



N450R

3T3R Wireless-N Dual Band Gigabit Router

User's Manual



802.11a (UNII) RF exposure statement

According to FCC 15.407(e), the device is intended to operate in the frequency band of 5.15GHz to 5.25GHz under all conditions of normal operation. Normal operation of this device is restricted to indoor used only to reduce any potential for harmful interference to co-channel MSS operations.



Copyright & Disclaimer

No part of this publication may be reproduced in any form or by any means, whether electronic, mechanical, photocopying, or recording without the written consent of OvisLink Corp.

OvisLink Corp. has made the best effort to ensure the accuracy of the information in this user's guide. However, we are not liable for the inaccuracies or errors in this guide. Please use with caution. All information is subject to change without notice

All Trademarks are properties of their respective holders.



FCC Statement

Federal Communication Commission Interference Statement This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules.

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

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

FCC Caution

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

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions:

1. This device may not cause harmful interference, and
2. This device must accept any interference received, including interference that may cause undesired operation. For product available in the USA/Canada market, only channel 1~11 can be operated. Selection of other channels is not possible.

This device and its antenna(s) must not be co-located or operation in conjunction with any other antenna or transmitter.

IMPORTANT NOTE

FCC Radiation Exposure Statement:

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.



© 2009 OvisLink Corporation, All Rights Reserved



Table of Contents

1. Introduction	5
1.1 Package List	7
1.2 Features.....	7
1.3 Specification Table	8
1.4 Hardware Installation	9
1.4.1 Front View.....	9
1.4.2 Rear View	10
1.4.3 LED Indicators	10
1.4.4 Button Definition	11
1.4.5 How to Operate.....	12
1.5 Wireless Operation Modes.....	13
1.5.1 AP Router	13
1.5.2 AP Only.....	13
1.5.3 WDS Repeater	13
1.5.4 WDS Only	14
1.5.5 Adapter Mode	14
2. Getting Start	15
2.1 Easy Setup by Windows Utility	15
2.2 Easy Setup by Configuring Web UI	23
2.2.1 Browse to Activate the Setup Wizard.....	23
2.3 Configure with Setup Wizard	24
3. Configuration	28
3.1 Login Web UI	28
3.2 Basic Setting	28
3.2.1 Network Setup	29
3.2.2 DHCP Server.....	42
3.2.3 Wireless 2.4G Settings	44
3.2.4 Wireless 5G Settings	52
3.2.5 Change Password	59
3.3 Forwarding Rules.....	59
3.3.1 Virtual Server	60
3.3.2 Special AP	61
3.3.3 IP CAM	62
3.3.4 Miscellaneous	62



3.4 Security Setting.....	63
3.4.1 Status.....	63
3.4.2 Packet Filters.....	64
3.4.3 Domain Filters	65
3.4.4 URL Blocking	66
3.4.5 MAC Control.....	67
3.4.6 Miscellaneous.....	68
3.5 Advanced Setting	69
3.5.1 Status.....	70
3.5.2 System Log.....	70
3.5.2 Dynamic DNS	71
3.5.3 QoS	72
3.5.4 SNMP	77
3.5.5 Routing	78
3.5.6 System Time	79
3.5.7 Scheduling	80
3.5.8 IPv6	81
3.5.9 VLAN	86
3.5.10 Advanced Wireless Settings	87
3.6 NAS	89
3.6.1 Disk Utility.....	89
3.6.2 Samba Server.....	90
3.6.3 FTP Service Configuration.....	90
3.6.4 Access Control.....	91
3.6.5 iTunes Server	91
3.6.6 Download Assistant	92
3.6.7 Download Status.....	96
3.6.8 Web HDD.....	97
3.7 Tool Box	97
3.7.1 System Info.....	98
3.7.2 USSD.....	99
3.7.3 Firmware Upgrade	99
3.7.4 Backup Setting	100
3.7.5 Reset to Default.....	100
3.7.6 Reboot	101
3.7.7 Miscellaneous – Wake on LAN & Ping	101
Appendix A: Troubleshooting.....	102

1

Introduction



Congratulations on your purchase of this outstanding product! The **AirLive N450R** is a 802.11n concurrent dual band mobile broadband router with USB slots for 3G modem card and USB storage. It can support 3G/4G mobile broadband, and also provides a physical WAN port for fixed-line broadband and supporting varieties of WAN connection types, such as PPPoE, Static IP, Dynamic IP (DHCP Client), PPTP, and L2TP.

There is a built-in 4-port Full-Duplex 10/100/1000 Gigabit switch to connect your wired Ethernet devices together.

AirLive N450R is the high performance gateway of your home or office network, and it is particularly designed for video streaming applications, users can extend the wireless by 802.11n compliant 5GHz/2.4GHz and up to 450Mbps.

Moreover, the USB port is designed to share files under the Local Network, provides NAS and 3G connection. For NAS function, it can support FAT16/FAT32, EXT2, NTFS file system, and users can plug the USB Hard drive or pen drive, and share files instantly. Once you want to enable FTP/HTTP/BT download service, you can follow easy setup steps to let it download files without turning on a PC. With this powerful residential/SOHO gateway, you can connect everyone in your home or small office to the network sharing function for music, gaming, video, and achieving higher speed as Wi-Fi N, which is faster and much better coverage than 11b/g.

N450R specifically designed for those who need to have the file sharing and P2P download services beyond his home and office. It provides a complete solution for Internet surfing and broadband sharing. Instructions for installing and configuring this product can be found in this manual. Before you install and use this product, please read this manual carefully for fully exploiting the functions of this product.

1.1 Package List

Items	Description	Contents	Quantity
1	N450R main unit		1
2	Antenna		3
3	Power adapter (12V ,1.5A)		1
4	CD		1
5	Quick Start Guide		1

1.2 Features

- Supports Wireless a/b/g/n Dual Band Standard
- 450Mbps at 5GHz and 300Mbps at 2.4GHz
- 5GHz and 2.4GHz at the same time
- 3T3R Beam Forming radio, smart antenna technology
- Multi-Wall and Multi-Level environment
- 4 x Gigabit LAN and 1 x Gigabit WAN Ports
- Support WAN and 3G Failover or Load Sharing
- 2 x USB 2.0 port for external storage and 3G dongle
- Wireless Encryption: WEP, WPA/WPA2, WPA-PSK/WPA2-PSK
- Support WPS Button
- Supports QoS bandwidth, Web HDD, Internet scheduling
- Supports Smartphone tethering to share 3G bandwidth
- Supports UPnP Media server, iTunes Server
- AirLive IPCAM Plug-and-Play
- IPv6, SNMP, Static Route, RIP
- UPnP, Virtual Sever, ALG, DMZ and SPI Firewall etc
- Supports IPSec, L2TP and PPTP VPN Pass-Through

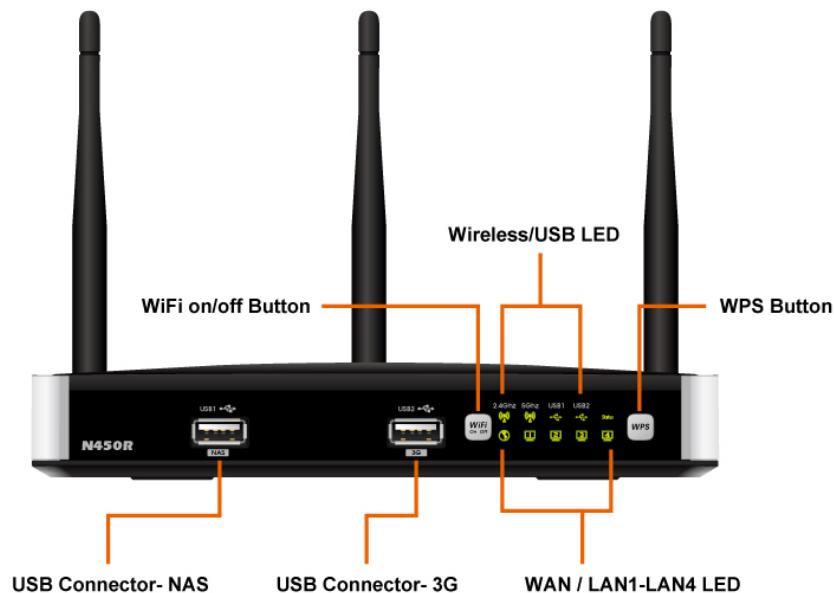
1.3 Specification Table

Device Interface	
Ethernet WAN	RJ-45 port, 10/100/1000Mbps, auto-MDI/MDIX
Ethernet LAN	RJ-45 port, 10/100/1000Mbps, auto-MDI/MDIX x 4
USB WAN	USB 2.0 for 3G/3.5G/4G USB dongle
USB Sharing	USB 2.0 for file sharing
Antenna	External antenna x 3
WPS Button	For WPS connection
Wireless On/Off Button	Enable /Disable Wireless Radio
Reset Button	Reset router setting to factory default
LED Indication	Status / 2.4GHz/5GHz/ USB1/USB2/ WAN / LAN1 ~ LAN4
Power	DC 12V/1.5A switching power adapter
Wireless LAN (WiFi)	
Standard	IEEE 802.11n 2.4GHz(2x2) /5GHz (3x3) compliance
SSID	SSID broadcast or in stealth mode
Channel	Auto-selection, manually
Security	WEP, WPA, WPA-PSK, WPA2, WPA2-PSK
WPS	WPS (Wi-Fi Protected Setup)
WMM	WMM (Wi-Fi Multimedia)
Functionality	
Ethernet WAN	PPPoE, DHCP client, Static IP, PPTP, L2TP
WAN Connection	Auto-reconnect, dial-on-demand, manually
IPv6 support	Dual stack IPv6 support
One-to-Many NAT	Virtual server, special application, DMZ
NAT Session	Support NAT session up to 20,000 sessions
SPI Firewall	IP/Service filter, URL blocking, MAC control
DoS Protection	DoS (Deny of Service) detection and protection
Routing Protocol	Static route, dynamic route (RIP v1/v2)
Storage/File Sharing	FAT16/FAT32, EXT2, NTFS (Read only) Samba server, FTP server
Media server	UPnP AV media server, iTunes server
Scheduling Download management	FTP, HTTP , BitTorrent
Management	SNMP, UPnP IGD, syslog, DDNS
Administration	Web-based UI, remote login, backup/restore setting

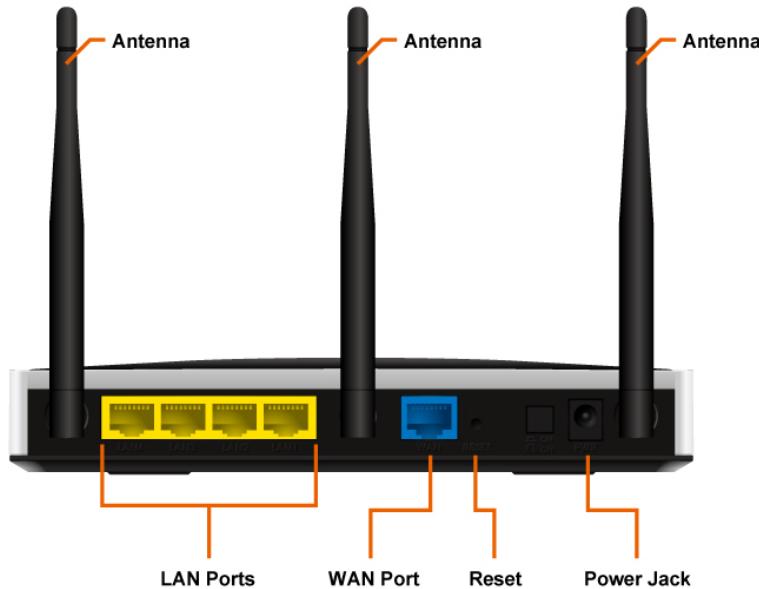
Environment & Certification	
Package Information	Package dimension (mm)
	Package weight (g)
Operation Temp.	Temp.: 0~40°C, Humidity 10%~90% non-condensing
	Temp.: -10~70°C, Humidity: 0~95% non-condensing
EMI Certification	CE/FCC compliance
RoHS	RoHS compliance

1.4 Hardware Installation

1.4.1 Front View



1.4.2 Rear View



1.4.3 LED Indicators

LED	Indicator	Description
Status	Green and flash once per second	This device is working
	Green and Steady On	An error occurred
	OFF	Device is powered off or an error occurred
Ethernet WAN	Green and Steady On	Ethernet WAN connection is established
	Green and Blinking	Data packet transferred via Ethernet WAN
Ethernet LAN 1~4	Green and Steady On	Ethernet LAN connection is established
	Green and Blinking	Data packet transferred via Ethernet LAN
2.4GHz	Green and Blinking	Data packet transferred via 2.4G WiFi
	Green and Fast Blinking	In WPS PBC mode
	OFF	2.4GHz wireless radio is disabled

5GHz	Green and Blinking	Data packet transferred via 5G WiFi
	Green and Fast Blinking	In WPS PBC mode
	OFF	5GHz wireless radio is disabled
NAS	Green and Steady On	An external USB storage is attached
	Green and Blinking	Data packet transferred via attached USB storage device (e.g. USB drive)
	OFF	No USB storage is attached
3G	Green and Steady On	3G connection is established
	Green and Blinking	Data packet transferred via 3G WAN
	OFF	3G connection is not established

1.4.4 Button Definition

Button	Description
WPS	Continually press 3 seconds to enter WPS PBC mode for 2.4G wireless
	Continually press 8 seconds to enter WPS PBC mode for 5G wireless
WiFi on/off	Continually press 3 seconds to switch on/off for 2.4G wireless radio
	Continually press 8 seconds to switch on/off for 5G wireless radio
Reset	Continually press 6 seconds to reset device settings to factory default
Power	Push down the button to turn on the power

1.4.5 How to Operate

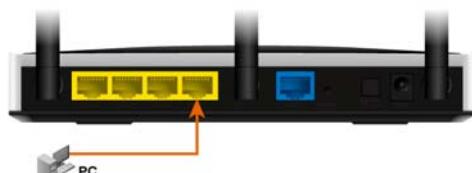


DO NOT connect the router to power before performing the installation steps below.

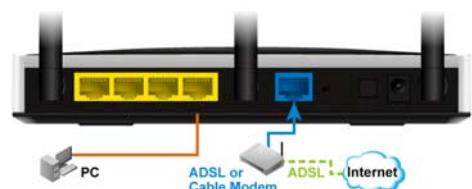
Step 1: Screw the antenna in a clockwise direction to the back panel of the unit.



Step 2: Plug the RJ45 cable into LAN port 1~4 and connect with your PC or NB.



Step 3: Plug your RJ-45 into the WAN port and connect with your xDSL modem.



Step 4: Plug the power jack into it.



Step 5: Power ON.**Step 6:** Prepare a USB Storage and then plug into the USB port.

1.5 Wireless Operation Modes

1.5.1 AP Router

In this mode, you can share your 3G Internet connection and/or broadband connection. If you do not have a 3G USB dongle, you can still share your ADSL modem, xDSL mdoem, or Cable Modem connections. If you have both 3G and Broadband, you can use both for connection backup.

1.5.2 AP Only

When operating in the Access Point mode, the N450R becomes the center hub of the wireless network. All wireless cards and clients connect and communicate through N450R. This type of network is known as "**Infrastructure Network**". Other N450R can connect to AP mode through "**Adapter Mode**".

1.5.3 WDS Repeater

In WDS Repeater mode, the N450R functions as a repeater that extends the range of remote wireless LAN. In this mode, the remote Access Point must have WDS (Wireless Distribution System) capability. If you require the PC's MAC addresses to be preserved when the data pass through the Repeater, it is necessary to use the WDS Repeater mode. Because the radio is divided into WDS + AP mode, the Repeater mode will have less performance and distance.

1.5.4 WDS Only

This mode is also known as “WDS Pure MAC Bridge mode”. When configured to operate in the Wireless Distribution System (WDS) Mode, the N450R provides bridging functions with remote LAN networks in the WDS system. Each bridge can only associate with maximum of 4 other bridges in the WDS configuration. This mode is best used when you want to connect LAN networks together wirelessly. This mode usually delivers faster performance than infrastructure mode.

1.5.5 Adapter Mode

This mode is also known as “**Client**” mode. N450r acts as if it is a wireless adapter to connect with a remote Access Point. Users can attach a computer or a router to the LAN port of N450R to get network access. This mode is often used by WISP on the subscriber’s side.

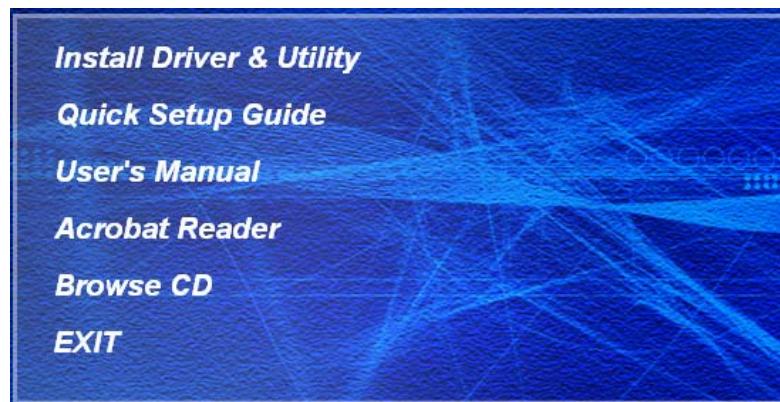
2

Getting Start

2.1 Easy Setup by Windows Utility

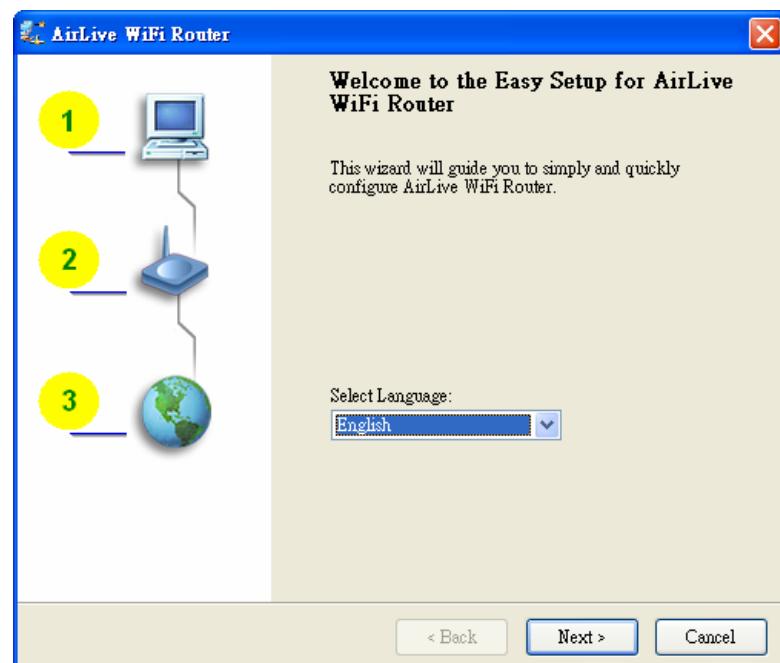
Step 1

Install the Easy Setup Utility from the provided CD. Click the “Install Driver & Utility” and then follow the steps to configure the device.



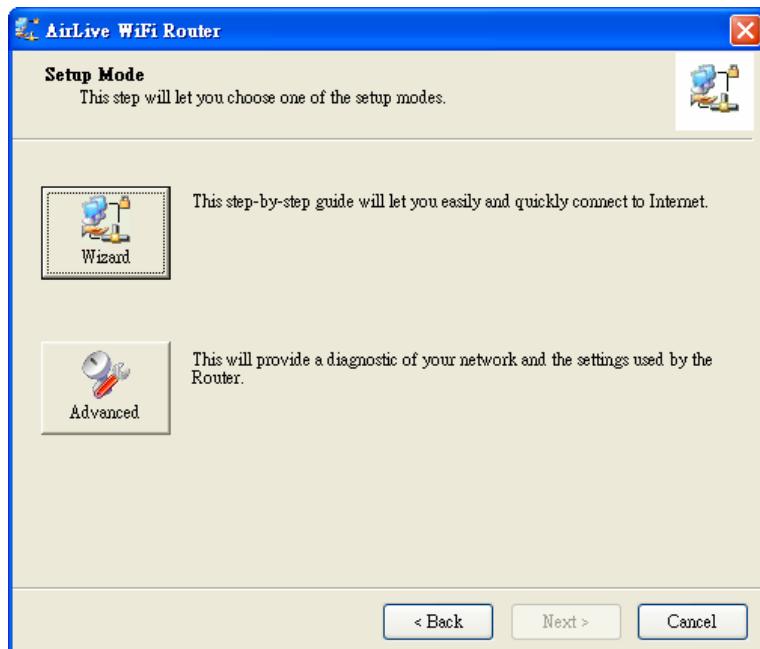
Step 2

Select Language then click “Next” to continue.



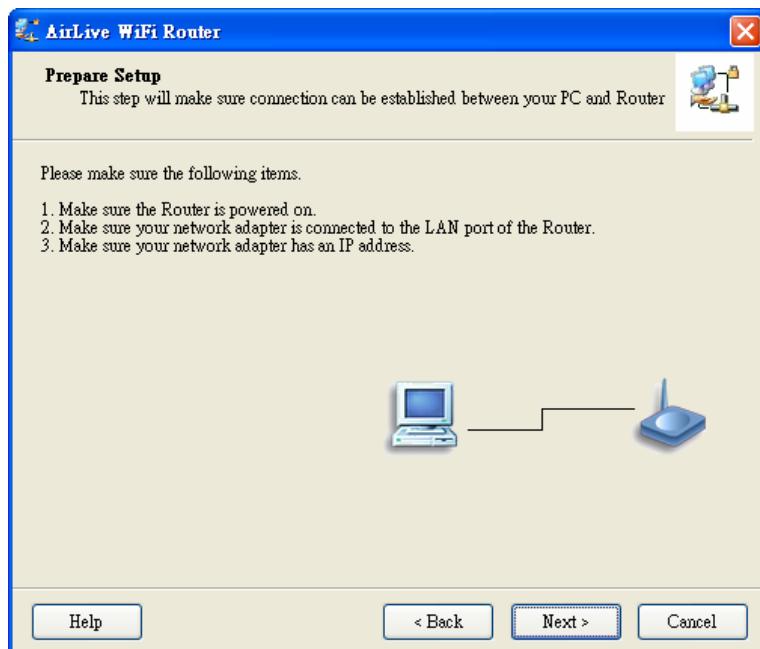
Step 3

Then, click the “**Wizard**” to continue.



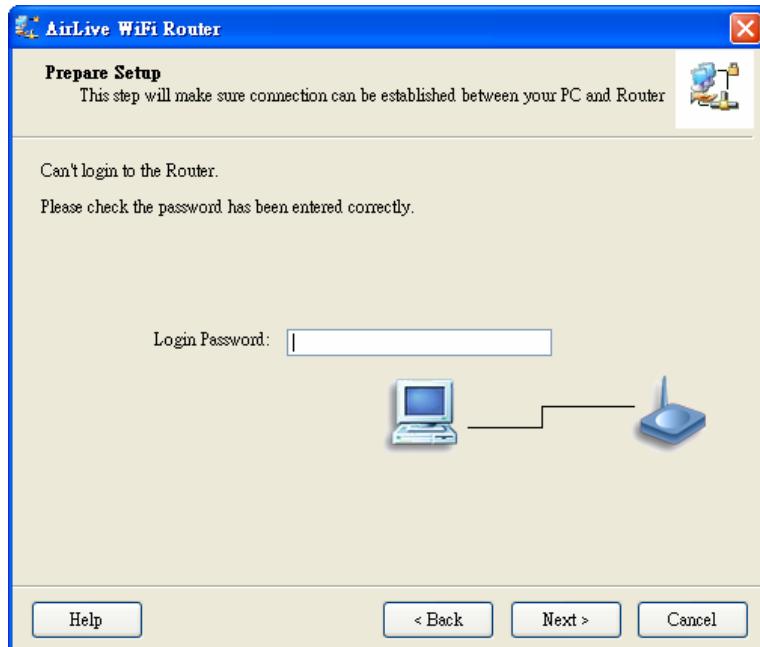
Step 4

Click “**Next**” to continue.

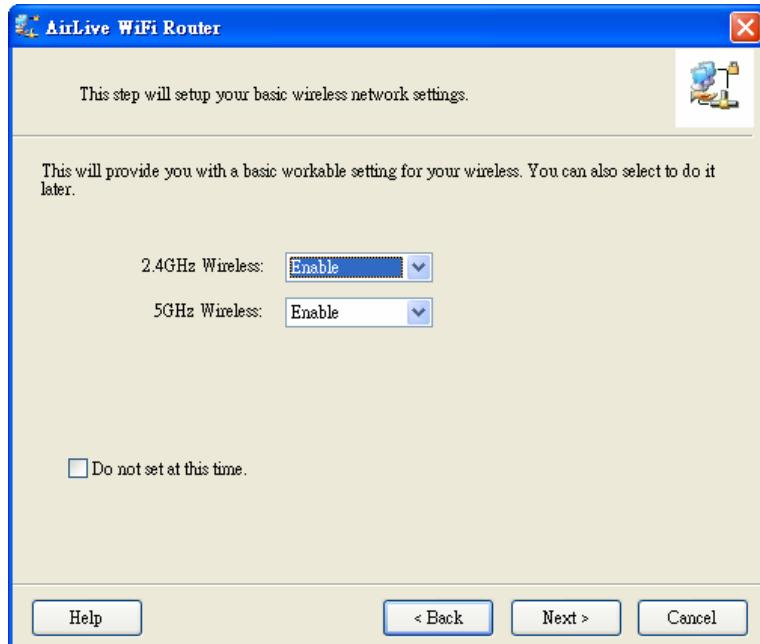


Step 5

Type-in password and then click “Next”. Default password is airlive.

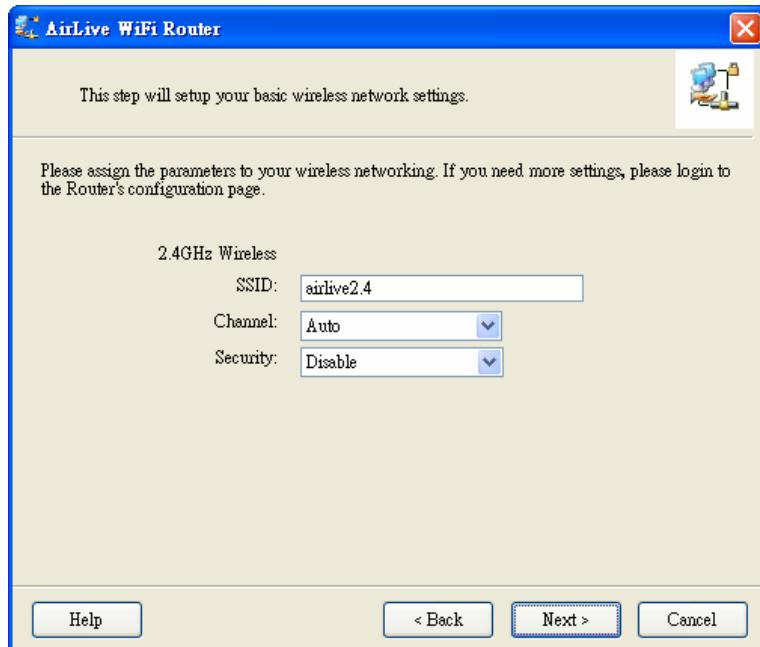
**Step 6**

Configure the wireless interface and then click “Next”.



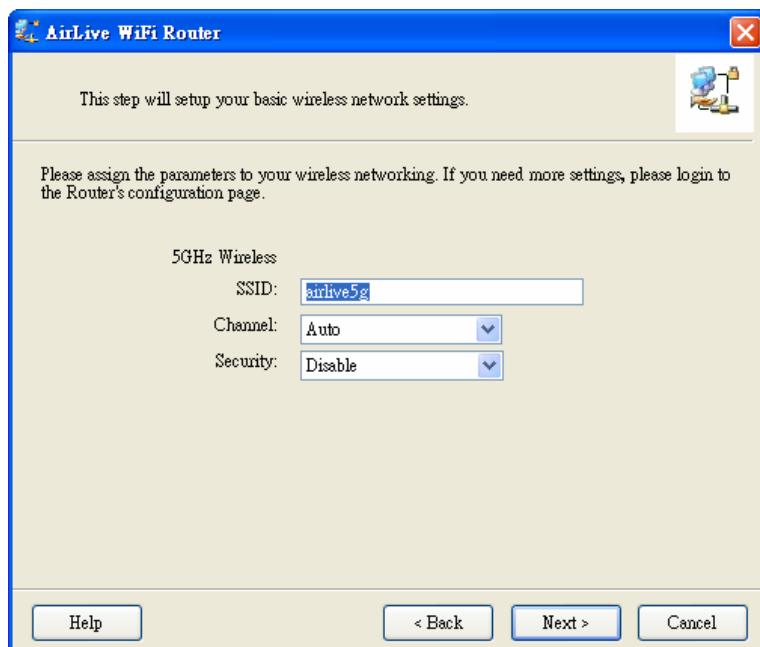
Step 7

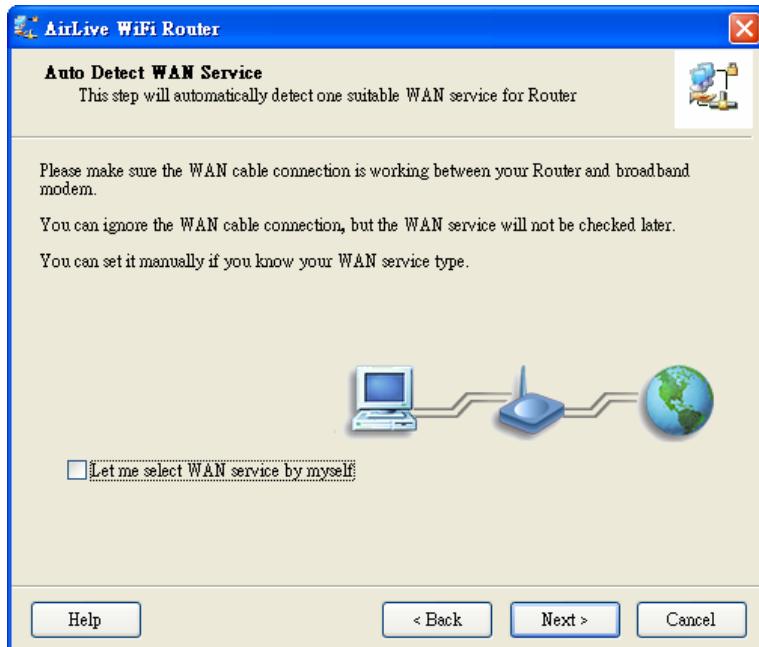
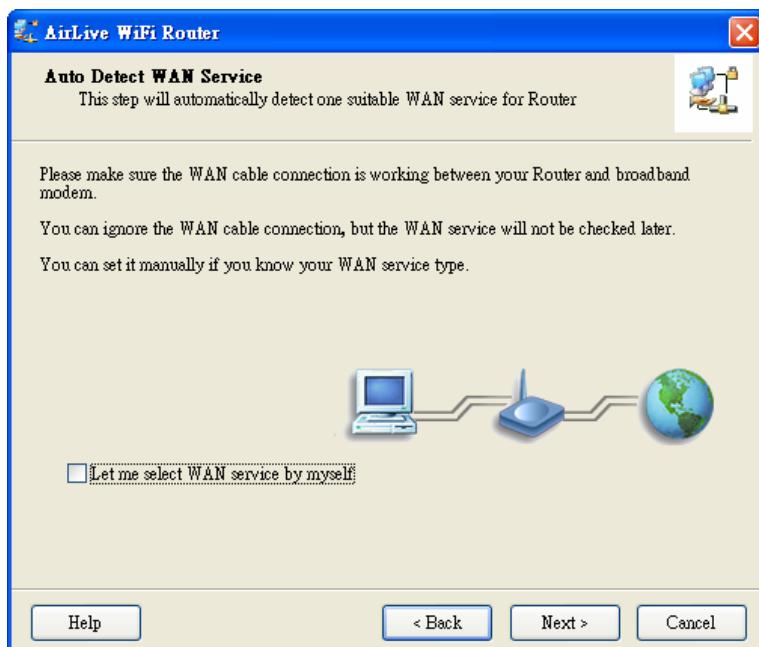
Configure 2.4GHz wireless interface **SSID**, **Channel** and **Security**, and then click “**Next**”.



Step 8

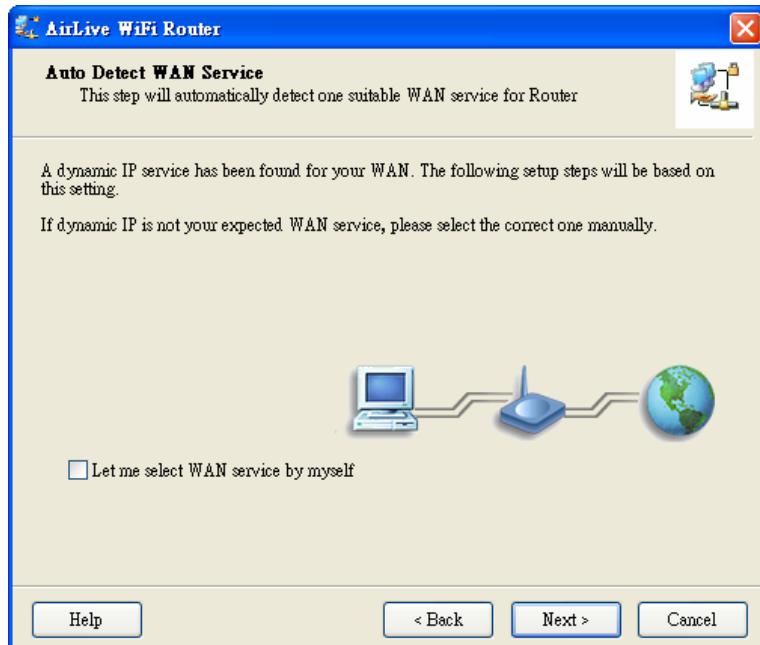
Configure 5GHz wireless interface **SSID**, **Channel** and **Security**, and then click “**Next**”



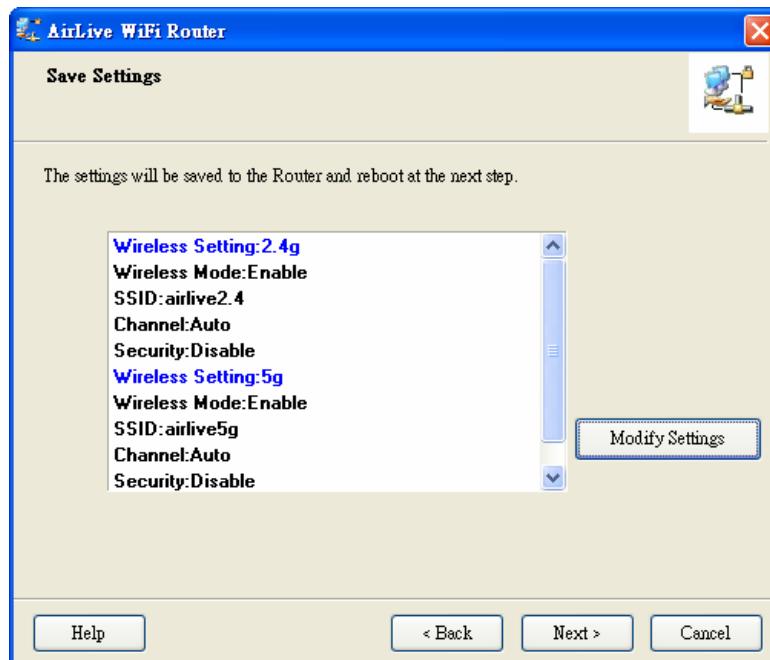
Step 9
Click **Next**.**Step 10**
Click "Next" to detect the WAN automatically.

Step 11

Click "Next".

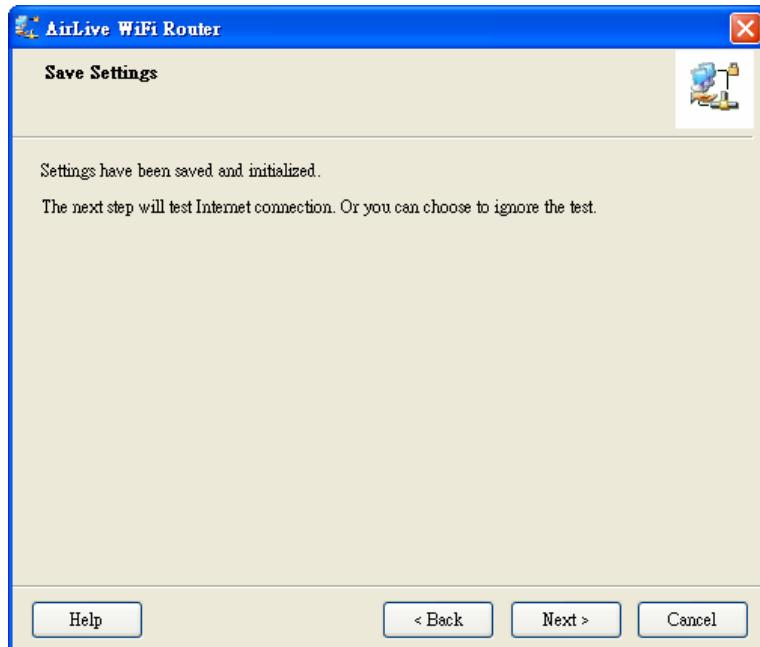
**Step 12**

Click "Next".

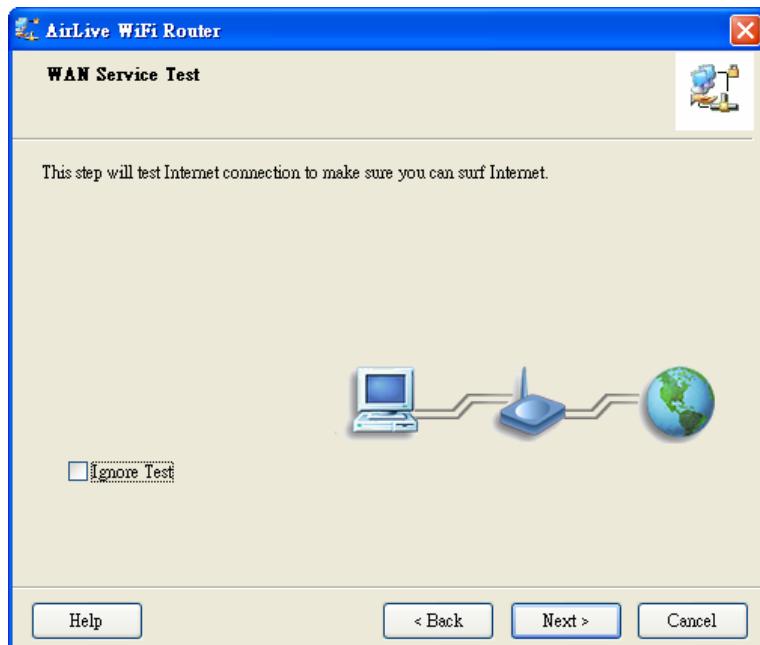


Step 13

Click "Next".

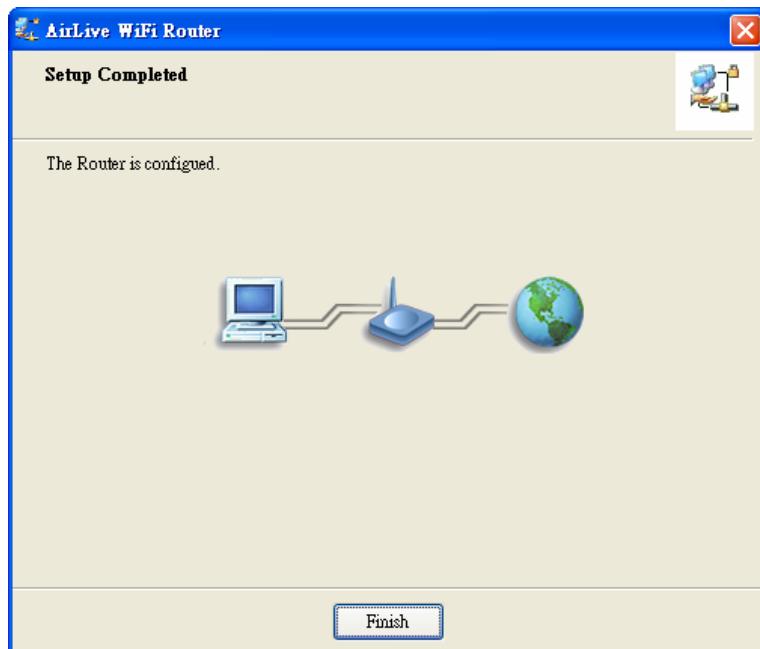
**Step 14**

Click "Next" to test the internet connection.



Step 15

You have completed the configuration. Click “Finish” and you can surf on the internet now.



2.2 Easy Setup by Configuring Web UI

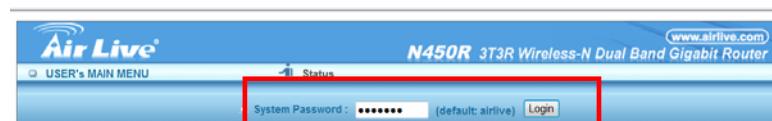
You can also browse UI of the web to configure the device

2.2.1 Browse to Activate the Setup Wizard

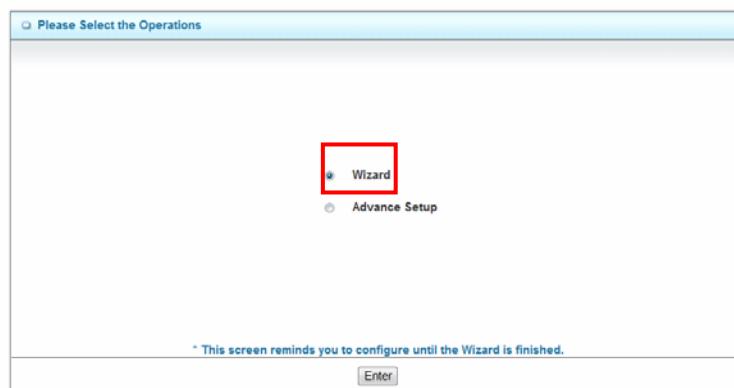
- Type in the IP Address (<http://192.168.1.254>)



- Type the default password ‘airlive’ in the System Password and then click ‘login’ button.



- Select “Wizard” and then “Enter” for basic settings in simple way.



- Press “Next” to start the Setup Wizard.



2.3 Configure with Setup Wizard

Step 1: Setup Login Password

You can change the admin password here, clicks “**Next**” to continue.



Step 2: Setup Time Zone

Select **Time Zone**, clicks “**Next**” to continue.



Step 3: Select WAN Type

Choose “**Auto Detecting**” or “**Manually**” Setup WAN Type.



Step 4: Select WAN Type

If you want to use 3G service as the main Internet access, please set the WAN interface as **Wireless WAN** and the WAN type as “**3G**”, and then click **Next** to continue.



This screenshot shows the 'Setup Wizard - Select WAN Type' configuration page. It includes fields for LAN IP Address (192.168.1.254), WAN Interface (Wireless WAN), and WAN Type (3G). Navigation buttons at the bottom include '< Back', a breadcrumb trail ('Start > Password > Time > LAN/WAN > Wireless > Summary > Finish!'), and 'Next >'.

Step 5: For 3G Mode

Select **Auto-Detection**, and then click **Next** to continue.



This screenshot shows the 'Setup Wizard - 3G' configuration page. It features options for Dial-Up Profile and PIN Code, with Auto-Detection selected. A note indicates '(optional)'. Navigation buttons at the bottom include '< Back', a breadcrumb trail ('Start > Password > Time > LAN/WAN > Wireless > Summary > Finish!'), and 'Next >'.

Step6: Wireless Settings

Set up your Wireless Network, select which wireless band you want to configure.
(e.g. Wireless 2.4G)



This screenshot shows the 'Wireless Select' configuration page. It displays 'Wireless Select' and a dropdown menu showing 'Wireless 2.4G'. Navigation buttons at the bottom include '< Back', a breadcrumb trail ('Start > Password > Time > LAN/WAN > Wireless > Summary > Finish!'), and 'Next >'.

Step 7: Wireless 2.4G Settings

Setup your **SSID** and **Wireless Channel**.

Setup Wizard - Wireless 2.4G settings

<input type="radio"/> Wireless Module <input type="radio"/> Network ID(SSID) <input type="radio"/> Channel	<input checked="" type="radio"/> Enable <input type="radio"/> Disable airlive_2_4g 11
--	---

[< Back](#)
Start > Password > Time > LAN/WAN > **Wireless** > Summary > Finish!]
[Next >](#)

Step 8

Setup **Wireless Authentication** and **Encryption**, then click **Next** to continue.

Setup Wizard - Wireless 2.4G settings

<input type="radio"/> Authentication <input type="radio"/> Encryption <input checked="" type="radio"/> WEP Key 1 <input type="radio"/> WEP Key 2 <input type="radio"/> WEP Key 3 <input type="radio"/> WEP Key 4	Open WEP HEX ▾ 1234567890 HEX ▾ 1234567890 HEX ▾ 1234567890 HEX ▾ 1234567890
---	---

[< Back](#)
Start > Password > Time > LAN/WAN > **Wireless** > Summary > Finish!]
[Next >](#)

Step 9

Apply your Setting.

Clicks **Apply Setting** if finished, or click **Back** to previous settings.

Setup Wizard - Summary

Please confirm the information below																													
<table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: left; padding: 2px;">[WAN Setting]</th> </tr> </thead> <tbody> <tr> <td style="padding: 2px;">WAN Type</td> <td style="padding: 2px;">3G</td> </tr> <tr> <td style="padding: 2px;">APN</td> <td style="padding: 2px;">1234</td> </tr> <tr> <td style="padding: 2px;">PIN Code</td> <td style="padding: 2px;">internet</td> </tr> <tr> <td style="padding: 2px;">Dialed Number</td> <td style="padding: 2px;">*99#</td> </tr> <tr> <td style="padding: 2px;">Username</td> <td style="padding: 2px;">Admin</td> </tr> <tr> <td style="padding: 2px;">Password</td> <td style="padding: 2px;">*****</td> </tr> </tbody> </table> <table border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th colspan="2" style="text-align: left; padding: 2px;">[Wireless Setting]</th> </tr> </thead> <tbody> <tr> <td style="padding: 2px;">Wireless</td> <td style="padding: 2px;">Enable</td> </tr> <tr> <td style="padding: 2px;">SSID</td> <td style="padding: 2px;">default</td> </tr> <tr> <td style="padding: 2px;">Channel</td> <td style="padding: 2px;">11</td> </tr> <tr> <td style="padding: 2px;">Authentication</td> <td style="padding: 2px;">Auto (Open/Shared)</td> </tr> <tr> <td style="padding: 2px;">Encryption</td> <td style="padding: 2px;">WEP</td> </tr> <tr> <td style="padding: 2px;">WEP Key</td> <td style="padding: 2px;">1234567890</td> </tr> </tbody> </table>		[WAN Setting]		WAN Type	3G	APN	1234	PIN Code	internet	Dialed Number	*99#	Username	Admin	Password	*****	[Wireless Setting]		Wireless	Enable	SSID	default	Channel	11	Authentication	Auto (Open/Shared)	Encryption	WEP	WEP Key	1234567890
[WAN Setting]																													
WAN Type	3G																												
APN	1234																												
PIN Code	internet																												
Dialed Number	*99#																												
Username	Admin																												
Password	*****																												
[Wireless Setting]																													
Wireless	Enable																												
SSID	default																												
Channel	11																												
Authentication	Auto (Open/Shared)																												
Encryption	WEP																												
WEP Key	1234567890																												
<input checked="" type="checkbox"/> Do you want to proceed the network testing?																													

[< Back](#)
Start > Password > Time > LAN/WAN > **Wireless** > **Summary** > Finish!]
[Apply Settings](#)

Step 10

Check the information again, click “**Apply Setting**” to finish all settings or “**Back**” to the previous settings.

Setup Wizard - Summary [EXIT]

Please confirm the information below

[WAN Setting]	
WAN Type	3G
APN	1234
PIN Code	internet
Dialed Number	*99#
Username	Admin
Password	*****
[Wireless Setting]	
Wireless	Enable
SSID	default
Channel	11
Authentication	Auto (Open/Shared)
Encryption	WEP
WEP Key	1234567890

Do you want to proceed the network testing?

< Back [Start > Password > Time > LAN/WAN > Wireless > [Summary](#) > [Finish!](#)] Apply Settings

Step 11

Click “**Finish**” to complete it.

Setup Wizard - Apply settings [EXIT]

Configuration is Completed.

Please click “Finish” to restart the device.

< Back [Start > Password > Time > LAN/WAN > Wireless > Summary > [Finish!](#)] Finish

3

Configuration

3.1 Login Web UI

Whenever you want to configure your network or this device, you can access the Configuration Menu by opening the web-browser and typing in the IP Address of the device. The default IP Address is: **192.168.1.254**.



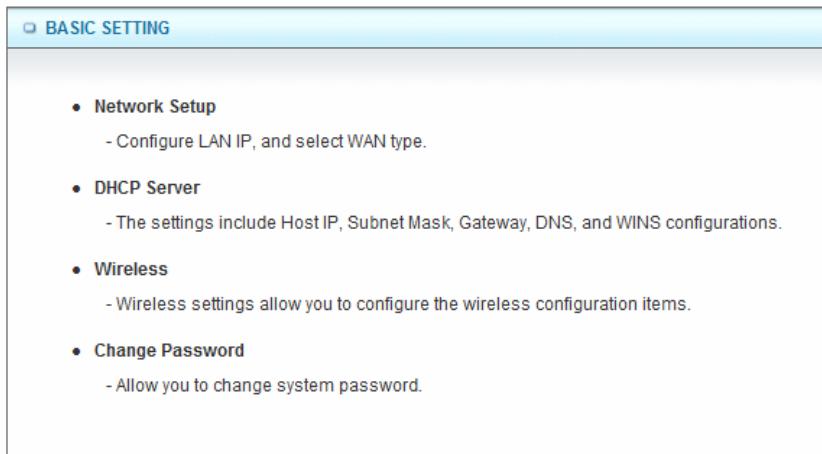
Enter the default password “airlive” in the System Password and then click ‘login’ button.



Then, you can browse the “Advanced” configuration pages for configuring this device.

3.2 Basic Setting

There are four options: **Network Setup**, **DHCP Server**, **Wireless** and **Change Password**.



BASIC SETTING	
• Network Setup	- Configure LAN IP, and select WAN type.
• DHCP Server	- The settings include Host IP, Subnet Mask, Gateway, DNS, and WINS configurations.
• Wireless	- Wireless settings allow you to configure the wireless configuration items.
• Change Password	- Allow you to change system password.

3.2.1 Network Setup

There are two ways to configure the network, respectively **LAN Setup** and **Internet setup**.

■ LAN Setup

□ LAN Setup	
Item	Setting
▶ LAN IP Address	192.168.1.254
▶ Subnet Mask	255.255.255.0

1. LAN IP Address

The local IP address of this device, the computer on your network must use the LAN IP address of this device as their Default Gateway. You can change it if necessary.

2. Subnet Mask

Input your Subnet mask. (All devices in the network must have the same subnet mask.) The default subnet mask is **255.255.255.0**.

■ Internet Setup

□ Internet Setup		[HELP]
▶ Combo WAN Status	Disable	Settings...
▶ WAN Interface	Wireless WAN	▼
▶ WAN Type	3G	▼

1. Combo WAN Status

Display status of combo WANS. With Combo WAN feature, you can choose one primary WAN connection, and set another WAN connection for backup. Otherwise, you can also choose “**Load Sharing**” to use Ethernet WAN and 3G WAN simultaneously. The combo WAN status will be showed here. Press “**Settings**” button to configure this feature.

2. WAN Interface

Select **Ethernet WAN** or **Wireless WAN** to continue.

■ Ethernet WAN

▶ WAN Interface	Ethernet WAN
▶ WAN Type	Dynamic IP Address ▼
▶ Host Name	Static IP Address Dynamic IP Address (optional)
▶ ISP registered MAC Address	PPP over Ethernet PPTP L2TP

■ Wireless WAN

► WAN Interface	Wireless WAN
► WAN Type	3G
► Dial-Up Profile	iBurst <input type="radio"/> Manual <input checked="" type="radio"/>

1. WAN Type

WAN type of your Internet connection, select **3G** and **iBurst**. You can choose a correct one from the following options.

(A) 3G

This device supports different WAN types of connection for users to connect to remote wireless ISP, such as 3G (WCDMA, HSxPA, HSPA+, CDMA2000, EV-DO, TD-SCDMA), iBurst, or Wi-Fi Hotspot.

NOTE: You need to insert USB modem card for 3G WAN connections.

Internet Setup		[HELP]
► Combo WAN Status	Disable	Settings...
► WAN Interface	Wireless WAN	
► WAN Type	3G	
► Dial-Up Profile	<input checked="" type="radio"/> Auto-Detection <input type="radio"/> Manual	
► PIN Code	(optional)	
► Connection Control	Auto Reconnect (always-on)	
► Allowed Connection Time	<input checked="" type="radio"/> Always <input type="radio"/> By Schedule	
► Keep Alive	<input checked="" type="radio"/> Disable <input type="radio"/> LCP Echo Request ► Interval <input type="text" value="10"/> seconds ► Max Failure Time <input type="text" value="3"/> times <input type="radio"/> Ping Remote Host ► Host IP <input type="text"/> ► Interval <input type="text" value="60"/> seconds	
► IGMP Proxy	<input type="checkbox"/> Enable	
Save Undo		

1. WAN Type

Choose 3G for WAN connection.

2. Dial-Up Profile

Please select Auto-Detection or Manual. You can choose “**Auto-Detection**”, and the router will try to detect and configure the required 3G service settings automatically. Otherwise, you can select “**Manual**”, and manually fill in the required 3G service settings provided by your carrier or ISP.

3. Connection Control

There are 3 options to start connection:

- **Auto Reconnect (Always-on)**

The device will always try to link to Internet.

- **Connect-on-demand**

The device won't try to connect to Internet until LAN PCs or devices try to go to Internet. Once Internet connection is established, this device will drop the connection if maximum idle time is reached.

- **Manually**

The device won't try to connect to Internet until users press "connect" button at Status page. Once Internet connection is established, this device will drop the connection if maximum idle time is reached.

4. Allowed Connection Time

You can limit WAN connection in a period of time if required.

5. Keep Alive

There are three options for keep alive feature as below.

- **Disable**

Disable keep alive feature.

- **LCP Echo Request**

The device will constantly send LCP packets for keeping alive. Enter the time interval and the maximum failure count.

- **Ping Remote Host**

Enter the Remote host IP address and the time interval to send the ping packets for keeping alive.

6. NAT Disable

You can disable NAT feature if required.

7. IGMP Proxy

Enable this feature allows multicast stream (e.g. IPTV stream) to pass-through this device.

NOTE: The items with * above are only available when choosing Manual for Dial-up Profile.

(B) iBurst

NOTE: You need to insert USB modem card for iBurst WAN connections.

Internet Setup		[HELP]
Combo WAN Status	Disable	<input type="button" value="Settings..."/>
WAN Interface	Wireless WAN	<input type="button" value="▼"/>
WAN Type	iBurst	<input type="button" value="▼"/>
Account	<input type="text"/>	
Password	<input type="text"/>	
Primary DNS	<input type="text"/>	
Secondary DNS	<input type="text"/>	
Connection Control	Connect-on-Demand	<input type="button" value="▼"/>
Maximum Idle Time	600	seconds
Service Name	<input type="text"/> (optional)	
Assigned IP Address	<input type="text"/> (optional)	
MTU	0	(0 is auto)
NAT disable	<input type="checkbox"/> Enable	
IGMP Proxy	<input type="checkbox"/> Enable	
<input type="button" value="Save"/> <input type="button" value="Undo"/>		

1. WAN Type

Choose iBurst for WAN connection.

2. Account

Enter the User Name for iBurst connection.

3. Password

Enter new Password for iBurst connection.

4. Primary DNS

You can assign a Primary DNS server if required. (Optional)

5. Secondary DNS

You can assign a Secondary DNS server if required. (Optional)

6. Connection Control

There are 3 options to start connection:

- **Auto Reconnect (Always-on)**

The device will always try to link to Internet.

- **Connect-on-demand**

The device won't try to connect to Internet until LAN PCs or devices try to go to Internet. Once Internet connection is established, this device will drop the connection if maximum idle time is reached.

- **Manually**

The device won't try to connect to Internet until users press "connect" button at Status page. Once Internet connection is established, this device will drop the connection if maximum idle time is reached.

7. Maximum Idle Time

The amount of time of inactivity before disconnecting Internet connection. Set it to zero, or choosing “Auto-reconnect” mode to disable this feature.

8. Service Name

Input the service name if your ISP requires it. (Optional)

9. Assigned IP Address

Input a IP address if your ISP requires it. (Optional)

10. Maximum Transmission Unit (MTU)

You can change MTU value if required. The default MTU value is set to 0 (auto).

11. NAT disable

You can disable NAT feature if required.

12. IGMP Proxy

Enable this feature allows multicast stream (e.g. IPTV stream) to pass-through this device.

(C) Static IP Address

Internet Setup		[HELP]
Combo WAN Status	Disable	<input type="button" value="Settings..."/>
WAN Interface	Ethernet WAN	<input type="button" value=""/>
WAN Type	Static IP Address	<input type="button" value=""/>
WAN IP Address	<input type="text"/>	
WAN Subnet Mask	<input type="text"/>	
WAN Gateway	<input type="text"/>	
Primary DNS	<input type="text"/>	
Secondary DNS	<input type="text"/>	
NAT disable	<input checked="" type="checkbox"/> Enable	
IGMP Proxy	<input checked="" type="checkbox"/> Enable	
<input type="button" value="Save"/> <input type="button" value="Undo"/>		

1. WAN Type

Choose Static IP Address.

2. WAN IP Address

Input the IP address you got from ISP.

3. Subnet Mask

Input the subnet mask of IP address you got from ISP.

4. WAN Gateway

Input the IP address of WAN gateway you got from ISP.

5. Primary DNS

Input the IP address of primary DNS you got from ISP.

6. Secondary DNS

Input the IP address of secondary DNS you got from ISP.

7. NAT disable

You can disable NAT feature if required.

8. IGMP Proxy

Enable this feature allows multicast stream (e.g. IPTV stream) to pass-through this device.

(D) Dynamic IP Address

Internet Setup		[HELP]
Combo WAN Status	Disable	Settings...
WAN Interface	Ethernet WAN ▾	
WAN Type	Dynamic IP Address ▾	
Host Name	(optional)	
ISP registered MAC Address	Clone	
Maximum Idle Time	600	seconds
Connection Control	Connect-on-Demand ▾	
NAT disable	<input type="checkbox"/> Enable	
IGMP Proxy	<input type="checkbox"/> Enable	
Save Undo		

1. WAN Type

Choose Dynamic IP Address.

2. Host Name

Optional, required by some ISPs, for example, @Home.

3. ISP registered MAC Address

Some ISP (Cable Company) will record your MAC address on PC. You can press “Clone” button to copy the MAC address on your PC here, or you can input it manually.

4. Maximum Idle Time

The amount of time of inactivity before disconnecting Internet connection. Set it to zero, or choosing “Auto-reconnect” mode to disable this feature.

5. Connection Control

There are 3 options to start connection:

- **Auto Reconnect (Always-on)**

The device will always try to link to Internet.

- **Connect-on-demand**

The device won't try to connect to Internet until LAN PCs or devices try to go to Internet. Once Internet connection is established, this device will drop the connection if maximum idle time is reached.

- **Manually**

The device won't try to connect to Internet until users press “connect” button at Status page. Once Internet connection is established, this device will drop the connection if maximum idle time is reached.

6. NAT disable

You can disable NAT feature if required.

7. IGMP Proxy

Enable this feature allows multicast stream (e.g. IPTV stream) to pass-through this device.

(E) PPP over Ethernet

Internet Setup		[HELP]
Combo WAN Status	Disable	<input type="button" value="Settings..."/>
WAN Interface	Ethernet WAN	<input type="button" value="▼"/>
WAN Type	PPP over Ethernet	<input type="button" value="▼"/>
IPv6 Dualstack	<input checked="" type="checkbox"/> Enable	
PPPoE Account	<input type="text"/>	
PPPoE Password	<input type="text"/>	
Primary DNS	<input type="text"/>	
Secondary DNS	<input type="text"/>	
Maximum Idle Time	600	seconds
PPPoE Service Name	<input type="text"/> (optional)	
Assigned IP Address	<input type="text"/> (optional)	
MTU	0	(0 is auto)
NAT disable	<input type="checkbox"/> Enable	
IGMP Proxy	<input type="checkbox"/> Enable	
<input type="button" value="Save"/> <input type="button" value="Undo"/>		

1. WAN Type

Choose PPP over Ethernet.

2. IPv6 Dual Stack

If your ISP supports IPv6 dual stack, you can check this check box to get an IPv4 address and an IPv6 address via one PPPoE connection. After you check this check box, you also need to enable IPv6 function at **Advanced Setting->IPv6** setting page.

3. PPPoE Account and Password

The account and password your ISP assigned to you.

4. Primary DNS

You can indicate IP address of primary DNS if required.

5. Secondary DNS

You can indicate IP address of secondary DNS if required.

6. Maximum Idle Time

The amount of time of inactivity before disconnecting your PPPoE session. Set it to zero or enable “Auto-reconnect” to disable this feature.

7. PPPoE Service Name

Optional. Input the service name if your ISP requires it.

8. Assigned IP Address

You can input a IP address if you got a fix IP address from ISP.

9. Maximum Transmission Unit (MTU)

Most ISP offers MTU value to users. The default MTU value is 0 (auto).

10. NAT disable

You can disable NAT feature if required.

11. IGMP Proxy

Enable this feature allows multicast stream (e.g. IPTV stream) to pass-through this device.

(F) PPTP

Internet Setup		[HELP]
Combo WAN Status	Disable	<input type="button" value="Settings..."/>
WAN Interface	Ethernet WAN	<input type="button" value=""/>
WAN Type	PPTP	<input type="button" value=""/>
IP Mode	Dynamic IP Address	<input type="button" value=""/>
My IP Address	<input type="text"/>	
My Subnet Mask	<input type="text"/>	
Gateway IP	<input type="text"/>	
Server IP Address/Name	<input type="text"/>	
PPTP Account	<input type="text"/>	
PPTP Password	<input type="text"/>	
Connection ID	<input type="text"/> (optional)	
Maximum Idle Time	600	seconds
Connection Control	Connect-on-Demand	<input type="button" value=""/>
MTU	0	(0 is auto)
IGMP Proxy	<input type="checkbox"/> Enable	
<input type="button" value="Save"/> <input type="button" value="Undo"/>		

1. WAN Type

Choose PPTP.

2. IP Mode

You can select “**Static IP Address**” or “**Dynamic IP Address**”.

3. My IP Address*, My Subnet Mask*, and Gateway IP*

The IP address, subnet mask, and IP address of gateway your ISP assigned to you.

4. Server IP Address/Name

The IP address of the PPTP server.

5. PPTP Account and Password

The account and password your ISP assigned to you.

6. Connection ID

Optional. Input the connection ID if your ISP requires it.

7. Maximum Idle Time

The amount of time of inactivity before disconnecting your PPTP session. Set it to zero or enable “Auto-reconnect” to disable this feature.

8. Connection Control

There are 3 options to start connection:

■ Auto Reconnect (Always-on)

The device will always try to link to Internet.

■ Connect-on-demand

The device won't try to connect to Internet until LAN PCs or devices try to go to Internet. Once Internet connection is established, this device will drop the connection if maximum idle time is reached.

■ Manually

The device won't try to connect to Internet until users press “connect” button at Status page. Once Internet connection is established, this device will drop the connection if maximum idle time is reached.

9. Maximum Idle Time

The time of no activity to disconnect your PPTP session. Set it to zero or enable “Auto-reconnect” to disable this feature.

10. Maximum Transmission Unit (MTU)

Most ISP offers MTU value to users. The default MTU value is 0 (auto).

11. IGMP Proxy

Enable this feature allows multicast stream (e.g. IPTV stream) to pass-through this device.

NOTE: The items with * above are only available when choosing Static IP Address in IP mode.

(G) L2TP

Internet Setup		[HELP]
Combo WAN Status	Disable	<input type="button" value="Settings..."/>
WAN Interface	Ethernet WAN	<input type="button" value=""/>
WAN Type	L2TP	<input type="button" value=""/>
IP Mode	Dynamic IP Address	<input type="button" value=""/>
IP Address	<input type="text"/>	
Subnet Mask	<input type="text"/>	
WAN Gateway IP	<input type="text"/>	
Server IP Address/Name	<input type="text"/>	
L2TP Account	<input type="text"/>	
L2TP Password	<input type="text"/>	
Maximum Idle Time	600	seconds
Connection Control	Connect-on-Demand	<input type="button" value=""/>
MTU	0	(0 is auto)
IGMP Proxy	<input type="checkbox"/> Enable	
<input type="button" value="Save"/> <input type="button" value="Undo"/>		

1. WAN Type

Choose L2TP.

2. IP Mode

You can select “**Static IP Address**” or “**Dynamic IP Address**”.

3. My IP Address*, My Subnet Mask*, and Gateway IP*

The IP address, subnet mask, and IP address of gateway your ISP assigned to you.

4. Server IP Address/Name

The IP address of the L2TP server.

5. L2TP Account and Password

The account and password your ISP assigned to you.

6. Maximum Idle Time

The time of no activity to disconnect your L2TP session. Set it to zero or enable “**Auto-reconnect**” to disable this feature.

7. Connection Control

There are 3 options to start connection:

- **Auto Reconnect (Always-on)**

The device will always try to link to Internet.

- **Connect-on-demand**

The device won’t try to connect to Internet until LAN PCs or devices try to go to Internet. Once Internet connection is established, this device will drop the connection if maximum idle time is reached.

- **Manually**

The device won’t try to connect to Internet until users press “connect” button at Status page. Once Internet connection is established, this device will drop the connection if maximum idle time is reached.

8. Maximum Transmission Unit (MTU)

Most ISP offers MTU value to users. The default MTU value is 0 (auto).

9. IGMP Proxy

Enable this feature allows multicast stream (e.g. IPTV stream) to pass-through this device.

Note: The items with * above are only available when choosing Static IP Address in IP mode.

(H) Combo WAN Setting

With Combo WAN feature, you can choose one primary WAN connection, and set another WAN connection for backup. Otherwise, you can also choose “**Load Sharing**” to use Ethernet WAN and 3G WAN simultaneously. The combo WAN status will be showed at Internet Setup page. Press “**Settings**” button to configure this feature.

Internet Setup		[HELP]
▶ Combo WAN Status	Disable <input type="button" value="Settings..."/>	
▶ WAN Interface	Ethernet WAN <input type="button" value="▼"/>	
▶ WAN Type	Dynamic IP Address <input type="button" value="▼"/>	
▶ Host Name	<input type="text"/> (optional)	
▶ ISP registered MAC Address	<input type="text"/> <input type="button" value="Clone"/>	
▶ Maximum Idle Time	600 seconds	
▶ Connection Control	Connect-on-Demand <input type="button" value="▼"/>	
▶ NAT disable	<input type="checkbox"/> Enable	
▶ IGMP Proxy	<input type="checkbox"/> Enable	
<input type="button" value="Save"/> <input type="button" value="Undo"/>		

At Combo WAN setting page, you can choose **Disable**, **Load Sharing**, or **Failover** options. This Combo WAN feature will be deactivated if you select “**Disable**” from the list.

Combo WAN Setting	
Item	Setting
▶ Combo WAN Mode	<input style="border: 1px solid red; padding: 2px; margin-right: 10px;" type="button" value="Disable"/> <input style="border: 1px solid blue; background-color: #d9e1f2; padding: 2px; margin-right: 10px;" type="button" value="Disable"/> <input style="border: 1px solid blue; background-color: #d9e1f2; padding: 2px; margin-right: 10px;" type="button" value="Load Sharing"/> <input style="border: 1px solid blue; background-color: #d9e1f2; padding: 2px;" type="button" value="Failover"/>

(a) Load Sharing

The feature of Load Sharing will activate 3G WAN and Ethernet WAN simultaneously.

Combo WAN Setting	
Item	Setting
Combo WAN Mode	Load Sharing ▾
Remote Host for Keep Alive	
WAN Connection Lists	
Primary WAN	Dynamic IP Address
Secondary WAN	-
<input type="button" value="Save"/> <input type="button" value="Undo"/> <input type="button" value="Back"/>	

1. Combo WAN Mode

Choose Load Sharing mode.

2. Remote Host for Keep Alive

Type an IP address or domain name of remote host to detect if Internet connection is alive.

3. Primary WAN

The primary WAN is the WAN type you set at Internet Setup page.

4. Secondary WAN

Press “New Add” button to add the secondary WAN. If the primary WAN is 3G or iBurst, then you can choose one of Static IP, Dynamic IP, and PPPoE as the secondary WAN. However, 3G can be the secondary WAN if primary WAN is Static IP, Dynamic IP, or PPPoE.

Combo WAN Setting	
Item	Setting
Combo WAN Mode	Load Sharing ▾
Remote Host for Keep Alive	
WAN Connection Lists	
Primary WAN	Dynamic IP Address
Secondary WAN	-
<input type="button" value="Save"/> <input type="button" value="Undo"/> <input type="button" value="Back"/>	

(b) Failover

With this function enabled, when the primary WAN connection is broken, the device will automatically switch to secondary WAN connection and keep you connected to Internet. Meanwhile, if the device detects that the primary WAN connection is recovered, your

Combo WAN Setting		
Item	Setting	
▶ Combo WAN Mode	Failover	
▶ Remote Host for Keep Alive		
WAN Connection Lists		
Primary WAN	Dynamic IP Address	
Secondary WAN	-	<input type="button" value="New Add"/>
<input type="button" value="Save"/> <input type="button" value="Undo"/> <input type="button" value="Back"/>		

Internet connection will be switched from secondary WAN back to primary WAN.

1. Combo WAN Mode

Choose Failover mode.

2. Remote Host for Keep Alive

Type an IP address or domain name of remote host to detect if Internet connection is alive.

3. Primary WAN

The primary WAN is the WAN type you set at Internet Setup page.

4. Secondary WAN

Press “New Add” button to add the secondary WAN. If the primary WAN is 3G or iBurst, then you can choose one of Static IP, Dynamic IP, and PPPoE as the secondary WAN. However, 3G can be the secondary WAN if primary WAN is Static IP, Dynamic IP, or PPPoE.

Combo WAN Setting		
Item	Setting	
▶ Combo WAN Mode	Failover	
▶ Remote Host for Keep Alive		
WAN Connection Lists		
Primary WAN	Dynamic IP Address	
Secondary WAN	-	<input type="button" value="New Add"/>
<input type="button" value="Save"/> <input type="button" value="Undo"/> <input type="button" value="Back"/>		

3.2.2 DHCP Server

DHCP Server		[HELP]
Item	Setting	
► DHCP Server	DHCP 1	<input type="radio"/> Disable <input checked="" type="radio"/> Enable
► LAN IP Address	192.168.1.254	
► Subnet Mask	255.255.255.0	
► IP Pool Starting Address	100	
► IP Pool Ending Address	200	
► Lease Time	86400	Seconds
► Domain Name		
► Primary DNS		
► Secondary DNS		
► Primary WINS		
► Secondary WINS		
► Gateway	(optional)	
<input type="button" value="Save"/> <input type="button" value="Undo"/> <input type="button" value="Clients List..."/> <input type="button" value="Fixed Mapping..."/>		

1. DHCP Server

You can have total four (DHCP1~DHCP4) different settings of DHCP server configurations on this device. If you divide LAN network into different groups via VLAN ID (Please refer to **Advanced Setting->VLAN** for detail), you can have different DHCP server settings for each of them.

2. IP Pool Starting/Ending Address

Whenever there is a request, the DHCP server will automatically allocate an unused IP address from the IP address pool to the requesting computer. You must specify the starting / ending address of the IP address pool.

3. Lease Time

DHCP lease time to the DHCP client.

4. Domain Name

Optional, this information will be passed to the clients.

5. Primary DNS/Secondary DNS

Optional. This feature allows you to assign a DNS Servers

6. Primary WINS/Secondary WINS

Optional. This feature allows you to assign a WINS Servers

7. Gateway

Optional. Gateway Address would be the IP address of an alternate Gateway. This function enables you to assign another gateway to your PC, when DHCP server offers an IP to your PC.

Click on “Save” to store your settings or click “Undo” to give up the changes.

Press “Clients List” and the list of DHCP clients will be shown consequently.

DHCP Server		[HELP]
Item	Setting	
► DHCP Server	DHCP 1	<input type="radio"/> Disable <input checked="" type="radio"/> Enable
► LAN IP Address	192.168.1.254	
► Subnet Mask	255.255.255.0	
► IP Pool Starting Address	100	
► IP Pool Ending Address	200	
► Lease Time	86400	Seconds
► Domain Name		
► Primary DNS		
► Secondary DNS		
► Primary WINS		
► Secondary WINS		
► Gateway	(optional)	
<input type="button" value="Save"/> <input type="button" value="Undo"/> <input style="background-color: #ffcc00; border: 2px solid red; color: black; font-weight: bold; font-size: 1em; padding: 2px 10px; margin-right: 10px;" type="button" value="Clients List..."/> <input type="button" value="Fixed Mapping..."/>		

Press “**Fixed Mapping**” and the DHCP Server will reserve the special IP for designated MAC Address.

DHCP Clients List					
IP Address	Host Name	MAC Address	Type	Lease Time	Select
192.168.1.100	i1320notebook	6C-F0-49-51-23-F4	Wired	23:09:28	<input type="checkbox"/>
<input type="button" value="Delete"/> <input type="button" value="Back"/> <input type="button" value="Refresh"/> <input style="background-color: #ffcc00; border: 2px solid red; color: black; font-weight: bold; font-size: 1em; padding: 2px 10px;" type="button" value="Fixed Mapping"/>					

Fixed Mapping

ID	MAC Address	IP Address	Enable
1	00:4F:75:00:00:01	192.168.1.201	<input checked="" type="checkbox"/>
2	6C:F0:49:51:23:F4	192.168.1.100	<input checked="" type="checkbox"/>
3			<input type="checkbox"/>
4			<input type="checkbox"/>
5			<input type="checkbox"/>
6			<input type="checkbox"/>
7			<input type="checkbox"/>
8			<input type="checkbox"/>
9			<input type="checkbox"/>
10			<input type="checkbox"/>

[<"><<Previous](#)

[<">Next>>](#) [Save](#) [Undo](#) [Back](#)

3.2.3 Wireless 2.4G Settings

Here you can configure settings for 2.4GHz wireless functions.

Wireless Setting

Item	Setting
Wireless Module	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Wireless Operation Mode	AP Router Mode
Wireless Schedule	(0) Always
Channel	1
Network ID(SSID)	450r_2.4g
SSID Broadcast	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Wireless Mode	B/G/N mixed
Authentication	Open
802.1X	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
Encryption	None

[Save](#) [Undo](#) [WPS Setup...](#) [Wireless Client List...](#)

Wireless settings allow you to set the wireless configuration items.

1. Wireless Module

You can enable or disable wireless function.

2. Wireless Operation Mode

You can select the wireless operation mode such as AP Router, AP Only, and WDS Hybrid and WDS Only..etc.

3. Wireless Schedule

You can limit Wi-Fi functions in a period of time if required.

4. Channel

The radio channel number. The permissible channels depend on the Regulatory Domain. The factory default setting is as follow: channel 1~11 for North America. (Channel 1~13 for European (ETSI); channel1~ 14 for Japan).

5. Network ID (SSID)

Network ID is used for identifying the Wireless LAN (WLAN). Client stations can roam freely over this device and other Access Points that have the same Network ID. (The factory default setting is “airlive2.4g”)

6. SSID Broadcast

The router will broadcast beacons that have some information, including SSID so that wireless clients can know how many AP devices by scanning the network. Therefore, if this setting is configured as “**Disable**”, the wireless clients cannot find the device from beacons.

7. Wireless Mode

Choose “**B/G mixed**”, “**B only**”, “**G only**”, “**N only**”, “**G/N mixed**” or “**B/G/N mixed**”. The factory default setting is “**B/G/N mixed**”.

8. Authentication

You may select one of authentication to secure your wireless network: **Open**, **Shared**, **Auto**, **WPA-PSK**, **WPA**, **WPA2-PSK**, **WPA2**, **WPA-PSK/WPA2-PSK**, or **WPA /WPA2**.

(A) Open

Open system authentication simply consists of two communications. The first is an authentication request by the client that contains the station ID (typically the MAC address). This is followed by an authentication response from the AP/router containing a success or failure message. An example of when a failure may occur is if the client's MAC address is explicitly excluded in the AP/router configuration.

(B) Shared

Shared key authentication relies on the fact that both stations taking part in the authentication process have the same "shared" key or passphrase. The shared key is manually set on both the client station and the AP/router. Three types of shared key authentication are available today for home or small office WLAN environments.

(C) Auto

The AP will Select the Open or Shared by the client's request automatically.

(D) WPA-PSK

Select Encryption and Pre-share Key Mode, if you select HEX, you have to fill in 64 hexadecimal (0, 1, 2...8, 9, A, B...F) digits. If you select ASCII, the length of pre-share key is from 8 to 63. Fill in the key (e.g. 12345678)

(E) WPA

Check Box was used to switch the function of the WPA. When the WPA function is enabled, the Wireless user must **authenticate** to this router first to use the Network service. RADIUS Server IP address or the 802.1X server's domain-name. Select

Encryption and RADIUS Shared Key.

- If you select HEX, you have to fill in 64 hexadecimal (0, 1, 2...8, 9, A, B...F) digits.
- If you select ASCII, the length of pre-share key is from 8 to 63. Key value shared by the RADIUS server and this router. This key value is consistent with the key value in the RADIUS server.

(F) WPA-PSK2

WPA-PSK2 user AES and TKIP for Same the encryption, the others are same the WPA-PSK.

(G) WPA2

WPA2 add uses AES and TKIP for encryption, the others are same the WPA.

(H) WPA-PSK/WPA-PSK2

Another encryption options for WPA-PSK-TKIP and WPA-PSK2-AES, the others are same the WPA-PSK.

(I) WPA/WPA2

Another encryption options for WPA-TKIP and WPA2-AES, the others are same the WPA.

1. 802.1X

You can enable or disable 802.X function.

2. Encryption

Select the appropriate category. Once you set up that type of encryption, second LAN PC must enter the same encryption type as the first one.

By pressing “**WPS Setup**”, you can configure and enable the easy setup feature WPS (Wi-Fi Protection Setup) for your wireless network.

Wireless Setting		[HELP]
Item	Setting	
Wireless Module	<input checked="" type="radio"/> Enable <input type="radio"/> Disable	
Wireless Operation Mode	AP Router Mode <select> </select>	
Wireless Schedule	(0) Always <select> </select>	
Channel	1 <select> </select>	
Network ID(SSID)	450r_2.4g	
SSID Broadcast	<input checked="" type="radio"/> Enable <input type="radio"/> Disable	
Wireless Mode	B/G/N mixed <select> </select>	
Authentication	Open <select> </select>	
802.1X	<input type="radio"/> Enable <input checked="" type="radio"/> Disable	
Encryption	None <select> </select>	
<input type="button" value="Save"/> <input type="button" value="Undo"/> <input style="background-color: red; color: white; border: 1px solid black;" type="button" value="WPS Setup..."/> <input type="button" value="Wireless Client List..."/>		

Wi-Fi Protected Setup	
Item	Setting
WPS	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
AP PIN	22179005 <input type="button" value="Generate New PIN"/>
Config Mode	Registrar <input type="button" value=""/>
Config Status	CONFIGURED <input type="button" value="Release"/>
Config Method	Push Button <input type="button" value=""/>
WPS status	IDLE
<input type="button" value="Save"/> <input type="button" value="Trigger"/> <input type="button" value="Cancel"/>	

1. WPS

You can enable this function by selecting “Enable”. WPS offers a safe and easy way to allow the wireless clients connected to your wireless network.

2. AP PIN

You can press Generate New Pin to get an AP PIN.

3. Config Mode

Select your config Mode from “Registrar” or “Enrollee”.

4. Config Status

It shows the status of your configuration.

5. Config Method

You can select the Config Method here from “Pin Code” or “Push Button”.

6. WPS status

According to your setting, the status will show “Start Process” or “No Used”.

By pressing “WDS Hybrid Mode” and “WDS Only Mode”, you can connect this device to another AP via WDS connection.

WDS Hybrid Mode

Wireless Setting		[HELP]
Item	Setting	
Wireless Module	<input checked="" type="radio"/> Enable <input type="radio"/> Disable	
Wireless Operation Mode	WDS Hybrid Mode	
Wireless Schedule	(0) Always	
Channel	Auto	
Network ID(SSID)	airlive2.4g	
SSID Broadcast	<input checked="" type="radio"/> Enable <input type="radio"/> Disable	
Wireless Mode	A/N mixed	
Authentication	Open	
802.1X	<input type="radio"/> Enable <input checked="" type="radio"/> Disable	
Encryption	None	
Remote AP MAC1	00:4F:81:01:80:64	
Remote AP MAC2	00:4F:81:00:5C:9C	
Remote AP MAC3		
Remote AP MAC4		
<input type="button" value="Save"/> <input type="button" value="Undo"/> <input type="button" value="Wireless Client List..."/>		

1. Wireless Operation Mode W

Choose WDS Hybrid mode.

2. Wireless Schedule

You can limit Wi-Fi functions in a period of time if required.

3. Channel

The radio channel number. The permissible channels depend on the Regulatory Domain. The factory default setting is as follow: channel 1~11 for North America. (Channel 1~13 for European (ETSI); channel1~ 14 for Japan).

4. Network ID (SSID)

Network ID is used for identifying the Wireless LAN (WLAN). Client stations can roam freely over this device and other Access Points that have the same Network ID. (The factory default setting is “airlive2.4g”)

5. SSID Broadcast

The router will broadcast beacons that have some information, including SSID so that wireless clients can know how many AP devices by scanning the network. Therefore, if this setting is configured as “**Disable**”, the wireless clients cannot find the device from beacons.

6. Wireless Mode

Choose “**B/G mixed**”, “**B only**”, “**G only**”, “**N only**”, “**G/N mixed**” or “**B/G/N mixed**”. The factory default setting is “**B/G/N mixed**”.

7. Authentication

You may select one of authentication to secure your wireless network: **Open**, **Shared**, **Auto**, **WPA-PSK**, **WPA**, **WPA2-PSK**, **WPA2**, **WPA-PSK/WPA2-PSK**, or **WPA /WPA2**.

(A) Open

Open system authentication simply consists of two communications. The first is an authentication request by the client that contains the station ID (typically the MAC address). This is followed by an authentication response from the AP/router containing a success or failure message. An example of when a failure may occur is if the client's MAC address is explicitly excluded in the AP/router configuration.

(B) Shared

Shared key authentication relies on the fact that both stations taking part in the authentication process have the same "shared" key or passphrase. The shared key is manually set on both the client station and the AP/router. Three types of shared key authentication are available today for home or small office WLAN environments.

(C) Auto

The AP will Select the Open or Shared by the client's request automatically.

(D) WPA-PSK

Select Encryption and Pre-share Key Mode, if you select HEX, you have to fill in 64 hexadecimal (0, 1, 2...8, 9, A, B...F) digits. If you select ASCII, the length of pre-share key is from 8 to 63. Fill in the key (e.g. 12345678)

(E) WPA

Check Box was used to switch the function of the WPA. When the WPA function is enabled, the Wireless user must **authenticate** to this router first to use the Network service. RADIUS Server IP address or the 802.1X server's domain-name. Select Encryption and RADIUS Shared Key.

- If you select HEX, you have to fill in 64 hexadecimal (0, 1, 2...8, 9, A, B...F) digits.
- If you select ASCII, the length of pre-share key is from 8 to 63. Key value shared by the RADIUS server and this router. This key value is consistent with the key value in the RADIUS server.

(F) WPA-PSK2

WPA-PSK2 user AES and TKIP for Same the encryption, the others are same the WPA-PSK.

(G) WPA2

WPA2 add uses AES and TKIP for encryption, the others are same the WPA.

(H) WPA-PSK/WPA-PSK2

Another encryption options for WPA-PSK-TKIP and WPA-PSK2-AES, the others are same the WPA-PSK.

(I) WPA/WPA2

Another encryption options for WPA-TKIP and WPA2-AES, the others are same the WPA.

8. Encryption

Select the appropriate category. Once you set up that type of encryption, second LAN PC must enter the same encryption type as the first one.

9. Remote AP MAC 1~4

Enter the MAC address for remote AP that you want to connect via WDS.

WDS Only Mode

Wireless Setting		[HELP]
Item	Setting	
► Wireless Module	<input checked="" type="radio"/> Enable <input type="radio"/> Disable	
► Wireless Operation Mode	WDS Only Mode	
► Channel	1	
► Wireless Mode	B/G/N mixed	
► Authentication	Open	
► Encryption	None	
Remote AP MAC1	00:4F:81:01:80:64	
Remote AP MAC2	00:4F:81:00:5C:9C	
Remote AP MAC3		
Remote AP MAC4		
<input type="button" value="Save"/> <input type="button" value="Undo"/> <input type="button" value="Wireless Client List..."/>		

1. Wireless Operation Mode W

Choose WDS Only mode.

2. Wireless Schedule

You can limit Wi-Fi functions in a period of time if required.

3. Channel

The radio channel number. The permissible channels depend on the Regulatory Domain. The factory default setting is as follow: channel 1~11 for North America. (Channel 1~13 for European (ETSI); channel1~ 14 for Japan).

4. Wireless Mode

Choose “B/G mixed”, “B only”, “G only”, “N only”, “G/N mixed” or “B/G/N mixed”. The factory default setting is “B/G/N mixed”.

5. Authentication

You may select one of authentication to secure your wireless network: **Open**, **Shared**, **Auto**, **WPA-PSK**, **WPA**, **WPA2-PSK**, **WPA2**, **WPA-PSK/WPA2-PSK**, or **WPA /WPA2**.

(A) Open

Open system authentication simply consists of two communications. The first is an authentication request by the client that contains the station ID (typically the MAC address). This is followed by an authentication response from the AP/router containing a success or failure message. An example of when a failure may occur is if the client's MAC address is explicitly excluded in the AP/router configuration.

(B) Shared

Shared key authentication relies on the fact that both stations taking part in the authentication process have the same "shared" key or passphrase. The shared key is manually set on both the client station and the AP/router. Three types of shared key authentication are available today for home or small office WLAN environments.

(C) Auto

The AP will Select the Open or Shared by the client's request automatically.

(D) WPA-PSK

Select Encryption and Pre-share Key Mode, if you select HEX, you have to fill in 64 hexadecimal (0, 1, 2...8, 9, A, B...F) digits. If you select ASCII, the length of pre-share key is from 8 to 63. Fill in the key (e.g. 12345678)

(E) WPA

Check Box was used to switch the function of the WPA. When the WPA function is enabled, the Wireless user must **authenticate** to this router first to use the Network service. RADIUS Server IP address or the 802.1X server's domain-name. Select Encryption and RADIUS Shared Key.

- If you select HEX, you have to fill in 64 hexadecimal (0, 1, 2...8, 9, A, B...F) digits.
- If you select ASCII, the length of pre-share key is from 8 to 63. Key value shared by the RADIUS server and this router. This key value is consistent with the key value in the RADIUS server.

(F) WPA-PSK2

WPA-PSK2 user AES and TKIP for Same the encryption, the others are same the WPA-PSK.

(G) WPA2

WPA2 add uses AES and TKIP for encryption, the others are same the WPA.

(H) WPA-PSK/WPA-PSK2

Another encryption options for WPA-PSK-TKIP and WPA-PSK2-AES, the others are same the WPA-PSK.

(I) WPA/WPA2

Another encryption options for WPA-TKIP and WPA2-AES, the others are same the WPA.

6. Encryption

Select the appropriate category. Once you set up that type of encryption, second LAN PC must enter the same encryption type as the first one.

7. Remote AP MAC 1~4

Enter the MAC address for remote AP that you want to connect via WDS.

Press “**Wireless Clients List**” and the list of wireless clients will be shown consequently.

Wireless Clients List	
ID	MAC Address
	<input type="button" value="Back"/> <input type="button" value="Refresh"/>

3.2.4 Wireless 5G Settings

Here you can configure settings for 5GHz wireless functions.

Wireless Setting		[HELP]
Item	Setting	
► Wireless Module	<input checked="" type="radio"/> Enable <input type="radio"/> Disable	
► Wireless Operation Mode	AP Router Mode	
► Wireless Schedule	(0) Always	
► Channel	Auto	
► Network ID(SSID)	airlive5g	
► SSID Broadcast	<input checked="" type="radio"/> Enable <input type="radio"/> Disable	
► Wireless Mode	A/N mixed	
► Authentication	Open	
► 802.1X	<input type="radio"/> Enable <input checked="" type="radio"/> Disable	
► Encryption	None	
<input type="button" value="Save"/> <input type="button" value="Undo"/> <input type="button" value="WPS Setup..."/> <input type="button" value="Wireless Client List..."/>		

Wireless settings allow you to set the wireless configuration items.

1. Wireless Module

You can enable or disable wireless function.

2. Wireless Operation Mode

You can select the wireless operation mode such as AP Router, AP Only, and WDS Hybrid and WDS Only ..etc.

3. Wireless Schedule

You can limit Wi-Fi functions in a period of time if required.

4. Channel

The radio channel number. The permissible channels depend on the Regulatory Domain.

5. Network ID (SSID)

Network ID is used for identifying the Wireless LAN (WLAN). Client stations can roam freely over this device and other Access Points that have the same Network ID. (The factory default setting is “airlive5g”)

6. SSID Broadcast

The router will broadcast beacons that have some information, including SSID so that wireless clients can know how many AP devices by scanning the network. Therefore, if this setting is configured as “Disable”, the wireless clients can not find the device from beacons.

7. Wireless Mode

Choose “A/N mixed”, “A only”, “N only”. The factory default setting is “A/N mixed”.

8. Authentication

You may select one of authentication to secure your wireless network: **Open Shared**, **Auto**, **WPA-PSK**, **WPA**, **WPA2-PSK**, **WPA2**, **WPA-PSK/WPA2-PSK**, or **WPA /WPA2**.

(A) Open

Open system authentication simply consists of two communications. The first is an authentication request by the client that contains the station ID (typically the MAC address). This is followed by an authentication response from the AP/router containing a success or failure message. An example of when a failure may occur is if the client's MAC address is explicitly excluded in the AP/router configuration.

(B) Shared

Shared key authentication relies on the fact that both stations taking part in the authentication process have the same "shared" key or passphrase. The shared key is manually set on both the client station and the AP/router. Three types of shared key authentication are available today for home or small office WLAN environments.

(C) Auto

The AP will Select the Open or Shared by the client's request automatically.

(D) WPA-PSK

Select Encryption and Pre-share Key Mode, if you select HEX, you have to fill in 64 hexadecimal (0, 1, 2...8, 9, A, B...F) digits. If you select ASCII, the length of pre-share key is from 8 to 63. Fill in the key (e.g. 12345678)

(E) WPA

Check Box was used to switch the function of the WPA. When the WPA function is enabled, the Wireless user must **authenticate** to this router first to use the Network service. RADIUS Server IP address or the 802.1X server's domain-name. Select Encryption and RADIUS Shared Key.

- If you select HEX, you have to fill in 64 hexadecimal (0, 1, 2...8, 9, A, B...F) digits.
- If you select ASCII, the length of pre-share key is from 8 to 63. Key value shared by the RADIUS server and this router. This key value is consistent with the key value in the RADIUS server.

(F) WPA-PSK2

WPA-PSK2 user AES and TKIP for Same the encryption, the others are same the WPA-PSK.

(G) WPA2

WPA2 add uses AES and TKIP for encryption, the others are same the WPA.

(H) WPA-PSK/WPA-PSK2

Another encryption options for WPA-PSK-TKIP and WPA-PSK2-AES, the others are same the WPA-PSK.

(I) WPA/WPA2

Another encryption options for WPA-TKIP and WPA2-AES, the others are same the WPA.

9. 802.1X

You can enable or disable 802.1X function.

10. Encryption type

Select the appropriate category. Once you set up that type of encryption, second LAN PC must enter the same encryption type as the first one.

By pressing “**WPS Setup**”, you can configure and enable the easy setup feature WPS (Wi-Fi Protection Setup) for your wireless network.

Wireless Setting		[HELP]
Item	Setting	
► Wireless Module	<input checked="" type="radio"/> Enable <input type="radio"/> Disable	
► Wireless Operation Mode	AP Router Mode ▾	
► Wireless Schedule	(0) Always ▾	
► Channel	Auto ▾	
► Network ID(SSID)	airlive5g	
► SSID Broadcast	<input checked="" type="radio"/> Enable <input type="radio"/> Disable	
► Wireless Mode	A/N mixed ▾	
► Authentication	Open ▾	
► 802.1X	<input type="radio"/> Enable <input checked="" type="radio"/> Disable	
► Encryption	None ▾	
<input type="button" value="Save"/> <input type="button" value="Undo"/> <input type="button" value="WPS Setup..."/> <input type="button" value="Wireless Client List..."/>		

Wi-Fi Protected Setup	
Item	Setting
► WPS	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
► AP PIN	22178992 <input type="button" value="Generate New PIN"/>
► Config Mode	Registrar ▾
► Config Status	CONFIGURED <input type="button" value="Release"/>
► Config Method	Push Button ▾
► WPS status	IDLE
<input type="button" value="Save"/> <input type="button" value="Trigger"/> <input type="button" value="Cancel"/>	

1. WPS

You can enable this function by selecting “Enable”. WPS offers a safe and easy way to allow the wireless clients connected to your wireless network.

2. AP PIN

You can press Generate New Pin to get an AP PIN.

3. Config Mode

Select your config Mode from “Registrar” or “Enrollee”.

4. Config Status

It shows the status of your configuration.

5. Config Method

You can select the Config Method here from “Pin Code” or “Push Button”.

6. WPS status

According to your setting, the status will show “Start Process” or “No used”.

By pressing “**WDS Hybrid Mode**” and “**WDS Only Mode**”, you can connect this device to another AP via WDS connection.

WDS Hybrid Mode

Wireless Setting		[HELP]
Item	Setting	
Wireless Module	<input checked="" type="radio"/> Enable <input type="radio"/> Disable	
Wireless Operation Mode	WDS Hybrid Mode	
Wireless Schedule	(0) Always	
Channel	Auto	
Network ID(SSID)	airlive5g	
SSID Broadcast	<input checked="" type="radio"/> Enable <input type="radio"/> Disable	
Wireless Mode	A/N mixed	
Authentication	Open	
802.1X	<input type="radio"/> Enable <input checked="" type="radio"/> Disable	
Encryption	None	
Remote AP MAC1	00:4F:81:01:80:64	
Remote AP MAC2	00:4F:81:00:5C:9C	
Remote AP MAC3		
Remote AP MAC4		
<input type="button" value="Save"/> <input type="button" value="Undo"/> <input type="button" value="Wireless Client List..."/>		

1. Wireless Operation Mode W

Choose WDS Hybrid mode.

2. Wireless Schedule

You can limit Wi-Fi functions in a period of time if required.

3. Channel

The radio channel number. The permissible channels depend on the Regulatory Domain. The factory default setting is as follow: channel 1~11 for North America. (Channel 1~13 for European (ETSI); channel1~ 14 for Japan).

4. Network ID (SSID)

Network ID is used for identifying the Wireless LAN (WLAN). Client stations can roam freely over this device and other Access Points that have the same Network ID. (The factory default setting is “airlive2.4g”)

5. SSID Broadcast

The router will broadcast beacons that have some information, including SSID so that wireless clients can know how many AP devices by scanning the network. Therefore, if this setting is configured as “**Disable**”, the wireless clients cannot find the device from beacons.

6. Wireless Mode

Choose “B/G mixed”, “B only”, “G only”, “N only”, “G/N mixed” or “B/G/N mixed”. The factory default setting is “B/G/N mixed”.

7. Authentication

You may select one of authentication to secure your wireless network: **Open**, **Shared**, **Auto**, **WPA-PSK**, **WPA**, **WPA2-PSK**, **WPA2**, **WPA-PSK/WPA2-PSK**, or **WPA /WPA2**.

(A) Open

Open system authentication simply consists of two communications. The first is an authentication request by the client that contains the station ID (typically the MAC address). This is followed by an authentication response from the AP/router containing a success or failure message. An example of when a failure may occur is if the client's MAC address is explicitly excluded in the AP/router configuration.

(B) Shared

Shared key authentication relies on the fact that both stations taking part in the authentication process have the same "shared" key or passphrase. The shared key is manually set on both the client station and the AP/router. Three types of shared key authentication are available today for home or small office WLAN environments.

(C) Auto

The AP will Select the Open or Shared by the client's request automatically.

(D) WPA-PSK

Select Encryption and Pre-share Key Mode, if you select HEX, you have to fill in 64 hexadecimal (0, 1, 2...8, 9, A, B...F) digits. If you select ASCII, the length of pre-share key is from 8 to 63. Fill in the key (e.g. 12345678)

(E) WPA

Check Box was used to switch the function of the WPA. When the WPA function is enabled, the Wireless user must **authenticate** to this router first to use the Network service. RADIUS Server IP address or the 802.1X server's domain-name. Select Encryption and RADIUS Shared Key.

- If you select HEX, you have to fill in 64 hexadecimal (0, 1, 2...8, 9, A, B...F) digits.
- If you select ASCII, the length of pre-share key is from 8 to 63. Key value shared by the RADIUS server and this router. This key value is consistent with the key value in the RADIUS server.

(F) WPA-PSK2

WPA-PSK2 user AES and TKIP for Same the encryption, the others are same the WPA-PSK.

(G) WPA2

WPA2 add uses AES and TKIP for encryption, the others are same the WPA.

(H) WPA-PSK/WPA-PSK2

Another encryption options for WPA-PSK-TKIP and WPA-PSK2-AES, the others are same the WPA-PSK.

(I) WPA/WPA2

Another encryption options for WPA-TKIP and WPA2-AES, the others are same the WPA.

8. Encryption

Select the appropriate category. Once you set up that type of encryption, second LAN PC must enter the same encryption type as the first one.

9. Remote AP MAC 1~4

Enter the MAC address for remote AP that you want to connect via WDS.

WDS Only Mode

Wireless Setting		[HELP]
Item	Setting	
▶ Wireless Module	<input checked="" type="radio"/> Enable <input type="radio"/> Disable	
▶ Wireless Operation Mode	WDS Only Mode ▾	
▶ Channel	Auto ▾	
▶ Wireless Mode	A/N mixed ▾	
▶ Authentication	Open ▾	
▶ Encryption	None ▾	
Remote AP MAC1	00:4F:81:01:80:64	
Remote AP MAC2	00:4F:81:00:5C:9C	
Remote AP MAC3		
Remote AP MAC4		
<input type="button" value="Save"/> <input type="button" value="Undo"/> <input type="button" value="Wireless Client List..."/>		

1. Wireless Operation Mode W

Choose WDS Hybrid mode.

2. Wireless Schedule

You can limit Wi-Fi functions in a period of time if required.

3. Channel

The radio channel number. The permissible channels depend on the Regulatory Domain. The factory default setting is as follow: channel 1~11 for North America. (Channel 1~13 for European (ETSI); channel1~ 14 for Japan).

4. Wireless Mode

Choose “B/G mixed”, “B only”, “G only”, “N only”, “G/N mixed” or “B/G/N mixed”. The factory default setting is “B/G/N mixed”.

5. Authentication

You may select one of authentication to secure your wireless network: **Open**, **Shared**, **Auto**, **WPA-PSK**, **WPA**, **WPA2-PSK**, **WPA2**, **WPA-PSK/WPA2-PSK**, or **WPA /WPA2**.

(A) Open

Open system authentication simply consists of two communications. The first is an authentication request by the client that contains the station ID (typically the MAC address). This is followed by an authentication response from the AP/router containing a success or failure message. An example of when a failure may occur is if the client's MAC address is explicitly excluded in the AP/router configuration.

(B) Shared

Shared key authentication relies on the fact that both stations taking part in the authentication process have the same "shared" key or passphrase. The shared key is manually set on both the client station and the AP/router. Three types of shared key authentication are available today for home or small office WLAN environments.

(C) Auto

The AP will Select the Open or Shared by the client's request automatically.

(D) WPA-PSK

Select Encryption and Pre-share Key Mode, if you select HEX, you have to fill in 64 hexadecimal (0, 1, 2...8, 9, A, B...F) digits. If you select ASCII, the length of pre-share key is from 8 to 63. Fill in the key (e.g. 12345678)

(E) WPA

Check Box was used to switch the function of the WPA. When the WPA function is enabled, the Wireless user must **authenticate** to this router first to use the Network service. RADIUS Server IP address or the 802.1X server's domain-name. Select Encryption and RADIUS Shared Key.

- If you select HEX, you have to fill in 64 hexadecimal (0, 1, 2...8, 9, A, B...F) digits.
- If you select ASCII, the length of pre-share key is from 8 to 63. Key value shared by the RADIUS server and this router. This key value is consistent with the key value in the RADIUS server.

(F) WPA-PSK2

WPA-PSK2 user AES and TKIP for Same the encryption, the others are same the WPA-PSK.

(G) WPA2

WPA2 add uses AES and TKIP for encryption, the others are same the WPA.

(H) WPA-PSK/WPA-PSK2

Another encryption options for WPA-PSK-TKIP and WPA-PSK2-AES, the others are same the WPA-PSK.

(I) WPA/WPA2

Another encryption options for WPA-TKIP and WPA2-AES, the others are same the WPA.

6. Encryption

Select the appropriate category. Once you set up that type of encryption, second LAN PC must enter the same encryption type as the first one.

7. Remote AP MAC 1~4

Enter the MAC address for remote AP that you want to connect via WDS.

Press “**Wireless Clients List**” and the list of wireless clients will be shown consequently.

Wireless Clients List	
ID	MAC Address

3.2.5 Change Password

You can change the System Password here. We strongly recommend you to change the system password for security reason.

Change Password	
Item	Setting
▶ Old Password	<input type="text"/>
▶ New Password	<input type="text"/>
▶ Reconfirm	<input type="text"/>
<input type="button" value="Save"/> <input type="button" value="Undo"/>	

Click on “**Save**” to store your settings or click “**Undo**” to give up the changes.

3.3 Forwarding Rules

There are three options: **Virtual Server**, **Special Application** and **Miscellaneous**.

FORWARDING RULES	
<ul style="list-style-type: none">• Virtual Server - Allows others to access WWW, FTP, and other services on your LAN.• Special Application - This configuration allows some applications to connect, and work with the NAT router.• Miscellaneous - IP Address of DMZ Host: Allows a computer to be exposed to unrestricted 2-way communication. Note that, this feature should be used only when needed. - UPnP Setting: If you enable UPnP function, the router will work with UPnP devices/softwares.	

3.3.1 Virtual Server

FORWARD RULES

- **Virtual Server**
 - Allows others to access WWW, FTP, and other services on your LAN.
- **Special Application**
 - This configuration allows some applications to connect, and work with the NAT router.
- **Miscellaneous**
 - IP Address of DMZ Host: Allows a computer to be exposed to unrestricted 2-way communication. Note that, this feature should be used only when needed.
 - UPnP Setting: If you enable UPnP function, the router will work with UPnP devices/softwares.

This product's NAT firewall filters out unrecognized packets to protect your Intranet, so all hosts behind this product are invisible to the outside world. If you wish, you can make some of them accessible by enabling the Virtual Server Mapping.

A virtual server is defined as a **Service Port**, and all requests to this port will be redirected to the computer specified by the **Server IP**. **Virtual Server** can work with **Scheduling Rules**, and give user more flexibility on Access control. For the details, please refer to **Scheduling Rule**.

Virtual Server [HELP]

Well known services		-- select one --	Copy to	ID
ID	Service Ports	-- select one --	Enable	Use Rule#
1	8080	AUTH (113) DNS (53) FTP (21) ISAKMP (500) POP3 (110) PPTP (1723) SMTP (25) TELNET (23) WEB (80)	<input checked="" type="checkbox"/>	(0) Always ▾
2			<input type="checkbox"/>	(0) Always ▾
3			<input type="checkbox"/>	(0) Always ▾
4			<input type="checkbox"/>	(0) Always ▾
5			<input type="checkbox"/>	(0) Always ▾
6			<input type="checkbox"/>	(0) Always ▾
7			<input type="checkbox"/>	(0) Always ▾
8			<input type="checkbox"/>	(0) Always ▾
9			<input type="checkbox"/>	(0) Always ▾

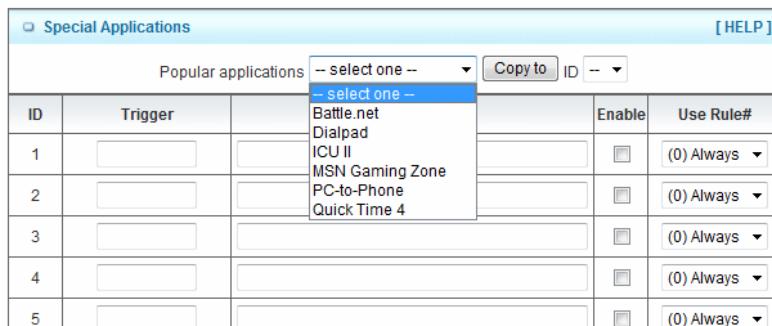
For example, if you have an FTP server (port 21) at 192.168.1.1, a Web server (port 80) at 192.168.1.2, and a VPN server at 192.168.1.6, then you need to specify the following virtual server mapping table: Service Port

	Server IP	Enable
21	192.168.1.1	V
80	192.168.1.2	V
1723	192.168.1.6	V

Afterwards, click on “**Save**” to store your settings or click “**Undo**” to give up the changes.

3.3.2 Special AP

Some applications require multiple connections, like Internet games, Video conferencing, Internet telephony, etc. Because of the firewall function, these applications cannot work with a pure NAT router. The **Special Applications** feature allows some of these applications to work with this product. If the mechanism of Special Applications fails to make an application work, try setting your computer as the DMZ host instead.



ID	Trigger	-- select one --	Enable	Use Rule#
1		Battle.net Dialpad ICU II MSN Gaming Zone PC-to-Phone Quick Time 4	<input type="checkbox"/>	(0) Always
2			<input type="checkbox"/>	(0) Always
3			<input type="checkbox"/>	(0) Always
4			<input type="checkbox"/>	(0) Always
5			<input type="checkbox"/>	(0) Always

1. Trigger

The outbound port number issued by the application.

2. Incoming Ports

When the trigger packet is detected, the inbound packets sent to the specified port numbers are allowed to pass through the firewall.

3. Enable

Check the checkbox to activate each of rule. This device provides some predefined settings. Select your application and click “**Copy to**” to add the predefined setting to your list. Click on “**Save**” to store your settings or click “**Undo**” to give up the changes.

3.3.3 IP CAM

After you plug AirLive IP Camera into PnP Router, please check the IP CAM table list as following.

IP CAM List						
IP Address	Port	Host Name	MAC Address	Description	Status	Edit
192.168.1.201	8080	airlive-keithy	00-4F-75-00-00-01	Chamber		edit
Save Refresh						

3.3.4 Miscellaneous

Miscellaneous Items			[HELP]
Item	Setting	Enable	
▶ IP Address of DMZ Host	<input type="text"/>	<input type="checkbox"/>	
▶ UPnP setting		<input checked="" type="checkbox"/>	
Save Undo			

1. IP Address of DMZ Host

DMZ (Demilitarized Zone) Host is a host without the protection of firewall. It allows a computer to be exposed to unrestricted 2-way communication for Internet games, Video conferencing, Internet telephony and other special applications.

2. UPnP Setting

The device supports the UPnP function. If the OS of your client computer supports this function, and you enabled it, like Windows XP, you can see the following icon when the client computer gets IP from the device.

Click on “Save” to store your settings or click “Undo” to  give up the changes.

3.4 Security Setting

The security setting includes **Packet Filter**, **Domain Filter**, **URL Blocking**, **MAC Address Control**, **L2TP/PPTP Client**, and **Miscellaneous**.

□ SECURITY SETTING	
<ul style="list-style-type: none"> ● Packet Filters <ul style="list-style-type: none"> - Allows you to control access to a network by analyzing the incoming and outgoing packets and letting them pass or halting them based on the IP address of the source and destination. ● Domain Filters <ul style="list-style-type: none"> - Let you prevent users under this device from accessing specific URLs. ● URL Blocking <ul style="list-style-type: none"> - URL Blocking will block LAN computers to connect to pre-defined websites. ● MAC Address Control <ul style="list-style-type: none"> - MAC Address Control allows you to assign different access rights for different users and to assign a specific IP address to a certain MAC address. ● Miscellaneous <ul style="list-style-type: none"> - Remote Administrator Host: In general, only Intranet user can browse the built-in web pages to perform administration task. This feature enables you to perform administration task from remote host. - Administrator Time-out: The amount of time of inactivity before the device will automatically close the Administrator session. Set this to zero to disable it. - Discard PING from WAN side: When this feature is enabled, hosts on the WAN cannot ping the Device. 	

3.4.1 Status

You can see the security log on the status page as following,

□ Outbound Filter		[Modify]	
Item	Status		
Outbound Filter	Disable		
Local Client	Only Allow Remote Host	Service	Working Time
□ Inbound Filter			
Item	Status		
Inbound Filter	Disable		
Remote Host	Deny Remote Host to access	Service	Working Time
□ Domain Filter			
Item	Status		
Domain Filter	Disable		
Domain	Access		
All other Domains	Yes		

Refresh

3.4.2 Packet Filters

Packet Filter includes both outbound filter and inbound filter. And they have same way to setting.

Packet Filter enables you to control what packets are allowed to pass the router. Outbound filter applies on all outbound packets. However, inbound filter applies on packets that destined to Virtual Servers or DMZ host only. You can select one of the two filtering policies:

1. Allow all to pass except those match the specified rules
2. Deny all to pass except those match the specified rules

Outbound Packet Filter		[HELP]	
Item		Setting	
▶ Outbound Packet Filter		<input type="checkbox"/> Enable	
<input checked="" type="radio"/> Allow all to pass except those match the following rules. <input type="radio"/> Deny all to pass except those match the following rules.			
ID	Source IP	Destination IP : Ports	Enable
1	<input type="text"/>	<input type="text"/> : <input type="text"/>	<input type="checkbox"/> (0) Always ▾
2	<input type="text"/>	<input type="text"/> : <input type="text"/>	<input type="checkbox"/> (0) Always ▾
3	<input type="text"/>	<input type="text"/> : <input type="text"/>	<input type="checkbox"/> (0) Always ▾
4	<input type="text"/>	<input type="text"/> : <input type="text"/>	<input type="checkbox"/> (0) Always ▾
5	<input type="text"/>	<input type="text"/> : <input type="text"/>	<input type="checkbox"/> (0) Always ▾
6	<input type="text"/>	<input type="text"/> : <input type="text"/>	<input type="checkbox"/> (0) Always ▾
7	<input type="text"/>	<input type="text"/> : <input type="text"/>	<input type="checkbox"/> (0) Always ▾
8	<input type="text"/>	<input type="text"/> : <input type="text"/>	<input type="checkbox"/> (0) Always ▾
<input type="button" value="Save"/> <input type="button" value="Undo"/> <input type="button" value="Inbound Filter"/> <input type="button" value="MAC Level"/>			

You can specify 8 rules for each direction: inbound or outbound. For each rule, you can define the following:

- Source IP address
- Destination IP address
- Destination port
- Enable or Disable
- Use Rule#

For source or destination IP address, you can define a single IP address (4.3.2.1) or a range of IP addresses (4.3.2.1-4.3.2.254). An empty implies all IP addresses.

For source or destination port, you can define a single port (80) or a range of ports (1000-1999). Add prefix "T" or "U" to specify TCP or UDP protocol. For example, T80, U53, U2000-2999, No prefix indicates both TCP and UDP are defined. An empty implies all port addresses. Packet Filter can work with **Scheduling Rules**, and give user more flexibility on Access control. For Detail, please refer to **Scheduling Rule**.

Each rule can be enabled or disabled individually.

Click on “**Save**” to store your settings or click “**Undo**” to give up the changes.

3.4.3 Domain Filters

Domain Filter prevents users under this device from accessing specific URLs.

Domain Filter		Setting		
Item		Action	Enable	Use Rule#
► Domain Filter		<input type="checkbox"/> Drop <input type="checkbox"/> Log	<input type="checkbox"/>	(0) Always ▾
► Log DNS Query		<input type="checkbox"/> Drop <input type="checkbox"/> Log	<input type="checkbox"/>	(0) Always ▾
► Privilege IP Addresses Range	From <input type="text"/> To <input type="text"/>	<input type="checkbox"/> Drop <input type="checkbox"/> Log	<input type="checkbox"/>	(0) Always ▾
ID	Domain Suffix	Action	Enable	Use Rule#
1	<input type="text"/>	<input type="checkbox"/> Drop <input type="checkbox"/> Log	<input type="checkbox"/>	(0) Always ▾
2	<input type="text"/>	<input type="checkbox"/> Drop <input type="checkbox"/> Log	<input type="checkbox"/>	(0) Always ▾
3	<input type="text"/>	<input type="checkbox"/> Drop <input type="checkbox"/> Log	<input type="checkbox"/>	(0) Always ▾
4	<input type="text"/>	<input type="checkbox"/> Drop <input type="checkbox"/> Log	<input type="checkbox"/>	(0) Always ▾
5	<input type="text"/>	<input type="checkbox"/> Drop <input type="checkbox"/> Log	<input type="checkbox"/>	(0) Always ▾
6	<input type="text"/>	<input type="checkbox"/> Drop <input type="checkbox"/> Log	<input type="checkbox"/>	(0) Always ▾
7	<input type="text"/>	<input type="checkbox"/> Drop <input type="checkbox"/> Log	<input type="checkbox"/>	(0) Always ▾
8	<input type="text"/>	<input type="checkbox"/> Drop <input type="checkbox"/> Log	<input type="checkbox"/>	(0) Always ▾
9	<input type="text"/>	<input type="checkbox"/> Drop <input type="checkbox"/> Log	<input type="checkbox"/>	(0) Always ▾
10	* (all others)	<input type="checkbox"/> Drop <input type="checkbox"/> Log	-	(0) Always ▾
<input type="button" value="Save"/> <input type="button" value="Undo"/>				

1. Domain Filter

Check if you want to enable Domain Filter.

2. Log DNS Query

Check if you want to log the action when someone accesses the specific URLs.

3. Privilege IP Address Range

Setting a group of hosts and privilege these hosts to access network without restriction.

4. Domain Suffix

A suffix of URL can be restricted, for example, ".com", "xxx.com".

5. Action

When someone is accessing the URL met the domain-suffix, what kind of action you want.

Check “Drop” to block the access. Check “Log” to log this access.

6. Enable

Check to enable each rule.

Click on “Save” to store your settings or click “Undo” to give up the changes.

3.4.4 URL Blocking

URL Blocking will block LAN computers to connect with pre-define Websites. The major difference between “**Domain filter**” and “**URL Blocking**” is Domain filter requires user to input suffix (like .com or .org, etc), while URL Blocking requires user to input a keyword only. In other words, Domain filter can block specific website, while URL Blocking can block hundreds of websites by simply a keyword.

URL Blocking		[HELP]	
Item		Setting	
▶ URL Blocking		<input type="checkbox"/> Enable	
ID	URL	Enable	Use Rule#
1		<input type="checkbox"/>	(0) Always ▾
2		<input type="checkbox"/>	(0) Always ▾
3		<input type="checkbox"/>	(0) Always ▾
4		<input type="checkbox"/>	(0) Always ▾
5		<input type="checkbox"/>	(0) Always ▾
6		<input type="checkbox"/>	(0) Always ▾
7		<input type="checkbox"/>	(0) Always ▾
8		<input type="checkbox"/>	(0) Always ▾
9		<input type="checkbox"/>	(0) Always ▾
10		<input type="checkbox"/>	(0) Always ▾

Save Undo

1. URL Blocking

Check if you want to enable URL Blocking.

2. URL

If any part of the Website's URL matches the pre-defined word, the connection will be blocked.

For example, you can use pre-defined word "sex" to block all websites if their URLs contain pre-defined word "sex".

3. Enable

Check to enable each rule.

4. Use Rule#

You can set a schedule rule for each of rule.

Click on “**Save**” to store your settings or click “**Undo**” to give up the changes.

3.4.5 MAC Control

MAC Address Control allows you to assign different access right for different users and to assign a specific IP address to a certain MAC address.

MAC Address Control		[HELP]		
Item	Setting			
<input checked="" type="checkbox"/> MAC Address Control	<input type="checkbox"/> Enable			
<input type="checkbox"/> Connection control	Wireless and wired clients with C checked can connect to this device; and allow <input type="button" value="▼"/> unspecified MAC addresses to connect.			
<input type="checkbox"/> Association control	Wireless clients with A checked can associate to the wireless LAN; and allow <input type="button" value="▼"/> unspecified MAC addresses to associate.			
DHCP clients <input type="button" value="-- select one --"/>		<input type="button" value="Copy to"/> ID <input type="button" value="--"/>		
ID	MAC Address	C	A	Use Rule#
1	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	(0) Always <input type="button" value="▼"/>
2	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	(0) Always <input type="button" value="▼"/>
3	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	(0) Always <input type="button" value="▼"/>
4	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	(0) Always <input type="button" value="▼"/>
5	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>	(0) Always <input type="button" value="▼"/>
<input type="button" value="<<Previous"/> <input type="button" value="Next>>"/> <input type="button" value="Save"/> <input type="button" value="Undo"/>				

1. MAC Address Control

Check "Enable" to enable the "**MAC Address Control**". All of the settings in this page will take effect only when "Enable" is checked.

2. Connection control

Check "**Connection control**" to enable the controlling of which wired and wireless clients can connect with this device. If a client is denied to connect with this device, it means the client can't access to the Internet either. Choose "**allow**" or "**deny**" to allow or deny the clients, whose MAC addresses are not in the "Control table" (please see below), to connect with this device.

3. Association control

Check "Association control" to enable the controlling of which wireless client can associate to the wireless LAN. If a client is denied to associate to the wireless LAN, it means the client can't send or receive any data via this device. Choose "**allow**" or "**deny**" to allow or deny the clients, whose MAC addresses are not in the "Control table", to associate to the wireless LAN.

Click on "**Save**" to store your settings or click "**Undo**" to give up the changes.

3.4.6 Miscellaneous

Miscellaneous Items		[HELP]
Item	Setting	Enable
Administrator Time-out	300 seconds (0 to disable)	<input type="checkbox"/>
Remote Administrator Host: Port	<input type="text"/> / <input type="text"/> : <input type="text"/>	<input type="checkbox"/>
Discard PING from WAN side		<input type="checkbox"/>
DoS Attack Detection		<input type="checkbox"/>
Non-Standard FTP Port	<input type="text"/>	
Disable PPTP Passthrough		<input type="checkbox"/>
Disable L2TP Passthrough		<input type="checkbox"/>
Disable IPSec Passthrough		<input type="checkbox"/>
Stealth Mode		<input type="checkbox"/>
NAT Loopback		<input type="checkbox"/>
<input type="button" value="Save"/> <input type="button" value="Undo"/>		

1. Administrator Time-out

The time of no activity to logout automatically, you may set it to zero to disable this feature.

2. Remote Administrator Host/Port

In general, only Intranet user can browse the built-in web pages to perform administration task. This feature enables you to perform administration task from remote host. If this feature is enabled, only the specified IP address can perform remote administration. If the specified IP address is 0.0.0.0, any host can connect with this product to perform administration task. You can use subnet mask bits "/nn" notation to specify a group of trusted IP addresses for example, "10.1.2.0/24".

NOTE: When Remote Administration is enabled, the web server port will be shifted to 80. You can change web server port to other port, too.

3. Discard PING from WAN side

When this feature is enabled, any host on the WAN cannot ping this product.

4. DoS Attack Detection

When this feature is enabled, the router will detect and log the DoS attack comes from the Internet. Currently, the router can detect the following DoS attack: SYN Attack, WinNuke, Port Scan, Ping of Death, Land Attack etc.

5. Non-Standard FTP port

If you want to access a WAN FTP server which doesn't use port 21, you need to indicate the port number that WAN FTP uses.

6. Disable PPTP passthrough

The PPTP passthrough is enabled by default. You can disable here.

7. Disable L2TP passthrough

The L2TP passthrough is enabled by default. You can disable here.

8. Disable IPSec passthrough

The IPSec passthrough is enabled by default. You can disable here.

9. Stealth Mode

If enable this option, router will become “hidden” if someone uses port scan utility to scan available ports on this router.

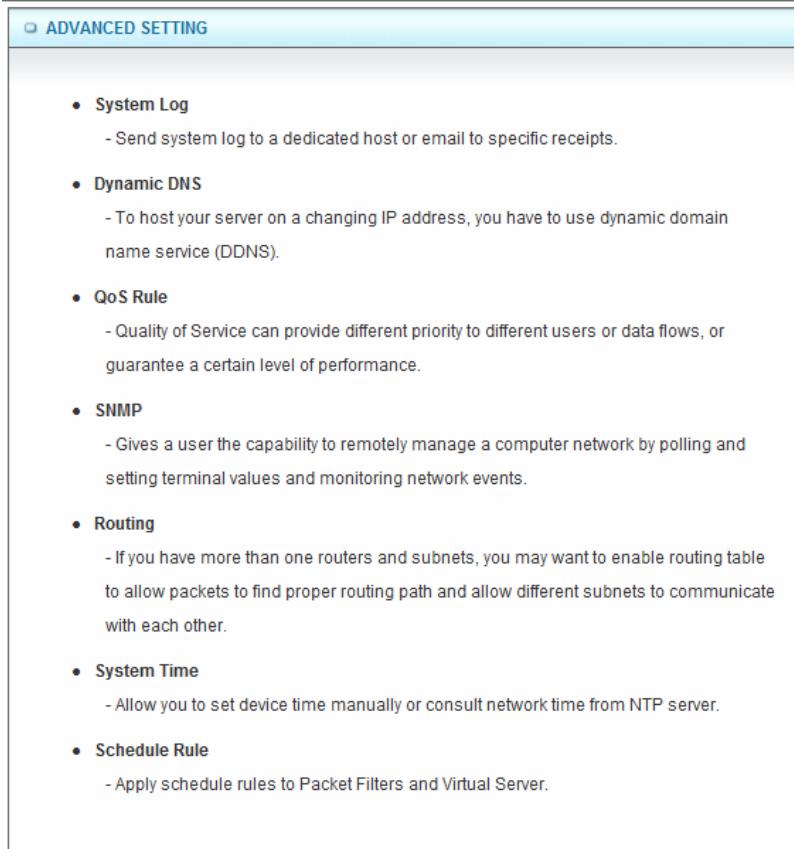
10. NAT Loopback

If enable this option, local hosts can access local virtual server via WAN IP address of this router.

Click on “**Save**” to store your settings or click “**Undo**” to give up the changes.

3.5 Advanced Setting

The Advanced Setting includes **System Log**, **Dynamic DNS**, **QoS**, **SNMP**, **Routing**, **System Time**, **Schedule Rule**, **IPv6**, and **VLAN** settings.



A screenshot of a software interface titled "ADVANCED SETTING". The menu is organized into several sections, each with a bullet point and a descriptive sub-point:

- System Log
 - Send system log to a dedicated host or email to specific receipts.
- Dynamic DNS
 - To host your server on a changing IP address, you have to use dynamic domain name service (DDNS).
- QoS Rule
 - Quality of Service can provide different priority to different users or data flows, or guarantee a certain level of performance.
- SNMP
 - Gives a user the capability to remotely manage a computer network by polling and setting terminal values and monitoring network events.
- Routing
 - If you have more than one routers and subnets, you may want to enable routing table to allow packets to find proper routing path and allow different subnets to communicate with each other.
- System Time
 - Allow you to set device time manually or consult network time from NTP server.
- Schedule Rule
 - Apply schedule rules to Packet Filters and Virtual Server.

3.5.1 Status

System Time		[Modify]	
Item	Status		
System Time	Wed, 11 Jan 2012 08:19:38 +0000		
Dynamic DNS		[Modify]	
Item	Status		
DDNS	Disable		
Provider	-		
Routing		[Modify]	
Item	Status		
Dynamic Routing	Disable		
Static Routing	Disable		
Destination	Subnet Mask	Gateway	Hop
QoS		[Modify]	
Item	Status		
QoS Control	Disable		

[Refresh](#)

3.5.2 System Log

This page supports two methods to export system logs to specific destination by means of syslog (UDP) and SMTP (TCP). The items you have to setup including:

System Log		[HELP]
Item	Setting	Enable
IP address for syslogd	<input type="text"/>	<input checked="" type="checkbox"/>
Setting of Email alert		<input checked="" type="checkbox"/>
• SMTP Server : port	<input type="text"/> : <input type="text"/>	
• SMTP Username	<input type="text"/>	
• SMTP Password	<input type="text"/>	
• E-mail addresses	<input type="text"/>	
• E-mail subject	<input type="text"/>	(0) Always <input type="button" value="▼"/>
<input type="button" value="Save"/> <input type="button" value="Undo"/> <input type="button" value="View Log..."/> <input type="button" value="Email Log Now"/>		

1. IP Address for Sys log

Host IP of destination where sys log will be sent to. Check **Enable** to enable this function.

2. Setting of E-mail Alert

Check if you want to enable Email alert (send syslog via email).

3. SMTP Server:Port

Input the SMTP server IP and port, which are connected with ':'. If you do not specify port number, the default value is 25.

For example, "mail.your_url.com" or "192.168.1.100:26".

4. SMTP Username

Input username of your account on this SMTP server.

5. SMTP Password

Input password of your account on this SMTP server.

6. E-mail address

The recipients who will receive these logs, you can assign more than 1 recipient, using ';' or ',' to separate these email addresses.

7. E-mail Subject

The subject of email alert, this setting is optional.

Click on “**Save**” to store your settings or click “**Undo**” to give up the changes.

3.5.2 Dynamic DNS

To host your server on a changing IP address, you have to use dynamic domain name service (DDNS). So that anyone wishing to reach your host only needs to know the name of it. Dynamic DNS will map the name of your host to your current IP address, which changes each time you connect your Internet service provider.

Dynamic DNS		[HELP]
Item	Setting	
► DDNS	<input checked="" type="radio"/> Disable <input type="radio"/> Enable	
► Provider	<input type="button" value="DynDNS.org(Dynamic)"/> <div style="margin-left: 10px;"> <input type="button" value="DynDNS.org(Dynamic)"/> <input type="button" value="DynDNS.org(Custom)"/> <input type="button" value="No-IP.com"/> <input type="button" value="TZO.com"/> <input type="button" value="dhs.org"/> </div>	
► Host Name	<input type="text"/>	
► Username / E-mail	<input type="text"/>	
► Password / Key	<input type="text"/>	
<input type="button" value="Save"/> <input type="button" value="Undo"/>		

Before you enable **Dynamic DNS**, you need to register an account on one of these Dynamic DNS servers that we list in **Provider** field.

Dynamic DNS		[HELP]
Item	Setting	
► DDNS	<input checked="" type="radio"/> Disable <input type="radio"/> Enable	
► Provider	<input type="button" value="DynDNS.org(Dynamic)"/> <div style="margin-left: 10px;"> <input type="button" value="DynDNS.org(Dynamic)"/> <input type="button" value="DynDNS.org(Custom)"/> <input type="button" value="No-IP.com"/> <input type="button" value="TZO.com"/> <input type="button" value="dhs.org"/> </div>	
► Host Name	<input type="text"/>	
► Username / E-mail	<input type="text"/>	
► Password / Key	<input type="text"/>	
<input type="button" value="Save"/> <input type="button" value="Undo"/>		

To enable **Dynamic DNS** click the check box next to **Enable** in the **DDNS** field. Next you have to enter the appropriate information about your Dynamic DNS Server .**Provider**, **Host Name**, **Username/E-mail**, and **Password/Key**. You can get this information when you register an account on a Dynamic DNS server.

Click on “**Save**” to store your settings or click “**Undo**” to give up the changes.

3.5.3 QoS

Quality of Service is the ability to provide different priority to different applications, users, or data flows, or to guarantee a certain level of performance to a data flow.

Adaptive Bandwidth Control		
Item	Setting	
▶ Cross-layer QoS	Disable ▾	
▶ QoS Mode	Smart-QoS ▾	
▶ Bandwidth of Upstream	[] Kbps (Kilobits per second)	
▶ Bandwidth of Downstream	[] Kbps (Kilobits per second)	
▶ Flexible Bandwidth Management	Disable ▾	
Item	Select	Setting
▶ Game	<input type="checkbox"/>	[0] %
▶ Chat	<input type="checkbox"/>	[0] %
▶ VoIP	<input type="checkbox"/>	[0] %
▶ P2P	<input type="checkbox"/>	[0] %
▶ Video	<input type="checkbox"/>	[0] %
▶ Web	<input type="checkbox"/>	[0] %

Save

(A) Smart QoS

Adaptive Bandwidth Control		
Item	Setting	
▶ Cross-layer QoS	Disable ▾	
▶ QoS Mode	Smart-QoS ▾	
▶ Bandwidth of Upstream	[] Kbps (Kilobits per second)	
▶ Bandwidth of Downstream	[] Kbps (Kilobits per second)	
▶ Flexible Bandwidth Management	Disable ▾	
Item	Select	Setting
▶ Game	<input type="checkbox"/>	[0] %
▶ Chat	<input type="checkbox"/>	[0] %
▶ VoIP	<input type="checkbox"/>	[0] %
▶ P2P	<input type="checkbox"/>	[0] %
▶ Video	<input type="checkbox"/>	[0] %
▶ Web	<input type="checkbox"/>	[0] %

Save

1. Cross-layer QoS

You can select enable/disable the QoS control

2. QoS Mode

You can select Smart-QoS or User defined QoS rule for your own QoS control

3. Bandwidth of upstream / bandwidth of Downstream

You can input the value of maximize of upstream and downstream bandwidth from your ISP

4. Enable Flexible Bandwidth management

If you enable this management, system will share the bandwidth of those selected applications to other applications if user do not run those selected application, for example, If you select Game/ VoIP/ Video 3 applications for higher priority in your system, then the system will automatically reserve 10% of bandwidth to other application, and share the rest of bandwidth $(100-10)/3=30\%$ each to Game/VoIP/Video, so if user do not play a game, then the system will flexible share the 30% of bandwidth to other application.

5. Example for Smart-QoS with FBM enable

Mr. Wang selects Game/ VoIP/ Video 3 applications for higher priority in his system, the system will automatically reserve 10% of minimum rate of bandwidth to other application, and share the rest minimum rate of bandwidth $(100-10)/3=30\%$ each to Game/VoIP/Video. If Mr. Wang's son plays on-line game in the morning, the total bandwidth will all reserve to his son. By the evening, when Mr. Wang back home and wants to watch IPTV, then he will get the same priority with his son, and share the bandwidth.

6. Disable Flexible Bandwidth Management

If you disable this management, system will allow you to input percentage of bandwidth manually.

(B) User defined QoS Rule

□ Adaptive Bandwidth Control	
Item	Setting
▶ Cross-layer QoS	Disable ▾
▶ QoS Mode	User-defined QoS Rule ▾
▶ Bandwidth of Upstream	<input type="text"/> Kbps (Kilobits per second)
▶ Bandwidth of Downstream	<input type="text"/> Kbps (Kilobits per second)
▶ Flexible Bandwidth Management	Disable ▾
<input type="button" value="Save"/>	
□ Advanced Setting	
QoS Rules Table	
<input type="button" value="Add New Rule..."/>	
<input type="button" value="Restart"/> <input type="button" value="Reset"/>	

1. Cross-layer QoS

You can enable/disable this QoS system.

2. QoS Mode

You can select User defined QoS rule for your own QoS control

3. Bandwidth of upstream / bandwidth of Downstream

You can input the value of maximize of upstream and downstream bandwidth from your ISP

4. Advance setting

You can press the button of ‘Add New Rule’ to create a new QoS rule.

QoS Rule Setting - Rule ID 1	
Item	Setting
Rule	<input type="checkbox"/> Enable
Class	IP
Class Info - IP	<input type="text"/> ~ <input type="text"/>
Function	PRI
Function data - Priority	<input type="text"/>
Direction	In
Schedule	(0) Always
<input type="button" value="Save"/> <input type="button" value="Undo"/> <input type="button" value="And a new Rule ..."/>	

5. Create a QoS Rule

You can enable the rule, and select QoS class type as below.

- **Class:** You can create your own QoS rule by different classes as below.

Class	Description
IP	IP address base
N	TCP port
UDPPORT	UDP port
MAC	MAC base
DSCP	DSCP base

- **Function:** You can set your own function value to enable your QoS rule as below.

Function	Description	Data
PRI	Priority	1~6
MAXR	Maximum bandwidth Rate	KBps/MBps
MINR	Minimum bandwidth Rate	KBps/MBps
SESSION	Connection session	number
DROP	Drop packet	None
LOG	Log event	None
ALERT	Alert event	None

- **Direction:** You can select inbound/ outbound for your direction.

Direction
IN
OUT
BOTH

6. **DSCP setting:** You can set your own DSCP value here.

DiffServ Code Point: you can select code value.

Service Type: You can select their service type.

Function: PRI

Function data- Priority: 1~6

▶ Rule	<input checked="" type="checkbox"/> Enable
▶ Class	DSCP
▶ DiffServ CodePoint	IP Precedence 2(CS2)
▶ Service Type	SIP(UDP:5060)
▶ Function	PRI
▶ Function data - Priority	1
▶ Direction	In
▶ Schedule	(0) Always
<input type="button" value="Save"/> <input type="button" value="Undo"/>	

DSCP marking

You can add your inbound / outbound packets a DCSP marking,

Item	Setting
Rule	<input checked="" type="checkbox"/> Enable
Class	DSCP ▾
DiffServ CodePoint	IP Precedence 2(CS2) ▾
Service Type	SIP(UDP:5060) ▾
Function	MARKING ▾
Function data - none	<input type="text"/>
Direction	Both ▾
Schedule	(0) Always ▾
<input type="button" value="Save"/> <input type="button" value="Undo"/>	

For example

Please mark CS3 when an packet in/ out via UDP port 5060. Once you saved the QoS rule, system will show you the rule as below, you can add another new rule accordingly.

System will show you all your QoS rule as below

<input checked="" type="checkbox"/> 1. ↓ <input checked="" type="checkbox"/> DSCP : CS2 Set PRI Priority : 1 (In) (Always) AND <input checked="" type="checkbox"/> UDPPORT : 5060
<input checked="" type="checkbox"/> 2. ↑ <input checked="" type="checkbox"/> DSCP : AF11 Set PRI Priority : 2 (In) (Always) AND <input checked="" type="checkbox"/> TCPPORT : 554 <input type="button" value="Move Up(2)"/>
<input type="button" value="Add New Rule..."/> <input type="button" value="Restart"/> <input type="button" value="Reset"/> Saved!

NOTE: You can move up or down the priority of all rules by pointing the '↑'or '↓' if you want to change the priority.

NOTE: You can unmark any rule if you do not want it enable now.

<input checked="" type="checkbox"/> 1. ↓ <input checked="" type="checkbox"/> DSCP : CS2 Set PRI Priority : 1 (In) (Always) AND <input checked="" type="checkbox"/> UDPPORT : 5060
<input type="checkbox"/> 2. ↑ <input checked="" type="checkbox"/> DSCP : AF11 Set PRI Priority : 2 (In) (Always) AND <input checked="" type="checkbox"/> TCPPORT : 554
<input type="button" value="Add New Rule..."/> <input type="button" value="Restart"/> <input type="button" value="Reset"/> Saved!

Provide different priority to different users or data flows, or guarantee a certain level of performance.

1. QOS Control

Check **Enable** to enable this function.

2. Bandwidth of Upstream

Set the limitation of upstream bandwidth

3. Local IP : Ports

Define the Local IP address and ports of packets

4. Remote IP : Ports

Define the Remote IP address and ports of packets

5. QoS Priority

This defines the priority level of the current Policy Configuration. Packets associated with this policy will be serviced based upon the priority level set. For critical applications High or Normal level is recommended. For non-critical applications select a Low level.

6. Enable

Check to enable the corresponding QOS rule.

7. User Rule#

The QoS rule can work with Scheduling Rule number#. Please refer to the Section 3.1.4.7 Schedule Rule.

Click on “**Save**” to store your settings or click “**Undo**” to give up the changes.

3.5.4 SNMP

In brief, **SNMP**, the Simple Network Management Protocol, is a protocol designed to give a user the capability to remotely manage a computer network by polling and setting terminal values and monitoring network events.

□ SNMP Setting		[HELP]
Item	Setting	
▶ Enable SNMP	<input type="checkbox"/> Local <input type="checkbox"/> Remote	
▶ Get Community	<input type="text"/>	
▶ Set Community	<input type="text"/>	
▶ IP 1	<input type="text"/>	
▶ IP 2	<input type="text"/>	
▶ IP 3	<input type="text"/>	
▶ IP 4	<input type="text"/>	
▶ SNMP Version	<input checked="" type="radio"/> V1 <input type="radio"/> V2c	
▶ WAN Access IP Address	<input type="text"/>	
<input type="button" value="Save"/> <input type="button" value="Undo"/>		

1. Enable SNMP

You must check “**Local**”, “**Remote**” or both to enable SNMP function. If “**Local**” is checked, this device will response request from LAN. If “**Remote**” is checked, this device will response request from WAN.

2. Get Community

The community of GetRequest that this device will respond.

3. Set Community

The community of SetRequest that this device will accept.

4. IP 1, IP 2, IP 3, IP 4

Enter the IP addresses of your SNMP Management PCs. User has to configure to where this device should send SNMP Trap message.

5. SNMP Version

Select proper SNMP Version that your SNMP Management software supports.

6. WAN Access IP Address

If you want to limit the remote SNMP access to specific computer, please enter the PC’s IP address. The default value is 0.0.0.0, and it means that any internet connected computer can get some information of the device with SNMP protocol.

Click on “**Save**” to store your settings or click “**Undo**” to give up the changes.

3.5.5 Routing

If you have more than one routers and subnets, you will need to enable routing table to allow packets to find proper routing path and allow different subnets to communicate with each other. The routing table allows you to determine which physical interface address to use for outgoing IP data grams.

Routing Table						[HELP]
Item		Setting				
▶ Dynamic Routing		<input checked="" type="radio"/> Disable <input type="radio"/> RIPv1 <input type="radio"/> RIPv2				
▶ Static Routing		<input checked="" type="radio"/> Disable <input type="radio"/> Enable				
ID	Destination	Subnet Mask	Gateway	Hop	Enable	
1					<input type="checkbox"/>	
2					<input type="checkbox"/>	
3					<input type="checkbox"/>	
4					<input type="checkbox"/>	
5					<input type="checkbox"/>	
6					<input type="checkbox"/>	
7					<input type="checkbox"/>	
8					<input type="checkbox"/>	
<input type="button" value="Save"/> <input type="button" value="Undo"/>						

1. Dynamic Routing

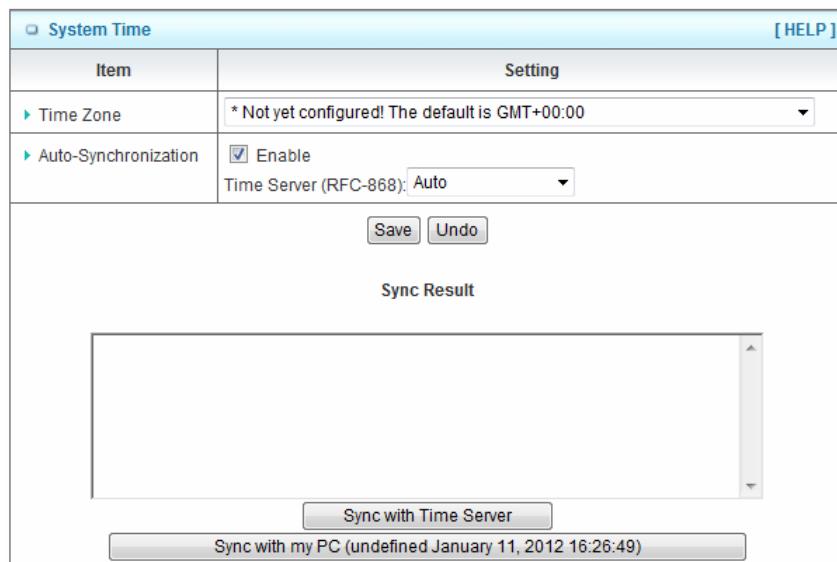
Routing Information Protocol (RIP) will exchange information about destinations for computing routes throughout the network. Please select RIPv2 only if you have different subnet in your network. Otherwise, please select RIPv1 if you need this protocol.

2. Static Routing

For static routing, you can specify up to 8 routing rules. You can enter the **destination IP address**, **subnet mask**, **gateway**, and **hop** for each routing rule, and then enable or disable the rule by checking or un-checking the Enable checkbox.

Click on “Save” to store your settings or click “Undo” to give up the changes.

3.5.6 System Time



System Time		[HELP]
Item	Setting	
Time Zone	* Not yet configured! The default is GMT+00:00	
Auto-Synchronization	<input checked="" type="checkbox"/> Enable	Time Server (RFC-868): Auto
<input type="button" value="Save"/> <input type="button" value="Undo"/>		
Sync Result <div style="border: 1px solid #ccc; height: 150px; margin-top: 10px;"></div>		
<input type="button" value="Sync with Time Server"/>		
<input type="button" value="Sync with my PC (undefined January 11, 2012 16:26:49)"/>		

1. Time Zone

Select a time zone where this device locates.

2. Auto-Synchronization

Check the “Enable” checkbox to enable this function. Besides, you can select a NTP time server to consult UTC time.

3. Sync with Time Server

Click on the button if you want to set Date and Time by NTP Protocol manually.

4. Sync with my PC

Click on the button if you want to set Date and Time using PC’s Date and Time manually.

.Click on “Save” to store your settings or click “Undo” to give up the changes.

3.5.7 Scheduling

You can set the schedule time to decide which service will be turned on or off.

Schedule Rule		[HELP]
Item	Setting	
<input checked="" type="checkbox"/> Schedule	<input type="checkbox"/> Enable	
Rule#	Rule Name	Action
1		<input type="button" value="New Add"/>
2		<input type="button" value="New Add"/>
3		<input type="button" value="New Add"/>
4		<input type="button" value="New Add"/>
5		<input type="button" value="New Add"/>
6		<input type="button" value="New Add"/>
7		<input type="button" value="New Add"/>
8		<input type="button" value="New Add"/>
9		<input type="button" value="New Add"/>
10		<input type="button" value="New Add"/>
<input type="button" value="<<Previous"/> <input type="button" value="Next>>"/> <input type="button" value="Save"/> <input type="button" value="Add New Rule..."/>		

1. Schedule

Check to enable the schedule rule settings.

2. Add New Rule

To create a schedule rule, click the “**Add New Rule**” button. You can edit the **Name of Rule**, **Policy**, and set the schedule time (**Week day**, **Start Time**, and **End Time**). The following example configures “**ftp time**” as everyday 14:10 to 16:20.

Click on “**Save**” to store your settings or click “**Undo**” to give up the changes.

3.5.8 IPv6

This device supports several IPv6 applications. You can choose Static IPv6, DHCPv6, PPPoEv6, 6to4, and IPv6 in IPv4 tunnel according to your requirements.

IPv6 Setting	
Item	Setting
IPv6	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
IPv6 Connection	DHCPv6
IPv6 DNS Settings	
DNS Setting	<input checked="" type="radio"/> Obtain DNS Server address Automatically <input type="radio"/> Use the following DNS address
Primary DNS Address	<input type="text"/>
Secondary DNS Address	<input type="text"/>
LAN IPv6 Address Settings	
Enable DHCP-PD	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
LAN IPv6 Address	<input type="text"/> /64
LAN IPv6 Link-Local Address	
Address Autoconfiguration Settings	
Autoconfiguration	<input type="radio"/> Disable <input checked="" type="radio"/> Enable
Autoconfiguration Type	Stateless
Router Advertisement Lifetime	3600 Seconds
<input type="button" value="Save"/> <input type="button" value="Undo"/>	

(A) Static IPv6

IPv6 Setting	
Item	Setting
IPv6	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
IPv6 Connection	Static IPv6
WAN IPv6 Address Settings	
IPv6 Address	<input type="text"/>
Subnet Prefix Length	<input type="text"/>
Default Gateway	<input type="text"/>
Primary DNS Address	<input type="text"/>
Secondary DNS Address	<input type="text"/>
LAN IPv6 Address Settings	
LAN IPv6 Address	<input type="text"/> /64
LAN IPv6 Link-Local Address	
Address Autoconfiguration Settings	
Autoconfiguration	<input type="radio"/> Disable <input checked="" type="radio"/> Enable
Autoconfiguration Type	Stateless
Router Advertisement Lifetime	3600 Seconds
<input type="button" value="Save"/> <input type="button" value="Undo"/>	

1. IPv6

Disable or enable the IPv6 functions.

2. IPv6 Connection

You can choose Static IPv6 from the list.

3. WAN IPv6 address settings

You can add IPv6 address / subnet prefix length / default Gateway / Primary DNS address and secondary DNS address.

4. LAN IPv6 address settings

You can add LAN IPv6 address, and IPv6 Link-Local address will be showed automatically.

5. Address auto configuration setting

Disable or enable this auto configuration setting. You may set stateless or stateful(Dynamic IPv6), and also check if need to send Router advertisement messages periodically.

(B) DHCPv6

IPv6 Setting	
Item	Setting
IPv6	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
IPv6 Connection	DHCPv6
IPv6 DNS Settings	
DNS Setting	<input checked="" type="radio"/> Obtain DNS Server address Automatically <input type="radio"/> Use the following DNS address
Primary DNS Address	<input type="text"/>
Secondary DNS Address	<input type="text"/>
LAN IPv6 Address Settings	
Enable DHCP-PD	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
LAN IPv6 Address	<input type="text"/> /64
LAN IPv6 Link-Local Address	
Address Autoconfiguration Settings	
Autoconfiguration	<input type="radio"/> Disable <input checked="" type="radio"/> Enable
Autoconfiguration Type	Stateless
Router Advertisement Lifetime	3600 Seconds
<input type="button" value="Save"/> <input type="button" value="Undo"/>	

1. IPv6 DNS settings

You may obtain IPv6 DNS automatically or set DNS address manually for Primary DNS address and secondary DNS address.

2. LAN IPv6 address settings

You can add LAN IPv6 address, and IPv6 Link-Local address will be showed automatically.

3. Address auto configuration setting

Disable or enable this auto configuration setting. You may set stateless or stateful (Dynamic IPv6), and also check if need to send Router advertisement messages periodically.

(C) PPPoEv6

IPv6 Setting	
Item	Setting
▶ IPv6	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
▶ IPv6 Connection	PPPoE
PPPoE Settings	
▶ Username	<input type="text"/>
▶ Password	<input type="text"/>
▶ Service Name	<input type="text"/>
▶ Reconnect Mode	Auto Reconnect (always-on)
▶ Max. Idle Time	<input type="text"/> Seconds
▶ MTU	<input type="text"/>
LAN IPv6 Address Settings	
▶ Enable DHCP-PD	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
▶ LAN IPv6 Address	<input type="text"/> /64
▶ LAN IPv6 Link-Local Address	<input type="text"/>
Address Autoconfiguration Settings	
▶ Autoconfiguration	<input type="radio"/> Disable <input checked="" type="radio"/> Enable
▶ Autoconfiguration Type	Stateless
▶ Router Advertisement Lifetime	3600 Seconds
<input type="button" value="Save"/> <input type="button" value="Undo"/>	

1. PPPoE settings

You need to type username and password of PPPoE connection. The service name is only required when ISP asks you to input it. MTU is 1492 by default.

2. LAN IPv6 address settings

You can add LAN IPv6 address, and IPv6 Link-Local address will be showed automatically.

3. Address auto configuration setting

Disable or enable this auto configuration setting. You may set stateless or stateful (Dynamic IPv6), and also check if need to send Router advertisement messages periodically.

(D) 6 to 4

IPv6 Setting	
Item	Setting
IPv6	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
IPv6 Connection	6 to 4
6 to 4 Settings	
Primary DNS Address	
Secondary DNS Address	
LAN IPv6 Address Settings	
LAN IPv6 Address	
LAN IPv6 Link-Local Address	
Address Autoconfiguration Settings	
Autoconfiguration	<input type="radio"/> Disable <input checked="" type="radio"/> Enable
Autoconfiguration Type	Stateless
Router Advertisement Lifetime	3600 Seconds
<input type="button" value="Save"/> <input type="button" value="Undo"/>	

1. IPv6 DNS settings

The 6 to 4 address will be showed automatically when WAN gets a public IPv4 address. You may set DNS address manually for Primary DNS address and secondary DNS address.

2. LAN IPv6 address settings

You can add LAN IPv6 address, and IPv6 Link-Local address will be showed automatically.

3. Address auto configuration setting

Disable or enable this auto configuration setting. You may set stateless or stateful (Dynamic IPv6), and also check if need to send Router advertisement messages periodically.

(E) IPv6 in IPv4 Tunnel

IPv6 Setting	
Item	Setting
▶ IPv6	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
▶ IPv6 Connection	IPv6 in IPv4 Tunnel ▾
IPv6 in IPv4 Tunnel Settings	
▶ Remote IPv4 Address	255.3.0.0
▶ Local IPv4 Address	239.3.0.0
▶ Local IPv6 Address	/64
▶ Primary DNS Address	
▶ Secondary DNS Address	
LAN IPv6 Address Settings	
▶ LAN IPv6 Address	/64
▶ LAN IPv6 Link-Local Address	
Address Autoconfiguration Settings	
▶ Autoconfiguration	<input type="radio"/> Disable <input checked="" type="radio"/> Enable
▶ Autoconfiguration Type	Stateless ▾
▶ Router Advertisement Lifetime	3600 Seconds
<input type="button" value="Save"/> <input type="button" value="Undo"/>	

1. IPv6 address in IPv4 Tunnel settings

You may add remote / local IPv4 address and local IPv6 address, and then set DNS address manually for Primary DNS address and secondary DNS address.

2. LAN IPv6 address settings

You can add LAN IPv6 address, and IPv6 Link-Local address will be showed automatically.

3. Address auto configuration setting

Disable or enable this auto configuration setting. You may set stateless or stateful (Dynamic IPv6), and also check if need to send Router advertisement messages periodically.

(F) 6 RD

IPv6 Setting	
Item	Setting
▶ IPv6	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
▶ IPv6 Connection	6 RD
6RD Settings	
▶ Remote IPv4 Address	<input type="text"/>
▶ IPv4 Mask Length	<input type="text"/>
▶ Remote Prefix	<input type="text"/> ::
▶ Prefix Length	<input type="text"/>
▶ Primary DNS Address	<input type="text"/>
▶ Secondary DNS Address	<input type="text"/>
LAN IPv6 Address Settings	
▶ LAN IPv6 Address	<input type="text"/>
▶ LAN IPv6 Link-Local Address	<input type="text"/>
Address Autoconfiguration Settings	
▶ Autoconfiguration	<input type="radio"/> Disable <input checked="" type="radio"/> Enable
▶ Autoconfiguration Type	Stateless
▶ Router Advertisement Lifetime	3600 Seconds
<input type="button" value="Save"/> <input type="button" value="Undo"/>	

3.5.9 VLAN

The VLAN function allows you to divide local network into different “virtual LAN”. In some cases, ISP may need router to support “VLAN tag” for certain kinds of services (e.g. IPTV) to work properly.

There are four LAN ports with this router, so you can have up to 4 VLAN if required. Those four LAN ports belong to one VLAN by default. If you want to divide them into different VLAN, you just need to assign different “VID” for them. If ISP requests a “VLAN Tag” with your outgoing data, please remember to check the checkbox of “Tx TAG”.

LAN VLAN Settings			
Ethernet	WAN/LAN	VID	Tx TAG
Port 1	WAN	<input type="text" value="2"/>	<input type="checkbox"/>
Port 2	LAN	<input type="text" value="1"/>	<input type="checkbox"/>
Port 3	LAN	<input type="text" value="1"/>	<input type="checkbox"/>
Port 4	LAN	<input type="text" value="1"/>	<input type="checkbox"/>
Port 5	LAN	<input type="text" value="1"/>	<input type="checkbox"/>
Summary			
VLAN ID on LAN	LAN/Wireless LAN(Interface)	Tag	Type
1	Port2, Port3, Port4, Port5	No	NAT
<input type="button" value="Save"/> <input type="button" value="Undo"/> <input type="button" value="WAN VLAN Settings"/>			WAN(VLAN ID)

For detailed configuration of VLAN, please press button “**VLAN Settings**” to continue.

VLAN Settings	
Item	Setting
▶ VID	1 ▾
▶ Routing Type	NAT ▾
▶ DHCP Setting	DHCP 1 ▾
<input type="button" value="Save"/> <input type="button" value="Undo"/> <input type="button" value="Back"/>	

1. VID

Select which VID you want to configure.

2. LAN Status and DHCP Select

There are two options: NAT or Bridge.

■ If choose NAT

The NAT function is activated, and you can select one of DHCP server configurations to apply to this VID.

■ If choose Bridge

The NAT function is deactivated, and WAN traffic will be transferred to local LAN port which has same VID.

3.5.10 Advanced Wireless Settings

Advanced Wireless Settings	
Item	Setting
Regulatory Domain	<input type="radio"/> FCC(United States) <input checked="" type="radio"/> ETSI(Europe) <small>Please make sure the regulatory domain you choose is legal to use in your country. Using the wrong regulatory domain is not allowed.</small>
Beacon Interval :	100 (msec, range:1~1000, default: 100)
Transmit Power :	100% ▾
RTS Threshold :	2347 (1~2347, default 2347)
Fragmentation :	2346 (256~2346, default 2346, even number only)
DTIM Interval :	1 (range: 1~255, default: 3)
WMM Capable	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
TX Rates :	MCS 7 - 65[135] ▾
<input type="button" value="Save"/> <input type="button" value="Undo"/>	

1. Regulatory Domian

The legal frequency and channels varies between countries. Please select one which is allowed in your country.

2. Beacon Interval

The device broadcasts beacon frames regularly to announce its existence. The beacon Interval specifies how often beacon frames are transmitted in time unit of milliseconds. The default value is **100**, and a valid value should be between 1 and 1000.

3. Transmit Power**4. RTS Threshold**

RTS/CTS frames are used to gain control of the medium for transmission. Any unicast (data or control) frames larger than specified RTS threshold must be transmitted following the RTS/CTS handshake exchange mechanism. The RTS threshold should have a value between 256-2347 bytes, with a default of **2347**. It is recommended that this value does not deviate from the default too much.

5. Fragmentation

When the size of a unicast frame exceeds the fragmentation threshold, it will be fragmented before the transmission. It should have a value of 256-2346 bytes, with a default of 2346. If you experience a high packet error rate, you should slightly decrease the Fragmentation Threshold.

6. DTIM interval

The AIRMAX5 buffers packets for stations that operate in the power-saving mode. The Delivery Traffic Indication Message (DTIM) informs such power-conserving stations that there are packets waiting to be received by them. The DTIM interval specifies how often the beacon frame should contain DTIMs. It should have a value between 1 to 255, with a default value of 3.

7. WMM Capable

Enable or disable WMM Capable.

8. TX Rates

You can adjust the transmit output power of the N450R. The higher the output power, the larger coverage N450R can deliver. However, it is advised that you use just enough output power so it will not create excessive interference for the environment. Also, using too much power at close distance can create serious performance drop due to signal distortion.

3.6 NAS

With NAS function on this device, you can share your USB drive or USB HDD via network easily. There are **Disk Utility**, **Samba Server**, **FTP Service Configuration**, **Access Control**, **iTunes Server**, **Download Assistant** and **Web HDD** options.

NAS	
<ul style="list-style-type: none">• Disk Utility<ul style="list-style-type: none">- For disk format and size limitation• Samba Server<ul style="list-style-type: none">- For samba server naming• FTP Service Configuration<ul style="list-style-type: none">- FTP Service Configuration• Access Control<ul style="list-style-type: none">- Management for ftp / samba user list• iTunes Server<ul style="list-style-type: none">- For enable itunes server• Download Assistant<ul style="list-style-type: none">- For FTP/HTTP/BT download service• Web HDD<ul style="list-style-type: none">- For guest and admin to check web hdd	

3.6.1 Disk Utility

Disk Distribution					
Partition Name	File Type	Free(MB)	Used(MB)	Total(MB)	Format/Check
C	FAT/FAT32	44.8M	1.8G	1.9G	<input type="button" value="Format"/> <input type="button" value="Check"/>

*Warning! Formatting will erase all data on this partition.

1. Format

This utility would format the certain partition.

Please be noted! This action will clear all your data in this partition. You will not be able to recover it any more.

2. Check

This utility could help you check the partition, find the lost files, try to fix some problems.

3.6.2 Samba Server

Basic Setting	
Item	Setting
► Samba Server	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
► Computer Name	<input type="text"/>
► WorkGroup	<input type="text"/>
► Server Comment	<input type="text"/>
<input type="button" value="Save"/> <input type="button" value="Undo"/>	

These settings are for Samba Server (Windows My Network Places).

1. Samba Server

Enable or Disable Samba server functions.

2. Computer Name

The name that is showed on the windows network neighbors search result.

3. WorkGroup

This name MUST be the same as your computer, or you could not search this device via windows.

4. Server Comment

Just a comment for recognize.

3.6.3 FTP Service Configuration

FTP Setting	
Item	Setting
► FTP	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
► FTP Port	<input type="text" value="21"/>
► FTP Max Connection per IP	<input type="text" value="2"/>
► FTP MAX Clients	<input type="text" value="5"/>
► Client Support UTF8	<input checked="" type="radio"/> Yes <input type="radio"/> No
<input type="button" value="Save"/> <input type="button" value="Undo"/>	

These settings are for FTP service.

1. FTP

Enable or disable functions of FTP server on this device.

2. FTP Port

The default port is 21, but sometimes you might want to hide your FTP service by changing it. We have the ability to receive the request on non-standard FTP port, but please be noted, some NAT router could not support non-standard FTP port, that means some of your clients might have to use passive mode to get file.

3. FTP Max Connection per IP

You can limit the maximum number of FTP connection for each client.

4. FTP MAX Clients

You can indicate how many FTP clients can access the FTP service on this device at the same time.

5. Client Support UTF8

This option is used when your FTP client could support UTF8. Usually, the default value “No” is okay for most clients.

3.6.4 Access Control

User Access Configuration	
Item	Setting
► Security Level	<input checked="" type="radio"/> Guest mode <input type="radio"/> Authorization mode
<input type="button" value="Save"/> <input type="button" value="User Configuration"/>	

The default setting is “**Guest mode**”, all clients could access as anonymous users. If you want to control the permission, change to “Authorization mode” and save it, then go to “**User Configuration**”.

In this page, you can manage the user account.

Key in the user name and password then press “**Add**” could let you add a new user. If you want to delete an account, select it and click “**Delete**” button.

3.6.5 iTunes Server

This function could enable the built-in iTunes Server to support iTunes which is a media player released by Apple.

iTunes Server Configuration	
Item	Setting
► Service	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
► Share Partition	C ▾
► Service Name	<input type="text"/>
► Service Port	3689
► Access Password	<input type="password"/>
<input type="button" value="Save"/> <input type="button" value="Undo"/>	

1. Service

Enable or disable this function.

2. Share Partition

Select which partition on USB drive that you want to share.

3. Server Name

The name of this server, it will be shown on the iTunes.

4. Service Port

The TCP port for WEB management interface, for example, if the default value is 3689, then your iTunes server URL will be http://This_Device_IP:3689

5. Access Password

The password for iTunes Server WEB management interface.

3.6.6 Download Assistant

With Download Assistant, you don't need to turn the computer all day on to wait for download to be finished. This device will help you download files from remote FTP server or HTTP server automatically. You can also choose BT for P2P file download.

Download Assistant - FTP	
Item	Setting
Download Type	<input checked="" type="radio"/> FTP <input type="radio"/> HTTP <input type="radio"/> BT
Job Name	<input type="text"/>
URL	<input type="text"/> Port 21
Save To	/C/Downloads/FTP
Login method	<input checked="" type="radio"/> Anonymous <input type="radio"/> Account
Username	<input type="text"/>
Password	<input type="text"/>
Start Time	<input type="radio"/> Schedule <input checked="" type="radio"/> At Once
Time	2012 / Jan / 11 - 16 : 53
<small>*When you use the download service of FTP, HTTP, BT, please check if these files you downloaded are legal or not.</small>	
<input type="button"/> Save <input type="button"/> Undo	

(A) FTP

Download Assistant - FTP	
Item	Setting
Download Type	<input checked="" type="radio"/> FTP <input type="radio"/> HTTP <input type="radio"/> BT
Job Name	<input type="text"/>
URL	<input type="text"/> Port 21
Save To	/C/Downloads/FTP
Login method	<input checked="" type="radio"/> Anonymous <input type="radio"/> Account
Username	<input type="text"/>
Password	<input type="text"/>
Start Time	<input type="radio"/> Schedule <input checked="" type="radio"/> At Once Time: <input type="text"/> 2012 / <input type="text"/> Jan / <input type="text"/> 11 : <input type="text"/> 16 : <input type="text"/> 53
<small>*When you use the download service of FTP, HTTP, BT, please check if these files you downloaded are legal or not.</small>	
<input type="button"/> Save <input type="button"/> Undo	

1. Job Name

It's for you to remember the job easily, and the device would use this name to info you when the job is done.

2. URL

The URL for the file you want to download. You have to use this format:
IP/path/file, you don't have to add protocol part such like "ftp://".

3. Save To

The destination path on USB disk that you want to save files.Default value is /C/Download/FT

4. Login method

Anonymous, you can access this site without any authentication Account; you have to enter the username and password to login.

5. Start Time

Schedule: this device will start FTP download on the time that you specified. The schedule job that is saved could be check on Status page by selecting "View Scheduled Download Status".

At Once: the FTP download would be started immediately.

(B) HTTP

Download Assistant - HTTP	
Item	Setting
Download Type	<input type="radio"/> FTP <input checked="" type="radio"/> HTTP <input type="radio"/> BT
Job Name	<input type="text"/>
URL	<input type="text"/>
Save To	/C/Downloads/HTTP
Start Time	<input type="radio"/> Schedule <input checked="" type="radio"/> At Once
Time	2012 / Jan / 11 - 16 : 55
<small>*When you use the download service of FTP, HTTP, BT, please check if these files you downloaded are legal or not.</small>	
<input type="button" value="E-mail Alert Configuration"/> <input type="button" value="Save"/> <input type="button" value="Undo"/>	

1. Job Name

It's for you to remember the job easily, and the device would use this name to info you when the job is done.

2. URL

The URL for the file you want to download.

You have to use this format:

IP/path/file, you don't have to add protocol part such like "http://".

3. Save To

The destination path on USB disk that you want to save files.

Default value is /C/Download/HTTP

4. Start Time

Schedule: this device will start FTP download on the time that you specified. The schedule job that is saved could be check on Status page by selecting "View Scheduled Download Status". At Once: the FTP download would be started immediately.

By pressing “E-mail Alert Configuration”,

E-mail Alert Configuration	
Item	Setting
▶ HTTP download alert	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
▶ FTP download alert	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
▶ BT download alert	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
▶ USB download alert	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
▶ SMTP Server Address	<input type="text"/>
▶ SMTP Server Port	<input type="text"/>
▶ SMTP User Name	<input type="text"/>
▶ SMTP Password	<input type="text"/>
▶ Email Address	<input type="text"/>
▶ Email Subject	<input type="text"/>
▶ Reservation Disk space	200 MB
<input type="button" value="Back"/> <input type="button" value="Save"/> <input type="button" value="Undo"/> <input type="button" value="Test E-mail"/>	

(C) BT (Bit Torrent)

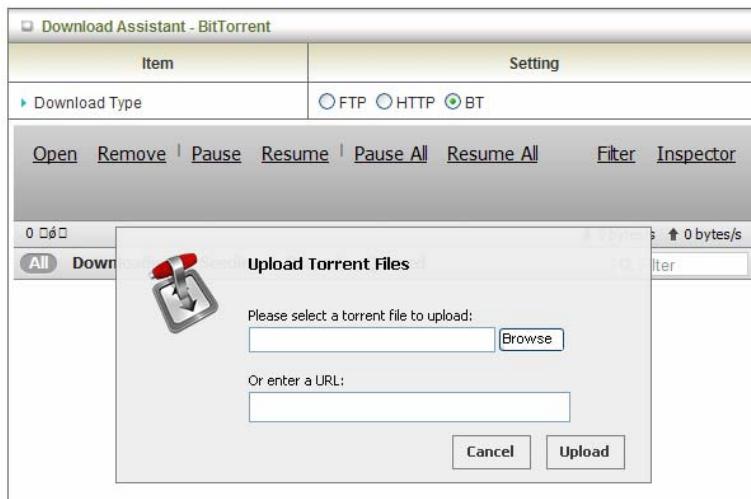
You can download file by using BT (Bit Torrent).

Download Assistant - BitTorrent	
Item	Setting
▶ Download Type	<input type="radio"/> FTP <input type="radio"/> HTTP <input checked="" type="radio"/> BT
Open Remove Pause Resume Pause All Resume All Filter Inspector	
0 Transfers ↓ 0 bytes/s ↑ 0 bytes/s	
All Downloading Seeding Paused Queued <input type="text" value="Filter"/>	
<small>*When you use the download service of FTP, HTTP, BT, please check if these files you downloaded are legal or not.</small>	

■ Start BT download

First, you have to get a seed file, which we called “**torrent**”. Then click the “**Open**” link on UI, it would pop up a sub menu to let you upload.

Or, if your torrent file could be downloading from network, you could just enter a URL.



■ BT download status

After you upload the torrent, download job would be started immediately.

The device could support 3 concurrent download jobs, other jobs would wait in job queue. If one of the three running job is done, the next new job would be started.

At this page, you could see the download process and the bandwidth.

■ Stop, Resume and Remove seed

Select any job on the list, and click right button of mouse, you could see a menu with several actions you could do. You could Stop (Pause), Resume, or Remove a job with this sub menu.

3.6.7 Download Status

Here shows all jobs for download assistant.

Download Assistant - Job List			
There are 0 download jobs in the list.			
View Running (0 Jobs) ▾ Download Status			
Page 1			
Type	Name	Status	
		Pause	Delete
		Resume	Start Now
		Refresh	

3.6.8 Web HDD

This Web HDD can allow you to enter HDD by web UI, and also can allow you to let ‘guest’ to enter the ‘public’ area only.

MicroSD : /		
Name	Size	Last modified
Top Directory	-	-
c	-	Jan 11 08:43
1		
<input type="button" value="Refresh"/>		

(A) Miscellaneous

This setting is for Media Server service.

Miscellaneous Items	
Item	Setting
Media Server	<input checked="" type="checkbox"/>
<input type="button" value="Save"/> <input type="button" value="Undo"/>	

3.7 Tool Box

There are seven options: **System Log**, **Firmware Upgrade**, **Backup Setting**, and **Reset to Default**, **Reboot** and **Miscellaneous**.

TOOLBOX	
<ul style="list-style-type: none"> • View Log - View the system logs. • Firmware Upgrade - Prompt the administrator for a file and upgrade it to this device. • Backup Setting - Save the settings of this device to a file. • Reset to Default - Reset the settings of this device to the default values. • Reboot - Reboot this device. • Miscellaneous <ul style="list-style-type: none"> - MAC Address for Wake-on-LAN: Let you to power up another network device remotely. - Domain Name or IP address for Ping Test: Allow you to configure an IP, and ping the device. You can ping a specific IP to test whether it is alive. 	

3.7.1 System Info

You can view the System Information and System log, and download/clear the System log.

System Infomation	
Item	Setting
▶ WAN Type	Dynamic IP Address
▶ Display time	Wed, 11 Jan 2012 09:07:12 +0000
▶ Log Types	Setting

System Log	
Time	Log
Jan 11 08:02:30	kernel: klogd started: BusyBox v1.3.2 (2012-01-04 18:56:28 CST)
Jan 11 08:02:32	BEID: BEID STATUS : 0 , STATUS OK!
Jan 11 08:02:42	commander: Init NAT Server ...
Jan 11 08:02:45	syslog: Unable to open /var/run/udhcpd.leases for reading
Jan 11 08:02:45	udhcpd[2803]: udhcpd (v0.9.9-pre) started
Jan 11 08:02:45	udhcpd[2803]: Unable to open /var/run/udhcpd.leases for reading
Jan 11 08:02:45	commander: Start UPNP Daemon !!
Jan 11 08:02:45	commander: Start/Restart FTP Server
Jan 11 08:02:46	telnetd: bind: Address already in use
Jan 11 08:02:48	init: Starting pid 3261, console /dev/ttys1: '/bin/ash'
Jan 11 08:02:50	commander: STOP WANTYPE Dynamic IP Address
Jan 11 08:02:52	commander: Start/Restart httpd !
Jan 11 08:02:52	commander: START WANTYPE Dynamic IP Address
Jan 11 08:02:53	udhcpc[3909]: udhcpc (v0.9.9-pre) started
Jan 11 08:02:54	udhcpc[3909]: Lease of 192.168.2.108 obtained, lease time 86400

Page: 1/2 (Log Number:24)

[<<Previous](#) [Next>>](#) [First Page](#) [Last Page](#)
[Refresh](#) [Download](#) [Clear logs](#)

Press “Setting” button.

Miscellaneous Items	
Item	Setting
▶ Log Types	<input type="checkbox"/> System <input type="checkbox"/> Attacks <input type="checkbox"/> Drop <input type="checkbox"/> Debug
	Save Undo Back

3.7.2 USSD

USSD is a way to let subscribers finish some application on line, such as recharge SIM card.

Enter the USSD command you got from ISP or carrier, and press button “Send” to send this request to ISP or carrier. In most cases, ISP/Carrier will return a message regarding to your USSD command. The replied message will be showed at this page as well. Please note some replied message is sent back via SMS, and this device can't deal with any SMS message. If you don't get any response after sending the command, please call your ISP/carrier to confirm your request has been accepted.

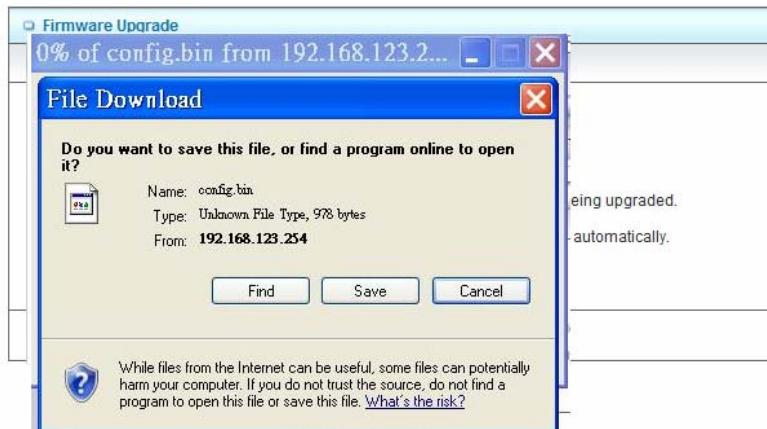
USSD	
Item	Setting
▶ USSD	<input type="text"/>
<input type="button" value="Send"/>	

3.7.3 Firmware Upgrade

You can upgrade firmware by clicking “Upgrade” button.

Firmware Upgrade	
Firmware Filename	
<input type="button" value="Browse"/>	
Current firmware version is R1.00e02 .	
Note! Do not interrupt the process or power off the unit when it is being upgraded.	
When the process is done successfully, the unit will be restarted automatically.	
<input type="checkbox"/> Accept unofficial firmware.	
<input type="button" value="Upgrade"/> <input type="button" value="Cancel"/>	

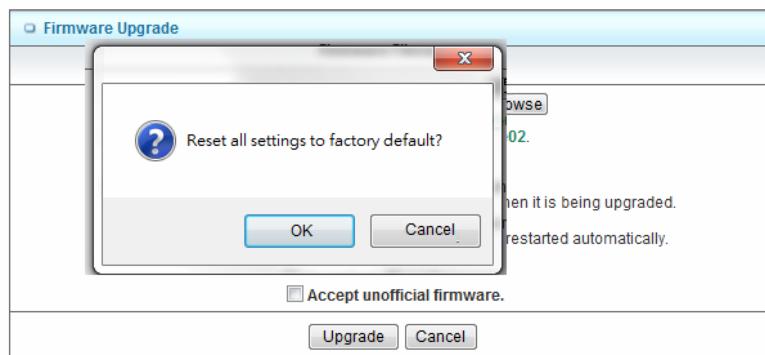
3.7.4 Backup Setting



You can backup your settings by clicking the “**Backup Setting**” function item and save it as a bin file. Once you want to restore these settings, please click Firmware Upgrade button and use the bin file you saved.

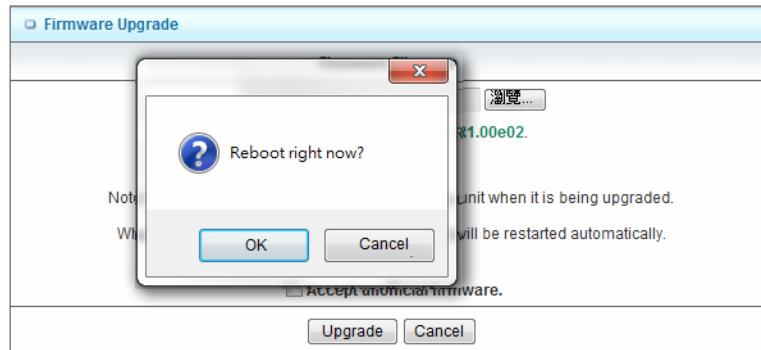
3.7.5 Reset to Default

You can also reset this device to factory default settings by clicking the **Reset to default** function item. Press “**OK**” to reset to factory default settings.



3.7.6 Reboot

You can also reboot this device by clicking the **Reboot** function item.



3.7.7 Miscellaneous – Wake on LAN & Ping

Miscellaneous Items		[HELP]
Item	Setting	
► MAC Address for Wake-on-LAN	<input type="button" value="Wake up"/>	
► Domain Name or IP address for Ping Test	<input type="button" value="Ping"/>	
	<input type="button" value="Save"/> <input type="button" value="Undo"/>	

1. MAC Address for Wake-on-LAN

It enables you to power up a networked device remotely. If you would like to trigger this function, you have to know the MAC address of this device. For instance if the MAC address is 00-11-22-33-44-55, enter it into the blank of MAC Address for Wake-on-LAN. Afterwards, click "**Wake up**" button which makes the router to send the wake-up frame to the target device immediately.

2. Domain Name or IP address for Ping Test

Allow you to configure an IP, and ping the device. You can ping a specific IP to test whether it is alive.

Click on "**Save**" to store your settings or click "**Undo**" to give up the changes.

A

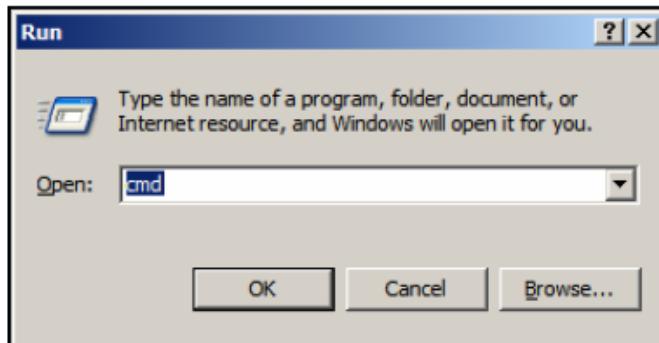
Appendix A: Troubleshooting

Q: Why can't I configure the router even the cable is plugged and the LED is lit?

A:

Do a **Ping test** to make sure that the router is responding.

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



3. Press **OK**.
4. Type **ipconfig** to get the IP of default gateway.
5. Type "**ping 192.168.1.254**". Assure that you ping the correct IP Address assigned to the router. It will show four replies if you ping correctly.

```
Pinging 192.168.1.254 with 32 bytes of data:  
Reply from 192.168.1.254: bytes=32 time<1ms TTL=64  
Reply from 192.168.1.254: bytes=32 time<1ms TTL=64  
Reply from 192.168.1.254: bytes=32 time<1ms TTL=64  
Reply from 192.168.1.254: bytes=32 time<1ms TTL=64
```

6. Ensure that your Ethernet Adapter is working, and that all network drivers are installed properly. Network adapter names will vary depending on your specific adapter. The installation steps listed below are applicable for all network adapters.
7. Go to **Start** > Right click on "**My Computer**" > **Properties**.
8. Select the **Hardware Tab**.
9. Click **Device Manager**.
10. Double-click on "**Network Adapters**".
11. Right-click on Wireless Card bus Adapter or your specific network adapter.
12. Select **Properties** to ensure that all drivers are installed properly.

13. Look under **Device Status** to see if the device is working properly.

14. Click "**OK**".

Q: What can I do if my Ethernet connection does not work properly?

A:

Make sure the RJ45 cable connects with the router.

1. Ensure that the setting on your Network Interface Card adapter is "**Enabled**".
2. If settings are correct, ensure that you are not using a crossover Ethernet cable, not all Network Interface Cards are MDI/MDIX compatible, and use a patch cable is recommended.
3. If the connection still doesn't work properly, then you can reset it to default.

Q: Something wrong with the wireless connection?

A:

1. Can't setup a wireless connection?

- Ensure that the SSID and the encryption settings are exactly the same to the Clients.
- Move the WiFi Combo Router and the wireless client into the same room, and then test the wireless connection.
- Disable all security settings such as **WEP**, and **MAC Address Control**.
- Turn off the WiFi Combo Router and the client, then restart it and then turn on the client again.
- Ensure that the LEDs are indicating normally. If no, make sure that the AC power and Ethernet cables are firmly connected.
- Ensure that the IP Address, subnet mask, gateway and DNS settings are correctly entered for the network.
- If you are using other wireless device, home security systems or ceiling fans, lights in your home, your wireless connection may degrade dramatically. Keep your product away from electrical devices that generate RF noise such as microwaves, monitors, electric motors.

2. What can I do if my wireless client can not access the Internet?

- Out of range: Put the router closer to your client.
 - Wrong SSID or Encryption Key: Check the SSID or Encryption setting.
 - Connect with wrong AP: Ensure that the client is connected with the correct Access Point.
- (A) **Right-click** on the **Local Area Connection icon** in the taskbar.
- (B) **Select View Available Wireless Networks in Wireless Configure**.
Ensure you have selected the correct available network.
- (C) Reset the WiFi Combo Router to default setting

3. Why does my wireless connection keep dropping?

- Antenna Orientation.
- (A) Try different antenna orientations for the WiFi Combo Router.
- (B) Try to keep the antenna at least 6 inches away from the wall or other objects.
- (C) Try changing the channel on the WiFi Combo Router, and your Access Point and Wireless adapter to a different channel to avoid interference.

Keep your product away from electrical devices that generate RF noise, like microwaves, monitors, electric motors, etc.

Q: What to do if I forgot my encryption key?**A:**

1. Go to the **Wireless Advanced** setting to setup the encryption key again.
2. Reset the router to default setting

Q: How to reset to default?**A:**

1. Ensure the router is powered on
2. Find the **Reset** button on the right side
3. Press the **Reset** button for 8 seconds and then release.
4. After the router reboots, it has back to the factory **default** settings.

Q: Problems with 3G connection?**A:****1. What can I do if the 3G connection is failed by Auto detection?**

Maybe the device can't recognize your ISP automatically. Please select "Manual" mode, and filling in dial-up settings manually.

2. What can I do if my country and ISP are not in the list?

Please choose "Others" item from the list, and filling in dial-up settings manually.

3. What can I do if my 3G connection is failed even the dongle is plugged?

Please check the following items:

4. Make sure you have inserted a validated SIM card in the 3G data card, and the subscription from ISP is still available
5. If you activate PIN code check feature in SIM card, making sure the PIN code you fill in dial-up page is correct
6. Checking with your ISP to see all dial-up settings are correct
7. Make sure 3G signal from your ISP is available in your environment

8. What can I do if my router can't recognize my 3G data card even it is plugged?

There might be compatibility issue with some certain 3G cards. Please check the latest compatibility list to see if your 3G card is already supported.

9. What should I insert in APN, PIN Code, Account, Password, Primary DNS, and Secondary DNS?

The device will show this information after you choose country and Telcom. You can also check these values with your ISP.

10. Which 3G network should I select?

It depends on what service your ISP provide. Please check your ISP to know this information.

11. Why my 3G connection is keep dropping?

Please check 3G signal strength from your ISP in your environment is above middle level.

Q: How to configure the iTunes Server?
A:
Step1

Please check the USB HDD has installed to N450R properly.



Partition Name	File Type	Free(MB)	Used(MB)	Total(MB)	Format/Check
C	FAT/FAT32	1.3G	611.5M	1.9G	<input type="button" value="Format"/> <input type="button" value="Check"/>

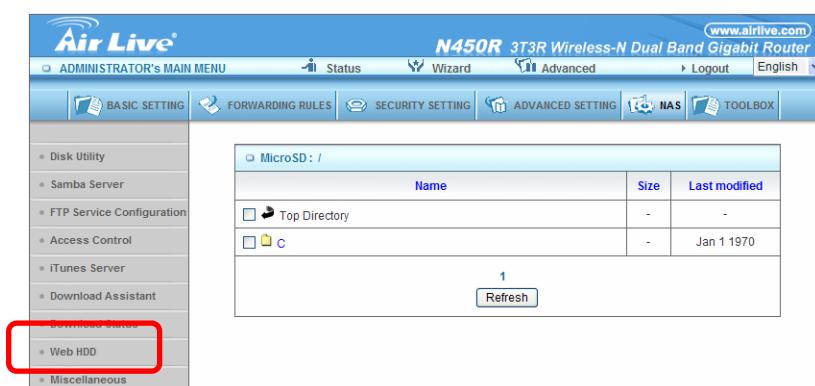
*Warning! Formatting will erase all data on this partition.

Step2

Click iTunes Server, then enable iTunes Sever, type-in Service Name, Service Port and Access password. Click “Save” to apply settings.

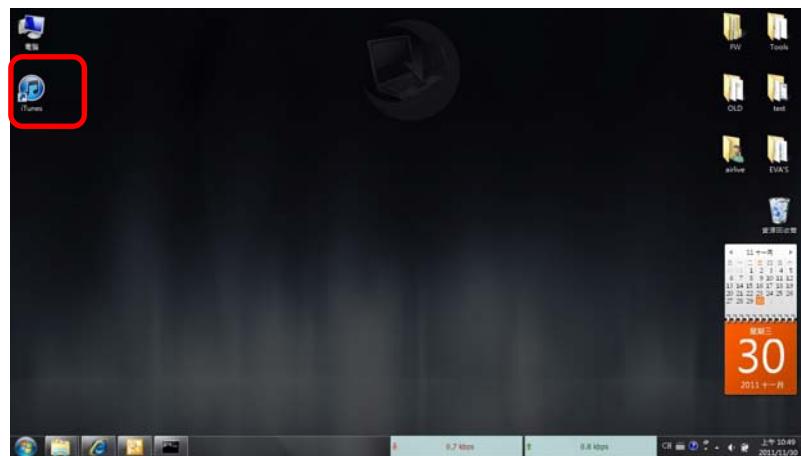


Item	Setting
Service	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Share Partition	C
Service Name	AirLive
Service Port	3689
Access Password	*****

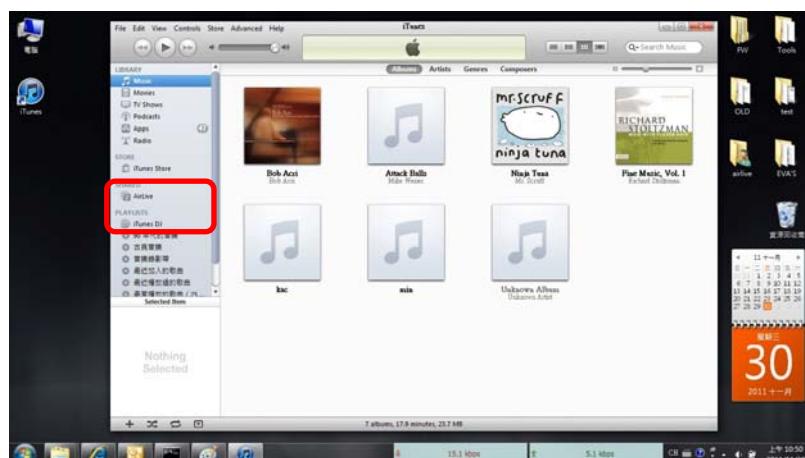
Step3: Click Web HDD, and then click “C” to check whether music file in the folder.


Name	Size	Last modified
Top Directory	-	-
C	-	Jan 1 1970

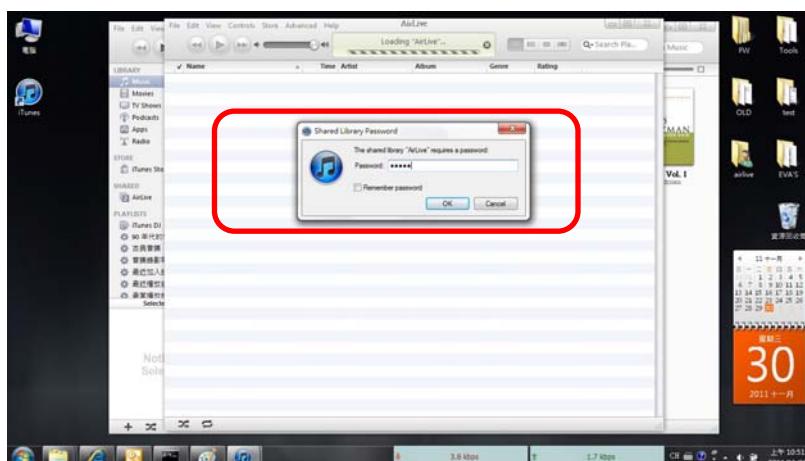
Step4: Start iTunes player on your PC.



Step5: There will appear a shared folder: AirLive, which you create



Step6: Please type the login password.



Step7: The music files will appear, click on the song to start to play.

