button to reboot the router so the settings will take effect (Wait for about 60 seconds while the router is rebooting).

2.5.3 Setup procedure for 'PPPoE':



Here are descriptions of every setup item:

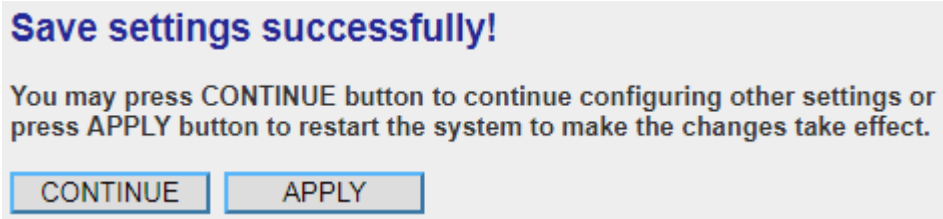
User Name (1):	*Input the user name assigned by your Internet service provider.*
Password (2):	*Input the password assigned by your Internet service provider.*
Service Name (3):	*Give a name to this Internet service. This is optional.*
MTU (4):	*Input the MTU value of your network connection. If you don't know, you can use the default value.*
Connection Type (5):	*Select the type of Internet connection you wish to use.* *Continuous – The connection will always be kept on. If the connection is interrupted, the router will re-connect automatically.* *Connect On-Demand – Only connect when you want to surf the Internet. "Idle Time Out" is set to stop the connection when the network traffic is not sending or receiving after an idle time.*

Manual – After you have selected this option, you will see the "Connect" button and "Disconnect" button, click "Connect" and the router will connect to the ISP. If you want to stop the connection, click the "Disconnect" button.

Idle Time Out - Specify the time to shutdown the Internet connection after no Internet activity is detected by minute. This option is only available when connection type is 'Connect on Demand'.

Idle Time Out (6): *If you have selected the connection type to "Connect-On-Demand", input the idle time out.*

After you complete all settings, click the 'Apply' (7) button and the following will be displayed on your web browser:

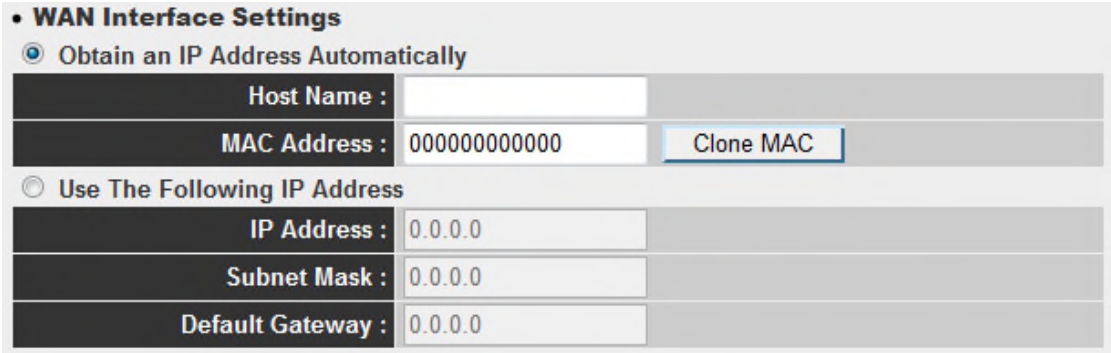


Click the 'Continue' button to go back to the previous setup menu; to continue on other setup procedures, or click the 'Apply' button to reboot the router so the settings will take effect (Wait for about 60 seconds while the router is rebooting).

If you want to reset all the settings in this page back to previously-saved values, click the 'Cancel' button.

2.5.4 Setup procedure for 'PPTP':

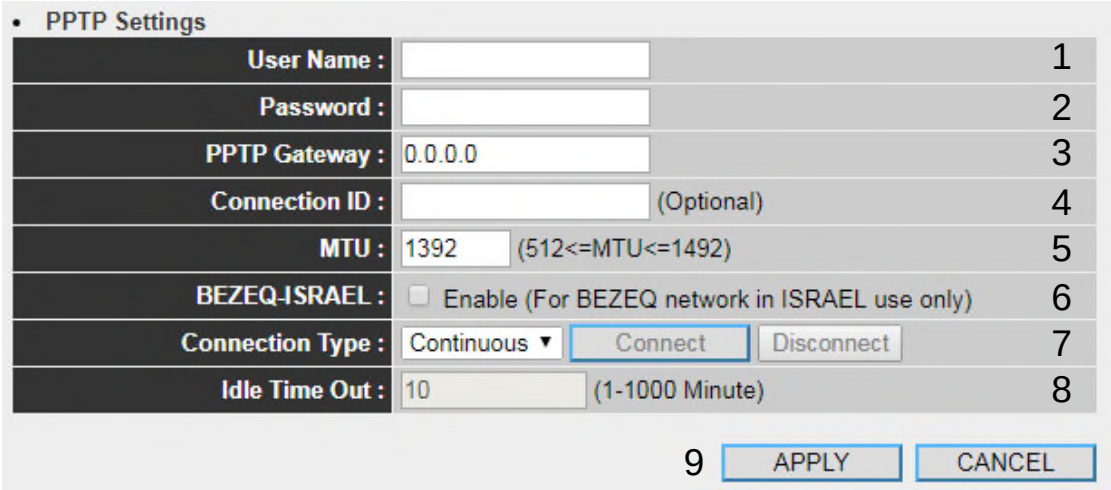
PPTP requires two kinds of settings: WAN interface setting (setup IP address) and PPTP setting (PPTP user name and password). Here we start from the WAN interface setting:



Select how you obtain an IP address from your service provider. You can choose 'Obtain an IP address automatically' (equal to DHCP, refer to 'Dynamic IP' section above), or 'Use the following IP address' (i.e. static IP address)

The WAN interface settings must be correctly set, or the Internet connection will fail even though the PPTP settings are correct. Contact your Internet service provider if you don't know what you should put in these fields.

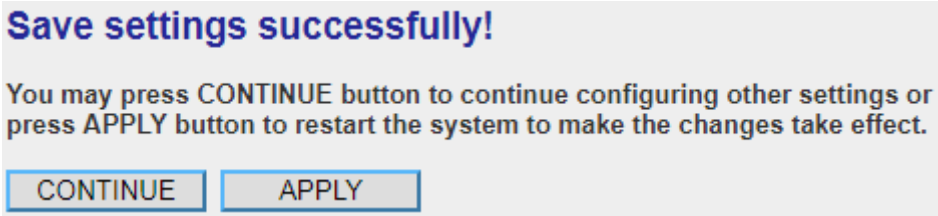
Now go to the PPTP settings section:



Here are descriptions of every setup item:

User Name (1):	*Input the user ID (user name) assigned by your Internet service provider.*
Password (2):	*Input the password assigned by your Internet service provider.*
PPTP Gateway (3):	*Input the IP address of PPTP gateway assigned by your Internet service provider.*
Connection ID (4):	*Input the connection ID, this is optional and you can leave it blank.*
MTU (5):	*Input the MTU value of your network connection. If you don't know, you can use the default value.*
BEZEQ-ISRAEL (6):	*If you are connecting to the BEZEQ network in Israel. Enable this function.*
Connection Type (7):	*Select the type of Internet connection you wish to use, refer to section 2.5.3 for detailed descriptions.*
Idle Time Out (8):	*Input the idle time out of Internet connection you wish to use, and refer to section 2.5.3 for detailed descriptions.*

When you complete all settings, click the 'Apply' (9) button and the following will be displayed on your web browser:

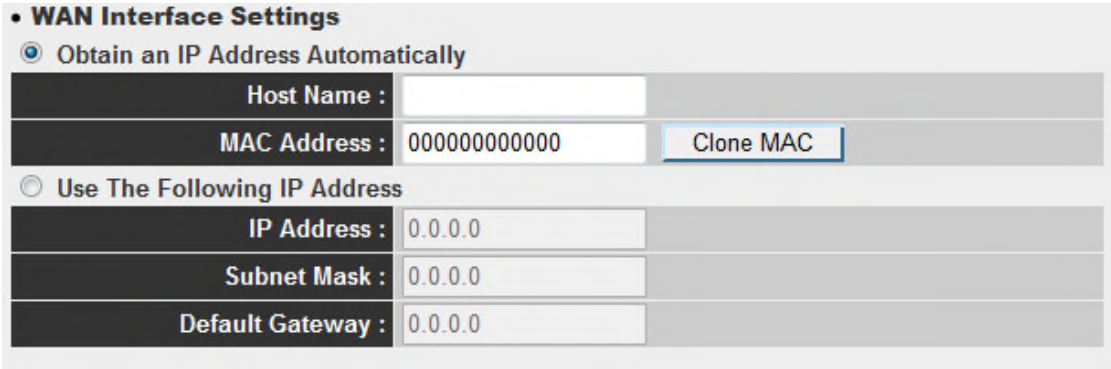


Click 'Continue' to go back to the previous setup menu; to continue on other setup procedures, or click the 'Apply' button to reboot the router so the settings will take effect (Wait for about 60 seconds while the router is rebooting).

2.5.5 Setup procedure for 'L2TP':

L2TP is another popular connection method for xDSL and other Internet connection types, and all required setting items are the same as a PPTP connection.

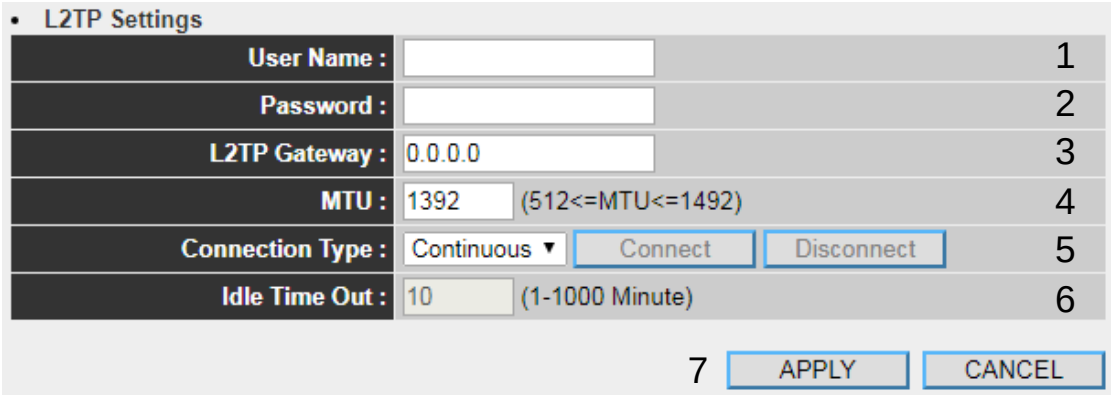
Like PPTP, there are two kinds of required settings, we'll start from 'WAN Interface Settings':



Select how you obtain IP address from your service provider. You can choose 'Obtain an IP address automatically' (equal to DHCP, refer to the 'Dynamic IP' section above), or 'Use the following IP address' (equal to static IP address, refer to the 'PPPoE' section above).

WAN interface settings must be correctly set, or the Internet connection will fail even though the PPTP settings are correct. Contact your Internet service provider if you don't know how to fill in these fields.

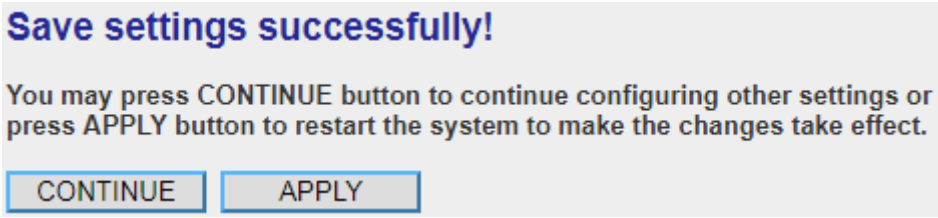
Now go to the L2TP settings section:



Here are descriptions of every setup item:

User ID (1):	*Input the user ID (user name) assigned by your Internet service provider.*
Password (2):	*Input the password assigned by your Internet service provider.*
L2TP Gateway (3):	*Input the IP address of L2TP gateway assigned by your Internet service provider.*
MTU (4):	*Input the MTU value of your network connection. If you don't know, you can use the default value.*
Connection Type (5):	*Select the type of Internet connection you wish to use, refer to section 2.5.3 for detailed descriptions.*
Idle Time Out (6):	*Input the idle time out of Internet connection you wish to use, and refer to section 2.5.3 for detailed descriptions.*

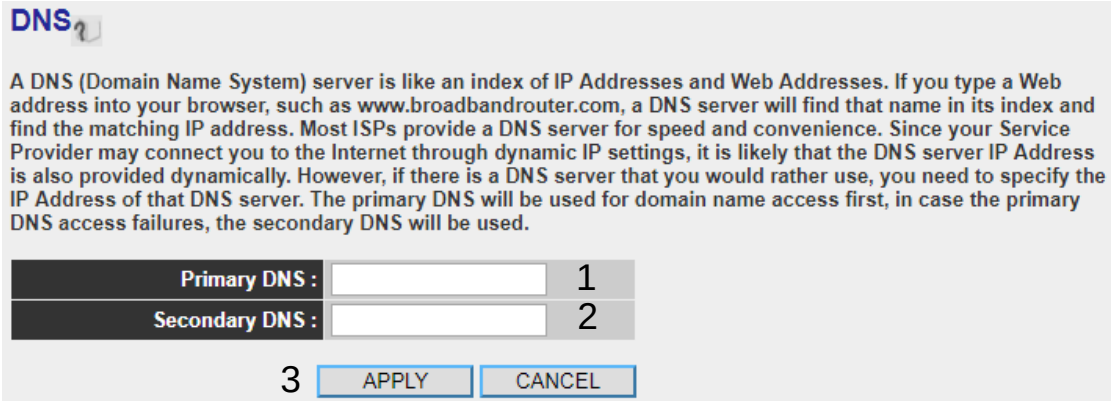
When you complete all settings, click the 'Apply' (7) button and the following will be displayed on your web browser:



Click the 'Continue' button to go back to the previous setup menu; to continue on other setup procedures, or click the 'Apply' button to reboot the router so the settings will take effect (Wait for about 60 seconds while the router is rebooting).

2.5.7 Setup procedure for 'DNS':

If you select '*Dynamic IP*' or '*PPPoE*' as the Internet connection method, at least one DNS server's IP address should be assigned automatically. However, if you have a preferred DNS server, or your service provider didn't assign the IP address of the DNS server for any reason, you can input the IP address of the DNS server here.



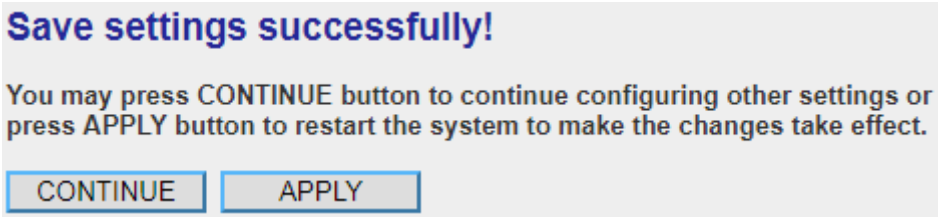
Here are descriptions of every setup item:

Primary DNS (1):	*Input the IP address of the DNS server provided by your service provider.*
Secondary DNS (2):	*Input the IP address of another DNS server provided your service provider. This is optional.*

NOTE: Only the IP address can be inputted here; *DO NOT* use the hostname of the DNS server! (i.e. only numeric characters and dots are accepted)

10.20.30.40..... Correct
dns.serviceprovider.com..... Incorrect

After you complete all settings, click the 'Apply' (3) button and the following will be displayed on your web browser:



Click the 'Continue' button to go back to previous setup menu; to continue on other setup procedures, or click the 'Apply' button to reboot the router so the settings will take effect (Wait for about 60 seconds while the router is rebooting).

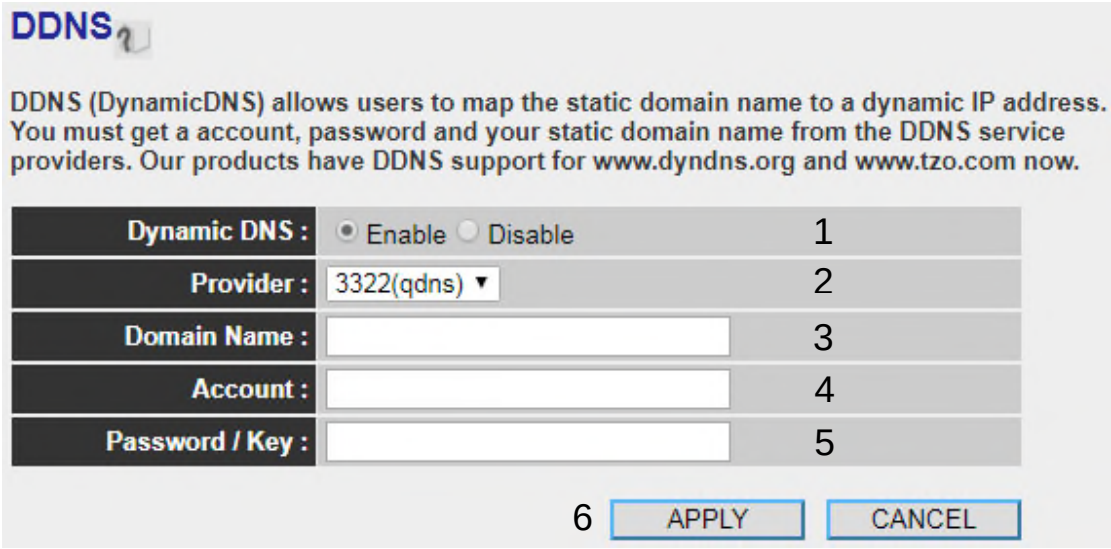
2.5.8 Setup procedure for 'DDNS':

DDNS (Dynamic DNS) is an IP-to-Hostname mapping service for Internet users who don't have a static (fixed) IP address. Problems will occur when user(s) want to provide services to other users on the Internet, as their IP address will vary every time when connected to the Internet.

This router supports the DDNS service of several service providers, for example:

DynDNS (http://www.dyndns.org)
TZO (http://www.tzo.com)

Go to one of the DDNS service provider's WebPages listed above, and get a free DDNS account by following the instructions given on their webpage.



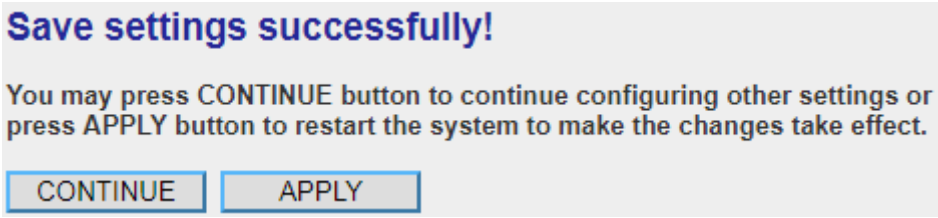
Here are descriptions of every setup item:

Dynamic DNS (1):	*If you want to enable the DDNS function, select 'Enabled'; otherwise select 'Disabled'.*
Provider (2):	*Select your DDNS service provider.*
Domain Name (3):	*Input the domain name you've obtained from the DDNS service provider.*

Account (4): *Input account or email of DDNS registration.*

Password / Key (5): *Input the DDNS service password or key.*

After you complete all settings, click the 'Apply' (6) button and the following will be displayed on your web browser:



Click the 'Continue' to go back to the previous setup menu; to continue on other setup procedures, or click the 'Apply' button to reboot the router so the settings will take effect (Wait for about 60 seconds while the router is rebooting).

2.6 Wired LAN Configurations

Before all computers using wired Ethernet connections (i.e. those computers that connect to this router's LAN port 1 to 4 by Ethernet cable) can communicate with each other and access the Internet, they must have a valid IP address.

There are two ways to assign IP addresses to computers: static IP address (set the IP address for every computer manually), and dynamic IP address (IP addresses of computers will be assigned by the router automatically.

Suggestions on IP address numbering plan:

If you have no idea on how to define an IP address plan for your network, here are some suggestions.

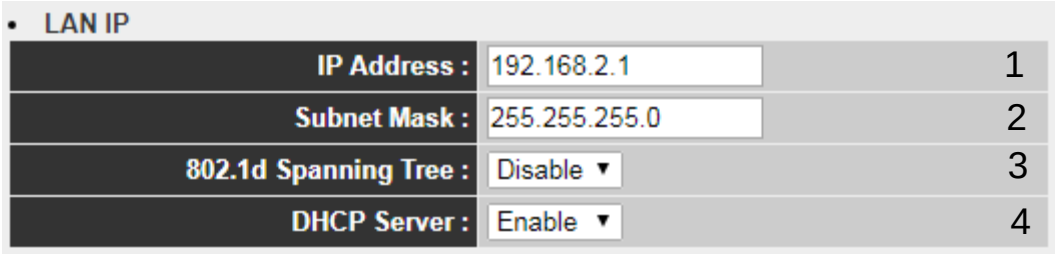
1. **A valid IP address has 4 fields: a.b.c.d, for most home and company users, it's suggested to use 192.168.c.d, where c is an integer between 0 and 254, and d is an integer between 1 and 254. This router is capable of working with up to 253 clients, so you can set the 'd' field of the IP address of the router as 1 or 254 (or any number between 1 and 254), and pick a number between 0 and 254 for field 'c'.**
2. **In most cases, you should use '255.255.255.0' as subnet mask, which allows up to 253 clients (this also meets the router's capability of working with up to 253 clients).**
3. **For all servers and network devices which will provide services to other people (like Internet service, print service, and file service), they should use static IP addresses. Give each of them a unique number between 1 and 253, and maintain a list, so everyone can locate those servers easily.**
4. **For computers which are not dedicated to providing specific service to others, they should obtain an IP address automatically.**

Recommended setup values will be provided below for your convenience.

Follow the instructions below to set wired LAN parameters:

Click the 'LAN' menu on the left of the web management interface, there are three setup groups here: 'LAN IP', 'DHCP Server', and 'Static DHCP Leases Table'. Here are the setup instructions for each of them:

2.6.1 LAN IP section:



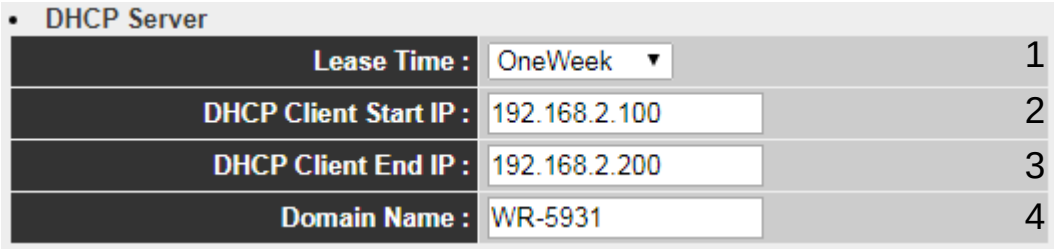
Here are descriptions of every setup item:

IP address (1):	*Input the IP address of this router.*
Subnet Mask (2):	*Input the subnet mask for this network.*
802.1d Spanning Tree (3):	*If you wish to activate the 802.1d spanning tree function, select 'Enable' for setup item '802.1d Spanning Tree', or set it to 'Disable'.*
DHCP Server (4):	*If you want to activate the DHCP server function of this router, select 'Enable', or set it to 'Disable'.*

Recommended Value if you don't know what to put:

IP Address: 192.168.2.1
Subnet Mask: 255.255.255.0
802.1d Spanning Tree: Disabled
DHCP Server: Enabled

2.6.2 DHCP Server:



These settings are only available when the 'DHCP Server' in the 'LAN IP' section is 'Enabled', and here are descriptions of every setup item:

Lease Time (1):	*Choose a lease time (the duration that every computer can keep a specific IP address) of every IP address assigned by this router from the drop-down menu.*
Start IP (2):	*Input the start IP address of the IP range.*
End IP (3):	*Input the end IP address of the IP range.*
Domain Name (4):	*If you wish, you can also optionally input the domain name for your network. This is optional.*

Recommended Value if you don't know what to put:

Lease Time: Two Weeks (or 'Forever', if you have less than 20 computers)
Start IP: 192.168.2.100
End IP: 192.168.2.200
Domain Name: (leave it blank)

NOTE:
1. The number of the last field (mentioned 'd' field) of 'End IP' must be greater than the 'Start IP', and cannot be the same as the router's IP address.
2. The former three fields of IP address of 'Start IP', 'End IP', and 'IP Address of 'LAN IP' section (mentioned 'a', 'b', and 'c' field) should be the same.

2.6.3 Static DHCP Leases Table:

This function allows you to assign a static IP address to a specific computer forever and still enjoy the benefit of using a DHCP server. A maximum of 16 static IP addresses can be assigned here.

(If you set 'Lease Time' to 'forever' in the 'DHCP Server' section, you can also assign an IP address to a specific computer permanently, however, you will not be able to assign a certain IP address to a specific computer, since IP addresses will be assigned in random order by this way).

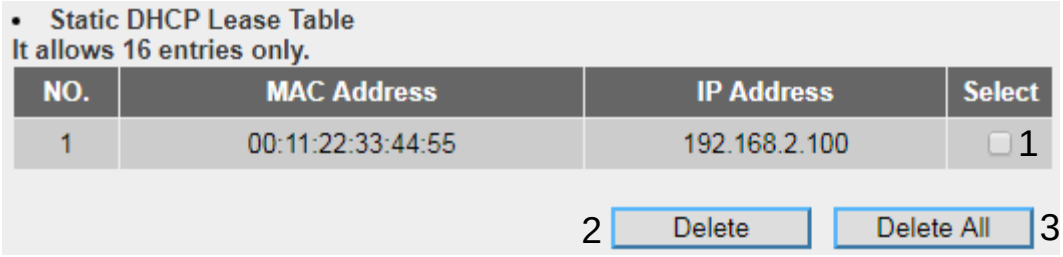
Here are descriptions of every setup item:

Enable Static DHCP Leases (1):	*Check this box to enable this function, otherwise uncheck it to disable this function.*
MAC Address (2):	*Input the MAC address of the computer or network device (total 12 characters, with characters from 0 to 9, and from a to f, like '001122aabbcc')*
IP address (3):	*Input the IP address you want to assign to this computer or network device*
'Add' (4):	*After you inputted the MAC address and IP address pair, click this button to add the pair to the static DHCP leases table.*

If you want to remove all the characters you just inputted, click the 'Clear' button.

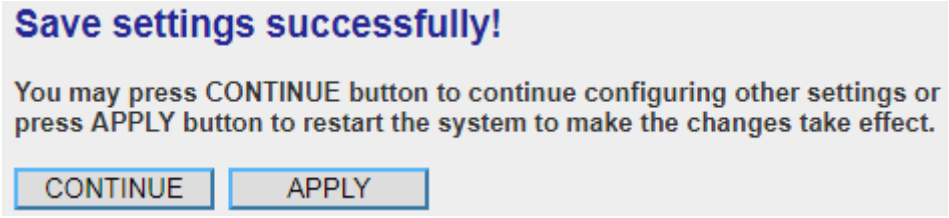
After you clicked the 'Add' button, the MAC address and IP address mapping will

be added to the 'Static DHCP Leases Table' section.



If you want to delete a specific item, check the 'Select' box of a MAC address and IP address mapping (1), then click the 'Delete' button (2); if you want to delete all mappings, click the 'Delete All' (3) button.

After you complete all LAN settings, click the 'Apply' button. After you click 'Apply', the following will be displayed on your web browser:



Click the 'Continue' button to go back to the previous setup menu; to continue on router setup, or click the 'Apply' button to reboot the router so the settings will take effect (wait for about 60 seconds while the router is rebooting).

2-7 Wireless LAN Configurations

If your computer, PDA, game console, or other network devices are equipped with a wireless network interface, you can use the wireless function of this router to allow them connect to the Internet and share resources with other computers with a wired-LAN connection. You can also use the built-in security functions to protect your network from being attacked by malicious intruders.

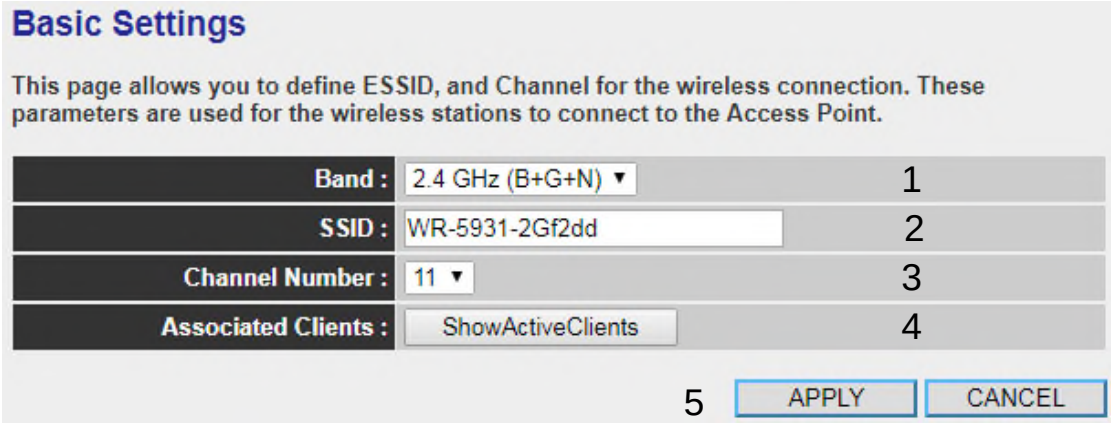
This router supports both 2.4GHz and 5GHz wireless bands simultaneously; the wireless settings for both wireless bands are almost the same. The following sections will only highlight the different descriptions between these two selections.

Enter into 'General Setup' page, select '2.4GHz Wireless' or '5GHz Wireless' to configure the wireless settings for the different wireless signals.

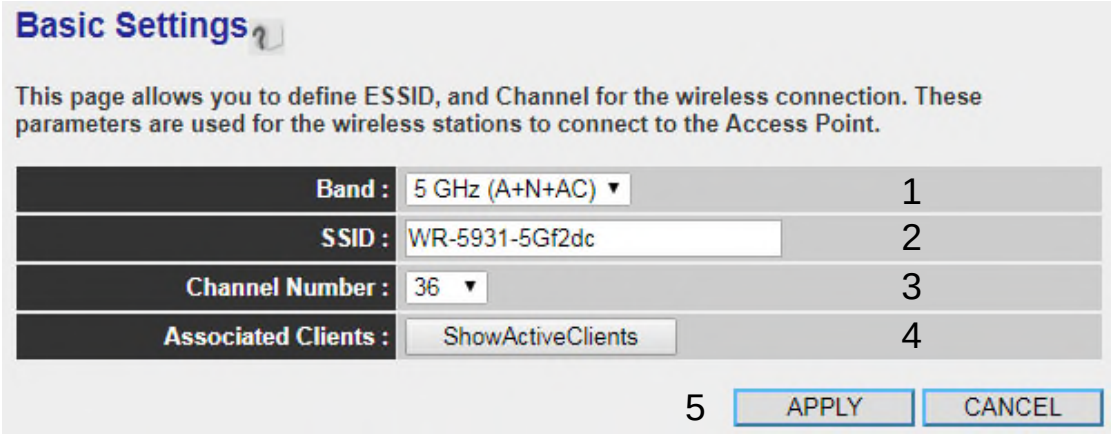
2.7.1 Basic Wireless Settings

Click '2.4GHz Wireless' or '5GHz Wireless' menu on the left of the web management interface, then click 'Basic Settings', and the following will be displayed on your web browser:

2.4GHz Wireless



5GHz Wireless



Here are descriptions of every setup item:

Band (1): *Select the radio band from one of following options:*

2.4GHz Band

2.4 GHz (B): only allows 802.11b wireless network clients to connect to this router (maximum transfer rate 11Mbps).

2.4 GHz (N): only allows 802.11n wireless network clients to connect to this router (maximum transfer rate 300Mbps).

2.4 GHz (B+G): only allows 802.11b and 802.11g wireless network clients to connect to this router (maximum transfer rate 11Mbps for 802.11b clients, and maximum 54Mbps for 802.11g clients).

2.4 GHz (G): only allows 802.11g wireless network clients to connect to this router (maximum transfer rate 54Mbps).

2.4 GHz (B+G+N): only allows 802.11b, 802.11g, and 802.11n wireless network clients to connect to this router (maximum transfer rate 11Mbps for 802.11b clients, maximum 54Mbps for 802.11g clients, and maximum 300Mbps for 802.11n clients).

5GHz Band

5GHz (A): only allows 802.11a wireless network clients to connect to this router (maximum transfer rate 54Mbps for 802.11a clients).

5GHz (N): only allows 802.11n wireless network clients to connect to this router (maximum transfer rate 150Mbps for 802.11n clients).

5GHz (A+N): only allows 802.11a and 802.11n wireless network clients to connect to this router (maximum transfer rate 54Mbps for 802.11a clients, and maximum 150Mbps for 802.11n clients).

5GHz (AC): only allows 802.11ac wireless network clients to connect to this router (maximum transfer rate 433Mbps for 802.11ac clients).

5GHz (N+AC): only allows 802.11n and 802.11ac wireless network clients to connect to this router (maximum transfer rate 150Mbps for 802.11n clients, and maximum 433Mbps for 802.11ac clients).

5GHz (A+N+AC): only allows 802.11a, 802.11n and

802.11ac wireless network clients to connect to this router (maximum transfer rate 54Mbps for 802.11a clients, maximum 150Mbps for 802.11n clients, and maximum 433Mbps for 802.11ac clients).

NOTE: For 802.11n mode: The router is operating in a 2T2R Spatial Multiplexing MIMO configuration.

SSID (2): *This is the name of the wireless router. You can type any alphanumerical characters here, maximum 32 characters. The SSID is used to identify your own wireless router from others when there are other wireless routers in the same area. The default SSID is 'default', it's recommended to change the default SSID value to the one which is meaningful to you, like myhome, office_room1, etc.*

Channel Number (3): *Select a channel from the drop-down list of 'Channel Number'. You can choose any channel number you want to use, and almost all wireless clients can locate the channel you're using automatically without any problem. However, it's still useful to remember the channel number you use, some wireless clients support manual channel number selection, and this would help in certain scenarios when there is some radio communication problem.*
The available channels numbers for the following band are:

2.4GHz Band
The available channel numbers are 1 to 13 for European countries, 1 to 11 for USA.

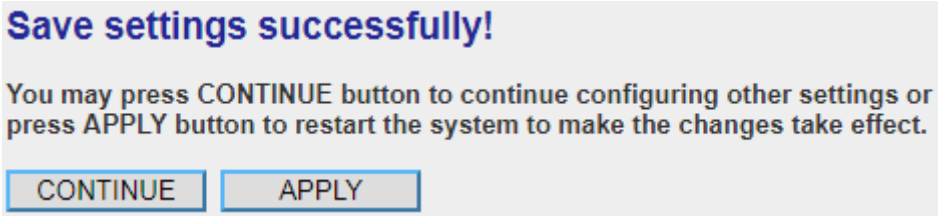
5GHz Band
The available channel numbers are 36 to 140 (36~ 48, 52~64, 100~ 140) for European countries, and 36 to 48 and 149 to 165 for USA.

Associated Clients (4): Click the 'Show Active Clients' button, then an "Active Wireless Client Table" will pop up. You can see the status of all active wireless stations that are connecting to the access point.

NOTE: If you don't have special reason to limit the type of allowed wireless client, it's recommended to choose '2.4GHz (B+G+N) and 5GHz (A+N+AC) to maximize wireless client compatibility.

TIPS: You can try to change the channel number to another one if you think the data transfer rate is too slow. There could be some other wireless routers using the same channel, which will disturb the radio communication between the wireless client and the wireless router.

After you complete all settings, click the 'Apply' (5) button and the following will be displayed on your web browser:

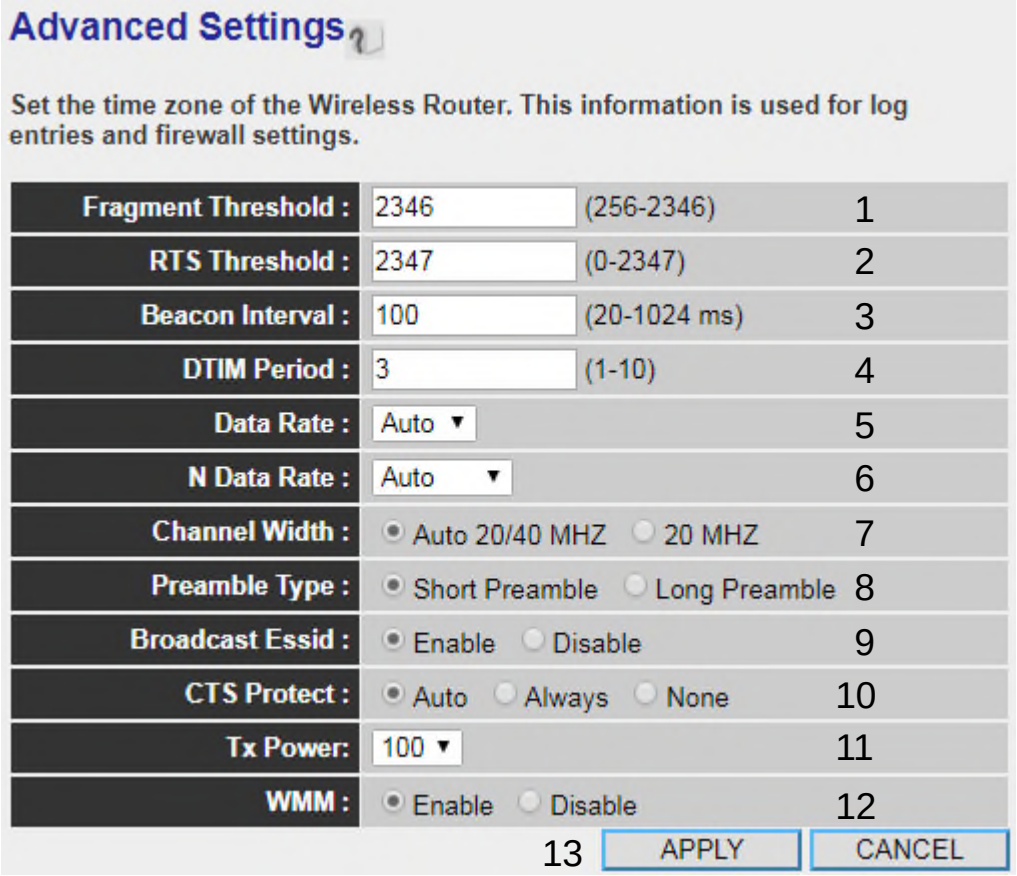


Click the 'Continue' to go back to the previous setup menu; to continue on other setup procedures, or click the 'Apply' button to reboot the router so the settings will take effect (Wait for about 60 seconds while the router is rebooting).

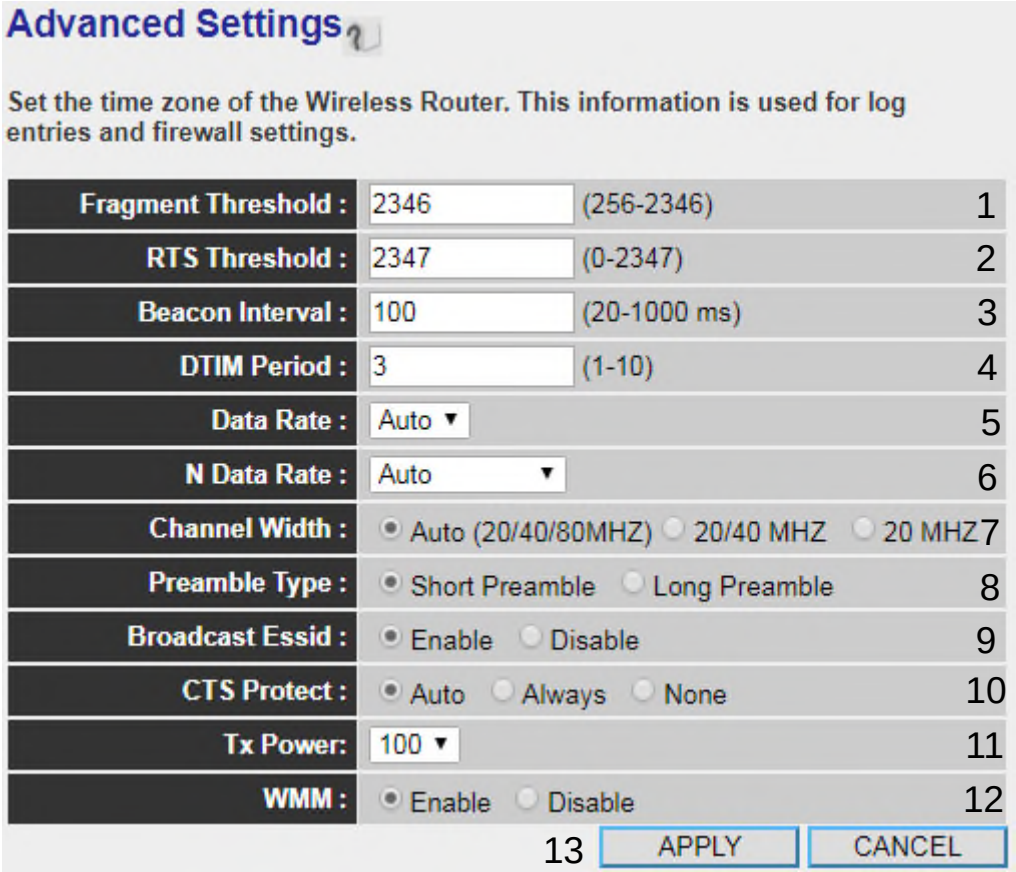
2.7.2 Advanced Wireless Settings

This router provides some advanced control of wireless parameters, if you want to configure these settings, click '2.4GHz Wireless' or '5GHz Wireless' menu on the left of the web management interface, then click 'Advanced Settings', and the following will be displayed on your web browser:

2.4GHz Advanced Settings



5GHz Advanced Settings



Here are descriptions of every setup item:

Fragment Threshold (1): *Set the Fragment threshold of wireless radio.* ***Do not modify the default value if you don't know what it is, default value is 2346.***

RTS Threshold (2): The RTS (Request To Send) threshold parameter controls what size data packet (number of bytes) the low level RF protocol issues to an RTS packet. ***Do not modify the default value if you don't know what it is, default value is 2347.***

Beacon Interval (3): The Beacon Interval value indicates the frequency interval of the beacon. A beacon is a packet broadcast by the Router to synchronize the wireless network. ***Do not modify the default value if you don't know what it is, default value is 100.***

DTIM Period (4): Configures the DTIM (Delivery Traffic Indication Message) send period. ***Do not modify the default value if you don't know what it is, default value is 3.***

Data Rate (5): *Set the wireless data transfer rate to a certain value. Since most of the wireless devices will negotiate with each other and pick a proper data transfer rate automatically,* ***it's not necessary to change this value unless you know what will happen after modification.***

N Data Rate (6): *Same as above, but only for 802.11n & 802.11ac clients.*

Channel Width (7): *Set channel width of wireless radio.* ***You can modify the default value if you know what channel width is you need, default setting is '20/40 MHz' for 2.4GHz and '20/40/80 MHz' for 5GHz.***

Preamble Type (8): *Set the type of preamble,* ***do not modify the default value if you don't know what it is, the default setting is 'Short Preamble'.***

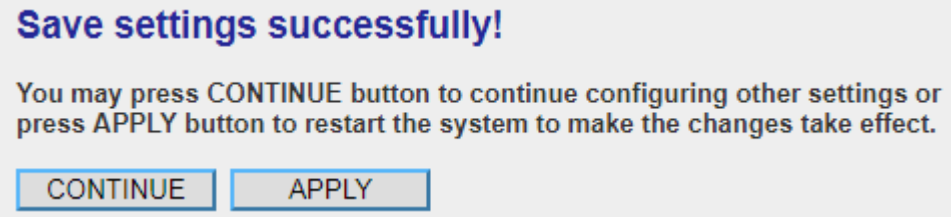
Broadcast ESSID (9): *Decide if the wireless router will broadcast its own ESSID or not. You can hide the ESSID of your wireless router (set the option to 'Disable'), so only those people who know the ESSID of your wireless router can get connected.*

CTS Protect (10): *Enabling this setting will reduce the chance of radio signal collisions between 802.11b and 802.11g/n wireless access points. It's recommended to set this option to 'Auto' or 'Always'. However, if you set to 'None', your wireless router should be able to work fine, too.*

Tx Power (11): *You can set the output power of wireless radio. Unless you're using this wireless router in a really big space, you may not have to set output power to 100%.* ***This will enhance security (malicious / unknown users in distance will not be able to reach your wireless router).***

WMM (12):	*This stands for Wi-Fi MultiMedia, it will enhance the data transfer performance of multimedia contents when they're being transferred over wireless networks.* ***If you don't know what it is / not sure if you need it, it's safe to set this option to 'Enable'.***

After you complete these wireless settings, click the 'Apply' button, button, and the following will be displayed on your web browser:



Click the 'Continue' button to go back to the previous setup menu; to continue on router setup, or click the 'Apply' button , to reboot the router so the settings will take effect (Wait for about 60 seconds while the router is rebooting).

2.7.3 Wireless Security

It's very important to set wireless security settings properly! If you don't, hackers and malicious users can reach your network and access valuable data without your consent and this will cause serious security problems.

To configure wireless security settings, click '2.4GHz Wireless' or '5GHz Wireless' menu on the left of the web management interface, then click 'Security Settings', and follow the instructions to set wireless security settings.

Select an encryption method from the 'Encryption' drop-down menu, there are four options:

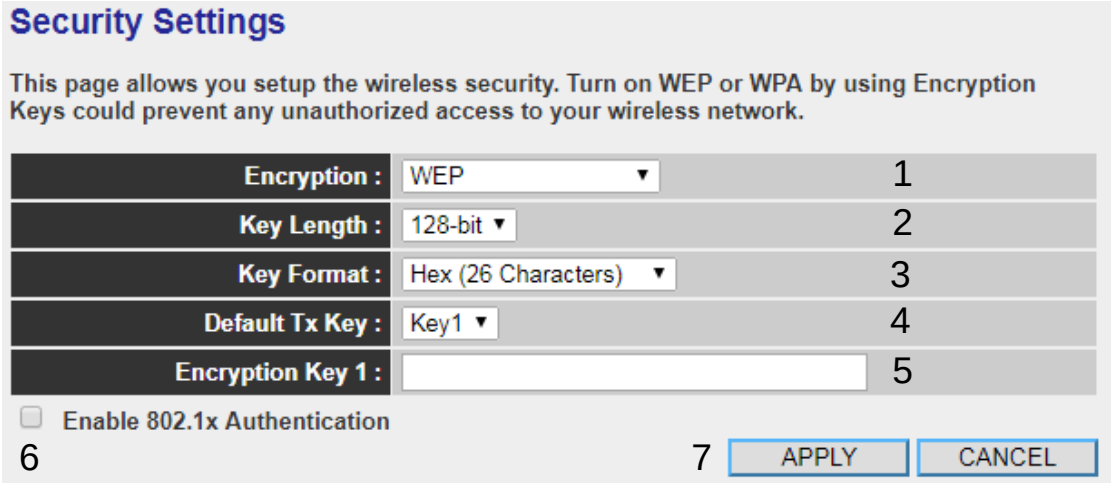
2.7.3.1 Disable wireless security

When you select this mode, data encryption is disabled, and every wireless device in proximity will be able to connect to your wireless router if no other security measure is enabled (like MAC address access control - see section 2.7.4, or disable ESSID broadcast).

Only use this option when you really want to allow everyone to use your wireless router, and you don't care if there's someone reads the data you transfer over the network without your consent.

2.7.3.2 WEP - Wired Equivalent Privacy

When you select this mode, the wireless router will use WEP encryption, and the following setup menu will be shown on your web browser:



Here are descriptions of every setup item:

Key Length (2): *There are two types of WEP key length: 64-bit and 128-bit. Using '128-bit' is safer than '64-bit', but will reduce some data transfer performance.*

Key Format (3): *There are two types of key format: ASCII and Hex. When you select a key format, the number of characters of key will be displayed. For example, if you select '64-bit' as key length, and 'Hex' as key format, you'll see the message at the right of 'Key Format' is 'Hex (10 characters), which means the length of WEP key is 10 characters.*

Default Tx Key (4): *You can set up to four sets of WEP key, and you can decide which key is being used by default here.* ***If you don't know which one you should use, select 'Key 1'.***

Encryption Key 1 (5): *Input the WEP key characters here, the number of characters must be the same as the number displayed in the 'Key Format' field. You can use any alphanumerical characters (0-9, a-z, and A-Z) if you select 'ASCII' key format, and if you select 'Hex' as key format, you can use characters 0-9, a-f, and A-F.*

You must input at least one encryption key here, and if you inputted multiple WEP keys, they should not be same as each other.

Enable 802.1x Authentication (6): *IEEE 802.1x is an authentication protocol. Every user must use a valid account to login to this wireless router before accessing the wireless LAN. The authentication is processed by a RADIUS server. This mode only authenticates the user by IEEE 802.1x, but it does not encrypt the data during communication. If there is a RADIUS server in your environment, enable this function. Check this box and another sub-menu will appear:*

☑ Enable 802.1x Authentication		
RADIUS Server IP Address :		8
RADIUS Server Port :	1812	9
RADIUS Server Password :		10

RADIUS Server IP address (8): *Input the IP address of the radius server.*

RADIUS Server Port (9): *Input the port number of the radius server.*

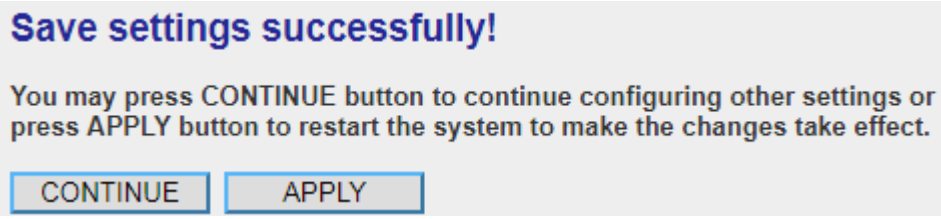
RADIUS Server Password (10): *Input the port number of the radius password.*

TIPS: Some examples of WEP key
(Don't use these examples; use the one of your own!):

ASCII (5 characters): pilot phone 23561 2Hyux #@xmL
ASCII (13 characters): digitalFAMILY 82Jh26xHy3m&n
Hex (10 characters): 287d2aa732 1152dabc85
Hex (26 characters): 9284bcda8427c9e036f7abcd84

To improve the security level, do not use words which can be found in a dictionary or words too easy to remember! ('pilot' and 'phone' listed above are bad examples; just intended to show you what a WEP key looks like). Wireless clients will remember the WEP key, so you only have to input the WEP key on the wireless client once, and it's worth using a complicated WEP key to improve the security level.

After you complete the WEP settings, click the 'Apply' button (7), and the following will be displayed on your web browser:

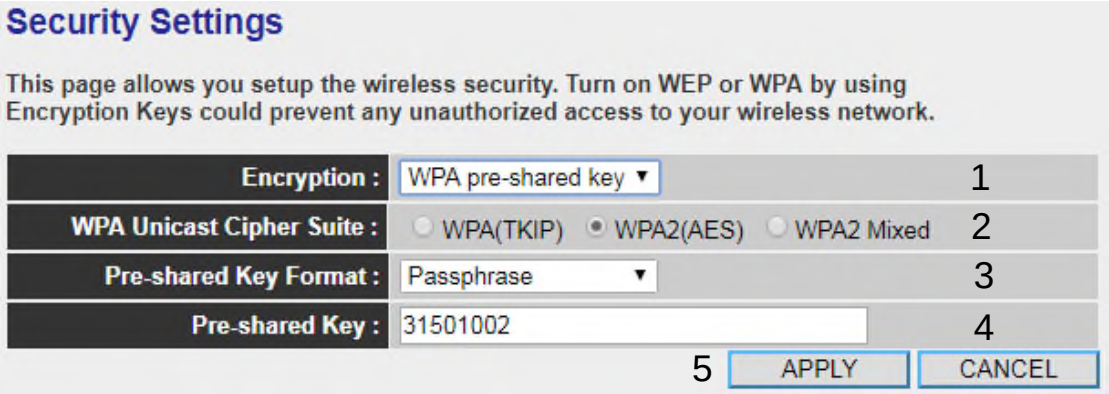


Click the 'Continue' button to go back to the previous setup menu; to continue on other setup procedures, or click the 'Apply' button to reboot the router so the settings will take effect (Wait for about 60 seconds while the router is rebooting).

If you want to reset all the settings in this page back to previously-saved values, click the 'Cancel' button.

2.7.3.3 Wi-Fi Protected Access (WPA):

When you select this mode, the wireless router will use WPA encryption, and the following setup menu will be shown on your web browser:

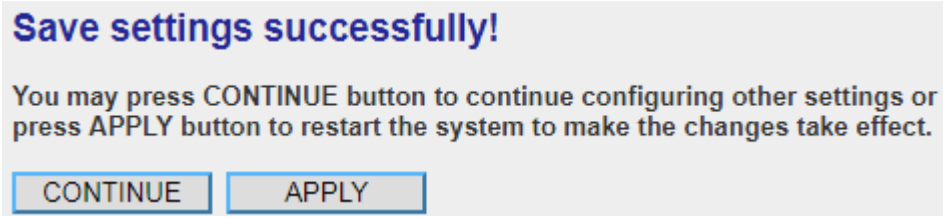


Here are descriptions of every setup item:

Cipher Suite (2): *Available options are: WPA (TKIP), WPA2 (AES), and WPA2 Mixed. You can select any one of them, but you have to make sure your wireless client supports the cipher you selected.*

Pre-shared Key Format (3):	*Select the type of pre-shared key, you can select Passphrase (8 or more alphanumerical characters, up to 63), or Hex (64 characters of 0-9, and a-f).*
Pre-shared Key (4):	*Input the WPA passphrase. It's not recommended to use a word that can be found in a dictionary due to security reasons.*

After you complete the WPA Pre-shared key setting, click the 'Apply' button (5) and the following will be displayed on your web browser:

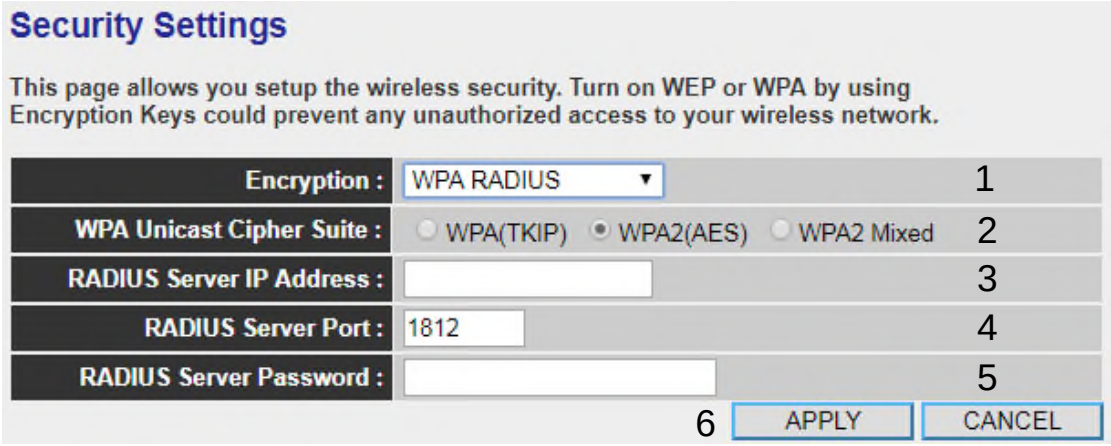


Click the 'Continue' button to go back to the previous setup menu; to continue on other setup procedures, or click the 'Apply' button to reboot the router so the settings will take effect (Wait for about 60 seconds while the router is rebooting).

NOTE: Some wireless clients (especially those manufactured before year 2003) only support WEP or WPA (TKIP) cipher. A driver upgrade would be needed for those clients to use WPA and WPA2 encryption.

2-7-3-4 WPA RADIUS:

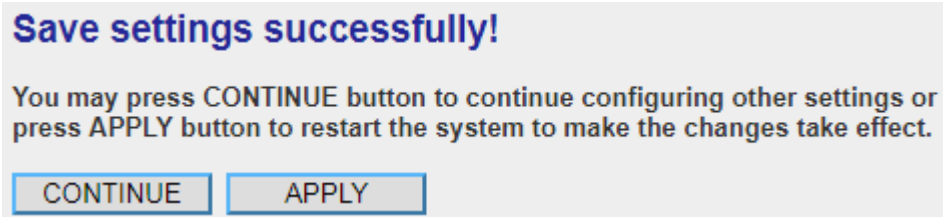
If you have a RADIUS server, this router can work with it and provide safer wireless authentication.



Here are descriptions of every setup item:

WPA Unicast Cipher Suite (2):	*Select a type of WPA cipher suite. Available options are: WPA (TKIP), WPA2 (AES), and WPA2 Mixed. You can select one of them, but you have to make sure your wireless client supports the cipher you selected.*
RADIUS Server IP address (3):	*Input the IP address of your Radius authentication server.*
RADIUS Server Port (4):	*Input the port number of your Radius authentication server.* ***Default setting is 1812.***
RADIUS Server Password (5):	*Input the password of your Radius authentication server.*

After you complete all settings, click the 'Apply' (6) button and the following will be displayed on your web browser:

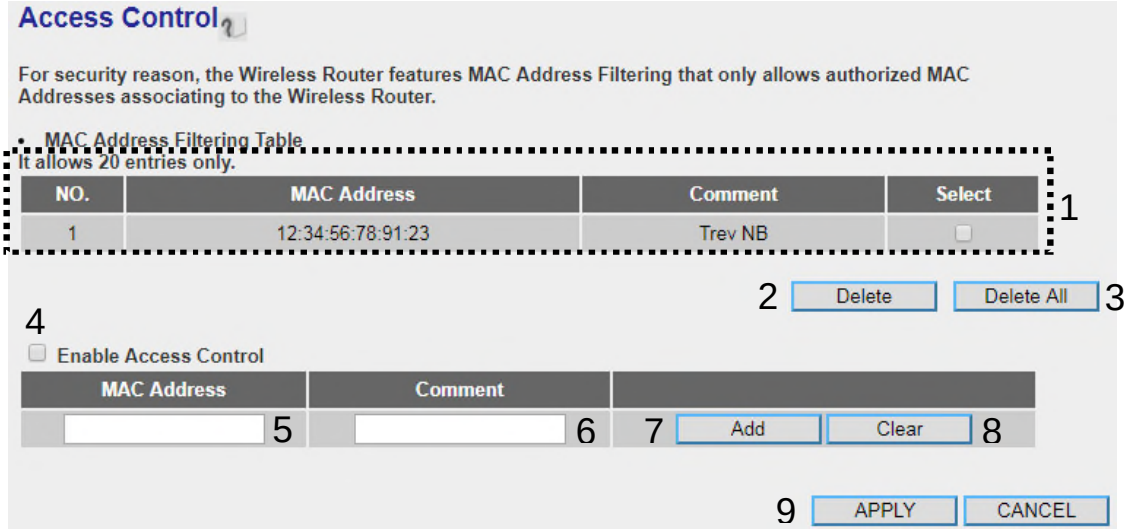


Click the 'Continue' button to go back to the previous setup menu; to continue on other setup procedures, or click the 'Apply' button to reboot the router so the settings will take effect (Wait for about 60 seconds while the router is rebooting).

2.7.4 Wireless Access Control

This function will help you to prevent unauthorized users from connecting to your wireless router; only those wireless devices that have the MAC address you assigned here can gain access to your wireless router. You can use this function with other security measures described in previous sections, to create a safer wireless environment.

Up to 20 MAC addresses can be assigned by using this function. Click '2.4GHz Wireless' or '5GHz Wireless' menu on the left of the web management interface, then click 'Access Control', and the following will be displayed on your web browser:



All allowed MAC addresses will be displayed in the 'MAC Address Filtering Table' (1).

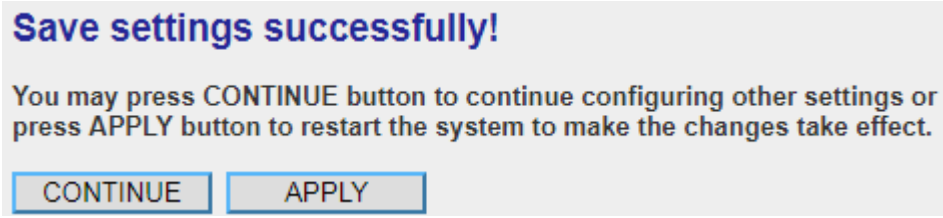
Here are descriptions of every setup item:

Delete Selected (2): *If you want to delete a specific MAC address entry, check the 'select' box of the MAC address you want to delete, then click the 'Delete' button. (You can select more than one MAC address).*

Delete All (3): *If you want to delete all MAC addresses listed here, click the 'Delete All' button.*

Enable Access Control (4):	*To enforce MAC address filtering, you have to check 'Enable Wireless Access Control'. When this item is unchecked, the wireless router will not enforce MAC address filtering of wireless clients.*
MAC Address (5):	*Input the MAC address of your wireless devices here, dash (-) or colon (:) are not required. (i.e. If the MAC address label of your wireless device indicates 'aa-bb-cc-dd-ee-ff' or 'aa:bb:cc:dd:ee:ff', just input 'aabbccddeeff'.*
Comment (6):	*You can input any text here as the comment of this MAC address, like 'Room 2A' or anything. You can input up to 16 alphanumerical characters.* *This is optional and you can leave it blank, however, it's recommended to use this field to write a comment for every MAC addresses as a memory aid.*
Add (7):	*Click the 'Add' button to add the MAC address and associated comment to the MAC address filtering table.*
Clear (8):	*Click the 'Clear' button to remove the value you inputted in the MAC address and comment field.*

After you complete all settings, click the 'Apply' (9) button and the following will be displayed on your web browser:



Click the 'Continue' button to go back to the previous setup menu; to continue on other setup procedures, or click the 'Apply' button to reboot the router so the settings will take effect (Wait for about 60 seconds while the router is rebooting).

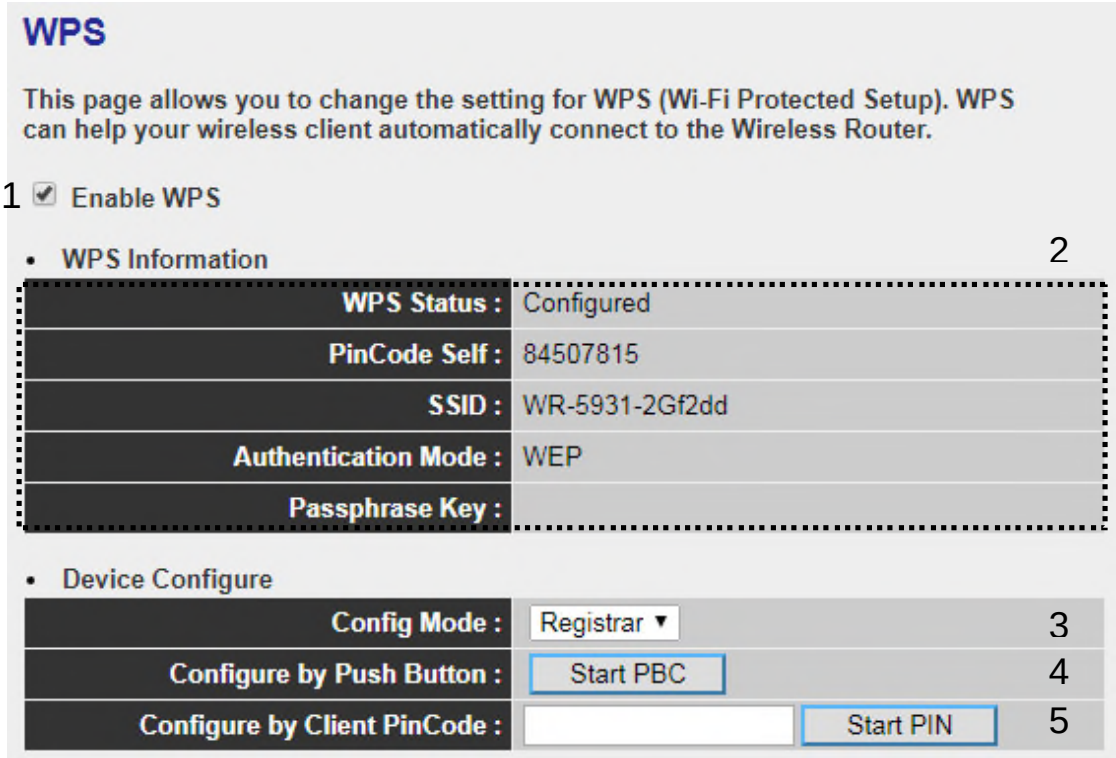
If you want to reset all the settings in this page back to previously-saved values, click the 'Cancel' button.

2.7.5 Wi-Fi Protected Setup (WPS)

Wi-Fi Protected Setup (WPS) is the simplest way to build a connection between wireless network clients and this wireless router. You don't have to select the encryption mode and input a long encryption passphrase every time when you need to setup a wireless client, you only have to press a button on the wireless client and on this wireless router, and the WPS will do the rest for you.

This wireless router supports two types of WPS: Push-Button Configuration (PBC), and PIN code. If you want to use PBC, you have to push a specific button on the wireless client to start WPS mode, and switch this wireless router to WPS mode too. You can push the Reset/WPS button of this wireless router, or click the 'Start PBC' button in the web configuration interface to do this; if you want to use PIN code, you have to know the PIN code of wireless client and switch it to WPS mode, then provide the PIN code of the wireless client you wish to connect to this wireless router. The detailed instructions are listed as follows:

Click '2.4GHz Wireless' or '5GHz Wireless' menu on the left of the web management interface, then click 'WPS', and the following will be displayed on your web browser:



Here are descriptions of every setup item:

Enable WPS (1):	*Check this box to enable the WPS function, uncheck it to disable WPS.*
WPS Information (2):	*WPS-related system information will be displayed here:* *WPS Status: If the wireless security (encryption) function of this wireless router is properly set, you'll see the 'Configured' message here. If wireless security function has not been set, you'll see 'unConfigured'.* *PinCode Self: This is the WPS PIN code of this wireless router. This code is useful when you need to build a wireless connection by WPS with other WPS-enabled wireless devices.* *SSID: The SSID of this wireless router will be displayed here.* *Authentication Mode: The wireless security authentication mode of this wireless router will be displayed here. If you don't enable the security function of the wireless router before WPS is activated, the router will auto set the security to WPA (AES) and generate a set of passphrase key for WPS connection.* *Passphrase Key: The wireless security key of the router will be displayed here.*
Config Mode (3):	*There are 'Registrar' and 'Enrollee' modes for the WPS connection. When 'Registrar' is enabled, the wireless clients will follow the router's wireless settings for WPS connection. When 'Enrollee' mode is enabled, the router will follow the wireless settings of wireless client for WPS connection.*

Configure by Push Button (4):	*Click 'Start PBC' to start the Push-Button style WPS setup procedure. This wireless router will wait for WPS requests from wireless clients for 2 minutes. The 'WLAN' LED on the wireless router will be steady on for 2 minutes when this wireless router is waiting for an incoming WPS request.*
Configure by client PinCode (5):	*Input the PIN code of the wireless client you wish to connect, and click the 'Start PIN' button. The 'WLAN' LED on the wireless router will be steady on when this wireless router is waiting for an incoming WPS request.*

2.7.6 Security Tips for a Wireless Network

Here are some quick tips to help you improve the security level of your wireless network:

1. Never use simple words (like school, apple or computer) as the WEP encryption or WPA passphrase.

2. A complicated (combination of numbers, letters, even symbols, and long enough) WEP key and WPA passphrase is much safer than simple and short ones. Remember that the wireless client is capable of keeping the key or passphrase for you, so you only have to input the complicated key or passphrase once. It's not too troublesome but will greatly improve the security level.

3. You can hide the ESSID of this router by setting the 'Broadcast ESSID' option to 'Disable'. Your wireless router will not be found by other people in proximity if they're just using the AP scanning function of their wireless client, and this can reduce the chance of being intruded.

4. Use the 'Access Control' function described in section 2.7.4, so those people who are not in your list will not be able to connect to your network.

Chapter 3 Advanced Functions

3-1 Quality of Service (QoS)

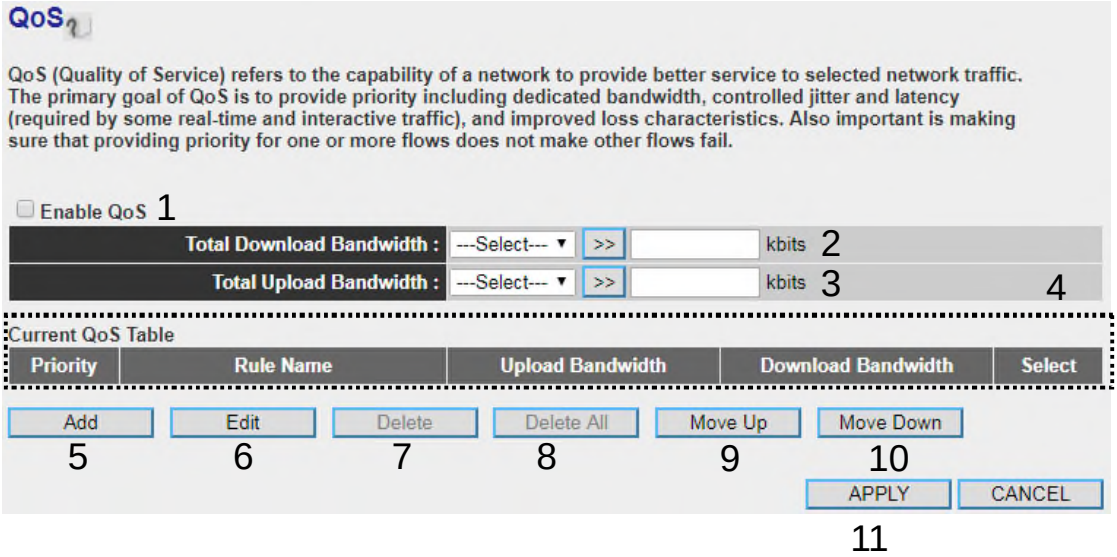
Quality of service provides an efficient way for computers on the network to share the Internet bandwidth with a promised quality of Internet service. Without QoS, all computers and devices on the network will compete with each other to get Internet bandwidth, and some applications which require guaranteed bandwidth (like video streaming and network telephone) will be affected, therefore an unpleasing result will occur, like the interruption of video / audio transfer.

With this function, you can limit the maximum bandwidth or give a guaranteed bandwidth to a specific computer.

3.1.1 Basic QoS Settings

Follow the instructions below to set QoS parameters:

Click the 'QoS' menu on the left of the web management interface and the following will be displayed on your web browser:

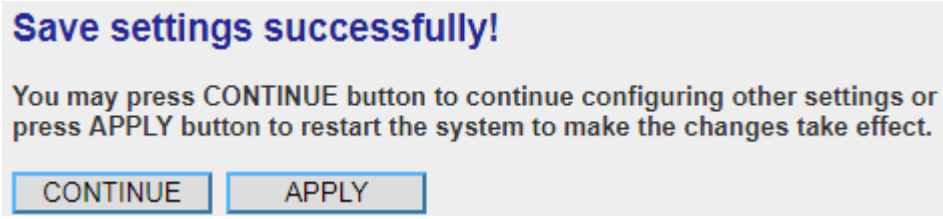


Here are descriptions of every setting:

Enable QoS (1):	*Check this box to enable the QoS function, unselect this box if you don't want to enforce QoS bandwidth limitations.*
Total Download Bandwidth (2):	*You can set the limit of total download bandwidth in kbits. To disable download bandwidth limitation, input '0' here.*
Total Upload Bandwidth (3):	*You can set the limit of total upload bandwidth in kbits. To disable upload bandwidth limitation, input '0' here.*
Current QoS Table (4):	*All existing QoS rules will be displayed here.*
Add (5):	*Click the 'add' button to add a new QoS rule, see section 3.1.2 'Add a new QoS rule' below.*

Edit (6):	*If you want to modify the content of a specific rule, check the 'select' box of the rule you want to edit, then click the 'Edit' button.* ***Only one rule should be selected at a time!*** *If you didn't select a rule before clicking the 'Edit' button, you'll be prompted to add a new rule.*
Delete (7):	*You can delete selected rules by clicking this button. You can select one or more rules to delete by checking the 'select' the box of the rule(s) you want to delete.* ***If the QoS table is empty, this button will be grayed out and cannot be clicked.***
Delete All (8):	*By clicking this button, you can delete all rules currently in the QoS table.* ***If the QoS table is empty, this button will be grayed out and cannot be clicked.***
Move Up (9):	*You can pull up the priority of the QoS rule you selected by clicking this button.*
Move Down (10):	*You can lower the priority of the QoS rule you selected by clicking this button.*

After you complete all settings, click the 'Apply' (11) button and the following will be displayed on your web browser:

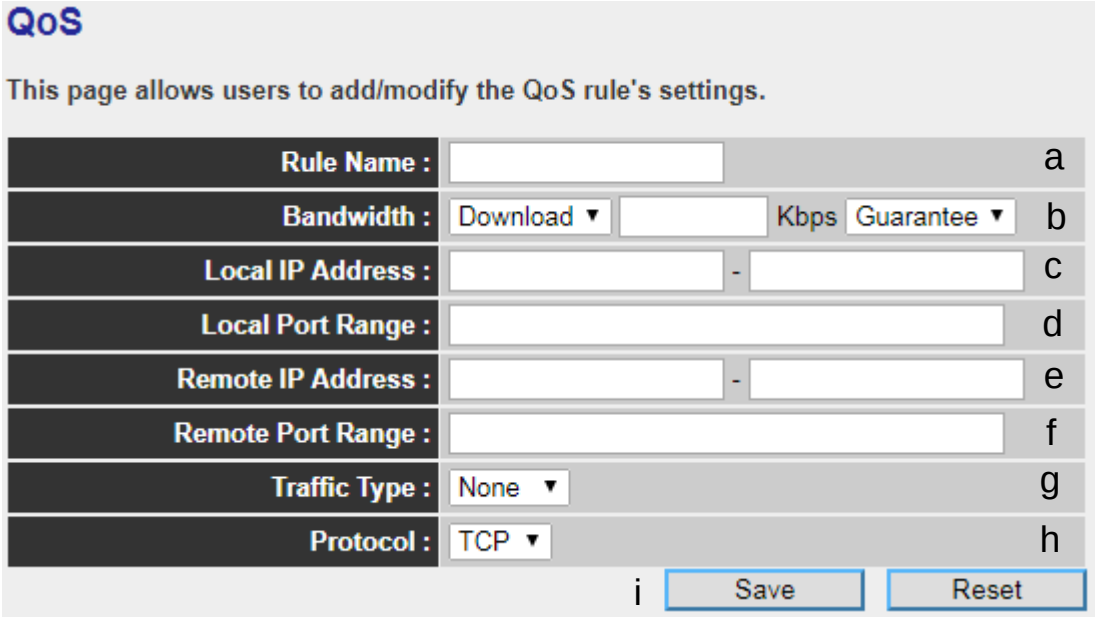


Click the 'Continue' button to go back to the previous setup menu; to continue on other setup procedures, or click the 'Apply' button to reboot the router so the settings will take effect (Wait for about 60 seconds while the router is rebooting).

If you want to reset all the settings in this page back to previously-saved values, click the 'Cancel' button.

3.1.2 Add a new QoS rule

After you click the 'Add' button in the QoS menu, the following will appear:



Here are descriptions of every setup item:

Rule Name (a): *Give a name to this QoS rule (up to 15 alphanumerical characters)*

Bandwidth (b): *Set the bandwidth limitation of this QoS rule. You have to select the data direction of this rule (Upload or Download), and the speed of bandwidth limitation in Kbps, then select the type of QoS: 'guarantee' (guaranteed usable bandwidth for this rule) or 'maximum' (set the maximum bandwidth for the application allowed by this rule).*

Local IP Address (c): *Specify the local (source) IP address that will be affected by this rule. Input the starting IP address in the left field, and input the end IP address in the right field to define a range of IP addresses, or just input the IP address in the left field to define a single IP address.*

Local Port Range (d): *Input the range of local (source) port number that will be affected by this rule. If you want to apply this rule on port 80 to 90, Input '80-90'; if you want to apply this rule on a single port, just input the port number, like '80'.*

Remote IP Address: (e):	*Specify the remote (destination) IP address that will be affected by this rule. Input the starting IP address in the left field, and input the end IP address in the right field to define a range of IP addresses, or just input the IP address in the left field to define a single IP address.*
Remote Port Range (f):	*Input the range of remote (destination) port number that will be affected by this rule. If you want to apply this rule on port 80 to 90, input '80-90'; if you want to apply this rule on a single port, just input the port number, like '80'. If the remote (destination) IP address and /or port number is universal, just leave it blank.*
Traffic Type (g):	*Select the traffic type of this rule, available options are None, SMTP, HTTP, POP3, and FTP. You can select a specific traffic type for this rule, if you want to make this rule as an IP address based rule (apply the limitation on all traffics from / to the specified IP address / port number), select 'None'.*
Protocol (h):	*Select the protocol type of this rule, available options are TCP and UDP. If you don't know what protocol your application uses, try 'TCP' first, and switch to 'UDP' if this rule doesn't seem to work.*

After you complete all settings, click the 'save' button (i), you'll be brought back to previous menu, and the rule you just set will appear in current QoS table; if you did anything wrong, you'll get an error message when you click 'Save' button, correct your input by the instructions given by the error message.

If you want to erase all the values you just inputted. Click the 'Reset' button.

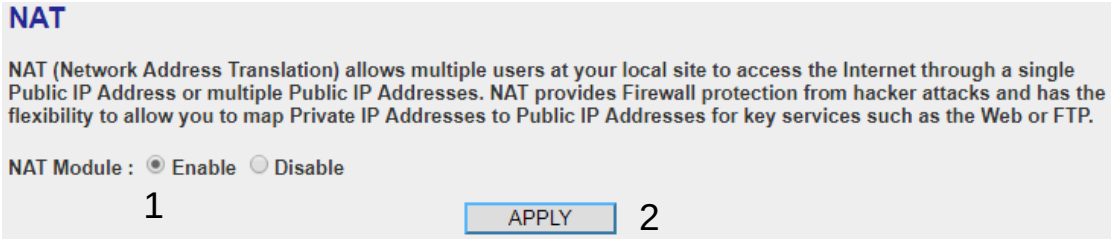
3.2 Network Address Translation (NAT)

Network address translations solve the problem if sharing a single IP address to multiple computers. Without NAT, all computers must be assigned with a valid Internet IP address to get connected to the Internet, but Internet service providers only provide very few IP addresses to every user. Therefore it's necessary to use NAT technology to share a single Internet IP address to multiple computers on a local network, so everyone can get connected to the Internet.

Follow the instructions below to set NAT parameters:

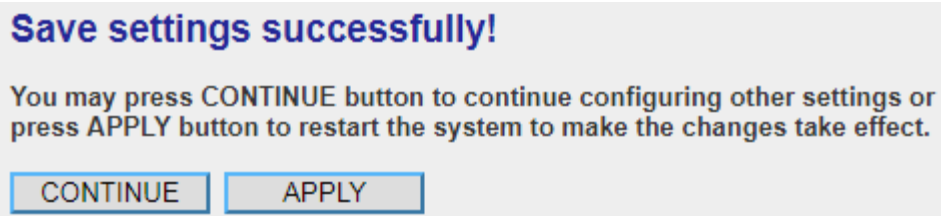
3.2.1 Basic NAT Settings (Enable or disable NAT function)

Click the 'NAT' menu on the left of the web management interface, and the following will be displayed on your web browser:



To enable the NAT function, select 'Enable' for 'Enable NAT module function' (1); to disable, select 'Disable'.

After you made the selection, click the 'Apply' button (2) and the following will be displayed on your web browser:

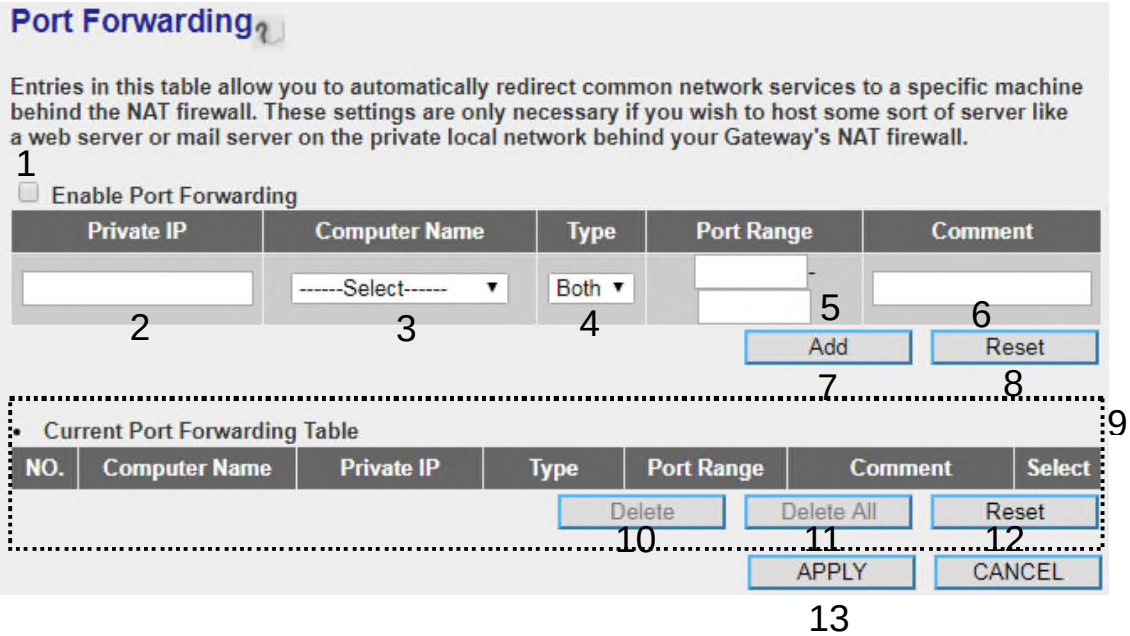


Click the 'Continue' button to go back to the previous setup menu; to continue on other setup procedures, or click the 'Apply' button to reboot the router so the settings will take effect (Wait for about 60 seconds while the router is rebooting).

3.2.2 Port Forwarding

This function allows you to redirect a single port or consecutive ports of an Internet IP address to the same port of the IP address on the local network. The port number(s) of Internet IP address and private IP address (the IP address on local network) must be the same. If the port number of Internet IP address and private IP address are different, use the 'Virtual Server' function, described in the next section.

Click the 'NAT' menu on the left of the general setup interface, then click 'Port Forwarding', and the following will be displayed on your web browser:



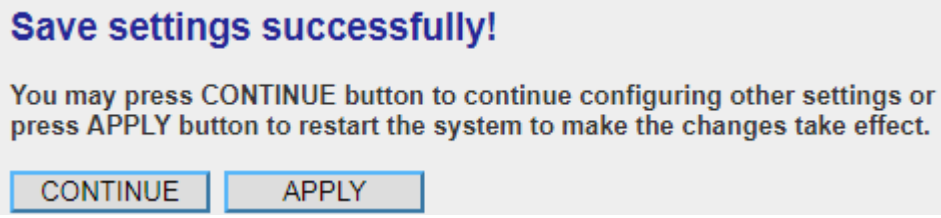
Here are descriptions of every setup item:

Enable Port Forwarding (1):	*Check this box to enable port mapping, and uncheck this box to disable port forwarding.*
Private IP (2):	*Input the IP address of the computer on local network which provides the Internet service.*
Computer Name (3):	*Pull down the menu and all the computers connected to the router will be listed here. You can easily to select the computer name without checking the IP address of the computer.*
Type (4):	*Select the type of connection, TCP or UDP. If you're not sure, select 'Both'.*
Port Range (5):	*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, just fill the port number in the left field.*
Comment (6):	*Input any text to describe this mapping, up to 16 alphanumerical characters.*
Add (7):	*Add the mapping to port forwarding table.*
Reset (8):	*Remove all inputted values.*
Port Forwarding Table (9):	*All existing port forwarding mappings will be displayed here.*
Delete (10):	*Select a port forwarding mapping by clicking the 'Select' box of the mapping, then click the 'Delete' button to remove the mapping. If there's no existing mapping, this button will be grayed out.*

Delete All (11): *Delete all mappings that exist in the virtual server table.*

Reset (12): *Unselect all mappings.*

After you complete all settings, click the 'Apply' (13) button and the following will be displayed on your web browser:



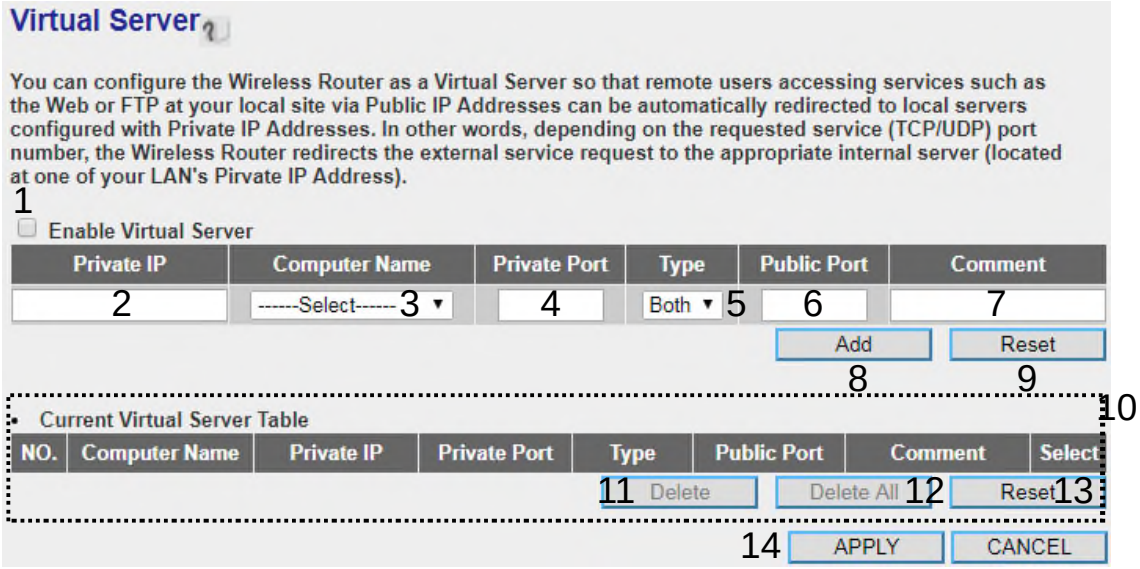
Click the 'Continue' button to go back to the previous setup menu; to continue on other setup procedures, or click the 'Apply' button to reboot the router so the settings will take effect (Wait for about 60 seconds while the router is rebooting).

If you want to reset all the settings in this page back to previously-saved values, click the 'Cancel' button.

3.2.3 Virtual Server

This function allows you to redirect a port on an Internet IP address (on WAN port) to a specified port of an IP address on the local network, so you can setup an Internet service on the computer on the local network, without exposing it on the Internet directly. You can also build many sets of port redirection, to provide many different Internet services on different local computers via a single Internet IP address.

Click the 'NAT' menu on the left of the web management interface, then click 'Virtual Server', and the following will be displayed on your web browser:

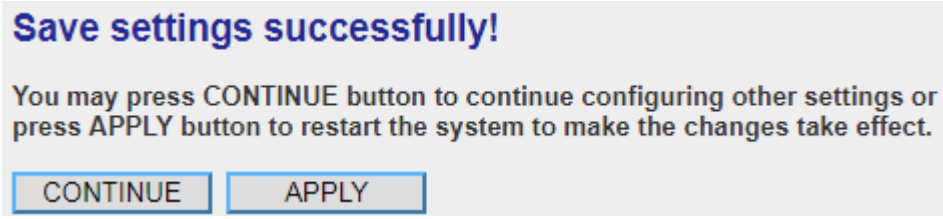


Here are descriptions of every setup item:

Enable Virtual Server (1):	*Check this box to enable the virtual server, and uncheck this box to disable the virtual server.*
Private IP (2):	*Input the IP address of the computer which provides the Internet service.*
Computer Name (3):	*Pull down the menu and all the computers connected to the router will be listed here. You can easily select the computer name without checking the IP address of the computer.*
Private Port (4):	*Input the port number of the IP address which provides Internet service.*
Type (5):	*Select the type of connection, TCP or UDP. If you're not sure, select 'Both'.*
Public Port (6):	*Select the port number of the Internet IP address which will be redirected to the port number of the local IP address defined above.*
Comment (7):	*Input any text to describe this mapping, up to 16 alphanumerical characters.*

Add (8):	*Add the mapping to the virtual server table.*
Reset (9):	*Remove all inputted values.*
Virtual Server Table (10):	*All existing virtual server mappings will be displayed here.*
Delete (11):	*Select a virtual server mapping by clicking the 'Select' box of the mapping, then click the 'Delete' button to remove the mapping. If there's no existing mapping, this button will be grayed out.*
Delete All (12):	*Delete all mappings existing in the virtual server table.*
Reset (13):	*Unselect all mappings.*

After you complete all settings, click the 'Apply' (14) button and the following will be displayed on your web browser:



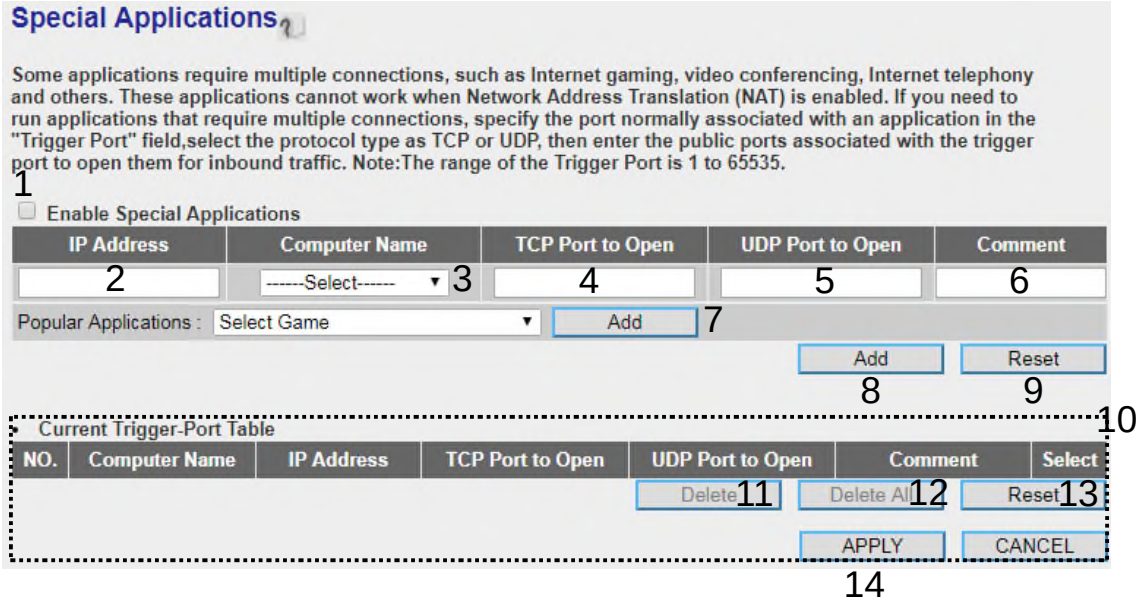
Click the 'Continue' button to go back to the previous setup menu; to continue on other setup procedures, or click the 'Apply' button to reboot the router so the settings will take effect (Wait for about 60 seconds while the router is rebooting).

If you want to reset all the settings in this page back to previously-saved values, click the 'Cancel' button.

3.2.4 Port Mapping for Special Applications

Some applications require more than one connection at a time; these applications won't work with simple NAT rules. In order to make these applications work, you can use this function to let these applications work.

Click the 'NAT' menu on the left of the general setup interface, then click 'Special Applications', and the following will be displayed on your web browser:



Here are descriptions of every setup item:

Enable (1):	*Check this box to enable special applications and uncheck this box to disable the virtual server.*
IP Address (2):	*Input the IP address of the computer that you want to open the ports.*
Computer Name (3):	*Pull down the menu and all the computers connected to the router will be listed here. You can easily select the computer name without checking the IP address of the computer.*

TCP Port to Open (4): *This is the out going (Outbound) range of TCP port numbers for this particular application.*

UDP Port to Open (5): *This is the out going (Outbound) range of UDP port numbers for this particular application.*

Comment (6): *The description of this setting.*

Popular Applications(7): *This section lists the more popular applications that require multiple connections. Select an application from the Popular Applications selection and click the'Add' button to save the setting to the 'Current Trigger-Port Table.'*

Add (8): *Add the setting to the 'Current Trigger-Port Table.'*

Reset (9): *Clicking the 'Reset' button will clear all above settings and you can set up again.*

Current Trigger-Port (10): *All the settings for the special applications will be listed here. If you want to remove some Special Application settings from the " Current Trigger-Port Table", select the Special Application settings you want to remove in the table and then click the 'Delete' button. If you want to remove all Special Application settings from the table, just click the "Delete All" button. Click the "Reset"* button *to clear your current selections.*

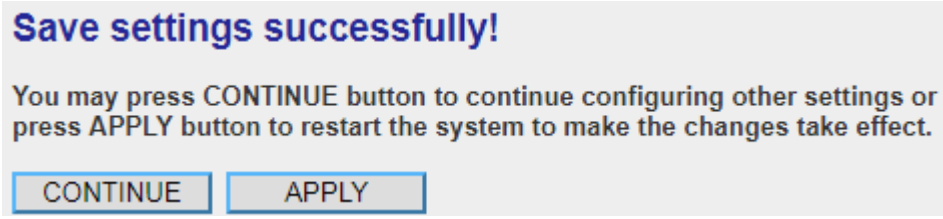
Delete (11): *Select a special application by clicking the 'Select' box of the mapping, then click the 'Delete' button to remove the setting. If there's no setting here, this button will be grayed out.*

Delete All (12): *Delete all settings that exist in the trigger port table.*

Reset (13): *Unselect all settings.*

Note: Only one LAN client can use a particular special application at a time.

After you complete all settings, click the 'Apply' (14) button and the following will be displayed on your web browser:



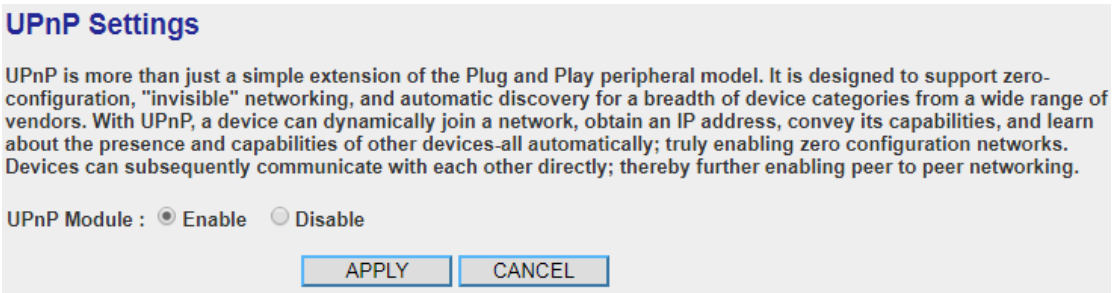
Click the 'Continue' button to go back to the previous setup menu; to continue on other setup procedures, or click the 'Apply' button to reboot the router so the settings will take effect (Wait for about 60 seconds while the router is rebooting).

If you want to reset all the settings in this page back to previously-saved values, click the 'Cancel' button.

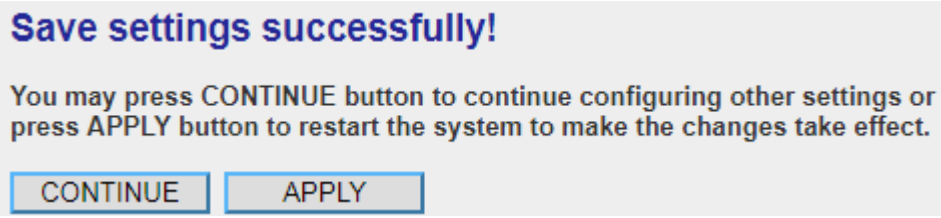
3.2.5 UPnP Setting

This function enables network auto-configuration for peer-to-peer communications, with this function, network devices will be able to communicate with other devices directly, and learn about information about other devices. Many network devices and applications rely on the UPnP function nowadays.

Click the 'NAT' menu on the left of the web management interface, then click 'UPnP', and the following will be displayed on your web browser:



Select 'Enable' or 'Disable' to enable or disable UPnP function, then click the 'Apply' button, and the following will be displayed on your web browser:



Click 'Continue' to go back to previous setup menu; to continue on other setup procedures, or click the 'Apply' button to reboot the router so the settings will take effect (Wait for about 60 seconds while the router is rebooting).

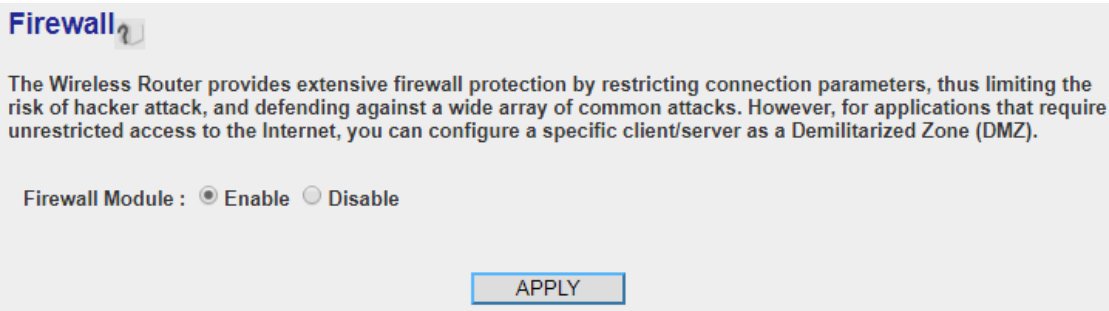
If you want to reset all the settings in this page back to previously-saved values, click the 'Cancel' button.

3.3 Firewall

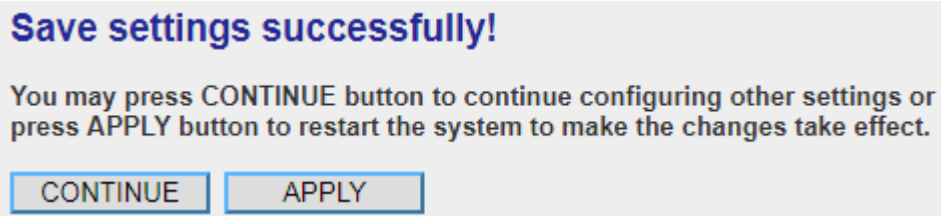
Apart from NAT, this router also provides a firewall function to block malicious intruders from accessing your computers on the local network. These functions include inbound attack prevention, and block outbound traffics, like block URLs which have pre-defined keywords.

Follow the instructions below to enable or disable the firewall function:

Click the 'Firewall' menu on the left of the web management interface, and the following will be displayed on your web browser:



Select 'Enable' or 'Disable' to enable or disable firewall function of this router, then click the 'Apply' button, and the following will be displayed on your web browser:

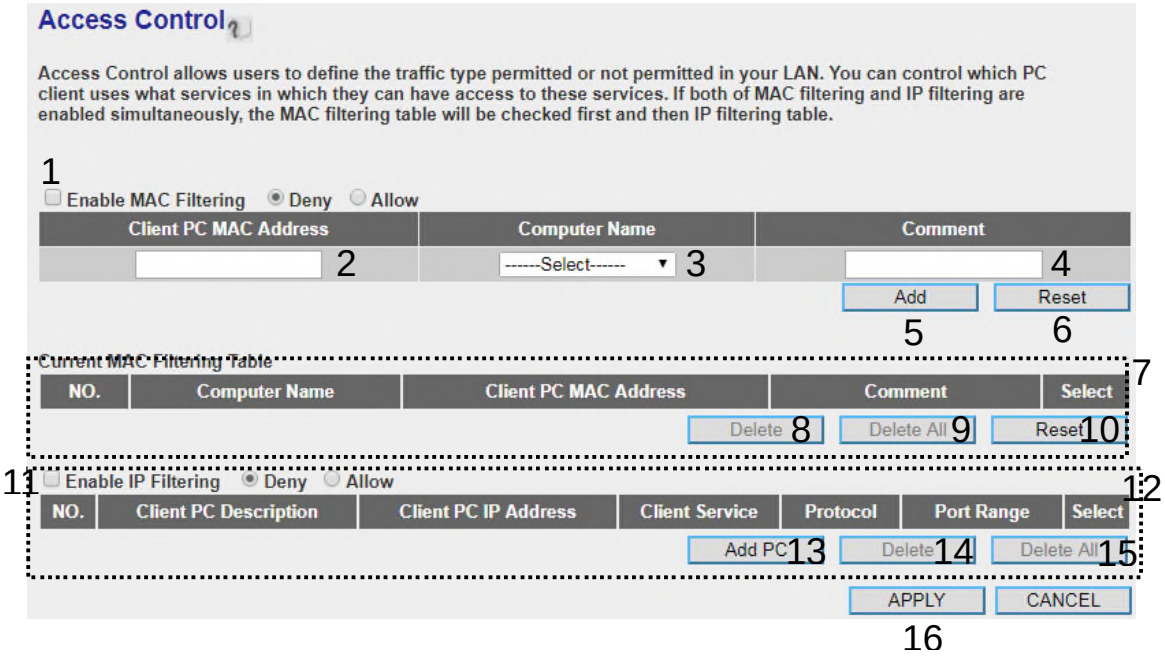


Click the 'Continue' button to go back to the previous setup menu; to continue on other setup procedures, or click the 'Apply' button to reboot the router so the settings will take effect (Wait for about 60 seconds while the router is rebooting).

3.3.1 Access Control

This function allows or denies computers with a specific MAC address from connecting to the network; it can also allow or deny computers with a specific IP address, protocol, or port.

Click the 'Firewall' menu on the left of the general setup interface, then enable the Firewall module by selecting the radio button and click the Apply button.

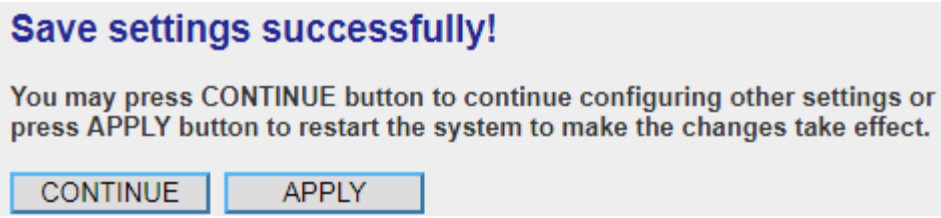


Here are descriptions of every setup item:

Enable MAC Filtering (1):	*Check this box to enable MAC address based filtering, and select 'Deny' or 'Allow' to decide the behavior of the MAC filtering table. If you select deny, all MAC addresses listed in the filtering table will be denied from connecting to the network; if you select allow, only MAC addresses listed in filtering table will be able to connect to the network, and all other network devices will be rejected.*
Client PC MAC address (2):	*Input the MAC address of the computer or network device here, dash (-) or colon (:) are not required. (i.e. If the MAC address label of your wireless device indicates 'aa-bb-cc-dd-ee-ff' or 'aa:bb:cc:dd:ee:ff', just input 'aabbccddeeff'*
Computer Name (3):	*Pull down the menu and all the computers connected to the router will be listed here. You can easily select the computer name without checking the IP address of the computer.*
Comment (4):	*You can input any text here as the comment of this MAC address, like 'ROOM 2A Computer' or anything. You can input up to 16 alphanumerical characters here. This is optional and you can leave it blank, however, it's recommended to use this field to write a comment for every MAC addresses as a memory aid.*
Add (5):	*Click the 'Add' button to add the MAC address and the associated comment to the MAC address filtering table.*
Reset (6):	*Remove all inputted values.*
Current MAC Filtering Table (7):	*All existing MAC addresses in the filtering table will be listed here.*
Delete (8):	*If you want to delete a specific MAC address entry, check the 'select' box of the MAC address you want to delete, then*

	click the 'Delete' button. (You can select more than one MAC address).
Delete All (9):	*If you want to delete all MAC addresses listed here, click the 'Delete All' button.*
Reset (10):	*You can also click the 'Reset' button to unselect all MAC addresses.*
Enable IP Filtering (11):	*Check this box to enable IP address based filtering, and select 'Deny' or 'Allow' to decide the behavior of the IP filtering table. If you select deny, all IP addresses listed in the filtering table will be denied from connecting to the network; if you select allow, only IP addresses listed in the filtering table will be able to connect to the network, and all other network devices will be rejected.*
IP Filtering Table (12):	*All existing IP addresses in the filtering table will be listed here.*
Add PC (13):	*Click this button to add a new IP address to the IP filtering table, up to 20 IP addresses can be added.* *Refer to section 3.3.1.1 'Add PC' below.*
Delete (14):	*If you want to delete a specific IP address entry, check the 'select' box of the IP address you want to delete, then click the 'Delete' button. (You can select more than one IP address).*
Delete All (15):	*If you want to delete all the IP addresses listed here, click the 'Delete All' button.*

After you complete all settings, click the 'Apply' (16) button and the following will be displayed on your web browser:



Click the 'Continue' button to go back to the previous setup menu; to continue on other setup procedures, or click the 'Apply' button to reboot the router so the settings will take effect (Wait for about 60 seconds while the router is rebooting).

If you want to reset all the settings in this page back to previously-saved values, click the 'Cancel' button.

3-3-1-1 Add PC

After this button is clicked, the following will be displayed on your web browser:

Access Control Add PC

This page allows users to define service limitation of client PC, including IP address and service type.

Client PC Description :		a
Client PC IP Address :	-	b

- Client Service :

c

Service Name	Detail Description	Select
WWW	HTTP, TCP Port 80, 443, 3128, 8000, 8080, 8081	○
E-mail Sending	SMTP, TCP Port 25	○
News Forums	NNTP, TCP Port 119	○
E-mail Receiving	POP3, TCP Port 110	○
Secure HTTP	HTTPS, TCP Port 443	○
File Transfer	FTP, TCP Port 20, 21	○
Telnet Service	TCP Port 23	○
AIM	AOL Instant Messenger, TCP Port 5190	○
NetMeeting	H.323, TCP Port 389,522,1503,1720,1731	○
DNS	UDP Port 53	○
SNMP	UDP Port 161, 162	○
VPN-PPTP	TCP Port 1723	○
VPN-L2TP	UDP Port 1701	○
TCP	All TCP Port	○
UDP	All UDP Port	○
UserDefineService		◉

User Define Service		
Protocol :	Both ▾	d
Port Range :		e

Add f Reset

Here are descriptions of every setup item:

Client PC Description (a):	*Input any text to describe this IP address, up to 16 alphanumerical characters.*
Client PC IP Address (b):	*Input the starting IP address in the left field, and input the end IP address in the right field to define a range of IP addresses, or just input the IP address in the left field to define a single IP address.*
Client PC Service (c):	*Check all the services you want to allow or deny this IP address to use, you can check multiple services.*

Protocol (d):	*If the service you need is not listed above, you can create a new service on your own. Select TCP or UDP, if you're not sure, select 'Both'.*
Port Range (e):	*Input the port range of the new service here. If you want to specify port 80 to 90, input '80-90'; if you want to apply this rule on a single port, just input the port number, like '80'.*
Add (f):	*When you complete all settings, click the 'Add' button to save settings, you'll be brought back to the previous menu, and the rule you just set will appear in the current IP filtering table.*

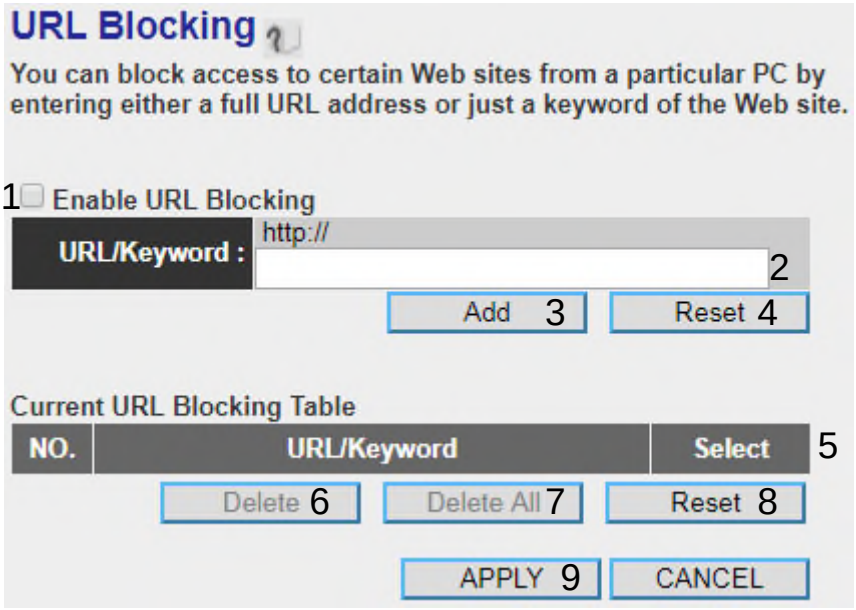
If you want to remove all settings in this page, click the 'Reset' button.

3.3.2 URL Blocking

If you want to prevent computers in local network from accessing certain websites (like pornography, violence, or anything you want to block), you can use this function to stop computers in the local network from accessing the site you defined here.

This function is useful for parents and company managers.

Follow the instructions below to set URL blocking parameters:
Click the 'Firewall' menu on the left of the web management interface, then click 'URL Blocking', and the following will be displayed on your web browser:

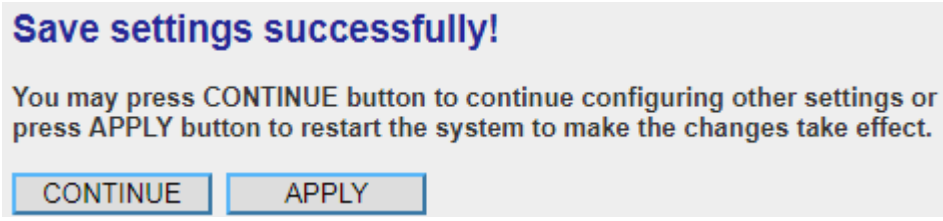


Here are descriptions of every setup item:

Enable URL Blocking (1):	*Check this box to enforce URL Blocking, uncheck it to disable URL Blocking.*
URL/Keyword (2):	*Input the URL (host name or IP address of the website, like http://www.blocked-site.com or http://11.22.33.44), or the keyword which is contained in URL (like pornography, cartoon, stock, or anything).*
Add (3):	*Click the 'Add' button to add the URL / keyword to the URL / Keyword filtering table.*
Reset (4):	*Click the 'Reset' button to remove the value you inputted in the URL/Keyword field.*
Current URL Blocking Table (5):	*All existing URL/Keywords in the filtering table will be listed here.*
Delete (6):	*If you want to delete a specific URL/Keyword entry, check the 'select' box of the MAC address you want to delete, and then click the 'Delete' button. (You can select more than one MAC address).*

Delete All (7):	*If you want to delete all URL/Keywords listed here, click the 'Delete All' button.*
Reset (8):	*You can also click the 'Reset' button to unselect all URL/Keywords.*

After you complete all settings, click the 'Apply' (9) button, and the following will be displayed on your web browser:



Click the 'Continue' button to go back to the previous setup menu; to continue on other setup procedures, or click the 'Apply' button to reboot the router so the settings will take effect (Wait for about 60 seconds while the router is rebooting).

If you want to reset all the settings in this page back to previously-saved values, click the 'Cancel' button.

3.3.3 DoS Attack Prevention

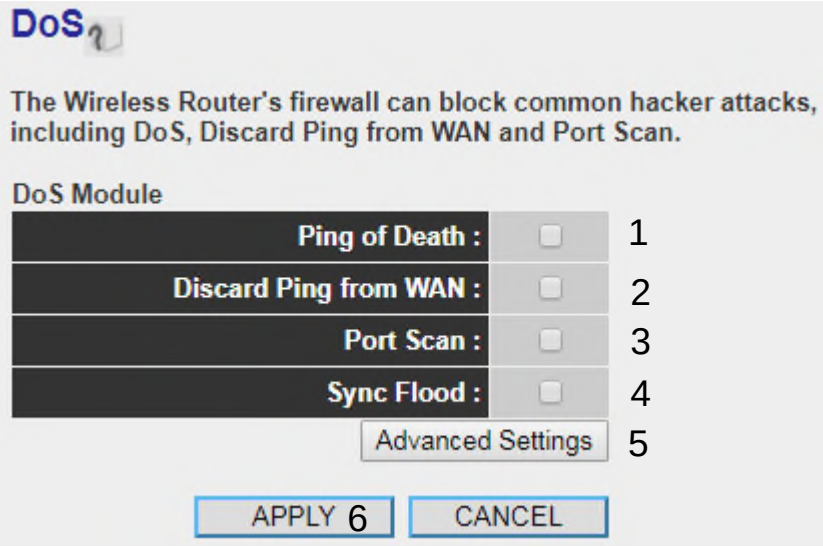
Denial of Service (DoS) is a common attack measure, by transmitting a great amount of data or request to your Internet IP address and server, the Internet connection will become very slow, and the server may stop responding because it is not capable of handling too much traffic.

This router has a built-in DoS attack prevention mechanism; when you activate it, the router will stop the DoS attack for you.

Follow the instructions below to set DoS prevention parameters:

Click the 'Firewall' menu on the left of the web management interface, then click

'DoS', and the following will be displayed on your web browser:

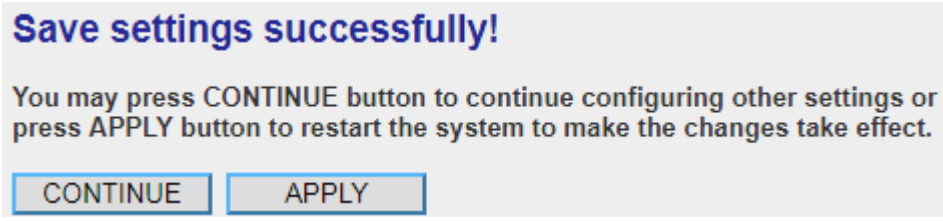


Here are descriptions of every setup item:

Ping of Death (1):	*Ping of Death is a special packet, and it will cause certain computers to stop responding. Check the Ping of Death box and the router will filter this kind of packet out.*
Discard Ping From WAN (2):	*Check the box to activate this DoS prevention mechanism.*
Port Scan (3):	*Some malicious intruders will try to use a 'port scanner' to know how many ports of your Internet IP address are open, and they can collect a lot of valuable information by doing so. Check this box and the router will block all traffics that are trying to scan your Internet IP address.*
Sync Flood (4):	*This is another kind of attack, which uses a lot of fake connection requests to consume the memory of your server, and tries to make your server become unusable. Check this box and the router will filter this kind of traffic out.*

Advanced Settings (5):	*Click this button and you can set advanced settings of the DoS prevention methods listed above, see section 3.3.3.1 'DoS – Advanced Settings' below.*

After you complete all settings, click the 'Apply' (6) button and the following will be displayed on your web browser:

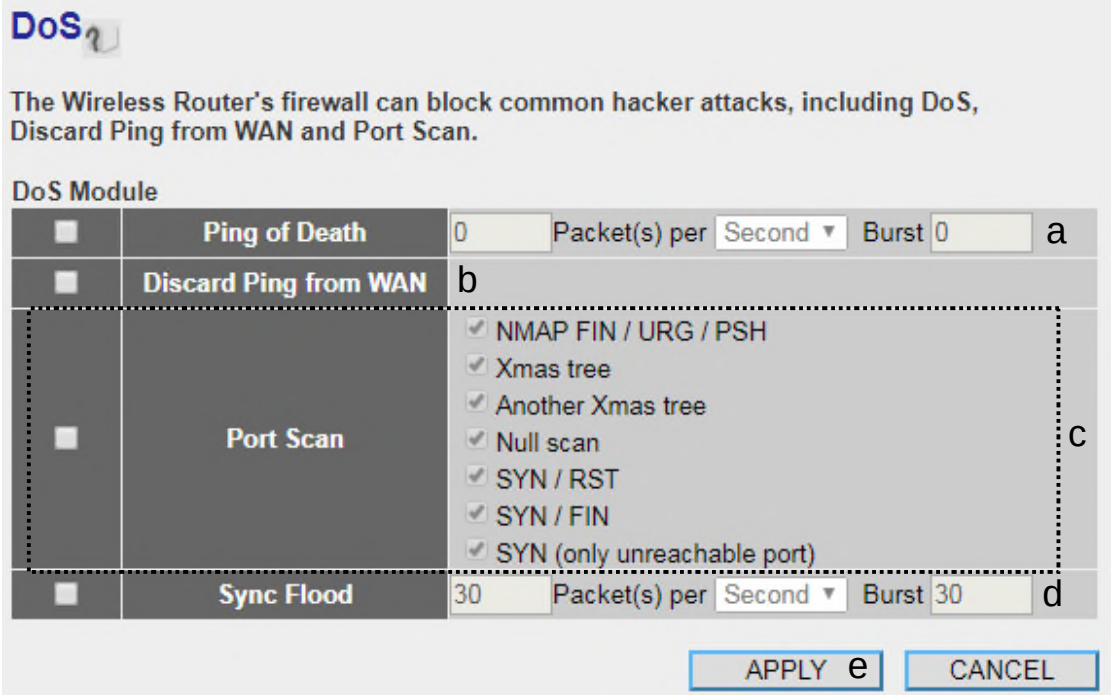


Click the 'Continue' button to go back to the previous setup menu; to continue on other setup procedures, or click the 'Apply' button to reboot the router so the settings will take effect (Wait for about 60 seconds while the router is rebooting).

If you want to reset all the settings in this page back to previously-saved values, click the 'Cancel' button.

3-3-3-1 DoS - Advanced Settings

When you click the 'Advanced' button in the DoS menu, the following will be displayed on your web browser:

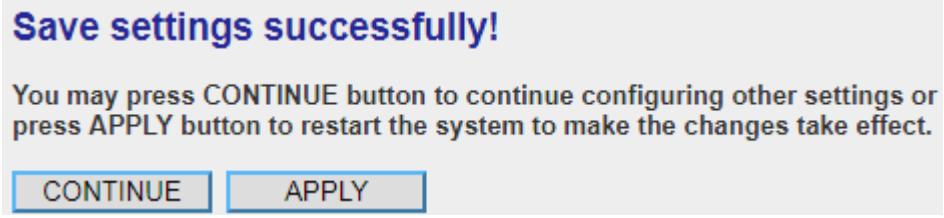


Here are descriptions of every setup item:

Ping of Death (a):	*Set the threshold of when this DoS prevention mechanism will be activated. Check the of Ping of Death box, and input the frequency of threshold (how many packets per second, minute, or hour), you can also input the 'Burst' value, which means when this number of 'Ping of Death' packet is received in a very short time, this DoS prevention mechanism will be activated.*
Discard Ping From WAN (b):	*Check the box to activate this DoS prevention mechanism.*
Port Scan (c):	*Many kinds of port scan methods are listed here, check one or more DoS attack methods you want to prevent.*

Sync Flood (d): *Like Ping of Death, you can set the threshold when this DoS prevention mechanism will be activated.*

After you complete all settings, click the 'Apply' (e) button and the following will be displayed on your web browser:



Click the 'Continue' button to go back to the previous setup menu; to continue on other setup procedures, or click the 'Apply' button to reboot the router so the settings will take effect (Wait for about 60 seconds while the router is rebooting).

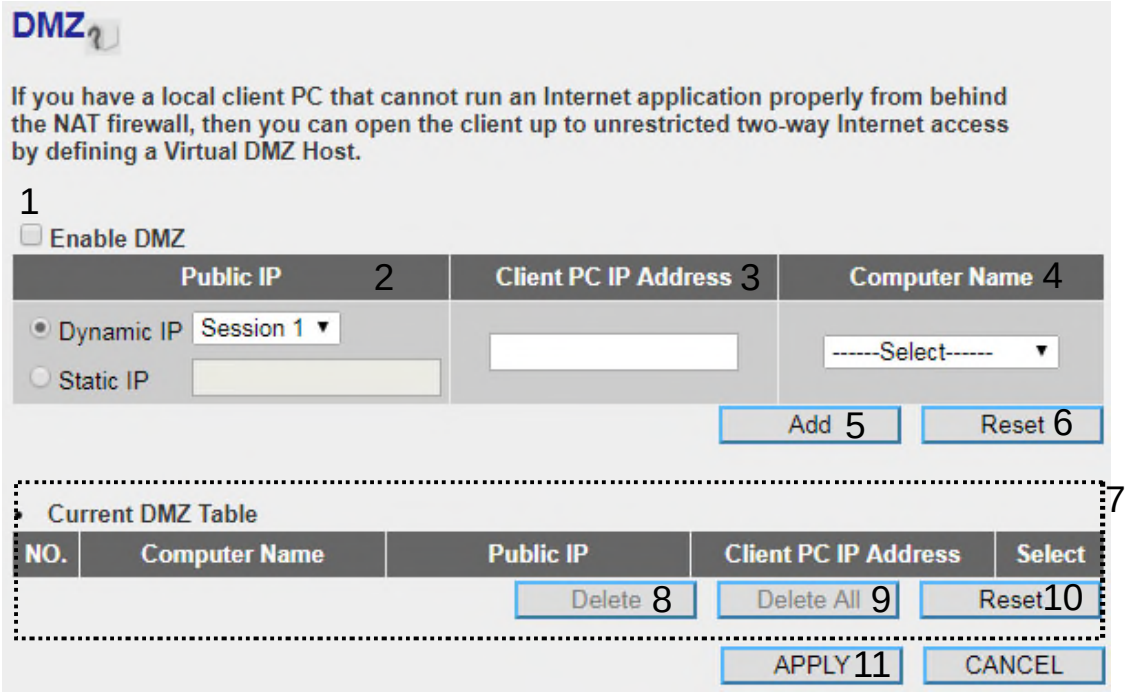
If you want to reset all the settings in this page back to previously-saved values, click the 'Cancel' button.

3.3.4 Demilitarized Zone (DMZ)

Demilitarized Zone (DMZ) refers to a special area in your local network. This area resides in the local network, and all computers in this area use a private IP address, too. But these private IP addresses are mapped to a certain Internet IP address, so other people on Internet can fully access those computers in DMZ.

Follow the instructions below to set DMZ parameters:

Click the 'Firewall' menu on the left of the web management interface, then click 'DMZ', and the following will be displayed on your web browser:

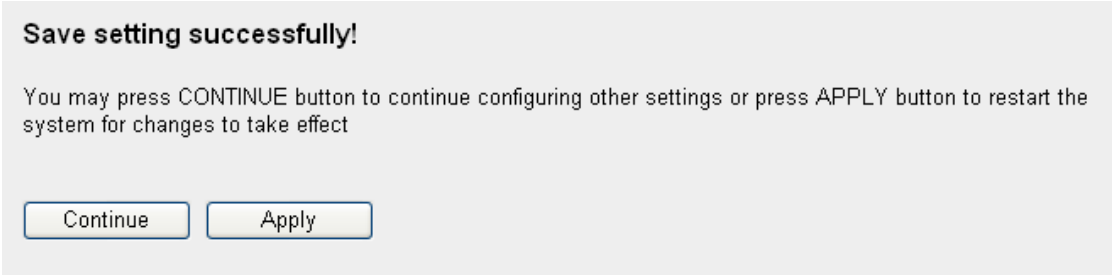


Here are descriptions of every setup item:

Enable DMZ (1):	*Check this box to enable the DMZ function, uncheck this box to disable DMZ function.*
Public IP address (2):	*You can select 'Dynamic IP' or 'Static IP'. If you select 'Dynamic IP', you have to select an Internet connection session from the drop-down menu; if you select 'Static IP', input the IP address that you want to map to a specific private IP address.*
Client PC IP Address (3):	*Input the private IP address that the Internet IP address will be mapped to.*
Computer Name (4):	*Pull down the menu and all the computers connected to the router will be listed here. You can easily select the computer name without checking the IP address of the computer.*
Add (5):	*Click the 'Add' button to add the public IP address and associated private IP address to the DMZ table.*

Reset (6):	*Click the 'Reset' button to remove the values you inputted in Public IP address and Client PC IP address field.*
Current DMZ Table (7):	*All existing public IP address and private IP address mapping will be displayed here.*
Delete (8):	*If you want to delete a specific DMZ entry, check the 'select' box of the DMZ entry you want to delete, then click the 'Delete' button. (You can select more than one DMZ entry).*
Delete All (9):	*If you want to delete all DMZ entries listed here, click the 'Delete All' button.*
Reset (10):	*You can also click the 'Reset' button to unselect all DMZ entries.*

After you complete all settings, click the 'Apply' (11) button and the following will be displayed on your web browser:

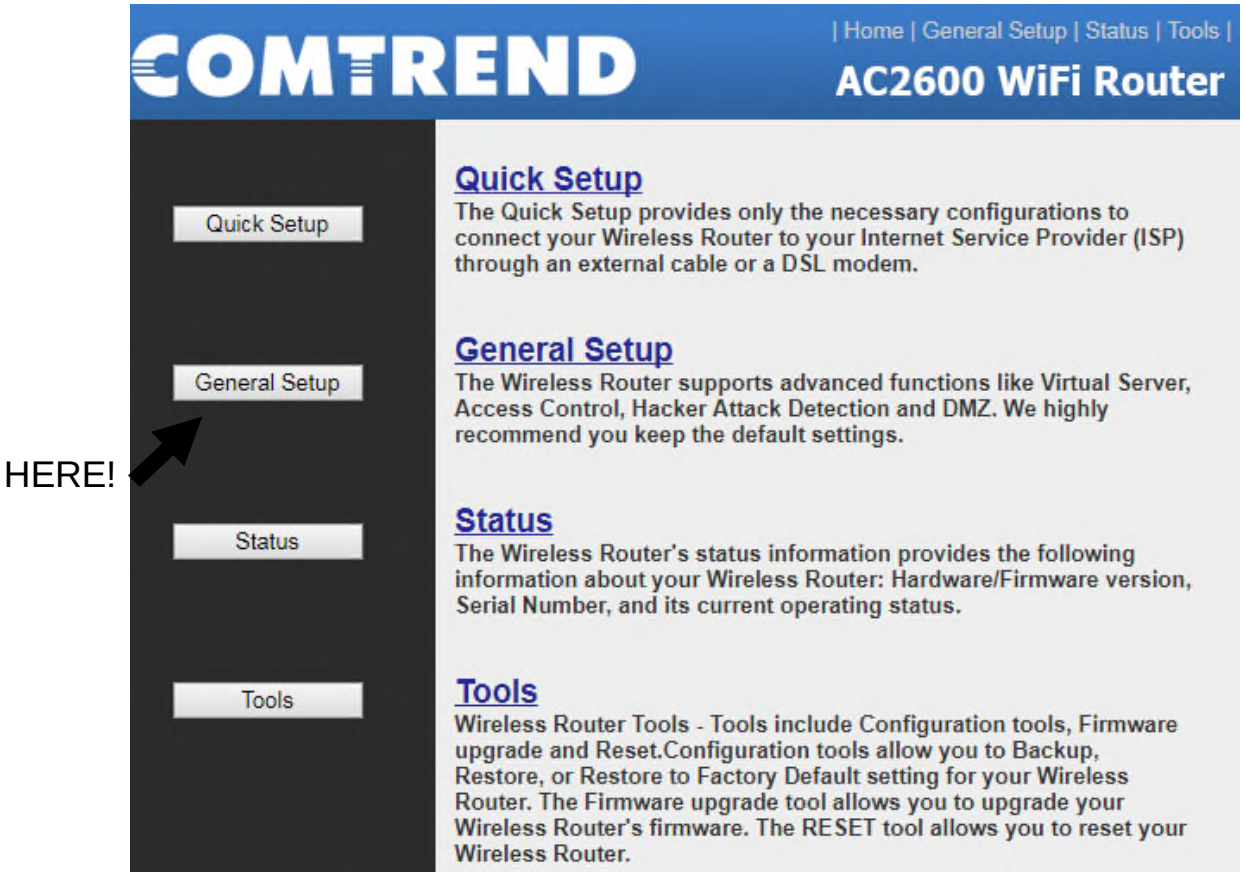


Click the 'Continue' button to go back to the previous setup menu; to continue on other setup procedures, or click the 'Apply' button to reboot the router so the settings will take effect (Wait for about 60 seconds while the router is rebooting).

If you want to reset all the settings in this page back to previously-saved values, click the 'Cancel' button.

3.4 System Status

The functions described here will provide you with system related information. To enter the system status menu, click the 'Status' link located at the upper-right side of the web management interface.



3.4.1 System information and firmware version

You can use this function to view the system information and firmware version of this router.

Click the 'Status' link located at the upper-right side of the web management interface, and the following will be displayed on your web browser.

Status

The Wireless Router's status information provides the following information about your Wireless Router: Hardware/Firmware version, Serial Number, and its current operating status.

System

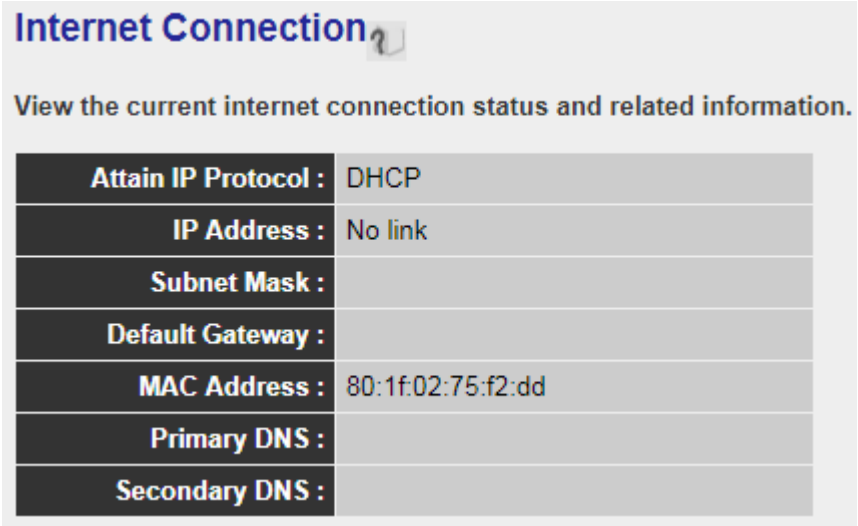
Model :	WR-5931
Up Time :	0day:3h:53m:53s
Hardware Version :	Rev. A
Boot Code Version :	5.0.3.0.1
Runtime Code Version :	1.02

NOTE: Information displayed here may vary.

3.4.2 Internet Connection Status

You can use this function to view the status of the current Internet connection.

Click the 'Internet Connection' menu on the left of the web management interface, and the following will be displayed on your web browser:



This information will vary depending on the connection status.

3.4.3 Device Status

You can use this function to know the status of your router.

Click the 'Device Status' menu on the left of the web management interface, and the following will be displayed on your web browser:

Device Status

View the current setting status of this device.

Wireless Configuration

2.4GHz Wireless :	Enable
Mode :	AccessPoint
ESSID :	WR-5931-2Gf2dd
Channel Number :	11
Security :	WEP
MAC Address :	80:1f:02:75:f2:dd

5GHz Wireless :	Enable
Mode :	AccessPoint
ESSID :	WR-5931-5Gf2dc
Channel Number :	36
Security :	WPAPSK
MAC Address :	80:1f:02:75:f2:dc

LAN Configuration

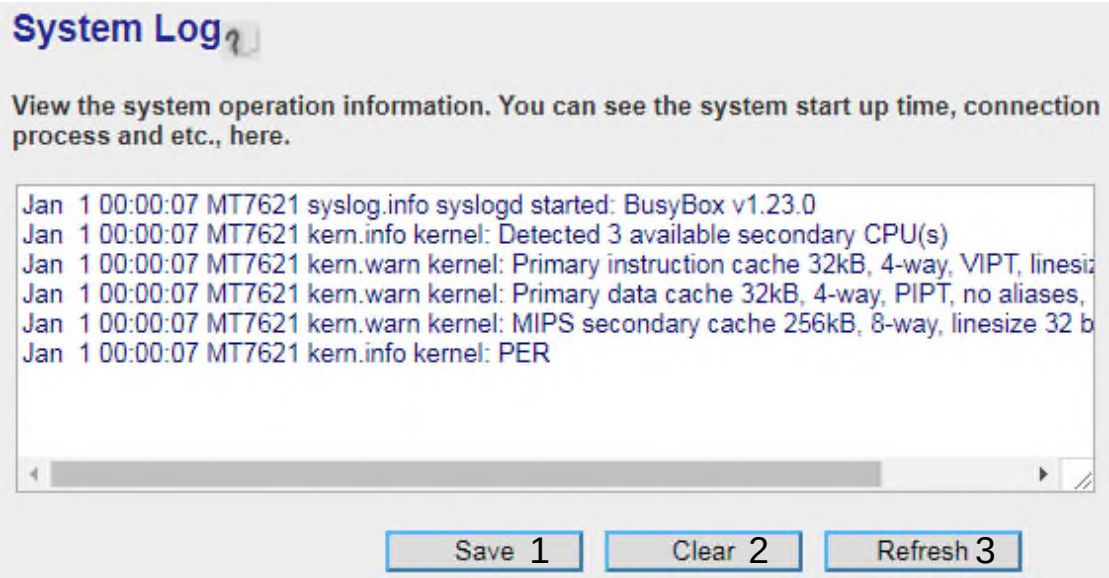
IP Address :	192.168.2.1
Subnet Mask :	255.255.255.0
DHCP Server :	Enable
MAC Address :	80:1f:02:75:f2:db

This information will vary depending on the device status.

3.4.4 System Log

All important system events are logged. You can use this function to check the event log of your router.

Click the 'System Log' menu on the left of the web management interface, and the following will be displayed on your web browser:



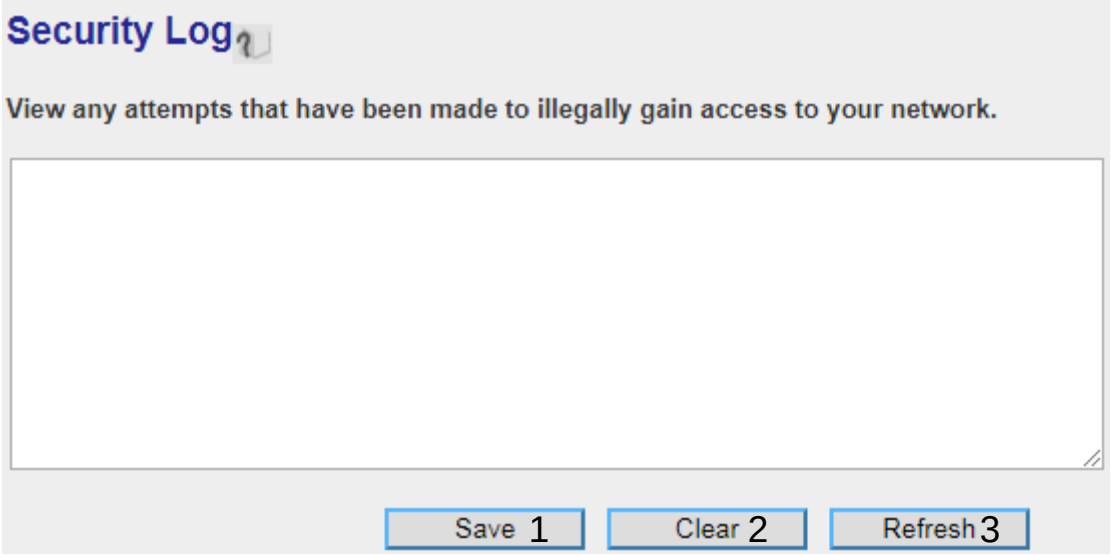
The system events will be displayed in this page, and here are descriptions of every button:

Save (1):	*Save current event log to a text file.*
Clear (2):	*Delete all event logs displayed here.*
Refresh (3):	*Refresh the event log display.*

3.4.5 Security Log

All information about the network and system security is kept here, and you can use this function to check the security event log of your router.

Click the 'Security Log' menu on the left of the web management interface, and the following will be displayed on your web browser:



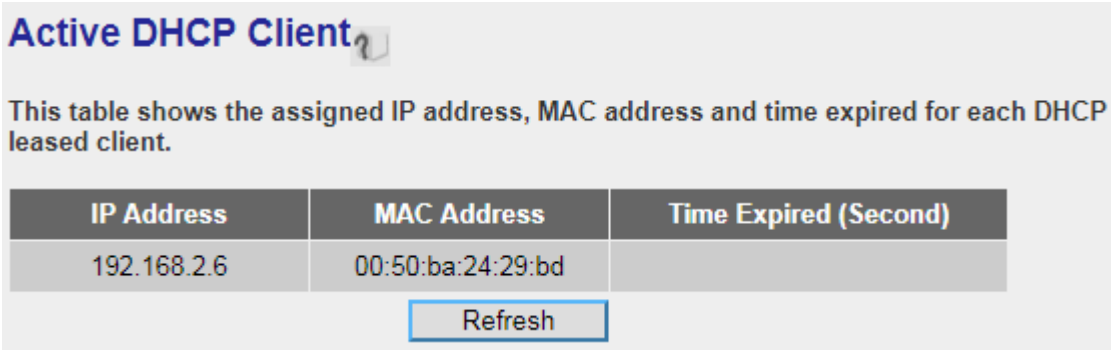
The system events will be displayed in this page, and here are descriptions of every buttons:

Save (1):	*Save current event log to a text file.*
Clear (2):	*Delete all event logs displayed here.*
Refresh (3):	*Refresh the event log display.*

3.4.6 Active DHCP client list

If you're using the DHCP server function of this router, you can use this function to check all active DHCP leases issued by this router.

Click the 'Active DHCP client' menu on the left of the web management interface, and the following will be displayed on your web browser:



All information about active DHCP leases issued by this router will be displayed here. You can click the 'Refresh' button to display the latest information.

3.4.7 Statistics

You can use this function to check the statistics of wireless, LAN, and WAN interfaces of this router.

Click the 'Statistics' menu on the left of the web management interface, and the following will be displayed on your web browser:

Statistics

This page shows the packet counters for transmission and reception regarding to networks.

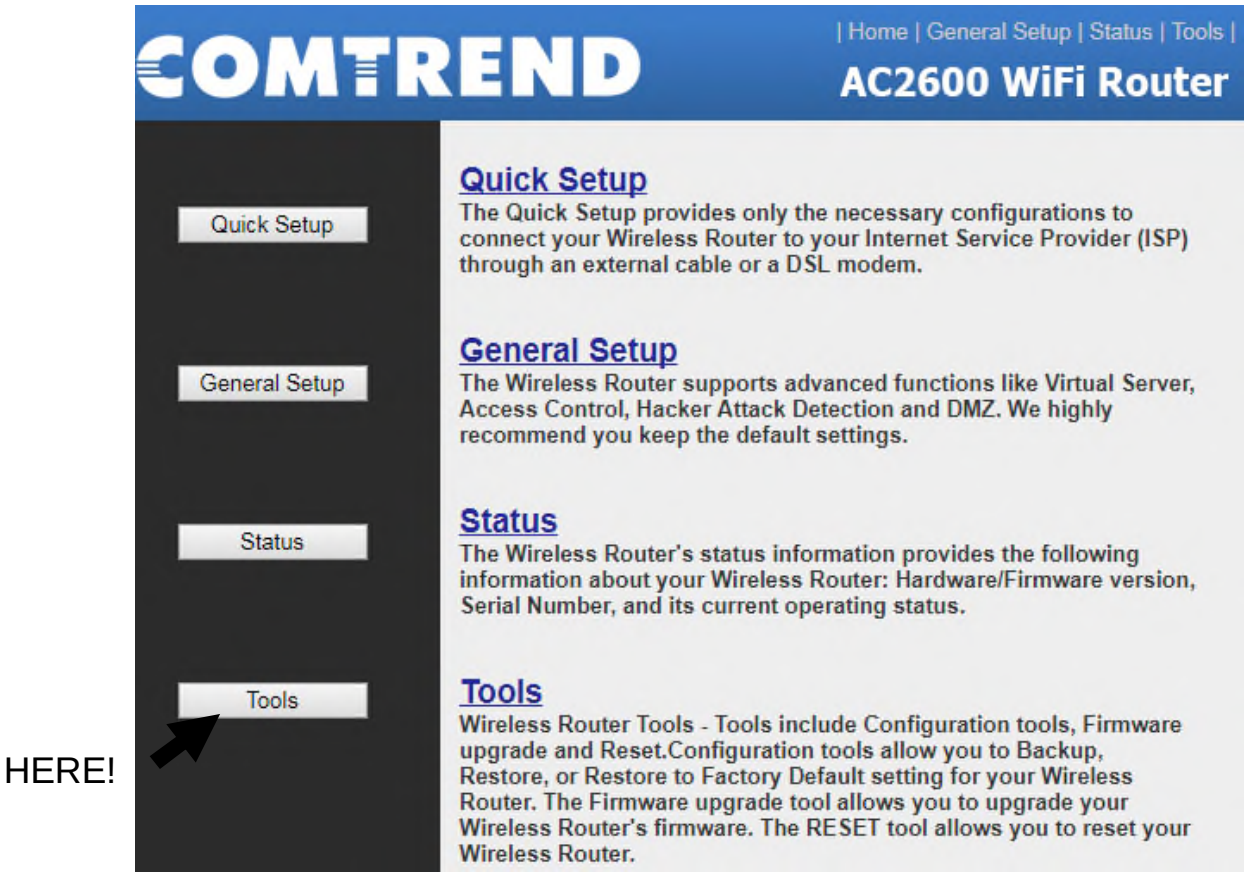
2.4GHz Wireless LAN	Packets Sent	0
	Packets Received	1607414
5GHz Wireless LAN	Packets Sent	0
	Packets Received	1320595
Ethernet LAN	Packets Sent	0
	Packets Received	0
Ethernet WAN	Packets Sent	0
	Packets Received	0

Refresh

You can click the 'Refresh' button to display the latest information.

3-5 System Tools

These tools will allow you to backup/restore, perform a firmware upgrade and reset the router to default settings. Either click the 'Tools' link located at the upper-right corner of the web management interface, or click the 'Tools' button in the main menu.

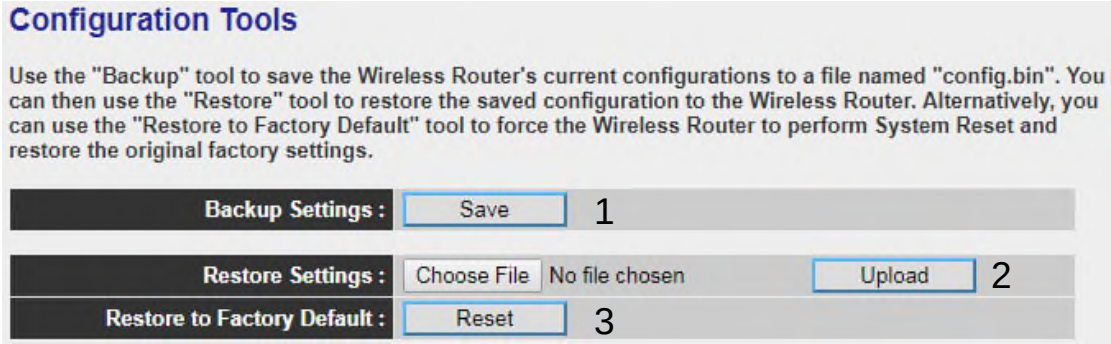


3.5.1 Configuration Backup and Restore

You can backup all configurations of this router to a file, so you can make several copies of router configuration for security reasons.

To backup or restore the router configuration, follow the instructions below:

Click 'Tools' located at the upper-right side of the web management interface, then click 'Configuration Tools' on the left of the web management interface, then the following will be displayed on your web browser:



Here are descriptions of every button:

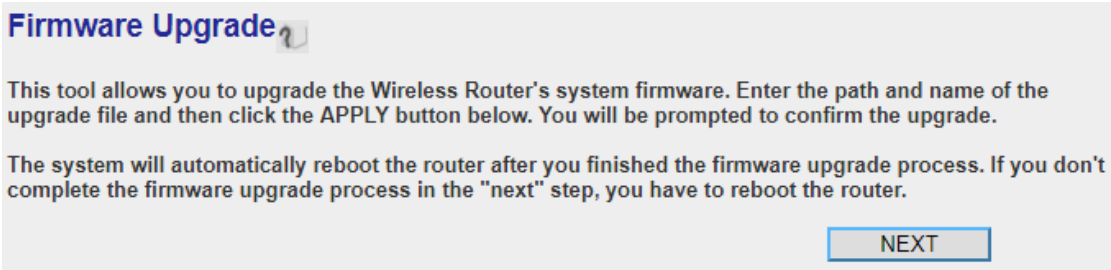
Backup Settings (1):	*Press the 'Save' button, and you'll be prompted to download the configuration as a file, default filename is 'config.bin', you can save it as another filename for different versions, and keep it in a safe place.*
Restore Settings (2):	*Press 'Browse…' to pick a previously-saved configuration file from your computer, and then click the 'Upload' button to transfer the configuration file to the router. After the configuration is uploaded, the router's configuration will be replaced by the file you just uploaded.*
Restore to Factory Default (3):	*Click this button to remove all the settings you made, and restore the configuration of this router back to factory default settings.*

3.5.2 Firmware Upgrade

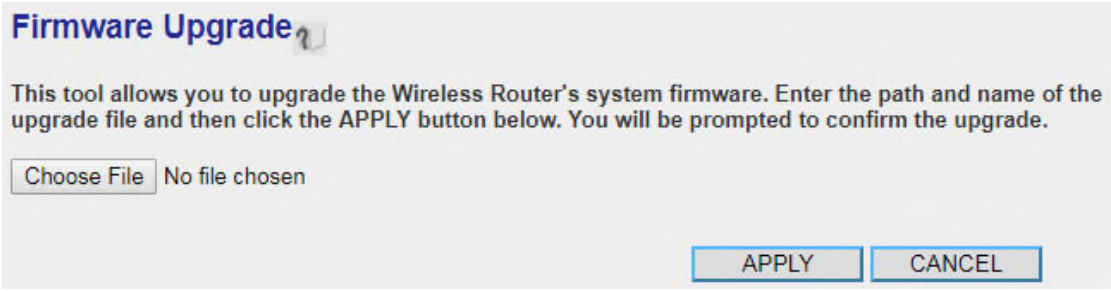
The system software used by this router is called 'firmware', just like any application on your computer, when you replace the old application with a new one; your computer will be equipped with new functions. You can also use this firmware upgrade function to add new functions to your router, even fix the bugs of this router.

To upgrade firmware, follow the instructions below:

Click 'Tools' located at the upper-right side of the web management interface, then click 'Firmware Upgrade' on the left of the web management interface, then the following will be displayed on your web browser:



Click the 'Next' button, and the following will be displayed:



Click the 'Choose File' button first, you'll be prompted to provide the filename of firmware upgrade file. Download the latest firmware file from our website, and use it to upgrade your router.

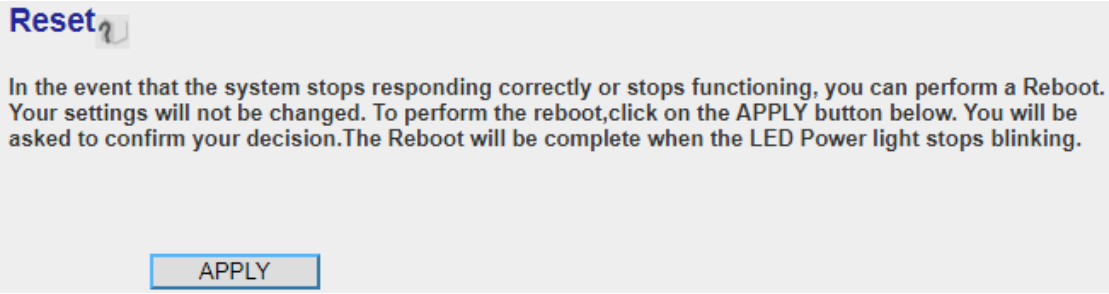
After a firmware upgrade file is selected, click the 'Apply' button, and the router will start the firmware upgrade procedure automatically. The procedure may take several minutes, please be patient.

NOTE: Never interrupt the upgrade procedure by closing the web browser or physically disconnect your computer from router. If the firmware you uploaded is corrupt, the firmware upgrade will fail, and you may have to return this router to the dealer of purchase to ask for help. (Warranty voids if you interrupted the upgrade procedure).

3.5.3 System Reset

If you think the network performance is bad, or you found the behavior of the router is strange, you can perform a router reset.

To do so, click 'Tool' located at the upper-right side of the web management interface, then click 'Reset' on the left of the web management interface, then the following will be displayed on your web browser:



Click the 'Apply' button to reset your router, and it will be available again after a few moments.

Chapter 4 Appendix

4.1 Troubleshooting

If you found the router is working improperly or stops responding, please read this troubleshooting section first.

Scenario	Solution
Router is not responding to me when I want to access it by web browser	a. Check the connection of the power cord and network cable of this router. All cords and cables should be correctly and firmly inserted into the router. b. If all LEDs on this router are off, check the status of the A/C power adapter, and make sure it's correctly powered. c. You must use the same IP address range which the router uses. d. Are you using MAC or IP address filter? Try to connect the router by another computer and see if it works; if not, restore your router to factory default settings (pressing the 'reset' button for over 10 seconds). e. Set your computer to obtain an IP address automatically (DHCP), and see if your computer can get an IP address. f. If you did a firmware upgrade and this happens, contact your place of purchase for help. g. If all above solutions don't work, contact the place of purchase for help.
Can't get connected to the Internet	a. Go to 'Status' -> 'Internet Connection' menu, and check the Internet connection status. b. If you connected a computer to the Internet directly before, try to do that again, and check if you can get connected to the Internet with your computer directly attached to the device provided by your Internet service provider.

	c. Check PPPoE / L2TP / PPTP user ID and passwords again. d. Call your Internet service provider and check if there's something wrong with their service. e. If you just can't connect to one or more websites, but you can still use other Internet services, check the URL/Keyword filter. f. Try to reset the router and try again later. g. Reset or reboot the device provided by your Internet service provider.
I can't locate my router with my wireless client	a. Is 'Broadcast ESSID' set to off? b. Are you within range of your wireless router? Try to get closer. c. Remember that you have to input the ESSID on your wireless client manually, if ESSID broadcast is disabled.
File download is very slow or breaks frequently	a. Are you using the QoS function? Try to disable it and try again. b. Internet is slow sometimes, be patient. c. Try to reset or reboot the router and see if it's better after that. d. If this never happened before, call your Internet service provider to know if there is something wrong with their network.
I can't log onto the web management interface: password is wrong	a. Make sure you're connecting to the correct IP address of the router! b. The password is case-sensitive. Make sure the 'Caps Lock' light is not illuminated. c. If you forget the password, do a hard reset (Press the Reset / WPS button and hold for 10 seconds to restore all settings to factory defaults).
The date and time of all event logs are wrong	a. Adjust the internal clock of the router.

4.2 Where to get additional help

If you find the product to be inoperable or malfunctioning, please contact technical support for immediate service by email at homesupport@comtrend.com or call 1-877-COMTREND (1-877-266-8736)

For product updates, new product release, manual revision, or software upgrades, please visit our website at http://us.comtrend.com/

You can also visit our Facebook page: https://facebook.com/Comtrend