



Wireless-N Broadband Router

User's Manual



Version A1.0, June 20, 2012

Preface

This manual provides information related to the installation and operation of this device. The individual reading this manual is presumed to have a basic understanding of telecommunications 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, manual revisions, 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 device, 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).

Do not connect the power supply cord on elevated surfaces. Allow it to lie freely. There should be no obstructions in its path and no heavy items should be placed on the cord. In addition, do not walk on, step on, or mistreat the cord.

Use only the power cord and adapter that are shipped with this device.

To safeguard the equipment against overheating, make sure that all openings in the unit that offer exposure to air are not blocked.



WARNING

Disconnect the power line from the device before servicing.

Power supply specifications are clearly stated in 4-1 Hardware Specification

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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 centre and processed separate from domestic waste.

The cardboard box, the plastic contained in the packaging, and the parts that make up this 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.

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Chapter I: Product Information

1-1 Introduction

This Comtrend WR-5882 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 IEEE 802.11b/g/n 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:

- Allows multiple users to share a single Internet line
- Supports up to 253 users
- Access private LAN servers from the Internet
- Works with IEEE 802.11b/g/n wireless LAN devices
- Supports DHCP (Server/Client) for easy IP-address setup
- Advanced network and security features like: Special Applications, QoS, DMZ, Virtual Servers, Access Control and 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)

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 4.0 or above, Netscape Navigator 4.7 or above, Opera web browser, or Safari web browser*).
- An available AC power socket (100 – 240V, 50/60Hz).

1-3 Package Contents

Before starting to use this router, please check if there's anything missing in the package, and contact your place of purchase to claim for missing items:

- * 1 - Driver/Utility/QIG/User Manual CD-ROM (1)
- * 1 - Broadband Router (2)
- * 1 - Ethernet Cable (3)
- * 1 - Printed QIG (4)

1



2



3

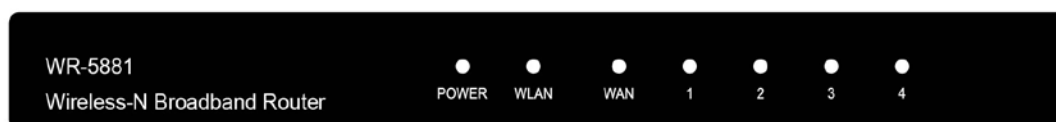


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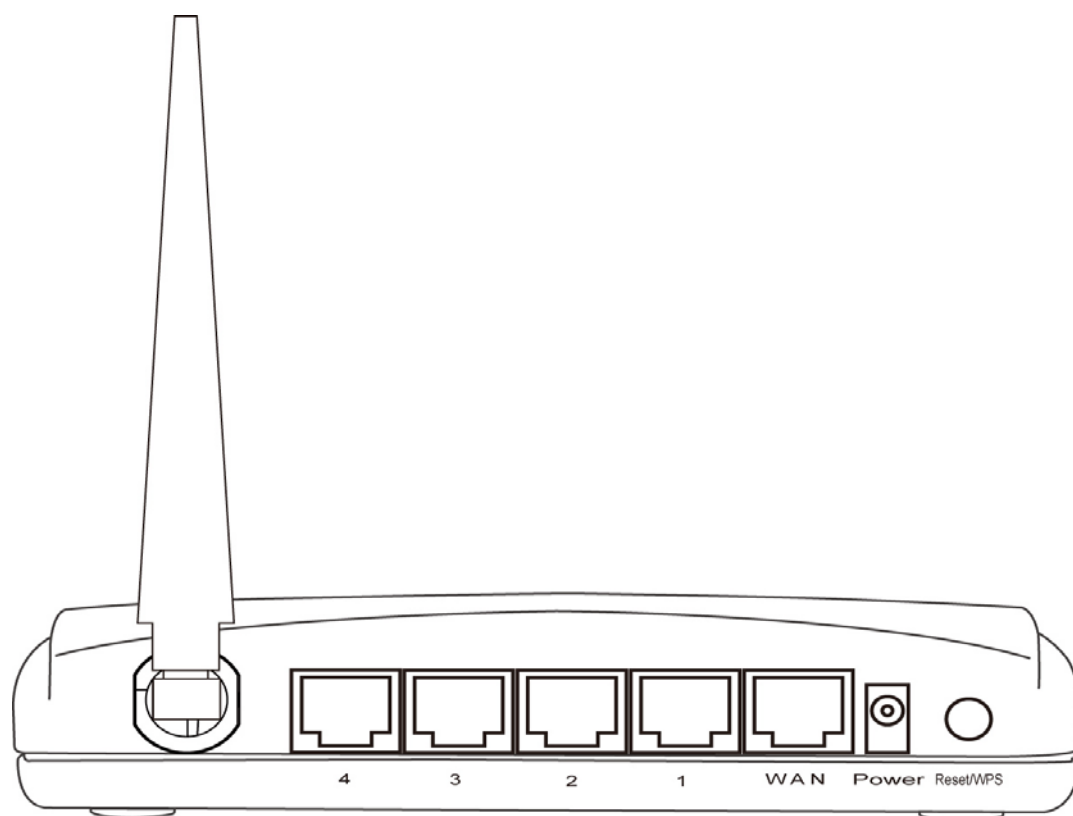
1-4 Get familiar with your new Wireless-n Broadband Router

Front Panel



LED	Status	Description
POWER	On	Router is switched on and correctly powered.
WLAN	On	Wireless WPS function is enabled.
	Off	Wireless network is switched off.
	Flashing	Wireless LAN activity (transferring or receiving data).
WAN LNK/ACT	On	WAN port is connected.
	Off	WAN port is not connected.
	Flashing	WAN activity (transferring or receiving data).
LAN 1-4 LNK/ACT	On	LAN port is connected.
	Off	LAN port is not connected.
	Flashing	LAN activity (transferring or receiving data).

Back Panel



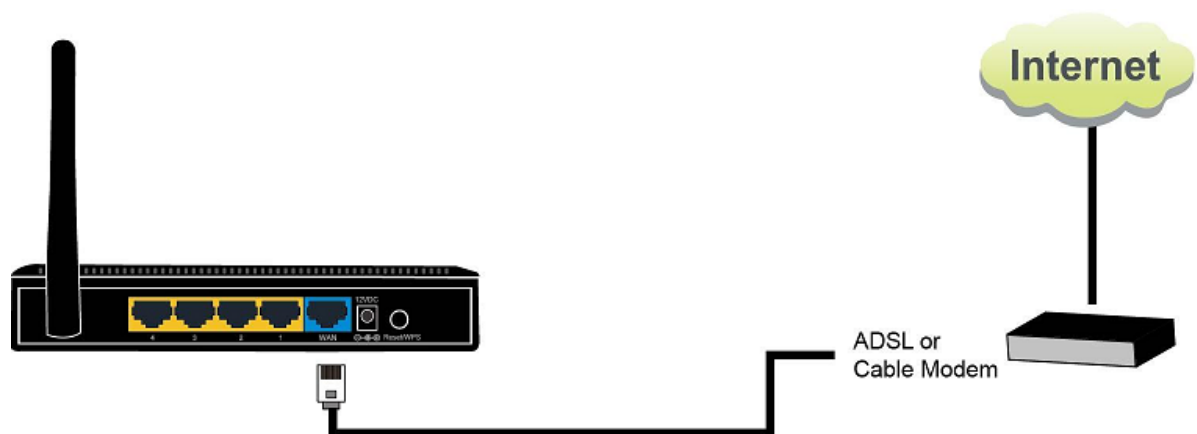
Item Name	Description
Antenna	2dBi dipole antenna.
Reset / WPS	Reset the router to factory default settings (clear all settings) or start the WPS function. Press this button and hold for 10 seconds to restore all settings to factory defaults, and press this button for less than 5 seconds to start the WPS function.
1 - 4	Local Area Network (LAN) ports 1 to 4.
WAN	Wide Area Network (WAN / Internet) port.
Power	Power connector, connects to A/C power adapter.

Chapter II: System and Network Setup

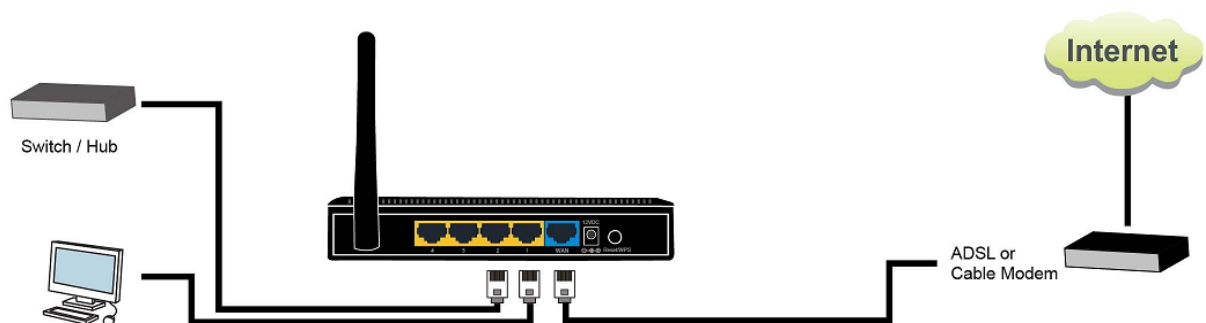
2-1 Installation

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

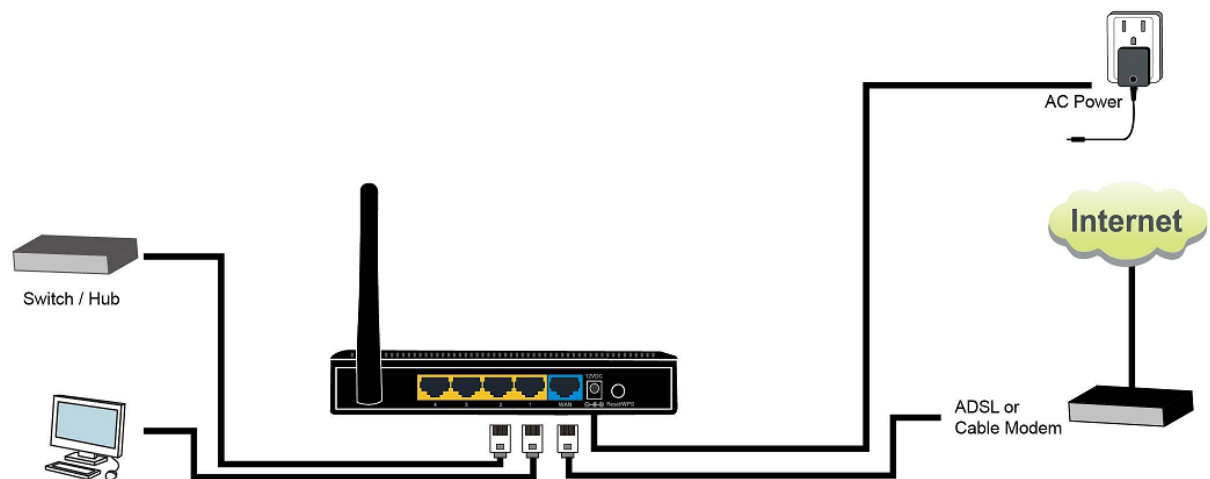
1. Connect your xDSL / cable modem to the WAN port of the router by Ethernet cable.



2. 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.



3. Insert the A/C power adapter into the wall socket, and then connect it to the 'Power' socket 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 is 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 the wireless broadband router by web browser

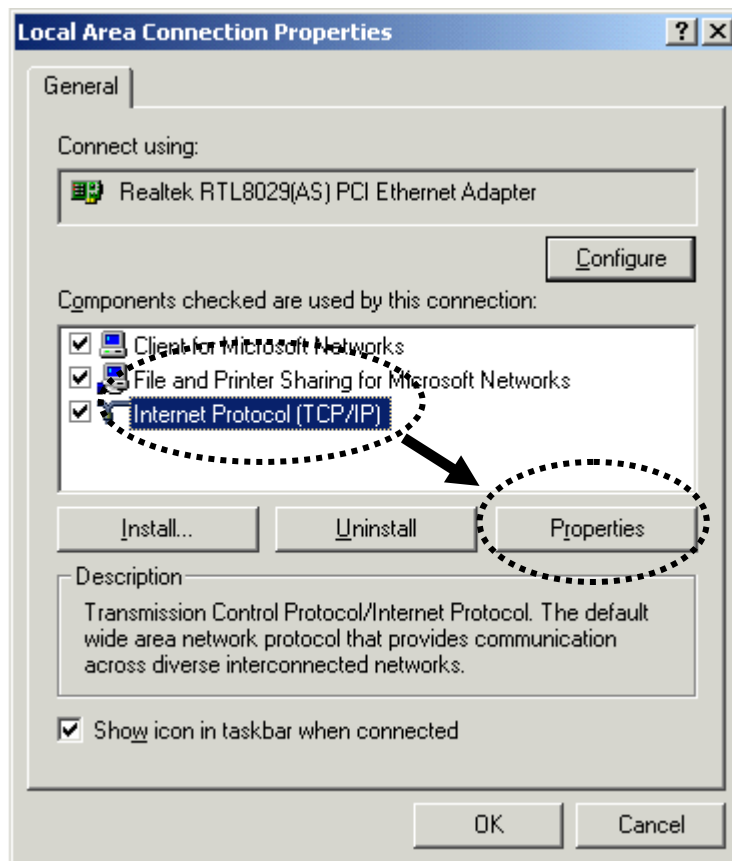
Before you can connect to the router and start configuration procedures, your computer must be able to get an IP address automatically (using a dynamic IP address). If it's set to use a static IP address, or you're unsure, follow the instructions below to configure your computer to use dynamic IP address:

If the operating system of your computer is....

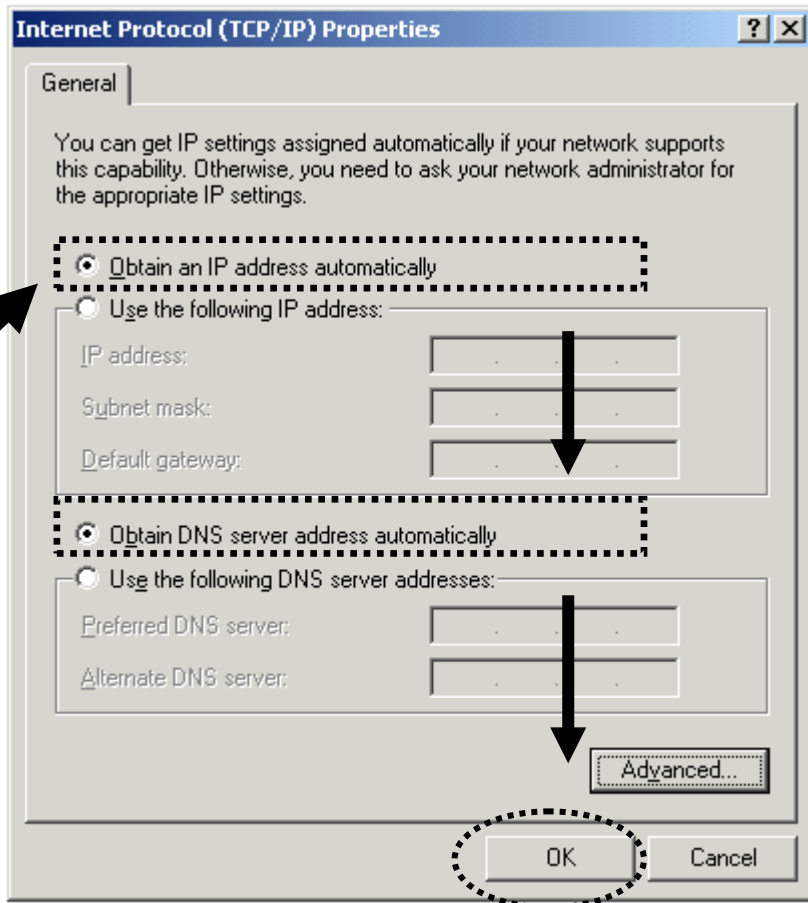
Windows 2000	- go to section 2-2-1
Windows XP	- go to section 2-2-2
Windows Vista or Windows 7	- go to section 2-2-3

2-2-1 Windows 2000 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 Dial-up Connections** icon; click **Local Area Connection**, and the **Local Area Connection Properties** window will appear. Select 'Internet Protocol (TCP/IP)' and then click the 'Properties' button.

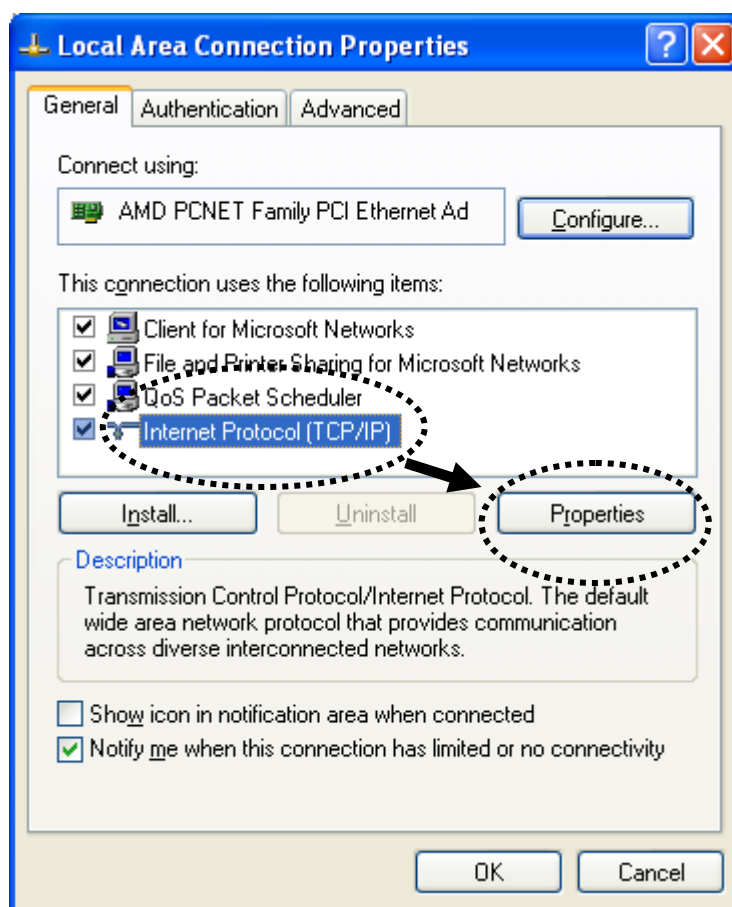


2. Select 'Obtain an IP address automatically' and 'Obtain DNS server address automatically', then click the 'OK' button.

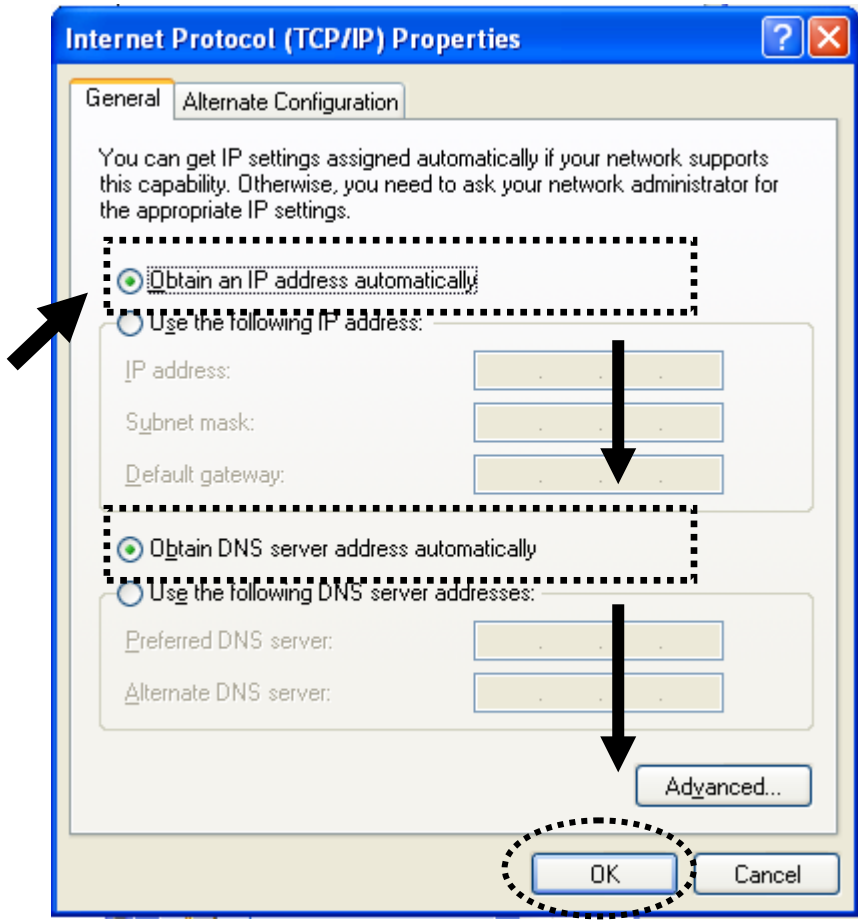


2-2-2 Windows XP IP address setup:

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.

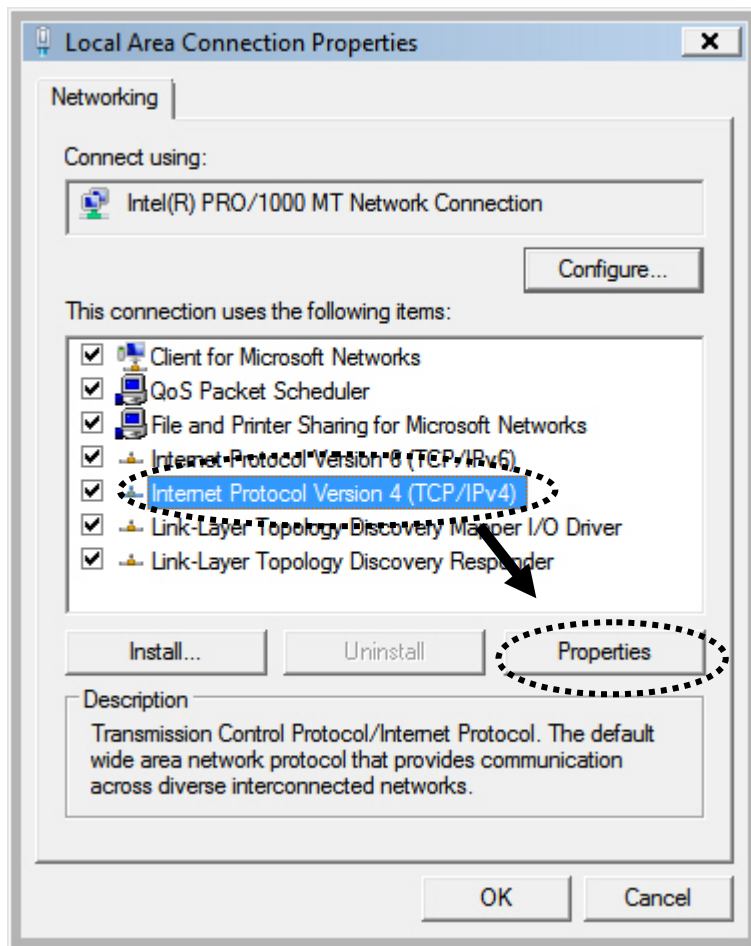


2. Select 'Obtain an IP address automatically' and 'Obtain DNS server address automatically', then click the 'OK' button.

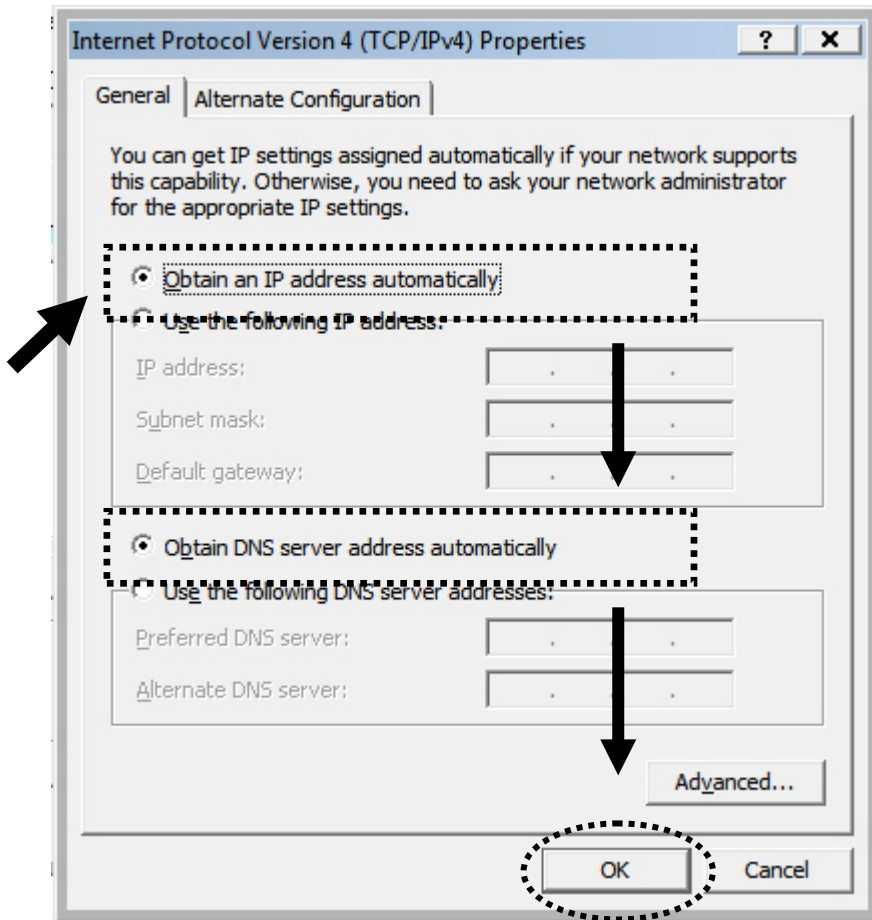


2-2-3 Windows Vista/ Windows 7 IP address setup:

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.

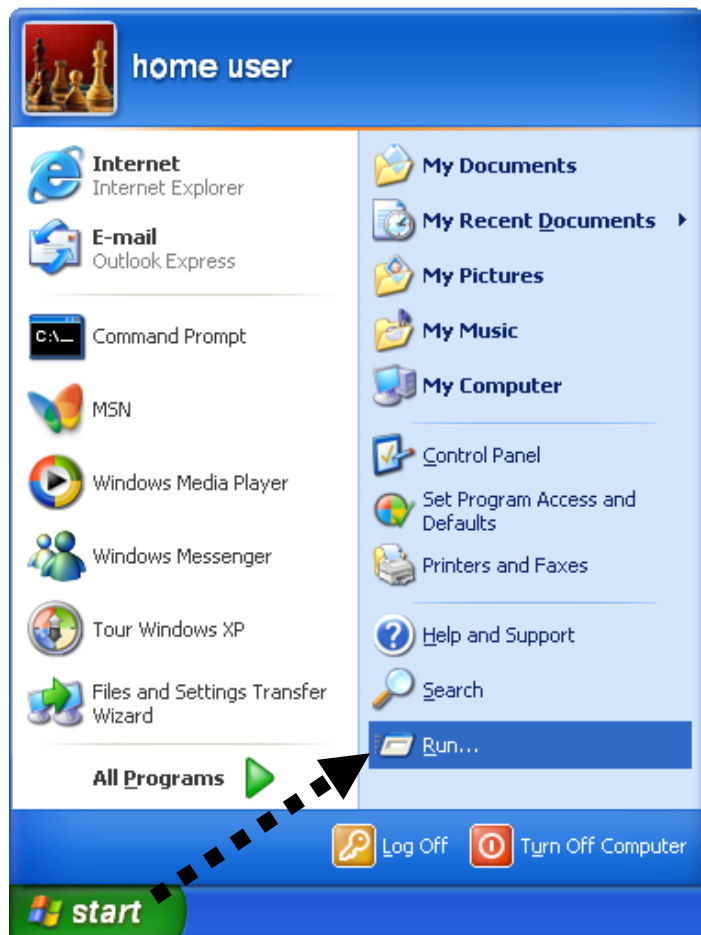


2. Select 'Obtain an IP address automatically' and 'Obtain DNS server address automatically', then click the 'OK' button.

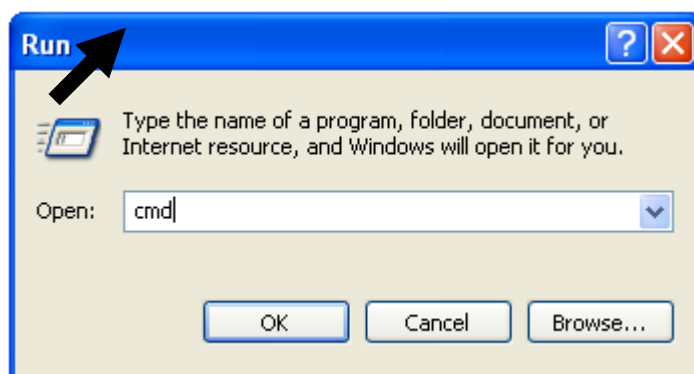


2-2-4 Router IP address lookup

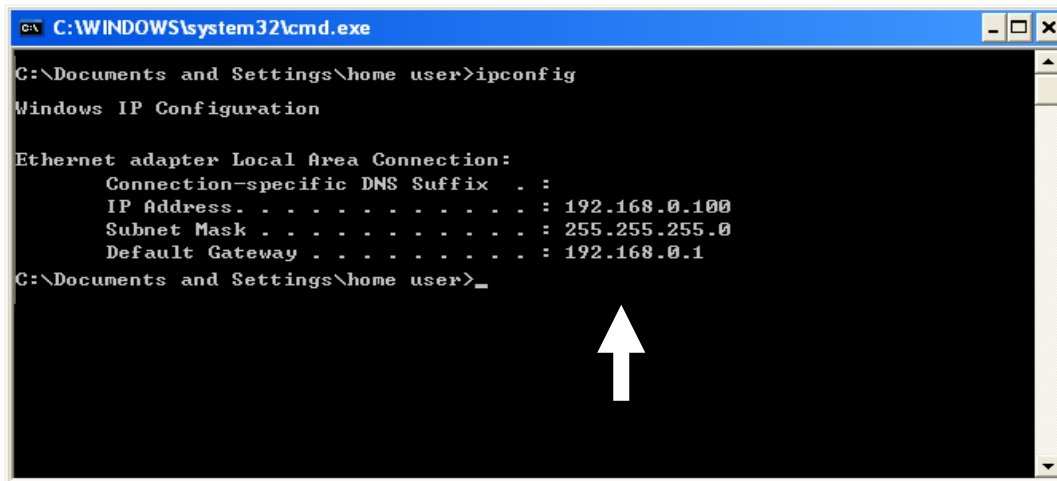
After the IP address setup is complete, click 'start' -> 'run' at the bottom-lower corner of your desktop:



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



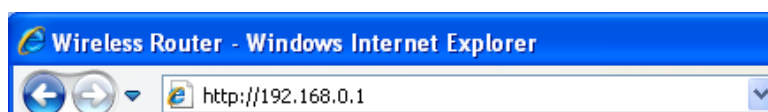
Input 'ipconfig', and then press the 'Enter' key. Check the IP address followed by 'Default Gateway' (In this example, the IP address of the router is 192.168.0.1)



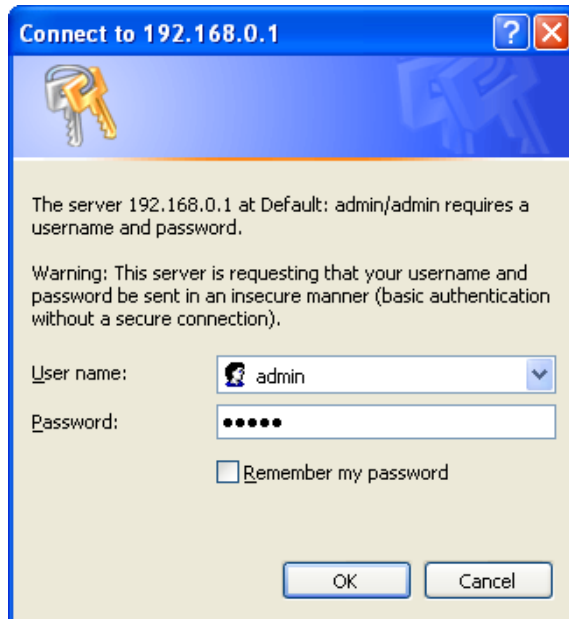
NOTE: If the IP address of the “Default Gateway” is not displayed, or the address is followed by an ‘IP Address’ that begins with ‘169’, please recheck the network connection between your computer and router, and / or go to the beginning of this chapter to recheck every step of the network setup procedure.

Connect to the router’s management interface by web browser.

After your computer 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 '**admin**', 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 the user name and password again, it means you didn't input the username and password correctly. Please retype the user name and password again. If you're certain that 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 five major setting categories: QuickSetup, General Setup, Status, Wireless 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, you don't have to go back to the first page.

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':

The following will be displayed after logging in:

1. Set Time Zone

Time Zone :	(GMT-08:00)Pacific Time (US & Canada); Tijuana	1
Time Server Address :	192.43.244.18	2
Daylight Savings :	<input type="checkbox"/> Enable Time From January 1 To January 1	3
<input type="button" value="NEXT"/>		4

Here are descriptions of every setup item:

<i>Set Time Zone (1):</i>	<i>Press  button, a drop-down list will be shown, and you can choose the time zone of the location in which you live.</i>
<i>Time Server Address (2):</i>	<i>Input the IP address / host name of the time server to use if you don't want to use the default one.</i>
<i>Daylight Savings (3):</i>	<i>If the country you live in uses daylight savings, check the 'Enable Function' box, and choose the duration of daylight savings.</i>

After you complete all settings, click the 'Next' (4) button.

NOTE: There are several time servers available on the 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 router is incorrect, try another time server.

[Cable Modem](#)
 A connection through a cable modem requires minimal configuration. When you set up an account with your Cable provider, the Cable provider and your Wireless Router will automatically establish a connection, so you probably do not need to enter anything more.

[Fixed-IP xDSL](#)
 Some xDSL Internet Service Providers may assign a Fixed IP Address for your Wireless Router. If you have been provided with this information, choose this option and enter the assigned IP Address, Subnet Mask, Gateway IP Address and DNS IP Address for your Wireless Router.

[PPPoE xDSL](#)
 If you connect to the Internet using an xDSL Modem and your ISP has provided you with a Password and a Service Name, then your ISP uses PPPoE to establish a connection. You must choose this option and enter the required information.

[PPTP xDSL](#)
 If you connect to the Internet using an xDSL Modem and your ISP has provided you with a Password, Local IP Address, Remote IP Address and a Connection ID, then your ISP uses PPTP to establish a connection. You must choose this option and enter the required information.

[L2TP xDSL](#)
 Layer Two Tunneling Protocol is a common connection method used in xDSL connections.

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

- | | |
|---------------|-----------------------|
| Cable Modem | - go to section 2-3-1 |
| Fixed-IP xDSL | - go to section 2-3-2 |
| PPPoE xDSL | - go to section 2-3-3 |
| PPTP xDSL | - go to section 2-3-4 |
| L2TP xDSL | - 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 IP address to you. In this case, you can choose 'Cable Modem' as the Internet connection type, even though you're using another connection type, like xDSL.

2-3-1 Setup procedure for 'Cable Modem' (Dynamic IP):

Cable Modem

Host Name :	<input type="text"/>	1
MAC Address :	<input type="text" value="000000000000"/>	<input type="button" value="Clone MAC"/> 2

3

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 'Fixed-IP xDSL':

Static IP

Enter the IP Address, Subnet Mask, Gateway IP Address and DNS IP Address provided to you by your ISP in the appropriate fields.

IP Address :	<input type="text" value="172.1.1.1"/>	1
Subnet Mask :	<input type="text" value="255.255.0.0"/>	2
DNS Address :	<input type="text"/>	3
Default Gateway :	<input type="text" value="172.1.1.254"/>	4

5

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.*

Service Provider Gateway Address (4): *Input the IP address of the DNS server provided by your service provider.*

<p>You must use the addresses provided by your Internet service provider, incorrect setting values will cause connection problems.</p>

When you complete all settings, press the 'OK' (5) button; if you want to go back to the 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 doesn't use DHCP or PPPoE protocol. Please contact your service provider for further information.

2-3-3 Setup procedure for 'PPPoE xDSL':

PPPoE

Enter the User Name and Password required by your ISP in the appropriate fields. If your ISP has provided you with a "Service Name" enter it in the Service Name field, otherwise, leave it blank.

User Name :	<input type="text"/>	1
Password :	<input type="password"/>	2
Service Name :	<input type="text"/>	3
MTU :	<input type="text" value="1392"/> (512<=MTU<=1492)	4
Connection Type :	<input type="text" value="Continuous"/> <input type="button" value="Connect"/> <input type="button" value="Disconnect"/>	5
Idle Time Out :	<input type="text" value="10"/> (1-1000 Minute)	6

7

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' (7) button; 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 3 options:

'Continuous' - keep Internet connection alive, do not disconnect,

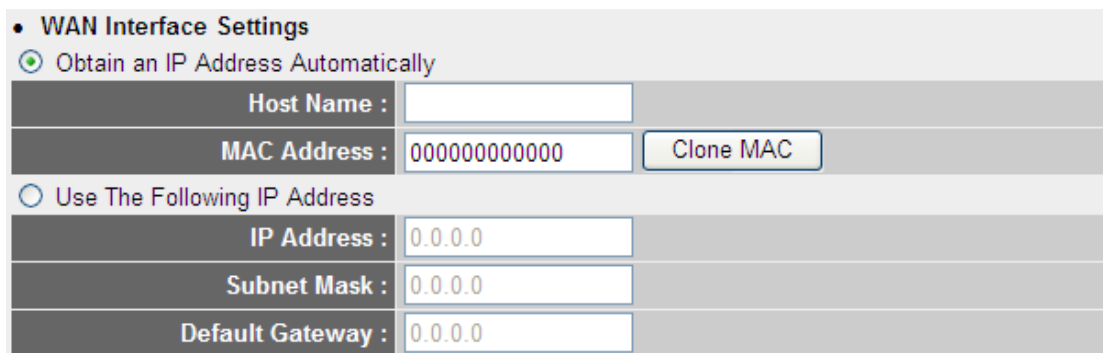
Connect on Demand - only connects to the Internet when there's a connection attempt,

'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 xDSL':

PPTP xDSL 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:



The screenshot shows a configuration window titled "WAN Interface Settings". It contains two radio button options for IP address acquisition. The first option, "Obtain an IP Address Automatically", is selected. Below it are fields for "Host Name" (empty), "MAC Address" (000000000000), and a "Clone MAC" button. The second option, "Use The Following IP Address", is unselected. Below it are fields for "IP Address" (0.0.0.0), "Subnet Mask" (0.0.0.0), and "Default Gateway" (0.0.0.0).

• WAN Interface Settings	
<input checked="" type="radio"/> Obtain an IP Address Automatically	
Host Name :	<input type="text"/>
MAC Address :	<input type="text" value="000000000000"/> <input type="button" value="Clone MAC"/>
<input type="radio"/> Use The Following IP Address	
IP Address :	<input type="text" value="0.0.0.0"/>
Subnet Mask :	<input type="text" value="0.0.0.0"/>
Default Gateway :	<input type="text" value="0.0.0.0"/>

Select how you obtain and IP address from your service provider here. You can choose 'Obtain an IP address automatically' (equal to DHCP, refer to 'Cable Modem' 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:

• PPTP Settings		
User Name :	<input type="text"/>	1
Password :	<input type="password"/>	2
PPTP Gateway :	0.0.0.0	3
Connection ID :	<input type="text"/> (Optional)	4
MTU :	1392 (512<=MTU<=1492)	5
BEZEQ-ISRAEL :	<input type="checkbox"/> Enable (For BEZEQ network in ISRAEL use only)	6
Connection Type :	Continuous <input type="button" value="Connect"/> <input type="button" value="Disconnect"/>	7
Idle Time Out :	10 (1-1000 Minute)	8

9

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.

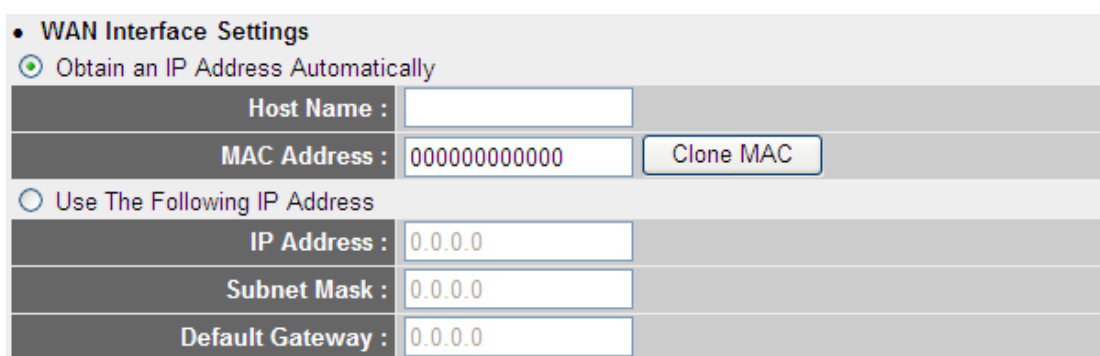
Idle Time Out (8): Input the idle time out of the Internet connection you wish to use, and refer to the previous section for detailed descriptions.

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 xDSL':

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':



The screenshot shows the 'WAN Interface Settings' section of a configuration interface. It features two radio button options for IP address acquisition. The first option, 'Obtain an IP Address Automatically', is selected. Below it are fields for 'Host Name' (empty), 'MAC Address' (000000000000), and a 'Clone MAC' button. The second option, 'Use The Following IP Address', is unselected. Below it are fields for 'IP Address' (0.0.0.0), 'Subnet Mask' (0.0.0.0), and 'Default Gateway' (0.0.0.0).

• WAN Interface Settings	
<input checked="" type="radio"/> Obtain an IP Address Automatically	
Host Name :	<input type="text"/>
MAC Address :	<input type="text" value="000000000000"/> <input type="button" value="Clone MAC"/>
<input type="radio"/> Use The Following IP Address	
IP Address :	<input type="text" value="0.0.0.0"/>
Subnet Mask :	<input type="text" value="0.0.0.0"/>
Default Gateway :	<input type="text" value="0.0.0.0"/>

Select how you obtain IP address from your service provider. You can choose 'Obtain an IP address automatically' (equal to DHCP, refer to the 'Cable Modem' section above), or 'Use the following IP address' (equal to static IP address, refer to the 'PPPoE xDSL' 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 L2TP settings section:

• **L2TP Settings**

User Name :	<input type="text"/>	1
Password :	<input type="text"/>	2
L2TP Gateway :	<input type="text"/>	3
MTU :	<input type="text" value="1392"/> (512<=MTU<=1492)	4
Connection Type :	<input type="text" value="Continuous"/> <input type="button" value="Connect"/> <input type="button" value="Disconnect"/>	5
Idle Time Out :	<input type="text" value="10"/> (1-1000 Minute)	6

7

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 L2TP gateway assigned by your Internet service provider.*

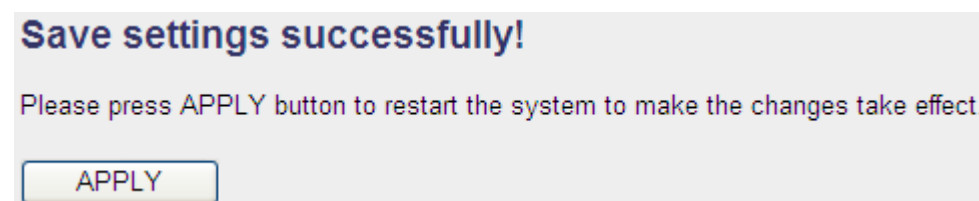
MTU (4): *Input the MTU value of your network connection. If you don't know, you can use the default value.*

Connection type (5): *Select the type of Internet connection you wish to use, please refer to last section for detailed descriptions.*

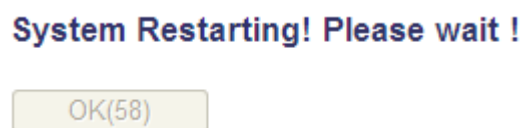
Idle Time Out (6): *Input the idle time out of Internet connection you wish to use, and refer to last section for detailed descriptions.*

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

Upon clicking the 'OK' (7) button, 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 then 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 Basic 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 web management interface, and then click the 'General Setup' link at the upper-right side of the web management interface.



The screenshot shows the 'Time Zone' configuration page. The left sidebar has three items: '1. Time Zone' (selected), '2. WAN Type', and '3. IP Address Info'. The top navigation bar includes 'Quick Setup', 'Status', 'General Setup' (highlighted with a black arrow), 'Wireless', and 'Tools'. The main content area is titled 'Time Zone' and contains the following fields:


Time Zone :	(GMT-08:00)Pacific Time (US & Canada); Tijuana
Time Server Address :	192.43.244.18
Daylight Savings :	<input type="checkbox"/> Enable
Time From :	January 1
To :	January 1

A 'NEXT' button is located at the bottom right of the configuration area.

2-4-1 Time zone and time auto-synchronization

Follow the instructions below to set time zone and time auto-synchronization parameters:

Click the 'General Setup' menu at the upper right side of the web management interface, and then select System on the left menu bar followed by Time Zone.

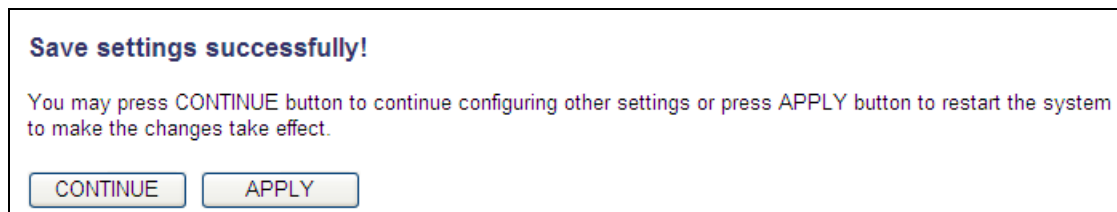


The screenshot shows the 'Time Zone' configuration page. The left sidebar has 'System' selected, with 'Time Zone' expanded. The top navigation bar includes 'Quick Setup', 'Status', 'General Setup', 'Wireless', and 'Tools'. The main content area is titled 'Time Zone' and contains the following fields:

Time Zone :	(GMT-08:00)Pacific Time (US & Canada); Tijuana
Time Server Address :	192.43.244.18
Daylight Savings :	<input type="checkbox"/> Enable
Time From :	January 1
To :	January 1

'APPLY' and 'CANCEL' buttons are located at the bottom right of the configuration area.

Select the time zone from the 'Set time zone' drop-down list, and input the IP address or host name of the time server. If you want to enable the daylight savings setting, check the 'Enable Function' box, and set the duration of daylight setting. When you finish, click the 'Apply' button. You'll see the following message 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.

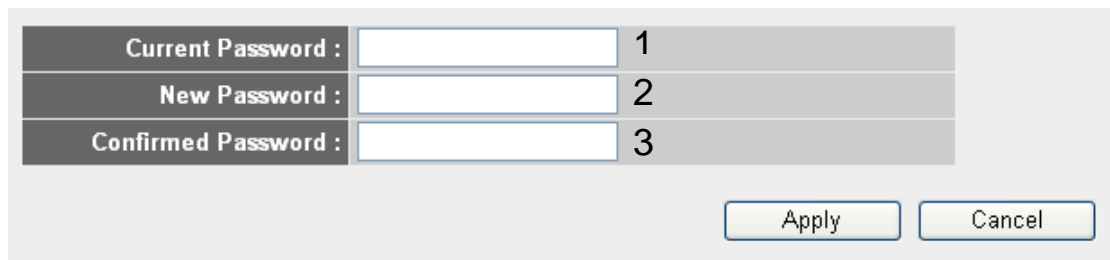
NOTE: You can refer to the instructions given in the last chapter: 'Using Quick Setup', for detailed descriptions on time zone settings.

2-4-2 Change management password

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

To change the password, follow the instructions below:

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



Current Password :	<input type="text"/>	1
New Password :	<input type="text"/>	2
Confirmed Password :	<input type="text"/>	3

Here are descriptions of every setup item:

Current *Input current password.*

Password (1):

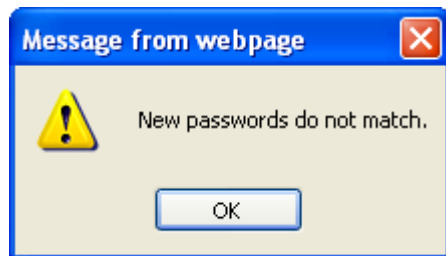
New Password (2): *Input new password.*

Confirmed *Input new password again.*

Password (3):

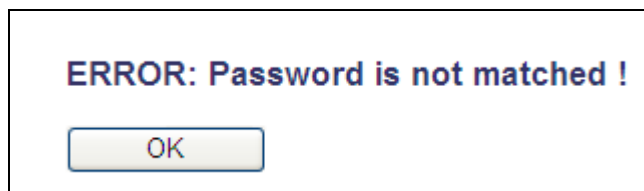
When you finish, click the 'Apply' button. If you want to keep the original password unchanged, click the 'Cancel' button.

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

If the current and new passwords are correctly inputted, after you click the 'Apply' button, 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:

Host address	Port	Enabled
<input type="text" value="0.0.0.0"/> 1	<input type="text" value="8080"/> 2	<input type="checkbox"/> 3

4

Here are descriptions of every setup item:

Host Address (1): Input the IP address of the remote host you wish to initiate management access with.

Port (2): 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)

Enabled (3): Select the field to enable the configuration.

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

Save settings successfully!

You may press CONTINUE button to continue configuring other settings or press APPLY button to restart the system to make the changes take effect.

Press 'Continue' 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.

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

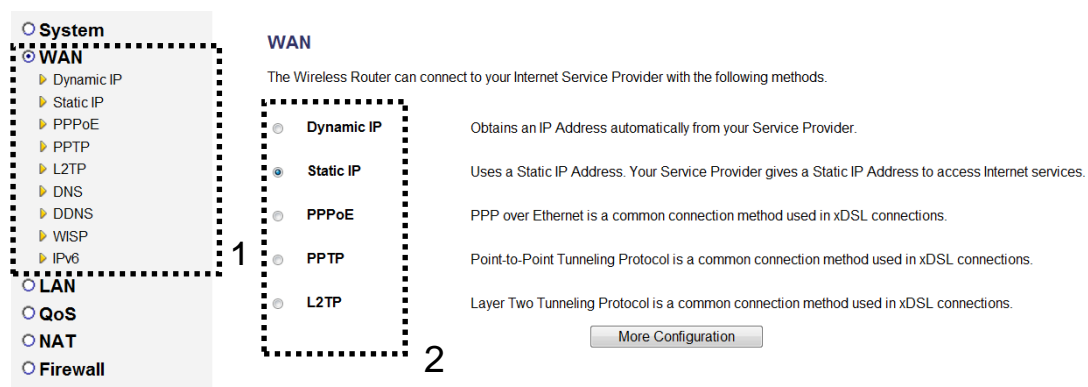
2-5 Setup Internet Connection (WAN Setup)

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
WISP	- go to section 2-5-8
IPv6	- go to section 2-5-9

2-5-1 Setup procedure for 'Dynamic IP':

Dynamic IP

The Host Name is optional, but may be required by some Service Providers. The default MAC Address is set to the WAN physical interface on the Wireless Router. If required by your Service Provider, you can use the 'Clone MAC Address' button to copy the MAC Address of the Network Interface Card installed in your PC and replace the WAN MAC Address with this MAC Address.

Host Name :	<input type="text"/>	1
MAC Address :	<input type="text" value="000000000000"/>	<input type="button" value="Clone MAC"/> 2

3

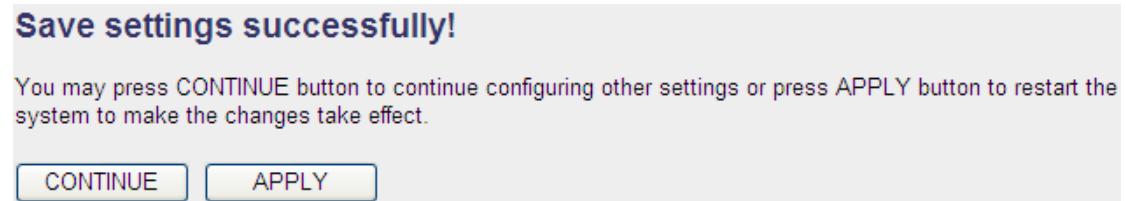
Here are descriptions of every setup item:

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 address to access the Internet. If you're using a computer which is 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 'Apply' (3) button; if you want to remove the values you inputted, click the 'Cancel' button.

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



Click the 'Continue' (1) 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':

Static IP

If your Service Provider has assigned a Fixed IP address; enter the assigned IP Address, Subnet Mask and the Gateway IP Address provided.

IP Address :	<input type="text" value="172.1.1.1"/>	1
Subnet Mask :	<input type="text" value="255.255.0.0"/>	2
Default Gateway :	<input type="text" value="172.1.1.254"/>	3

4

Here are descriptions of every setup item:

IP address(1): *Input the IP address assigned by your service provider.*

Subnet Mask (2): *Input subnet mask assigned by your service provider.*

Service Provider *Input the IP address of the DNS*
Gateway Address (3): *server provided by your service provider.*

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

Save settings successfully!

You may press CONTINUE button to continue configuring other settings or press APPLY button to restart the system to make the changes take effect.

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).

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

2-5-3 Setup procedure for 'PPPoE':

PPPoE

Enter the PPPoE User Name and Password assigned by your Service Provider. The Service Name is normally optional, but may be required by some Service Providers. Enter a Idle Time (in minutes) to define a maximum period of time for which the Internet connection is maintained during inactivity. If the connection is inactive for longer than the Maximum Idle Time, then the connection will be dropped. You can enable the Connect on Demand option to automatically re-establish the connection as soon as you attempt to access the Internet again. If your Internet Service Provider requires the use of PPPoE, enter the information below.

User Name :	<input type="text"/>	1
Password :	<input type="password"/>	2
Service Name :	<input type="text"/>	3
MTU :	<input type="text" value="1392"/> (512<=MTU<=1492)	4
Connection Type :	<input type="button" value="Continuous"/> <input type="button" value="Connect"/> <input type="button" value="Disconnect"/>	5
Idle Time Out :	<input type="text" value="10"/> (1-1000 Minute)	6

7

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 be always 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 (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:

Save settings successfully!

You may press CONTINUE button to continue configuring other settings or press APPLY button to restart the system to make the changes take effect.

CONTINUE

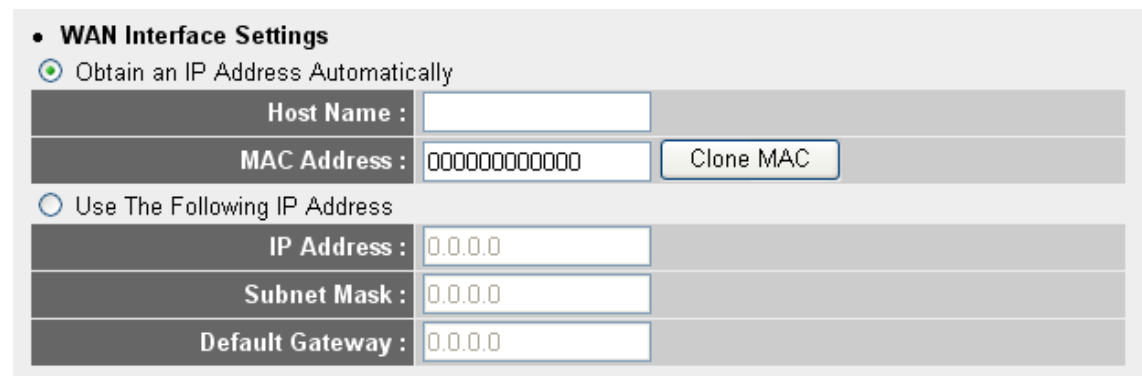
APPLY

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:



The screenshot shows a configuration window titled "WAN Interface Settings". It contains two radio button options for IP address acquisition. The first option, "Obtain an IP Address Automatically", is selected. Below it are fields for "Host Name" (empty), "MAC Address" (000000000000), and a "Clone MAC" button. The second option, "Use The Following IP Address", is unselected. Below it are fields for "IP Address" (0.0.0.0), "Subnet Mask" (0.0.0.0), and "Default Gateway" (0.0.0.0).

Select how you obtain an IP address from your service provider. You can choose 'Obtain an IP address automatically' (equal to DHCP, refer to 'Cable Modem' 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:

● PPTP Settings		
User Name :	<input type="text"/>	1
Password :	<input type="password"/>	2
PPTP Gateway :	0.0.0.0	3
Connection ID :	<input type="text"/> (Optional)	4
MTU :	1392 (512<=MTU<=1492)	5
BEZEQ-ISRAEL :	<input type="checkbox"/> Enable (For BEZEQ network in ISRAEL use only)	6
Connection Type :	Continuous <input type="button" value="Connect"/> <input type="button" value="Disconnect"/>	7
Idle Time Out :	10 (1-1000 Minute)	8

9

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.*

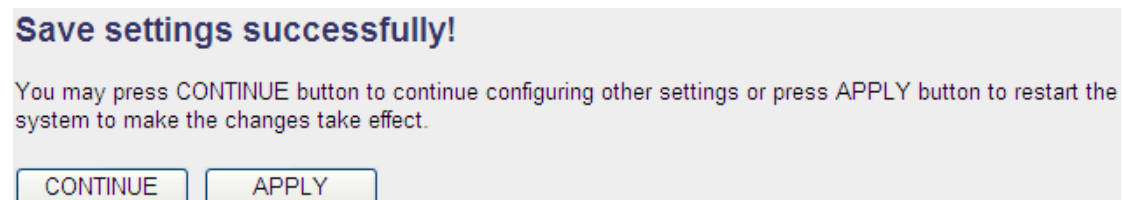
MTU (5): *Input the MTU value of your network connection. If you don't know, you can use the default value.*

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).

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

2-5-5 Setup procedure for 'L2TP':

• L2TP Settings		
User Name :	<input type="text"/>	1
Password :	<input type="password"/>	2
L2TP Gateway :	<input type="text"/>	3
MTU :	<input type="text" value="1392"/> (512<=MTU<=1492)	4
Connection Type :	<input type="button" value="Continuous"/> <input type="button" value="Connect"/> <input type="button" value="Disconnect"/>	5
Idle Time Out :	<input type="text" value="10"/> (1-1000 Minute)	6

7

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.*

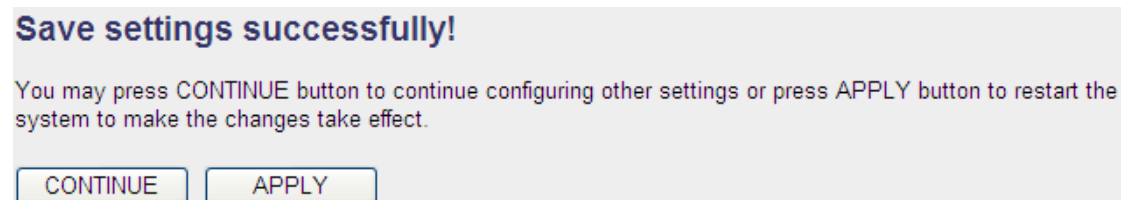
L2TP Gateway (3): *Input the IP address of L2TP gateway assigned by your Internet service provider.*

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 *Input the idle time out of Internet connection*
Out (6): *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).

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

2-5-6 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.

DNS

A DNS (Domain Name System) server is like an index of IP Addresses and Web Addresses. If you type a Web address into your browser, such as www.broadbandrouter.com, a DNS server will find that name in its index and find the matching IP address. Most ISPs provide a DNS server for speed and convenience. Since your Service Provider may connect you to the Internet through dynamic IP settings, it is likely that the DNS server IP Address is also provided dynamically. However, if there is a DNS server that you would rather use, you need to specify the IP Address of that DNS server. The primary DNS will be used for domain name access first, in case the primary DNS access failures, the secondary DNS will be used.

Primary DNS :	<input type="text"/>	1
Secondary DNS :	<input type="text"/>	2

3

Here are descriptions of every setup item:

DNS Address (1): *Input the IP address of the DNS server provided by your service provider.*

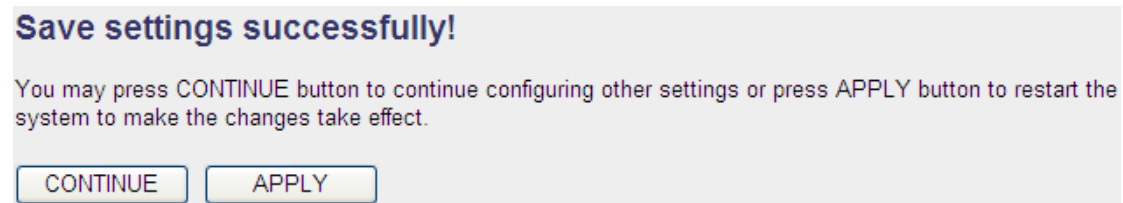
Secondary DNS Address (2): *Input the IP address of another DNS server provided by your service provider. This is optional.*

NOTE: Only the IP address can be inputted here; DO NOT use the hostname of 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 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.

2-5-7 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.

DDNS

DDNS (DynamicDNS) allows users to map the static domain name to a dynamic IP address. You must get a account, password and your static domain name from the DDNS service providers.

Dynamic DNS :	<input type="radio"/> Enable <input checked="" type="radio"/> Disable	1
Provider :	DynDNS <input type="button" value="v"/>	2
Domain Name :	<input type="text"/>	3
Account :	<input type="text"/>	4
Password / Key :	<input type="text"/>	5

6

Here are descriptions of every setup item:

Dynamic DNS (1): If you want to enable the DDNS function, select 'Enabled'; otherwise select 'Disabled'.

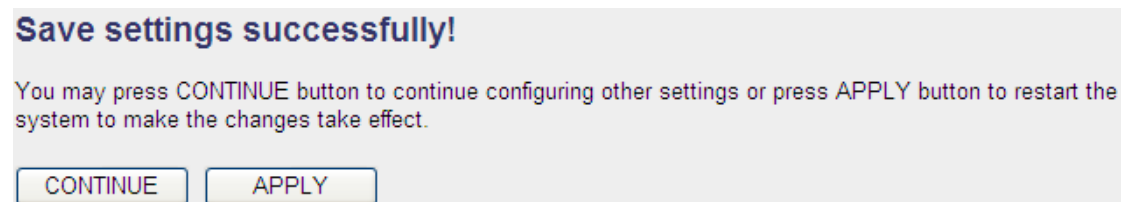
Provider (2): Select your DDNS service provider.

Domain Name (3): Input the domain name you've obtained from the DDNS service provider.

Account / E-Mail (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:



Save settings successfully!

You may press CONTINUE button to continue configuring other settings or press APPLY button to restart the system to make the changes take effect.

Click the 'Continue' button to go back to the previous setup menu; to continue on other setup procedures, or click 'Apply' 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.

2-5-8 Setup procedure for 'WISP':

If the network service provided by your service provider is through a wireless network, select this mode. After you have connected the router to the access point of the service provider wirelessly, set up the WAN connection type in the WAN page.

WISP

In this mode, all ethernet ports are bridged together and the wireless client will connect to ISP access point. The NAT is enabled and PCs in ethernet ports share the same IP to ISP through wireless LAN. You must set the wireless to client mode first and connect to the ISP AP in Site-Survey page. The connection type can be setup in WAN page by using PPPoE, DHCP client, PPTP client or static IP.

Disable Enable staEnable 1

- Basic Settings

SSID :	<input type="text"/>	2
Site Survey :	<input type="button" value="Site Survey"/>	3

- Security Settings

Encryption :	<input type="button" value="Disable"/>	4
--------------	--	---

5

Here are descriptions of every setup item:

Disable/Enable/ staEnable (1): There are three selections for wireless ISP functions.

Disable: disables this function.

Enable: enables this function and the router can connect to the access points installed by your wireless service provider. Any clients associated with the router can access the Internet service through the wireless network.

Note: In this mode, if you are informed by your wireless ISP that the wireless settings of the access point have changed, configure the router in this page to match the settings.

staEnable: Enable this function and the router can only allow connection through wired Ethernet cable for WAN access service.

SSID (2): This is the name of the wireless network. Input the SSID name that your ISP provided to you.

Site Survey (3): Click the 'Select Site Survey' button, then a "Wireless Site Survey Table" will pop up. It will list all available access points nearby. Select the access point designated by your wireless ISP in the table and the router will join the wireless network through this access point.

Security Settings (4): If the access point enables wireless security, you have to follow the same settings in order to access the access point. Click to set security settings for this connection (go to section '2-7-3 Wireless Security' for detailed instructions).

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

Save settings successfully!

You may press CONTINUE button to continue configuring other settings or press APPLY button to restart the system to make the changes take effect.

CONTINUE

APPLY

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.

2-5-9 Setup procedure for 'IPv6':

IPv6

WAN IPv6 Settings: 1

IPv6 Link-Local Address : fe80::2e0:4cff:fe81:96c9/64

LAN IPv6 Settings: 2

IPv6 Link-Local Address : fe80::2e0:4cff:fe81:96c1/64

IPv6 Address : 3

Subnet Prefix Length : 4

Here are descriptions of every setup item:

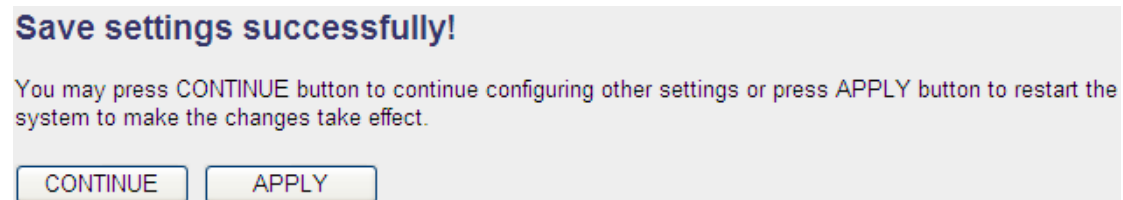
WAN IPv6 Settings (1): *Select the required transition mechanism as assigned by your service provider.*

LAN IPv6 Settings (2): *Select the auto configuration method for IPv6.*

IPv6 Address (3): *Input the IPv6 address for the LAN port.*

Subnet Prefix Length (4): *Default is set at 64. Only change if required to do so by your ISP.*

After you complete all settings, click the 'Apply' (5) 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.

2-6 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).

It's recommended for most of computers to obtain an IP address automatically, as it will save a lot of time on setting IP addresses for every computer. For servers and network devices which will provide services to other computers and users that come from Internet, a static IP address should be used, so other computers can locate the server.

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 IP address of 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 the 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 a static IP address. 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:

• LAN IP		
IP Address :	192.168.0.1	1
Subnet Mask :	255.255.255.0	2
802.1d Spanning Tree :	Disable ▾	3
DHCP Server :	Enable ▾	4

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 'Enabled' for setup item '802.1d Spanning Tree', or set it to 'Disabled'*

DHCP Server (4): *If you want to activate the DHCP server function of this router, select 'Enabled', or set it to 'Disabled'.*

Recommended Values if you don't know what to fill:

IP Address: 192.168.0.1

Subnet Mask: 255.255.255.0

802.1d Spanning Tree: Disable

DHCP Server: Enable

2-6-2 DHCP Server:

• DHCP Server		
Lease Time :	Forever <input type="button" value="v"/>	1
DHCP Client Start IP :	192.168.0.100	2
DHCP Client End IP :	192.168.0.200	3
Domain Name :		4

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 Values if you don't know what to fill:

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.**
- 3. These settings will affect wireless clients too.**

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).

<input checked="" type="checkbox"/> Enable Static DHCP Leases 1	
MAC Address	IP Address
<input type="text" value="001122334455"/> 2	<input type="text" value="192.168.0.100"/> 3
4 <input type="button" value="Add"/> <input type="button" value="Clear"/>	

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')

Save settings successfully!

You may press CONTINUE button to continue configuring other settings or press APPLY button to restart the system to make the changes take effect.

CONTINUE

APPLY

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).

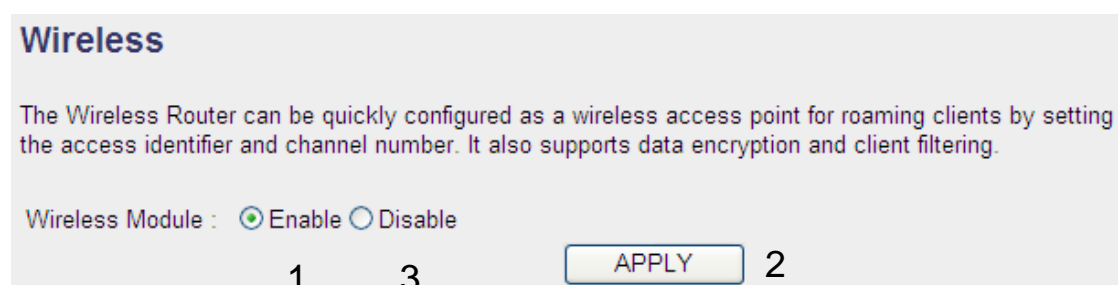
2-7 Wireless LAN Configurations

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.

Follow these instructions to set wireless parameters:

Click the 'Wireless' menu at the top of the web management interface, and the following will be displayed on your web browser. You must enable the wireless function of this router, or the wireless interface of this router will not function. Select 'Enable' (1), then click the 'Apply' (2) button.

If you're coming here because you want to disable the wireless function, select 'Disable' (3), then click the 'Apply' (2) button.



Wireless

The Wireless Router can be quickly configured as a wireless access point for roaming clients by setting the access identifier and channel number. It also supports data encryption and client filtering.

Wireless Module : Enable Disable

1 3 APPLY 2

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

Save settings successfully!

You may press CONTINUE button to continue configuring other settings or press APPLY button to restart the system to make the changes take effect.

CONTINUE

APPLY

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

2-7-1 Basic Wireless Settings

Click the 'Wireless' menu on the upper-right side of the web management interface, then click 'Basic Settings', and the following will be displayed on your web browser:

Basic Settings

This page allows you to define ESSID, and Channel for the wireless connection. These parameters are used for the wireless stations to connect to the Access Point.

Mode :	Access Point
Band :	2.4 GHz (B+G+N)
SSID :	Comtrend_8196c1
Channel Number :	Auto
Associated Clients :	Show Active Clients

APPLY CANCEL

This wireless router can work in 6 modes:

- a. **Access Point:** Standard wireless AP .
- b. **Station-Infrastructure:** Configure the router to an Ethernet device such as TV, Game player, HDD&DVD to enable the Ethernet device to be a wireless station.
- c. **AP Bridge-Point to Point:** Connect this router with another wireless router, to expand the scope of the network.

d. **AP Bridge-Point to Multi-Point:** Connect this router with up to four other wireless routers, to expand the scope of the network.

e. **AP Bridge-WDS:** Connect this router with up to four WDS-capable wireless routers, to expand the scope of the network.

f. **Universal Repeater:** The router can act as Station and an AP at the same time. It can use the Station function to connect to a Root AP and use the AP function to service all wireless stations within its coverage.

NOTE: For 'AP Bridge-Point to Point' and 'AP Bridge-Point to Multi-Point' mode, the wireless router operates in wireless bridge dedicated mode – the wireless router is only used to expand the scope of the network, and no wireless clients will be accepted. If you want to use your wireless router to expand the scope of the network, and also accept wireless clients, please select 'AP Bridge-WDS' or 'Universal Repeater' mode.

Select the operation mode you want to use from the 'Mode' drop-down menu (1), and continue on other operation mode specific settings:

AP	- go to section 2-7-1-1
Station-Infrastructure	- go to section 2-7-1-2
AP Bridge-Point to Point	- go to section 2-7-1-3
AP Bridge-Point to Multi-Point	- go to section 2-7-1-4
AP Bridge-WDS	- go to section 2-7-1-5
Universal Repeater	- go to section 2-7-1-6

2.7.1.1 Setup procedure for 'Access Point':

Select Access Point from the 'Mode' drop-down menu (1), and the following will be displayed:

Mode :	<input type="text" value="Access Point"/>	1
Band :	<input type="text" value="2.4 GHz (B+G+N)"/>	2
SSID :	<input type="text" value="Comtrend_8196c1"/>	3
Channel Number :	<input type="text" value="Auto"/>	4
Associated Clients :	<input type="button" value="Show Active Clients"/>	5

Here are descriptions of every setup item:

Band (2): Select the radio band from one of following options:

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

NOTE: For 802.11b and 802.11g mode, the signals can be transmitted only by antenna 1 (The antenna in the right side of the rear panel).

For 802.11n mode: The router is operating in a 1T2R Spatial Multiplexing MIMO configuration. 1 antenna is for signal transmitting and 2 antennas are for signal receiving.

SSID (3): 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 (4): Select a channel from the drop-down list of 'Channel Number', available channel numbers are 1 to 13 for European countries, 1 to 11 for USA. 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 select, and this would help in certain scenarios when there is some radio communication problem.

Associated Clients (5): 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 a special reason to limit the type of allowed wireless clients, it's recommended to choose '2.4 GHz (B+G+N) to maximize wireless client compatibility.

TIP: You can try to change 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.

2.7.1.2 Setup procedure for 'Station-Infrastructure':

In this mode, you can connect the router to an Ethernet device such as TV, Game player, HDD&DVD to enable the Ethernet device to be a wireless station and join a wireless network through an access point or AP router.

Select Station (Infrastructure) from the 'Mode' drop-down menu (1), and the following will be displayed:

Mode :	Station (Infrastructure) ▾	1
Band :	2.4 GHz (B+G+N) ▾	2
SSID :	Comtrend_8196c1	3
Site Survey :	Site Survey	4

Here are descriptions of every setup item:

Band (2): *Select the band you want to use.*

SSID (3): *This is the name of the wireless network. You can type the SSID of the network you would like to connect to here.*

Site Survey (4): *When you use this wireless router as a wireless station for an Ethernet network device to have wireless capability, you have to associate it with a working access point. Click the 'Select Site Survey' button, then a "Wireless Site Survey Table" will pop up. It will list all available access points nearby. You can select one access point in the table and it will join the wireless LAN through this access point.*

2.7.1.3 Setup procedure for 'AP Bridge-Point to Point':

In this mode, you can connect your wireless router with another, to combine two access points and expand the scope of the wireless network, and all clients (wired only – AP will not accept wireless clients in this mode) of the two wireless routers will think they're on the same physical network. This function is very convenient when you need to connect two networks between two buildings.

Select AP Bridge (Point to Point) from the 'Mode' drop-down menu (1), and the following will be displayed:

Mode :	AP Bridge (Point to Point) ▼	1
Band :	2.4 GHz (B+G+N) ▼	2
Channel Number :	1 ▼	3
MAC Address 1 :	000000000000	4
Security Settings :	Security Settings	5

NOTE: The two wireless routers must use the same mode, band, channel number, and security setting!

Here are descriptions of every setup item:

Band (2): Select the band you want to use, the two wireless routers must use the same setting.

Channel Number (3): Select the channel you want to use, the two wireless routers must use the same setting.

MAC address 1(4): Input the MAC address of another wireless router.

Security Settings (5): Click the 'Security Settings' button for this connection.
(Go to section '2-7-3 Wireless Security' for detailed instructions).

2.7.1.4 Setup procedure for 'AP Bridge-Point to Multi-Point':

In this mode, you can connect your wireless router with at least four wireless routers to expand the scope of wireless network, and all clients (wired only – AP will not accept wireless clients in this mode) of the wireless routers will think they're on the same physical network.

Select AP Bridge (Point to Multi-Point) from the 'Mode' drop-down menu (1), and the following will be displayed:

Mode :	AP Bridge (Point to Multi-Point) ▾	1
Band :	2.4 GHz (B+G+N) ▾	2
Channel Number :	1 ▾	3
MAC Address 1 :	000000000000	4
MAC Address 2 :	000000000000	5
MAC Address 3 :	000000000000	6
MAC Address 4 :	000000000000	7
Security Settings :	Security Settings	8

Here are descriptions of every setup item:

-
- | | |
|------------------------------------|---|
| Band (2): | <i>Select the band you want to use, all the wireless routers must use the same setting.</i> |
| Channel Number (3): | <i>Select the channel you want to use, all the wireless routers must use the same setting.</i> |
| MAC address 1 to 4 (4 - 7): | <i>Input the MAC address of the other wireless routers.</i> |
| Security Settings (8): | <i>Click the 'Security Settings' button for this connection.
(Go to section '2-7-3 Wireless Security' for detailed instructions).</i> |
-

2.7.1.5 Setup procedure for 'AP Bridge – WDS'

In this mode, you can expand the scope of the network by combining up to four other access points together, and every access point can still accept wireless clients.

Select AP Bridge (WDS) from the 'Mode' drop-down menu (1), and the following will be displayed:

NOTE: For WDS mode, the output signal nature is the same as that of normal AP mode.

Mode :	AP Bridge (WDS) ▾	1
Band :	2.4 GHz (B+G+N) ▾	2
SSID :	Comtrend_8196c1	3
Channel Number :	1 ▾	4
Associated Clients :	Show Active Clients	5
MAC Address 1 :	000000000000	6
MAC Address 2 :	000000000000	7
MAC Address 3 :	000000000000	8
MAC Address 4 :	000000000000	9
Security Settings :	Security Settings	10

Here are descriptions of every setup item:

Band (2): *Select the band you want to use, all the wireless routers must use the same setting.*

SSID (3): *Input the SSID of your wireless router, the setting should be the same with other wireless routers for the convenience of roaming.*

Channel Number (4): *Select the channel you want to use, all the wireless routers must use the same setting.*

Associated Clients (5): *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.*

MAC address 1 to 4 (6 - 9): *Input the MAC address of other wireless routers.*

Security Settings (10): *Click to set security settings for this connection (Go to section ‘2-7-3 Wireless Security’ for detailed instructions).*

2.7.1.6 Setup procedure for 'Universal Repeater'

In this mode, the router can act as a wireless repeater; it can be a Station and an AP at the same time. It can use the Station function to connect to a Root AP and use the AP function to service all wireless stations within its coverage.

Select Universal Repeater from the 'Mode' drop-down menu (1), and the following will be displayed:

NOTE: For Repeater Mode, this router will demodulate the received signal, checking if this signal is noise for the operating network then have the signal modulated and amplified again. The output power of this mode is the same as that of WDS and normal AP mode.

Mode :	Universal Repeater	1
Band :	2.4 GHz (B+G+N)	2
SSID :	Comtrend_8196c1	3
Channel Number :	1	4
Associated Clients :	Show Active Clients	5
Root AP SSID :		6
Site Survey :	Site Survey	7

Here are descriptions of every setup item:

Band (2): Select the band you want to use, all the wireless routers must use the same setting.

SSID (3): This is the name of the wireless router. You can type any alphanumerical characters here, maximum 32 characters. SSID is used to identify your own wireless router from others when there are other wireless routers in the same area. Default SSID is 'default', it's recommended to change default SSID value to the one which is meaningful to you, like myhome, office_room1, etc.

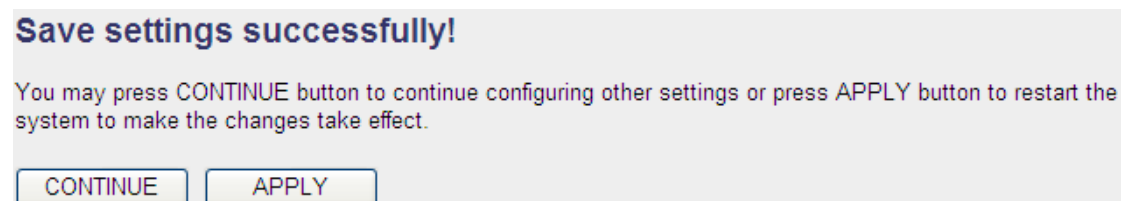
Channel Number (4): Select the channel you want to use, all the wireless clients must use the same setting.

Associated Clients (5): 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.

Root AP SSID (6): In 'Universal Repeater' mode, this device can act as a station to connect to a Root AP. You should assign the SSID of the Root AP here or click 'Select Site Survey' button to choose a Root AP.

Site Survey (7): Click the 'Select Site Survey' button, then a "Wireless Site Survey Table" will pop up. It will list all available access points nearby. You can select one access point in the table and the router will join the wireless LAN through this access point.

After you complete the wireless 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 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 the 'Wireless' menu on the upper-right side of the web management interface, then click 'Advanced Settings', and the following will be displayed on your web browser:

Fragment Threshold :	<input type="text" value="2346"/>	(256-2346)	1	
RTS Threshold :	<input type="text" value="2347"/>	(0-2347)	2	
Beacon Interval :	<input type="text" value="100"/>	(20-1024 ms)	3	
DTIM Period :	<input type="text" value="3"/>	(1-10)	4	
Data Rate :	<input type="button" value="Auto"/>		5	
N Data Rate :	<input type="button" value="Auto"/>		6	
Channel Width :	<input checked="" type="radio"/> Auto 20/40 MHZ	<input type="radio"/> 20 MHZ	7	
Preamble Type :	<input checked="" type="radio"/> Short Preamble	<input type="radio"/> Long Preamble	8	
Broadcast Essid :	<input checked="" type="radio"/> Enable	<input type="radio"/> Disable	9	
CTS Protect :	<input type="radio"/> Auto	<input type="radio"/> Always	<input checked="" type="radio"/> None	10
Tx Power:	<input type="button" value="100 %"/>		11	
WMM :	<input type="radio"/> Enable	<input checked="" type="radio"/> Disable	12	

Here are descriptions of every setup item:

Fragment Threshold (1): The threshold (number of bytes) for the fragmentation boundary for directed messages. It is the maximum data fragment size that can be sent. ***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 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 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 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 clients.

Channel Width (7): Set channel width of wireless radio. ***Do not modify the default value if you don't know what it is, default setting is 'Auto 20/40 MHz'.*** 40MHz provides better network speed for 802.11n wireless clients. However, if there are 802.11b / g clients connecting to this Wireless-N Range Extender, it will switch to 20MHz mode automatically.

Preamble Type (8): The Preamble type defines the length of the CRC (Cyclic Redundancy Check) block for communication between the Access Point and roaming wireless adapters. **Do not modify the default value if you don't know what it is, default setting is 'Short Preamble'.**

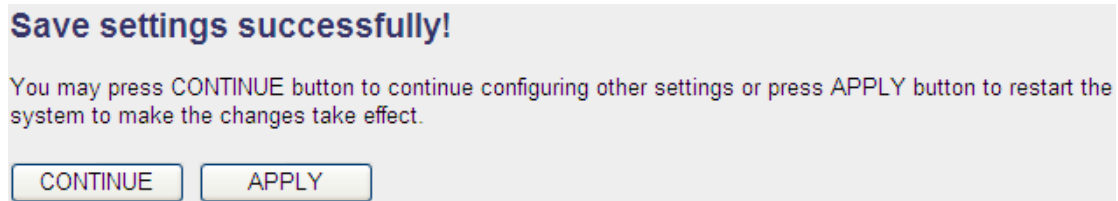
Broadcast ESSID (9): Decide if the wireless router will broadcast its own ESSID or not. You can hide the ESSID of your wireless router (set the option to 'Disable'), so only people those who know the ESSID of your wireless router can get connected.

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): Select the wireless transmitting power level, from 10% to 100%. When wireless clients are not too far from this Wireless-N Range Extender, you don't have to select a higher power level, since this may cause some individuals to attempt to break into your wireless network if you have a bad password, or no password. *Select from the drop-down menu. Default is set at 100%.*

*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', however, default value is 'Disable'.***

After you complete these wireless settings, 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 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 set wireless security settings, click the 'Wireless' menu on the upper-right side 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:

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.

2.7.3.1 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:

Encryption :	WEP	1
Key Length :	64-bit	2
Key Format :	Hex (10 Characters)	3
Default Tx Key :	Key 1	4
Encryption Key 1 :	*****	5
<input type="checkbox"/> Enable 802.1x Authentication		6
<input type="button" value="APPLY"/> <input type="button" value="CANCEL"/>		

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 alphanumeric 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:

<input checked="" type="checkbox"/> Enable 802.1x Authentication	6	
RADIUS Server IP address :	<input type="text"/>	7
RADIUS Server Port :	<input type="text" value="1812"/>	8
RADIUS Server Password :	<input type="text"/>	9

*RADIUS Server
IP address (7):* *Input the IP address of the radius
server.*

*RADIUS Server
Port (8):* *Input the port number of the radius
server.*

*RADIUS Server
Password (9):* *Input the port number of 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 and the following will be displayed on your web browser:

Save settings successfully!

You may press CONTINUE button to continue configuring other settings or press APPLY button to restart the system to make the changes take effect.

CONTINUE

APPLY

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 30 seconds while the router is rebooting).

2.7.3.2 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:

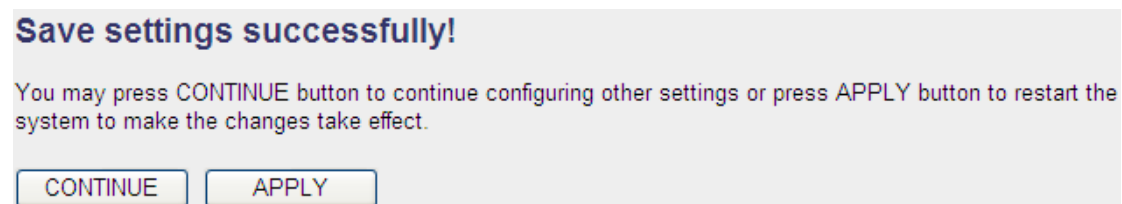
Encryption :	WPA pre-shared key	1
WPA Unicast Cipher Suite :	<input checked="" type="radio"/> WPA(TKIP) <input type="radio"/> WPA2(AES) <input type="radio"/> WPA2 Mixed	2
Pre-shared Key Format :	Passphrase	3
Pre-shared Key :	<input type="text"/>	4
		5
		<input type="button" value="Apply"/> <input type="button" value="Cancel"/>

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 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 alphanumeric 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 2003) only support WEP or WPA (TKIP) cipher. A driver upgrade would be needed for those clients to use WPA and WPA2 encryption.

2.7.3.3 WPA RADIUS:

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

Encryption :	<input type="text" value="WPA RADIUS"/>	1
WPA Unicast Cipher Suite :	<input checked="" type="radio"/> WPA(TKIP) <input type="radio"/> WPA2(AES) <input type="radio"/> WPA2 Mixed	2
RADIUS Server IP address :	<input type="text"/>	3
RADIUS Server Port :	<input type="text" value="1812"/>	4
RADIUS Server Password :	<input type="text"/>	5
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>		6

Here are descriptions of every setup item:

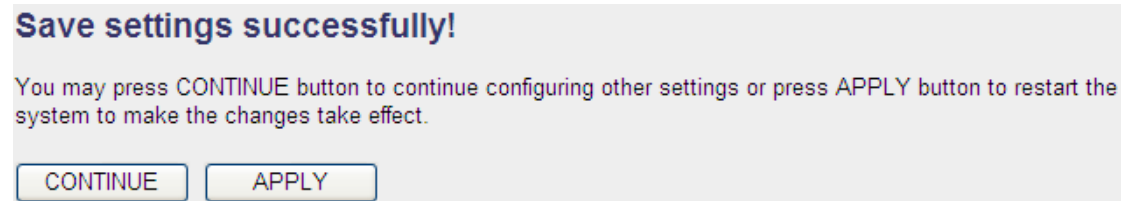
WPA Unicast Cipher Suite (2): *Select a type of WPA cipher suite. Available options are: WPA (TKIP), WPA2 (AES), and WPA2 Mixed. You can select any one of them, but you have to make sure your wireless client supports the cipher you selected.*

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 30 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 who 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 the 'Wireless' menu on the upper-right side of the web management interface, then click 'Access Control', and the following will be displayed on your web browser:

The screenshot shows the 'MAC Address Filtering Table' interface. At the top, there is a title 'MAC Address Filtering Table 1' and a note 'It allows 20 entries only.' Below this is a table with columns 'NO.', 'MAC Address', 'Comment', and 'Select'. The first row contains the number '1', the MAC address '11:22:33:44:55:66', and an empty 'Select' checkbox. To the right of the table are 'Delete' and 'Delete All' buttons. Below the table, there is a checkbox labeled 'Enable Access Control' which is checked. Below this is another table with columns 'MAC Address' and 'Comment', each with an empty input field. To the right of these fields are 'Add' and 'Clear' buttons. At the bottom right are 'APPLY' and 'CANCEL' buttons. Numbered callouts 1 through 9 point to various elements: 1 points to the title, 2 to the 'Delete' button, 3 to the 'Delete All' button, 4 to the 'Enable Access Control' checkbox, 5 to the 'MAC Address' input field, 6 to the 'Comment' input field, 7 to the 'Add' button, 8 to the 'Clear' button, and 9 to the 'APPLY' button.

NO.	MAC Address	Comment	Select
1	11:22:33:44:55:66		<input type="checkbox"/>

4 Enable Access Control

MAC Address	Comment
<input type="text"/>	<input type="text"/>

7 Add 8 Clear

9 APPLY CANCEL

All allowed MAC addresses will be displayed in the 'MAC Address Filtering Table' (1). Here are descriptions of every setup item:

Delete (2): If you want to delete a specific MAC address 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 (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.

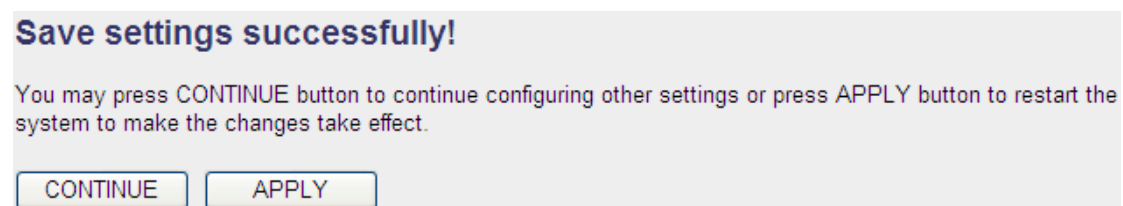
MAC Address (5): Input the MAC address of your wireless devices here, dash (-) or colon (:) are not required. (i.e. If the MAC address label of your wireless device indicates 'aa-bb-cc-dd-ee-ff' or 'aa:bb:cc:dd:ee:ff', just input 'aabbccddeeff').

Comment (6): You can input any text here as the comment of this MAC address, like 'ROOM 2A 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 (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 the 'Wireless' menu at the top of the web management interface, then click 'WPS', and the following will be displayed on your web browser:

Enable WPS 1

Enable WPS Proxy

• WPS Information 2

WPS Status :	Unconfigured
PinCode Self :	26470511
SSID :	Comtrend_8196c1
Authentication Mode :	Disable
Passphrase Key :	

• Device Configure

Config Mode :	Registrar ▼	3
Configure by Push Button :	Start PBC	4
Configure by Client PinCode :	<input type="text"/>	Start PIN 5

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 '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): Select Registrar or Enrollee from the drop-down menu.

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 III 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 general setup interface and the following will be displayed on your web browser:

1

2

3

4

Priority	Rule Name	Upload Bandwidth	Download Bandwidth	Select
1	FTP	0	100	<input type="checkbox"/>

5

6

7

8

9

10

11

APPLY

CANCEL

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.

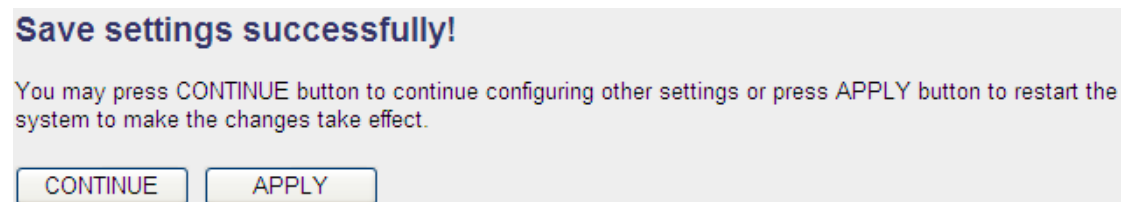
Total Download Bandwidth (2): You can set the limit of total download bandwidth in kbits. To disable download bandwidth limitation, input '0' here.

<i>Total Upload Bandwidth (3):</i>	<i>You can set the limit of total upload bandwidth in kbits. To disable upload bandwidth limitation, input '0' here.</i>
<i>Current QoS Table (4):</i>	<i>All existing QoS rules will be displayed here.</i>
<i>Add (5):</i>	<i>Click the 'add' button to add a new QoS rule, see section 3-1-2 'Add a new QoS rule' below.</i>
<i>Edit (6):</i>	<i>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.</i>
<i>Delete (7):</i>	<i>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.</i>
<i>Delete All (8):</i>	<i>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.</i>

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:

Rule Name :	<input type="text"/>	a
Bandwidth :	Download <input type="button" value="v"/> <input type="text"/> Kbps Guarantee <input type="button" value="v"/>	b
Local IP Address :	<input type="text"/> - <input type="text"/>	c
Local Port Range :	<input type="text"/>	d
Remote IP Address :	<input type="text"/> - <input type="text"/>	e
Remote Port Range :	<input type="text"/>	f
Traffic Type :	None <input type="button" value="v"/>	g
Protocol :	TCP <input type="button" value="v"/>	h

i

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 'max' (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 the current QoS table; if you did anything wrong, you'll get an error message when you click the '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 of 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:

NAT Settings

Network Address Translation (NAT) allows multiple users at your local site to access the Internet through a single Public IP Address or multiple Public IP Addresses. NAT provides Firewall protection from hacker attacks and has the flexibility to allow you to map Private IP Addresses to Public IP Addresses for key services such as the Web or FTP.

1
Enable or disable NAT module function : Enable Disable

2

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:

Save settings successfully!

You may press CONTINUE button to continue configuring other settings or press APPLY button to restart the system to make the changes take effect.

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:

The screenshot shows the 'Port Forwarding' configuration page. At the top, there is a checkbox labeled 'Enable Port Forwarding' with the number 1 next to it. Below this is a form with five columns: 'Private IP' (with a text input field and number 2), 'Computer Name' (with a dropdown menu and number 3), 'Type' (with a dropdown menu set to 'Both' and number 4), 'Port Range' (with two stacked text input fields and number 5), and 'Comment' (with a text input field and number 6). To the right of the form are two buttons: 'Add' (number 7) and 'Reset' (number 8). Below the form is a section titled 'Current Port Forwarding Table' enclosed in a dashed box (number 9). This section contains a table with columns: 'NO.', 'Computer Name', 'Private IP', 'Type', 'Port Range', 'Comment', and 'Select'. Below the table are three buttons: 'Delete' (number 10), 'Delete All' (number 11), and 'Reset' (number 12). At the bottom of the table section are two buttons: 'APPLY' and 'CANCEL' (number 13).

Here are descriptions of every setup item:

Enable Port Forwarding (1): Check this box to enable port forwarding, and uncheck this box to disable port forwarding.

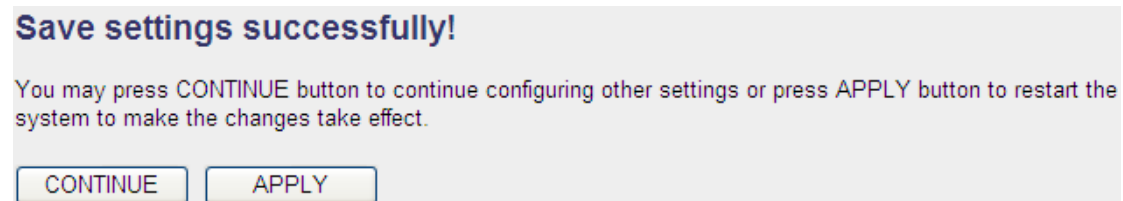
- Private IP (2): Input the IP address of the computer on the local network which provides the Internet service.*
- Computer Name (3): Pull down the menu and all the computers connected to the router will be listed here. You can easily select the computer name without checking the IP address of the computer.*
- 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:

The screenshot shows the 'Virtual Server' configuration page. At the top left, there is a checkbox labeled 'Enable Virtual Server' with a '1' above it. Below this is a form with several fields: 'Private IP' (2), 'Computer Name' (3) with a dropdown menu, 'Private Port' (4), 'Type' (5) with a dropdown menu, 'Public Port' (6), and 'Comment' (7). Below these fields are 'Add' (8) and 'Reset' (9) buttons. A dashed box labeled '10' encloses the 'Current Virtual Server Table', which has columns for 'NO.', 'Computer Name', 'Private IP', 'Private Port', 'Type', 'Public Port', 'Comment', and 'Select'. Below the table are 'Delete' (11), 'Delete All' (12), and 'Reset' (13) buttons. At the bottom right of the table area are 'APPLY' (14) and 'CANCEL' buttons.

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 that provides the 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.*

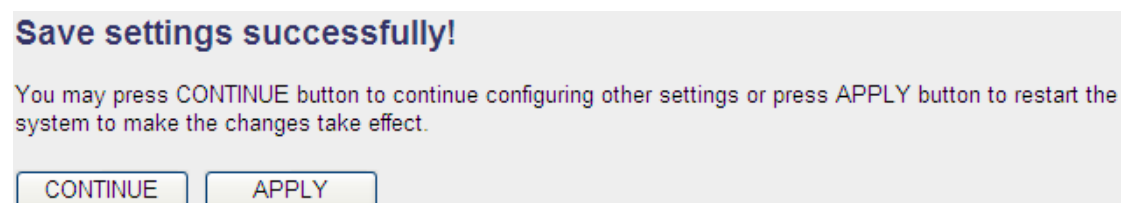
Virtual Server Table (10): All existing virtual server mappings will be displayed here.

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 settings in this page back to previously-saved value, 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.

1

Enable Special Applications

IP Address	Computer Name	TCP Port to Open	UDP Port to Open	Comment
0.0.0.0 2	<< -----Select----- >> 3	4	5	6

Popular Applications : Select Game **7**

8 **9**

• **Current Trigger-Port Table**

NO.	Computer Name	IP Address	TCP Port to Open	UDP Port to Open	Comment	Select
						<input type="button" value="Delete"/> <input type="button" value="Delete All"/> <input type="button" value="Reset"/>

11 **12** **13**

14

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.

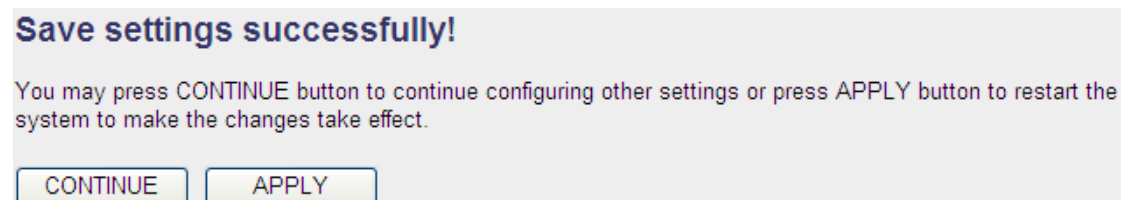
Delete (11): Select a special application by clicking the 'Select' box of the mapping, then click the 'Delete' button to remove the setting. If there's no setting here, this button will be grayed out.

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 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 UPnP function nowadays.

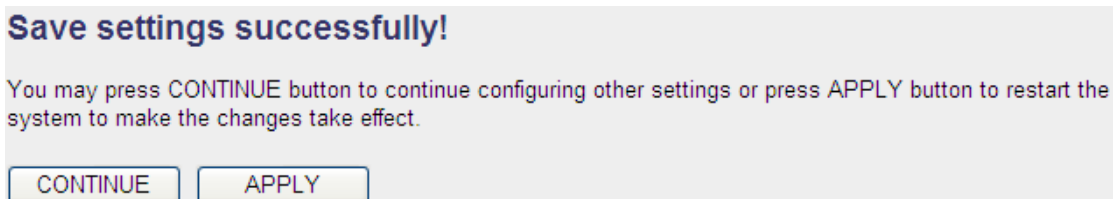
Click the 'NAT' menu on the left of the web management interface, then click 'UPnP', and the following will be displayed on your web browser:

 Enable Disable' and two buttons: 'APPLY' and 'CANCEL'." data-bbox="149 318 727 424"/>

UPnP Module : Enable Disable

APPLY CANCEL

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:



Save settings successfully!

You may press CONTINUE button to continue configuring other settings or press APPLY button to restart the system to make the changes take effect.

CONTINUE APPLY

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 settings in this page back to previously-saved values, click the 'Cancel' button.

3-2-6 ALG Settings

Application Layer Gateway (ALG) is a special function of this router. It includes many preset routing rules for numerous applications which require special support. With these supports, those applications which require special support will be able to work with the NAT architecture.

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

Enable	Name	Comment
<input checked="" type="checkbox"/>	FTP	Support for FTP.
<input checked="" type="checkbox"/>	H323	Support for H323/netmeeting.
<input checked="" type="checkbox"/>	IPsec	Support for IPsec passthrough.
<input checked="" type="checkbox"/>	PPTP	Support for PPTP passthrough.
<input checked="" type="checkbox"/>	L2TP	Support for L2TP passthrough.
<input checked="" type="checkbox"/>	SIP	Support for SIP.

There are many applications listed here. Check the box of the special support for applications you need, and then click the 'Apply' button and the following will be displayed on your web browser:

Save settings successfully!

You may press **CONTINUE** button to continue configuring other settings or press **APPLY** button to restart the system to make the changes take effect.

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 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:



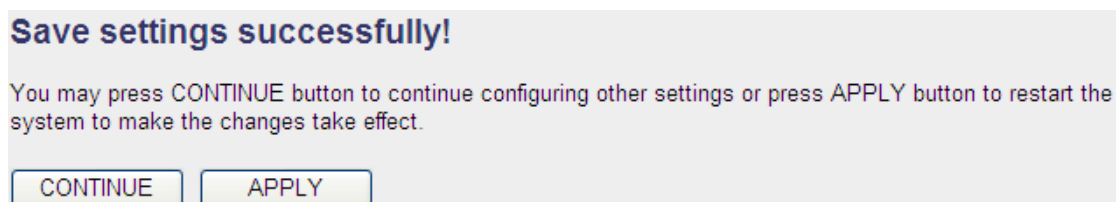
Security Settings (Firewall)

The Broadband router provides extensive firewall protection by restricting connection parameters, thus limiting the risk of hacker attack, and defending against a wide array of common attacks. However, for applications that require unrestricted access to the Internet, you can configure a specific client/server as a Demilitarized Zone (DMZ).

Enable or disable Firewall module function Enable Disable

Apply

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:



Save settings successfully!

You may press CONTINUE button to continue configuring other settings or press APPLY button to restart the system to make the changes take effect.

CONTINUE APPLY

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 Apply. Next, click 'Access Control', and the following will be displayed on your web browser:

1

The screenshot shows the 'Access Control' configuration page. At the top, there are radio buttons for 'Enable MAC Filtering' (1), 'Deny' (2), and 'Allow' (3). Below this is a form for adding a new entry with fields for 'Client PC MAC Address' (4), 'Computer Name' (5), and 'Comment' (6). There are 'Add' (7) and 'Reset' (8) buttons. Below this is a table titled 'Current MAC Filtering Table' (9) with columns for 'NO.', 'Computer Name', 'Client PC MAC Address', 'Comment', and 'Select'. There are 'Delete' (10), 'Delete All' (11), and 'Reset' (12) buttons. Below the table is another section for 'Enable IP Filtering' (13), 'Deny' (14), and 'Allow' (15) radio buttons. There are 'Add PC' (16), 'Delete' (17), and 'Delete All' (18) buttons. At the bottom are 'APPLY' (19) and 'CANCEL' (20) buttons.

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.

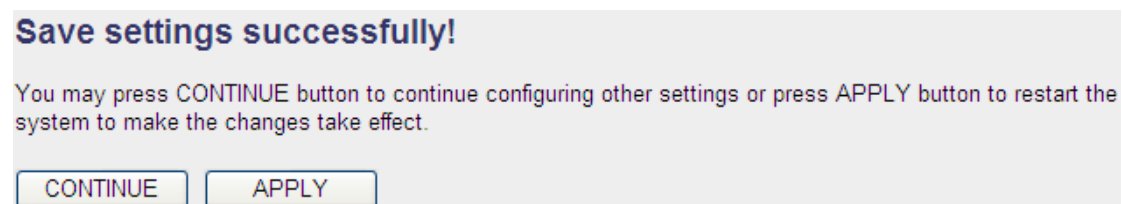
IP Filtering Table (12): All existing IP addresses in the filtering table will be listed here.

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 '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 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:

Client PC Description :	<input type="text"/>	a
Client PC IP address :	<input type="text"/> - <input type="text"/>	b
Client PC Service :		
Service Name	Detail Description	Select
WWW	HTTP, TCP Port 80, 3128, 8000, 8080, 8081	<input type="checkbox"/>
E-mail Sending	SMTP, TCP Port 25	<input type="checkbox"/>
News Forums	NNTP, TCP Port 119	<input type="checkbox"/>
E-mail Receiving	POP3, TCP Port 110	<input type="checkbox"/>
Secure HTTP	HTTPS, TCP Port 443	<input type="checkbox"/>
File Transfer	FTP, TCP Port 21	<input type="checkbox"/>
MSN Messenger	TCP Port 1863	<input type="checkbox"/>
Telnet Service	TCP Port 23	<input type="checkbox"/>
AIM	AOL Instant Messenger, TCP Port 5190	<input type="checkbox"/>
NetMeeting	H.323, TCP Port 389,522,1503,1720,1731	<input type="checkbox"/>
DNS	UDP Port 53	<input type="checkbox"/>
SNMP	UDP Port 161, 162	<input type="checkbox"/>
VPN-PPTP	TCP Port 1723	<input type="checkbox"/>
VPN-L2TP	UDP Port 1701	<input type="checkbox"/>
TCP	All TCP Port	<input type="checkbox"/>
UDP	All UDP Port	<input type="checkbox"/>
User Define Service		
Protocol:	<input type="text" value="Both"/>	d
Port Range:	<input type="text"/>	e
<input type="button" value="Add"/> <input type="button" value="Reset"/>		
f		

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 your 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.

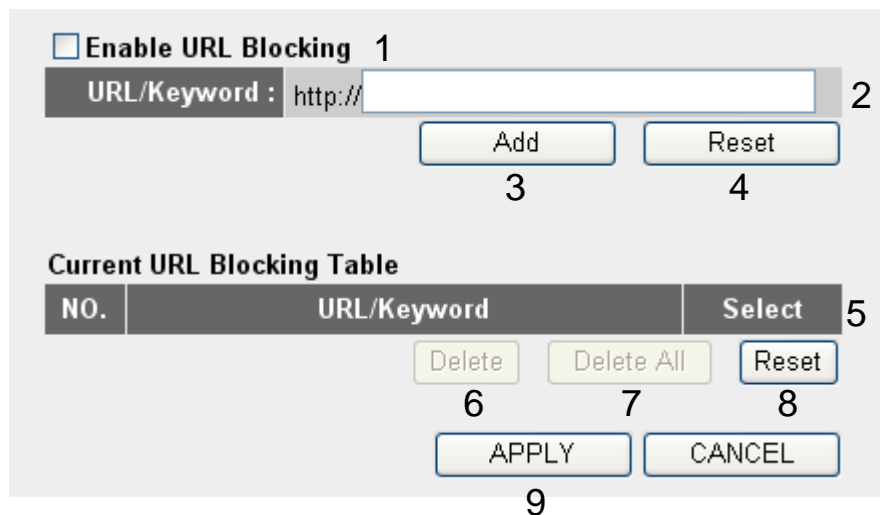
3-3-2 URL Blocking

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:



Enable URL Blocking 1

URL/Keyword : http:// 2

Add 3 Reset 4

Current URL Blocking Table

NO.	URL/Keyword	Select
-----	-------------	--------

Delete 6 Delete All 7 Reset 8

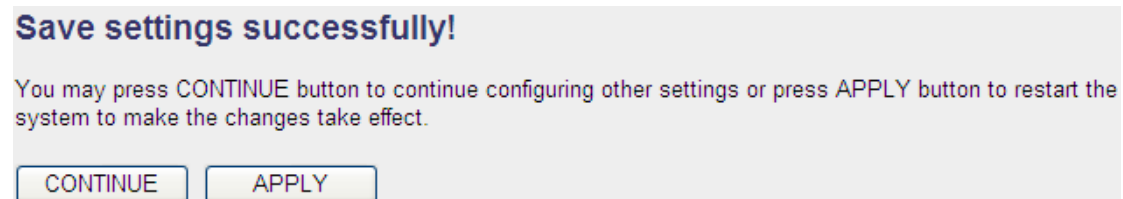
APPLY CANCEL 9

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:



Save settings successfully!

You may press CONTINUE button to continue configuring other settings or press APPLY button to restart the system to make the changes take effect.

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 settings in this page back to previously-saved values, click the 'Cancel' button.

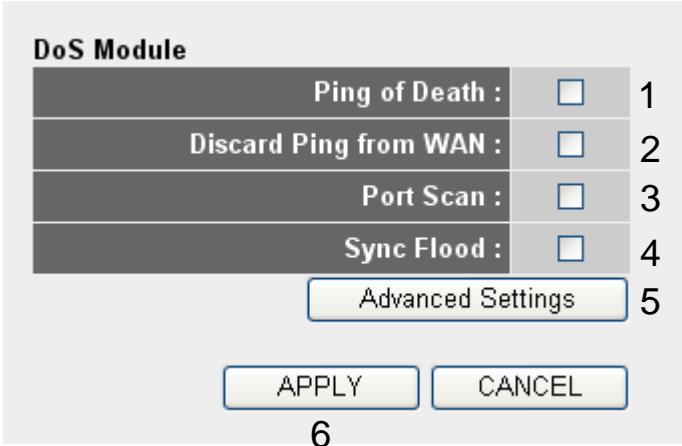
3-3-3 DoS Attack Prevention

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:



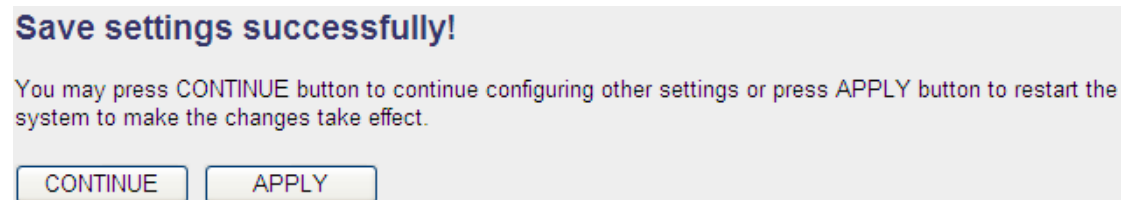
DoS Module	
Ping of Death :	<input type="checkbox"/> 1
Discard Ping from WAN :	<input type="checkbox"/> 2
Port Scan :	<input type="checkbox"/> 3
Sync Flood :	<input type="checkbox"/> 4
Advanced Settings 5	
APPLY CANCEL 6	

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 this box and the router will filter this kind of packet out.

- Discard Ping From WAN (2): Ping is a common and useful tool to know the connection status of a specified remote network device, but some malicious intruder will try to fill your network bandwidth with a lot of PING request data packets, to make your Internet connection become very slow, even unusable. Check this box and the router will ignore all inbound PING requests, but when you activate this function, you will not be able to ping your own router from the Internet, too.*
- 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 request 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 '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:

DoS Module			
<input type="checkbox"/>	Ping of Death	5 Packet(s) per Second	Burst 5 a
<input type="checkbox"/>	Discard Ping from WAN		b
<input type="checkbox"/>	Port Scan	<input checked="" type="checkbox"/> NMAP FIN / URG / PSH <input checked="" type="checkbox"/> Xmas tree <input checked="" type="checkbox"/> Another Xmas tree <input checked="" type="checkbox"/> Null scan <input checked="" type="checkbox"/> SYN / RST <input checked="" type="checkbox"/> SYN / FIN <input checked="" type="checkbox"/> SYN (only unreachable port)	c
<input type="checkbox"/>	Sync Flood	30 Packet(s) per Second	Burst 30 d

APPLY CANCEL
e

Here are descriptions of every setup item:

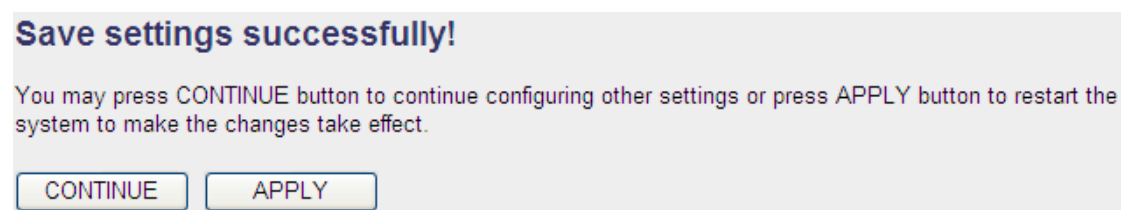
Ping of Death (a): Set the threshold of when this DoS prevention mechanism will be activated. Check the Ping of Death box, and input the frequency of threshold (how many packets per second, minute, or hour), you can also input the 'Burst' value, which means when this number of 'Ping of Death' packet 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 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 general setup interface, then click 'DMZ', and the following will be displayed on your web browser:

1

Enable DMZ

Public IP	Client PC IP Address	Computer Name
<input checked="" type="radio"/> Dynamic IP Session 1 2	<input type="text"/> 3	<< -----Select----- 4
<input type="radio"/> Static IP <input type="text"/>		

5 6

• Current DMZ Table

NO.	Computer Name	Public IP	Client PC IP Address	Select
		<input type="button" value="Delete"/> 8	<input type="button" value="Delete All"/> 9	<input type="button" value="Reset"/> 10

11

7

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.

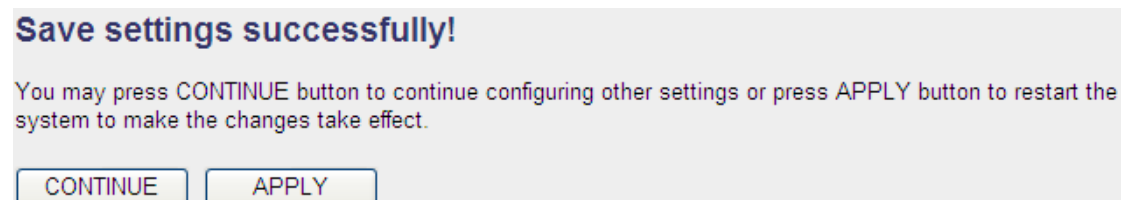
Current DMZ Table (7): All existing public IP address and private IP address mapping will be displayed here.

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 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.

System

Model :	Wireless Router
Up Time :	0day:0h:3m:14s
Hardware Version :	Rev. A
Boot Code Version :	1.0
Runtime Code Version :	1.09

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:

Attain IP Protocol :	Fixed IP connect
IP Address :	172.1.1.1
Subnet Mask :	255.255.0.0
Default Gateway :	172.1.1.254
MAC Address :	00:E0:4C:81:96:C9
Primary DNS :	8.8.8.8
Secondary DNS :	

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:

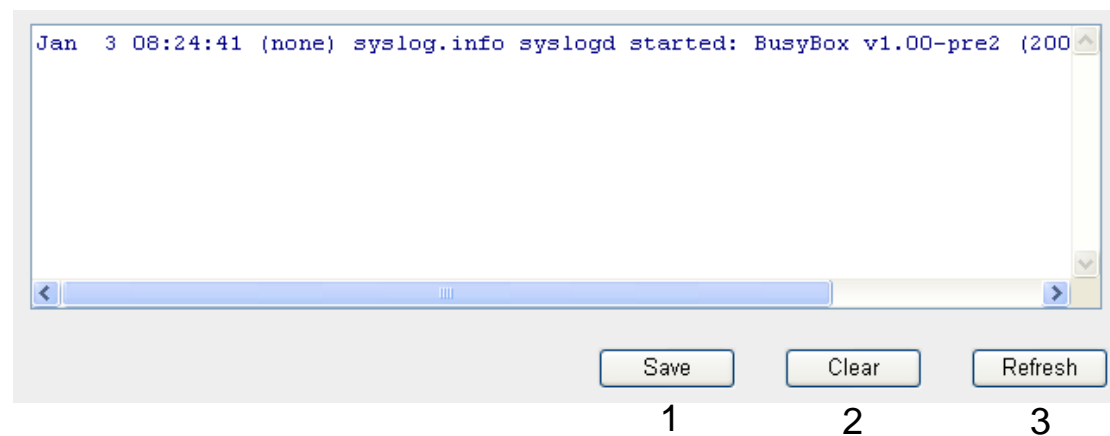
Wireless Configuration	
Mode :	Access Point
ESSID :	Comtrend_8196c1
Channel Number :	auto
Security :	Disable
LAN Configuration	
IP Address :	192.168.0.1
Subnet Mask :	255.255.255.0
DHCP Server :	Enable
MAC Address :	00:E0:4C:81:96:C1

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.

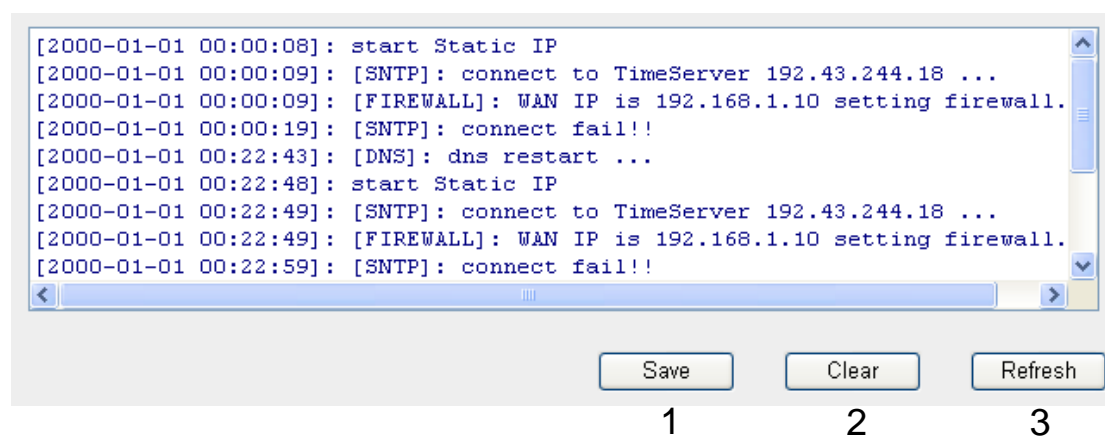
Clear (2): Delete all event logs displayed here.

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 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.

3-4-6 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:

IP Address	MAC Address	Time Expired (Second)
192.168.0.100	00:25:11:af:fd:f8	forever

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:

Wireless LAN	Packets Sent	72
	Packets Received	1196
Ethernet LAN	Packets Sent	1672
	Packets Received	2636
Ethernet WAN	Packets Sent	0
	Packets Received	0


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

3-5 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:



The screenshot shows a web interface with three sections:

- Backup Settings :** A button labeled "Save" followed by the number "1".
- Restore Settings :** A text input field, a "Browse..." button, and an "Upload" button, followed by the number "2".
- Restore to Factory Default :** A button labeled "Reset" followed by the number "3".

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.*

3-6 Firmware Upgrade

The system software used by this router is called 'firmware', just like any applications 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:

This tool allows you to upgrade the Broadband router's system firmware. Enter the path and name of the upgrade file and then click the APPLY button below. You will be prompted to confirm the upgrade.

The system will automatically reboot the router after you finished the firmware upgrade process. If you don't complete the firmware upgrade process in the "next" step, you have to reboot the router.

Next

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

Firmware Upgrade

This tool allows you to upgrade the Wireless Router's system firmware. Enter the path and name of the upgrade file and then click the APPLY button below. You will be prompted to confirm the upgrade.

Click the 'Browse' 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.

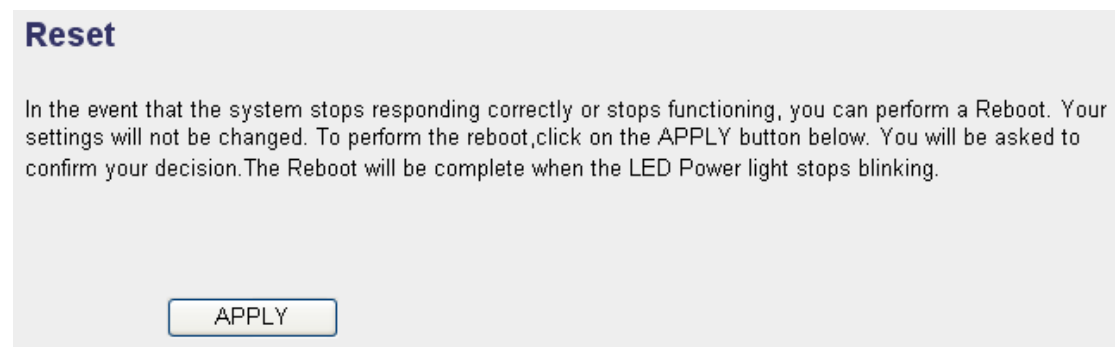
After a firmware upgrade file is selected, click the 'Apply' button, and the router will start the firmware upgrade procedure automatically. The procedure may take several minutes, please be patient.

NOTE: Never interrupt the upgrade procedure by closing the web browser or physically disconnect your computer from the 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.

3-7 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 'Tools' 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 IV: Appendix

4-1 Hardware Specification

WAN Port: 10/100M UTP Port x 1

LAN Ports: 10/100M UTP Port x 4

Antenna: 2dBi Dipole Antenna x 1 (1T1R ; 1 antenna is for signal transmitting and 1 antenna is for signal receiving)

Power: 5VDC, 1A Switching Power Adapter

Dimensions: 30(H) x 127(W) x 96(D) mm

Transmit Power :

11n: 12dBm \pm 1.5dBm, 11g: 12dBm \pm 1.5dBm, 11b: 16dBm \pm 1.5dBm

Temperature: 32~104°F (0 ~ 40°C)

Humidity: 10-90% (NonCondensing)

Certification: FCC

4-2 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	<ol style="list-style-type: none">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. Do a firmware upgrade (if available) and see if the issue remains.g. If all above solutions don't work, contact the place of purchase for help.

<p>Can't get connected to the Internet</p>	<ol style="list-style-type: none"> 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.
<p>I can't locate my router with my wireless client</p>	<ol style="list-style-type: none"> a. Is 'Broadcast ESSID' set to off? Please remember that you have to input the ESSID on your wireless client manually, if ESSID broadcast is disabled. b. Are you within range of the wireless router?

<p>File download is very slow or breaks frequently</p>	<ul style="list-style-type: none"> a. Are you using the QoS function? Try to disable it and try again. b. Try to reset or reboot the router and see if it's better after that. c. If this never happened before, call your Internet service provider to know if there is something wrong with their network.
<p>I can't log onto the web management interface: password is wrong</p>	<ul style="list-style-type: none"> 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 by holding in the reset button for 10 seconds.
<p>The date and time of all event logs are wrong</p>	<ul style="list-style-type: none"> a. Adjust the internal clock of the router.