



## **N450R**

**3T3R Wireless-N Dual Band Gigabit  
Router**

## **User's Manual**



[www.airlive.com](http://www.airlive.com)



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## 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.



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## 1

# Introduction



Thank you for purchase of this AirLive product. **AirLive N450R** is a 802.11n concurrent dual band broadband router with USB slots for USB storage and 3G USB modem support. It features Gigabit LAN and WAN ports that can work with 10/100Mbps devices also. In this guide, you will learn how to configure N450R's extensive functions.

## 1.1 Firmware Upgrade and Tech Support

If you encounter a technical issue that can not be resolved by information on this guide, we recommend that you visit our comprehensive website support at [www.airlive.com](http://www.airlive.com). The tech support FAQ are frequently updated with latest information.

In addition, you might find new firmwares that either increase software functions or provide bug fixes for N450R. You can reach our on-line support center at the following link: [http://www.airlive.com/support/support\\_2.jsp](http://www.airlive.com/support/support_2.jsp)

Since 2009, AirLive has added the “Newsletter Instant Support System” on our website. AirLive Newsletter subscribers receives instant email notifications when there are new download or tech support FAQ updates for their subscribed airlive models. To become an AirLive newsletter member, please visit: [http://www.airlive.com/member/member\\_3.jsp](http://www.airlive.com/member/member_3.jsp)



Monthly news :  Subscribe Language : English

Instant Support :  Subscribe Language : English

All Products

| Product Main Category | Product Secondary Category | Model NO |
|-----------------------|----------------------------|----------|
| Skype                 | 802.11a/b/g/n Products     | N450R    |
| LAN Switches          | 802.11a/b/g Products       |          |
| VoIP                  | 802.11b/g/n Products       |          |
| 3G                    | MIMO-G Products            |          |
| Wireless Indoor       | Turbo-G Products           |          |
| Wireless Outdoor      | 802.11g+ Products          |          |
| Wireless Accessory    | 802.11g Products           |          |
| WISP                  | 802.11b Products           |          |
| Solutions             | GPR                        |          |
| GPRS                  | Dual Band Wireless         |          |

## 1.2 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        |

## 1.3 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

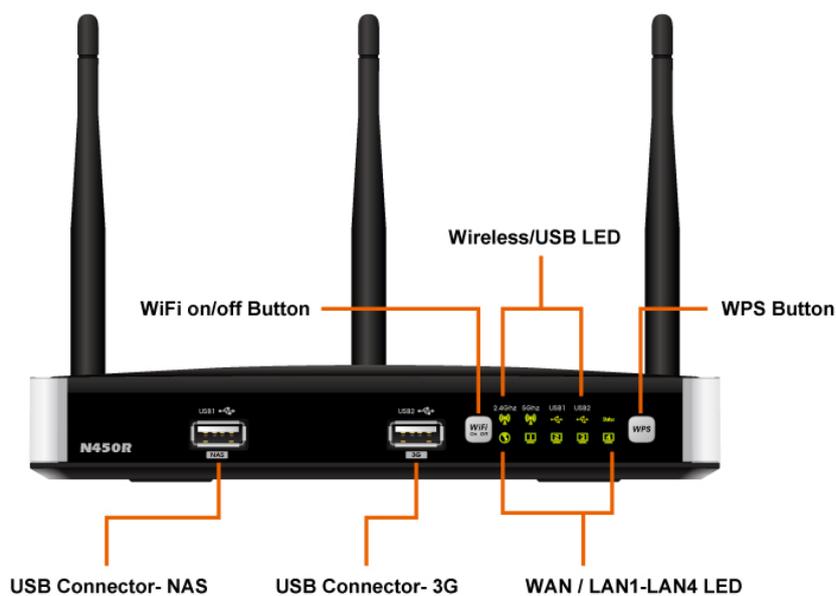
## 1.4 Specification Table

| 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)<br>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               |

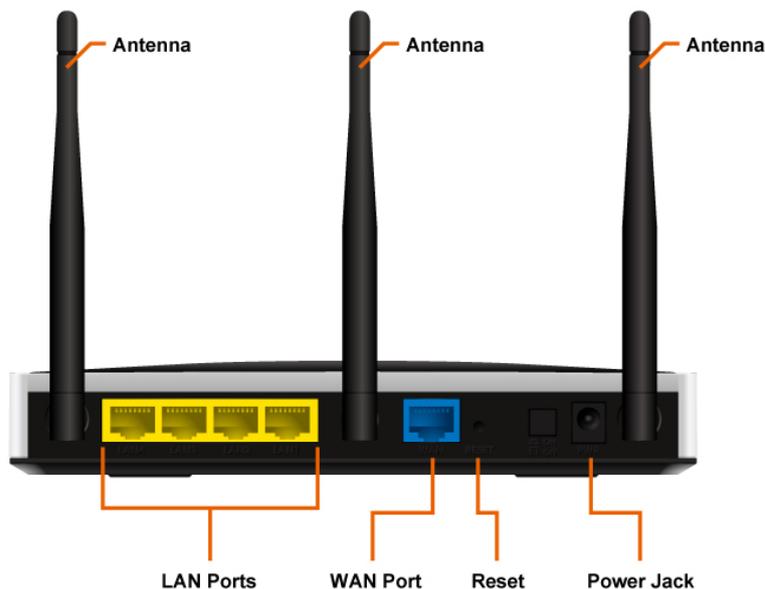
| Environment & Certification |                                                 |
|-----------------------------|-------------------------------------------------|
| Package Information         | Package dimension (mm)                          |
|                             | Package weight (g)    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

## 1.5 Hardware Installation

### 1.5.1 Front View



### 1.5.2 Rear View



### 1.5.3 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                                         |

### 1.5.4 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                               |

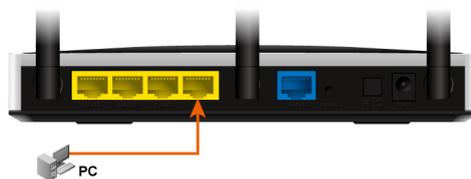
### 1.5.5 How to Operate

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

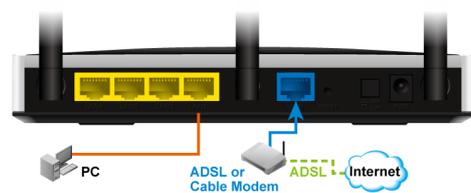
**Step 1:** Screw the antenna in a clockwise direction to the back panel of the unit.



**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.**

## 1.6 Wireless Operation Modes

### 1.6.1 AP Router (Default Setting)

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 modem, or Cable Modem connections. If you have both 3G and Broadband, you can use both for connection backup.

### 1.6.2 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**”.

### 1.6.3 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.

### 1.6.4 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.

### 1.6.5 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

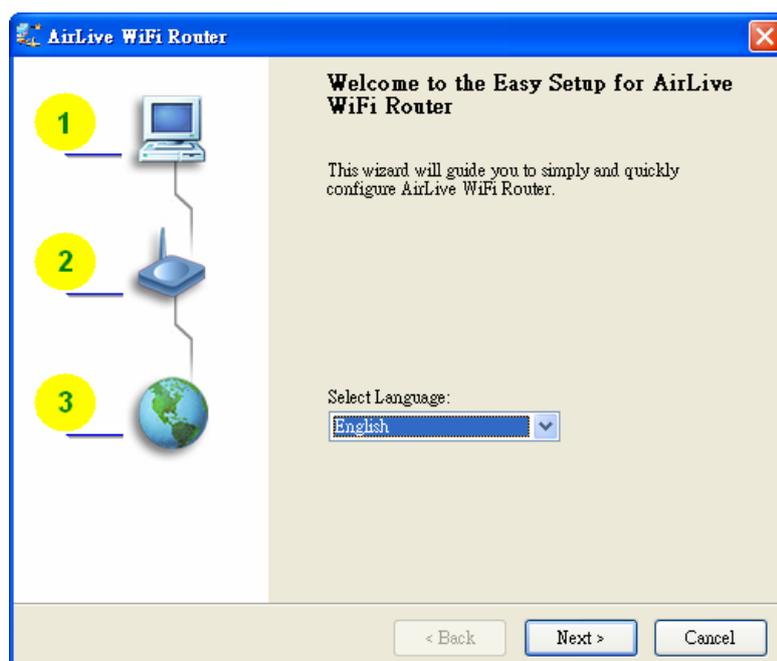
#### Step 1

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



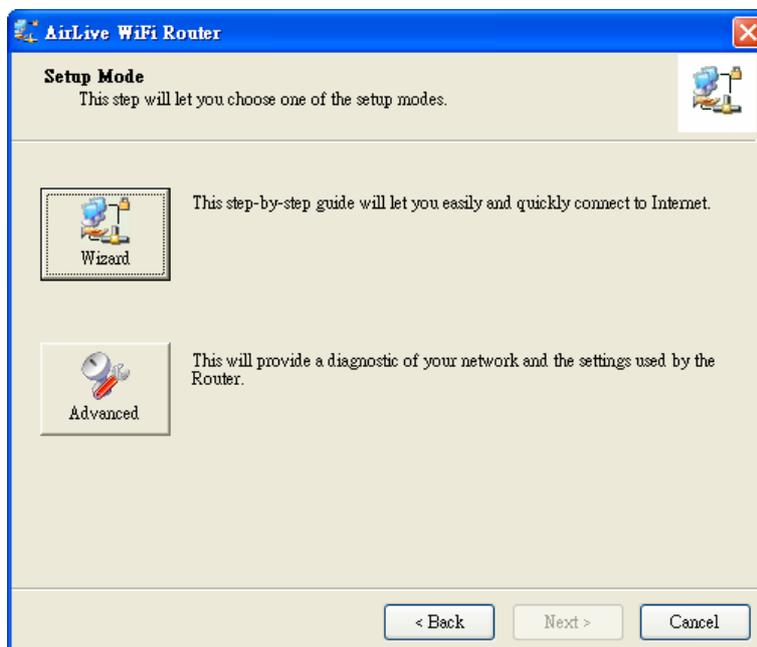
#### Step 2

Select Language then click “**Next**” to continue.



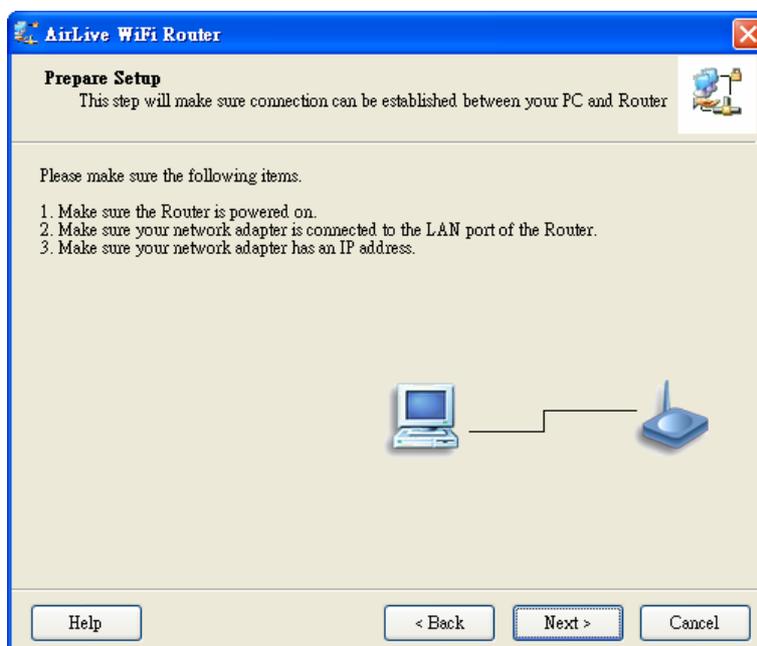
### Step 3

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



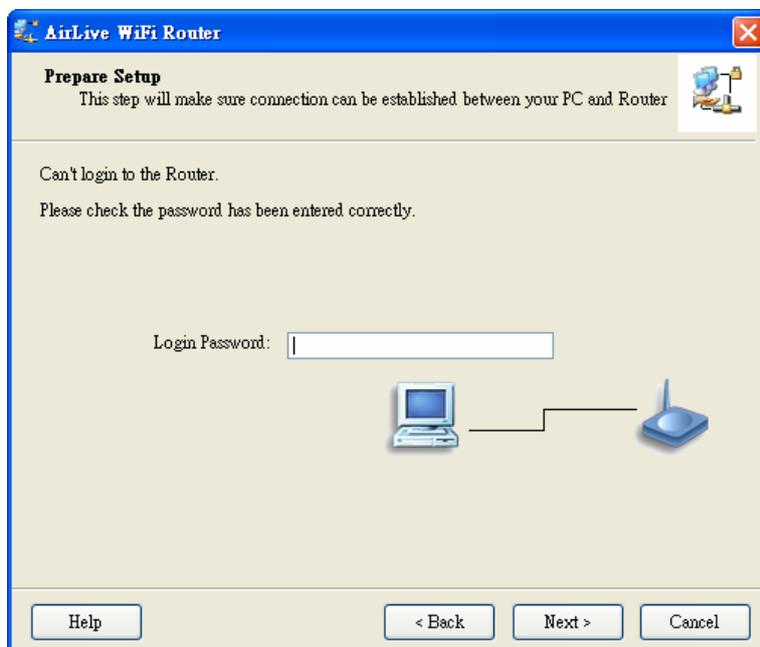
### Step 4

Click “**Next**” to continue.

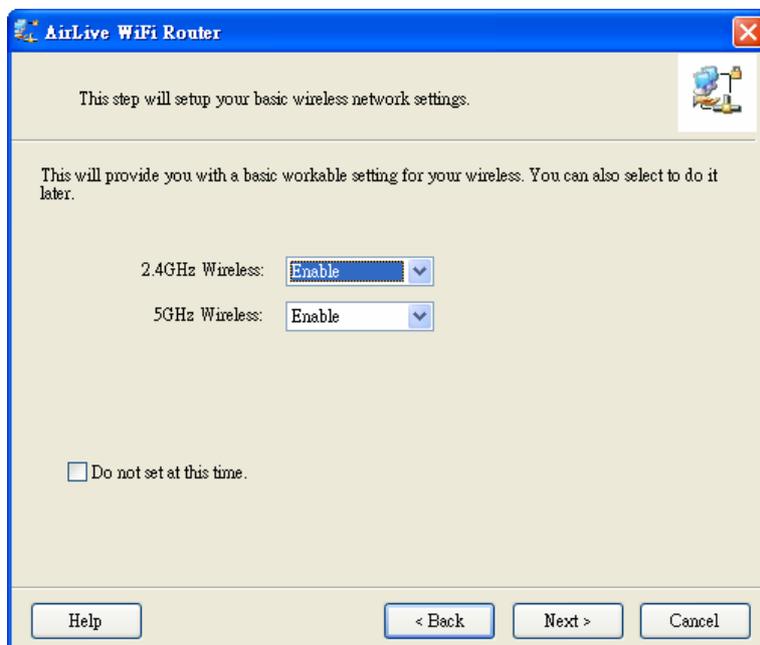


**Step 5**

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

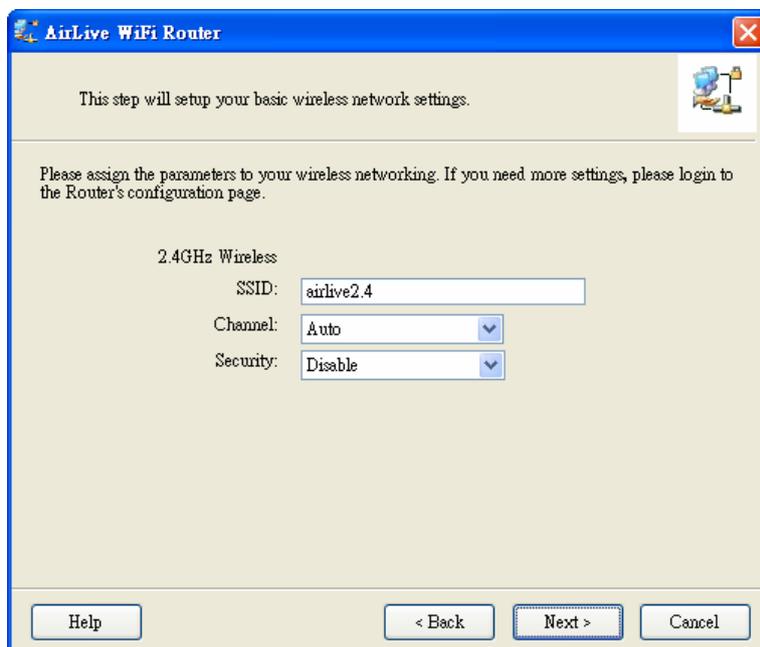
**Step 6**

Configure the wireless interface and then click “Next”.



### Step 7

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



The screenshot shows the 'AirLive WiFi Router' configuration window. The title bar reads 'AirLive WiFi Router'. The main content area contains the following text and fields:

This step will setup your basic wireless network settings.

Please assign the parameters to your wireless networking. If you need more settings, please login to the Router's configuration page.

2.4GHz Wireless

SSID:

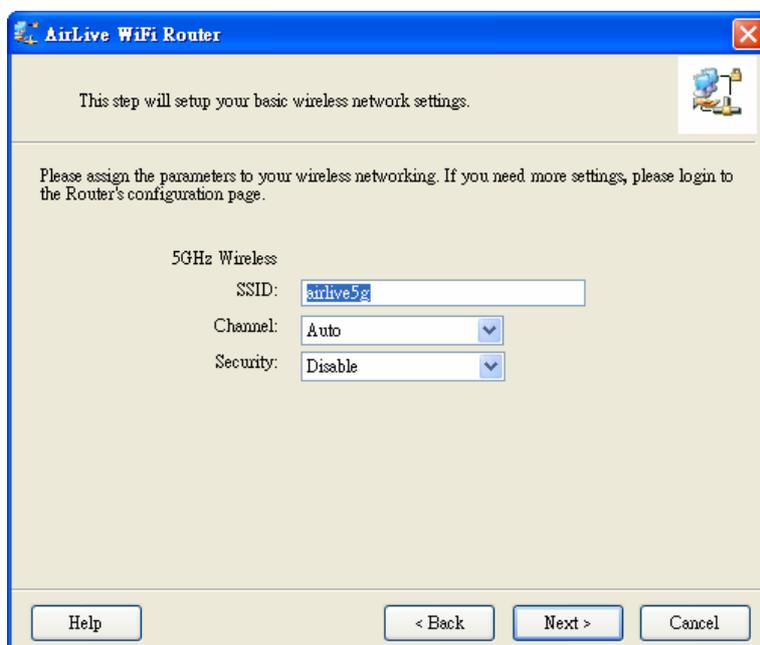
Channel:

Security:

At the bottom of the window, there are four buttons: 'Help', '< Back', 'Next >', and 'Cancel'.

### Step 8

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



The screenshot shows the 'AirLive WiFi Router' configuration window. The title bar reads 'AirLive WiFi Router'. The main content area contains the following text and fields:

This step will setup your basic wireless network settings.

Please assign the parameters to your wireless networking. If you need more settings, please login to the Router's configuration page.

5GHz Wireless

SSID:

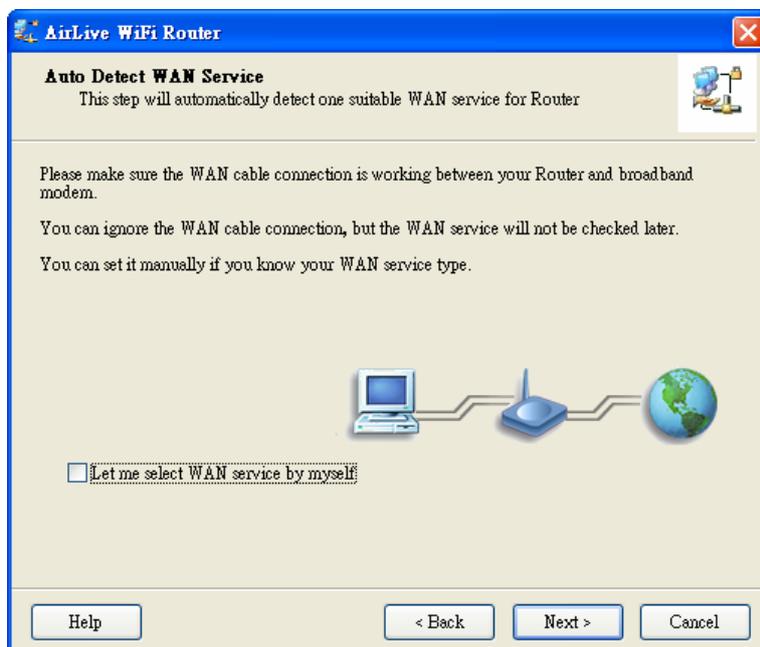
Channel:

Security:

At the bottom of the window, there are four buttons: 'Help', '< Back', 'Next >', and 'Cancel'.

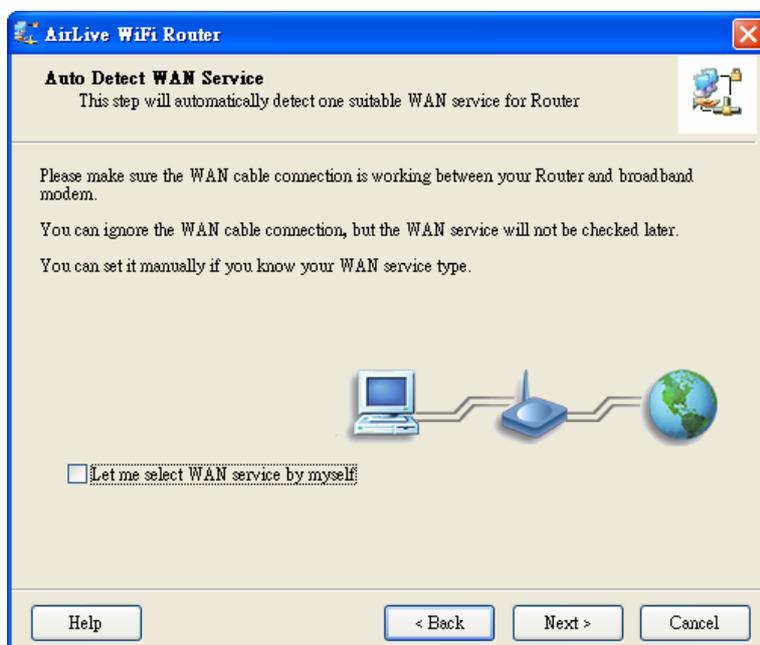
### Step 9

Click **Next**.

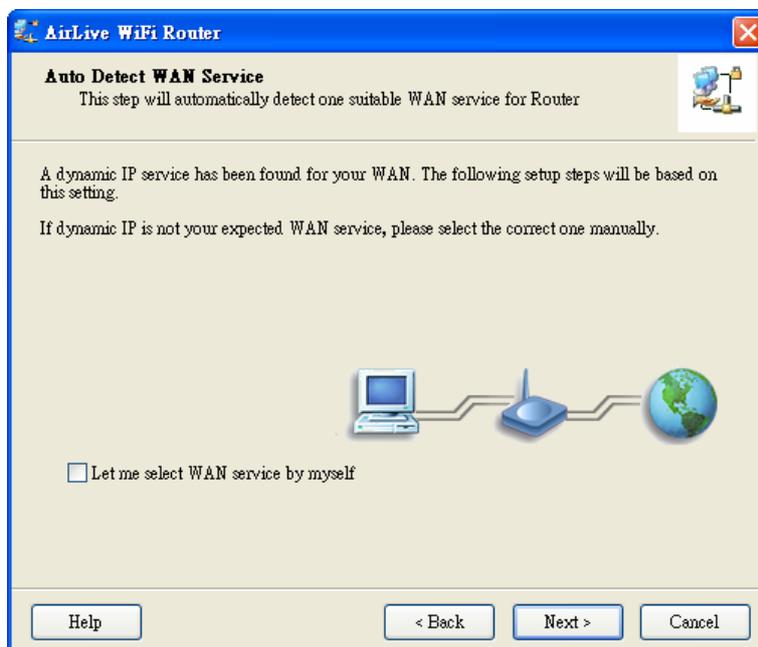


### Step 10

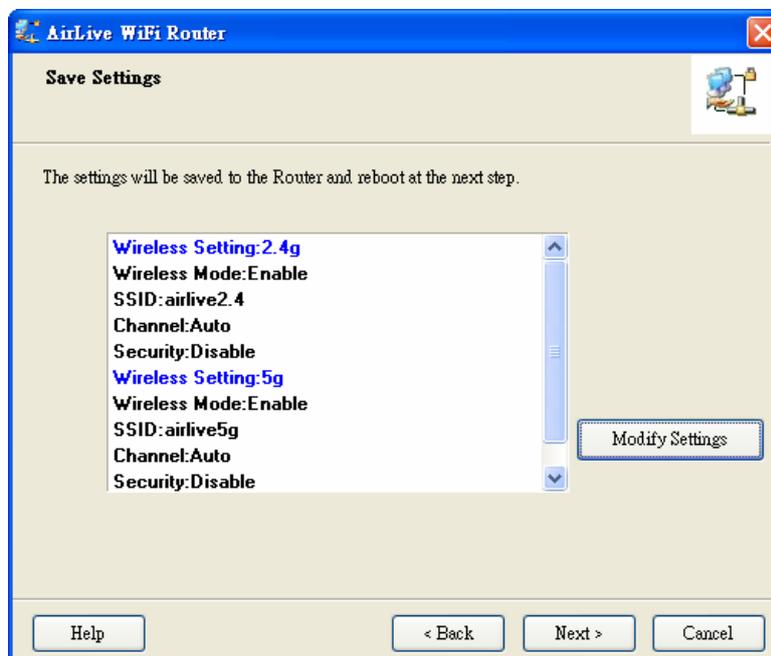
Click "Next" to detect the WAN automatically.



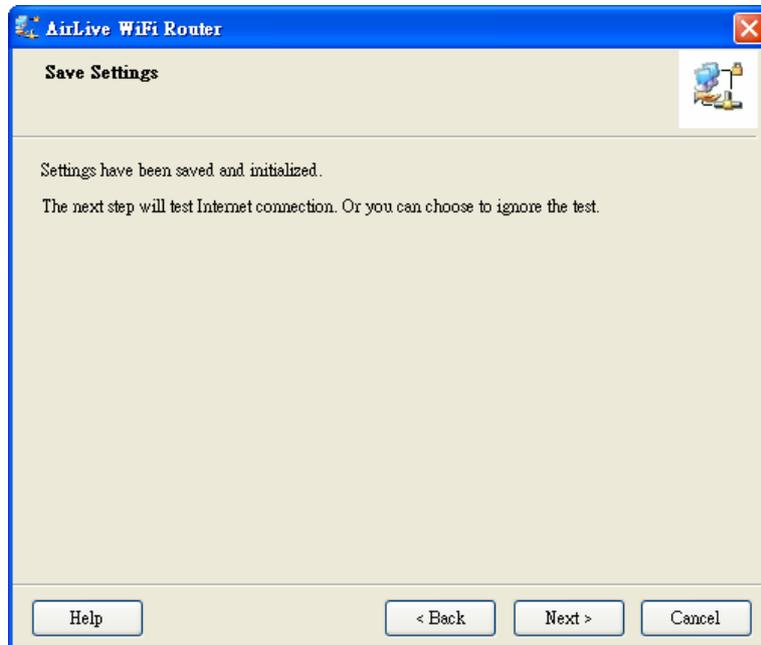
**Step 11**  
Click “Next”.



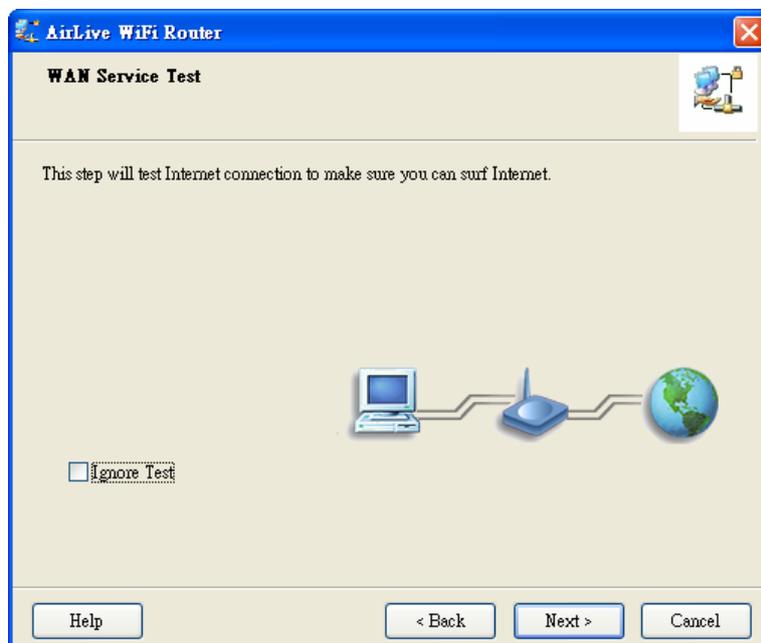
**Step 12**  
Click “Next”.



**Step 13**  
Click "Next".

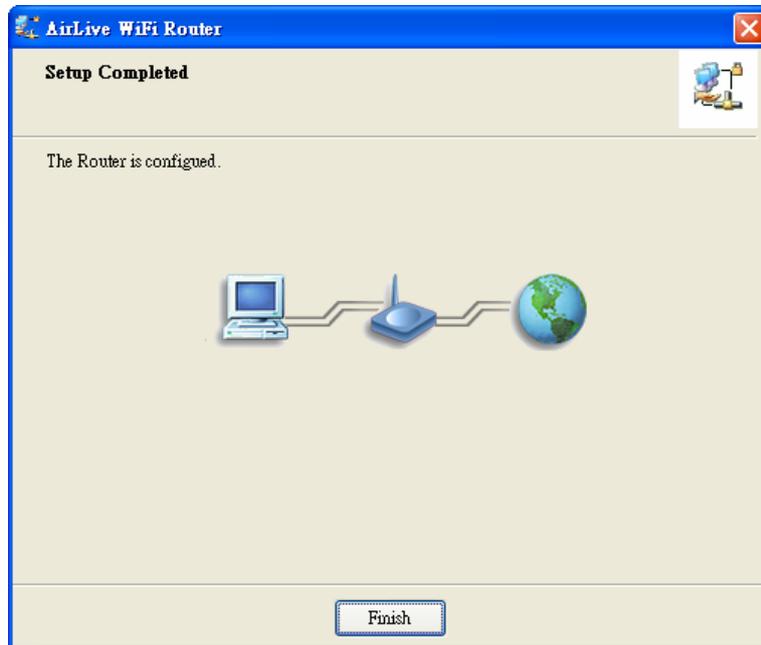


**Step 14**  
Click "Next" to test the internet connection.



**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

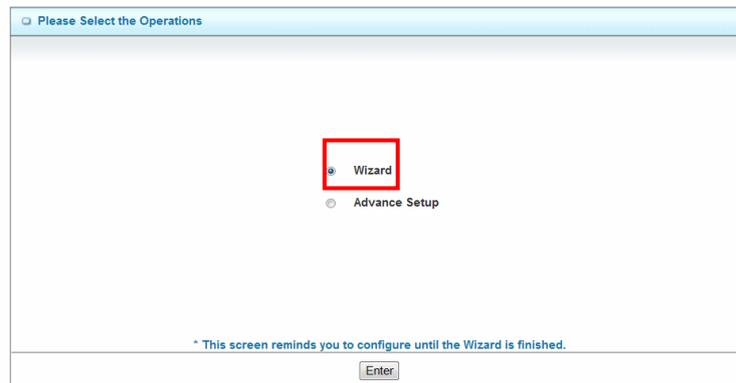
- Type in the IP Address (<http://192.168.1.254>)



- 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

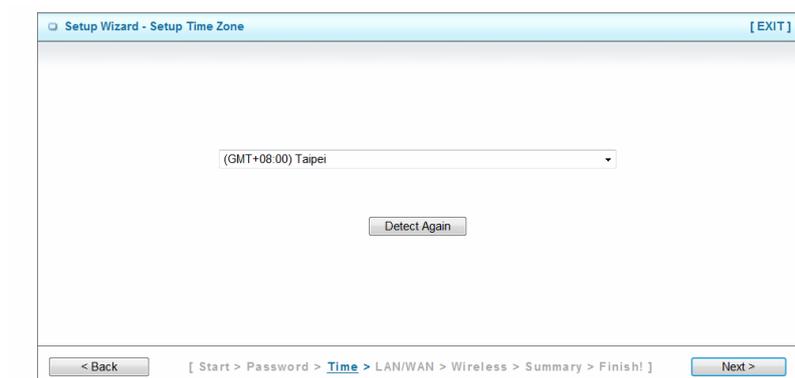
### Step 1: Setup Login Password

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



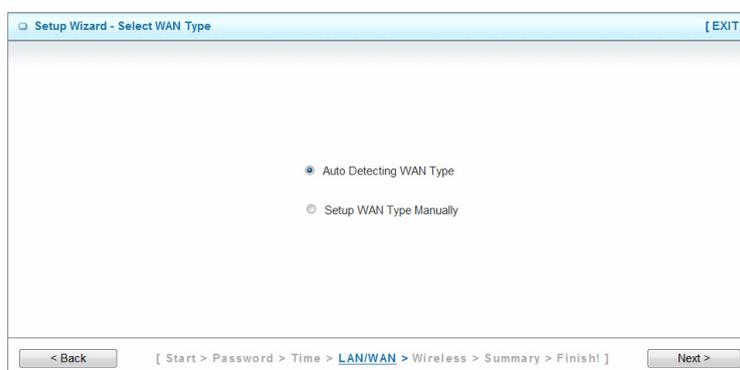
### Step 2: Setup Time Zone

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.



#### Step 5: For 3G Mode

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

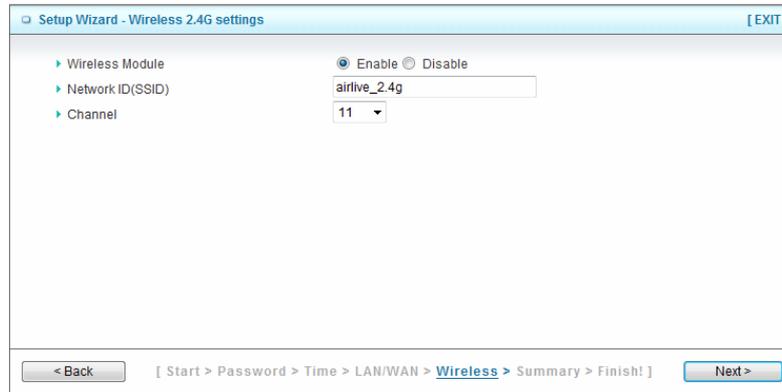


#### Step6: Wireless Settings

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



**Step 7: Wireless 2.4G Settings**  
Setup your **SSID** and **Wireless Channel**.



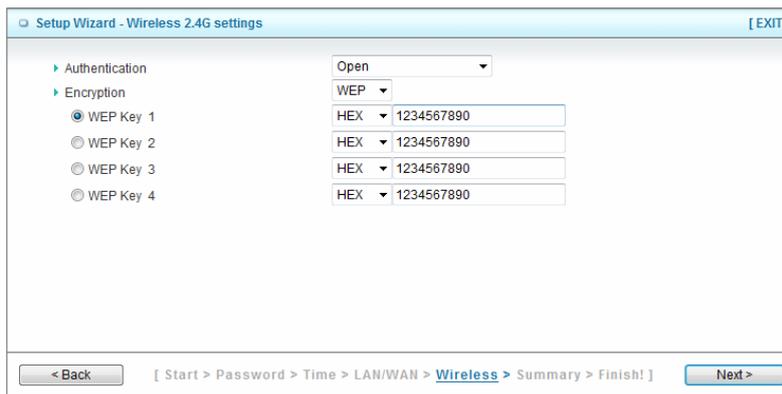
Setup Wizard - Wireless 2.4G settings [EXIT]

- Wireless Module:  Enable  Disable
- Network ID(SSID):
- Channel:

[ Start > Password > Time > LAN/WAN > **Wireless** > Summary > Finish! ]

< Back Next >

**Step 8**  
Setup **Wireless Authentication** and **Encryption**, then click **Next** to continue.



Setup Wizard - Wireless 2.4G settings [EXIT]

- Authentication:
- Encryption:
- WEP Key 1:
- WEP Key 2:
- WEP Key 3:
- WEP Key 4:

[ Start > Password > Time > LAN/WAN > **Wireless** > Summary > Finish! ]

< Back Next >

**Step 9**  
Apply your Setting.  
Clicks **Apply Setting** if finished, or click **Back** to 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?

[ Start > Password > Time > LAN/WAN > Wireless > **Summary** > Finish! ]

< Back 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.

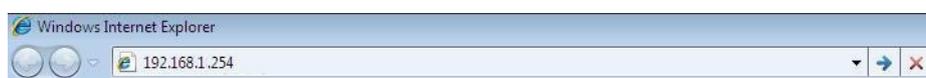
< Back [ Start > Password > Time > LAN/WAN > Wireless > Summary > Finish! ] Finish

# 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**.



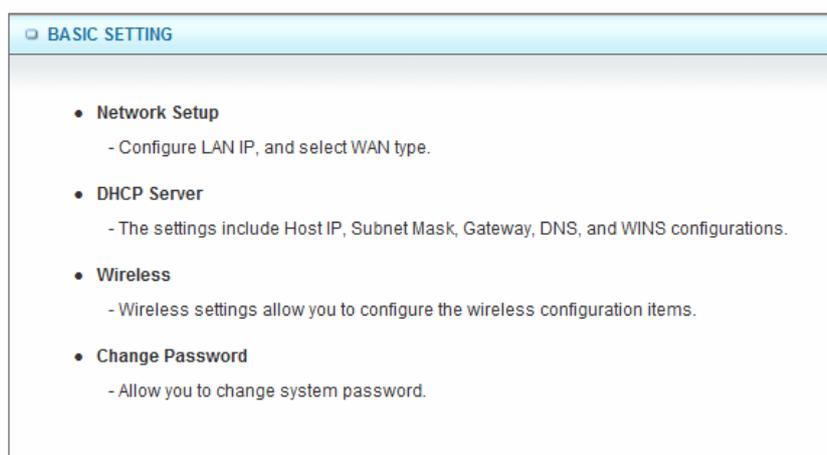
Enter the default password “**airlive**” in the System Password and then click ‘**login**’ button.



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**.



### 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 <input type="button" value="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<br>Dynamic IP Address (optional)                     |
| ▶ ISP registered MAC Address | PPP over Ethernet<br>PPTP<br>L2TP <input type="button" value="Clone"/> |

## ■ Wireless WAN

|                   |                                                                     |
|-------------------|---------------------------------------------------------------------|
| ▶ WAN Interface   | Wireless WAN ▾                                                      |
| ▶ WAN Type        | 3G ▾                                                                |
| ▶ Dial-Up Profile | iBurst <input type="radio"/> Detection <input type="radio"/> Manual |

### 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.

\*For 3G/Smophone Tethering compatibility list, please visit the N450R product page on [www.airlive.com](http://www.airlive.com).

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

| Internet Setup [HELP]                                                   |                                                                                                                                                                                                                                                                                                                                       |
|-------------------------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ▶ Combo WAN Status                                                      | Disable <input type="button" value="Settings..."/>                                                                                                                                                                                                                                                                                    |
| ▶ WAN Interface                                                         | Wireless WAN ▾                                                                                                                                                                                                                                                                                                                        |
| ▶ WAN Type                                                              | 3G ▾                                                                                                                                                                                                                                                                                                                                  |
| ▶ Dial-Up Profile                                                       | <input checked="" type="radio"/> Auto-Detection <input type="radio"/> Manual                                                                                                                                                                                                                                                          |
| ▶ PIN Code                                                              | <input type="text"/> (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<br><input type="radio"/> LCP Echo Request<br>▶ Interval <input type="text" value="10"/> seconds<br>▶ Max Failure Time <input type="text" value="3"/> times<br><input type="radio"/> Ping Remote Host<br>▶ Host IP <input type="text"/><br>▶ Interval <input type="text" value="60"/> seconds |
| ▶ IGMP Proxy                                                            | <input type="checkbox"/> Enable                                                                                                                                                                                                                                                                                                       |
| <input type="button" value="Save"/> <input type="button" value="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 ▼                                     |
| ▶ WAN Type                                                              | iBurst ▼                                           |
| ▶ Account                                                               | <input type="text"/>                               |
| ▶ Password                                                              | <input type="text"/>                               |
| ▶ Primary DNS                                                           | <input type="text"/>                               |
| ▶ Secondary DNS                                                         | <input type="text"/>                               |
| ▶ Connection Control                                                    | Connect-on-Demand ▼                                |
| ▶ 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 ▼                                     |
| ▶ WAN Type                                                              | Static IP Address ▼                                |
| ▶ 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 type="checkbox"/> Enable                    |
| ▶ IGMP Proxy                                                            | <input 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 <input type="button" value="Settings..."/>        |
| WAN Interface                                                           | Ethernet WAN                                              |
| WAN Type                                                                | Dynamic IP Address                                        |
| 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                                         |
| 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 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 ▼                                     |
| ▶ WAN Type                                                              | PPP over Ethernet ▼                                |
| ▶ 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                                       |
| WAN Type                                                                | PPTP                                               |
| IP Mode                                                                 | Dynamic IP Address                                 |
| 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                                  |
| 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 ▼                                     |
| ▶ WAN Type                                                              | L2TP ▼                                             |
| ▶ IP Mode                                                               | Dynamic IP Address ▼                               |
| ▶ 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 ▼                                |
| ▶ 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 ▼                                            |
| ▶ WAN Type                                                              | Dynamic IP Address ▼                                      |
| ▶ 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 ▼                                       |
| ▶ 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  | <div style="border: 1px solid red; padding: 2px;">           Disable ▼<br/>           Disable<br/>           Load Sharing <input type="button" value="ok"/><br/>           Failover         </div> |

**(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                                                                                | <input type="text"/> |                                        |
| 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"/> |                      |                                        |

**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                                                                                | <input type="text"/> |                                        |
| 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"/> |                      |                                        |

**(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                                                                                | <input type="text"/> |                                        |
| 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                                                                                | <input type="text"/> |                                        |
| 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           | <input type="text" value="192.168.1.254"/>                                   |
| ▶ Subnet Mask              | <input type="text" value="255.255.255.0"/>                                   |
| ▶ IP Pool Starting Address | <input type="text" value="100"/>                                             |
| ▶ IP Pool Ending Address   | <input type="text" value="200"/>                                             |
| ▶ Lease Time               | <input type="text" value="86400"/> Seconds                                   |
| ▶ Domain Name              | <input type="text"/>                                                         |
| ▶ Primary DNS              | <input type="text"/>                                                         |
| ▶ Secondary DNS            | <input type="text"/>                                                         |
| ▶ Primary WINS             | <input type="text"/>                                                         |
| ▶ Secondary WINS           | <input type="text"/>                                                         |
| ▶ Gateway                  | <input type="text"/> (optional)                                              |

**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)                                                                   |

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"/> |

| Fixed Mapping [HELP]                                                       |                                                |                                            |                                     |
|----------------------------------------------------------------------------|------------------------------------------------|--------------------------------------------|-------------------------------------|
| DHCP clients -- select one -- <input type="button" value="Copy to"/> ID -- |                                                |                                            |                                     |
| ID                                                                         | MAC Address                                    | IP Address                                 | Enable                              |
| 1                                                                          | <input type="text" value="00:4F:75:00:00:01"/> | <input type="text" value="192.168.1.201"/> | <input checked="" type="checkbox"/> |
| 2                                                                          | <input type="text" value="6C:F0:49:51:23:F4"/> | <input type="text" value="192.168.1.100"/> | <input checked="" type="checkbox"/> |
| 3                                                                          | <input type="text"/>                           | <input type="text"/>                       | <input type="checkbox"/>            |
| 4                                                                          | <input type="text"/>                           | <input type="text"/>                       | <input type="checkbox"/>            |
| 5                                                                          | <input type="text"/>                           | <input type="text"/>                       | <input type="checkbox"/>            |
| 6                                                                          | <input type="text"/>                           | <input type="text"/>                       | <input type="checkbox"/>            |
| 7                                                                          | <input type="text"/>                           | <input type="text"/>                       | <input type="checkbox"/>            |
| 8                                                                          | <input type="text"/>                           | <input type="text"/>                       | <input type="checkbox"/>            |
| 9                                                                          | <input type="text"/>                           | <input type="text"/>                       | <input type="checkbox"/>            |
| 10                                                                         | <input type="text"/>                           | <input type="text"/>                       | <input type="checkbox"/>            |

### 3.2.3 Wireless 2.4G Settings

Here you can configure settings for 2.4GHz 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                 | 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                                                                  |

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                                                        |
| 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                                                                  |
| <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                                                                                                         | 22179005 <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)                                                                                                               | 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                                                                  |

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 |
| <input type="button" value="Back"/> <input type="button" value="Refresh"/> |             |

### 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"><li>• <b>Virtual Server</b><ul style="list-style-type: none"><li>- Allows others to access WWW, FTP, and other services on your LAN.</li></ul></li><li>• <b>Special Application</b><ul style="list-style-type: none"><li>- This configuration allows some applications to connect, and work with the NAT router.</li></ul></li><li>• <b>Miscellaneous</b><ul style="list-style-type: none"><li>- 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.</li><li>- UPnP Setting: If you enable UPnP function, the router will work with UPnP devices/software.</li></ul></li></ul> |

### 3.3.1 Virtual Server

**FORWARDING 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/software.

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 -- |                                     |            |
| 1                     | 8080          | AUTH (113)       | <input checked="" type="checkbox"/> | (0) Always |
| 2                     |               | DNS (53)         | <input type="checkbox"/>            | (0) Always |
| 3                     |               | FTP (21)         | <input type="checkbox"/>            | (0) Always |
| 4                     |               | ISAKMP (500)     | <input type="checkbox"/>            | (0) Always |
| 5                     |               | POP3 (110)       | <input type="checkbox"/>            | (0) Always |
| 6                     |               | PPTP (1723)      | <input type="checkbox"/>            | (0) Always |
| 7                     |               | SMTP (25)        | <input type="checkbox"/>            | (0) Always |
| 8                     |               | TELNET (23)      | <input type="checkbox"/>            | (0) Always |
| 9                     |               | WEB (80)         | <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.

The screenshot shows the 'Special Applications' configuration window. At the top, there is a 'Popular applications' dropdown menu with a 'Copy to' button and an 'ID' dropdown. Below this is a table with the following columns: ID, Trigger, Popular applications, Enable, and Use Rule#. The 'Popular applications' dropdown is currently open, showing a list of applications including Battle.net, Dialpad, ICU II, MSN Gaming Zone, PC-to-Phone, and Quick Time 4. The table contains five rows, each with an ID, a trigger field, an 'Enable' checkbox, and a 'Use Rule#' dropdown menu set to '(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     |  | <input type="button" value="edit"/> |

### 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"/> |

#### 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**

- **Packet Filters**

- 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**

- Let you prevent users under this device from accessing specific URLs.
- **URL Blocking**

- URL Blocking will block LAN computers to connect to pre-defined websites.
- **MAC Address 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.
- **Miscellaneous**

- 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 <span style="float: right;">[ Modify ]</span> |                        |         |              |
|---------------------------------------------------------------|------------------------|---------|--------------|
| Item                                                          | Status                 |         |              |
| Outbound Filter                                               | Disable                |         |              |
| Local Client                                                  | Only Allow Remote Host | Service | Working Time |

| Inbound Filter <span style="float: right;">[ Modify ]</span> |                            |         |              |
|--------------------------------------------------------------|----------------------------|---------|--------------|
| Item                                                         | Status                     |         |              |
| Inbound Filter                                               | Disable                    |         |              |
| Remote Host                                                  | Deny Remote Host to access | Service | Working Time |

| Domain Filter <span style="float: right;">[ Modify ]</span> |         |
|-------------------------------------------------------------|---------|
| Item                                                        | Status  |
| Domain Filter                                               | Disable |
| Domain                                                      | Access  |
| All other Domains                                           | Yes     |

### 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.<br><input type="radio"/> Deny all to pass except those match the following rules. |                      |                                             |                          |              |
| ID                                                                                                                                                                           | Source IP            | Destination IP : Ports                      | Enable                   | Use rule#    |
| 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 Fitters

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

| Domain Filter [ HELP ]         |                      |                                                            |                          |              |
|--------------------------------|----------------------|------------------------------------------------------------|--------------------------|--------------|
| Item                           |                      | Setting                                                    |                          |              |
| ▶ Domain Filter                |                      | <input type="checkbox"/> Enable                            |                          |              |
| ▶ Log DNS Query                |                      | <input type="checkbox"/> Enable                            |                          |              |
| ▶ Privilege IP Addresses Range |                      | From <input type="text"/> To <input type="text"/>          |                          |              |
| 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 ▼ |

**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="text"/> | <input type="checkbox"/>        | (0) Always ▾ |
| 2                                                                       | <input type="text"/> | <input type="checkbox"/>        | (0) Always ▾ |
| 3                                                                       | <input type="text"/> | <input type="checkbox"/>        | (0) Always ▾ |
| 4                                                                       | <input type="text"/> | <input type="checkbox"/>        | (0) Always ▾ |
| 5                                                                       | <input type="text"/> | <input type="checkbox"/>        | (0) Always ▾ |
| 6                                                                       | <input type="text"/> | <input type="checkbox"/>        | (0) Always ▾ |
| 7                                                                       | <input type="text"/> | <input type="checkbox"/>        | (0) Always ▾ |
| 8                                                                       | <input type="text"/> | <input type="checkbox"/>        | (0) Always ▾ |
| 9                                                                       | <input type="text"/> | <input type="checkbox"/>        | (0) Always ▾ |
| 10                                                                      | <input type="text"/> | <input type="checkbox"/>        | (0) Always ▾ |
| <input type="button" value="Save"/> <input type="button" value="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                                                                                                                                              |                          |                          |                                             |
| ▶ 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 <input type="button" value="allow"/> unspecified MAC addresses to connect. |                          |                          |                                             |
| <input type="checkbox"/> Association control                                                                                                                        | Wireless clients with A checked can associate to the wireless LAN; and <input type="button" value="allow"/> unspecified MAC addresses to associate.  |                          |                          |                                             |
| DHCP clients <input type="text" value="-- select one --"/> <input type="button" value="Copy to"/> ID <input type="text" value="--"/>                                |                                                                                                                                                      |                          |                          |                                             |
| ID                                                                                                                                                                  | MAC Address                                                                                                                                          | C                        | A                        | Use Rule#                                   |
| 1                                                                                                                                                                   | <input type="text"/>                                                                                                                                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="button" value="(0) Always"/> ▾ |
| 2                                                                                                                                                                   | <input type="text"/>                                                                                                                                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="button" value="(0) Always"/> ▾ |
| 3                                                                                                                                                                   | <input type="text"/>                                                                                                                                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="button" value="(0) Always"/> ▾ |
| 4                                                                                                                                                                   | <input type="text"/>                                                                                                                                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="button" value="(0) Always"/> ▾ |
| 5                                                                                                                                                                   | <input type="text"/>                                                                                                                                 | <input type="checkbox"/> | <input type="checkbox"/> | <input type="button" value="(0) Always"/> ▾ |
| <input type="button" value="&lt;&lt;Previous"/> <input type="button" value="Next&gt;&gt;"/> <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)                                         |                          |
| ▶ 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"/> |

#### 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 specified 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.

▣ ADVANCED SETTING

- **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 <span style="float:right">[ Modify ]</span> |                                 |  |  |
|---------------------------------------------------------|---------------------------------|--|--|
| Item                                                    | Status                          |  |  |
| System Time                                             | Wed, 11 Jan 2012 08:19:38 +0000 |  |  |

| Dynamic DNS <span style="float:right">[ Modify ]</span> |         |
|---------------------------------------------------------|---------|
| Item                                                    | Status  |
| DDNS                                                    | Disable |
| Provider                                                | -       |

| Routing <span style="float:right">[ Modify ]</span> |             |         |     |
|-----------------------------------------------------|-------------|---------|-----|
| Item                                                | Status      |         |     |
| Dynamic Routing                                     | Disable     |         |     |
| Static Routing                                      | Disable     |         |     |
| Destination                                         | Subnet Mask | Gateway | Hop |

| QoS <span style="float:right">[ Modify ]</span> |         |
|-------------------------------------------------|---------|
| 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 <span style="float:right">[ HELP ]</span> |                                             |                          |
|------------------------------------------------------|---------------------------------------------|--------------------------|
| Item                                                 | Setting                                     | Enable                   |
| ▶ IP address for syslogd                             | <input type="text"/>                        | <input type="checkbox"/> |
| ▶ Setting of Email alert                             |                                             | <input 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 ▾             |

#### 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                                                              | DynDNS.org(Dynamic) ▼                                                 |
| ▶ Host Name                                                             | DynDNS.org(Dynamic) <input type="text"/>                              |
| ▶ Username / E-mail                                                     | DynDNS.org(Custom) <input type="text"/>                               |
| ▶ Password / Key                                                        | No-IP.com <input type="text"/>                                        |
|                                                                         | TZO.com <input type="text"/>                                          |
|                                                                         | dhs.org <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                                                              | DynDNS.org(Dynamic) ▼                                                 |
| ▶ 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 Serve .**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         | <input type="text"/> Kbps (Kilobits per second) |                                  |
| ▶ Bandwidth of Downstream       | <input type="text"/> Kbps (Kilobits per second) |                                  |
| ▶ Flexible Bandwidth Management | Disable ▾                                       |                                  |
| Item                            | Select                                          | Setting                          |
| ▶ Game                          | <input type="checkbox"/>                        | <input type="text" value="0"/> % |
| ▶ Chat                          | <input type="checkbox"/>                        | <input type="text" value="0"/> % |
| ▶ VoIP                          | <input type="checkbox"/>                        | <input type="text" value="0"/> % |
| ▶ P2P                           | <input type="checkbox"/>                        | <input type="text" value="0"/> % |
| ▶ Video                         | <input type="checkbox"/>                        | <input type="text" value="0"/> % |
| ▶ Web                           | <input type="checkbox"/>                        | <input type="text" value="0"/> % |
| Save                            |                                                 |                                  |

#### (A) Smart QoS

| Adaptive Bandwidth Control      |                                                 |                                  |
|---------------------------------|-------------------------------------------------|----------------------------------|
| Item                            | Setting                                         |                                  |
| ▶ Cross-layer QoS               | Disable ▾                                       |                                  |
| ▶ QoS Mode                      | Smart-QoS ▾                                     |                                  |
| ▶ Bandwidth of Upstream         | <input type="text"/> Kbps (Kilobits per second) |                                  |
| ▶ Bandwidth of Downstream       | <input type="text"/> Kbps (Kilobits per second) |                                  |
| ▶ Flexible Bandwidth Management | Disable ▾                                       |                                  |
| Item                            | Select                                          | Setting                          |
| ▶ Game                          | <input type="checkbox"/>                        | <input type="text" value="0"/> % |
| ▶ Chat                          | <input type="checkbox"/>                        | <input type="text" value="0"/> % |
| ▶ VoIP                          | <input type="checkbox"/>                        | <input type="text" value="0"/> % |
| ▶ P2P                           | <input type="checkbox"/>                        | <input type="text" value="0"/> % |
| ▶ Video                         | <input type="checkbox"/>                        | <input type="text" value="0"/> % |
| ▶ Web                           | <input type="checkbox"/>                        | <input type="text" value="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="Add 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        | inbond           |
| OUT       | outbond          |
| BOTH      | inbond & outbond |

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                                              | <input type="text" value="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

1.  DSCP : CS2 Set PRI Priority : 1 (In) (Always)

AND  UDPPORT : 5060

2.  DSCP : AF11 Set PRI Priority : 2 (In) (Always)

AND  TCPSPORT : 554

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.

1.  DSCP : CS2 Set PRI Priority : 1 (In) (Always)

AND  UDPPORT : 5060

2.  DSCP : AF11 Set PRI Priority : 2 (In) (Always)

AND  TCPSPORT : 554

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="text"/>                                                                             | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="checkbox"/> |
| 2                                                                       | <input type="text"/>                                                                             | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="checkbox"/> |
| 3                                                                       | <input type="text"/>                                                                             | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="checkbox"/> |
| 4                                                                       | <input type="text"/>                                                                             | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="checkbox"/> |
| 5                                                                       | <input type="text"/>                                                                             | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="checkbox"/> |
| 6                                                                       | <input type="text"/>                                                                             | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="checkbox"/> |
| 7                                                                       | <input type="text"/>                                                                             | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="checkbox"/> |
| 8                                                                       | <input type="text"/>                                                                             | <input type="text"/> | <input type="text"/> | <input type="text"/> | <input type="checkbox"/> |
| <input type="button" value="Save"/> <input type="button" value="Undo"/> |                                                                                                  |                      |                      |                      |                          |

**1. Dynamic Routing**

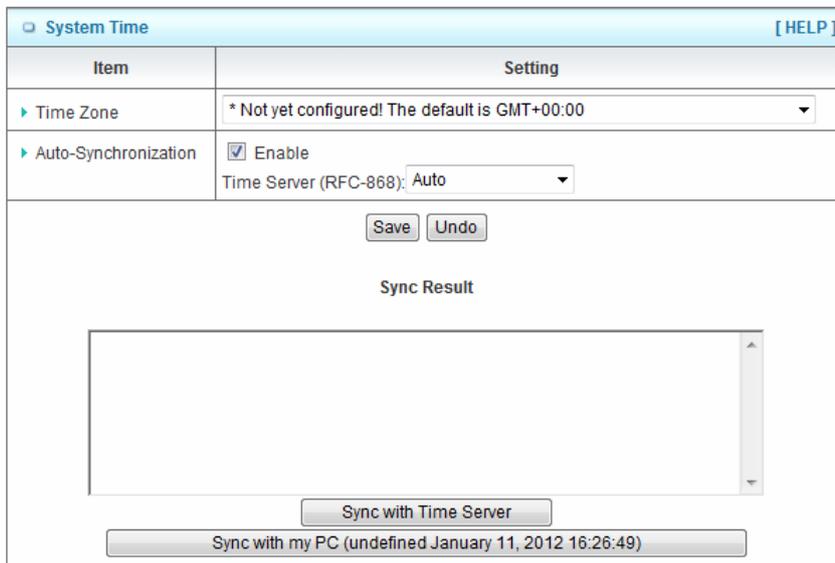
Routing Information Protocol (RIP) will exchange information about destinations for computing routes throughout the network. Please select RIPv2 only if you have different subnet in your network. Otherwise, please select RIPv1 if you need this protocol.

**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**



| Item                   | Setting                                                                   |
|------------------------|---------------------------------------------------------------------------|
| ▶ Time Zone            | * Not yet configured! The default is GMT+00:00                            |
| ▶ Auto-Synchronization | <input checked="" type="checkbox"/> Enable<br>Time Server (RFC-868): Auto |

Sync Result

**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                         |                                        |
| ▶ 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=" &lt;&lt;Previous "/> &nbsp; <input type="button" value=" Next&gt;&gt; "/> &nbsp; <input type="button" value=" Save "/> &nbsp; <input type="button" value=" Add New Rule... "/> &nbsp; |                                 |                                        |

**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<br><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                                           | <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"/> |                                                                                                                                 |

#### (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                                           | <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. **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<br><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                                           | <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. **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                                                   | <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"/> |                                                                       |

**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                                                   | <input type="text" value="255.3.0.0"/>                                |
| ▶ Local IPv4 Address                                                    | <input type="text" value="239.3.0.0"/>                                |
| ▶ Local IPv6 Address                                                    | <input type="text"/> /64                                              |
| ▶ 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                                           | <input type="text"/>                                                  |
| Address Autoconfiguration Settings                                      |                                                                       |
| ▶ Autoconfiguration                                                     | <input type="radio"/> Disable <input checked="" type="radio"/> Enable |
| ▶ Autoconfiguration Type                                                | Stateless ▾                                                           |
| ▶ Router Advertisement Lifetime                                         | <input type="text" value="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 checked="" type="checkbox"/> |                                  |
| Port 3                                                                                                                   | LAN                         | <input type="text" value="1"/> | <input checked="" type="checkbox"/> |                                  |
| Port 4                                                                                                                   | LAN                         | <input type="text" value="1"/> | <input checked="" type="checkbox"/> |                                  |
| Port 5                                                                                                                   | LAN                         | <input type="text" value="1"/> | <input checked="" type="checkbox"/> |                                  |
| Summary                                                                                                                  |                             |                                |                                     |                                  |
| VLAN ID on LAN                                                                                                           | LAN/Wireless LAN(Interface) | Tag                            | Type                                | Internet or ISP map WAN(VLAN ID) |
| 1                                                                                                                        | Port2, Port3, Port4, Port5  | No                             | NAT                                 | 0                                |
| <input type="button" value="Save"/> <input type="button" value="Undo"/> <input type="button" value="WAN VLAN Settings"/> |                             |                                |                                     |                                  |

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)<br><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 :                                                       | <input type="text" value="100"/> (msec, range:1~1000, default: 100)                                                                                                                                                                           |
| Transmit Power :                                                        | <input type="text" value="100%"/>                                                                                                                                                                                                             |
| RTS Threshold :                                                         | <input type="text" value="2347"/> (1~2347, default 2347)                                                                                                                                                                                      |
| Fragmentation :                                                         | <input type="text" value="2346"/> (256~2346, default 2346, even number only)                                                                                                                                                                  |
| DTIM Interval :                                                         | <input type="text" value="1"/> (range: 1~255, default: 3)                                                                                                                                                                                     |
| WMM Capable                                                             | <input checked="" type="radio"/> Enable <input type="radio"/> Disable                                                                                                                                                                         |
| TX Rates :                                                              | <input type="text" value="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

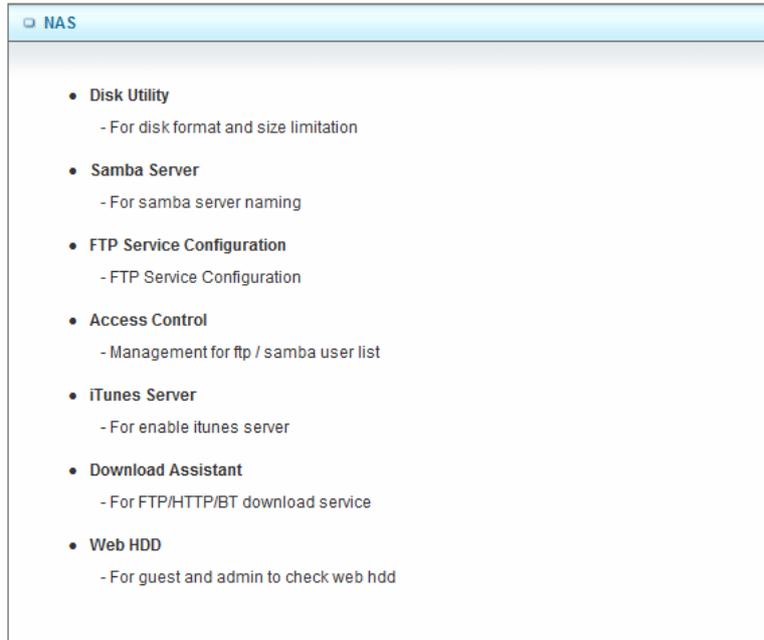
Enable or disable WMM Capable.

## 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.



### 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 <input type="text"/>                                             |
| ▶ Access Password                                                       | <input type="text"/>                                                  |
| <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](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                                                                                                                        | <input type="text" value="/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" value="Save"/> <input type="button" value="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                                                                                                                          | <input type="text"/> /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" 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 "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                                                                                                                           | <input type="text" value="/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 <input type="text"/> MB                                           |

### (C) BT (Bit Torrent)

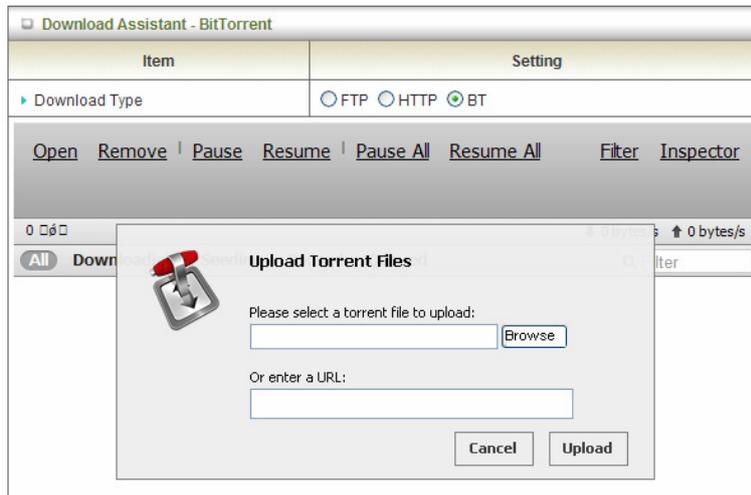
You can download file by using BT (Bit Torrent).

| Download Assistant - BitTorrent                                                                                                                                                                                                                 |                                                                                          |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------|
| Item                                                                                                                                                                                                                                            | Setting                                                                                  |
| ▶ Download Type                                                                                                                                                                                                                                 | <input type="radio"/> FTP <input type="radio"/> HTTP <input checked="" type="radio"/> BT |
| <a href="#">Open</a> <a href="#">Remove</a> <a href="#">Pause</a> <a href="#">Resume</a> <a href="#">Pause All</a> <a href="#">Resume All</a> <a href="#">Filter</a> <a href="#">Inspector</a>                                                  |                                                                                          |
| 0 Transfers <span style="float: right;">↓ 0 bytes/s ↑ 0 bytes/s</span>                                                                                                                                                                          |                                                                                          |
| <input checked="" type="button" value="All"/> <input type="button" value="Downloading"/> <input type="button" value="Seeding"/> <input type="button" value="Paused"/> <input type="button" value="Queued"/> <input type="text" value="Filter"/> |                                                                                          |
| <div style="border: 1px solid gray; min-height: 100px;"></div>                                                                                                                                                                                  |                                                                                          |
| <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.

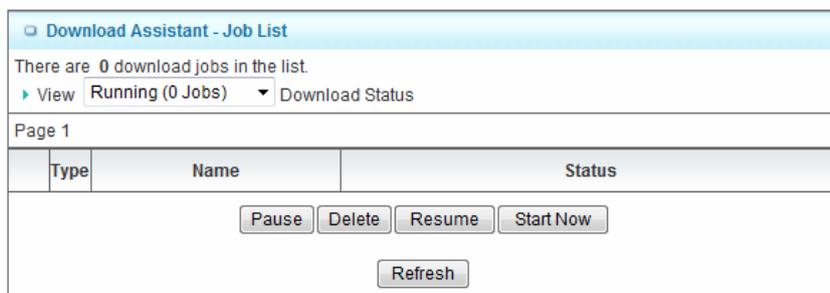
At this page, you could see the download process and the bandwidth.

■ **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.



### 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

#### (A) Miscellaneous

This setting is for Media Server service.

| Miscellaneous Items |                          |
|---------------------|--------------------------|
| Item                | Setting                  |
| Media Server        | <input type="checkbox"/> |

## 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"> <li>• <b>View Log</b><br/>- View the system logs.</li> <li>• <b>Firmware Upgrade</b><br/>- Prompt the administrator for a file and upgrade it to this device.</li> <li>• <b>Backup Setting</b><br/>- Save the settings of this device to a file.</li> <li>• <b>Reset to Default</b><br/>- Reset the settings of this device to the default values.</li> <li>• <b>Reboot</b><br/>- Reboot this device.</li> <li>• <b>Miscellaneous</b><br/>- MAC Address for Wake-on-LAN: Let you to power up another network device remotely.<br/>- 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.</li> </ul> |

### 3.7.1 System Info

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

| System Information                                                                                                                                               |                                                                 |
|------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------|
| Item                                                                                                                                                             | Setting                                                         |
| ▶ WAN Type                                                                                                                                                       | Dynamic IP Address                                              |
| ▶ Display time                                                                                                                                                   | Wed, 11 Jan 2012 09:07:12 +0000                                 |
| ▶ Log Types                                                                                                                                                      | <input type="button" value="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                                                                                                                                                  | udhcpd[3909]: udhcpd (v0.9.9-pre) started                       |
| Jan 11 08:02:54                                                                                                                                                  | udhcpd[3909]: Lease of 192.168.2.108 obtained, lease time 86400 |
| Page: 1/2 (Log Number:24)                                                                                                                                        |                                                                 |
| <input type="button" value="«Previous"/> <input type="button" value="Next»"/> <input type="button" value="First Page"/> <input type="button" value="Last Page"/> |                                                                 |
| <input type="button" value="Refresh"/> <input type="button" value="Download"/> <input type="button" value="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 |
| <input type="button" value="Save"/> <input type="button" value="Undo"/> <input type="button" value="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 you request has been accepted.

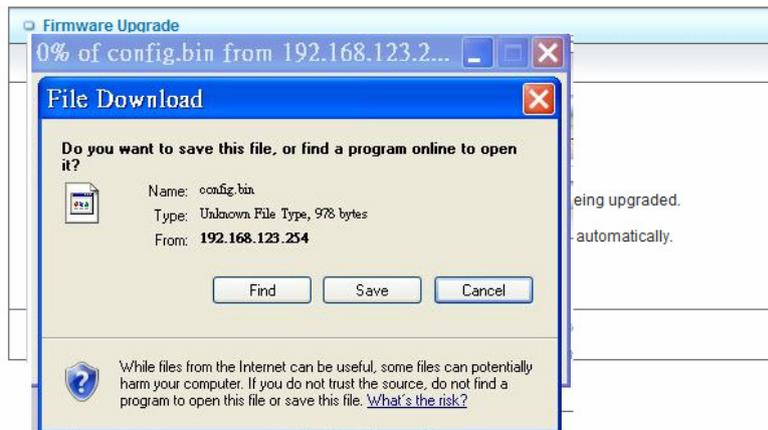
| USSD                                |                      |
|-------------------------------------|----------------------|
| Item                                | Setting              |
| ▶ USSD                              | <input type="text"/> |
| <input type="button" value="Send"/> |         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

### 3.7.3 Firmware Upgrade

You can upgrade firmware by clicking “Upgrade” button.

| Firmware Upgrade                                                                                                                                                        |
|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Firmware Filename<br><input type="text"/> <input type="button" value="Browse"/>                                                                                         |
| Current firmware version is <span style="color: green;">R1.00e02</span> .                                                                                               |
| Note! Do not interrupt the process or power off the unit when it is being upgraded.<br>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"/>                                                                                            |

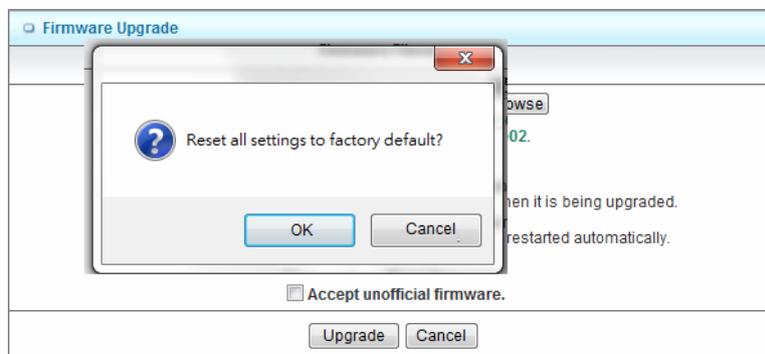
### 3.7.4 Backup Setting



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.

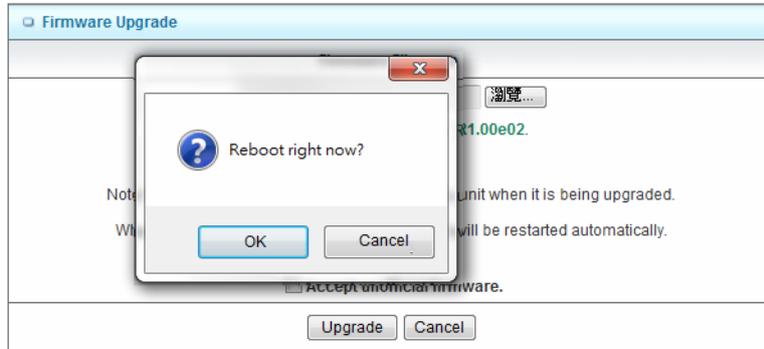
### 3.7.5 Reset to Default

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="text"/> <input type="button" value="Wake up"/> |
| ▶ Domain Name or IP address for Ping Test                               | <input type="text"/> <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

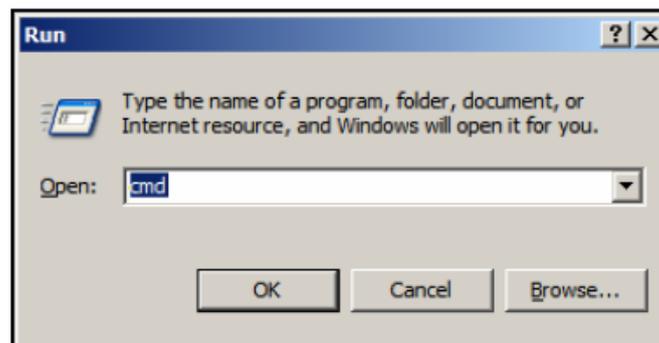
## Appendix A: Troubleshooting

**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.

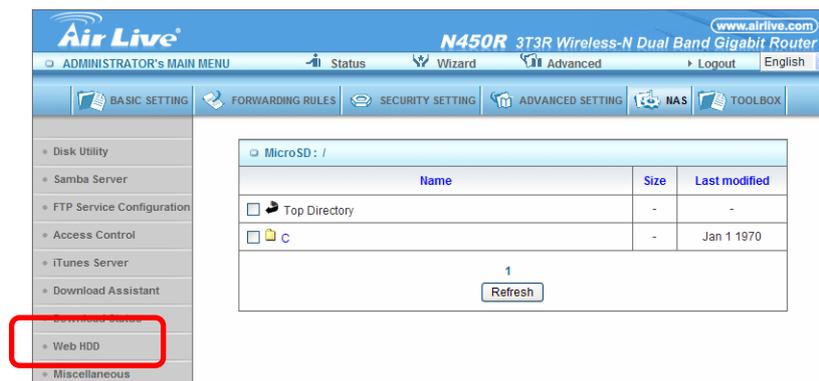


### Step2

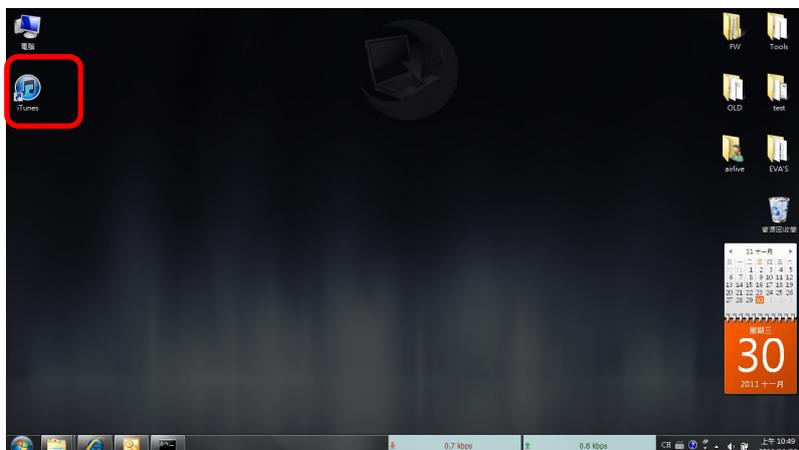
Click iTunes Server, then enable iTunes Server, type-in Service Name, Service Port and Access password. Click "Save" to apply settings.



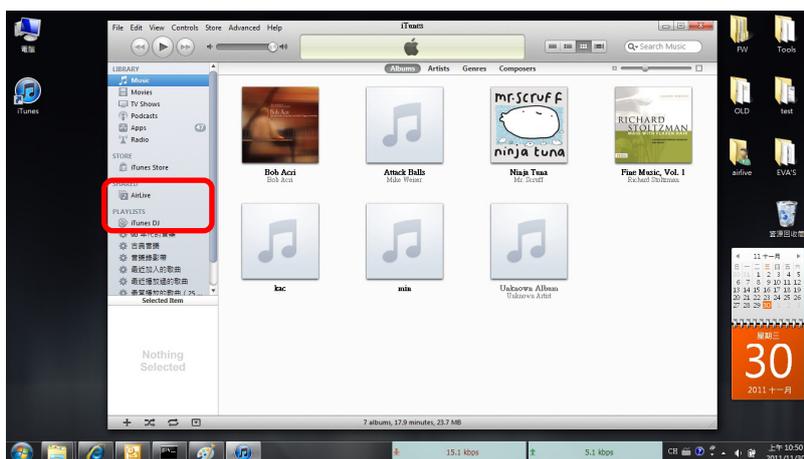
**Step3:** Click Web HDD, and then click "C" to check whether music file in the folder.



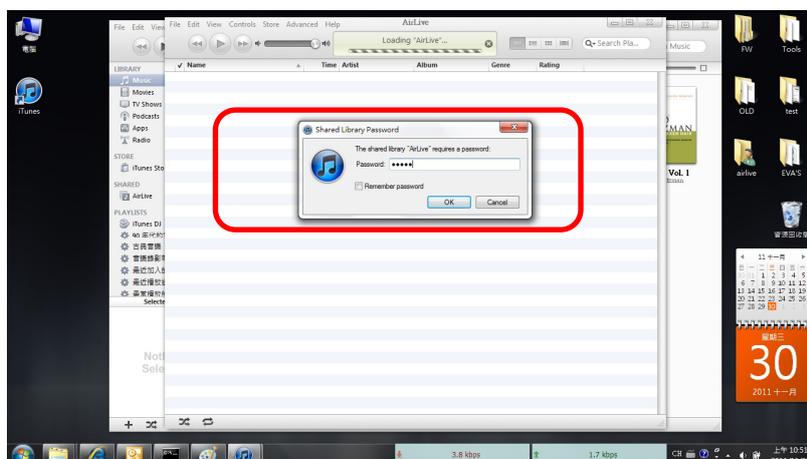
**Step4:** Start iTunes player on your PC.



**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.

