Wireless Broadband Router

Manual

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Introduction

Congratulations on purchasing this Wireless Broadband Router. This Wireless Broadband Router is a cost-effective IP Sharing Router that enables multiple users to share the Internet through an ADSL or cable modem. Simply configure your Internet connection settings in the Wireless Broadband Router and plug your PC to the LAN port and you're ready to share files and access the Internet. As your network grows, you can connect another hub or switch to the router's LAN ports, allowing you to easily expand your network. The Wireless Broadband Router is embedded with a IEEE 802.11g/b access point that allows you to build up a wireless LAN. The Wireless Broadband Router provides a total solution for the Small and Medium-sized Business (SMB) and the Small Office/Home Office (SOHO) markets, giving you an instant network today, and the flexibility to handle tomorrow's expansion and speed.

Features

- High Internet Access throughput (50M)
- Allow multiple users to share a single Internet line
- Supports up to 253 users
- Internet Access via Cable or xDSL modem
- Access Private LAN Servers from the Public Network
- Equipped with four LAN ports (10/100M) and one WAN port (10/100M)
- Provides IEEE 802.11g/b wireless LAN access point
- Support DHCP (Server/Client) for easy setup
- Support advance features such as: Special Applications, DMZ, Virtual Servers, Access Control, Firewall.
- Allow you to monitor the router's status such as: DHCP Client Log, System Log, Security Log and Device/Connection Status
- Easy to use Web-based GUI for configuration and management purposes
- Remote Management allows configuration and upgrades from a remote site (over the Internet)

Minimum Requirements

- One External xDSL (ADSL) or Cable modem with an Ethernet port (RJ-45)
- Network Interface Card (NIC) for each Personal Computer (PC)
- PCs with a Web-Browser (Internet Explorer 4.0 or higher, or Netscape Navigator 4.7 or higher)

Package Content

- One 4-port Broadband router unit
- One Quick Installation Guide
- One User Manual CD
- One Power Adapter
- Accessories

Note

The WAN "idle timeout" auto-disconnect function may not work due to abnormal activities of some network application software, computer virus or hacker attacks from the Internet. For example, some software sends network packets to the Internet in the background, even when you are not using the Internet. So please turn off your computer when you are not using it. This function also may not work with some ISP. So please make sure this function can work properly when you use this function in the first time, especially your ISP charge you by time used.

Get to know the Broadband Router

Back Panel

The diagram (fig1.0) below shows the broadband router's back panel. The router's back panel is divided into three sections, LAN, WAN and Reset:

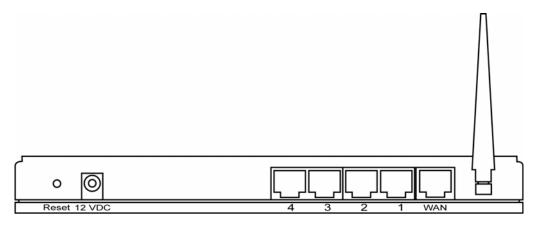


Figure 1.0

1) Local Area Network (LAN)

The Broadband router's 4 LAN ports are where you connect your LAN's PCs, printer servers, hubs and switches etc.

2) Wide Area Network (WAN)

The WAN port is the segment connected to your xDSL or Cable modem and is linked to the Internet.

3) Reset

The Reset button allows you to do one of two things.

- If problems occur with your router, press the router's reset button with a pencil tip (for less than 4 seconds) and the router will re-boot itself, keeping your original configurations.
- 2) If problems persist or you experience extreme problems or you forgot your password, press the reset button for longer than 4 seconds and the router will reset itself to the factory default settings (warning: your original configurations will be replaced with the factory default settings)

Front Panel

On the router's front panel there are LED lights that inform you of the router's current status. Below is an explanation of each LED and its description.



LED	Light Status	Description
PWR	ON	Router's power supply is on
WAN 10/100M	ON OFF	WAN port 100Mbps is connected WAN port 10Mbps is connected
WAN LNK/ACT	ON OFF	WAN is connected No WAN connection
	Flashing	WAN port has Activity (ACT), data being sent
LAN 10/100M (Port 1-4) LAN LNK/ACT (Port 1-4)	ON OFF ON OFF Flashing	LAN port 100Mbps is connected LAN port 10Mbps is connected LAN is connected No LAN connection LAN port has Activity (ACT), data being sent
WLAN-G	ON OFF Flashing	Wireless LAN has been activated Wireless LAN is disabled Wireless LAN has Activity (ACT) data being sent

Setup Diagram

Figure 1.2 below shows a typical setup for a Local Area Network (LAN).

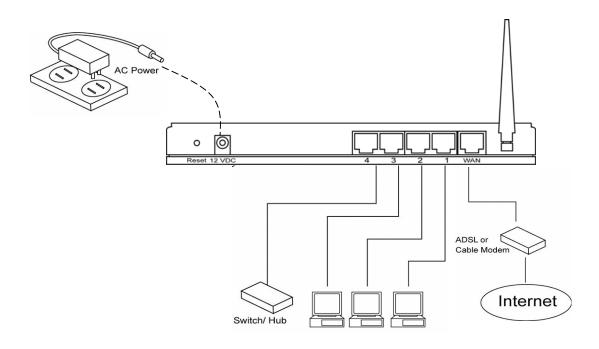


Figure 1.2

Getting started

This is a step-by-step instruction on how to start using the router and get connected to the Internet.

- 1) Setup your network as shown in the setup diagram above (fig 1.2).
- You then need to set your LAN PC clients so that it can obtain an IP address automatically. All LAN clients require an IP address. Just like an address, it allows LAN clients to find one another. (If you have already configured your PC to obtain an IP automatically then proceed to step 3, page 11)

Configure your PC to obtain an IP address automatically

By default the broadband router's DHCP is on, this means that you can obtain an IP address automatically once you've configured your PC to obtain an IP address automatically. This section will show you how to configure your PC's so that it can obtain an IP address automatically for either Windows 95/98/Me, 2000 or NT operating systems. For other operating systems (Macintosh, Sun, etc.), follow the manufacturer's instructions. The following is a step-by-step illustration on how to configure your PC to obtain an IP address automatically for 2a) Windows 95/98/Me, 2b) Windows XP, 2c) Windows 2000 and 2d) Windows NT.

2a) Windows 95/98/Me

- 1: Click the *Start* button and select *Settings*, then click *Control Panel*. The *Control Panel* window will appear.
- 2: Double-click Network icon. The Network window will appear.
- 3: Check your list of Network Components. If TCP/IP is not installed, click the *Add* button to install it now. If TCP/IP is installed, go to **step 6**.
- 4: In the Network Component Type dialog box, select Protocol and click Add button.
- 5: In the *Select Network Protocol* dialog box, select *Microsoft* and *TCP/IP* and then click the *OK* button to start installing the TCP/IP protocol. You may need your Windows CD to complete the installation.
- 6: After installing TCP/IP, go back to the *Network* dialog box. Select *TCP/IP* from the list of *Network Components* and then click the *Properties* button.
- 7: Check each of the tabs and verify the following settings:
 - **Bindings**: Check Client for Microsoft Networks and File and printer sharing for Microsoft Networks.
 - Gateway: All fields are blank.
 - DNS Configuration: Select Disable DNS.
 - WINS Configuration: Select Disable WINS Resolution.
 - **IP Address**: Select Obtain IP address automatically.

TCP/IP Properties		? ×
Bindings DNS Configuration	Advanced Gateway WINS Config	NetBIOS guration IP Address
If your network doe your network admin the space below.	be automatically assigned s not automatically assign istrator for an address, ar address automatically	n IP addresses, ask
_⊂C <u>S</u> pecify an IP	address:	
[P Address:		
S <u>u</u> bnet Mask		

- 8: Reboot the PC. Your PC will now obtain an IP address automatically from your Broadband Router's DHCP server.
- **Note**: Please make sure that the Broadband router's DHCP server is the only DHCP server available on your LAN.

Once you've configured your PC to obtain an IP address automatically, please proceed to Step 3

2b) Windows XP

- 1: Click the *Start* button and select *Settings*, then click *Network Connections*. The *Network Connections* window will appear.
- 2: Double-click *Local Area Connection* icon. The *Local Area Connection* window will appear.
- 3: Check your list of Network Components. You should see *Internet Protocol [TCP/IP]* on your list. Select it and click the *Properties* button.
- 4: In the Internet Protocol (TCP/IP) Properties window, select *Obtain an IP address automatically* and *Obtain DNS server address automatically* as shown on the following screen.

Internet	Protocol (TCP/IP) Prop	erties 🛛 🛛 🔀
General	Alternate Configuration	
You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.		
<u>o o</u> l	otain an IP address automatic	ally
- OU:	$_{ m se}$ the following IP address: $-$	
IP ac	ldress:	
Subr	net mask:	· · · · ·
<u>D</u> efa	ult gateway:	
0	gtain DNS server address auto	omatically
-OU:	e the following DNS server a	ddresses:
Prefe	erred DNS server:	
Alter	nate DNS server:	
		Ad <u>v</u> anced
		OK Cancel

- 5: Click OK to confirm the setting. Your PC will now obtain an IP address automatically from your Broadband Router's DHCP server.
- **Note**: Please make sure that the Broadband router's DHCP server is the only DHCP server available on your LAN.

Once you've configured your PC to obtain an IP address automatically, please proceed to Step 3.

2c) Windows 2000

- 1: Click the *Start* button and select *Settings*, then click *Control Panel*. The *Control Panel* window will appear.
- 2: Double-click Network and Dial-up Connections icon. In the Network and Dial-up Connection window, double-click Local Area Connection icon. The Local Area Connection window will appear.
- 3: In the Local Area Connection window, click the Properties button.
- 4: Check your list of Network Components. You should see *Internet Protocol [TCP/IP]* on your list. Select it and click the *Properties* button.
- 5: In the Internet Protocol (TCP/IP) Properties window, select Obtain an IP address

automatically and Obtain DNS server address automatically as shown on the following screen.

Internet Protocol (TCP/IP) Properti	ies ?X
General	
You can get IP settings assigned auto this capability. Otherwise, you need to the appropriate IP settings.	
Obtain an IP address automatica	ally
C Use the following IP address: —	
IP address:	
Subnet mask:	
Default gateway:	
Obtain DNS server address auto	matically
${-}^{\bigcirc}$ Use the following DNS server as	ddresses:
Preferred DNS server:	
Alternate DNS server:	
	Advanced
	OK Cancel

- 6: Click OK to confirm the setting. Your PC will now obtain an IP address automatically from your Broadband Router's DHCP server.
- **Note**: Please make sure that the Broadband router's DHCP server is the only DHCP server available on your LAN.

Once you've configured your PC to obtain an IP address automatically, please proceed to Step 3.

2d) Windows NT

- 1: Click the *Start* button and select *Settings*, then click *Control Panel*. The *Control Panel* window will appear.
- 2: Double-click *Network* icon. The *Network* window will appear. Select the *Protocol* tab from the *Network* window.
- 3: Check if the *TCP/IP Protocol* is on your list of *Network Protocols*. If TCP/IP is not installed, click the *Add* button to install it now. If TCP/IP is installed, go to **step 5**.
- 4: In the Select Network Protocol window, select the TCP/IP Protocol and click the Ok

button to start installing the TCP/IP protocol. You may need your Windows CD to complete the installation.

- 5: After you install TCP/IP, go back to the *Network* window. Select *TCP/IP* from the list of *Network Protocols* and then click the *Properties* button.
- 6: Check each of the tabs and verify the following settings:
 - IP Address: Select Obtain an IP address from a DHCP server.
 - **DNS:** Let all fields are blank.
 - WINS: Let all fields are blank.
 - Routing: Let all fields are blank.

Microsoft TCP/IP Properties	×
IP Address DNS WINS Address Routing	
An IP address can be automatically assigned to this network card by a DHCP server. If your network does not have a DHCP server, ask your network administrator for an address, and then type it in the space below.	
Adagter:	
[1] Realtek RTL8139/810X Family PCI Fast Ethernet Adapter 🔽	
Obtain an IP address from a DHCP server	
Specify an IP address	
IP Address:	
Subnet Mask:	
Default <u>G</u> ateway:	
Advanced	
Agvaliceu	
OK Cancel Apply	

- 7: Click OK to confirm the setting. Your PC will now obtain an IP address automatically from your Broadband Router's DHCP server.
- **Note**: Please make sure that the Broadband router's DHCP server is the only DHCP server available on your LAN.

Once you've configured your PC to obtain an IP address automatically, please proceed to Step 3.

3) Once you have configured your PCs to obtain an IP address automatically, the router's DHCP server will automatically give your LAN clients an IP address. By default the Broadband Router's DHCP server is enabled so that you can obtain an IP address automatically. To see if you have obtained an IP address, see Appendix A.

Note: Please make sure that the Broadband router's DHCP server is the only DHCP server available on your LAN. If there is another DHCP on your network, then you'll need to switch one of the DHCP servers off. (To disable the Broadband router's DHCP server see chapter 2 LAN Port)

4) Once your PC has obtained an IP address from your router, enter the default IP address 192.168.2.1 (broadband router's IP address) into your PC's web browser and press <enter>



5) The login screen below will appear. Enter the "User Name" and "Password" and then click <OK> to login.

Note: By default the user name is "admin" and the password is "1234". For security reasons it is recommended that you change the password as soon as possible (in General setup/system/password, see chapter 2)

Connect to 192.	168.2.1 🛛 🛛 🔀
	GR
Default: admin/1234	4
<u>U</u> ser name:	1
Password:	
	Remember my password
	OK Cancel

6) The **HOME** page screen below will appear. The **Home** Page is divided into four sections, **Quick Setup Wizard**, **General Setup**, **Status Information** and **Tools**.

Quick Setup Wizard (Chapter 1)

If you only want to start using the broadband router as an Internet Access device then you ONLY need to configure the screens in the Quick Setup Wizard section.

General Setup (Chapter 2)

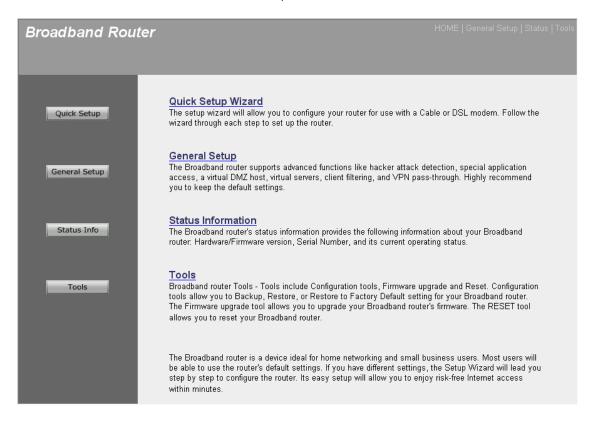
If you want to use more advanced features that the broadband router has to offer, then you'll need to configure the Quick Setup Wizard and the General Setup section. Alternatively, you can just configure the General Setup section, since the General Setup/WAN and the Quick Setup Wizard contain the same configurations.

Status Information (Chapter 3)

The Status Information section is for you to monitor the router's current status information only.

Tools (Chapter 4)

If you want to Reset the router (because of problems) or save your configurations or upgrade the firmware then the Tools section is the place to do this.



Menu	Description
Quick Setup Wizard (Chapter 1)	Select your Internet connection type and then input the configurations needed to connect to your Internet Service Provider (ISP).
General Setup (Chapter 2)	This section contains configurations for the Broadband router's advance functions such as: Address Mapping, Virtual Server, Access Control, Hacker Attack Prevention, DMZ, Special applications and other functions to meet your LAN requirements.

Status Information (<i>Chapter 3</i>)	In this section you can see the Broadband router's system information, Internet Connection, Device Status, System Log, Security Log and DHCP client information.
Tools (Chapter 4)	This section contains the broadband router's Tools - Tools include Configuration tools, Firmware upgrade and Reset. Configuration tools allow you to Backup (save), Restore, or Restore to Factory Default configuration for your Broadband router. The Firmware upgrade tool allows you to upgrade your Broadband router's firmware. The RESET tool allows you to reset your Broadband router.

7) Click on Quick Setup Wizard (see chapter 1) to start configuring settings required by your ISP so that you can start accessing the Internet. The other sections (General Setup, Status Information and Tools) do not need to be configured unless you wish to implement/monitor more advance features/information.

Select the section (Quick Setup Wizard, General Setup, Status Information and Tools) you wish to configure and proceed to the corresponding chapter. Use the selections on the web management's top right hand page (see below) to navigate around the web-based management User Interface.

HOME | General Setup | Status | Tools

Chapter 1

Quick Setup

The Quick Setup section is designed to get you using the broadband router as quick as possible. In the Quick Setup you are required to fill in only the information necessary to access the Internet. Once you click on the **Quick Setup Wizard** in the HOME page, you should see the screen below. **Step 1**) **Time Zone**

The Time Zone allows your router to base its time on the settings configured here, this will affect functions such as Log entries and Firewall settings.

Broadband Router			HOME General Setup Status Tools
 ✓ 1. Time Zone ● 2. LAN Interface ● 3. WAN Interface ● 4. Wireless LAN ● 5. Wireless Security 		one Setting tain the system time by synchronizing with a public tim	ie server over the Internet.
	Enable N Time Zone Select :	TP client update (GMT+08:00)Taipei	V
	NTP server :	192.5.41.41 - North America	Back Next

Parameter	Description
Enable NTP client update	Check this box to enable the auto time synchronization function. The router will set its time based on your selection.
Time Zone Select	You can select your local time zone here. The router will sync time according to your time zone selection.
NTP server	Select the time server to synchronize with.

Click on NEXT to proceed to the next page (step 2) LAN Interface.

Step 2) LAN Interface

The LAN Interface settings allow you to configure the parameters for local area network.

Broadband Router		HOME General Setup Status Tools
 1. Time Zone 2. LAN Interface 3. WAN Interface 4. Wireless LAN 5. Wireless Security 		e Setup onfigure the parameters for local area network which connects to the LAN port of re you may change the setting for IP addresss, subnet mask, DHCP, etc
	IP Address:	192.168.2.1
	Subnet Mask:	255.255.255.0
		Cancel Back Next
		N

Parameter	Description
IP Address	This is the router's LAN port IP address (Your LAN clients default gateway IP address)
Subnet Mask	Specify a Subnet Mask for your LAN segment.

Click on **NEXT** to proceed to the next page (step 3) WAN Interface.

Step 3) WAN Interface

In this section you have to select one of four types of connections that you will be using to connect your broadband router's WAN port to your ISP (see screen below).

Note: Different ISP's require different methods of connecting to the Internet, please check with your ISP as to the type of connection it requires.

Broadband Router		HOME General Setup Status Tools
 ✓ 1. Time Zone ✓ 2. LAN Interface ✓ 3. WAN Interface ✓ 4. Wireless LAN ◆ 5. Wireless Security 	J. WAN Interface Setup This page is used to configure the parameters for Internet network white your Access Point. Here you may change the access method to static click the item value of WAN Access type. WAN Access Type: DHCP Client ♥ Static IP DHCP Client ♥ DHCP Client PPPoE PPTP PTP DHCP Client ♥	

Menu	Description	
1.31 Static IP	Your ISP has given you an IP address already	
1.32 DHCP Client	Your ISP will automatically give you an IP address	
1.33 РРРоЕ	Your ISP requires you to use a Point-to-Point Protocol over Ethernet (PPPoE) connection.	
1.34 PPTP	Your ISP requires you to use a Point-to-Point Tunneling Protocol (PPTP) connection.	

Select one of the WAN types and set the manual's relevant sub-section (1.31, 1.32, 1.33, or 1.34). Click on **Back** to return to the previous screen.

1.31 Static IP

Select Static IP if your ISP has given you a specific IP address for you to use. Your ISP should provide all the information required in this section.

Broadband Router	HOME General Setup Status Tools
 1. Time Zone 2. LAN Interface 3. WAN Interface 4. Wireless LAN 5. Wireless Security 	configure the parameters for Internet network which connects to the WAN port of Here you may change the access method to static IP, DHCP, PPPoE or PPTP by
Parameters	Description
	Description
IP Address	This is the IP address that your ISP has given you.
Subnet Mask (e.g. 255.255.255.0)	Enter the Subnet Mask provided by your ISP
Default Gateway IP	This is the ISP's IP address gateway
DNS	This is the ISP's DNS server IP address

Click on **NEXT** to proceed to the next page (step 4) Wireless Basic Settings.

1.32 DHCP Client Choose DHCP Client if your ISP will automatically give you an IP address.

Broadband Router		HOME General Setup Status Too
 1. Time Zone 2. LAN Interface 3. WAN Interface 4. Wireless LAN 5. Wireless Security 	S. WAN Interface Setup This page is used to configure the parameters for Internet network which your Access Point. Here you may change the access method to static click the item value of WAN Access type. WAN Access Type: DHCP Client Cancel	Back Next

Click on **NEXT** to proceed to the next page (step 4) Wireless Basic Settings.

1.33 PPPoE

Select PPPoE if your ISP requires the PPPoE protocol to connect you to the Internet. Your ISP should provide all the information required in this section.

Broadband Router	HOME General Setup Status Tools
 1. Time Zone 2. LAN Interface 3. WAN Interface 4. Wireless LAN 5. Wireless Security 	J. WAN Interface Setup This page is used to configure the parameters for Internet network which connects to the WAN port of your Access Point. Here you may change the access method to static IP, DHCP, PPPoE or PPTP by cick the item value of WAN Access type WAN Access Type: PPPoE Iser Name: Password: Cancel Back Next
Parameter	Description
User Name	Enter the User Name provided by your ISP for the PPPoE connection
Password	Enter the Password provided by your ISP for the PPPoE connection

Click on **NEXT** to proceed to the next page (step 4) Wireless Basic Settings.

1.34 PPTP

Select PPTP if your ISP requires the PPTP protocol to connect you to the Internet. Your ISP should provide all the information required in this section.

Broadband Router	
 1. Time Zone 2. LAN Interface 3. WAN Interface 4. Wireless LAN 5. Wireless Security 	J. Support The properties of the parameters for Internet network which connects to the WAN port of gour Access Point. Here you may change the access method to static IP, DHCP, PPPOE or PPTP by content to the term value of WAN Access type. Main Access Type: PTP: P Address: IP Address:
Parameter	Description
IP Address	This is the IP address that your ISP has given you to establish a PPTP connection.
Subnet Mask	Enter the Subnet Mask provided by your ISP (e.g. 255.255.255.0)
Server IP Address	Enter the IP address of the ISP Gateway
User Name	Enter the User Name provided by your ISP for the PPTP connection. Sometimes called a Connection ID

Password

Click on **NEXT** to proceed to the next page (step 4) Wireless Basic Settings.

connection

Enter the Password provided by your ISP for the PPTP

Step 4) Wireless Basic Settings

Wireless Access Point builds a wireless LAN and can let all PCs equipped with IEEE 802.11b or 801.11g wireless network adaptor connect to your Intranet. It supports WEP and WPA2 encryption to enhance the security of your wireless network.

Broadband Route	er	HOME General Setup Status Tools
 ✓ 1. Time Zone ✓ 2. LAN Interface ✓ 3. WAN Interface ✓ 4. Wireless LAN ● 5. Wireless Security 	Access Point. Band: Mode: Network Type: SSID: Channel Number:	c Settings Infgure the parameters for wireless LAN clients which may connect to your 2.4 GHz (B+G) AP Infrestructure default 1 Cancel Back Next
Menu	Descri	otion
Band	You al	ys you to set the AP fix at 802.11b or 802.11g mode. so can select B+G mode to allow the AP select b and 802.11g connection automatically.

Band	It allows you to set the AP fix at 802.11b or 802.11g mode. You also can select B+G mode to allow the AP select 802.11b and 802.11g connection automatically.
Mode	It allows you to set the AP to AP, Client, WDS or AP + WDS mode.
Network Type	In client mode, you can specify your client to connect as an infrastructure client or an ad hoc client.
SSID	This is the name of the wireless LAN. All the devices in the same wireless LAN should have the same ESSID.
Channel Number	The channel used by the wireless LAN. All devices in the same wireless LAN should use the same channel.
Enable MAC Clone	Check the check box will let router copy the first seen MAC address to the WLAN MAC.

Click on **NEXT** to proceed to the next page (step 5) Wireless Security.

Step 5) Wireless Security Settings

This page allows you setup the wireless security. Turn on WEP or WPA by using Encryption Keys could prevent any unauthorized access to your wireless network.

Broadband Route	HOME General Setup Status Tools
 ✓ 1. Time Zone ✓ 2. LAN Interface ✓ 3. WAN Interface ✓ 4. Wireless LAN ✓ 5. Wireless Security 	Subject Series Seri
Menu	Description
None	Do not apply any encryption to wireless usage. Everyone can access the wireless without permission.
1.51 WEP	You can select the WEP key length for encryption, 64-bit or 128- bit. Larger WEP key length will provide higher level of security, but the throughput will be lower.
1.52 WPA(TKIP)	You can use a pre-shared key to authenticate wireless stations and encrypt data during communication. And use TKIP to change the encryption key frequently.

1.53 WPA2(AES)	You can use a pre-shared key to authenticate wireless stations and encrypt data during communication. And use CCMP(AES) to change the encryption key frequently.
1.54 WPA2 Mixed	This will use TKIP or AES based on the other communication peer automatically.

Select one of the Security types and set the manual's relevant sub-section (1.51, 1.52, 1.53, or 1.54). Click on **Back** to return to the previous screen.

1.51 WEP

When you select 64-bit or128-bit WEP key, you have to enter WEP keys to encrypt data. You can generate the key by yourself and enter it. You can enter four WEP keys and select one of them as default key. Then the router can receive any packets encrypted by one of the four keys.

Broadband Router		
 ✓ 1. Time Zone ✓ 2. LAN Interface ✓ 3. WAN Interface ✓ 4. Wireless LAN ✓ 5. Wireless Security 	5. Wireless Sec This page allows you se could prevent any unaut Encryption: WEP Key Length: Key Format: Default Tx Key: Encryption Key 1: Encryption Key 2: Encryption Key 3: Encryption Key 4:	autity Setup eta the wireless security. Turn on WEP or WPA by using Encryption Keys horized access to your wireless network. Image: Cancel Back OK
Parameters	Ι	Description

Key Length	You can select the WEP key length for encryption, 64-bit or 128-bit. Larger WEP key length will provide higher level of security, but the throughput will be lower.
Key Format	You may select to select ASCII Characters (alphanumeric format) or Hexadecimal Digits (in the "A-F", "a-f" and "0-9" range) to be the WEP Key. For example: ASCII Characters: guest Hexadecimal Digits: 12345abcde
Default Tx Key	Select one of the four keys to encrypt your data. Only the key you select it in the "Default key" will take effect.
Encryption Key 1~4	The WEP keys are used to encrypt data transmitted in the wireless network. Fill the text box by following the rules below. 64-bit WEP: input 10-digit Hex values (in the "A-F", "a-f" and "0-9" range) or 5-digit ASCII character as the encryption keys. 128-bit WEP: input 26-digit Hex values (in the "A- F", "a-f" and "0-9" range) or 13-digit ASCII characters as the encryption keys.

Clicking on **OK** to save and active all the settings. Now, you can start to use the router as your internet gateway.

1.52 WPA(TKIP)

Wi-Fi Protected Access (WPA) is an advanced security standard. You can use a preshared key to authenticate wireless stations and encrypt data during communication. It uses TKIP to change the encryption key frequently. So the encryption key is not easy to be broken by hackers. This can improve security very much.

Broadband Router		HOME General Setup Status Tools
 ✓ 1. Time Zone ✓ 2. LAN Interface ✓ 3. WAN Interface ✓ 4. Wireless LAN ✓ 5. Wireless Security 	5. Wireless Security Security Security Security Security Security Preshared Key Format: Pre-Shared Key Format: Pre-Shared Key:	eless security. Turn on WEP or WPA by using Encryption Keys
Parameters	Descrip	otion
Pre-shared Key Format		ay select to select Passphrase (alphanumeric or Hexadecimal Digits (in the "A-F", "a-f"

Clicking on **OK** to save and active all the settings. Now, you can start to use the router as your internet gateway.

example:

Pre-shared Key

Passphrase: iamguest

as the pre-shared keys.

Hexadecimal Digits: 12345abcde

and "0-9" range) to be the Pre-shared Key. For

The Pre-shared key is used to authenticate and encrypt data transmitted in the wireless network. Fill the text box by following the rules below. Hex: input 64-digit Hex values (in the "A-F", "a-f" and "0-9" range) or at least 8 character pass phrase

1.53 WPA2(AES)

Wi-Fi Protected Access 2(WPA2) is an advanced security standard. You can use a preshared key to authenticate wireless stations and encrypt data during communication. It uses CCMP(AES) to change the encryption key frequently. So the encryption key is not easy to be broken by hackers. This can improve security very much.

Broadband Router	HOME General Setup Status Tools
 ✓ 1. Time Zone ✓ 2. LAN Interface ✓ 3. WAN Interface ✓ 4. Wireless LAN ✓ 5. Wireless Security 	Subset of the server of the serv
Parameters	Description
Pre-shared Key Format	You may select to select Passphrase (alphanumeric format) or Hexadecimal Digits (in the "A-F", "a-f" and "0-9" range) to be the Pre-shared Key. For example: Passphrase: iamguest Hexadecimal Digits: 12345abcde
Pre-shared Key	The Pre-shared key is used to authenticate and encrypt data transmitted in the wireless network. Fill the text box by following the rules below. Hex: input 64-digit Hex values (in the "A-F", "a-f" and "0-9" range) or at least 8 character pass phrase as the pre-shared keys.

Clicking on **OK** to save and active all the settings. Now, you can start to use the router as your internet gateway.

1.54 WPA2 Mixed

Wi-Fi Protected Access 2(WPA2) is an advanced security standard. You can use a preshared key to authenticate wireless stations and encrypt data during communication. It uses TKIP or CCMP(AES) to change the encryption key frequently. So the encryption key is not easy to be broken by hackers. This can improve security very much.

Broadband Router	HOME General Setup Status To	Is
 ✓ 1. Time Zone ✓ 2. LAN Interface ✓ 3. WAN Interface ✓ 4. Wireless LAN ✓ 5. Wireless Security 	S. Wireless Security Setup The page allows you setup the wireless security. Turn on WEP or WPA by using Encryption Keps could prevent any unauthorized access to your wireless network. Encryption: WPA2 Mked ♥ Pre-Shared Kep Format: ● ● Pre-Shared Kep: ● Cancel Back OK	
Parameters	Description	
Pre-shared Key Format	You may select to select Passphrase (alphanumeric format) of Hexadecimal Digits (in the "A-F", "a-f" and "0-9" range) to be the Pre-shared Key. For example: Passphrase: iamguest Hexadecimal Digits: 12345abcde	r

Pre-shared Key	The Pre-shared key is used to authenticate and encrypt data transmitted in the wireless network. Fill the text box by following the rules below. Hex: input 64-digit Hex values (in the "A-F", "a-f"
	and "0-9" range) or at least 8 character pass phrase as the pre-shared keys.

Clicking on \mathbf{OK} to save and active all the settings. Now, you can start to use the router as your internet gateway.

Chapter 2

General Settings

Once you click on the General Setup button at the Home Page, you should see the screen below.

If you have already configured the Quick Setup Wizard you do NOT need to configure anything thing in the General Setup screen for you to start using the Internet.

The General Setup contains advanced features that allow you to configure the router to meet your network's needs such as: Wireless, Address Mapping, Virtual Server, Access Control, Hacker Attack Prevention, Special Applications, DMZ and other functions.

Broadband Router	, HOME General Setup Status Tools
• System • WAN • LAN • Wirless • Firewall	Ceneral Setup The router supports advanced functions like hacker attack detection, client filtering, virtual servers, special application access, and a virtual DMZ host.

Below is a general description of what advance functions are available for this broadband router.

Menu	Description
2.1 System	This section allows you to set the Broadband router's system Time Zone, Password and Remote Management Administrator.
2.2 WAN	This section allows you to select the connection method in order to establish a connection with your ISP (same as the Quick Setup Wizard section)
2.3 LAN	You can specify the LAN segment's IP address, subnet Mask, enable/disable DHCP and select an IP range for your LAN
2.4 Wireless	You can setup the wireless LAN's SSID, WEP key, MAC filtering.
2.5 Firewall	The Firewall section allows you to configure Access Control, Hacker Prevention and DMZ.

Select one of the above five General Setup selections and proceed to the manual's relevant subsection

2.1 System

The system screen allows you to specify a time zone, to change the system password and to specify a remote management user for the broadband router.

Broadband Router	,	HOME General Setup Status Tools
 ✓ System ▶ Time Zone Setting ▶ Password Setup ♥ WAN ■ LAN ♥ Wirless ▶ Firewall 	System Setting This page includes all the basic configuration tools for the router. T to the left.	The options are in the menu screen

Parameters	Description
System Settings	
2.1.1 Time Zone Setting	Select the time zone of the country you are currently in. The router will set its time based on your selection.
2.1.2 Password Setup	Allows you to select a password in order to access the web-based management website.

Select one of the above three system settings selections and proceed to the manual's relevant sub-section

2.1.1 Time Zone Setting

The Time Zone Setting allows your router to reference or base its time on the settings configured here, which will affect functions such as Log entries and Firewall settings.

Broadband Router		HOME General Setup Status Tools
 System Time Zone Setting Password Setup WAN LAN Wirless Firewall 	Time Zone Setting You can maintain the system time by synchronizing with a public time Current Time : Yr 2000 Mon 1 Day 1 Hr 0 Mn Time Zone Select : (GMT+08:00)Teipei Enable NTP client update NTP server : 192.5.41.41 - North America (Manual IP Setting) Apply Cancel Refresh	

Parameter	Description
Current Time	Set the current time.
Time Zone Select	Select the time zone of the country you are currently in. The router will set its time based on your selection.
Enable NTP client update	Check the box to enable router to update time from NTP server.
NTP Server	Select one preset time server or manual input a server IP.

Click **<Apply>** at the bottom of the screen to save the above configurations. You can now configure other advance sections or start using the router (with the advance settings in place)

2.1.2 Password Setup

You can change the password required to log into the broadband router's system web-based management. By default, there is no password. So please assign a password to the Administrator as soon as possible, and store it in a safe place. Passwords can contain 0 to 12 alphanumeric characters, and are case sensitive.

Broadband Router	HOME General Setup Status Tools
 ✓ System ▶ Time Zone Setting ▶ Password Setup ■ WAN ■ LAN ■ Wirless ● Firewall 	Password Setup This page is used to set the account to access the web server of Access Point. Empty user name and password will disable the protection. User Name: New Password: Confirmed Password: Apply Cancel
Parameters	Description
User Name	Change your login user name.
New Password	Enter your new password
Confirmed Password	Enter your new password again for verification purposes
	Note : If you forget your password, you'll have to reset the router to the factory default (No password) with the reset button (see router's back panel)

Click <**Apply>** at the bottom of the screen to save the above configurations. You can now configure other advance sections or start using the router (with the advance settings in place)

2.2 WAN

Use the WAN Settings screen if you have already configured the Quick Setup Wizard section and you would like to change your Internet connection type. The WAN Settings screen allows to specify the type of WAN port connect you want to establish with your ISP. The WAN settings offer the following selections for the router's WAN port, **Static IP Address**, **DHCP Client**, **PPPOE**, **PPTP**, and **DDNS**.

Broadband Router		HOME General Setup Status Tools
 System WAN WAN Interface Setup DDNS LAN Wirless Firewall 	WAN Interface Setup This page is used to configure the parameters for Internet network whi your Access Point. Here you may change the access method to stati click the item value of WAN Access type.	
	WAN Access Type: DHCP Client	
	• Attain DNS Automatically	
	○ Set DNS Manually	
	DNS 1:	
	DNS 2:	
	DNS 3:	
	Clone MAC Address: 00000000000	
	Enable uPNP	
	Enable Web Server Access on WAN	
	Apply Cancel	

Parameters	Description
2.2.1 Static IP	Your ISP has given you an IP address already.
2.2.2 DHCP Client	Your ISP will automatically give you an IP address.
2.2.3 РРРоЕ	Your ISP requires PPPoE connection.
2.2.4 PPTP	Your ISP requires you to use a Point-to-Point Tunneling Protocol (PPTP) connection.

Once you have made a selection, proceed to the manual's relevant sub-section

2.2.1 Static IP

Select Static IP address if your ISP has given you a specific IP address for you to use. Your ISP should provide all the information required in this section. (See chapter 1 "Static IP" for more detail)

2.2.2 DHCP Client

Choose the Dynamic IP selection if your ISP will automatically give you an IP address. Some ISP's may also require that you fill in additional information such as Host Name, Domain Name and MAC address (see chapter 1 "DHCP Client" for more detail)

2.2.3 PPPoE (PPP over Ethernet)

Select PPPoE if your ISP requires the PPPoE protocol to connect you to the Internet. Your ISP should provide all the information required in this section. (See chapter 1 "PPPoE" for more detail)

2.2.4 PPTP

Select PPTP if your ISP requires the PPTP protocol to connect you to the Internet. Your ISP should provide all the information required in this section. (See chapter 1 "PPTP" for more detail)

2.2.5 DDNS

DDNS allows you to map the static domain name to a dynamic IP address. You must get an account, password and your static domain name from the DDNS service providers. This router supports DynDNS, and TZO.

Broadband Router	HOME General Setup Status Tools
 System WAN WAN Interface Setup DDNS LAN Wirless Firewall 	Dynamic DNS is a service, that provides you with a valid, unchanging, internet domain name (an URL) to go with that (possibly everchanging) IP-address. Image: Data DDNS Service Provide: Dynamic Name: host.dyndns.org User Name/Email: Password/Key: Note: For ZO, you can have a 30 days free trial here or manage your TZO account in control panel For ZD, you can have a 30 days free trial here or manage your TZO account in control panel For DynDNS, you can create your DynDNS account here

Parameters	Default	Description
Enable DDNS	Disable	Enable/Disable the DDNS function of this router
Service Provider		Select a DDNS service provider
Domain name		Your static domain name that use DDNS
User Name/Email		The account that your DDNS service provider assigned to you
Password/Key		The password you set for the DDNS service account above

2.3 LAN

The LAN Port screen below allows you to specify a private IP address for your router's LAN ports as well as a subnet mask for your LAN segment.

Broadband Route	r	HOME General Setup Status Tools
● System ● WAN ダ LAN ● Wirless		P re the parameters for local area network which connects to the LAN port of rmay change the setting for IP addresss, subnet mask, DHCP, etc
• Firewall	IP Address: Subnet Mask: Default Gateway: DHCP: DHCP Client Range: 802.1d Spanning Tree: Clone MAC Address:	192.168.2.1 255.255.255.0 0.0.0 Server 192.168.2.100 ■ 192.168.2.200 Show Client Disabled 00000000000
Parameters	Default	Description

IP address	192.168.2.1	This is the router's LAN port IP address (Your LAN clients default gateway IP address)
Subnet Mask	255.255.255.0	Specify a Subnet Mask for your LAN segment
Default Gateway		Specify the default gateway for LAN segment.
DHCP	Server	You can select the DHCP type for LAN segment. By selecting the DHCP server, the router will automatically give your LAN clients an IP address. By selecting the DHCP client, the router will get an IP address from LAN DHCP server automatically. If the DHCP server is not enabled then you'll have to manually set your LAN client's IP addresses; make sure the LAN Client is in the same subnet as this broadband router if you want the router to be your LAN client's default gateway
DHCP Client Rang	e	You can select a particular IP address range for your DHCP server to issue IP addresses to your LAN Clients.
		Note: By default the IP range is from: Start IP 192.168.2.100 to End IP 192.168.2.199 . If you want your PC to have a static/fixed IP address then you'll have to choose an IP address outside this IP address Pool
802.1d Spanning Tre	ee Disabled	If 802.1d Spanning Tree function is enabled, this router will use the spanning tree protocol to prevent from network loop happened in the LAN ports.
Clone MAC Address	5	Specify the MAC Address for your LAN interface.

2.4 Wireless

Wireless Access Point builds a wireless LAN and can let all PCs equipped with IEEE 802.11b or 801.11g wireless network adaptor connect to your Intranet. It supports WEP, WPA and WPA2 encryption to enhance the security of your wireless network.



2.4.1 Basic Settings

You can set parameters that are used for the wireless stations to connect to this router. The parameters include Mode, ESSID, Channel Number and Associated Client.

Broadband Rout	ter	
 System WAN LAN Wirless Basic Settings Advanced Settings Security Access Control Site Survey WDS Setting Firewall 	Access Point. Here you parameters. Disable Wireless Band: Mode: Network Type: SSID: Channel Number: Associated Clients: Enable Mac Clor	figure the parameters for wireless LAN clients which may connect to your may change wireless encryption settings as well as wireless network LAN Interface 2.4 GHz (B+G) AP AP Infrastructure default 11 Show Active Clients te (Single Ethernet Client) I Repeater Mode (Acting as AP and client simultaneouly)

Parameters	Default	Description
Disable Wireless LAN Interface		Check this box to disable wireless LAN.
Band		It allows you to set the AP fix at 802.11b or 802.11g mode. You also can select B+G mode to allow the AP select 802.11b and 802.11g connection automatically.
Mode		It allows you to set the AP to AP, Client, WDS or AP+WDS mode.
Network Type		You can set the client mode to Infrastructure or Ad Hoc mode here.
ESSID	default	This is the name of the wireless LAN. All the devices in the same wireless LAN should have the same ESSID.
Channel Number	11	The channel used by the wireless LAN. All devices in the same wireless LAN should use the same channel.

Associated Clients	Click "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.
Enable MAC Clone	Check the check box will copy the MAC address of your PC to wireless Interface when the first packet was received.
Enable Universal Repeater Mode	By enable the universal repeater mode, the. router will act as AP and client simultaneously.
SSID of Extended Interface	Set the SSID for the extended wireless interface.

Click **<Apply>** at the bottom of the screen to save the above configurations. You can now configure other advance sections or start using the router (with the advance settings in place)

2.4.2 Advanced Settings

You can set advanced wireless LAN parameters of this router. The parameters include Authentication Type, Fragment Threshold, RTS Threshold, Beacon Interval, Preamble Type You should not change these parameters unless you know what effect the changes will have on this router.

Broadband Router		HOME General Setup Status Tools
● System ● WAN ● LAN ● Wirless ▶Basic Settings		d Settings nore technically advanced users who have a sufficient knowledge about s should not be changed unless you know what effect the changes will have
 >Basic Settings >Advanced Settings >Security 	Authentication Type:	◯ Open System ◯ Shared Key ⊙ Auto
▶Access Control	Fragment Threshold:	2346 (256-2346)
Site Survey ≽WDS Setting	RTS Threshold:	2347 (0-2347)
Firewall	Beacon Interval:	100 (20-1024 ms)
	Data Rate:	Auto 💌
	Preamble Type:	O Long Preamble ○ Short Preamble
	Broadcast SSID:	Inabled Obsabled
	IAPP:	⊙ Enabled ○ Disabled
	802.11g Protection:	• Enabled Obisabled
	Apply Ca	Incel

Parameters	Default	Description
Authentication Type		There are two authentication types: "Open System" and "Shared Key". When you select "Open System", wireless stations can associate with this wireless router without WEP encryption. When you select "Shared Key", you should also setup WEP key in the "Encryption" page and wireless stations should use WEP encryption in the authentication phase to associate with this wireless router. If you select "Auto", the wireless client can associate with this wireless router by using any one of these two authentication types.
Fragment Threshold		"Fragment Threshold" specifies the maximum size of packet during the fragmentation of data to be transmitted. If you set this value too low, it will result in bad performance.
RTS Threshold		When the packet size is smaller the RTS threshold, the wireless router will not use the RTS/CTS mechanism to send this packet.
Beacon Interval		The interval of time that this wireless router broadcast a beacon. Beacon is used to synchronize the wireless network.
Data Rate		The "Data Rate" is the rate this access point uses to transmit data packets. The access point will use the highest possible selected transmission rate to transmit the data packets.
Preamble Type		The "Long Preamble" can provide better wireless LAN compatibility while the "Short Preamble" can provide better wireless LAN performance.
Broadcast ESSID		If you enable "Broadcast ESSID", every wireless station located within the coverage of this access point can discover this access point easily. If you are building a public wireless network, enabling this feature is recommended. Disabling "Broadcast ESSID" can provide better security.
IAPP		If you enable "IAPP", it will allow wireless station roaming between IAPP enabled access points within the same wireless LAN.
802.11g Protection		This is also called CTS Protection. It is recommended to enable the protection

mechanism. This mechanism can decrease the rate of data collision between 802.11b and 802.11g wireless stations. When the protection mode is enabled, the throughput of the AP will be a little lower due to many of frame traffic should be transmitted.

Click **<Apply>** at the bottom of the screen to save the above configurations. You can now configure other advance sections or start using the router.

2.4.3 Security

This Access Point provides complete wireless LAN security functions, include WEP, IEEE 802.11x, IEEE 802.11x with WEP, WPA with pre-shared key and WPA with RADIUS. With these security functions, you can prevent your wireless LAN from illegal access. Please make sure your wireless stations use the same security function.

Broadband Router		
● System ● WAN ● LAN ≪ Wirless	Wireless Security Setup This page allows you setup the wire could prevent any unauthorized acc	eless security. Turn on WEP or WPA by using Encryption Keys
 Miness Basic Settings Advanced Settings Security Access Control Site Survey WDS Setting Firewall 	Encryption: None Use 802.1x Authentication WPA Authentication Mode: WPA Cipher Suite: WPA2 Cipher Suite: Pre-Shared Key Format: Pre-Shared Key: Enable Pre-Authentication	Set WEP Key • WEP 64bits WEP 128bits • Enterprise (RADIUS) • Personal (Pre-Shared Key) • TKIP AES • TKIP • AES • Passphrase •
	Authentication RADIUS Server: Note: When encryption WEP is se	Port 1812 IP address Password lected, you must set WEP key value.

Parameters	Default	Description
Encryption		You can choose no encryption, WEP, WPA, WPA2 or WPA2 mixed mode for security.

Use 802.1x Authentication	IEEE 802.1x is an authentication protocol. Every user must use a valid account to login to this Access Point before accessing the wireless LAN. The authentication is processed by a RADIUS server. Check this box to authenticates user by IEEE 802.1x.
Key Length WEP 64-bit	You can select the WEP key length for encryption, 64-bit or 128-bit. Larger WEP key length will provide higher level of security, but the throughput will be lower.
WPA Authentication Mode	WPA can authenticate by RADIUS or by pre-shared key.
WPA/WPA2 Cipher	You can choose TKIP or AES for WPA/WPA2 key exchange method.
Pre-shared Key Format	You may select to select Passphrase (alphanumeric format) or Hexadecimal Digits (in the "A-F", "a-f" and "0-9" range) to be the Pre- shared Key. For example: Passphrase: iamguest Hexadecimal Digits: 12345abcde
Pre-shared Key	The Pre-shared key is used to authenticate and encrypt data transmitted in the wireless network. Fill the text box by following the rules below. Hex WEP: input 64-digit Hex values (in the "A-F", "a-f" and "0-9" range) or at least 8 character pass phrase as the pre-shared keys.
Radius Server Port	The service port of the external RADIUS server.
Radius Server IP	The IP address of external RADIUS server.
Radius Server Password	The password used by external RADIUS server.

2.4.4 Access Control

This wireless router provides MAC Address Control, which prevents the unauthorized MAC Addresses from accessing your wireless network.

Broadband Router		
 System WAN LAN Wirless Basic Settings Advanced Settings Security Access Control Site Survey WDS Setting Firewall 	control list will be able to con clients on the list will not be Wireless Access Control M MAC Address:	', only those clients whose wireless MAC addresses are in the access nect to your Access Point. When 'Deny Listed' is selected, these wireless able to connect the Access Point. ode: Disable ♥ Comment:
Parameters		Description
Wireless Access Contr	ol Mode	Enable/Disable wireless access control
Add MAC address into	o the list	Fill in the "MAC Address" and "Comment" of the

wireless station to be added and then click "Add". Then this wireless station will be added into the

If you want to remove some MAC address from the "Current Access Control List ", select the MAC addresses you want to remove in the list and then click "Delete Selected". If you want remove all MAC addresses from the table, just click "Delete All" button. Click "Reset" will clear

"Current Access Control List" below.

your current selections.

2.4.5 Site Survey

Remove MAC address from the list

This page provides tool to scan the wireless network. If any Access Point or IBSS is found, you could choose to connect it manually when client mode is enabled.

Broadband Route	r HOME General Setup Status Tools
 System WAN LAN Wirless Basic Settings Advanced Settings Security Access Control Site Survey WDS Setting Firewall 	Signed provides tool to scan the wireless network. If any Access Point or IBSS is found, you could coose to connect it manually when client mode is enabled. Signed BSD Channel Type Encrypt Signel Refresh Connect

2.4.6 WDS Settings

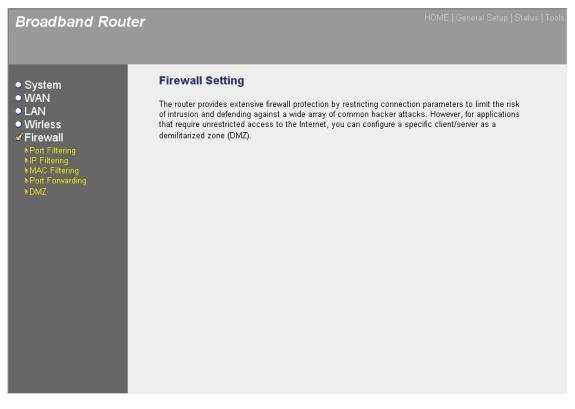
Wireless Distribution System uses wireless media to communicate with other APs, like the Ethernet does. To do this, you must set these APs in the same channel and set MAC address of other APs which you want to communicate with in the table and then enable the WDS.

● System ● WAN ● LAN ● Wirless ▶Basic Settings	WDS Settings Wireless Distribution System uses wireless media to communicate with other APs, like the Ethernet does. To do this, you must set these APs in the same channel and set MAC address of other APs which you want to communicate with in the table and then enable the WDS.
Advanced Settings Security Access Control Site Survey WDS Setting Firewall	Enable WDS Add WDS AP: MAC Address Apply Changes Reset Set Security Show Statistics
	MAC Address Comment Select Delete Selected Delete All Reset

	2 • somption
Enable WDS	Check this box to enable Wireless Distribution System.
Add WDS AP into the list	Fill in the "MAC Address" and "Comment" of the wireless station to be added and then click "Apply Changes". Then this wireless AP will be added into the "Current WDS AP List" below. If you find any issues before adding it and want to retype again. Just click "Reset" and both "MAC Address" and "Comment" fields will be cleared.
Remove WDS AP from the list	If you want to remove some AP from the "Current WDS AP List", select the MAC addresses you want to remove in the list and then click "Delete Selected". If you want remove all MAC addresses from the table, just click "Delete All" button. Click "Reset" will clear your current selections.

2.5 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 Internet attacks. However, for applications that require unrestricted access to the Internet, you can configure a specific client/server as a Demilitarized Zone (DMZ).



Parameters	Description
2.5.1 Port Filtering	Entries in this table are used to restrict certain types of data packets from your local network to Internet through the Gateway.
2.5.2 IP Filtering	IP Filtering allows you to specify which IP can or can not be used to access to internet.
2.5.3 MAC Filtering	MAC Filtering allows you to specify which MAC Address can or can not be used to access to internet.
2.5.4 Port Forwarding	You can have different services (e.g. email, FTP, Web etc.) going to different service servers/clients in your LAN. The Port Forwarding allows you to re-direct a particular range of service port numbers (from the Internet/WAN Ports) to a particular LAN IP address.
2.5.5 DMZ	The DMZ function allows you to re-direct all packets going to your WAN port IP address to a particular IP address in your LAN.

Click on one of the firewall selections and proceed to the manual's relevant sub-section

2.5.1 Port Filtering

If you want to restrict users from accessing certain Internet applications/services (e.g. Internet websites, email, FTP etc.), then this is the place to set that configuration. Entries in this table are used to restrict certain types of data packets from your local network to Internet through the Gateway. Use of such filters can be helpful in securing or restricting your local network.

Broadband Router	HOME General Setup Status Tools
 System WAN LAN Wirless Firewall Port Filtering MAC Filtering Port Forwarding DMZ 	Port Filtering Image: Image
Parameters	Description

Enable Port Filtering	Check this box to enable the port filtering function.
Add a new entry into the list	Fill in the "Port Range", "Protocol" and "Comment" of the filtering rule to be added and then click "Apply ". Then specified port will be added into the "Current Filter Table" below. If you find any issues before adding it and want to retype again. Just click "Cancel" and all inputed fields will be cleared.
Remove an entry from the list	If you want to remove some filter rule from the "Current Filter Table", select the Port Range you want to remove in the table and then click "Delete Selected". If you want remove all Port Ranges from the table, just click "Delete All" button. Click "Reset" will clear your current selections.

You can now configure other advance sections or start using the router (with the advance settings in place)

2.5.2 IP Filtering

If you want to restrict users from accessing certain Internet applications/services (e.g. Internet websites, email, FTP etc.), then this is the place to set that configuration. Entries in this table are used to restrict certain types of data packets from your local network to Internet through the Gateway. Use of such filters can be helpful in securing or restricting your local network.

Broadband Router	HOME General Setup Status Tools
 System WAN LAN Wirless Firewall Port Filtering MAC Filtering Port Forwarding DMZ 	In this table are used to restrict certain types of data packets from your local network to farmet through the Gateway. Use of such filters can be helpful in securing or restricting your local retwork. Image:
Parameters	Description

Enable IP Filtering	Check this box to enable the IP filtering function.
Add a new entry into the list	Fill in the "Local IP Address", "Protocol" and "Comment" of the filtering rule to be added and then click "Apply ". Then specified IP will be added into the "Current Filter Table" below. If you find any issues before adding it and want to retype again. Just click "Cancel" and all inputed fields will be cleared.
Remove an entry from the list	If you want to remove some filter rule from the "Current Filter Table", select the Local IP Address you want to remove in the table and then click "Delete Selected". If you want remove all Local IP Address from the table,

just click "Delete All" button. Click "Reset" will clear your current selections.

You can now configure other advance sections or start using the router (with the advance settings in place)

2.5.3 MAC Filtering

If you want to restrict users from accessing certain Internet applications/services (e.g. Internet websites, email, FTP etc.), then this is the place to set that configuration. Entries in this table are used to restrict certain types of data packets from your local network to Internet through the Gateway. Use of such filters can be helpful in securing or restricting your local network.

Broadband Router	HOME General Setup Status Tools
 System WAN LAN Wirless Firewall Port Filtering IP Filtering Port Forwarding DMZ 	MAC Filtering Intries in this table are used to restrict certain types of data packets from your local network to Internet through the Gateway. Use of such filters can be helpful in securing or restricting your local network. Image:

Parameters	Description
Enable MAC Filtering	Check this box to enable the MAC filtering function.
Add a new entry into the list	Fill in the "MAC Address" and "Comment" of the filtering rule to be added and then click "Apply ". Then specified MAC will be added into the "Current Filter Table" below. If you find any issues before adding it and want to retype again. Just click "Cancel" and all inputed fields will be cleared.
Remove an entry from the list	If you want to remove some filter rule from the "Current Filter Table", select the MAC Address you want to remove in the table and then click "Delete Selected". If

you want remove all MAC Address from the table, just click "Delete All" button. Click "Reset" will clear your current selections.

You can now configure other advance sections or start using the router (with the advance settings in place)

2.5.4 Port Forwarding

The Port Forwarding allows you to re-direct a particular range of service port numbers (from the Internet/WAN Ports) to a particular LAN IP address. It helps you to host some servers behind the router NAT firewall.

Broadband Router	HOME General Setup Status Tools
 System WAN LAN Wirless Firewall Port Filtering MAC Filtering Port Forwarding DMZ 	Port Forwarding Entries in this table allow you to automatically redirect common network services to a specific machine behind the NAT firewall. These settings are only necessary if you wish to host some sort of server like a web server or mail server on the private local network behind your Gateway's NAT firewall. • Enable Port Forwarding P Address: • Protocol: • Outrent Port Forwarding Table: • Local IP Address: • Protocol • Port Range • Comment • Delete Selected • Delete All

Parameter	Description
Enable Port Forwarding	Enable Port Forwarding
IP Address	This is the private IP of the server behind the NAT firewall. Note: You need to give your LAN PC clients a fixed/static IP address for Port Forwarding to work properly.
Protocol	This is the protocol type to be forwarded. You can choose to forward "TCP" or "UDP" packets only or select "both" to forward both "TCP" and "UDP" packets.

Port Range	The range of ports to be forward to the private IP.
Comment	The description of this setting.
Add Port Forwarding into the table	Fill in the "IP Address", "Protocol", "Port Range" and "Comment" of the setting to be added and then click "Apply". Then this Port Forwarding setting will be added into the "Current Port Forwarding Table" below. If you find any typo before adding it and want to retype again, just click "Cancel" and the fields will be cleared.
Remove Port Forwarding into the table	If you want to remove some Port Forwarding settings from the "Current Port Forwarding Table", select the Port Forwarding settings you want to remove in the table and then click "Delete Selected". If you want remove all Port Forwarding settings from the table, just click "Delete All" button. Click "Reset" will clear your current selections.

2.5.5 DMZ

If you have a local client PC that cannot run an Internet application (e.g. Games) properly from behind the NAT firewall, then you can open the client up to unrestricted two-way Internet access by defining a DMZ Host. The DMZ function allows you to re-direct all packets going to your WAN port IP address to a particular IP address in your LAN. The difference between the virtual server and the DMZ function is that the virtual server re-directs a particular service/Internet application (e.g. FTP, websites) to a particular LAN client/server, whereas DMZ re-directs all packets (regardless of services) going to your WAN IP address to a particular LAN client/server.

Broadband Router	HOME General Setup Status Tools
 System WAN LAN Wirless Firewall Port Filtering IP Filtering Port Forwarding DMZ 	DMZ A Demilitarized Zone is used to provide Internet services without sacrificing unauthorized access to its local private network. Typically, the DMZ host contains devices accessible to Internet traffic, such as we (HTTP) servers, FTP servers, SMTP (e-mail) servers and DNS servers. Trable DMZ MZ Host IP Address: Apply Cancel
Parameters	Description
Enable DMZ	Enable/disable DMZ
DMZ Host IP Address	Input the IP address of a particular host in your LAN that will receive all the packets originally going to the WAN port/Public IP address above
	Note: You need to give your LAN PC clients a fixed/static IP address for DMZ to work properly.

You can now configure other advance sections or start using the router (with the advance settings in place

Chapter 3

Status

The Status section allows you to monitor the current status of your router. You can use the Status page to monitor: the connection status of the Broadband router's WAN/LAN interfaces, the current firmware version numbers, and any illegal attempts to access your network.

Broadband Route	er		HOME General Setup Status Tools
≪ Status	Access Point S	tatus	
≽System Log ≽Statistics	This page shows the c device.	urrent status and some basic settings of the	
	System		
	Uptime	Oday:Oh:16m:34s	
	Firmware Version	1.31	
	Wireless Configurati		
	Mode	AP	
	Band	2.4 GHz (B+G)	
	SSID	default	
	Channel Number	11	
	Encryption BSSID	Disabled 00:11:22:33:44:55	
	Associated Clients	1	
	TCP/IP Configuration		
	Ŭ		
	Attain IP Protocol	Fixed IP	
	IP Address	192.168.7.6	
	Subnet Mask	255.255.248.0	
	Default Gateway DHCP Server	192.168.7.6 Enabled	
	MAC Address	00:11:22:33:44:55	
		00.11.22.33.44.55	
	WAN Configuration		
	Attain IP Protocol	Getting IP from DHCP server	
	IP Address	0.0.0.0	
	Subnet Mask	0.0.0	
	Default Gateway MAC Address	0.0.0.0	
	MAC Address	00:11:22:33:44:56	
Parameters	Descrip	tion	
3.1 Status	Shows t	he router's system informatio	n
3.2 System Log	View the Broadband router's system log		
3.3 Statistics	Shows the statistics		

Select one of the above five Status selections and proceed to the manual's relevant sub-section

3.1 Status

The Status section allows you to view the router's system information

Broadband Route	r		HOME General Setup Status Tools
ダ Status ▶System Log ▶Statistics	Access Point St This page shows the cu device.	tatus urrent status and some basic settings of the	_
	System		
	Uptime	Odaγ:Oh:16m:34s	
	Firmware Version	1.31	
	Wireless Configuration		
			•
	Mode Band		
	SSID	2.4 GHz (B+G) default	
	Channel Number	11	
	Encryption	Disabled	
	BSSID	00:11:22:33:44:55	
	Associated Clients	1	
	TCP/IP Configuration		
	Attain IP Protocol	Fixed IP	•
	IP Address	192.168.7.6	
	Subnet Mask	255.255.248.0	
	Default Gateway	192.168.7.6	
	DHCP Server	Enabled	
	MAC Address	00:11:22:33:44:55	
	WAN Configuration		
	Attain IP Protocol	Getting IP from DHCP server	-
	IP Address	0.0.0.0	
	Subnet Mask	0.0.0.0	
	Default Gateway	0.0.0.0	
	MAC Address	00:11:22:33:44:56	
Parameters	Descrip	tion	

Information You can see the router's system information such as the router's: Uptime, Firmware version, Wireless Configuration, LAN Address information, WAN Configuration information.

3.2 System Log

View the operation log of the system.

Status System Log Statistics System Log □ Enable Log □ Wireless only System all □ Enable Remote Log Log Server IP Address: □ Apply Changes	Broadband Router			HOME General Setup Status Tools
	▶System Log	This page can be used to set remo	⊖ system all	pg.

Parameters	Description
Enable Log	Check this box to enable the logging system.
Log mode	By select this options, you can have wireless log only or all system log.
Enable Remote Log	If you want to send all log information to remote server, please check this box to enable this function and fill the server IP Address in the "Log Server IP Address" field.
System Log	This page shows the current system log of the Broadband router. It displays any event occurred after system start up. At the bottom of the page, the system log can be cleared < Clear > or it can be refreshed < Refresh > to get the most updated situation. When the system is powered down, the system log will disappear if not saved to a local file.

3.3 Statistics

View the statistics of packets sent and received on WAN, LAN and Wireless LAN.

Broadband Router				
≪ Status ≽System Log ≽Statistics	Statistics This page shows the networks.	packet counters for trai	nsmission and rec	ception regarding to wireless and Ethernet
	Wireless LAN	Sent Packets Received Packets	1133	
	E .(1.1.1.1)	Sent Packets	6553	
	Ethernet LAN	Received Packets	5767	
	Ethernet WAN	Sent Packets	48	
		Received Packets	0	
	Refresh			

Parameters	Description
Statistics	Shows the counters of packets sent and received on WAN, LAN and Wireless LAN.

Chapter 4

Tool

This page includes the basic configuration tools, such as Configuration Tools (save or restore configuration settings), Firmware Upgrade (upgrade system firmware) and Reset.

Broadband Router	HOME General Setup Status Tools
 Save/Reload Settings Upgrade Firmware 	Tools Settings section includes the basic configuration tools, such as Save, Restore Configuration Settings, and Upgrade System Firmware.
Parameters	Description
4.1 Save/Reload Setting	gs You can save the router's current configuration, restore the router's saved configuration files and restore the router's factory default settings
4.2 Upgrade Firmware	This page allows you to upgrade the router's firmware

Select one of the above three **Tools Settings** selection and proceed to the manual's relevant sub-section

4.1 Save/Reload Settings

The Save/Reload Settings screen allows you to save (**Backup**) the router's current configuration setting. Saving the configuration settings provides an added protection and convenience should problems occur with the router and you have to reset to factory default. When you save the configuration setting (Backup) you can re-load the saved configuration into the router through the **Restore** selection. If extreme problems occur you can use the **Restore Settings to Defaults** selection, this will set all configurations to its original default settings (e.g. when you first purchased the router).

		HOME General Setup Status Tools
Save/Reload Settings		
Save Settings to File:	Save	
Load Settings from File:	Bro	wse Upload
Reset Settings to Default:	Reset	
Description		
configuration to then use the " Re the Broadband r Settings to Def a	a file named "config.bin store" tool to restore th outer. Alternatively, you ault" tool to force the Br	" on your PC. You can be saved configuration to can use the " Restore roadband router to
	This page allows you save current sr previously. Besides, you could reset Save Settings to File: Load Settings from File: Reset Settings to Default: Description Use the "Backup configuration to a then use the "Re the Broadband re Settings to Defa	This page allows you save current settings to a file or reload the settings previously. Besides, you could reset the current configuration to factory of Save Settings to File: Save Load Settings from File: Reset Reset Settings to Default: Reset

4.2 Firmware Upgrade

This page allows you to upgrade the router's firmware

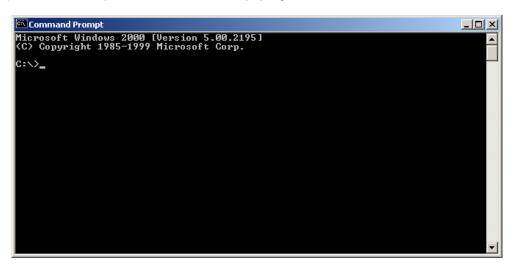
Broadband Router	HOME General Setup Status Tools
✓ Tool Save/Reload Settings Upgrade Firmware	<pre>Upgrade Firmware This page allows you upgrade the Access Point firmware to new version. Please note, do not power off the device during the upload because it may crash the system. Select File: Upload Reset </pre>
Parameters	Description
Upgrade Firmware	This tool allows you to upgrade the Broadband router's system firmware. To upgrade the firmware of your Broadband router, you need to download the firmware file to your local hard disk, and enter that file name and path in the appropriate field on this page. You can also use the Browse button to find the firmware file on your PC.

Once you've selected the new firmware file, click **<Apply>** at the bottom of the screen to start the upgrade process. (You may have to wait a few minutes for the upgrade to complete). Once the upgrade is complete you can start using the router.

Appendix A

How to Manually find your PC's IP and MAC address

1) In Window's open the Command Prompt program



2) Type Ipconfig /all and <enter>

```
Command Prompt
                                                                                                                                            _ 🗆 🗵
Microsoft Windows 2000 [Version 5.00.2195]
(C) Copyright 1985-1999 Microsoft Corp.
C:\>ipconfig /all
Windows 2000 IP Configuration
              Host Name . . . . . .
Primary DNS Suffix .
Node Type . . . . .
IP Routing Enabled. .
WINS Proxy Enabled. .
                                                                             : pete
                                                                                 Broadcast
                                                                                No
No
Ethernet adapter Local Area Connection:
              Connection-specific DNS Suffix
Description . . . . . . . . . . . . .
                                                                                Realtek RTL8139(A) PCI Fast Ethernet
 Adapter
             Autoconfiguration Enabled .....
IP Address. .....
Subnet Mask .....
Default Gateway .....
DNS Servers .....
Lease Obt
                                                                               00-50-FC-FE-02-DB
Yes
192.168.1.77
255.255.255.0
192.168.1.254
192.168.1.1
192.168.1.1
139.175.55.244
Sunday, December 09, 2001 9:18:45 PM
               Lease Obtained. .
                                                                         . : Friday, December 14, 2001 9:18:45 PM
              Lease Expires .
 3:∖≻_
```

- Your PC's IP address is the one entitled IP address (192.168.1.77)
- The router's IP address is the one entitled Default Gateway (192.168.1.254)
- Your PC's MAC Address is the one entitled Physical Address (00-50-FC-FE-02-DB)

Glossary

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

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

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

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

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

Idle Timeout: Idle Timeout is designed so that after there is no traffic to the Internet for a preconfigured amount of time, the connection will automatically be disconnected.

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

A network mask is also a 32-bit binary pattern, and consists of consecutive leading 1's followed by consecutive trailing 0's, such as

1111111111111111111111111100000000. Therefore sometimes a network mask can also be described simply as "x" number of leading 1's.

When both are represented side by side in their binary forms, all bits in the IP address that correspond to 1's in the network mask become part of the IP network address, and the remaining bits correspond to the host ID.

For example, if the IP address for a device is, in its binary form, <u>11011001.10110000.1001</u>0000.00000111, and if its network mask is, 11111111.11111111111110000.00000000 It means the device's network address is <u>11011001.10110000.1001</u>0000.00000000, and its host ID is, 00000000.0000000000000000000111. This is a convenient and efficient method for routers to route IP packets to their destination.

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

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

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

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

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

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

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

PPPoE: Point-to-Point Protocol over Ethernet. Point-to-Point Protocol is a secure data transmission method originally created for dial-up connections; PPPoE is for Ethernet connections. PPPoE relies on two widely accepted standards, Ethernet and the Point-to-Point Protocol. It is a communications protocol for transmitting information over Ethernet between different manufacturers

Protocol: A protocol is a set of rules for interaction agreed upon between multiple parties so that when they interface with each other based on such a protocol, the interpretation of their behavior is well defined and can be made objectively, without confusion or misunderstanding.

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

Subnet Mask: A subnet mask, which may be a part of the TCP/IP information provided by your ISP, is a set of four numbers (e.g. 255.255.255.0) configured like an IP address. It is used to

create IP address numbers used only within a particular network (as opposed to valid IP address numbers recognized by the Internet, which must be assigned by InterNIC).

TCP/IP, **UDP**: Transmission Control Protocol/Internet Protocol (TCP/IP) and Unreliable Datagram Protocol (UDP). TCP/IP is the standard protocol for data transmission over the Internet. Both TCP and UDP are transport layer protocol. TCP performs proper error detection and error recovery, and thus is reliable. UDP on the other hand is not reliable. They both run on top of the IP (Internet Protocol), a network layer protocol.

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

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