Air Live®
Powered by OvisLink Corp.

Traveler3G M

11n 3G Mobile Router with Build-in Sim Card Slot

User's Manual

www.airlive.com

IMPORTANT USAGE INSTRUCTION

For the convenience of use, this product accepts power from a desktop or a laptop computer. It's mandatory to connect both of two USB connectors at one end of USB supplied power cable to computer at one time. Power supply is not sufficient for the device to operate normally if only one USB connector is inserted into the computer. In this scenario it might cause temporary malfunction on the computer.

Copyright

Trademarks

FCC Interference Statement

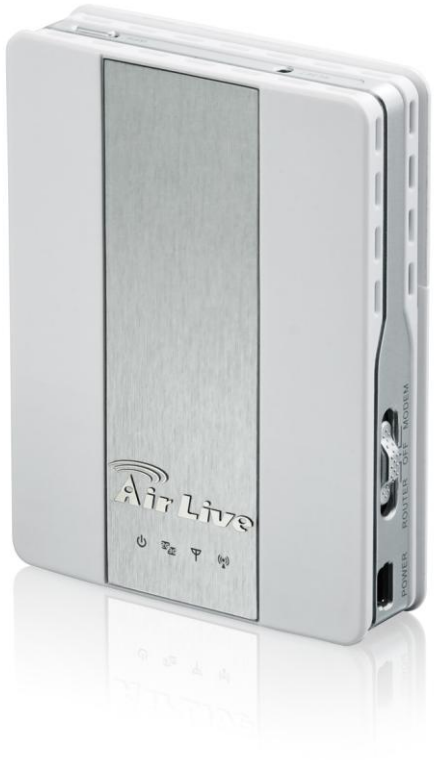
This equipment has been tested and found to comply with the limits for a Class B digital device pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against radio interference in a commercial environment. This equipment can generate, use and radiate radio frequency energy and, if not installed and used in accordance with the instructions in this manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause interference, in which case the user, at his own expense, will be required to take whatever measures are necessary to correct the interference.

CE Declaration of Conformity

This equipment complies with the requirements relating to electromagnetic compatibility, EN 55022/A1 Class B.

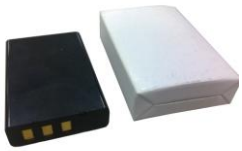
Table of Contents

1 Introduction



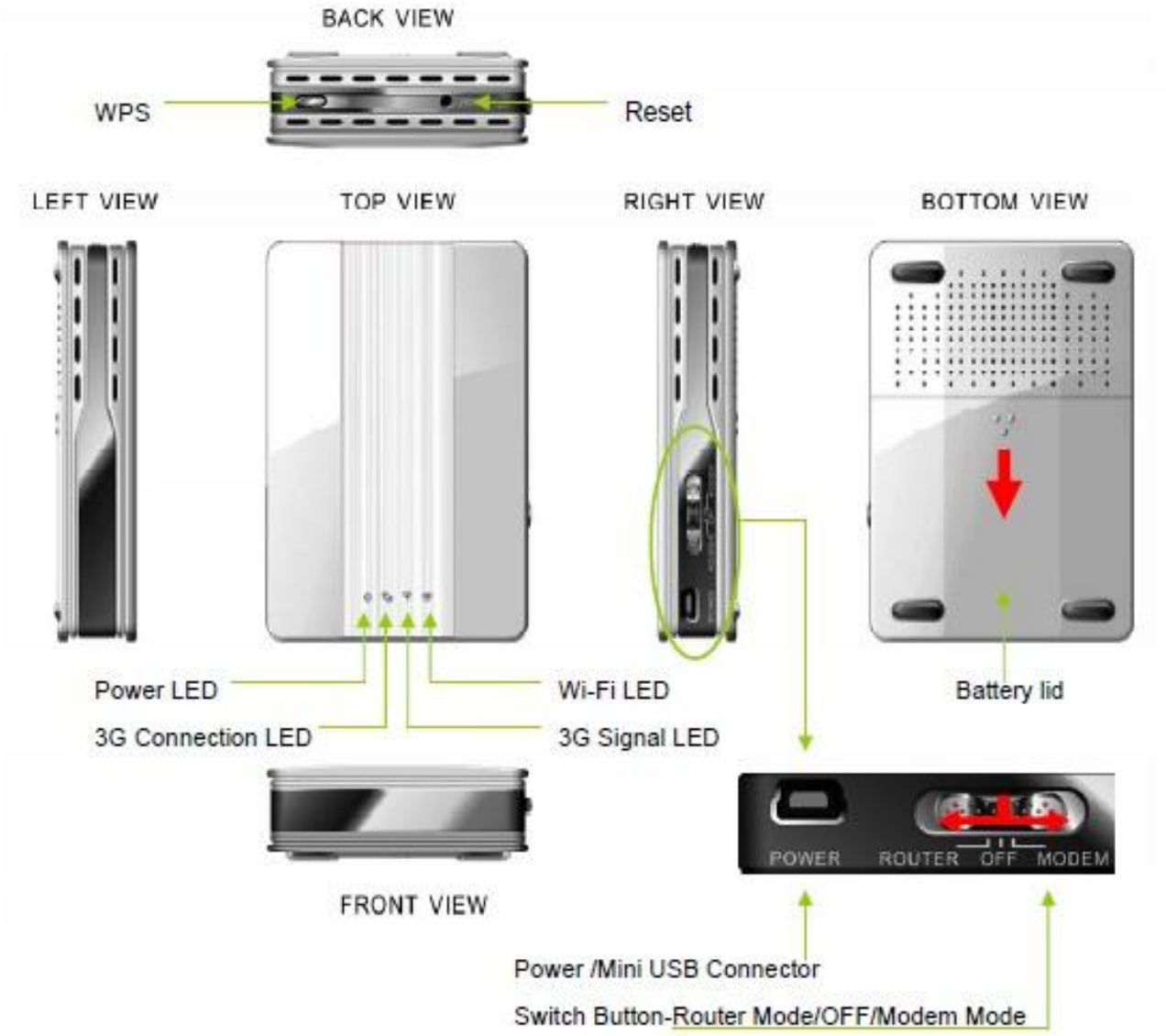
Congratulations on your purchase of this outstanding Product ：Traveler3G M WiFi Mobi-HSPA Router. This product is specifically designed for mobile user who needs to have the Internet access beyond his home and office. It provides a complete solution for Internet surfing and broadband sharing. Instructions for installing and configuring this product can be found in this manual. Before you install and use this product, please read this manual carefully for fully exploiting the functions of this product.

1.1 Package List

Items	Description	Contents	Quantity
1	WiFi Mobi-HSPA Router		1
2	USB Cable		1
3	Power adapter		1
4	Li-ion Battery		1
5	CD		1

1.2 Hardware Installation

- **Hardware Configuration**



- **LED indicators**

1. Router Mode

	LED color	Description
Power (and Battery Status)	Green	Battery is fully charged
	Green in flash	Power is provided by battery
	Amber	Charging the battery
	Red	Battery low
3G Connection Status	Red	Disconnected
	Red in flash	Connecting
	Amber	EDGE or GPRS connection
	Amber in flash	Data access in EDGE or GPRS
	Green	UMTS/HSDPA/HSUPA connection
	Green in fast flash	Data access in UMTS/HSDPA/HSUPA
3G Signal & Roaming Alert	Red	Weak Level
	Red in quick flash	Weak Level and roaming alert
	Amber	Middle Level
	Amber in quick flash	Middle Level and roaming alert
	Green	Strong Level
	Green in quick flash	Strong Level and roaming alert
Wi-Fi LED	Green	WLAN is on
	Green in flash	Data access
	Green in fast flash	Device is in WPS mode

2. Modem Mode

	LED color	Description
Power (and Battery Status)	Green	Modem mode is active
3G Connection Status	N/A	N/A
3G Signal & Roaming Alert	N/A	N/A
Wi-Fi	N/A	N/A

• Installation Steps

DO NOT *switch on WiFi Mobi-HSPA Router before performing the installation steps below*.

1. Router Mode Steps

Step 1. Turn off the Slide Switch.

Step2. Insert SIM/USIM

The WiFi Mobi-HSPA Router builds in a HSUPA 3G modem card. Please refer to your service provider for detailed feature information.

Notice: a 3G SIM/USIM Card with data services is MUST.

Step 3. Attach the Li-ion battery

Step 4. Insert Mini-USB Power Jack, and connect with the power adapter to the receptor on it.

Step 5. Then plug the other end of the power adapter into a wall outlet.

Step 6. Turn the Slide Switch to Router Mode.

The Power LED will turn ON to indicate that the power has been applied.

2. Modem Mode Steps

Step 1. Turn off the Slide Switch.

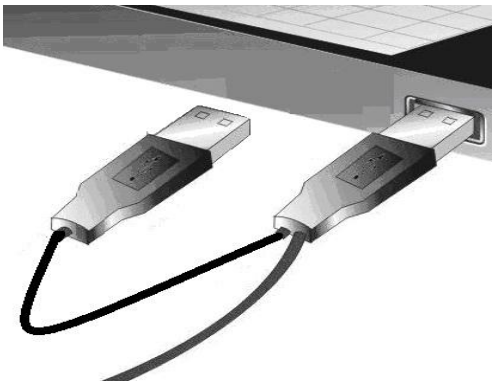
Step2. **Insert SIM/USIM**

The WiFi Mobi-HSPA Router builds in a HSUPA 3G modem card. Please refer to your service provider for detailed feature information.

Notice: a 3G SIM/USIM Card with data services is MUST.

Step 3. Insert Mini-USB cable.

Step 4. Then plug the other end of the Mini-USB cable into a PC.



Step 5. Turn the Slide Switch to Modem Mode.

2 Getting start

2.1. The Router Mode Easy Setup Utility

We provide Easy Setup Windows Utilities (Router mode and Modem mode) and Web Wizard to enable you to set up the WiFi Mobi-HSPA Router quickly and easily.

Check the steps below before running the section.

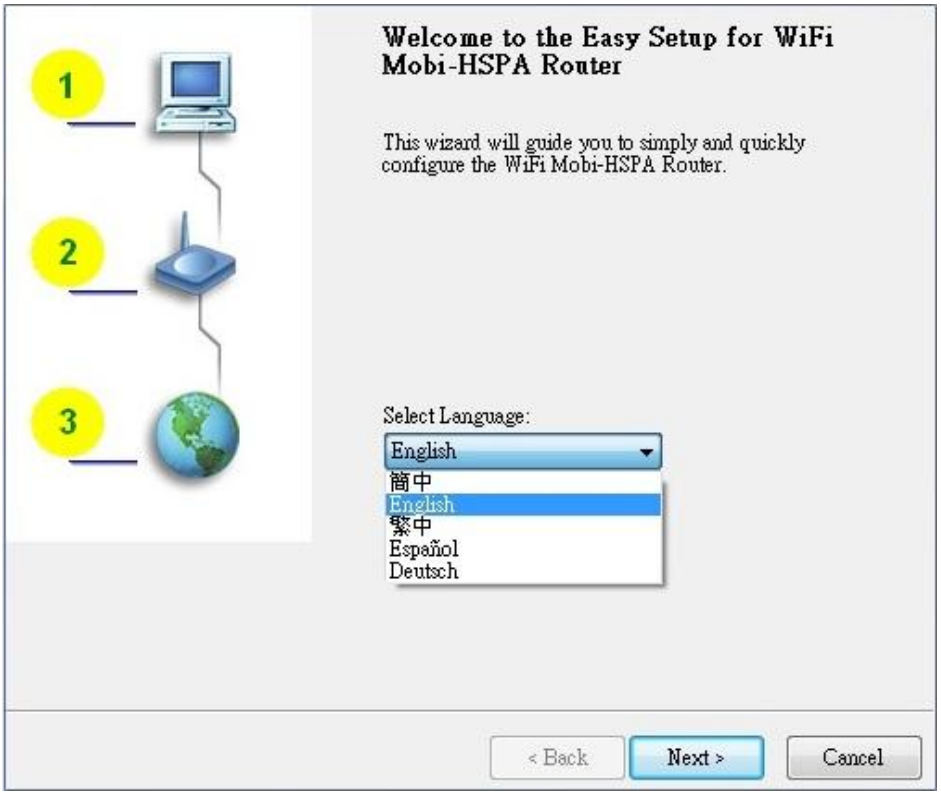
(1) Press WPS button more than 6 seconds on the Router. The Router will reset to default.

(2) Connect to the Router by Wi-Fi. The default SSID is the same as “Mac Address” You can find the “Mac Address” at Machine Label.

(3) Insert CD to CDROM; Click the Easy Setup Utility from CD or Auto Run.

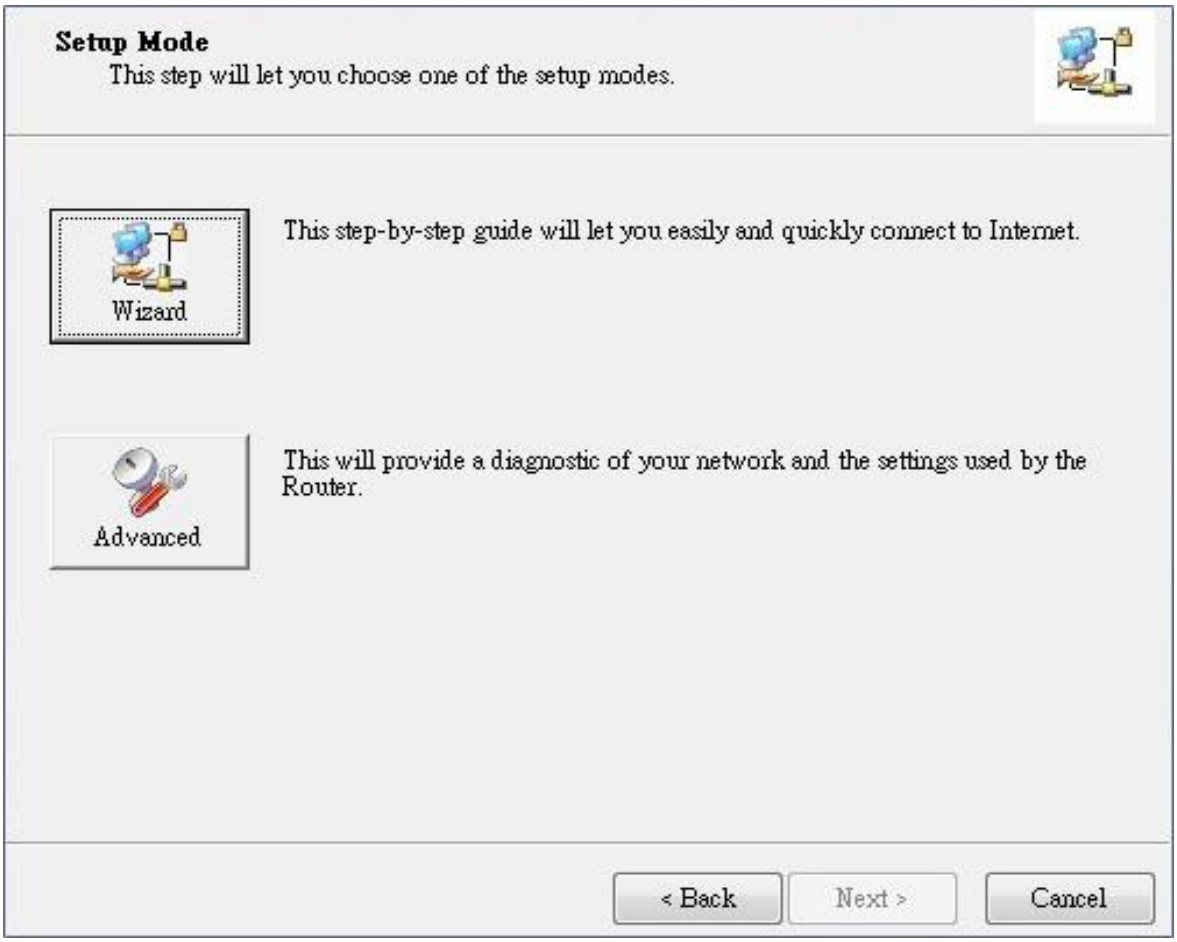
Step 1. You can start to configure the device via the Install Driver & Utility.

Step 2. Select Language then click “Next” to continue.



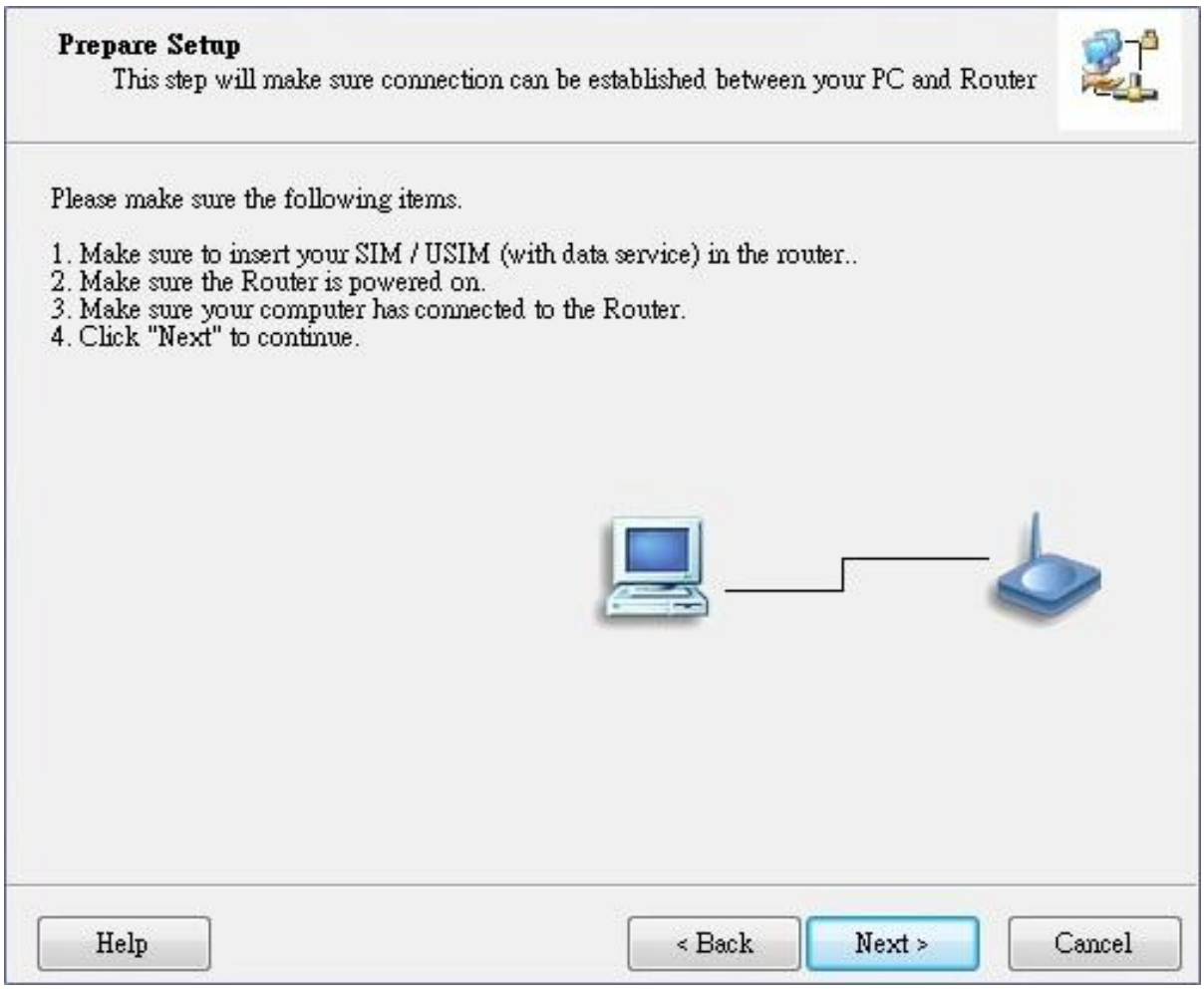
Step 3.

1. Please select Wizard mode to run the setup step-by-step to diagnose the network settings of the Router.
2. Click the “Wizard” button and click “NEXT” to continue.



Step 4.

1. Make sure to insert your SIM / USIM (with data service) in the router.
2. Make sure the Router is powered on.
3. Make sure your computer has connected to the Router via WLAN.
4. Make sure your computer has an IP address.
5. Click “Next” to continue.



Step 5.

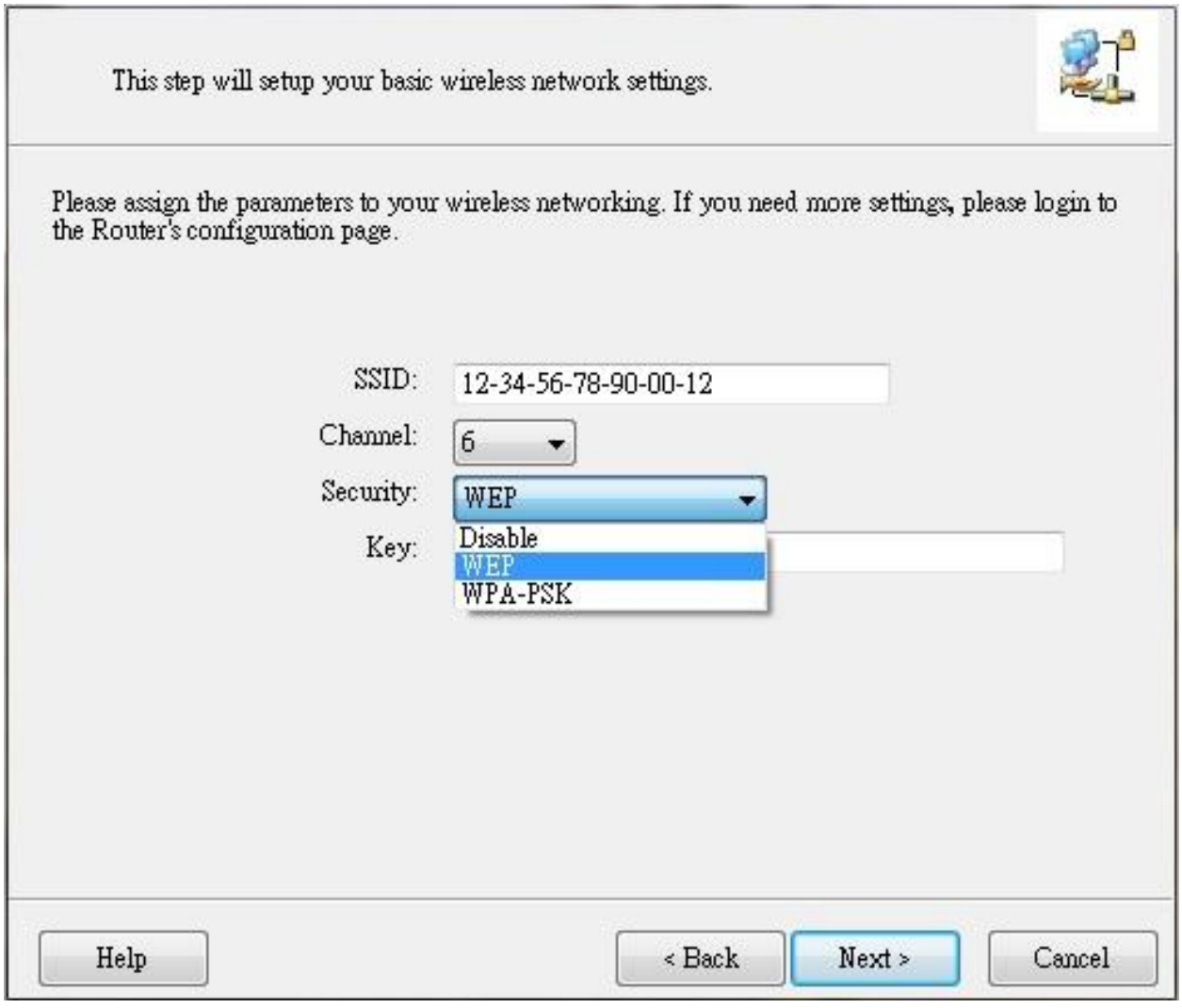
1. Key in the SSID, Channel and Security options, for example:

   SSID: “12-34-56-78-90-12”, Security: WEP

   Key: “1234567890”.

   Default SSID is the same as “Mac Address”.

2. And then click “Next” to continue.]

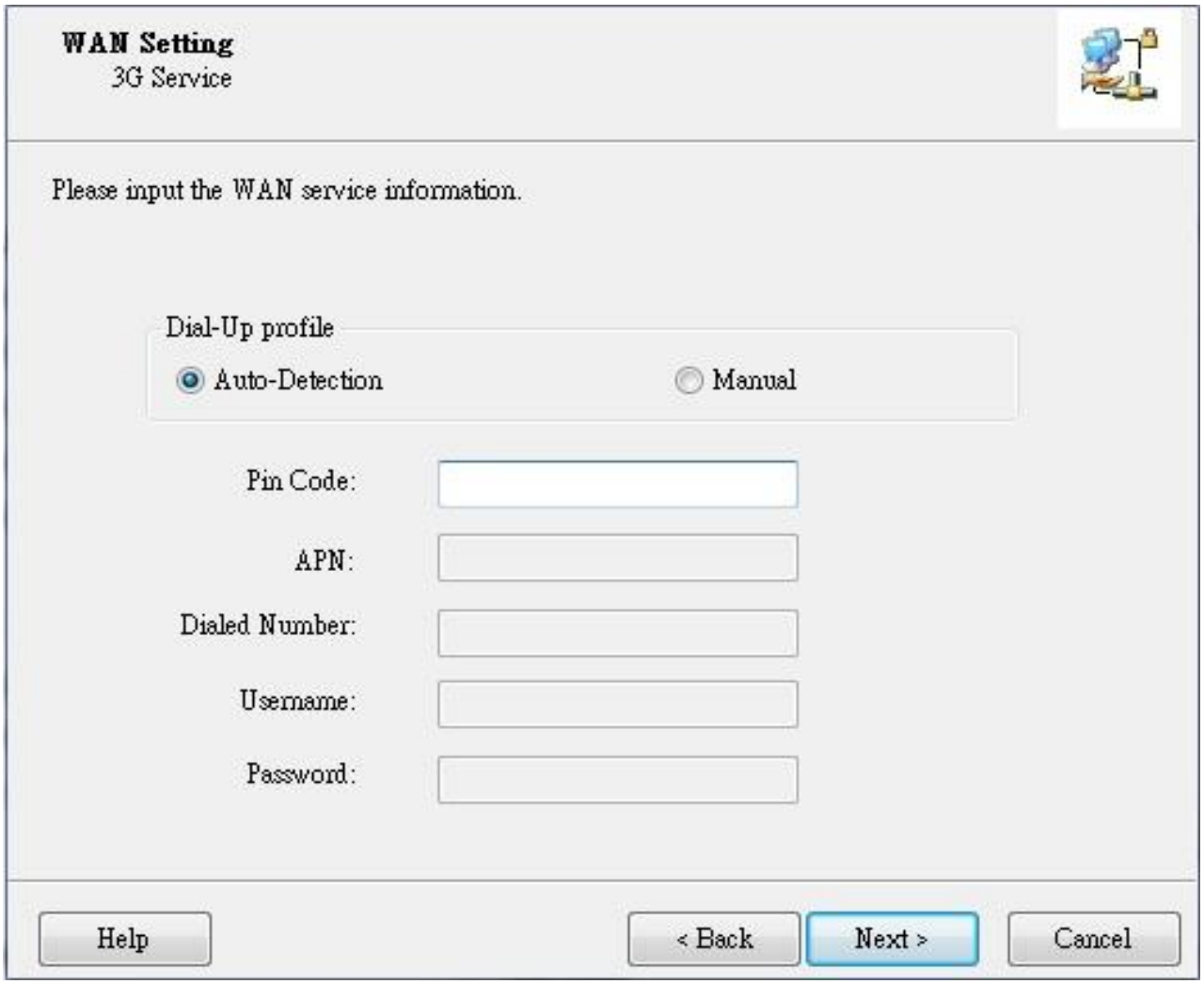


Step 6-1.

1. Select “Auto-Detection”, and the Utility will try to detect and configure the required 3G service settings automatically.

2. Click “Next” to continue.

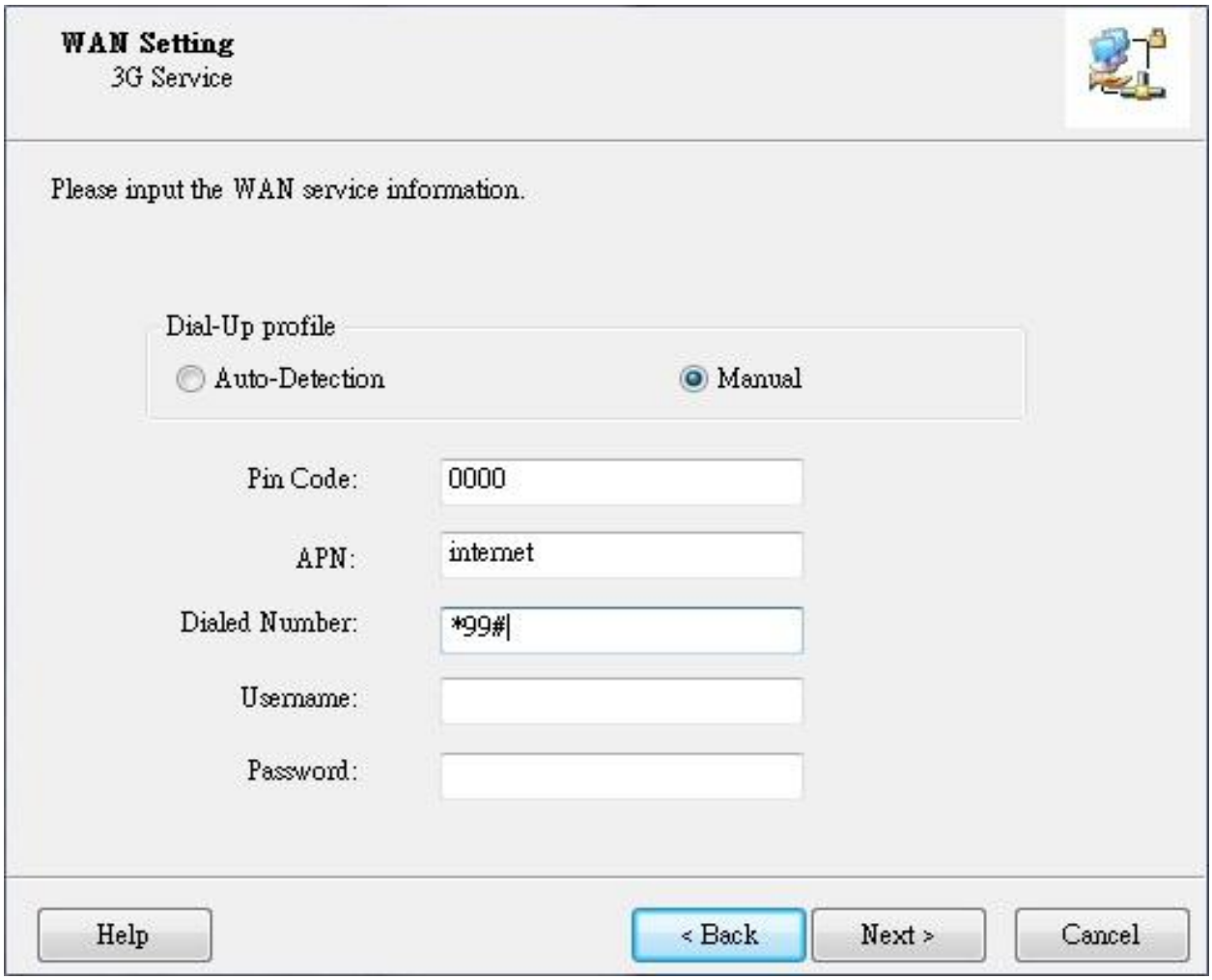
※ Default PIN Code is empty, if you have PIN Code, you must enter it. For example “0000”. If no, just click “Next” to continue.



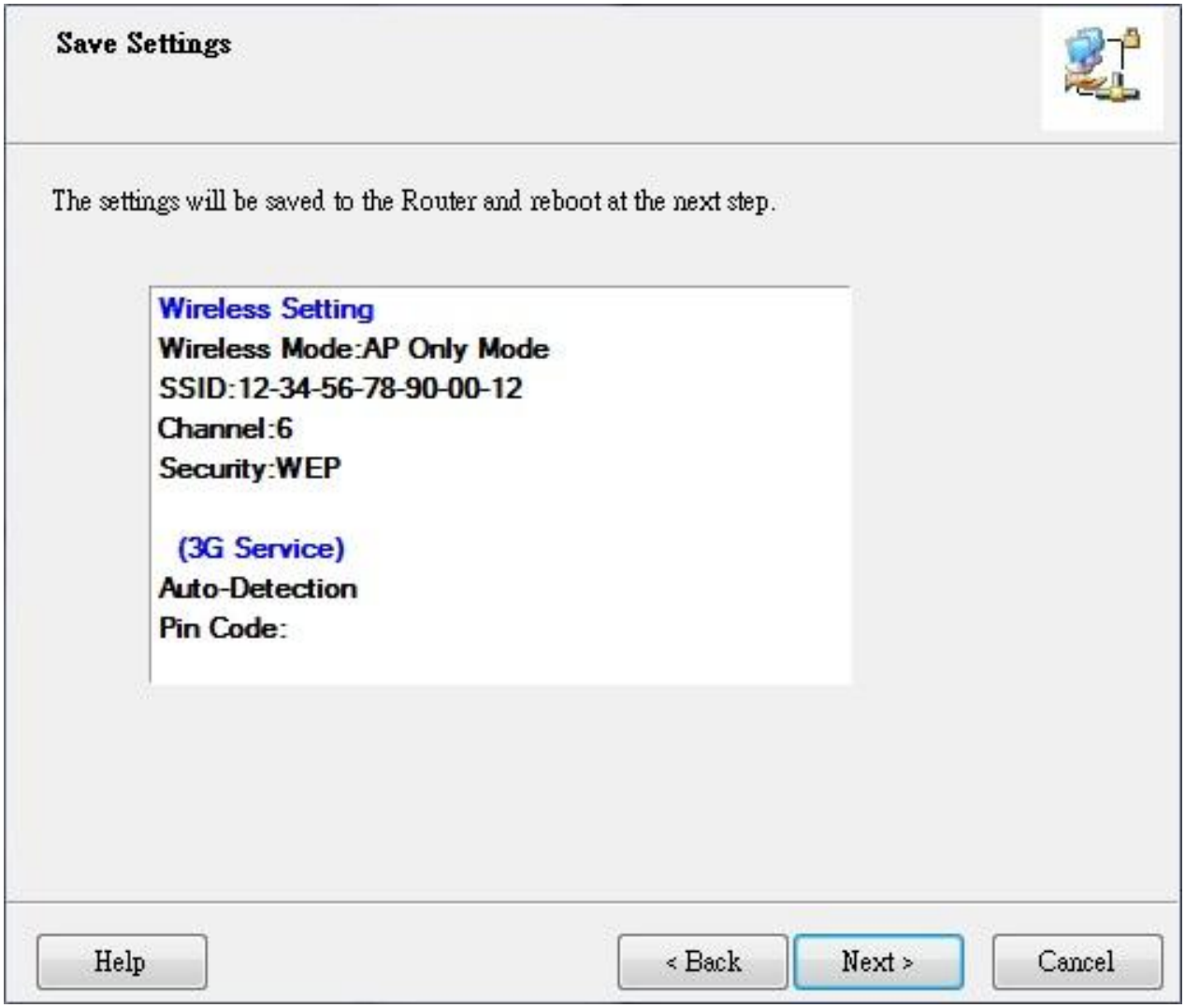
Step 6-2.

1. Or you can select “Manual” and manually fill in the required 3G service settings provided by your ISP.

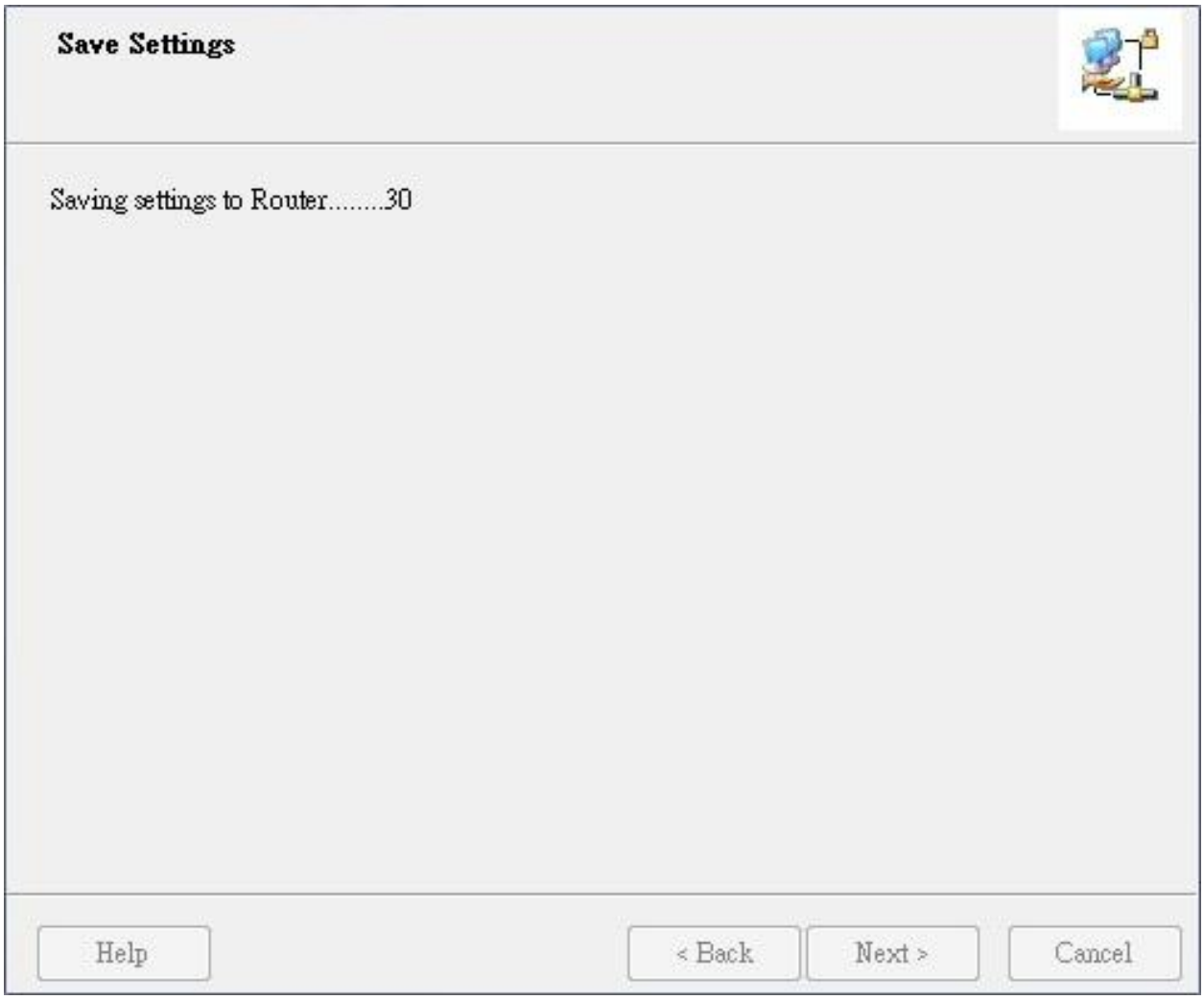
2. Click “Next” to continue.



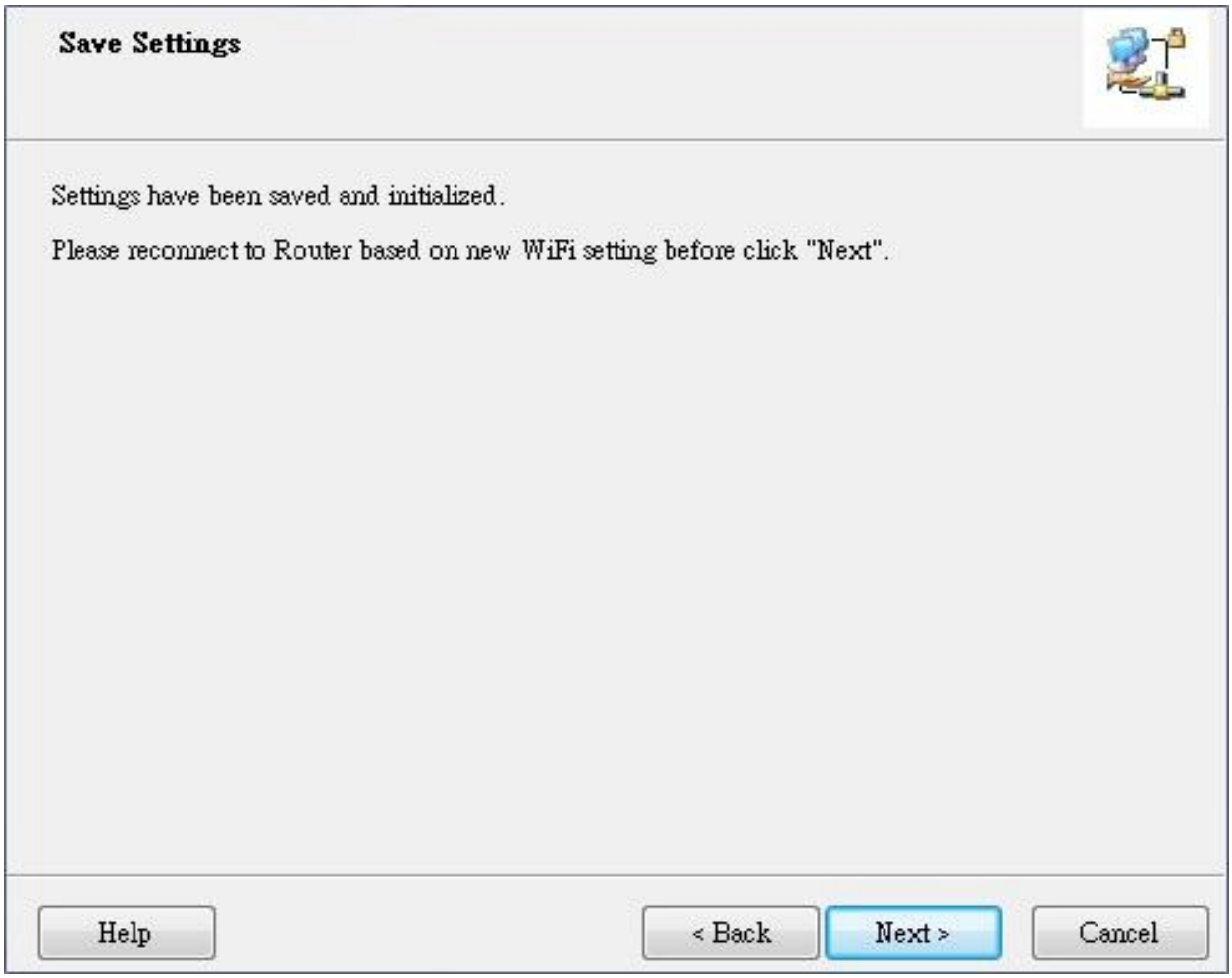
Step 7. Check the settings, and then click the “Next” if the settings are correct.



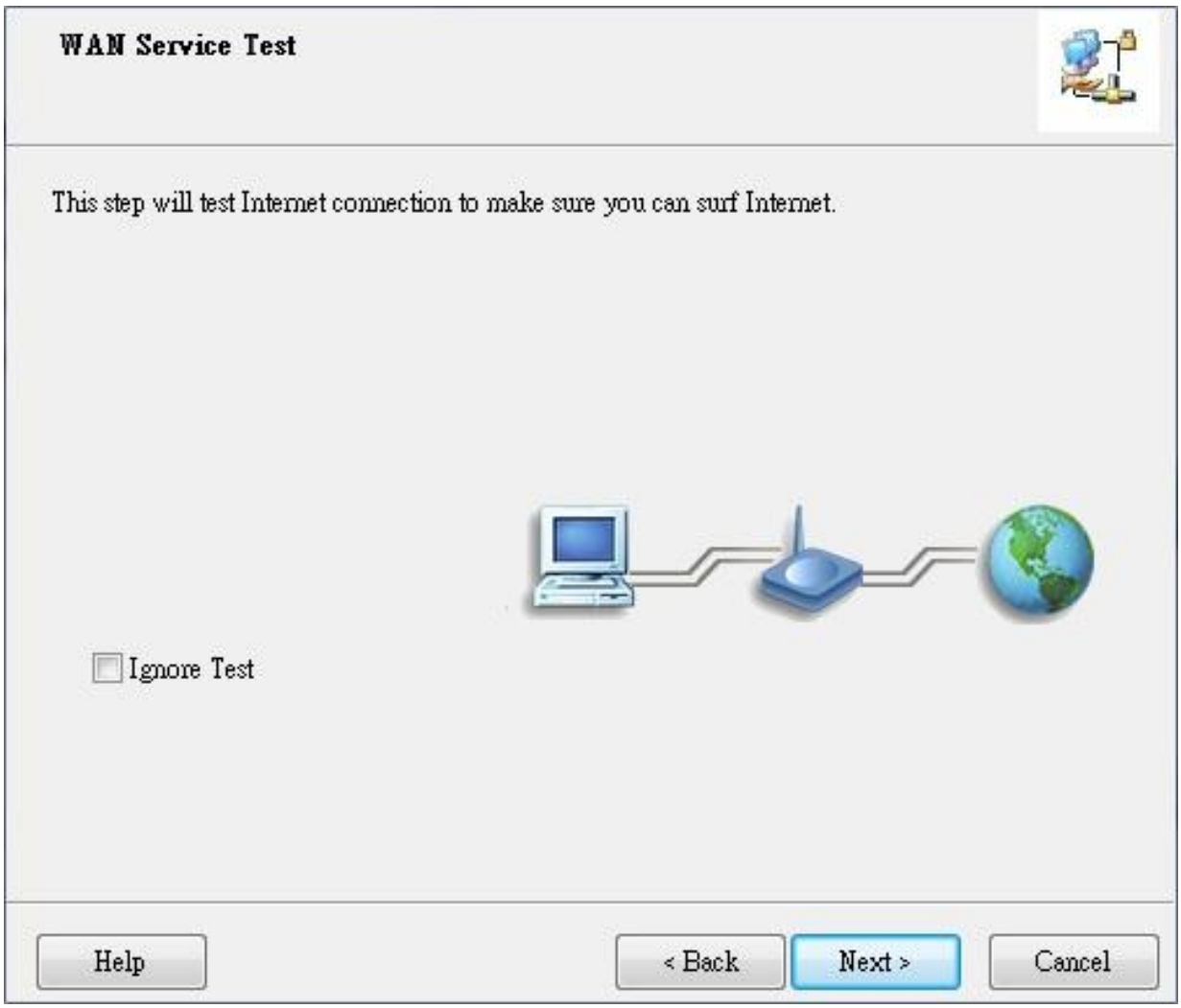
Step 8. The Wi-Fi Mobi-HSPA Router is rebooting to make your entire configuration activated.



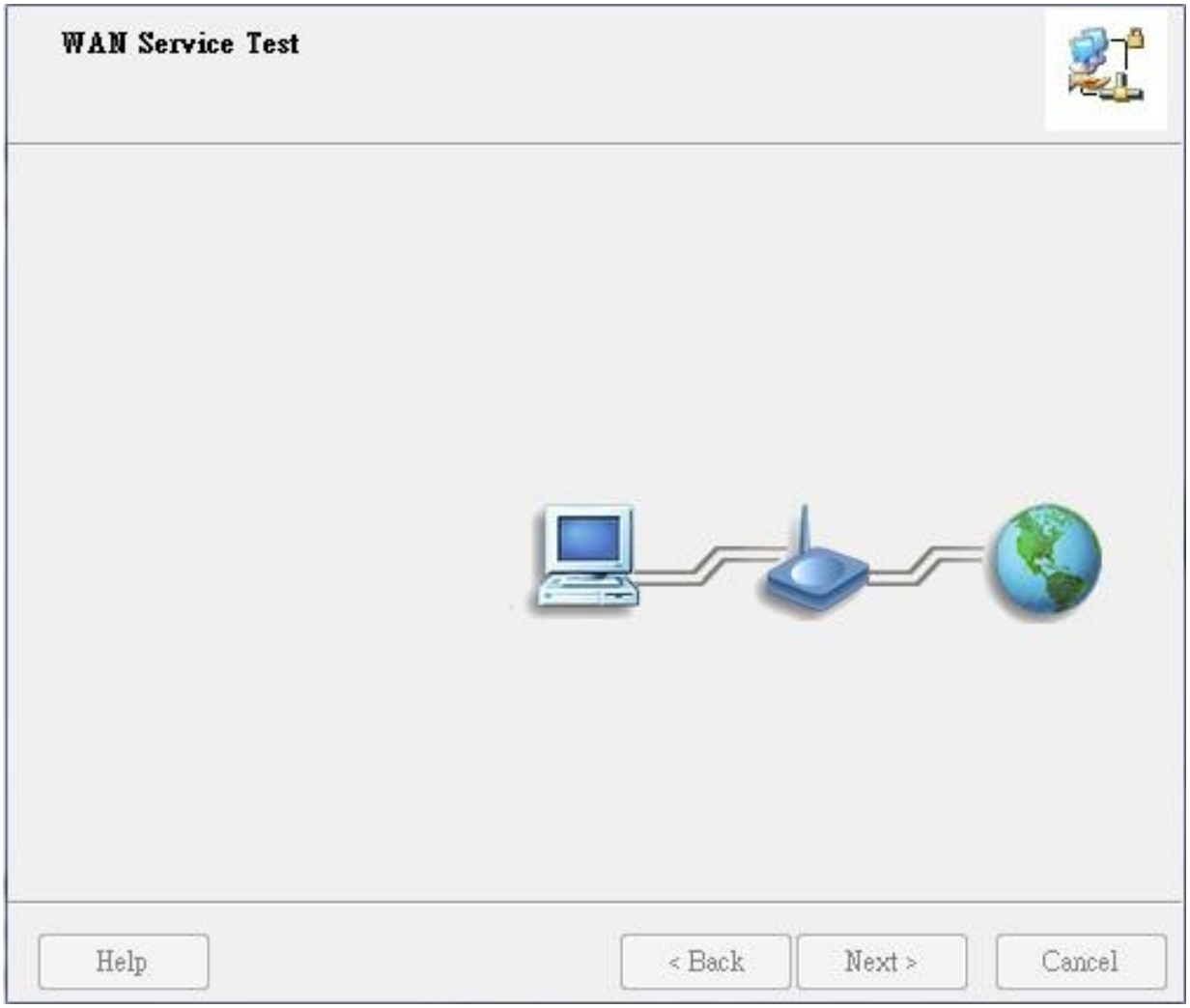
Step 9. Please reconnect to Router before click “Next”.



Step 10-1. Click “Next” to test the Internet connection or you can skip test, and then click “Next” to continue.

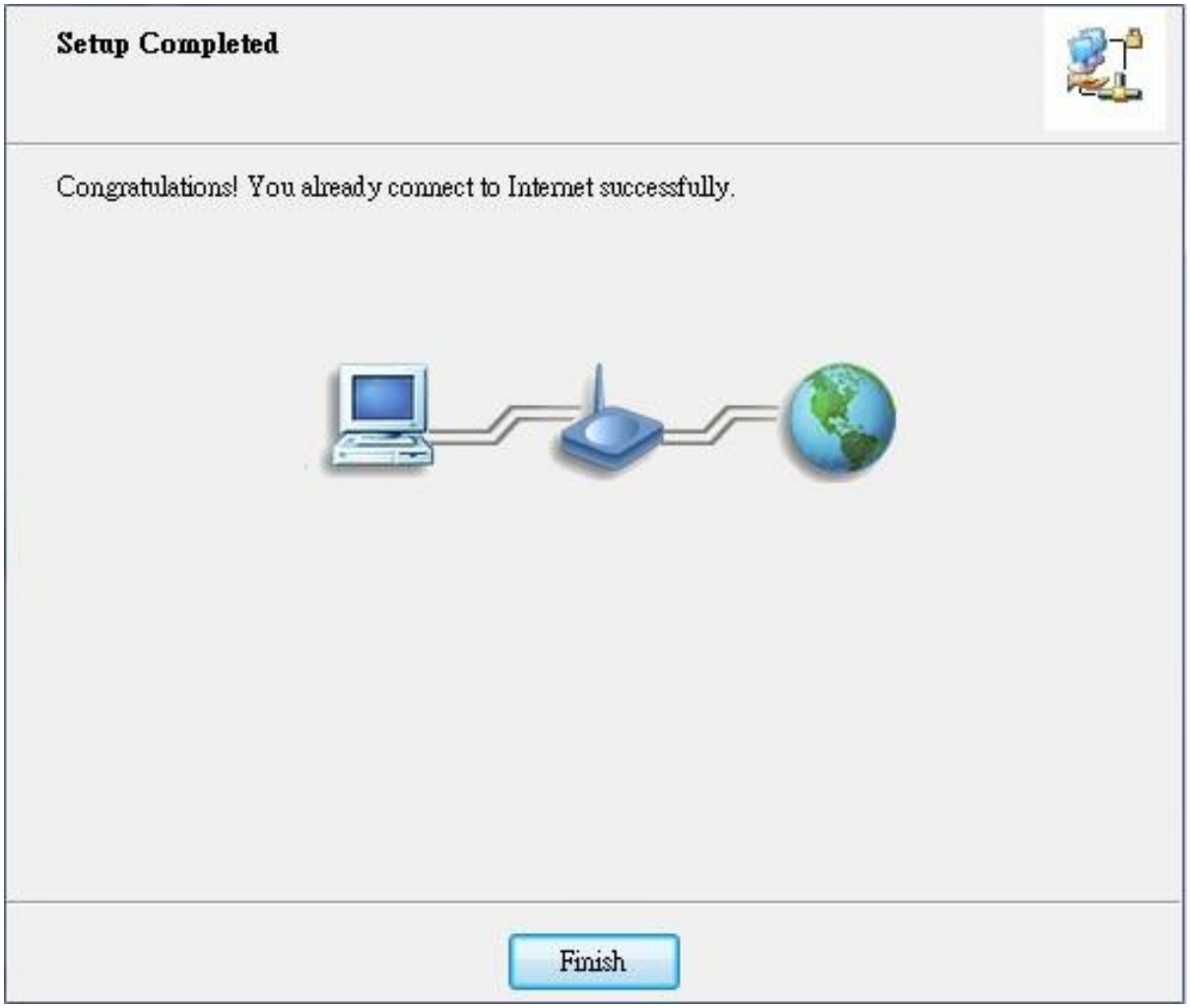


Step 10-2. Test the Internet connection



Step 11. Congratulations! Setup is completed.

Now you have already connected to Internet successfully.



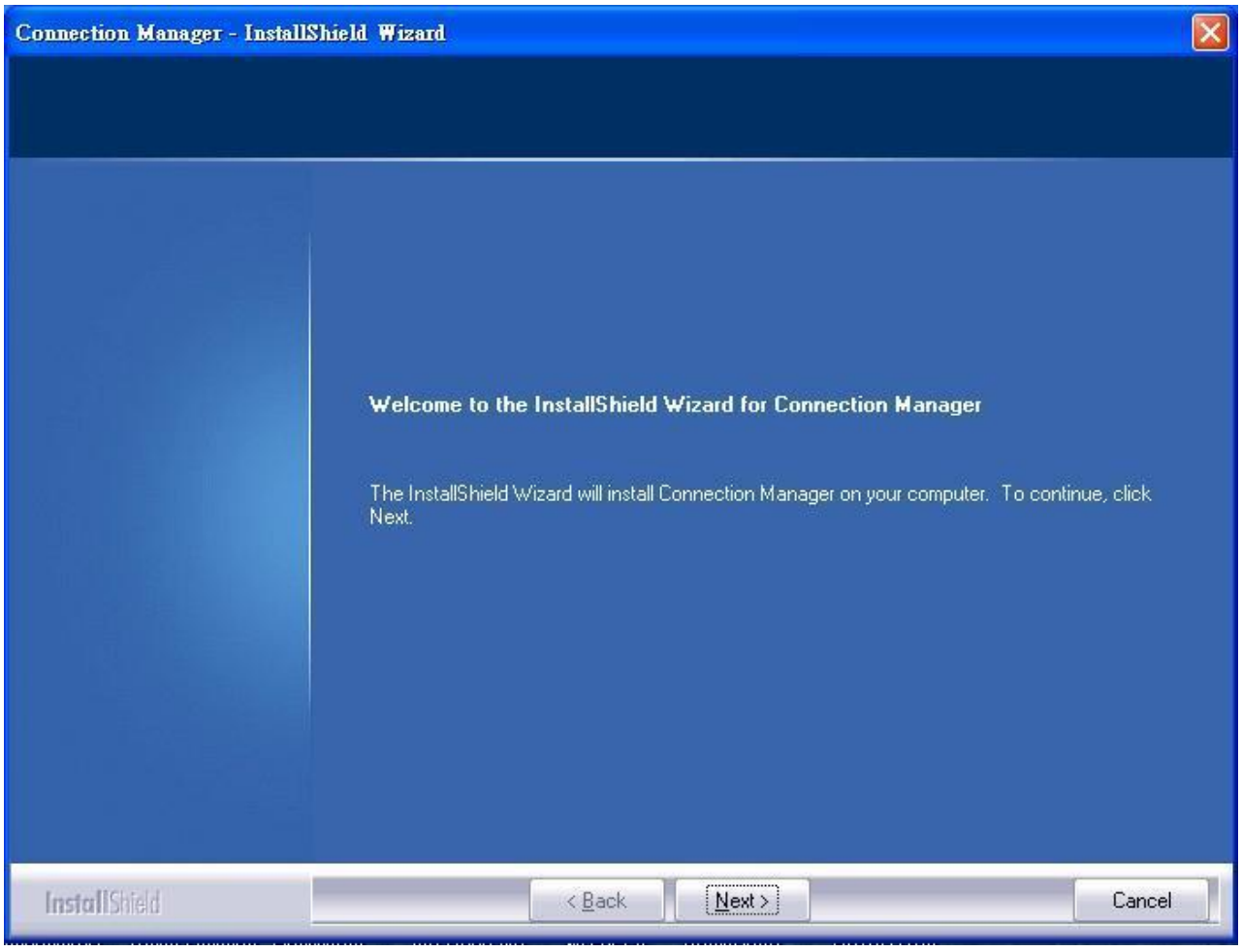
2.2. The Modem Mode Easy Setup Utility

Check the steps below before running the section.

(1) Reference the section “Hardware Installation- Modem Mode” first.

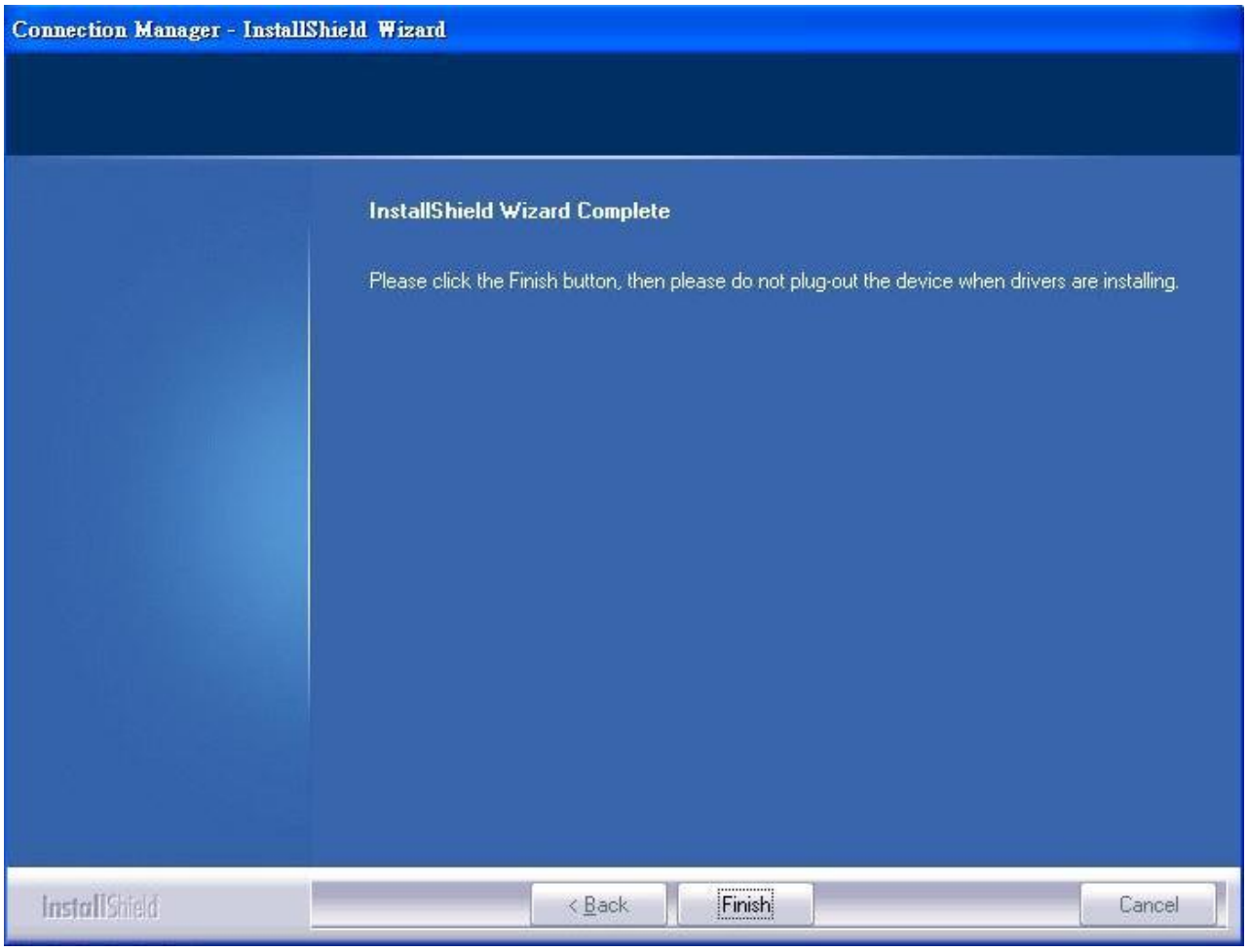
※ When you use “Modem Mode” at first time, the utility will auto install to your computer.

Step 1. Install the Connection Manager.



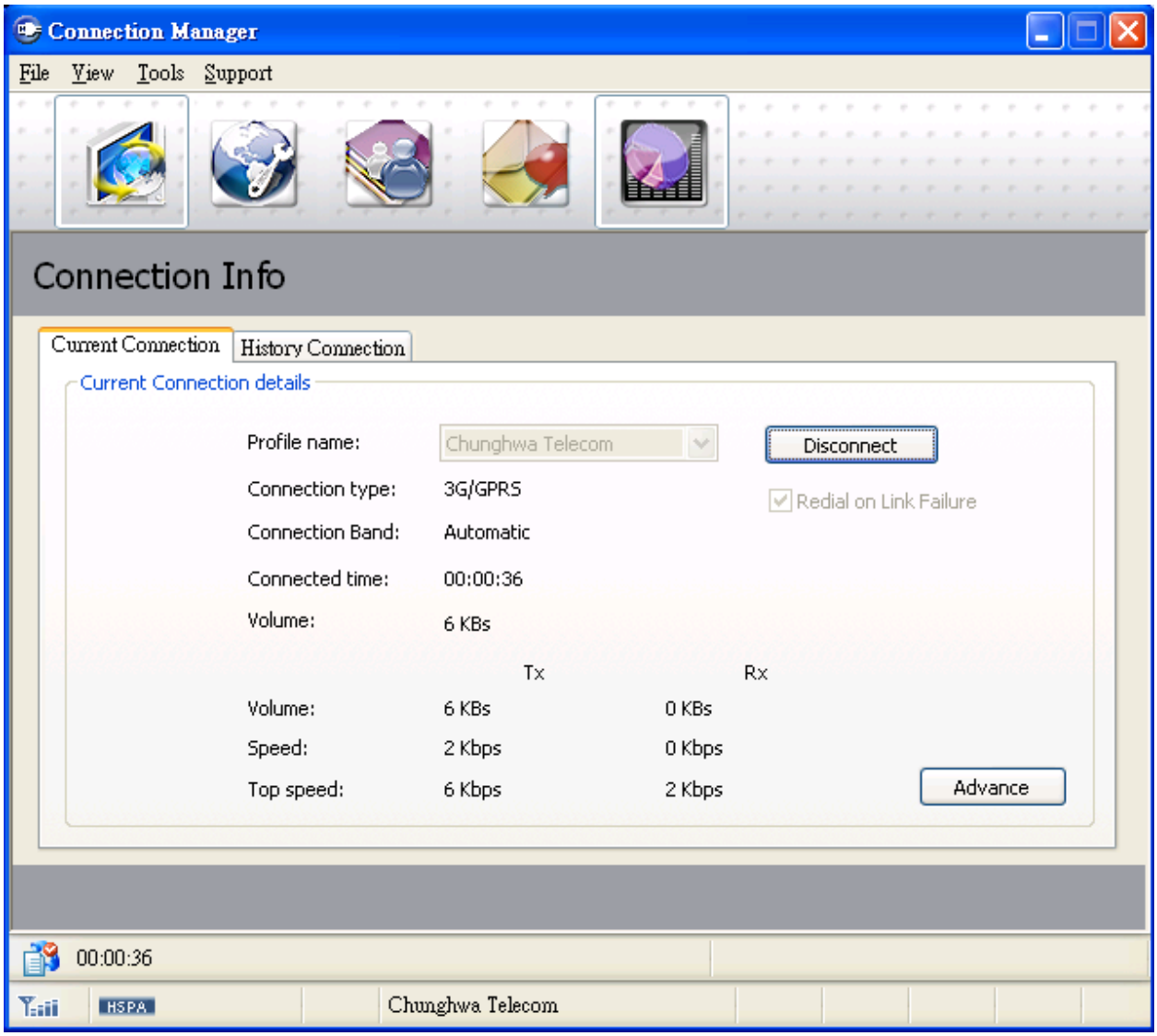
Step 2. Congratulations! Setup is completed.

Now you can run the utility connected to Internet.



Step 3.

The UI of Connection Manager.



2.3. The Router mode Easy Setup by Configuring Web Pages

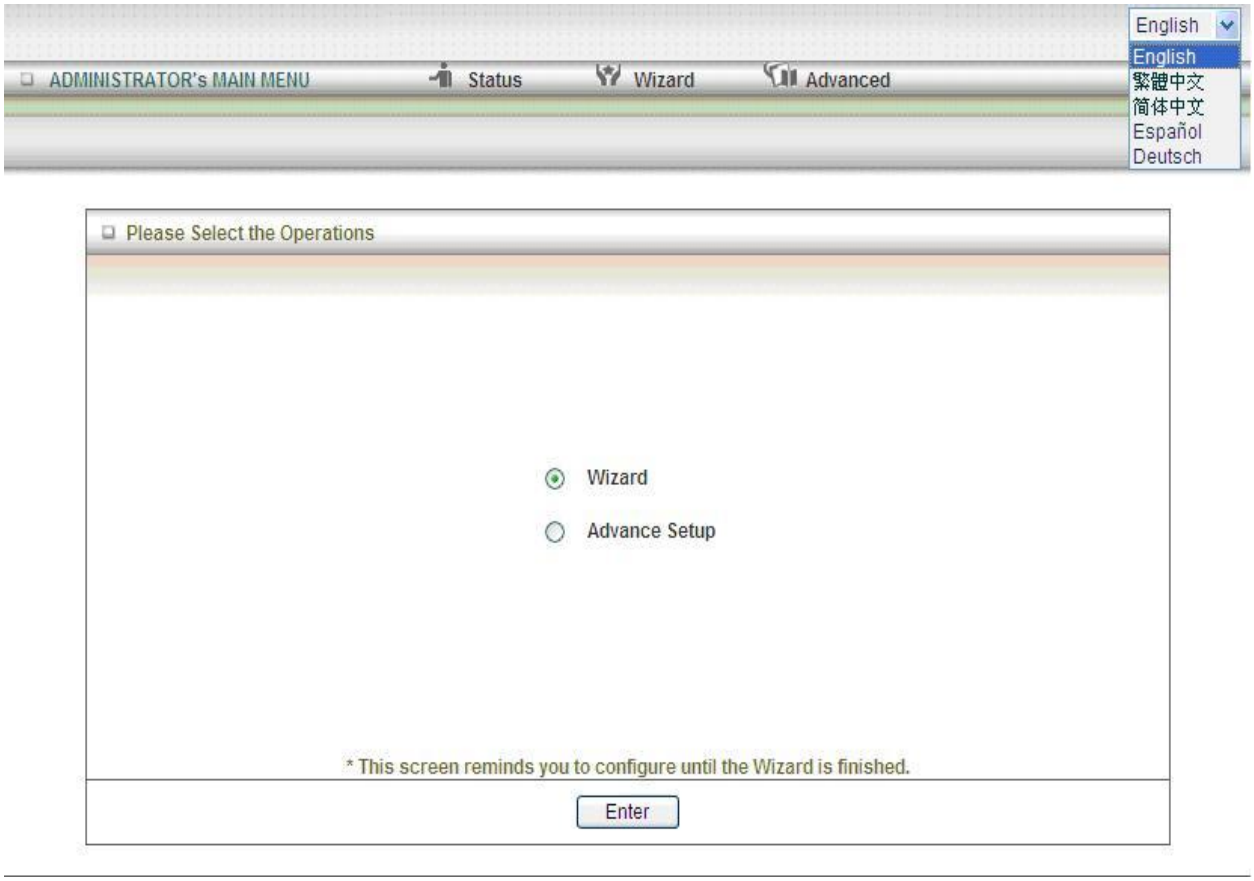
You can also browse web UI to configure the device.

- **Browse to Activate the Setup Wizard**

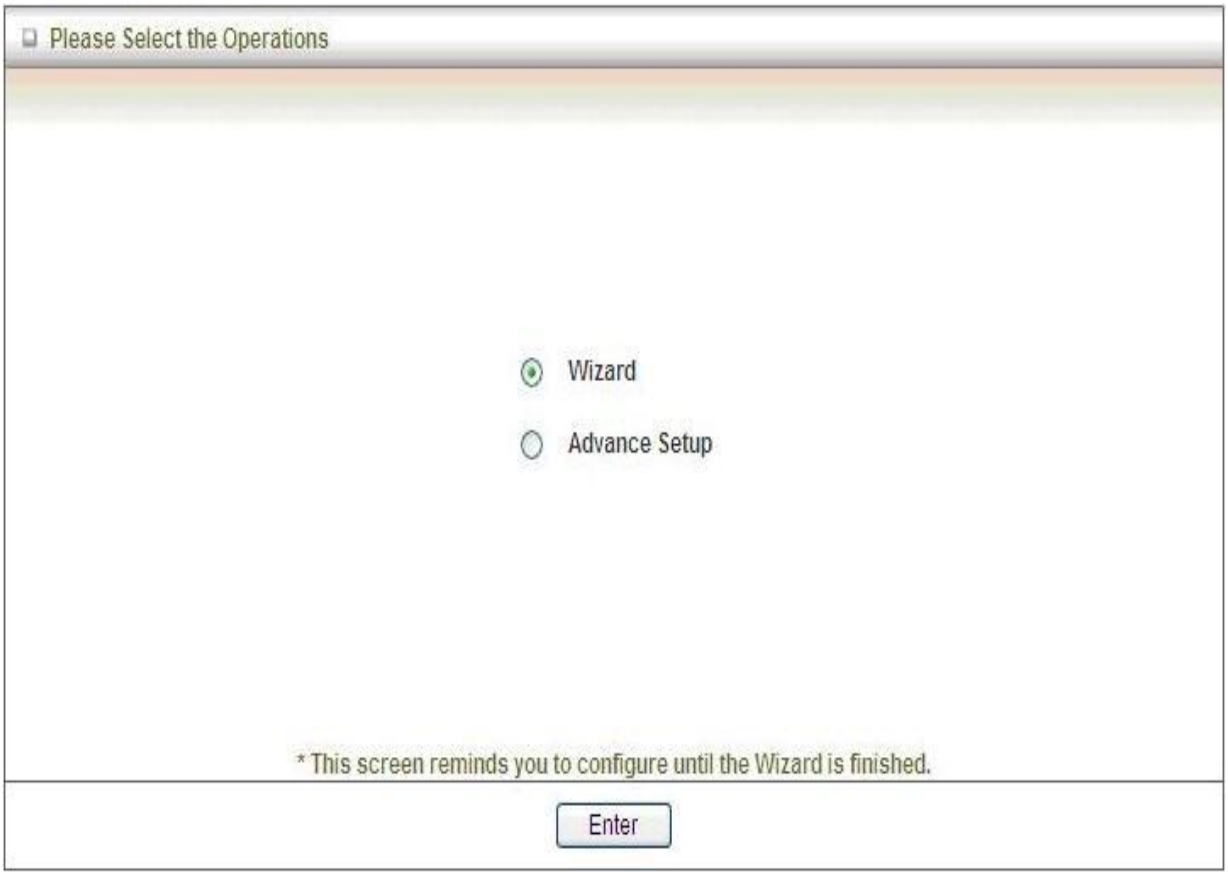
Step 1. Please type in the IP Address (http://192.168.1.1)

Step 2. Please type “airlive” in the Password and click ‘login’ button.

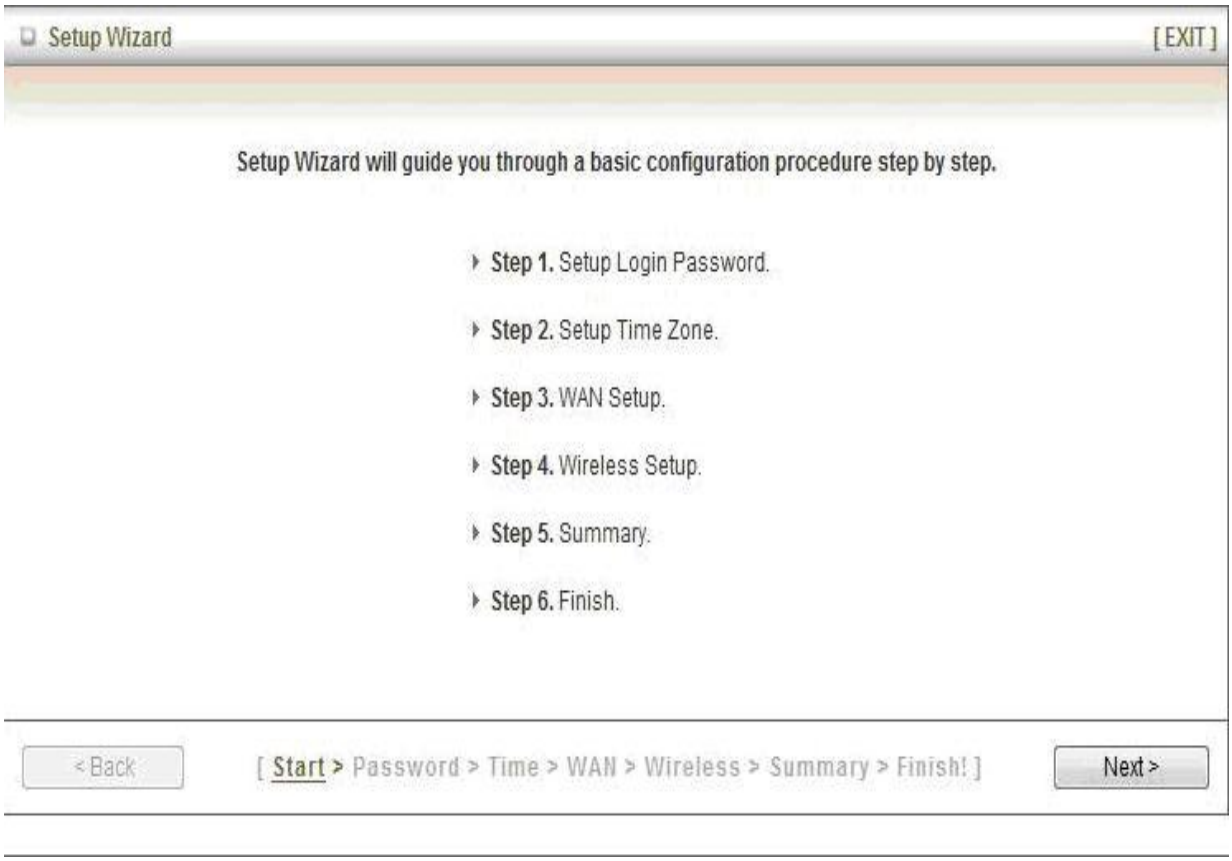
Step 3. Select your language.



Step 4. Select “Wizard” for basic settings with simple way.



Step 5. Press “Next” to start the Setup Wizard.



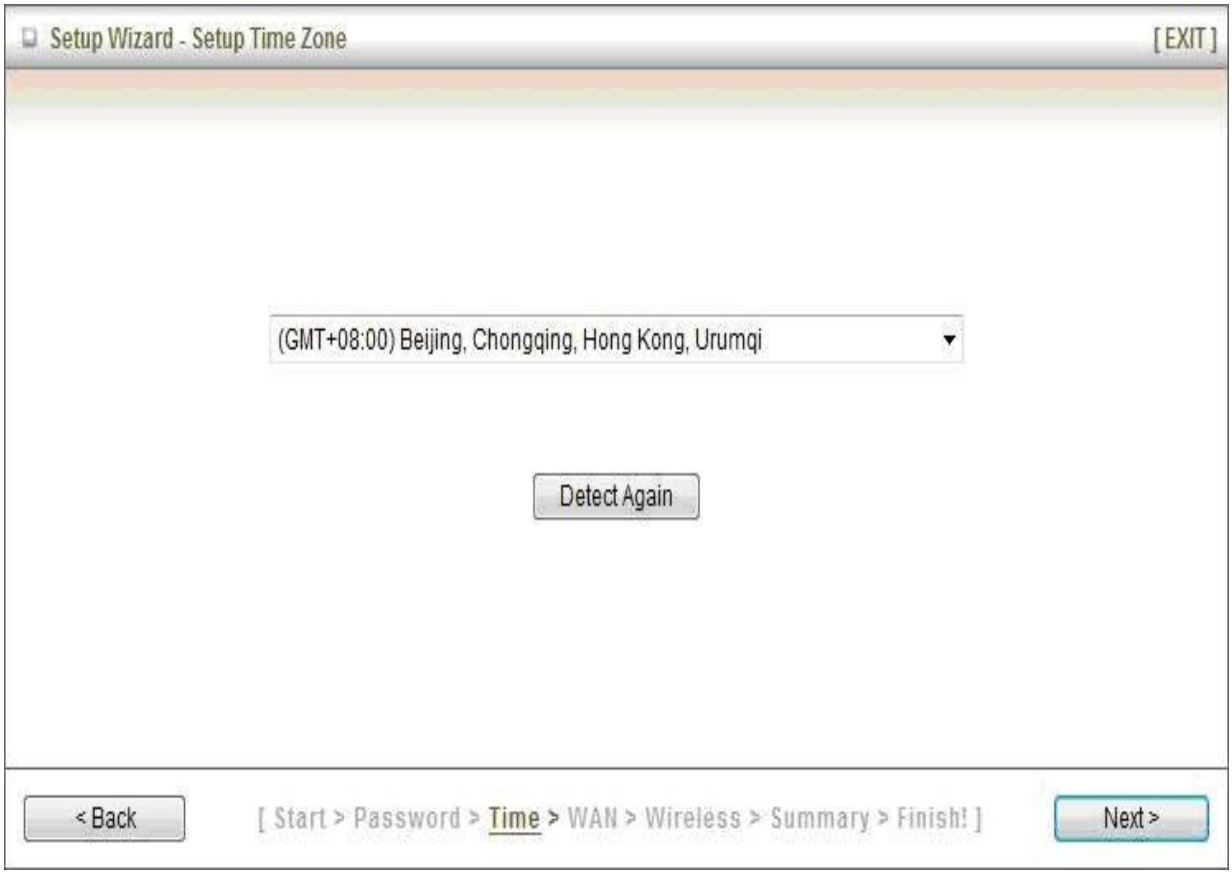
- **Configure with the Setup Wizard**

Step 1. Change System Password.

Set up your system password.

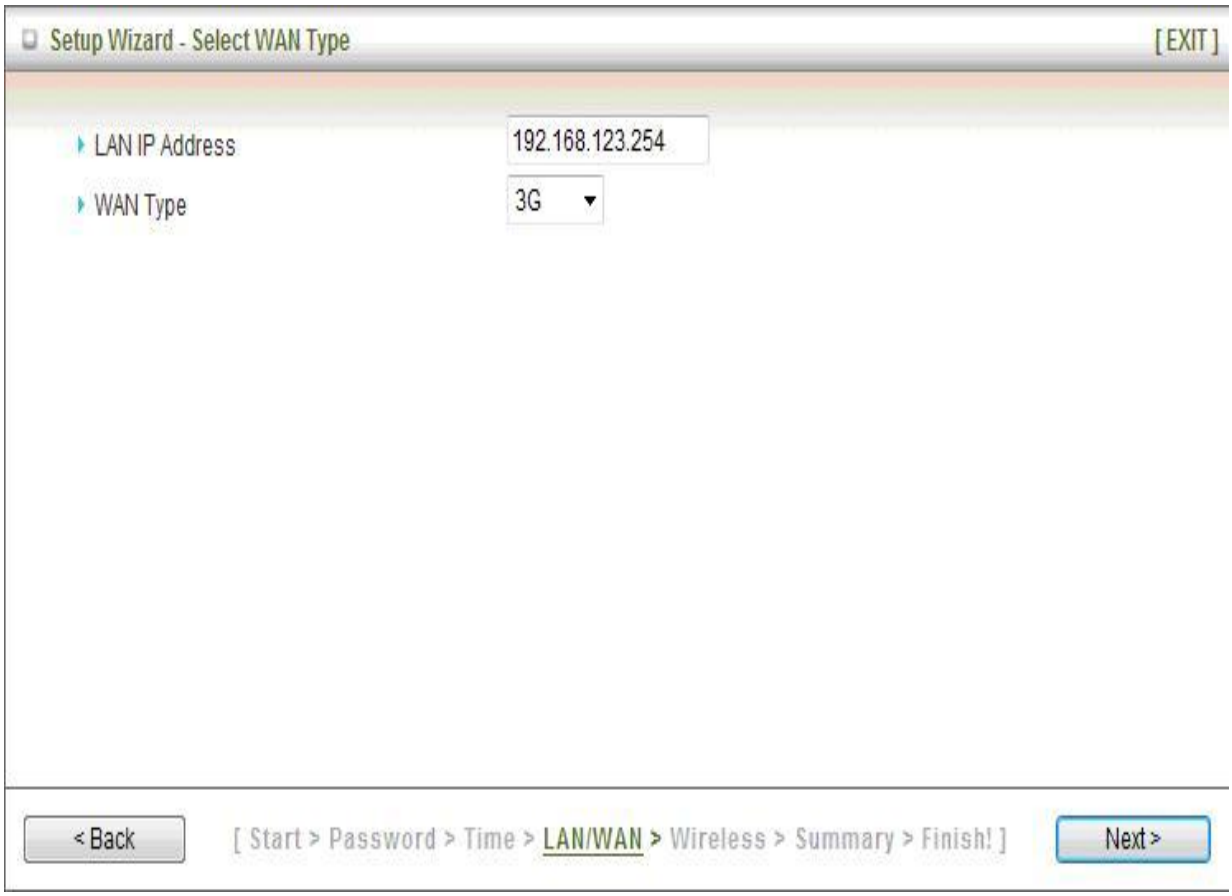
(Default：admin)

Step 2. Select Time Zone.



Step 3. Select LAN IP Address and Wan Type.

You can select 3G and Wi-Fi HotSpot as the WAN type.

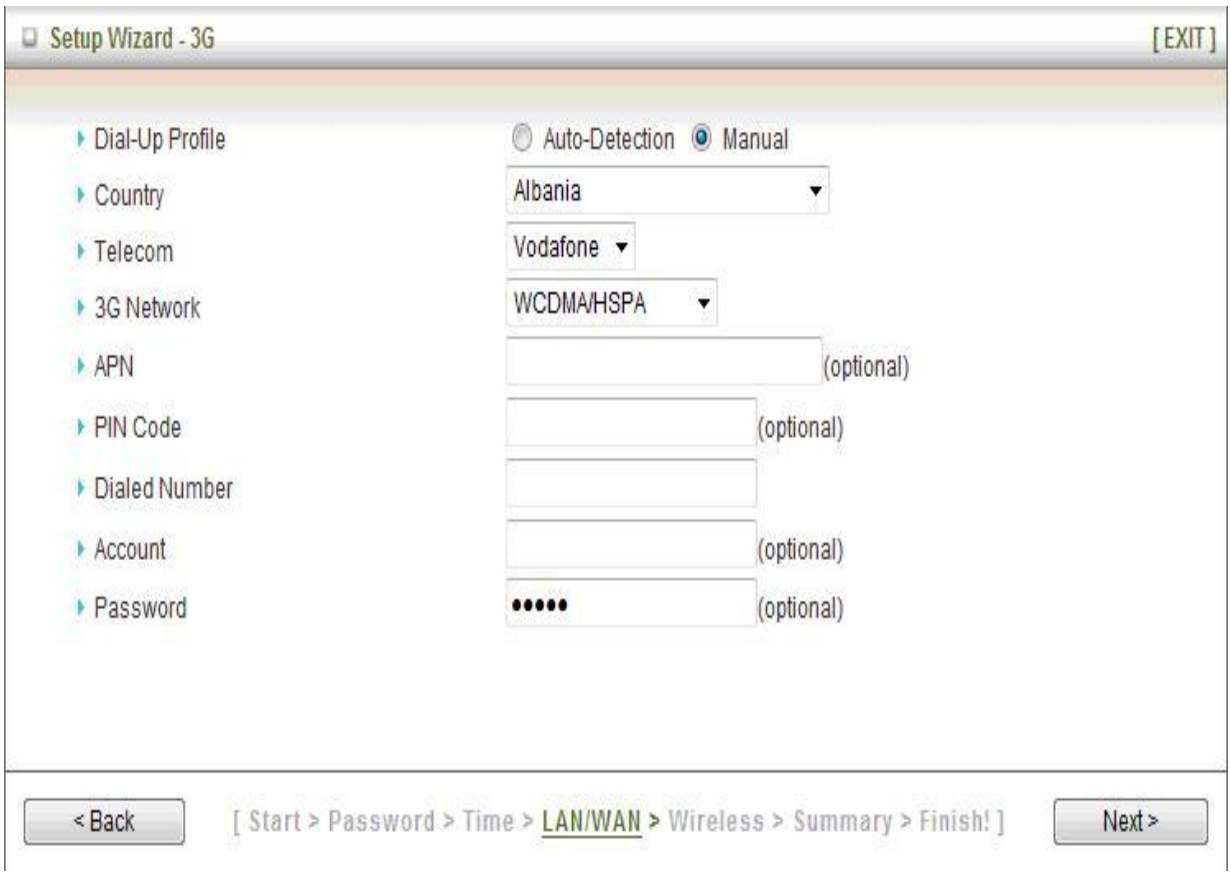


Step 4. 3G WAN type

Select “Auto Detection” Dial-up Profile, and the Utility will try to detect and configure the

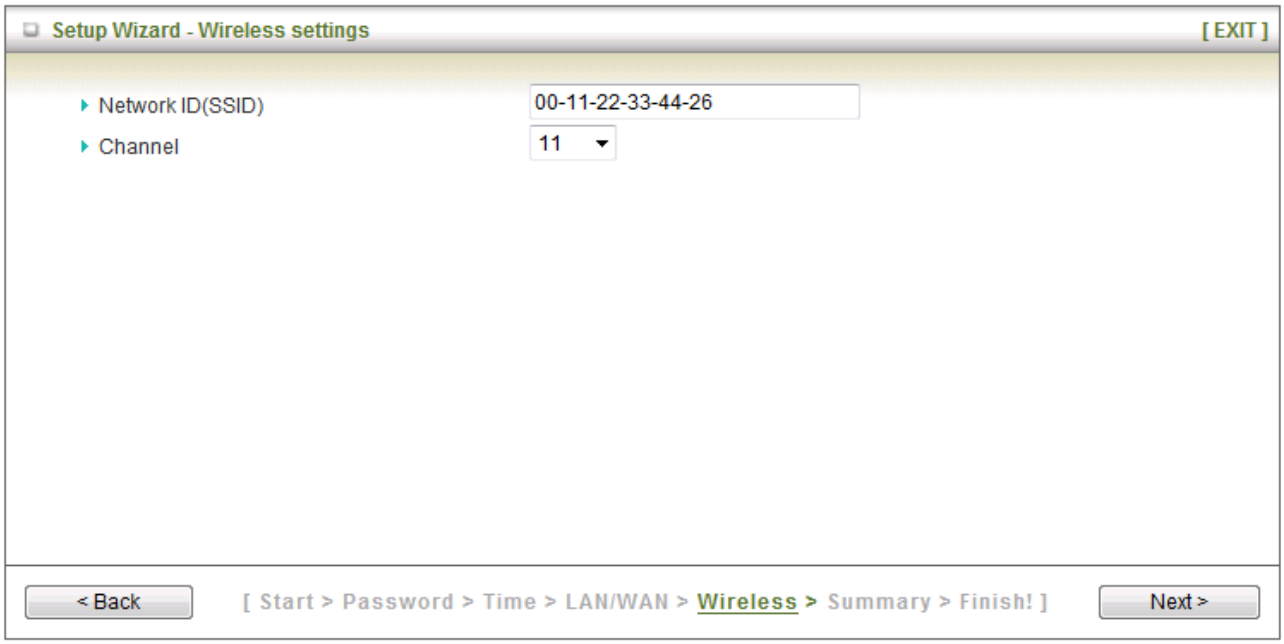
required 3G service settings automatically. Or you can select “Manual” and manually fill in the required 3G service settings provided by your ISP.

Default PIN Code is empty, if you have PIN Code, you must enter it.



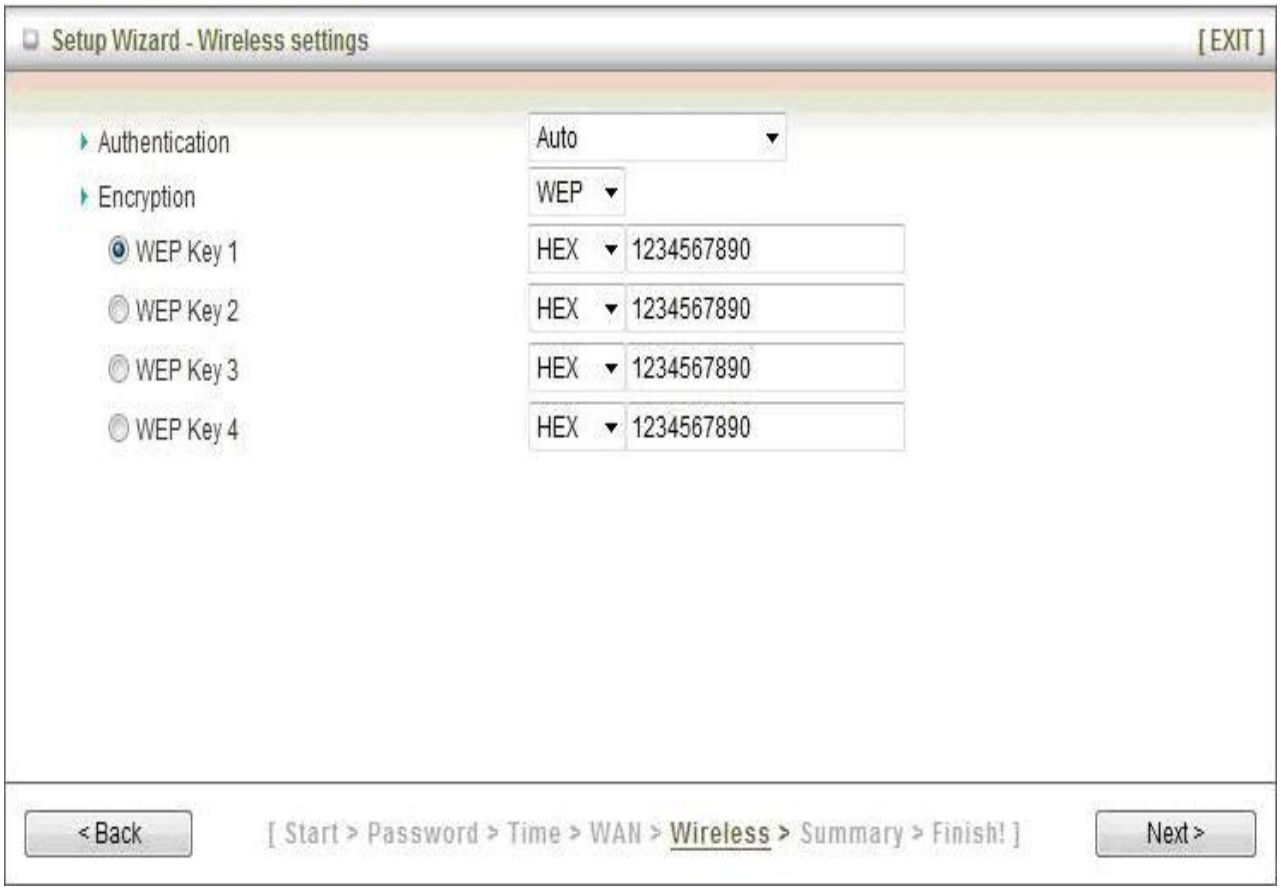
Step 5. Set up your Wireless Network.

Set up your SSID.



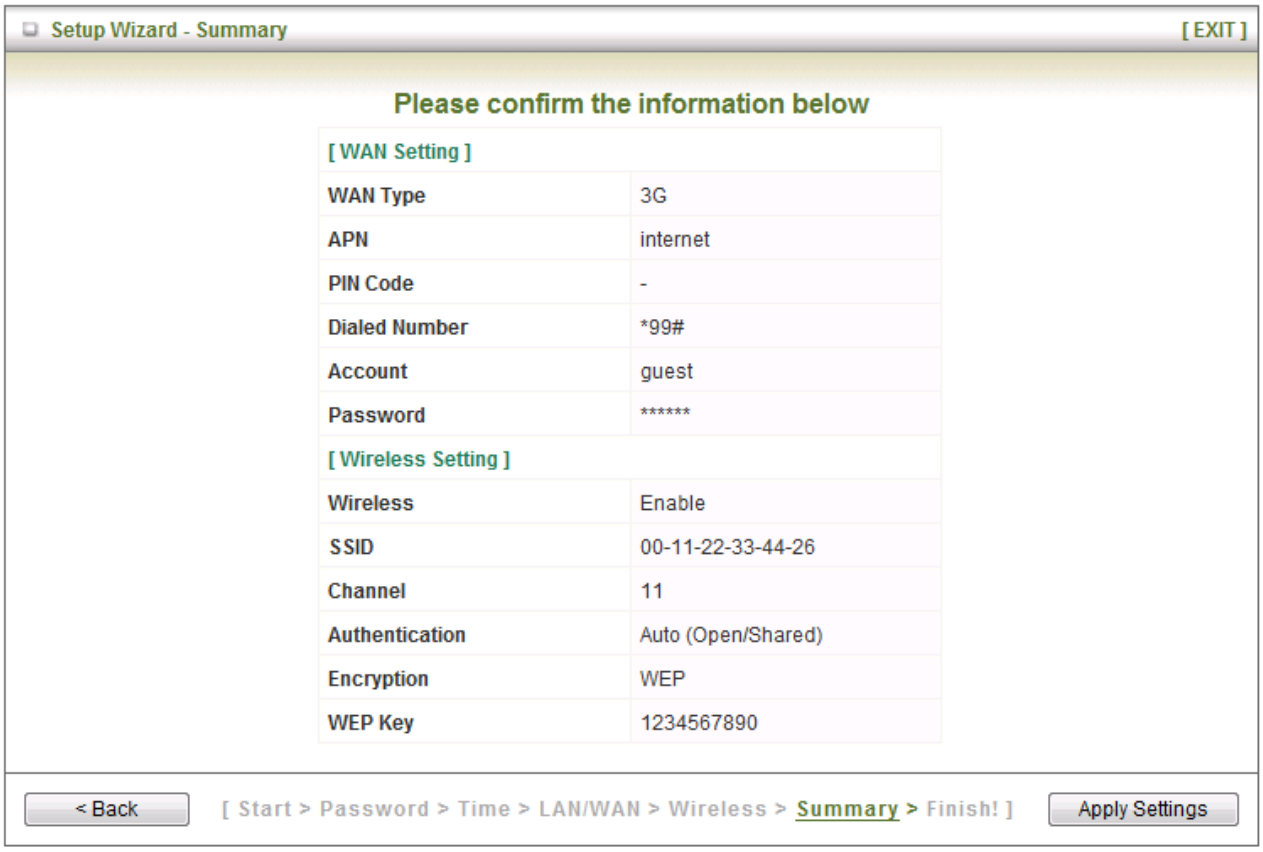
Step 6. Set up Wireless Security.

Set up your Authentication and Encryption.

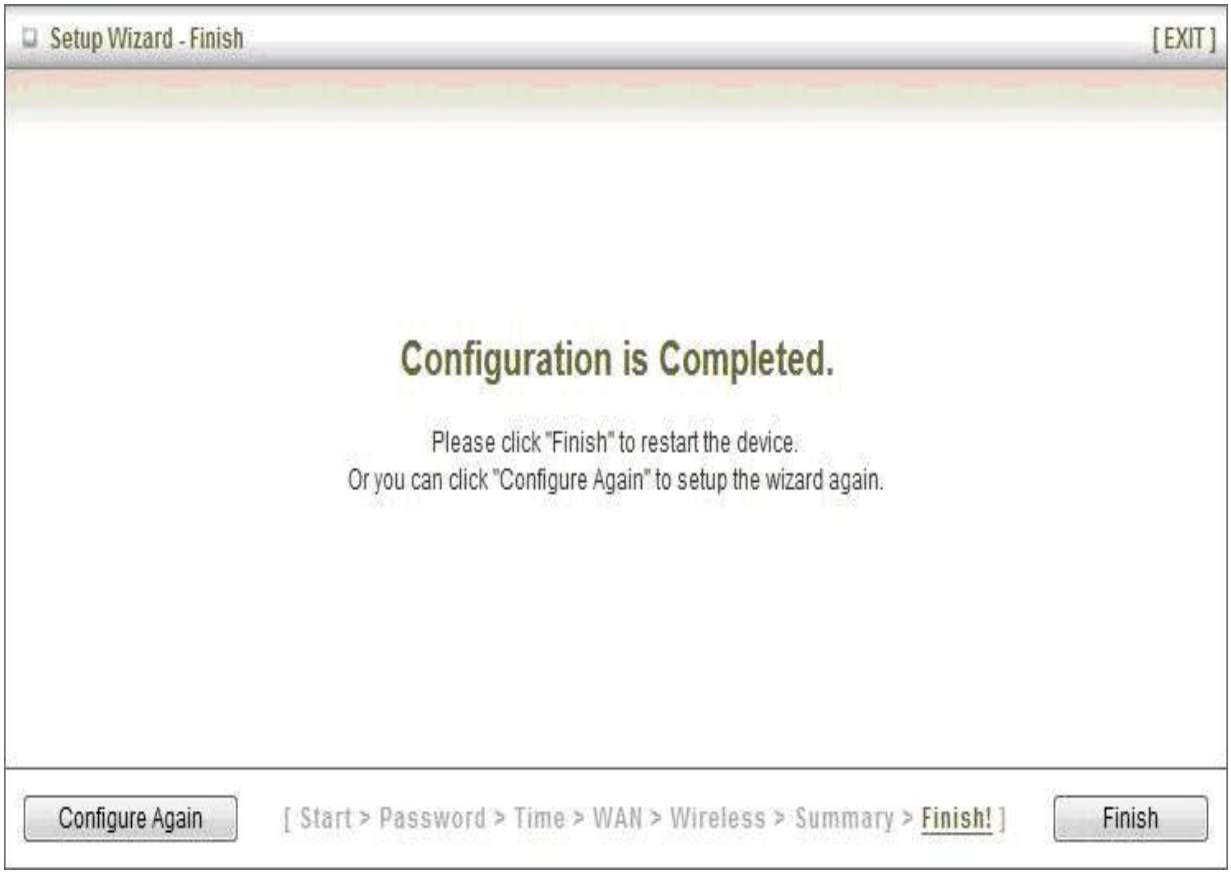


Step 7. Apply your Setting.

Then click Apply Setting.



Step 8. Click Finish to complete it.



3 Making Configuration

3.1 Advanced

3.1.1 Basic Setting

- **Network Setup**

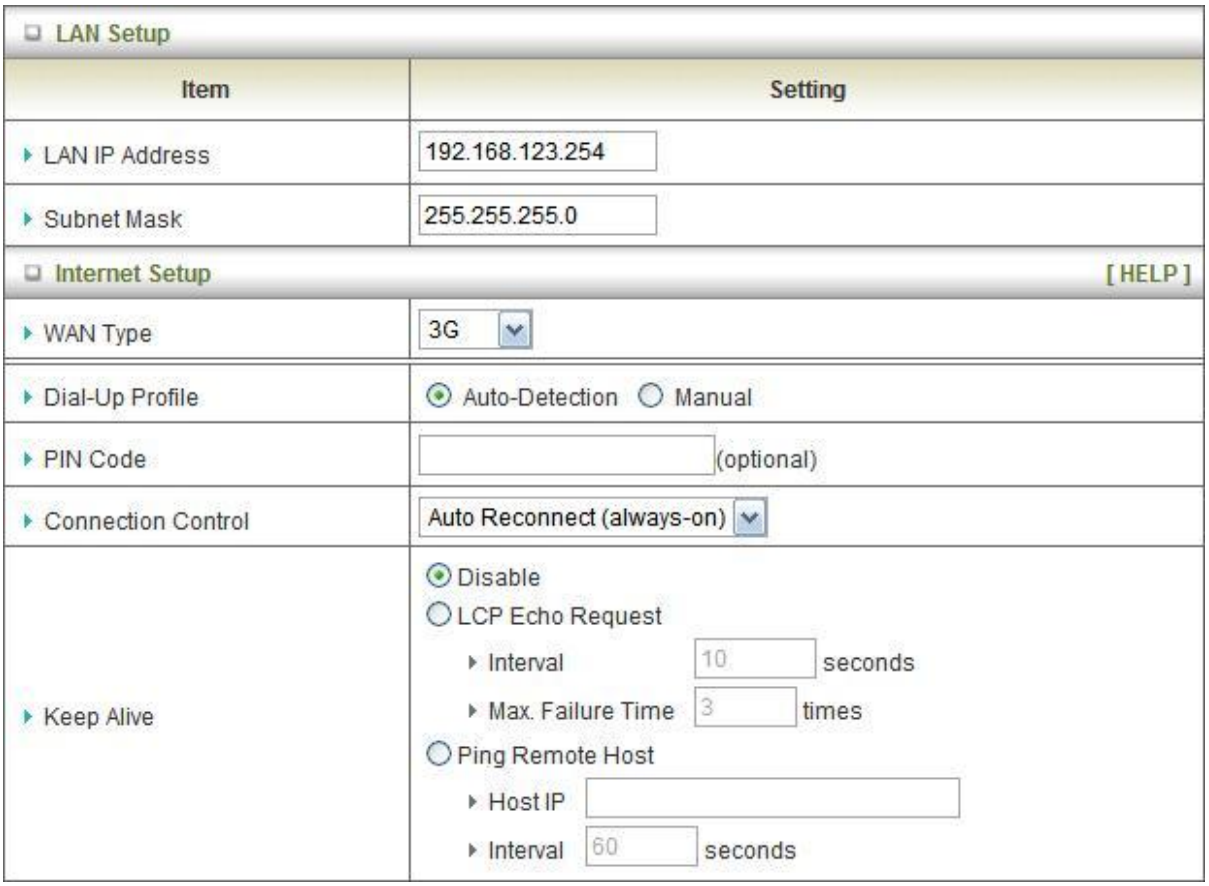
LAN Setup

(1). LAP IP Address: the local IP address of this device. The computers on your network must use the LAN IP address of your product as their Default Router. You can change it if necessary.

(2). Subnet Mask: insert **255.255.255.0**

Internet Setup

This device supports different WAN types of connection for users to connect to remote wireless ISP, such as HSPA-3G or Wi-Fi Hotspot.



3G WAN Types: The WAN fields may not be necessary for your connection. The information on this page will only be used when your service provider requires you to enter a User Name and Password to connect with the 3G network.

Please refer to your documentation or service provider for additional information.

1. Dial-Up Profile: Please select Auto-Detection or Manual to continue.

   You can Select “Auto-Detection”, and the Utility will try to detect and configure the required 3G service settings automatically. Or you can select “Manual” and manually fill in the required 3G service settings provided by your ISP.

2. Country: select your country.
3. Telecom: select your telecom.
4. 3G Network: select the 3G Network
5. APN: Enter the APN for your PC card here.(Optional)
6. Pin Code: Enter the Pin Code for your SIM card(Optional)
7. Dial-Number: This field should not be altered except when required by your service provider.
8. Account: Enter the new User Name for your PC card here, you can contact to your ISP to get it.
9. Password: Enter the new Password for your PC card here, you can contact to your ISP to get it.
10. Authentication: Choose your authentication.
11. Primary DNS: This feature allows you to assign a Primary DNS Server, contact to your ISP to get it.
12. Secondary DNS: This feature allows you to assign a Secondary DNS Server, you can contact to your ISP to get it.

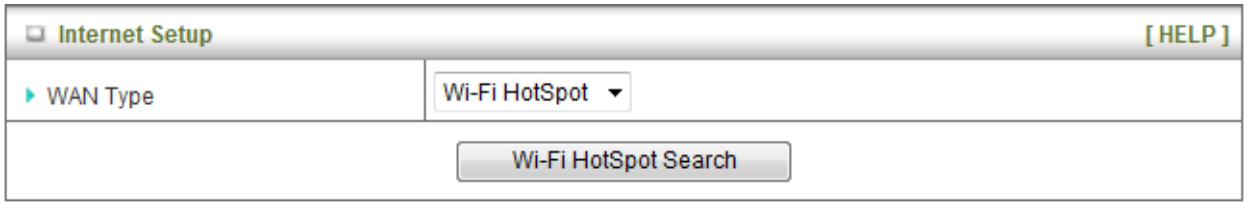
13. Connection Control: There are 3 modes to select:

    Connect-on-demand: The device will link up with ISP when the clients send outgoing packets.

    Auto Reconnect (Always-on): The device will link with ISP until the connection is established.

    Manually: The device will not make the link until someone clicks the Connect-button in the Status-page.

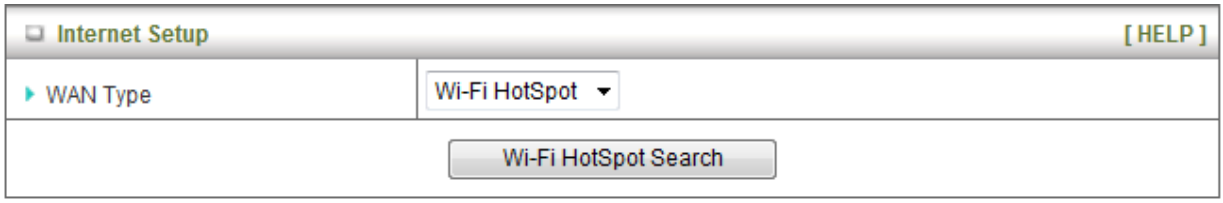
14. Keep Alive: you can diagnose your connection by it.



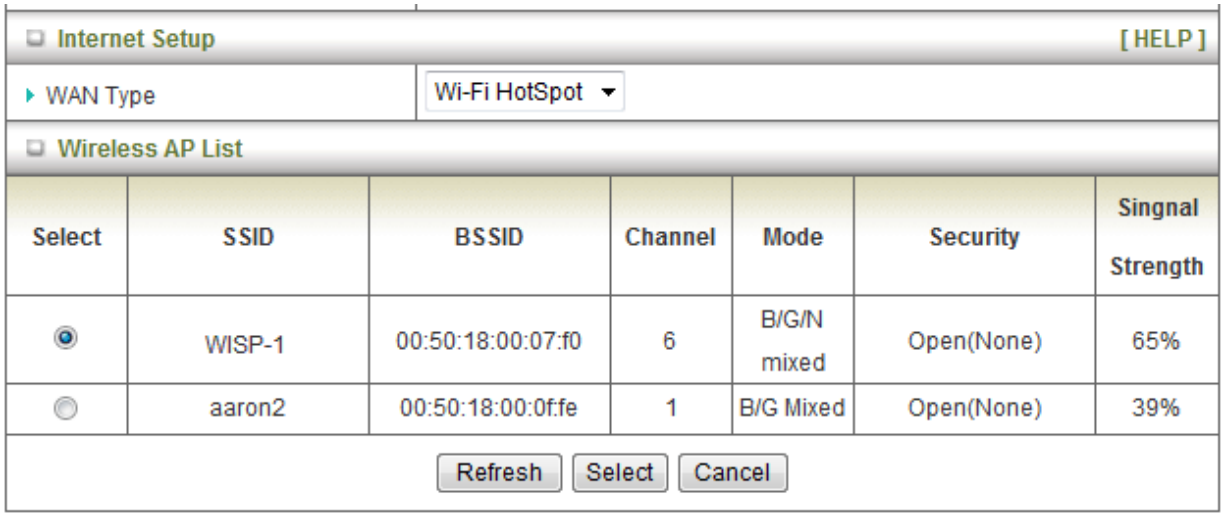
Wi-Fi HotSpot Types: This WAN type allows you to share one Wi-Fi Hotspot account with your friends or colleagues. Local clients connect to this device via Wi-Fi connection, and surfing Internet by connecting to remote Wi-Fi Hotspot. Just follow a few steps below to connect to remote Wi-Fi HotSpot.

Note. If choosing Wi-Fi HotSpot WAN type, the wireless channel of WLAN will be set to as same as wireless channel of remote Wi-Fi HotSpot.

Step 1: Click “Wi-Fi HotSpot” Search” button to search any available Wi-Fi Hotspot or Wi-Fi AP (Access Point) in your environment.

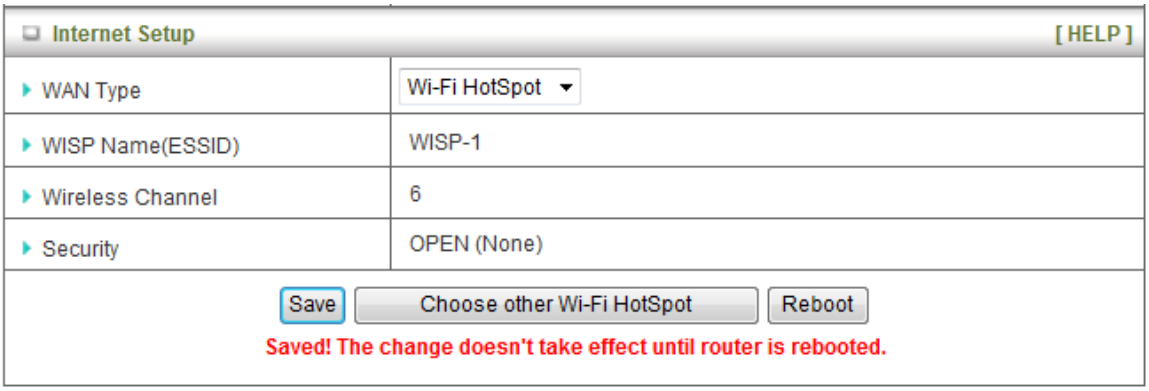


Step 2: After finish searching, it will list all available Wi-Fi APs in your environment. You can select one of the lists to start to connect, or press “Refresh” button to search again.

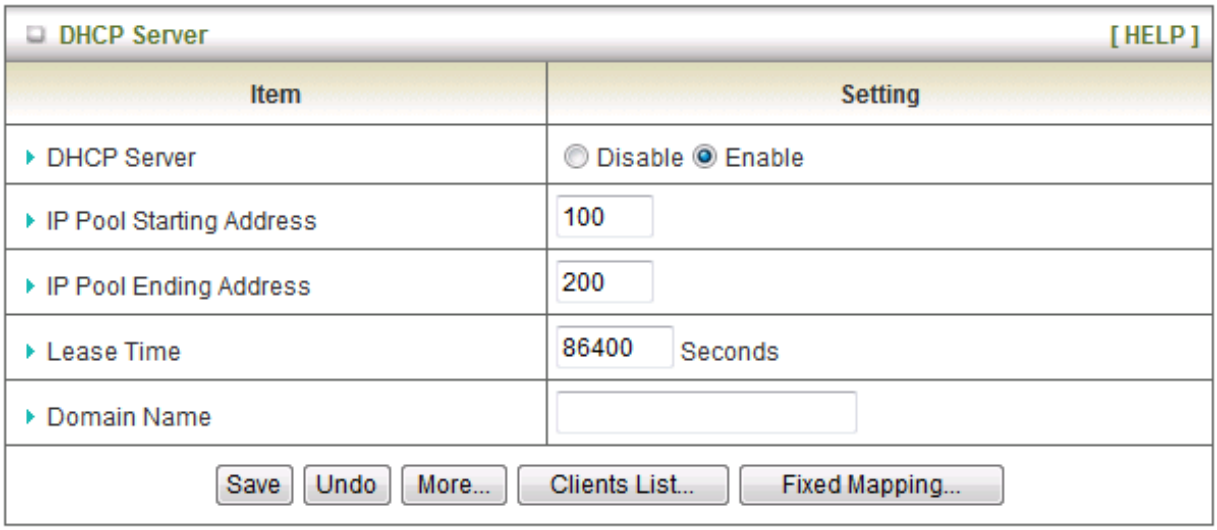


Step 3: Click “Save” button to save settings after selecting. There will be a field here for you to input encryption key if remote Wi-Fi Hotspot or Wi-Fi AP requires.

Step 4: Click “Reboot” button to restart device to take new settings effective.



- **DHCP Server**



Press **"More…"** for more options,

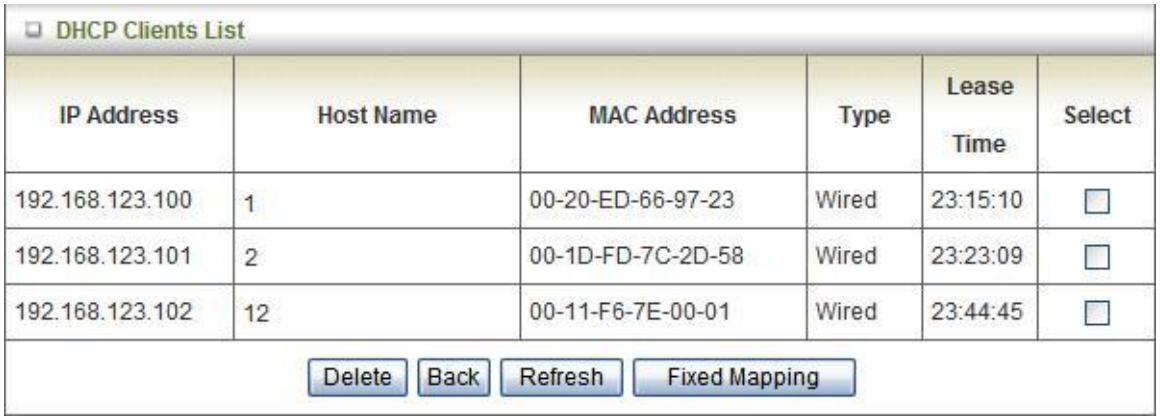
1. **DHCP Server:** Choose either **Disable** or **Enable**
2. **Lease Time:** DHCP lease time to the DHCP client
3. **IP Pool Starting/Ending Address:** Whenever there is a request, the DHCP server will automatically allocate an unused IP address from the IP address pool to the requesting computer. You must specify the starting / ending address of the IP address pool
4. **Domain Name:** Optional, this information will be passed to the client
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. **Router:** Optional, Router Address would be the IP address of an alternate Router.

This function enables you to assign another Router to your PC, when DHCP server offers an IP to your PC.

Click on "Save" to store your setting or click "Undo" to give up

DHCP Clients List

The list of DHCP clients shows here.



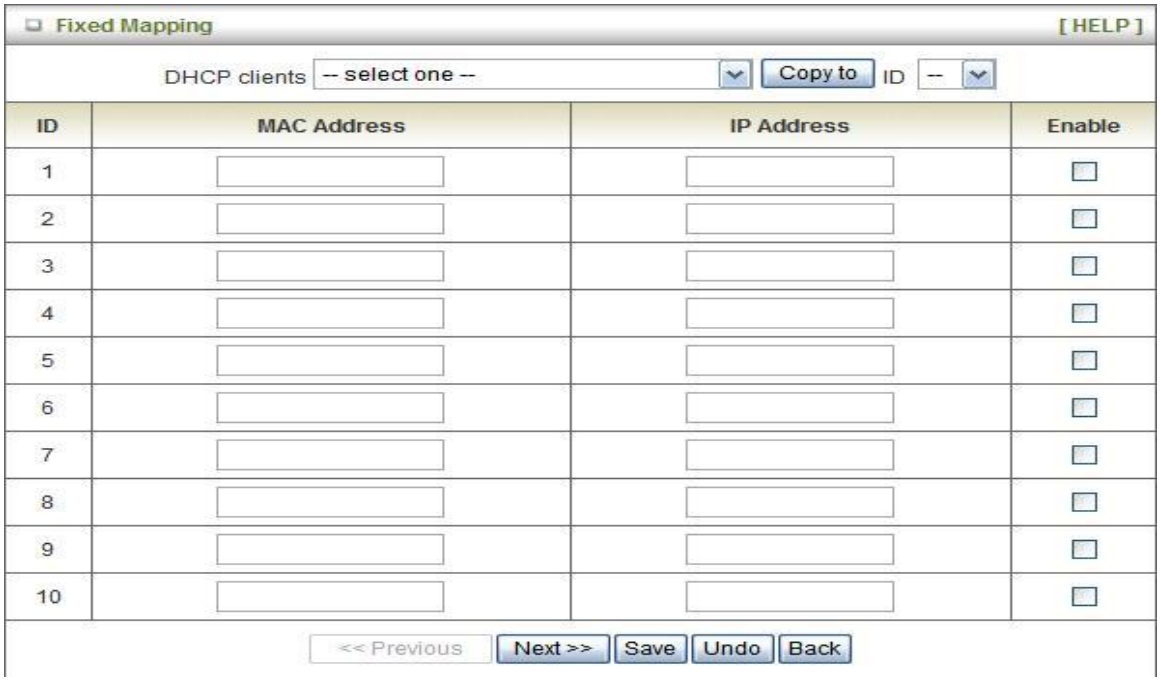
DHCP Clients List

IP Address	Host Name	MAC Address	Type	Lease Time	Select
192.168.123.100	1	00-20-ED-66-97-23	Wired	23:15:10	☐
192.168.123.101	2	00-1D-FD-7C-2D-58	Wired	23:23:09	☐
192.168.123.102	12	00-11-F6-7E-00-01	Wired	23:44:45	☐

Delete | Back | Refresh | Fixed Mapping

DHCP Fixed Mapping

The DHCP Server will reserve the special IP for special MAC address, shows below.



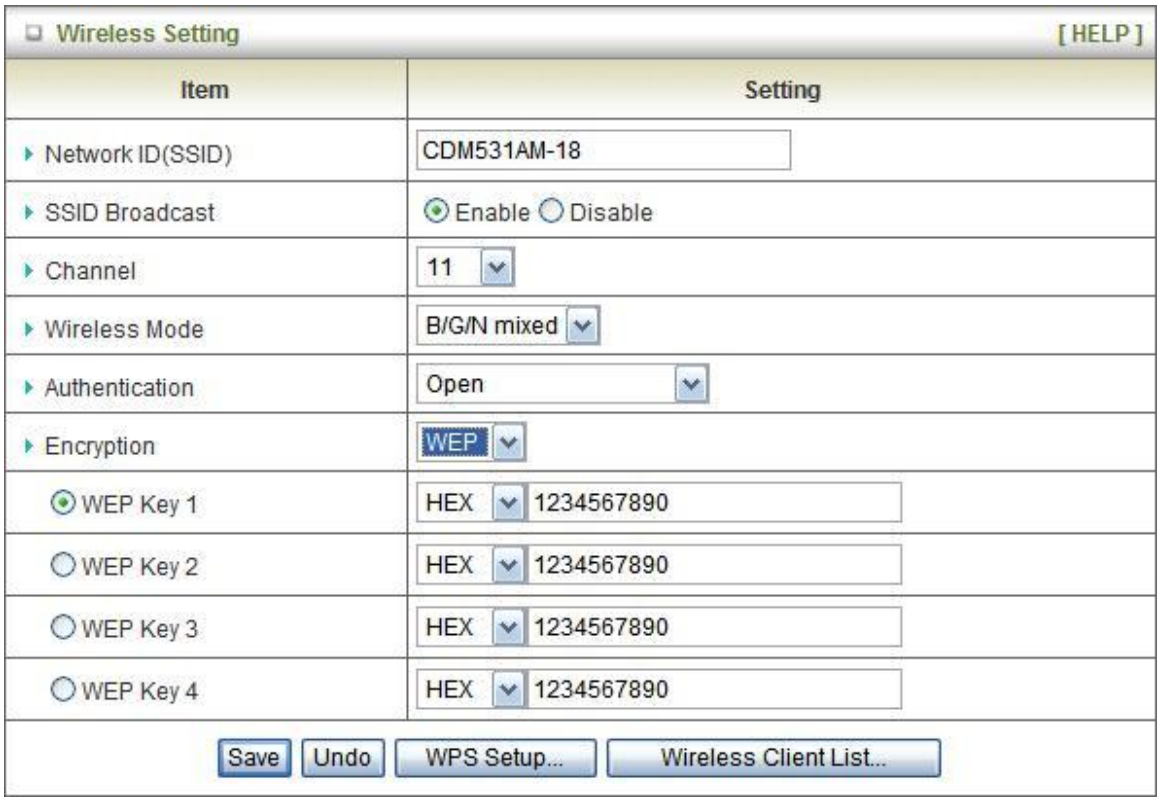
Fixed Mapping [HELP]

DHCP clients -- select one -- Copy to ID --

ID	MAC Address	IP Address	Enable
1			☐
2			☐
3			☐
4			☐
5			☐
6			☐
7			☐
8			☐
9			☐
10			☐

<< Previous | Next >> | Save | Undo | Back

- **Wireless Settings**



Wireless settings allow you to set the wireless configuration items.

1. **Wireless Operation Mode:** Choose AP mode or Client mode. The factory default setting is AP mode.
2. **Network ID (SSID):** Network ID is used for identifying the Wireless LAN (WLAN). Client stations can roam freely over this product and other Access Points that have the same Network ID. (The factory setting is “default”)
3. **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 function in the network. Therefore, this function is disabled; the wireless clients can not find the device from beacons.
4. **Channel:** The radio channel number. The permissible channels depend on the Regulatory Domain.

   The factory setting is channel 11.

5. **Wireless Mode:** Choose B/G Mixed, B only, G only, and N only, G/N Mixed or B/G/N mixed. The factory default setting is B/G/N mixed.
6. **Authentication mode:** You may select from nine kinds of authentication to secure your wireless network: Open, Shared, Auto, WPA-PSK, WPA2-PSK, and WPA-PSK/WPA2-PSK.

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.

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.

Auto

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

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, Ex 12345678

WPA-PSK2

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

WPA-PSK/WPA-PSK2

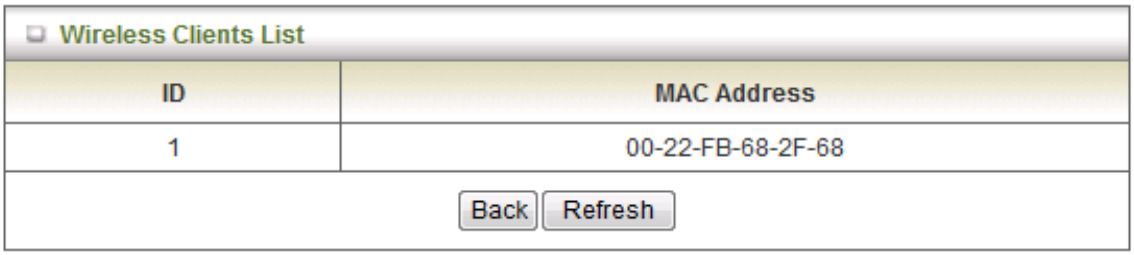
Another encryption options for WPA-PSK-TKIP and WPA-PSK2-AES, the others are same the WPA-PSK.

WPS (Wi-Fi Protection Setup)

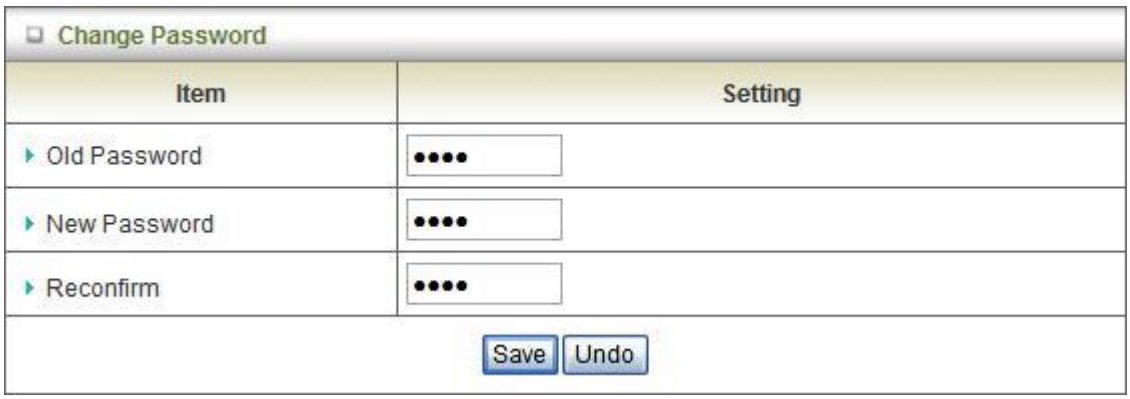
WPS is Wi-Fi Protection Setup which is similar to WCN-NET and offers safe and easy way in Wireless Connection.

Wireless Client List

The list of wireless client is shows here.



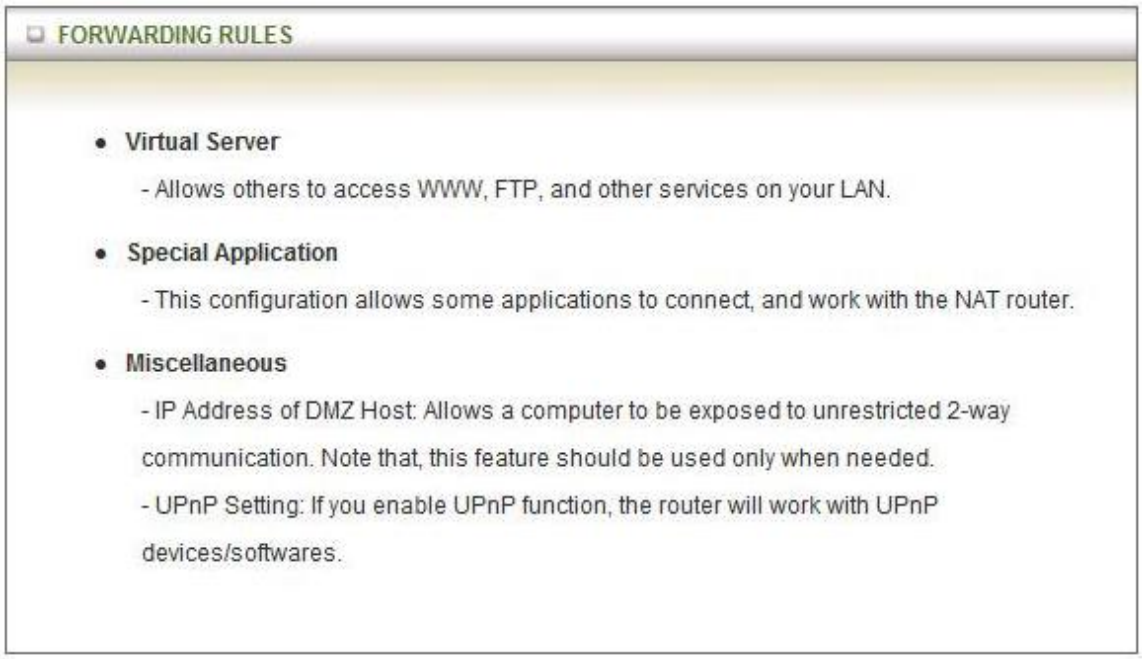
- **Change Password**



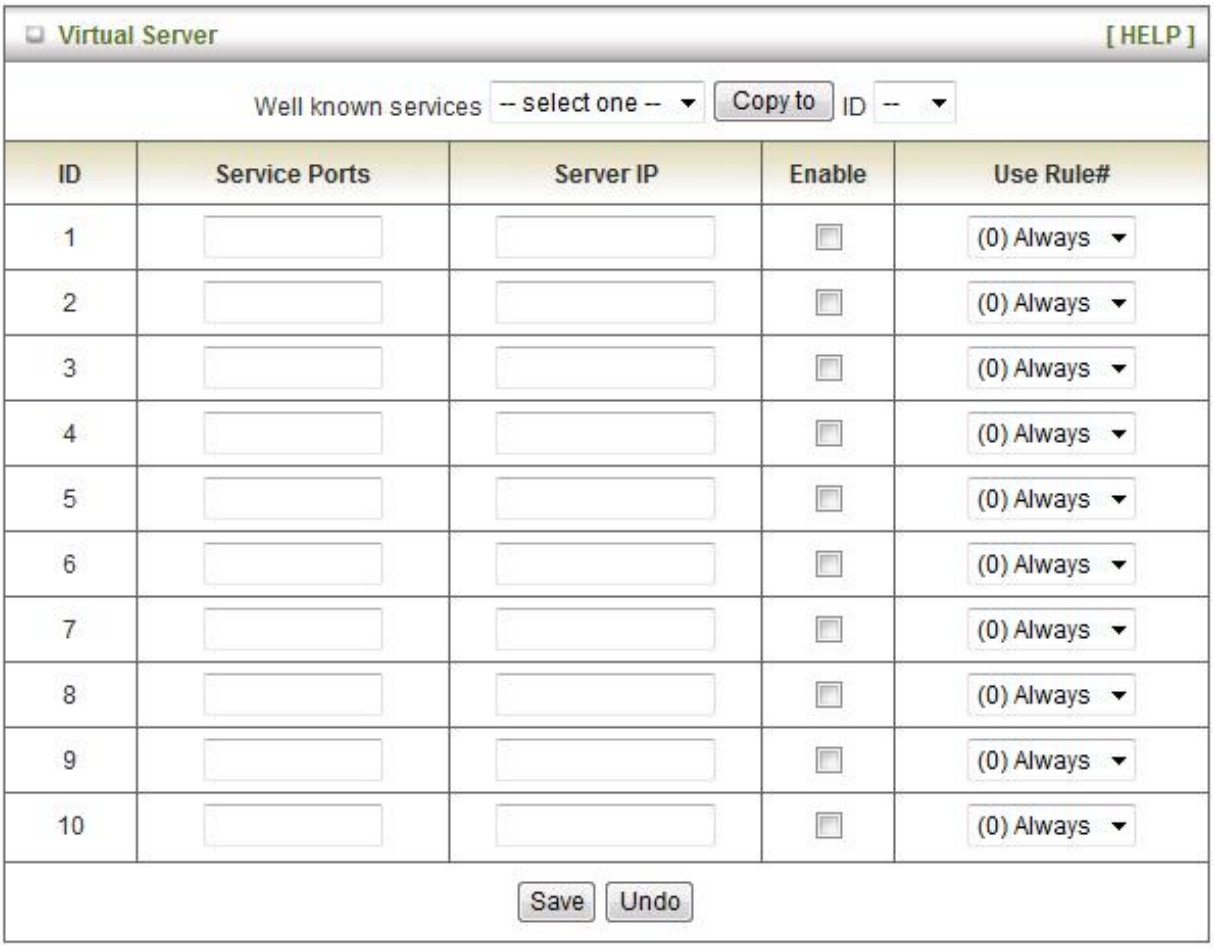
You can change Password here. We **strongly** recommend you to change the system password for security reason.

Click on "Save" to store your setting or "Undo" to give up

3.1.2 Forwarding Rules



- **Virtual Server**



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.

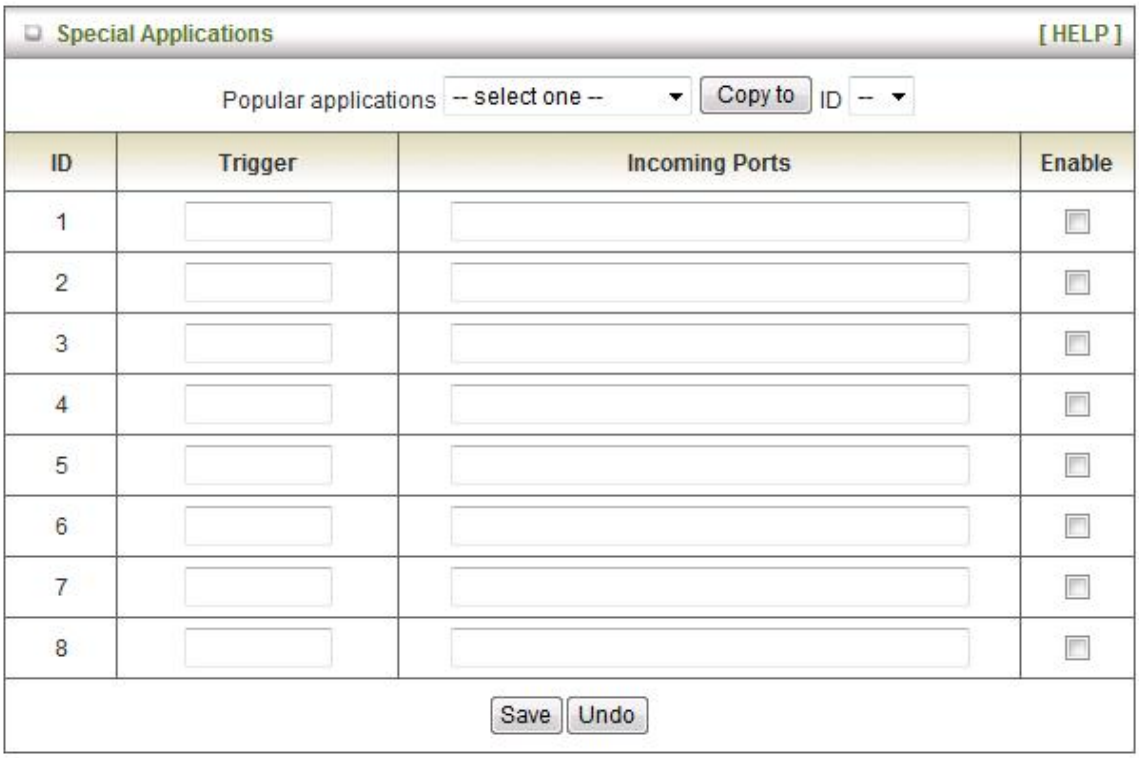
A virtual server is defined as a Service Port, and all requests to this port will be redirected to the computer specified by the Server IP. Virtual Server can work with Scheduling Rules, and give user more flexibility on Access control. For Detail, please refer to Scheduling Rule.

For example, if you have an FTP server (port 21) at 192.168.123.1, a Web server (port 80) at 192.168.123.2, and a VPN server at 192.168.123.6, then you need to specify the following virtual server mapping table:

Service Port	Server IP	Enable
21	192.168.123.1	V
80	192.168.123.2	V
1723	192.168.123.6	V

Click on “Save” to store what you just select or “Undo” to give up

- **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.

Trigger: the outbound port number issued by the application.

Incoming Ports: when the trigger packet is detected, the inbound packets sent to the specified port numbers are allowed to pass through the firewall.

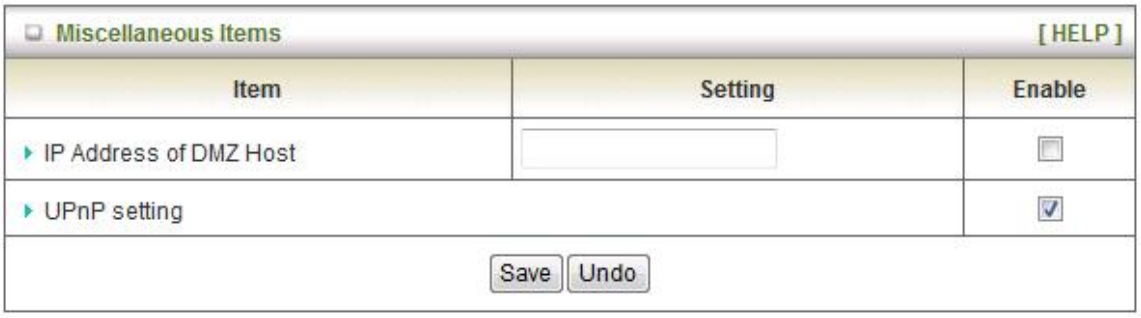
This product provides some predefined settings.

1. Select your application and
2. Click “Copy to” to add the predefined setting to your list.

Note! At any given time, only one PC can use each Special Application tunnel.

Click on “Save” to store what you just select or” Undo” to give up

- **Miscellaneous**



1. IP Address of DMZ Host

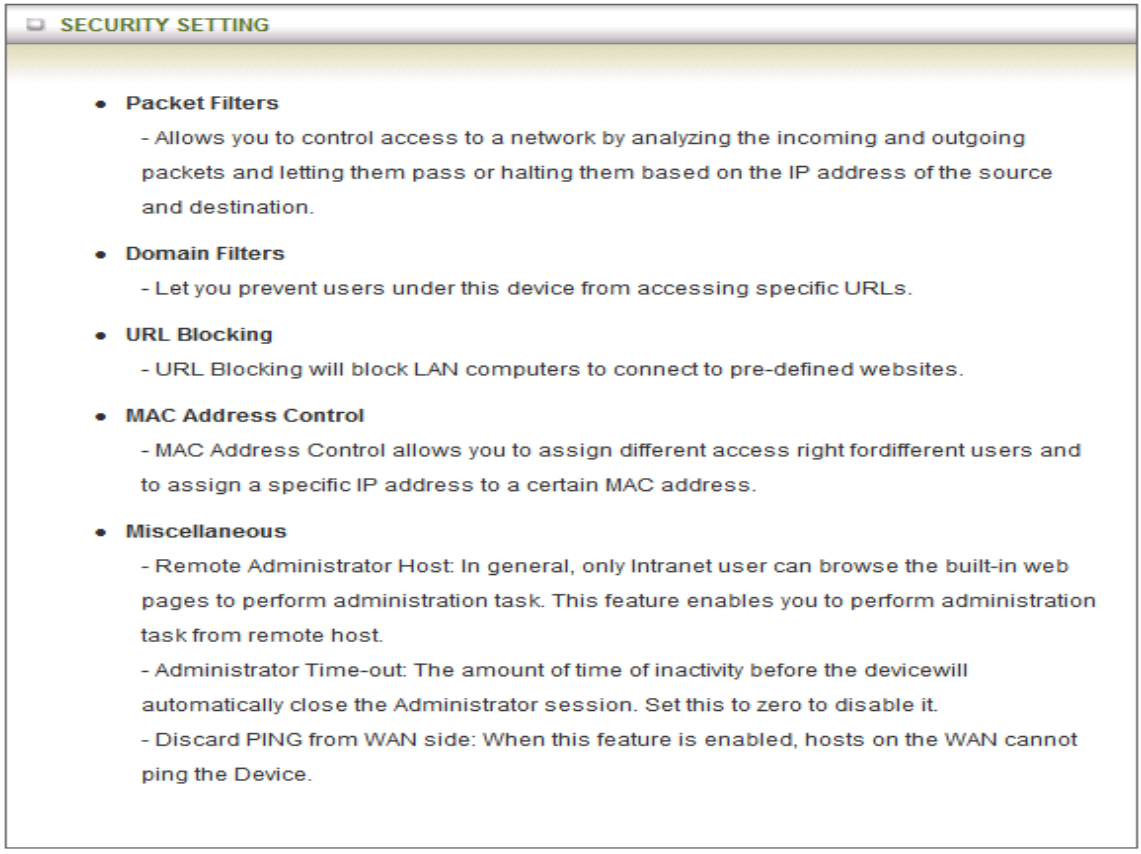
DMZ (Demilitarized Zone) Host is a host without the protection of firewall. It allows a computer to be exposed to unrestricted 2-way communication for Internet games, Video conferencing, Internet telephony and other special applications.

2. UPnP Setting

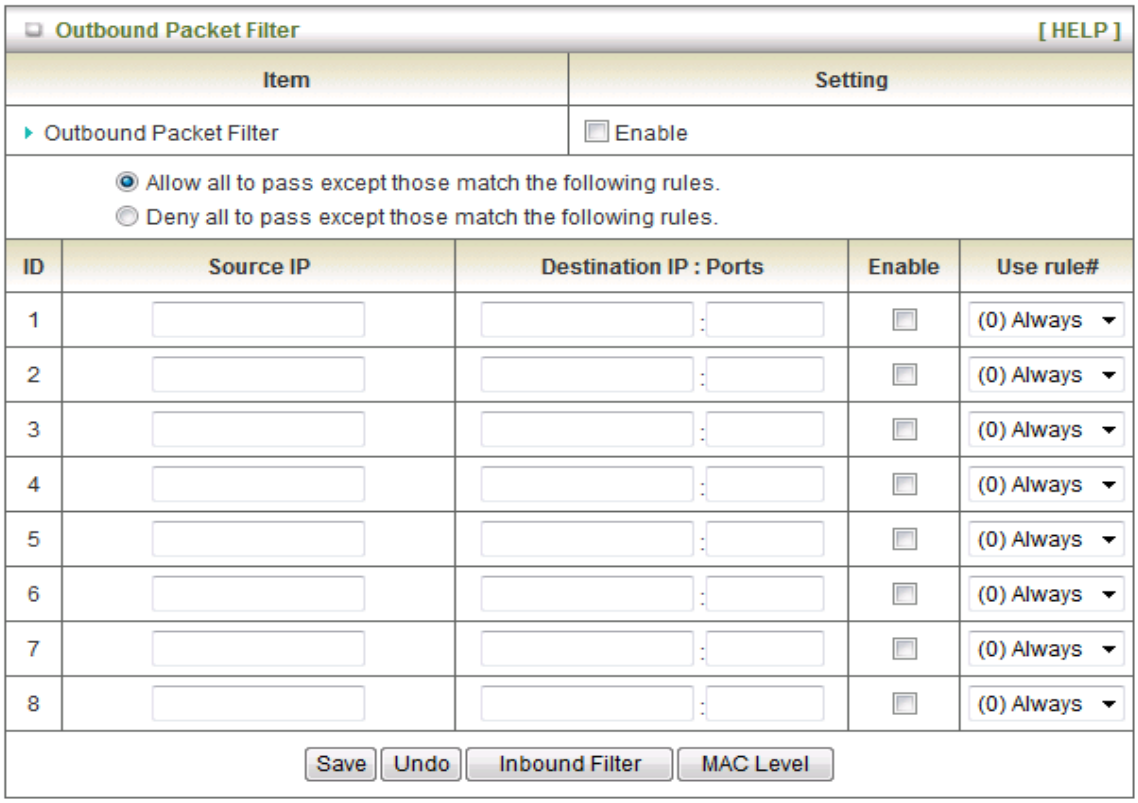
The device also supports this function. If the OS supports this function enable it, like Windows XP. When the user gets IP from Device and will see icon as below:

Click on “Save” to store what you just select or “Undo” to give up

3.1.3 Security Setting



- **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

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

- Source IP address
- Source port
- Destination IP address
- Destination port
- Protocol: TCP or UDP or both.
- 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 setting or “Undo” to give up

- **Domain Filters**

Domain Filter [HELP]

Item	Setting
Domain Filter	Enable
Log DNS Query	Enable
Privilege IP Addresses Range	From To

ID	Domain Suffix	Action	Enable
1		Drop Log	
2		Drop Log	
3		Drop Log	
4		Drop Log	
5		Drop Log	
6		Drop Log	
7		Drop Log	
8		Drop Log	
9		Drop Log	
10	* (all others)	Drop Log	-

Save Undo

Let you prevent users under this device from accessing specific URLs.

1. **Domain Filter Enable:**

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 these access.

6. **Enable**

Check to enable each rule.

Click on “Save” to store what you just select or “Undo” to give up

- **URL Blocking**

URL Blocking [HELP]

Item	Setting
URL Blocking	Enable

ID	URL	Enable
1		
2		
3		
4		
5		
6		
7		
8		
9		
10		

Save Undo

URL Blocking will block LAN computers to connect with pre-define Websites. The major difference between “Domain filter” and “URL Blocking” is Domain filter require user to input suffix (like .com or .org, etc), while URL Blocking require 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**.

1. **URL Blocking Enable**

Check if you want to enable URL Blocking.

2. **URL**

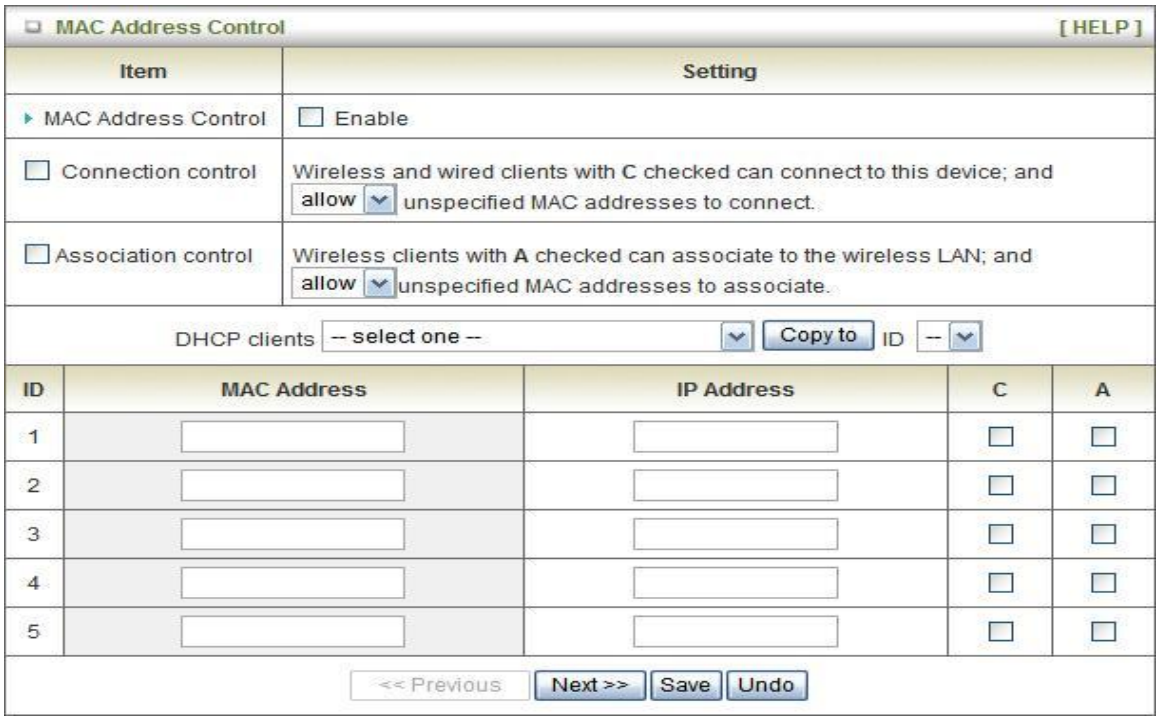
If any part of the Website's URL matches the pre-defined word, the connection will be blocked.
For example, you can use pre-defined word "sex" to block all websites if their URLs contain pre-defined word "sex".

3. **Enable**

Check to enable each rule.

Click on “Save” to store your setting or “Undo” to give up

- **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.

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**

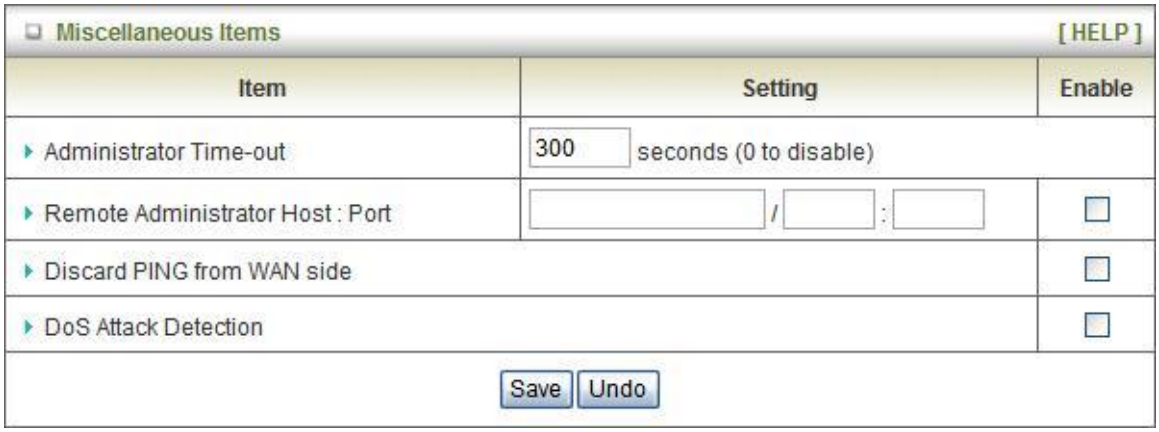
Check "Connection control" to enable the controlling of which wired and wireless clients can connect with this device. If a client is denied to connect with this device, it means the client can't access to the Internet either. Choose "allow" or "deny" to allow or deny the clients, whose MAC addresses 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 “Save” to store your setting or “Undo” to give up

- **Miscellaneous**



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**

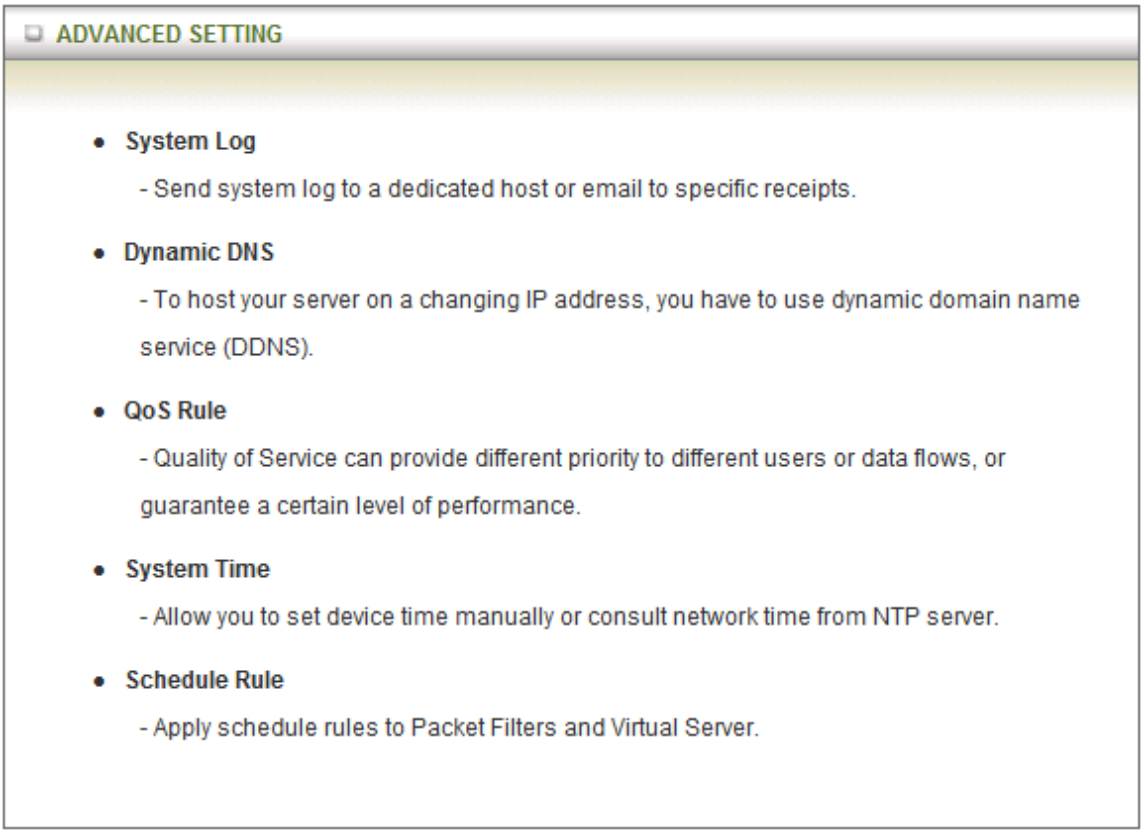
When this feature is enabled, any host on the WAN cannot ping this product.

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.

Click on “Save” to store your setting or” Undo” to give up

3.1.4 Advanced Settings



- **Status**

System Time				[Modify]
Item	**Status**			
System Time	Thu, 01 Jan 2009 02:50:36 +0000			

Dynamic DNS				[Modify]
Item	**Status**			
DDNS	Disable			
Provider	-			

QoS				[Modify]
Item	**Status**			
QoS Control	Disable			
Local Client	Remote Host	Service	Priority	Working Time

- **System Log**

System Log		[HELP]
Item	**Setting**	**Enable**
IP address for syslogd		☐
Setting of Email alert		☐
• SMTP Server : port	:	
• SMTP Username		
• SMTP Password		
• E-mail addresses		
• E-mail subject		
Save Undo View Log... Email Log Now		

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:

IP Address for Syslogd

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

Setting of Email alert

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

Check **Enable** to enable this function.

SMTP Server IP and 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".

SMTP Username and password

Input a user account and password for the SMTP server.

E-mail address

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

E-mail Subject

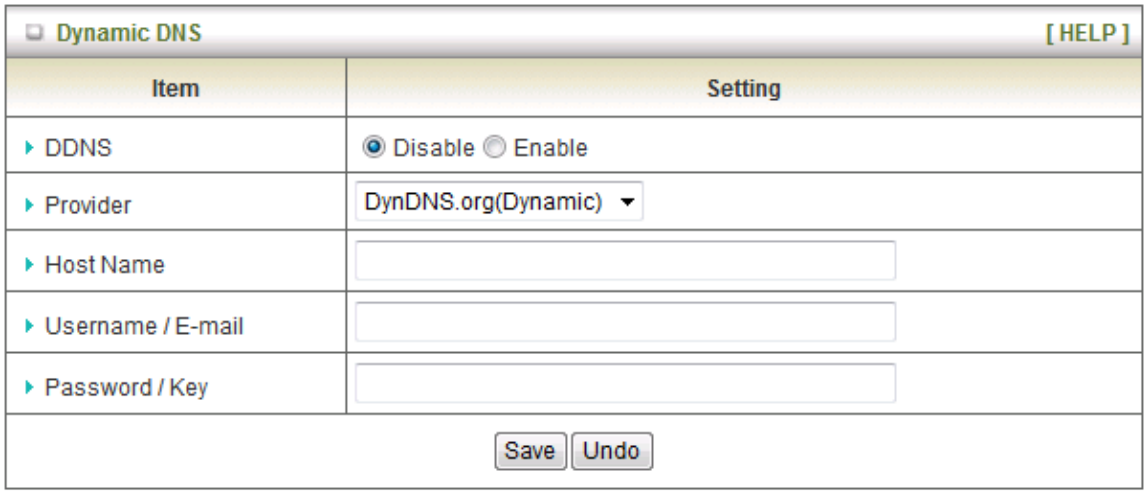
The subject of email alert, this setting is optional.

View Log…

Reference the section Toolbox ->System Info.

Click on "Save" to store your setting or "Undo" to give up

- **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.

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

To enable Dynamic DNS click the check box next to Enable in the DDNS field.

Next you can enter the appropriate information about your Dynamic DNS Server.

You have to define:

Provider

Host Name

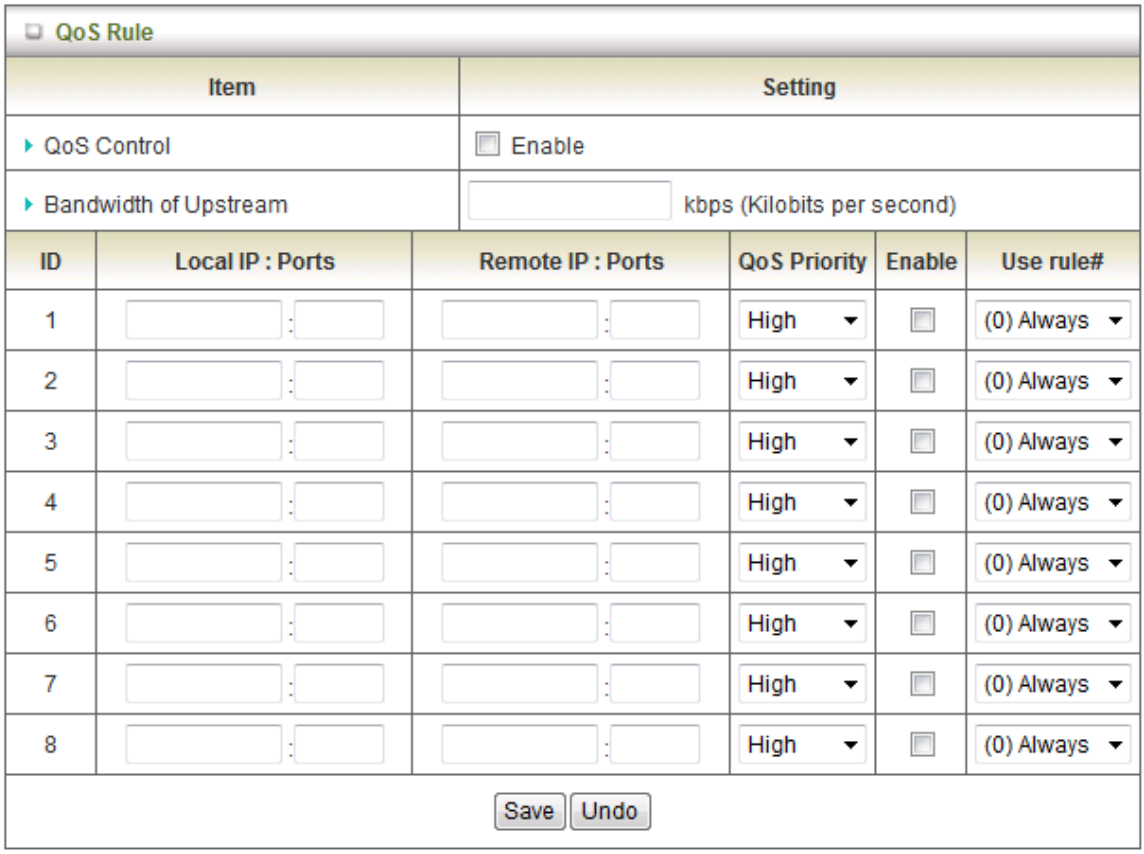
Username/E-mail

Password/Key

You will get this information when you register an account on a Dynamic DNS server.

Click on “Save” to store what you just select or “Undo” to give up

- **QoS**



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

1. **Enable**

This Item enables QoS function or not.

2. **Bandwidth** of Upstream

Set the limitation of upstream speed.

3. **Local**: IP

Define the Local IP address of packets here.

4. **Local**: Ports

Define the Local port of the packets in this field.

5. **Remote**: IP

Define the Remote IP address of packets here.

6. **Remote**: Ports

Define the Remote port of the packets in this field.

7. QoS **Priority**

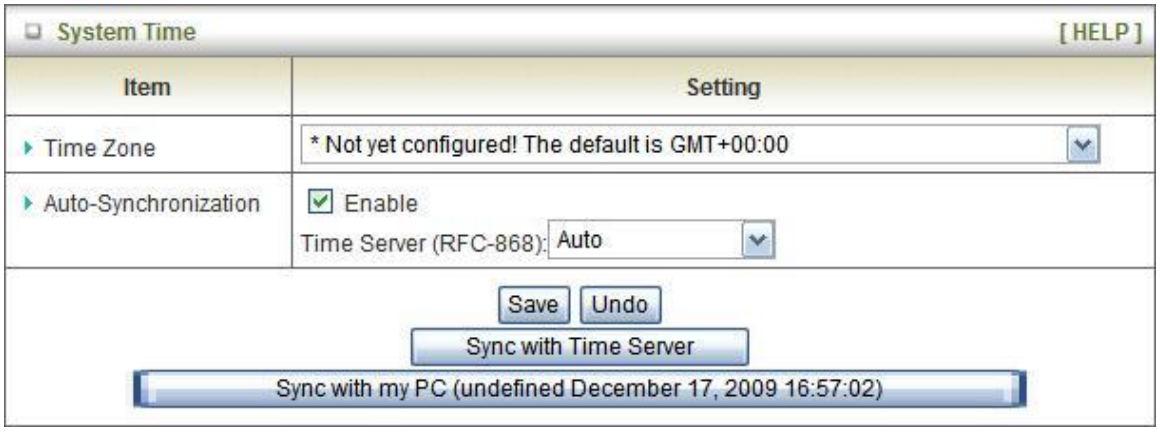
This defines the priority level of the current Policy Configuration. Packets associated with this policy will be serviced based upon the priority level set. For critical applications High or Normal levels are recommended. For non-critical applications select a Low level.

8. **User** Rule#

The QoS item can work with Scheduling Rule number#. Please reference the section “schedule”.

Click on “Save” to store what you just select or “Undo” to give up

- System Time



Time Zone

Select a time zone where this device locates.

Auto-Synchronization

Select the “Enable” item to enable this function.

Time Server

Select a NTP time server to consult UTC time

Sync with Time Server

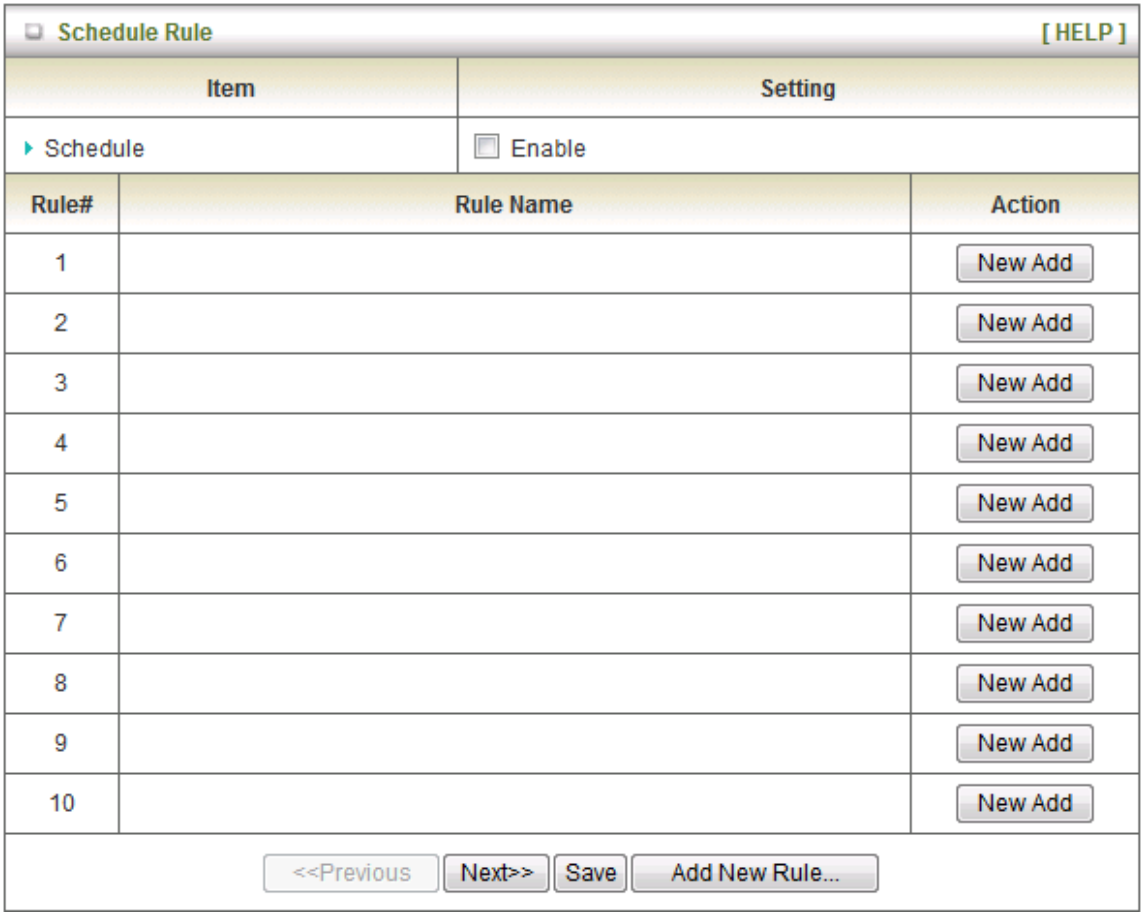
Select if you want to set Date and Time by NTP Protocol.

Sync with my PC

Select if you want to set Date and Time using PC’s Date and Time

Click on “Save” to store your setting or “Undo” to give up.

- **Schedule Rule**

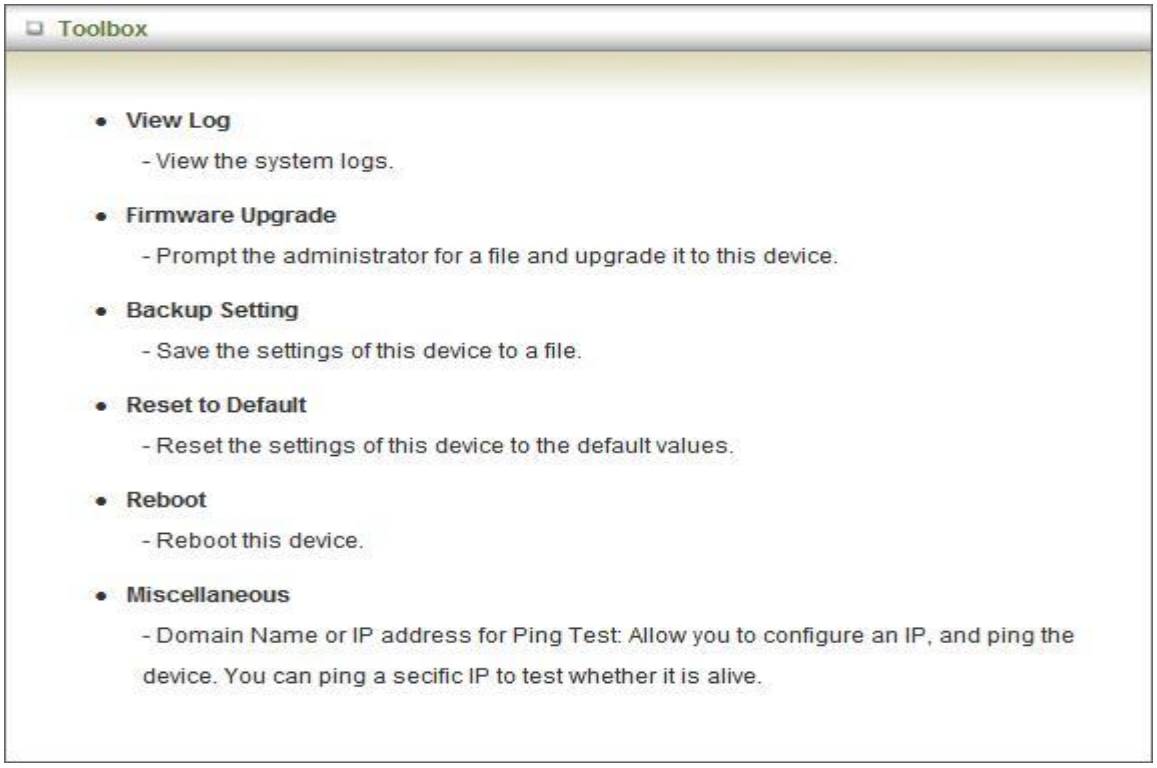


You can set the schedule time to decide which service will be turned on or off.

Select the “Enable” item. Press “Add New Rule” You can write a rule name and set which day and what time to schedule from “Start Time” to “End Time”. The following example configure “ftp time” as everyday 14:10 to 16:20

Click on “Save” to store what you just select.

3.1.5 TOOL BOX

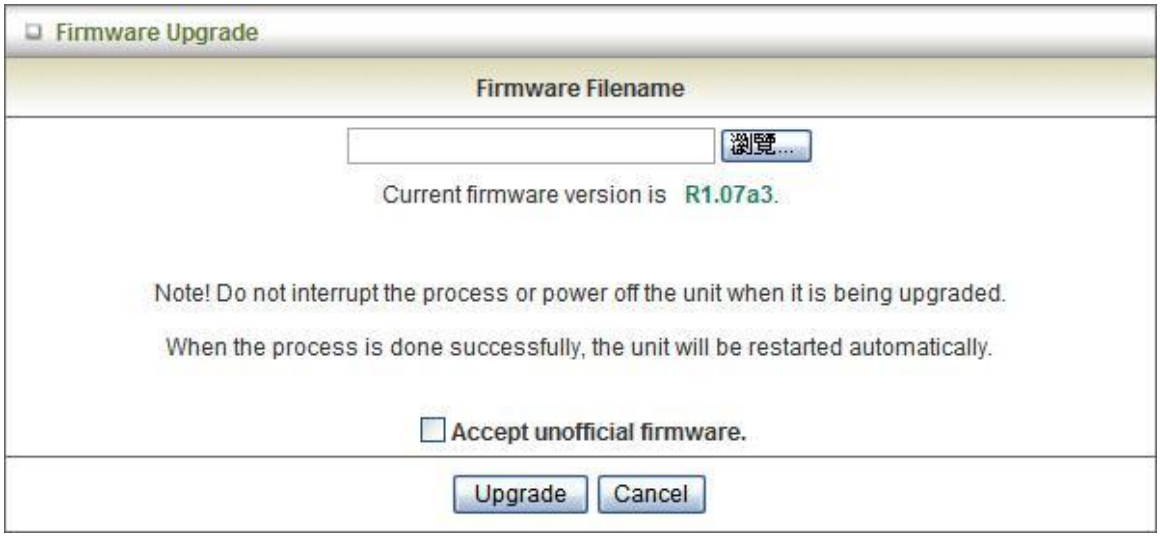

Toolbox
View Log
- View the system logs.
Firmware Upgrade
- Prompt the administrator for a file and upgrade it to this device.
Backup Setting
- Save the settings of this device to a file.
Reset to Default
- Reset the settings of this device to the default values.
Reboot
- Reboot this device.
Miscellaneous
- Domain Name or IP address for Ping Test: Allow you to configure an IP, and ping the device. You can ping a secific IP to test whether it is alive.

- **System Info**

System Infomation	
Item	**Setting**
WAN Type	3G
Display time	Thu, 01 Jan 2009 01:23:41 +0000
System Log	
Time	**Log**
Dec 31 23:59:59	kernel: klogd started: BusyBox v1.3.2 (2009-12-15 16:18:21 CST)
Jan 1 00:00:07	udhcpd[1441]: udhcpd (v0.9.9-pre) started
Jan 1 00:00:07	udhcpd[1441]: Unable to open /var/run/udhcpd.leases for reading
Jan 1 00:00:07	commander: handle_rbydom: rbydom_enable = 0
Jan 1 00:00:07	init: Starting pid 1484, console /dev/ttyS1: '/bin/ash'
Jan 1 00:00:08	commander: STOP LOCAL_WANTYPE_3G

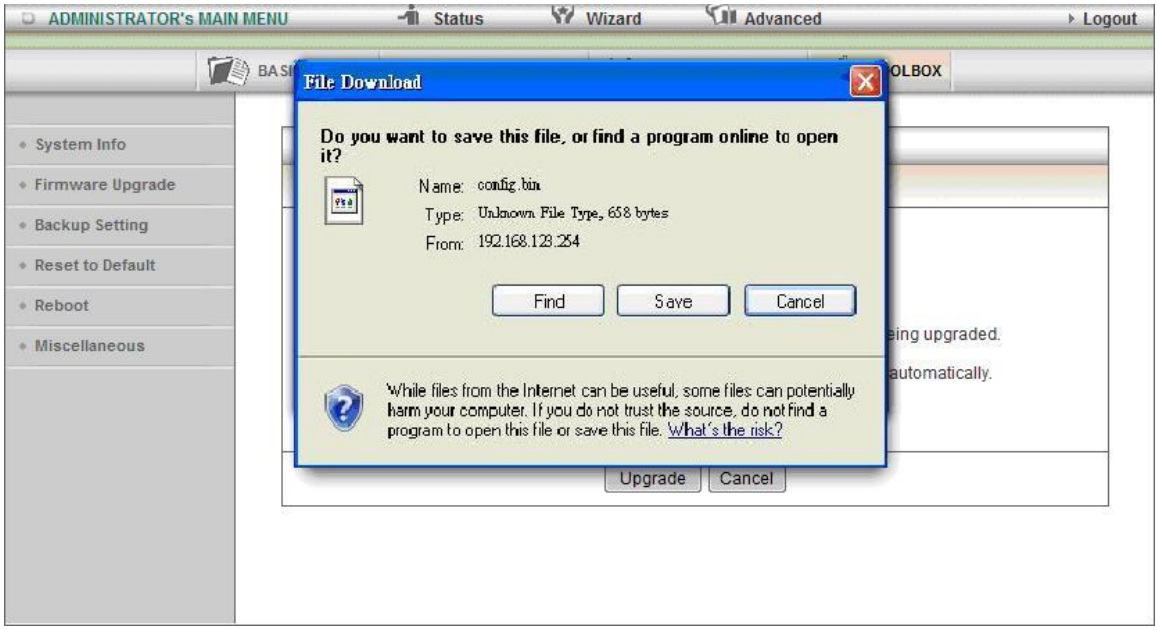
You can view the System Information and System log, and download/clear the System log, in this page.

- **Firmware Upgrade**



You can upgrade firmware by clicking “Upgrade” button.

- **Backup Setting**

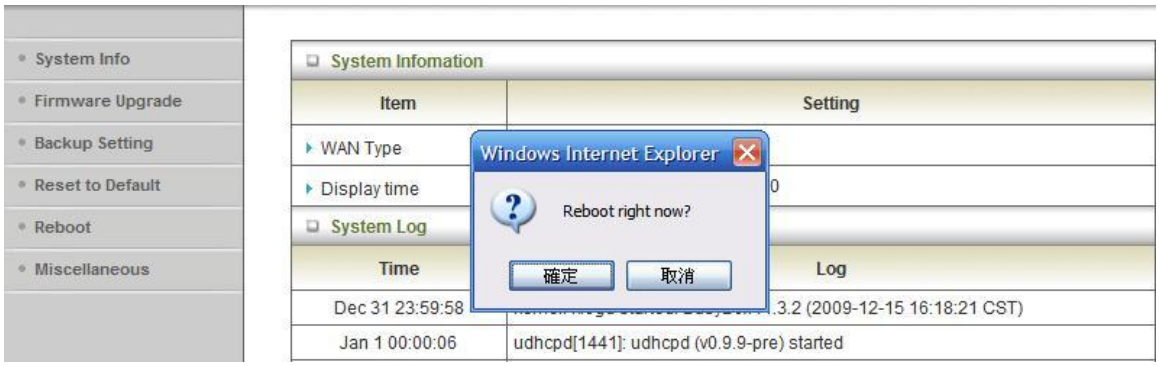


You can backup your settings by clicking the "**Backup Setting"** button and save it as a bin file. Once you want to restore these settings, please click Firmware Upgrade button and use the bin file you saved.

- **Reset to Default**

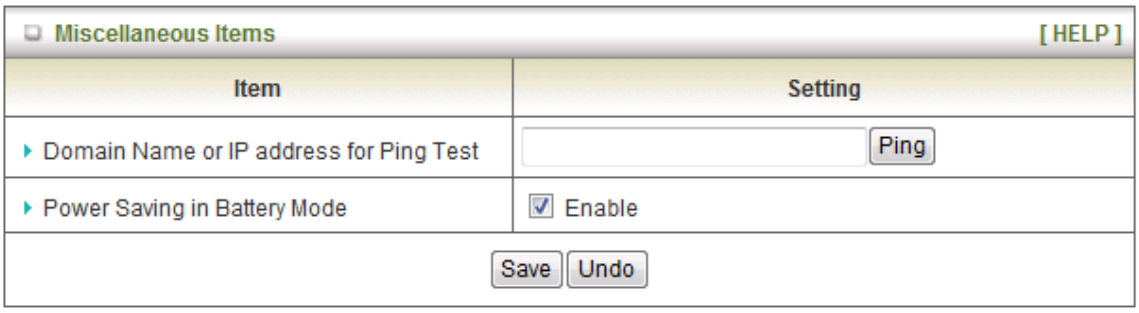
You can also reset this product to factory default by clicking the **Reset to default** button.

- **Reboot**



You can also reboot this it by clicking the **Reboot** button.

- **Miscellaneous**



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.

Power Saving in Battery Mode

Allow you to enable or disable the power saving mode when you use the Battery.

4 Troubleshooting

This Chapter provides solutions to problems for the installation and operation of the WiFi Mobi-HSPA Router. You can refer to the following if you are having problems.

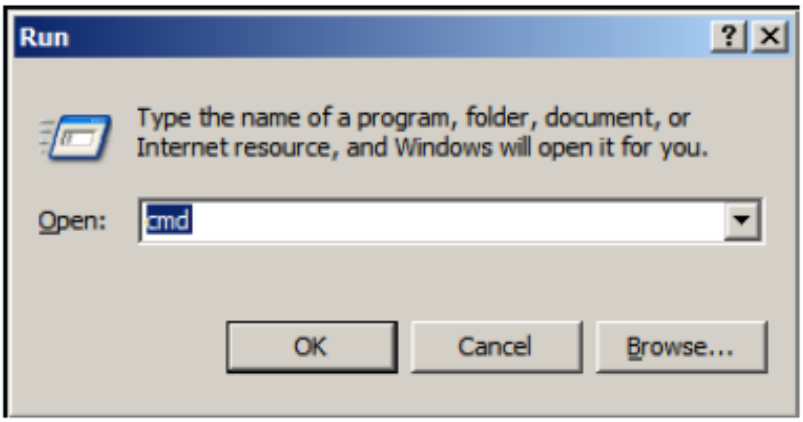
1 Why can't I configure the router even the WiFi is connecting ?

Do a **Ping test** to make sure that the WiFi Mobi-HSPA Router is responding.

Note: It is recommended that you use an Ethernet connection to configure it

Go to **Start > Run**.

1. Type **cmd**.



2. Press **OK.**
3. Type **ipconfig** to get the IP of default Router.
4. Type "**ping 192.168.1.1".** Assure that you ping the correct IP Address assigned to the WiFi Mobi-HSPA Router. It will show four replies if you ping correctly.

```
Pinging 192.168.123.254 with 32 bytes of data:

Reply from 192.168.123.254: bytes=32 time<1ms TTL=64
Reply from 192.168.123.254: bytes=32 time<1ms TTL=64
Reply from 192.168.123.254: bytes=32 time<1ms TTL=64
Reply from 192.168.123.254: bytes=32 time<1ms TTL=64
```

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.

1. Go to **Start > Right click on "My Computer" > Properties**.
2. **Select** the **Hardware Tab**.
3. Click **Device Manager**.
4. Double-click on "**Network Adapters"**.
5. Right-click on **Wireless Card bus Adapter** or **your specific network adapter**.
6. Select **Properties** to ensure that all drivers are installed properly.
7. Look under **Device Status** to see if the device is working properly.
8. Click "**OK"**.

2 Problems with 3G connection?

A.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.

B.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.

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

Please check the following items:

I. Make sure you have inserted a validated SIM card in the 3G data card, and the subscription from ISP is still available

II. If you activate PIN code check feature in SIM card, making sure the PIN code you fill in dial-up page is correct

III. Checking with your ISP to see all dial-up settings are correct

IV. Make sure 3G signal from your ISP is available in your environment

D. 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.

E. 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.

F. Which 3G network should I select?

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

G. Why my 3G connection is keep dropping?

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

3 Something wrong with the wireless connection?

A. Can't setup a wireless connection?

I. Ensure that the SSID and the encryption settings are exactly the same to the Clients.

II. Move the WiFi Mobi-HSPA Router and the wireless client into the same room, and then test the wireless connection.

III. Disable all security settings such as **WEP**, and **MAC Address Control**.

IV. Turn off the WiFi Mobi-HSPA Router and the client, then restart it and then turn on the client again.

V. Ensure that the LEDs are indicating normally. If no, make sure that the AC power and Ethernet cables are firmly connected.

VI. Ensure that the IP Address, subnet mask, Router and DNS settings are correctly entered for the network.

VII. 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…

B. What can I do if my wireless client cannot access the Internet?

I. Out of range: Put the router closer to your client.

II. Wrong SSID or Encryption Key: Check the SSID or Encryption setting.

III. Connect with wrong AP: Ensure that the client is connected with the correct Access Point.

i. **Right-click** on the **Local Area Connection icon** in the taskbar.

ii. Select **View Available Wireless Networks in Wireless Configure**. Ensure you have selected the correct available network.

iii. Reset the WiFi Mobi-HSPA Router to default setting

C. Why does my wireless connection keep dropping?

I. Antenna Orientation.

i. Try different antenna orientations for the WiFi Mobi-HSPA Router.

ii. Try to keep the antenna at least 6 inches away from the wall or other objects.

II. Try changing the channel on the WiFi Mobi-HSPA Router, and your Access Point and Wireless adapter to a different channel to avoid interference.

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

4 What to do if I forgot my encryption key?

1. Go back to advanced setting to set up your Encryption key again.
2. Reset the WiFi Mobi-HSPA Router to default setting

5 How to reset to default?

1. Ensure the WiFi Mobi-HSPA 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 WiFi Mobi-HSPA Router reboots, it has back to the factory **default** settings.

5 Appendix A Spec Summary Table

Device Interface		TRAVELER3GM
Wireless WAN	Build in HSPA modem or Wi-Fi HotSpot	1
Antenna	PIFA internal antennas	1
WPS/Reset Button	For WPS connection / Reset router setting to factory default	1
LED Indication	Power / WiFi(WPS) / 3G Connection / 3G Signal	●
Slide Switch	Slide Switch (Router Mode/Power Off/Modem Mode)	1
Power Jack	mini-usb Power Jack, DC 5V/1.2A	1
Wireless LAN (WiFi)		
Standard	IEEE 802.11b/g/n (1x1) compliance	●
SSID	SSID broadcast or in stealth mode	●
Channel	Auto-selection, manually	●
Security	WEP, WPA-PSK, WPA2-PSK	●
WPS	WPS (Wi-Fi Protected Setup)	●
Functionality		
Wireless WAN	PPP (for HSUPA)	●
	Wi-Fi HotSpot	●
Modem Mode	The device can be a mini-usb 3G dongle	●
WAN Connection	Auto-reconnect, dial-on-demand, manually	●
SPI Firewall	IP/Service filter, URL blocking, MAC control	●
DoS Protection	DoS (Deny of Service) detection and protection	●
Management	Syslog	●
Administration	Web-based UI, remote login, backup/restore setting	●

Environment & Certification		
Package Information	Device dimension (mm)	103*78*21
	Package dimension (mm)	213*140*67
	Package weight (g)	470
Operation Temp.	Temp.: 0~40oC, Humidity 10%~90% non-condensing	●
Storage Temp.	Temp.: -10~70oC, Humidity: 0~95% non-condensing	●
EMI Certification	CE/FCC	●
RoHS	RoHS compliance	●

*Specifications are subject to change without prior notice.

6 Appendix B Licensing information

This product includes copyrighted third-party software licensed under the terms of the GNU General Public License. Please refer to the GNU General Public License below to check the detailed terms of this license.

The following parts of this product are subject to the GNU GPL, and those software packages are copyright by their respective authors.

Linux-2.6.21 system kernel

busybox - V1.3.2

BridgeUtil - bridge-utils-1.1.tar.gz

DHCP20175 - svn://busybox.net/trunk/udhcp Revision = 20175

DNRD - V2.17

IPTables142 - V1.4.2

L2TP - rp-l2tp-0.4.tar.gz

PPP - ppp-2.4.4.tar.gz

PPPoE - rp-pppoe-3.8.tar.gz

PPTP - pptp-1.7.1.tar.gz

SNMP - ucd-snmp Version: 4.1.2

IPRoute2 - http://developer.osdl.org/dev/iproute2 iproute2-2.6.11-050330

WirelessTool - wireless_tools.28.tar.gz

ZebraRouting - zebra-0.95.tar.gz

Availability of source code

Please visit our web site or contact us to obtain more information.

GNU GENERAL PUBLIC LICENSE
Version 2, June 1991

Preamble

The licenses for most software are designed to take away your freedom to share and change it. By contrast, the GNU General Public License is intended to guarantee your freedom to share and change free software--to make sure the software is free for all its users. This General Public License applies to most of the Free Software Foundation's software and to any other program whose authors commit to using it. (Some other Free Software Foundation software is covered by the GNU Library General Public License instead.) You can apply it to your programs, too.

When we speak of free software, we are referring to freedom, not price. Our General Public Licenses are designed to make sure that you have the freedom to distribute copies of free software (and charge for this service if you wish), that you receive source code or can get it if you want it, that you can change the software or use pieces of it in new free programs; and that you know you can do these things.

To protect your rights, we need to make restrictions that forbid anyone to deny you these rights or to ask you to surrender the rights. These restrictions translate to certain responsibilities for you if you distribute copies of the software, or if you modify it.

For example, if you distribute copies of such a program, whether gratis or for a fee, you must give the recipients all the rights that you have. You must make sure that they, too, receive or can get the source code. And you must show them these terms so they know their rights.

We protect your rights with two steps: (1) copyright the software, and (2) offer you this license which gives you legal permission to copy, distribute and/or modify the software.

Also, for each author's protection and ours, we want to make certain that everyone understands that there is no warranty for this free software. If the software is modified by someone else and passed on, we want its recipients to know that what they have is not the original, so that any problems introduced by others will not reflect on the original authors' reputations.

Finally, any free program is threatened constantly by software patents. We wish to avoid the danger that redistributors of a free program will individually obtain patent licenses, in effect making the program proprietary. To prevent this, we have made it clear that any patent must be licensed for everyone's free use or not licensed at all.

The precise terms and conditions for copying, distribution and modification follow.

GNU GENERAL PUBLIC LICENSE

TERMS AND CONDITIONS FOR COPYING, DISTRIBUTION AND MODIFICATION

0. This License applies to any program or other work which contains a notice placed by the copyright holder saying it may be distributed under the terms of this General Public License. The "Program", below, refers to any such program or work, and a "work based on the Program" means either the Program or any derivative work under copyright law: that is to say, a work containing the Program or a portion of it, either verbatim or with modifications and/or translated into another language. (Hereinafter, translation is included without limitation in the term "modification".) Each licensee is addressed as "you".

Activities other than copying, distribution and modification are not covered by this License; they are outside its scope. The act of running the Program is not restricted, and the output from the Program is covered only if its contents constitute a work based on the Program (independent of having been made by running the Program). Whether that is true depends on what the Program does.

1. You may copy and distribute verbatim copies of the Program's source code as you receive it, in any medium, provided that you conspicuously and appropriately publish on each copy an appropriate copyright notice and disclaimer of warranty; keep intact all the notices that refer to this License and to the absence of any

warranty; and give any other recipients of the Program a copy of this License along with the Program.

You may charge a fee for the physical act of transferring a copy, and you may at your option offer warranty protection in exchange for a fee.

2. You may modify your copy or copies of the Program or any portion of it, thus forming a work based on the Program, and copy and distribute such modifications or work under the terms of Section 1 above, provided that you also meet all of these conditions:

a) You must cause the modified files to carry prominent notices stating that you changed the files and the date of any change.
b) You must cause any work that you distribute or publish, that in whole or in part contains or is derived from the Program or any part thereof, to be licensed as a whole at no charge to all third parties under the terms of this License.
c) If the modified program normally reads commands interactively when run, you must cause it, when started running for such interactive use in the most ordinary way, to print or display an announcement including an appropriate copyright notice and a notice that there is no warranty (or else, saying that you provide a warranty) and that users may redistribute the program under these conditions, and telling the user how to view a copy of this License. (Exception: if the Program itself is interactive but does not normally print such an announcement, your work based on the Program is not required to print an announcement.)

These requirements apply to the modified work as a whole. If identifiable sections of that work are not derived from the Program, and can be reasonably considered independent and separate works in themselves, then this License, and its terms, do not apply to those sections when you distribute them as separate works. But when you distribute the same sections as part of a whole which is a work based on the Program, the distribution of the whole must be on the terms of this License, whose permissions for other licensees extend to the entire whole, and thus to each and every part regardless of who wrote it.

Thus, it is not the intent of this section to claim rights or contest your rights to work written entirely by you; rather, the intent is to exercise the right to control the distribution of derivative or collective works based on the Program.

In addition, mere aggregation of another work not based on the Program with the Program (or with a work based on the Program) on a volume of a storage or distribution medium does not bring the other work under the scope of this License.

3. You may copy and distribute the Program (or a work based on it, under Section 2) in object code or executable form under the terms of Sections 1 and 2 above provided that you also do one of the following:

a) Accompany it with the complete corresponding machine-readable source code, which must be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,
b) Accompany it with a written offer, valid for at least three years, to give any third party, for a charge no more than your cost of physically performing source distribution, a complete machine-readable copy of the corresponding source code, to be distributed under the terms of Sections 1 and 2 above on a medium customarily used for software interchange; or,
c) Accompany it with the information you received as to the offer to distribute corresponding source code. (This alternative is allowed only for noncommercial distribution and only if you received the program in object code or executable form with such an offer, in accord with Subsection b above.)

The source code for a work means the preferred form of the work for making modifications to it. For an executable work, complete source code means all the source code for all modules it contains, plus any associated interface definition files, plus the scripts used to control compilation and installation of the executable. However, as a special exception, the source code distributed need not include anything that is normally distributed (in either source or binary form) with the major components (compiler, kernel, and so on) of the operating system on which the executable runs, unless that component itself accompanies the executable.

If distribution of executable or object code is made by offering access to copy from a designated place, then offering equivalent access to copy the source code from the same place counts as distribution of the source code, even though third parties are not compelled to copy the source along with the object code.

4. You may not copy, modify, sublicense, or distribute the Program except as expressly provided under this License. Any attempt otherwise to copy, modify, sublicense or distribute the Program is void, and will automatically terminate your rights under this License. However, parties who have received copies, or rights, from you under this License will not have their licenses terminated so long as such

parties remain in full compliance.

5. You are not required to accept this License, since you have not signed it. However, nothing else grants you permission to modify or distribute the Program or its derivative works. These actions are prohibited by law if you do not accept this License. Therefore, by modifying or distributing the Program (or any work based on the Program), you indicate your acceptance of this License to do so, and all its terms and conditions for copying, distributing or modifying the Program or works based on it.

6. Each time you redistribute the Program (or any work based on the Program), the recipient automatically receives a license from the original licensor to copy, distribute or modify the Program subject to these terms and conditions. You may not impose any further restrictions on the recipients' exercise of the rights granted herein. You are not responsible for enforcing compliance by third parties to this License.
7. If, as a consequence of a court judgment or allegation of patent infringement or for any other reason (not limited to patent issues), conditions are imposed on you (whether by court order, agreement or otherwise) that contradict the conditions of this License, they do not excuse you from the conditions of this License. If you cannot distribute so as to satisfy simultaneously your obligations under this License and any other pertinent obligations, then as a consequence you may not distribute the Program at all. For example, if a patent license would not permit royalty-free redistribution of the Program by all those who receive copies directly or indirectly through you, then the only way you could satisfy both it and this License would be to refrain entirely from distribution of the Program.

If any portion of this section is held invalid or unenforceable under any particular circumstance, the balance of the section is intended to apply and the section as a whole is intended to apply in other circumstances.

It is not the purpose of this section to induce you to infringe any patents or other property right claims or to contest validity of any such claims; this section has the sole purpose of protecting the integrity of the free software distribution system, which is implemented by public license practices. Many people have made generous contributions to the wide range of software distributed through that system in reliance on consistent application of that system; it is up to the author/donor to decide if he or she is willing to distribute software through any other system and a licensee cannot impose that choice.

This section is intended to make thoroughly clear what is believed to be a consequence of the rest of this License.

8. If the distribution and/or use of the Program is restricted in certain countries either by patents or by copyrighted interfaces, the original copyright holder who places the Program under this License may add an explicit geographical distribution limitation excluding those countries, so that distribution is permitted only in or among countries not thus excluded. In such case, this License incorporates the limitation as if written in the body of this License.

9. The Free Software Foundation may publish revised and/or new versions of the General Public License from time to time. Such new versions will be similar in spirit to the present version, but may differ in detail to address new problems or concerns.

Each version is given a distinguishing version number. If the Program specifies a version number of this License which applies to it and "any later version", you have the option of following the terms and conditions either of that version or of any later version published by the Free Software Foundation. If the Program does not specify a version number of this License, you may choose any version ever published by the Free Software Foundation.

10. If you wish to incorporate parts of the Program into other free programs whose distribution conditions are different, write to the author to ask for permission. For software which is copyrighted by the Free Software Foundation, write to the Free Software Foundation; we sometimes make exceptions for this. Our decision will be guided by the two goals of preserving the free status of all derivatives of our free software and of promoting the sharing and reuse of software generally.

NO WARRANTY

11. BECAUSE THE PROGRAM IS LICENSED FREE OF CHARGE, THERE IS NO WARRANTY FOR THE PROGRAM, TO THE EXTENT PERMITTED BY APPLICABLE LAW. EXCEPT WHEN OTHERWISE STATED IN WRITING THE COPYRIGHT HOLDERS AND/OR OTHER PARTIES PROVIDE THE PROGRAM "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESSED OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY AND FITN

ESS FOR A PARTICULAR PURPOSE. THE ENTIRE RISK AS TO THE QUALITY

AND PERFORMANCE OF THE PROGRAM IS WITH YOU. SHOULD THE PROGRAM PROVE DEFECTIVE, YOU ASSUME THE COST OF ALL NECESSARY SERVICING, REPAIR OR CORRECTION.

12. IN NO EVENT UNLESS REQUIRED BY APPLICABLE LAW OR AGREED TO IN WRITING WILL ANY COPYRIGHT HOLDER, OR ANY OTHER PARTY WHO MAY MODIFY AND/OR REDISTRIBUTE THE PROGRAM AS PERMITTED ABOVE, BE LIABLE TO YOU FOR DAMAGES,
INCLUDING ANY GENERAL, SPECIAL, INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OR INABILITY TO USE THE PROGRAM (INCLUDING BUT NOT LIMITED TO LOSS OF DATA OR DATA BEING RENDERED INACCURATE OR LOSSES SUSTAINED BY YOU OR THIRD PARTIES OR A FAILURE OF THE PROGRAM TO OPERATE WITH ANY OTHER PROGRAMS), EVEN IF SUCH HOLDER OR OTHER PARTY HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

7 Glossary

The wireless network glossary contains explanation or information about common terms used in wireless networking products. Some of information in this glossary might be outdated, please use with caution.

802.11a
An IEEE specification for wireless networking that operates in the 5 GHz frequency range (5.15 GHz to 5.850 GHz) with a maximum of 54Mbps data transfer rate. The 5GHz frequency band is not as crowded as the 2.4GHz band. In addition, the 802.11a have 12 non-overlapping channels, comparing to 802.11b/g's 3 non-overlapping channels. This means the possibility to build larger non-interfering networks. However, the 802.11a deliver shorter distance at the same output power when comparing to 802.11g.

802.11b
International standard for wireless networking that operates in the 2.4GHz frequency band (2.4 GHz to 2.4835 GHz) and provides a throughput up to 11 Mbps.

802.11d
Also known as “Global Roaming”. 802.11d is a standard for use in countries where systems using other standards in the 802.11 family are not allowed to operate.

802.11e
The IEEE QoS standard for prioritizing traffic of the VoIP and multimedia applications. The WMM is based on a subset of the 802.11e.

802.11g

A standard provides a throughput up to 54 Mbps using OFDM technology. It also operates in the 2.4GHz frequency band as 802.11b. 802.11g devices are backward compatible with 802.11b devices.

802.11h

This IEEE standard define the TPC (transmission power control) and DFS (dynamic frequency selection) required to operate WiFi devices in 5GHz for EU.

802.11i

The IEEE standard for wireless security, 802.11i standard includes TKIP, CCMP, and AES encryption to improve wireless security. It is also know as WPA2.

802.11n

802.11n is a recent amendment which improves upon the previous 802.11 standards by adding multiple-input multiple-output (MIMO) and many other newer features. The IEEE has approved the amendment and it was published in October 2009. Enterprises, however, have already begun migrating to 802.11n networks based on the Wi-Fi Alliance's certification of products conforming to a 2007 draft of the 802.11n proposal. 802.11n provides a throughput up to 300Mbps using OFDM technology.

802.3ad

802.3ad is an IEEE standard for bonding or aggregating multiple Ethernet ports into one virtual port (also known as trunking) to increase the bandwidth.

802.3af

This is the PoE (Power over Ethernet) standard by IEEE committee. 803.af uses 48V POE standard that can deliver up to 100 meter distance over Ethernet cable.

802.1d STP

Spanning Tree Protocol. It is an algorithm to prevent network from forming. The STP protocol allows net work to provide a redundant link in the event of a link failure. It is advise to turn on this option for multi-link bridge network.

802.1Q Tag VLAN

In 802.1Q VLAN, the VLAN information is written into the Ethernet packet itself. Each packet carries a VLAN ID (called Tag) as it traveled across the network. Therefore, the VLAN configuration can be configured across multiple switches. In 802.1Q spec, possible 4096 VLAN ID can be created. Although for some devices, they can only view in frames of 256 ID at a time.

802.1x

802.1x is a security standard for wired and wireless LANs. In the 802.1x parlance, there are usually supplicants (client), authenticator (switch or AP), and authentication server (radius server) in the network. When a supplicants request a service, the authenticator will pass the request and wait for the authentication server to grant access and register accounting. The 802.1x is the most widely used method of authentication by WISP.

Ad-hoc

A Peer-to-Peer wireless network. An Ad-hoc wireless network do not use wireless AP or router as the central hub of the network. Instead, wireless client are connected directly to each other. The disadvantage of Adhoc network is the lack of wired interface to Internet connections. It is not recommended for network more than 2 nodes.

Access Point (AP)

The central hub of a wireless LAN network. Access Points have one or more Ethernet ports that can connect devices (such as Internet connection) for sharing. Multi-function Access Point can also function as an Ethernet client, wireless bridge, or repeat signals from other AP. Access Points typically have more wireless functions comparing to wireless routers.

ACK Timeout

Acknowledgement Timeout Windows. When a packet is sent out from one wireless station to the other, it will waits for an Acknowledgement frame from the remote station. The station will only wait for a certain amount of time; this time is called the ACK timeout. If the ACK is NOT received within that timeout period then the packet will be re-transmitted resulting in reduced throughput. If the ACK setting is too high then throughput will be lost due to waiting for the ACK Window to timeout on lost packets. If the ACK setting is too low then the ACK window will have expired and the returning packet will be dropped, greatly lowering throughput. By having the ability to adjust the ACK setting we can effectively optimize the throughput over long distance links. This is especially true for 802.11a and 802.11g networks. Setting the correct ACK timeout value needs to consider 3 factors: distance, AP response time, and interference.

Bandwidth Management

Bandwidth Management controls the transmission speed of a port, user, IP address, and application. Router can use bandwidth control to limit the Internet connection speed of individual IP or Application. It can also guarantee the speed of certain special application or privileged IP address - a crucial feature of QoS (Quality of Service) function.

Bootloader

Bootloader is the under layering program that will start at the power-up before the device loads firmware. It is similar to BIOS on a personal computer. When a firmware crashed, you might be able to recover your device from bootloader.

Bridge

A product that connects 2 different networks that uses the same protocol. Wireless bridges are commonly used to link network across remote buildings. For wireless application, there are 2 types of Bridges. WDS Bridge can be used in Point-to-Point or Point-to-Multipoint topology. Bridge Infrastructure works with AP mode to form a star topology.

Cable and Connector Loss

During wireless design and deployment, it is important to factor in the cable and connector loss. Cable and connector loss will reduce the output power and receiver sensitivity of the radio at connector end. The longer the cable length is, the more the cable loss. Cable loss should be subtracted from the total output power during distance calculation. For example, if the cable and connector loss is 3dBm and the output power is 20dBm; the output power at the cable end is only 17dBm.

Client

Client means a network device or utility that receives service from host or server. A client device means end user device such as wireless cards or wireless CPE.

CPE Devices

CPE stands for Customer Premises Equipment. A CPE is a device installed on the end user's side to receive network services. For example, on an ADSL network, the ADSL modem/router on the subscriber's home is the CPE device. Wireless CPE means a complete Wireless (usually an AP with built-in Antenna) that receives wireless broadband access from the WISP. The opposite of CPE is CO.

CTS

Clear To Send. A signal sent by a device to indicate that it is ready to receive data.

DDNS

Dynamic Domain Name System. An algorithm that allows the use of dynamic IP address for hosting Internet Server. A DDNS service provides each user account with a domain name. A router with DDNS capability has a built-in DDNS client that updates the IP address information to DDNS service provider whenever there is a change. Therefore, users can build website or other Internet servers even if they don't have fixed IP connection.

DHCP

Dynamic Hosting Configuration Protocol. A protocol that enables a server to dynamically assign IP addresses. When DHCP is used, whenever a computer logs onto the network, it automatically gets an IP address assigned to it by DHCP server. A DHCP server can either be a designated PC on the network or another network device, such as a router.

DMZ

Demilitarized Zone. When a router opens a DMZ port to an internal network device, it opens all the TCP/UDP service ports to this particular device. The feature is used commonly for setting up H.323 VoIP or Multi-Media servers.

DNS

A program that translates URLs to IP addresses by accessing a database maintained on a collection of Internet servers.

Domain Name

The unique name that identifies an Internet site. Domain Names always have 2 or more parts, separated by dots. In www.airlive.com, the "airlive.com" is the doman name.

DoS Attack

Denial of Service. A type of network attack that floods the network with useless traffic. Many DoS attacks, such as the Ping of Death and Teardrop attacks, exploit limitations in the TCP/IP protocols.

Encryption

Encoding data to prevent it from being read by unauthorized people. The common wireless encryption schemes are WEP, WPA, and WPA2.

ESSID (SSID)

The identification name of an 802.11 wireless network. Since wireless network has no physical boundary liked wired Ethernet network, wireless LAN needs an identifier to distinguish one network from the other. Wireless clients must know the SSID in order to associate with a WLAN network. Hide SSID feature disable SSID broadcast, so users must know the correct SSID in order to join a wireless network.

Firewall

A system that secures a network and prevents access by unauthorized users. Firewalls can be software, router, or gateway. Firewalls can prevent unrestricted access into a network, as well as restricting data from flowing out of a network.

Firmware

The program that runs inside embedded device such as router or AP. Many network devices are firmware upgradeable through web interface or utility program.

FTP

File Transfer Protocol. A standard protocol for sending files between computers over a TCP/IP network and the Internet.

Fragment Threshold

Frame Size larger than this will be divided into smaller fragment. If there are interferences in your area, lower this value can improve the performance. If there are not, keep this parameter at higher value. The default size is 2346. You can try 1500, 1000, or 500 when there are interference around your network.

Full Duplex

The ability of a networking device to receive and transmit data simultaneously. In wireless environment, this is usually done with 2 or more radios doing load balancing.

Gateway

In the global Internet network, the gateways are core routers that connect networks in different IP subnet together. In a LAN environment with an IP sharing router, the gateway is the router. In an office environment, gateway typically is a multi-function device that integrates NAT, firewall, bandwidth management, and other security functions.

Hotspot

A place where you can access Wi-Fi service. The term hotspot has two meanings in wireless deployment. One is the wireless infrastructure deployment, the other is the Internet access billing system. In a hotspot system, a service provider typically need an authentication and account system for billing purposes, and a wireless AP network to provide access for customers.

IGMP Snooping

Internet Group Management Protocol (IGMP) is a Layer 3 protocol to report IP multicast memberships to neighboring multicast switches and routers. IGMP snooping is a feature that allows an Ethernet switch to "listen in" on the IGMP conversation between hosts and routers. A switch support IGMP snooping has the possibility to avoid multicast traffic being treated as broadcast traffic; therefore, reducing the overall traffic on the network.

Infrastructure Mode

A wireless network that is built around one or more access points to provide wireless clients access to wired LAN / Internet service. The opposite of Infrastructure mode is Ad-hoc mode.

IP address

IP (Internet Protocol) is a layer-3 network protocol that is the basis of all Internet communication. An IP address is 32-bit number that identifies each sender or receiver of information that is sent across the Internet. An IP address has two parts: an identifier of a particular network on the Internet and an identifier of the particular device (which can be a server or a workstation) within that network. The new IPv6 specification supports 128-bit IP address format.

IPsec

IP Security. A set of protocols developed by the IETF to support secure exchange of packets at the IP layer. IPsec has been deployed widely to implement Virtual Private Networks (VPNs). IPsec supports two encryption modes: Transport and Tunnel. Transport mode encrypts only the data of each packet, but leaves the header untouched. The more secure Tunnel mode encrypts both the header and the payload. On the receiving side, an IPSec-compliant device decrypts each packet.

LACP (802.3ad) Trunking

The 802.3ad Link Aggregation standard defines how to combine the several Ethernet ports into one high-bandwidth port to increase the transmission speed. It is also known as port trunking. Both device must set the trunking feature to work.

MAC (Media Access Control)

MAC address provides layer-2 identification for Networking Devices. Each Ethernet device has its own unique address. The first 6 digits are unique for each manufacturer. When a network device have MAC access control feature, only the devices with the approved MAC address can connect with the network.

Mbps (Megabits per Second)
One million bits per second; a unit of measurement for data transmission

MESH
Mesh is an outdoor wireless technology that uses Spanning Tree Protocol (STP) and Wireless Distribution system to achieve self-forming, self-healing, and self-configuring outdoor network. MESH network are able to take the shortest path to a destination that does not have to be in the line of site.

MIMO (Multi-Input-Multi-Output)
A Smart Antenna technology designed to increase the coverage and performance of a WLAN network. In a MIMO device, 2 or more antennas are used to increase the receiver sensitivity and to focus available power at intended Rx.

NAT (Network Address Translation)
A network algorithm used by Routers to enables several PCs to share single IP address provided by the ISP. The IP that a router gets from the ISP side is called Real IP, the IP assigned to PC under the NAT environment is called Private IP.

Node
A network connection end point, typically a computer.

Packet
A unit of data sent over a network.

Passphrase
Used much like a password, a passphrase simplifies the WEP encryption process by automatically generating the WEP encryption keys for the company products.

POE (Power over Ethernet)

A standard to deliver both power and data through one single Ethernet cable (UTP/STP). It allows network device to be installed far away from power ource. A PoE system typically compose of 2 main component: DC Injector (Base Unit) and Splitter(Terminal Unit). The DC injector combines the power and data, and the splitter separates the data and power back. A PoE Access Point or CPE has the splitter built-in to the device. The IEEE 802.3af is a POE spec that uses 48 volt to deliver power up to 100 meter distance.

Port

This word has 2 different meaning for networking.
The hardware connection point on a computer or networking device used for plugging in a cable or an adapter.
The virtual connection point through which a computer uses a specific application on a server.

PPPoE

Point-to- Point Protocol over Ethernet. PPPoE relies on two widely accepted standards: PPP and Ethernet. PPPoE is a specification for connecting the users on an Ethernet to the Internet through a common broadband medium, such as a single DSL line, wireless device or cable modem.

PPTP

Point-to-Point Tunneling Protocol: A VPN protocol developed by PPTP Forum. With PPTP, users can dial in to their corporate network via the Internet. If users require data encryption when using the Windows PPTP client, the remote VPN server must support MPPE (Microsoft Point-To-Point Encryption Protocol) encryption. PPTP is also used by some ISP for user authentication, particularly when pairing with legacy Alcatel / Thomson ADSL modem.

Preamble Type

Preamble are sent with each wireless packet transmit for transmission status. Use the long preamble type for better compatibility. Use the short preamble type for better performance

Rate Control

Ethernet switches' function to control the upstream and downstream speed of an individual port. Rate Control management uses "Flow Control" to limit the speed of a port. Therefore, the Ethernet adapter must also have the flow control enabled. One way to force the adapter's flow control on is to set a port to half-duplex mode.

RADIUS (Remote Authentication Dial-In User Service)

An authentication and accounting system used by many Internet Service Providers (ISPs). When you dial in to the ISP, you must enter your username and password. This information is passed to a RADIUS server, which checks that the information is correct, and then authorizes access to the ISP system. Radius typically uses port 1812 and port 1813 for authentication and accounting port. Though not an official standard, the RADIUS specification is maintained by a working group of the IETF.

Receiver Sensitivity

Receiver sensitivity means how sensitive is the radio for receiving signal. In general; the slower the transmission speed, the more sensitive the radio is. The unit for Receiver Sensitivity is in dB; the lower the absolute value is, the higher the signal strength. For example, -50dB is higher than -80dB.

RJ-45

Standard connectors for Twisted Pair copper cable used in Ethernet networks. Although they look similar to standard RJ-11 telephone connectors, RJ-45 connectors can have up to eight wires, whereas telephone connectors have only four.

Router

An IP sharing router is a device that allows multiple PCs to share one single broadband connection using NAT technology. A wireless router is a device that combines the functions of wireless Access Point and the IP sharing router.

RSSI

Receiver Sensitivity Index. RSSI is a value to show the Receiver Sensitivity of the remote wireless device. In general, remote APs with stronger signal will display higher RSSI values. For RSSI value, the smaller the absolute value is, the stronger the signal. For example, “-50db” has stronger signal than “-80dB”. For outdoor connection, signal stronger than -60dB is considered as a good connection.

RTS

Request To Send. A packet sent when a computer has data to transmit. The computer will wait for a CTS (Clear To Send) message before sending data.

RTS Threshold

RTS (Request to Send). The RTS/CTS(clear to send) packet will be send before a frame if the packet frame is larger than this value. Lower this value can improve the performance if there are many clients in your network. You can try 1500, 1000 or 500 when there are many clients in your AP’s network.

SNMP (Simple Network Management Protocol)

A set of protocols for managing complex networks. The SNMP network contains 3 key elements: managed devices, agents, and network-management systems (NMSs). Managed devices are network devices that content SNMP agents. SNMP agents are programs that reside SNMP capable device's firmware to provide SNMP configuration service. The NMS typically is a PC based software such as HP Openview that can view and manage SNMP network device remotely.

SSH

Developed by SSH Communications Security Ltd., Secure Shell is a program to log into another computer over a network, to execute commands in a remote machine, and to move files from one machine to another. It provides strong authentication and secure communications over insecure channels. It is a replacement for rlogin, rsh, rcp, and rdist.

SSL

Secure Sockets Layer. It is a popular encryption scheme used by many online retail and banking sites to protect the financial integrity of transactions. When an SSL session begins, the server sends its public key to the browser. The browser then sends a randomly generated secret key back to the server in order to have a secret key exchange for that session. SSL VPN is also known as Web VPN. The HTTPS and SSH management interface use SSL for data encryption.

Subnet Mask

An address code mask that determines the size of the network. An IP subnet are determined by performing a BIT-wise AND operation between the IP address and the subnet mask. By changing the subnet mask, you can change the scope and size of a network.

Subnetwork or Subnet

Found in larger networks, these smaller networks are used to simplify addressing between numerous computers. Subnets connect to the central network through a router, hub or gateway. Each individual wireless LAN will probably use the same subnet for all the local computers it talks to.

Super A

Super A is an Atheros proprietary turbo mode to increase speed over standard 802.11a mode. It adds Bursting and Compression to increase the speed. If you live in countries that prohibit the channel binding technology (i.e. Europe), you should choose “Super-A without Turbo) if you need more speed than 11a mode

TCP

A layer-4 protocol used along with the IP to send data between computers over the Internet. While IP takes care of handling the actual delivery of the data, TCP takes care of keeping track of the packets that a message is divided into for efficient routing through the Internet.

Turbo A

Turbo A is an Atheros proprietary turbo mode to increase speed over standard 802.11a mode. It uses channel binding technology to increase speed. There are 2 types of Turbo A modes: Dynamic Turbo and Static Turbo. In Dynamic Turbo, the channel binding will be used only if necessary. In Static Turbo, the channel binding is always on. This protocol may be combined with Super-A model to increase the performance even more. The used of channel binding might be prohibited in EU countries.

TX Output Power

Transmit Output Power. The TX output power means the transmission output power of the radio. Normally, the TX output power level limit for 2.4GHz 11g/b is 20dBm at the antenna end. The output power limit for 5GHz 802.11a is 30dBm at the antenna end.

UDP (User Datagram Protocol)

A layer-4 network protocol for transmitting data which does not require acknowledgement from the recipient of the data.

Upgrade

To replace existing software or firmware with a newer version.

Upload
To send a file to the Internet or network device.

URL (Uniform Resource Locator)
The address of a file located on the Internet.

VPN (Virtual Private Network)
A type of technology designed to increase the security of information transferred over the Internet. VPN creates a private encrypted tunnel from the end user's computer, through the local wireless network, through the Internet, all the way to the corporate network.

Walled Garden
On the Internet, a walled garden refers to a browsing environment that controls the information and Web sites the user is able to access. This is a popular method used by ISPs in order to keep the user navigating only specific areas of the Web

WAN (Wide Area Network)
A communication system of connecting PCs and other computing devices across a large local, regional, national or international geographic area. A WAN port on the network device means the port (or wireless connection) that is connected to the Internet side of the network topology.

WEP (Wired Equivalent Privacy)
A wireless encryption protocol. WEP is available in 40-bit (64-bit), 108-bit (128-bit) or 152-bit (Atheros proprietary) encryption modes.

WPA (Wi-Fi Protected Access)

It is an encryption standard proposed by WiFi for advance protection by utilizing a password key (TKIP) or certificate. It is more secure than WEP encryption. The WPA-PSK utilizes pre-share key for encryption/authentication.

WPA2 (Wi-Fi Protected Access 2)

WPA2 is also known as 802.11i. It improves on the WPA security with CCMP and AES encryption. The WPA2 is backward compatible with WPA. WPA2-PSK utilizes pre-share key for encryption/authentication.

Wi-Fi (Wireless Fidelity)

An interoperability certification for wireless local area network (LAN) products based on the IEEE 802.11 standards. The governing body for Wi-Fi is called Wi-Fi Alliance (also known as WECA).

WiMAX (Worldwide Interoperability for Microwave Access)

A Wireless Metropolitan Network technology that complies with IEEE 802.16 and ETSI Hiperman standards. The orginal 802.16 standard call for operating frequency of 10 to 66Ghz spectrum. The 802.16a amendment extends the original standard into spectrum between 2 and 11 Ghz. 802.16d increase data rates to between 40 and 70 Mbps/s and add support for MIMO antennas, QoS, and multiple polling technologies. 802.16e adds mobility features, narrower bandwidth (a max of 5 mhz), slower speed and smaller antennas. Mobility is allowed up to 40 mph.

WDS (Wireless Distribution System)

WDS defines how multiple wireless Access Point or Wireless Router can connect together to form one single wireless network without using wired uplinks. WDS associate each other by MAC address, each device

WLAN (Wireless Local Area Network)

A type of local-area network that uses high-frequency radio waves rather than wires to communicate between nodes. The most popular standard for WLAN is the 802.11 standards.

WMM (Wi-Fi Multimedia)

WMM is a standard to prioritize traffic for multimedia applications. The WMM prioritize traffic\ on Voice-over-IP (VoIP), audio, video, and streaming media as well as traditional IP data over the AP.

WMS (Wireless Management System)

An utility program to manage multiple wireless AP/Bridges.