

LevelOne

User Manual

WBR-6801

150Mbps N Wireless 3G Portable Router

V1.0

Safety

FCC WARNING

This equipment may generate or use radio frequency energy. Changes or modifications to this equipment may cause harmful interference unless the modifications are expressly approved in the instruction manual. The user could lose the authority to operate this equipment if an unauthorized change or modification is made.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

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

CE Declaration of conformity

This equipment complies with the requirements relating to electromagnetic compatibility, EN 55022 class B for ITE, the essential protection requirement of Council Directive 89/336/EEC on the approximation of the laws of the Member States relating to electromagnetic compatibility.

CE Marking Warning

Hereby, Digital Data Communications, declares that this product (Model-no. WBR-6801) is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

The CE-Declaration of Conformity can be downloaded at:
<http://www.levelone.eu/support.php>



General Public License

This product incorporates open source code into the software and therefore falls under the guidelines governed by the General Public License (GPL) agreement.

Adhering to the GPL requirements, the open source code and open source license for the source code are available for free download at <http://global.level1.com>.

If you would like a copy of the GPL or other open source code in this software on a physical CD medium, LevelOne (Digital Data Communications) offers to mail this CD to you upon request, for a price of US\$9.99 plus the cost of shipping.



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Default Settings

IP Address	192.168.1.1
Password	admin
Wireless Mode	Enable
Wireless SSID	LevelOne
Wireless Security	None

1. Introduction

Congratulations on your purchase of this outstanding Product : WBR-6801 150Mbps N Wireless 3G Portable 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.

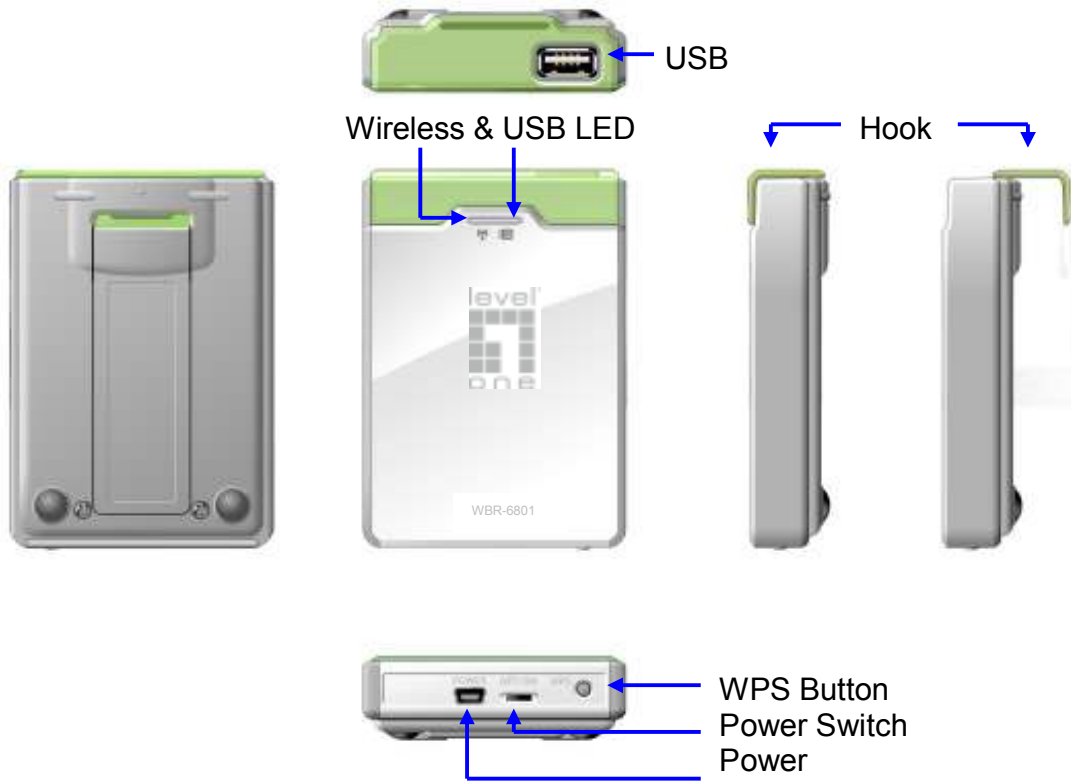
1.1 Package List

1. WBR-6801 x 1
2. USB Cable (Only for Power use) x 1
3. Power adapter (5V x 1.2A) x 1
4. CD-ROM with Manual and Utility x 1
5. Quick Installation Guide x 1

If any of the above items are missing, please contact your retailer or distributor

1.2 Hardware Installation

Hardware configuration



Hook assembling or disassembling



LED indicators

	LED color	Description
USB LED	Blue	3G/3.5G is on
	Blue in flash	Data access
Wi-Fi LED	Blue	WLAN is ON
	Blue in flash	Data access
	Blue in fast flash	Device is in WPS Mode

Installation Steps



DO NOT switch on 3G Portable Router before performing the installation steps below.

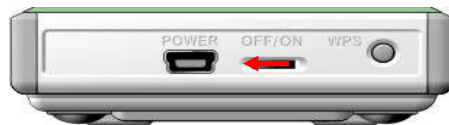
Step 1.

Turn off the power switch and then plug USB 3G Modem to the Router.

Note: 150Mbps N Wireless 3G Portable Router is designed to work with either UMTS or EV-DO and even HSUPA 3G modem. Please refer to your service provider for detailed feature information.

Step 2.

Plug your USB modem which is with activated USB dongle.



Step 3.

You can choose either Power Adapter or USB Cable for power supply.

3.1. Use Power Adapter

Connect with the power adapter to the receptor on the back panel of it.

3.2. Use USB cable

Connect USB Cable to the same place of it.



Step 4.

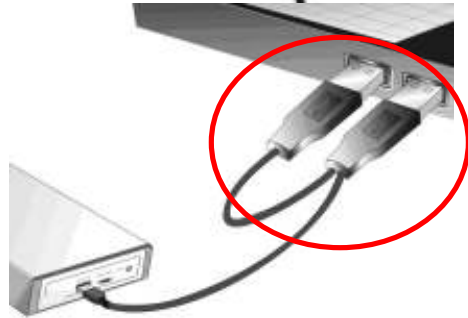
4.1. Use Power Adapter

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



4.2. Use USB Cable

Then plug the other end of USB Cable to USB Port on your PC or NB.



Step 5.

Turn on the power switch.



The Wi-Fi and 3G LED will turn ON to indicate that the power has been applied.

2. Getting start

2.1 Easy Setup Utility by Easy Setup

We provide Wizard and Easy Setup by Windows Utility to enable you to set up the WiFi Mobile 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 is SSID
- (3) Insert CD to CDROM; Click the Easy Setup Utility from CD or Auto Run.

Easy Setup by Utility- Wizard

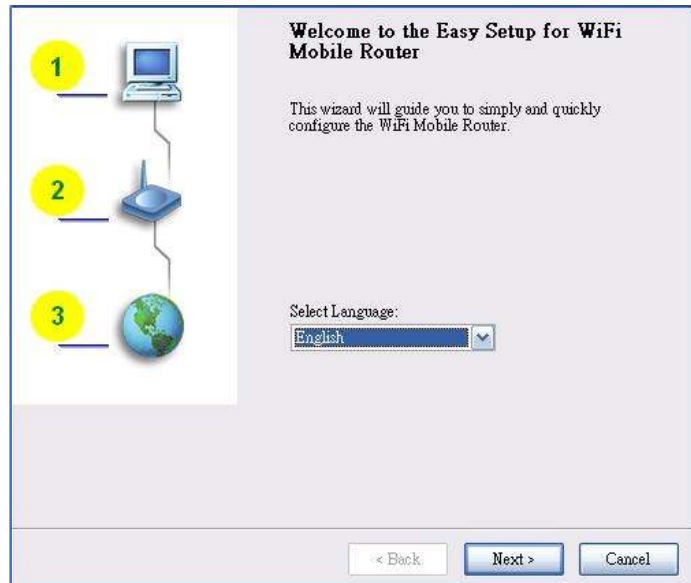
Step 1.

You can start to configure the device via the Easy Setup Utility



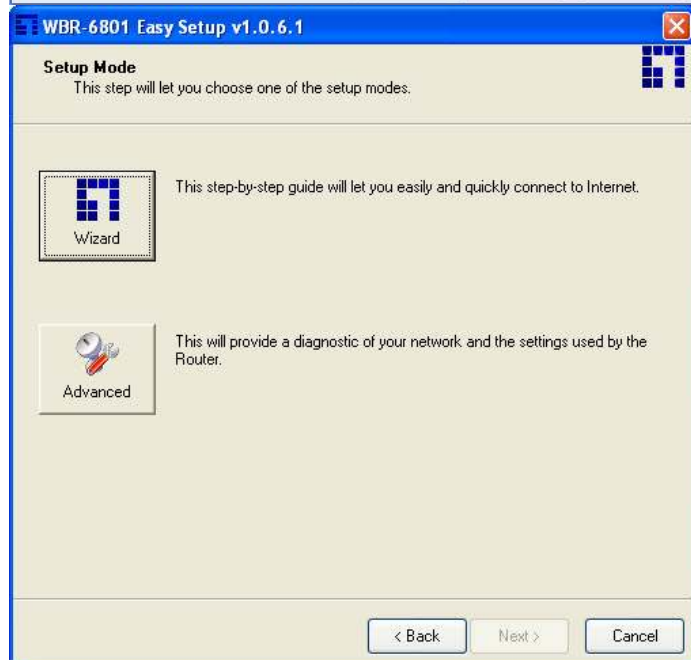
Step 2.

Select Language then click “Next” to continue.



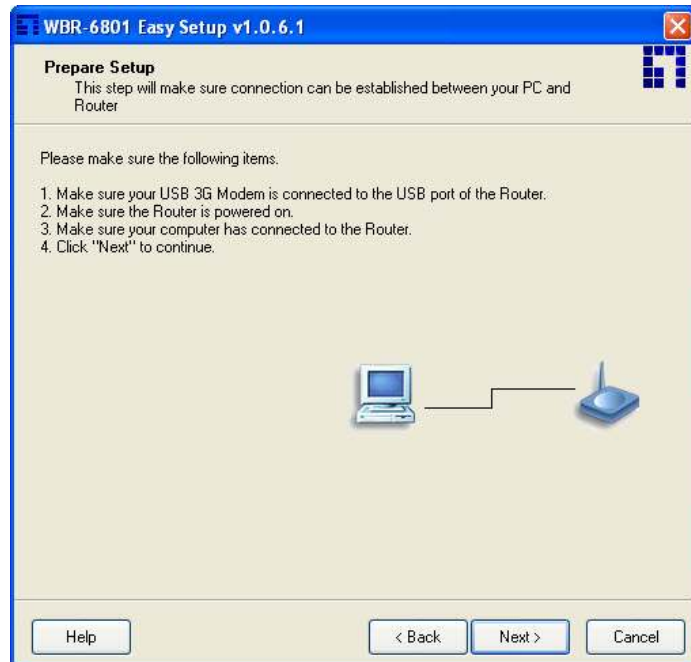
Step 3.

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.



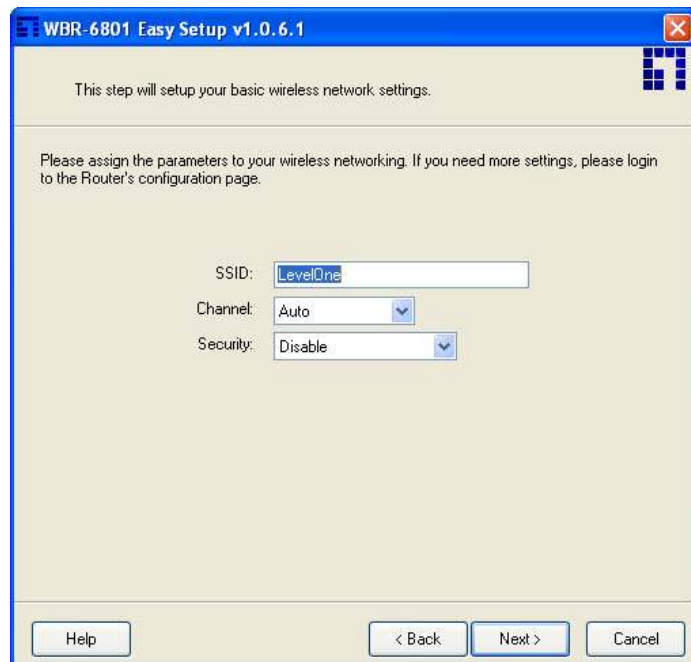
Step 4.

1. Make sure your USB 3G Modem is connected to the USB port of the Router.
2. Make sure the Router is powered on.
3. Make sure your computer has connected to the Router.
4. Make sure your computer has an IP address.
5. Click "Next" to continue.



Step 5.

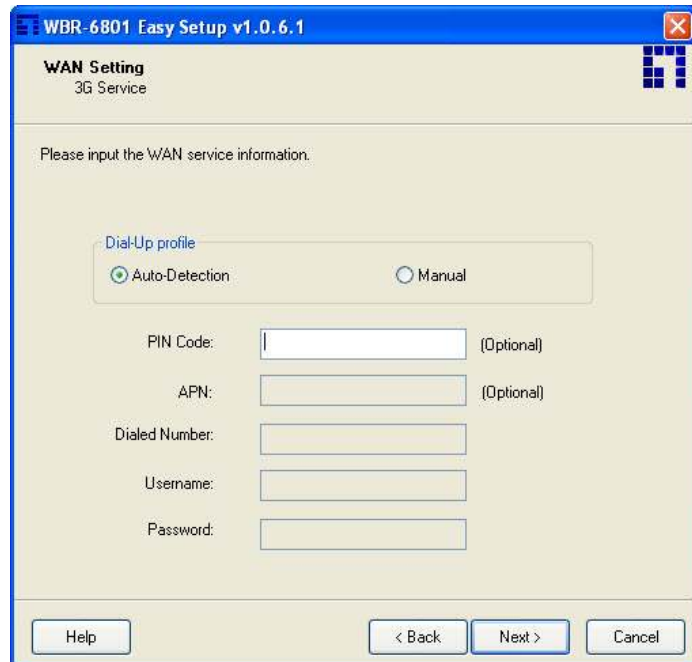
1. Key in the SSID, Channel and Security options, for example: SSID: LevelOne, Security: WEP Key: "1234567890".
2. And then click "Next" to continue.



Step 6-1.

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



The screenshot shows the "WAN Setting" dialog box for "3G Service". The title bar reads "WBR-6801 Easy Setup v1.0.6.1". The main text says "Please input the WAN service information." Below this, there is a "Dial-Up profile" section with two radio buttons: "Auto-Detection" (which is selected) and "Manual". Underneath, there are five input fields: "PIN Code:" (with "(Optional)" to its right), "APN:" (with "(Optional)" to its right), "Dialed Number:", "Username:", and "Password:". At the bottom, there are four buttons: "Help", "< Back", "Next >", and "Cancel".

Step 6-2.

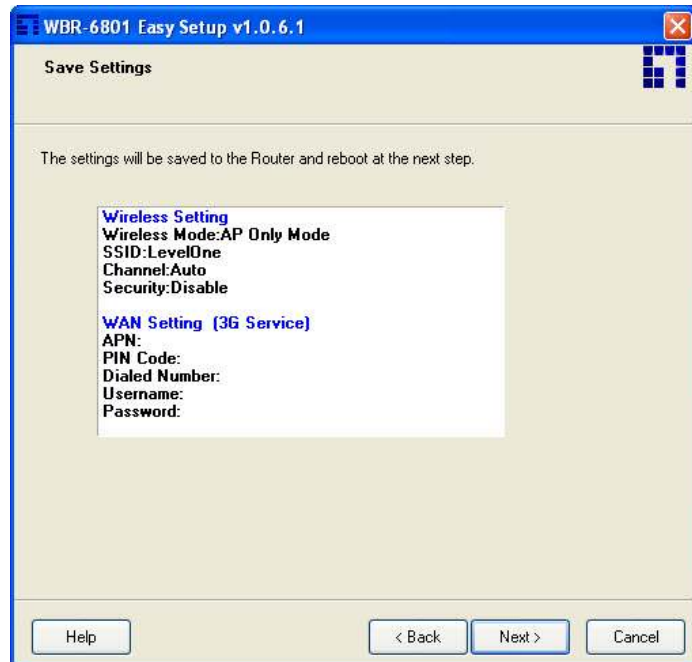
Or you can select "Manual" and manually fill in the required 3G service settings provided by your ISP. Click "Next" to continue.



The screenshot shows the same "WAN Setting" dialog box for "3G Service". In this version, the "Manual" radio button is selected. All other elements, including the input fields and buttons, are identical to the previous screenshot.

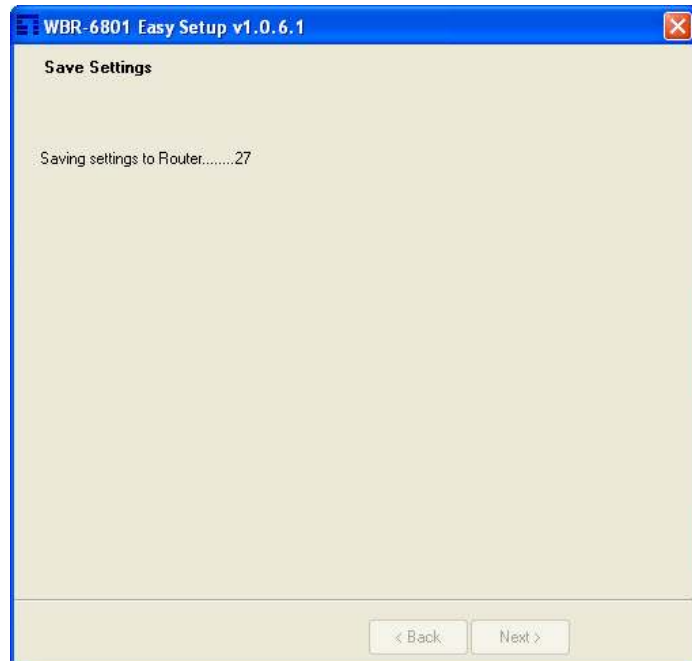
Step 7.

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



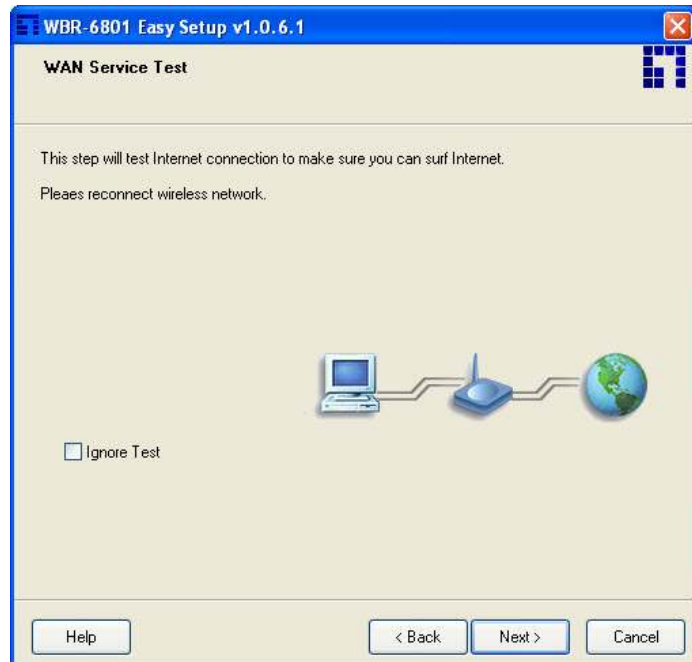
Step 8.

The 3G Portable Router is rebooting to make your entire configuration activated.



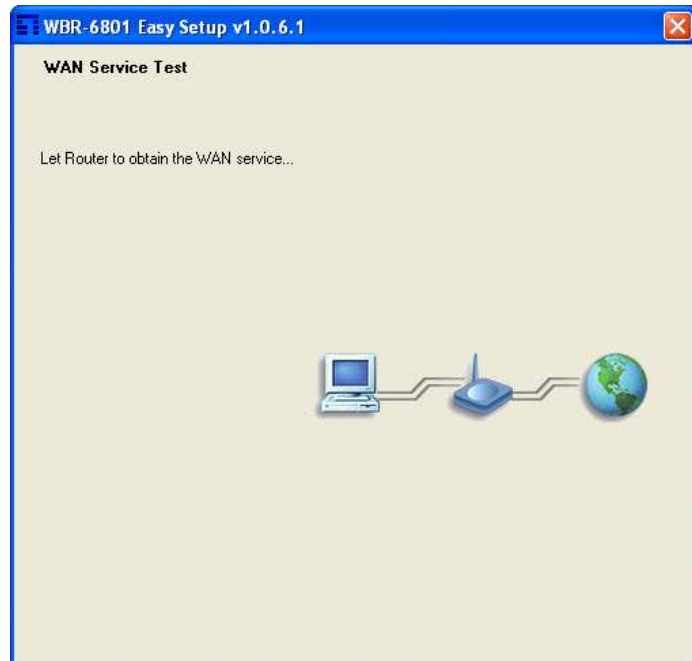
Step 9.

Please reconnect to Router before click “Next”.

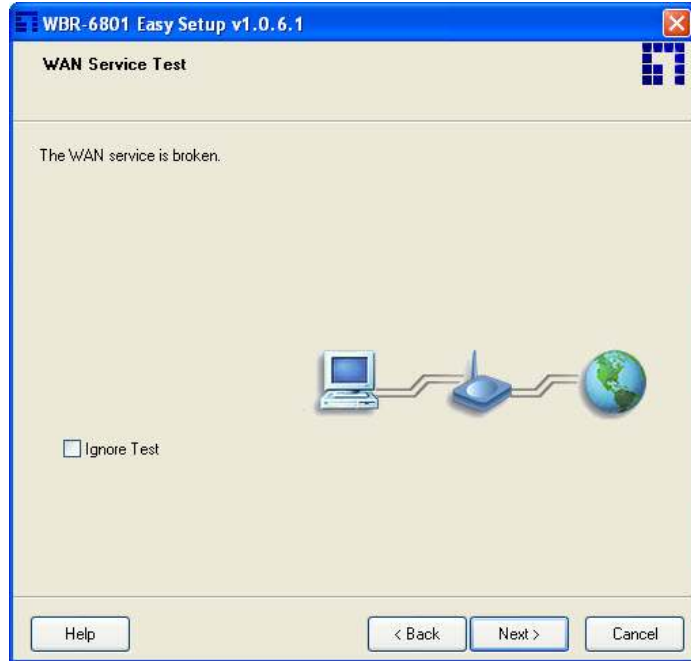


Step 10-1.

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 Easy Setup by Configuring Web Pages

You can also browse web UI to configure the device.

Browse to Activate the Setup Wizard

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



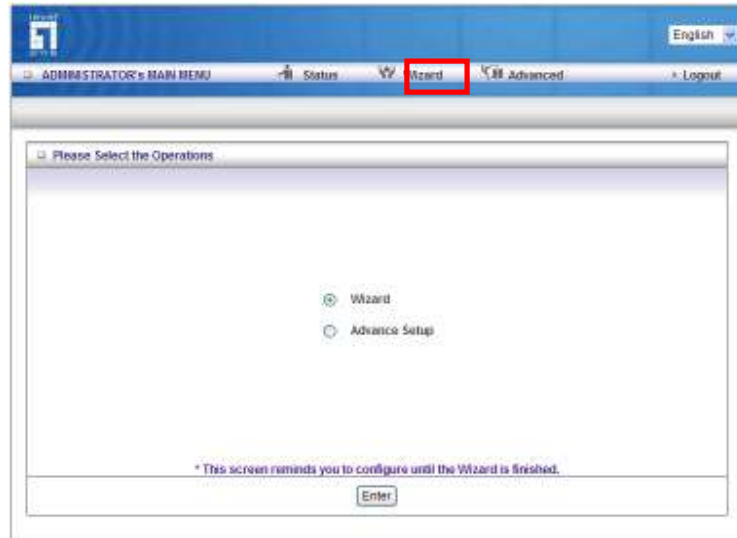
Please type "admin" in the
Password and click 'login'
button.



Select your language.



Select "Wizard" for basic settings with simple way.



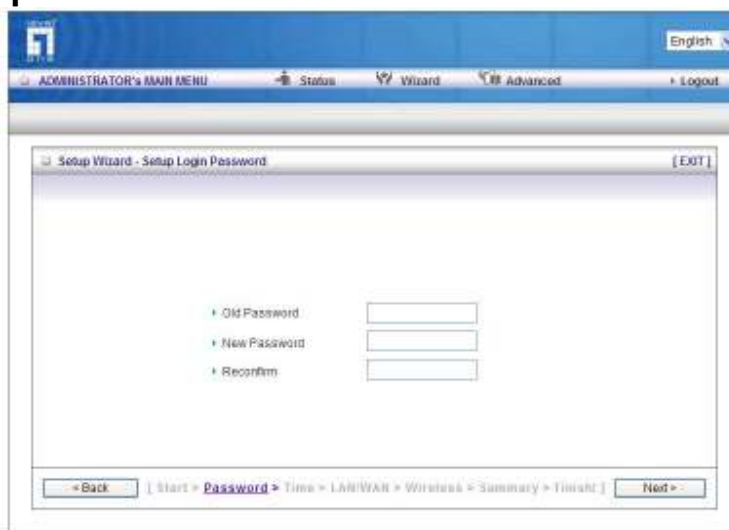
Press "Next" to start the Setup Wizard.



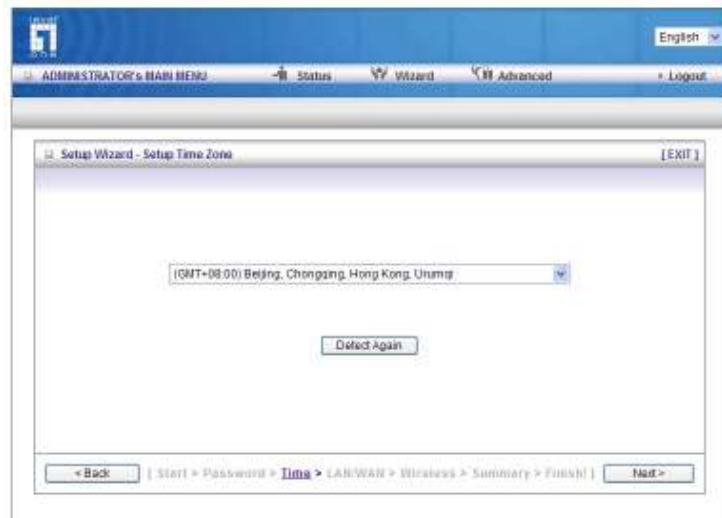
Configure with the Setup Wizard

Step 1: Change System Password.

Set up your system password.
(Default: admin)

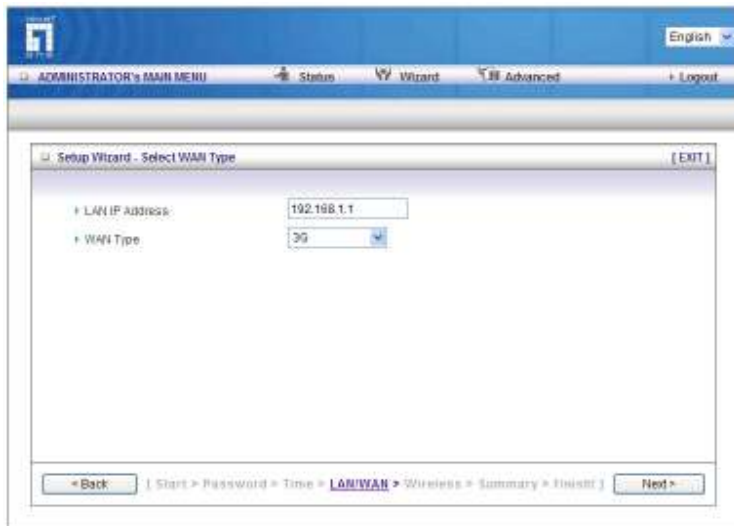


Step 2:
Select Time Zone.



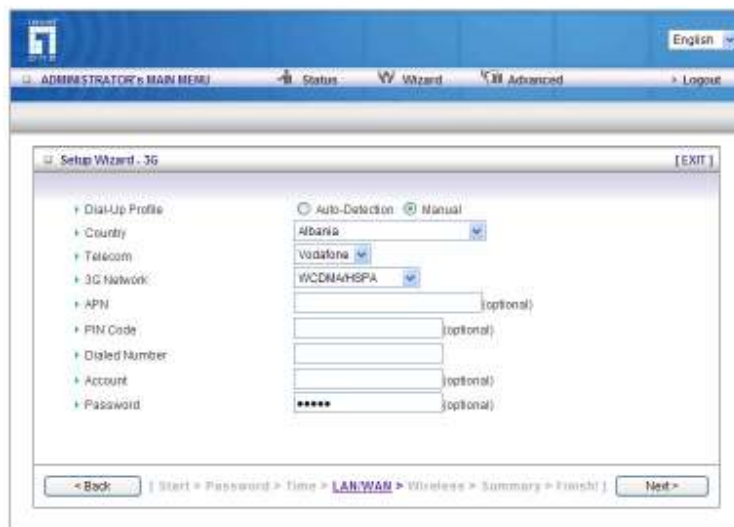
Step 3: Select Wan Type.

If you want to use 3G service as the main internet access, please set the WAN interface as "Wireless WAN" and the WAN type as "3G".



Step 4:
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.

The screenshot shows the 'Setup Wizard - Wireless settings' page. The 'Network ID (SSID)' field contains the text 'LevelOne'. The 'Channel' dropdown menu is set to 'Auto'. The breadcrumb trail at the bottom reads: Start > Password > Time > LAN/WAN > Wireless > Summary > Finish. There are 'Back' and 'Next' buttons.

Step 6: Set up Wireless Security.

Set up your Authentication and Encryption.

The screenshot shows the 'System is applying the settings' page. The 'Security' dropdown is set to 'WEP'. Below it, there are four radio buttons for 'WEP Key 1' through 'WEP Key 4', all of which are selected. To the right of each radio button is a text field containing the hexadecimal value '1234567890'. The breadcrumb trail at the bottom reads: Start > Password > Time > LAN/WAN > Wireless > Summary > Finish. There are 'Back' and 'Next' buttons.

Step 7: Apply your Setting.
Then click Apply Setting.

The screenshot shows the 'Setup Wizard - Summary' page. At the top, there is a navigation bar with 'ADMINISTRATOR'S MAIN MENU', 'Status', 'Wizard', 'Advanced', and 'Logout'. Below this, the page title is 'Setup Wizard - Summary' with an '[EXIT]' link. The main content area says 'Please confirm the information below' and contains two sections: '[WAN Setting]' and '[Wireless Setting]'. The WAN settings include WAN Type (3G), APN (-), PBN Code (-), Dialed Number (-), Account (-), and Password (*****). The Wireless settings include Wireless (Enable), SSID (LevelOne), Channel (Auto), and Security (None). At the bottom, there is a breadcrumb trail: '< Back | Start > Password > Time > LAN/WAN > Wireless > Summary > Finish |' and two buttons: 'Apply Settings' and 'Finish'.

[WAN Setting]	
WAN Type	3G
APN	-
PBN Code	-
Dialed Number	-
Account	-
Password	*****

[Wireless Setting]	
Wireless	Enable
SSID	LevelOne
Channel	Auto
Security	None

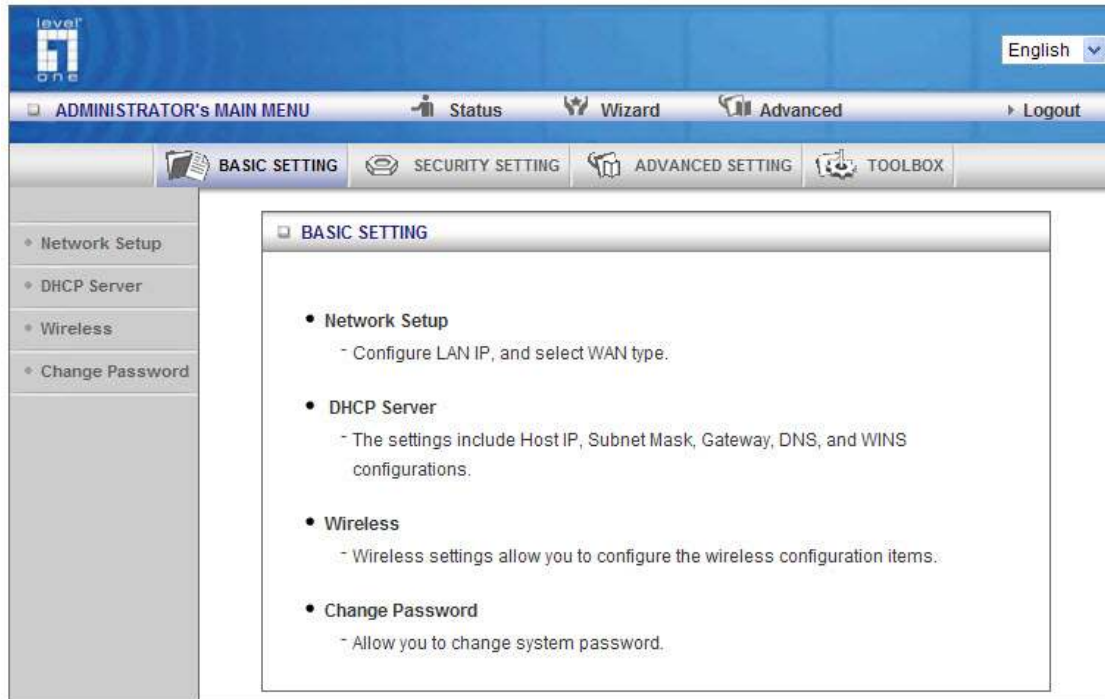
Step 8:
Click Finish to complete it.

The screenshot shows the 'Setup Wizard - Apply settings' page. At the top, there is a navigation bar with 'ADMINISTRATOR'S MAIN MENU', 'Status', 'Wizard', 'Advanced', and 'Logout'. Below this, the page title is 'Setup Wizard - Apply settings' with an '[EXIT]' link. The main content area displays 'Configuration is Completed.' in bold, followed by the instruction 'Please click "Finish" to restart the device.' At the bottom, there is a breadcrumb trail: '< Back | Start > Password > Time > LAN/WAN > Wireless > Summary > Finish |' and two buttons: 'Finish' and 'Finish'.

3. Making Configuration

3.1 Advanced

3.1.1 Basic Setting



Network Setup

LAN Setup

LAN Setup	
Item	Setting
▶ LAN IP Address	<input type="text" value="192.168.1.1"/>
▶ Subnet Mask	<input type="text" value="255.255.255.0"/>

1. **LAN 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 3G (WCDMA, HSxPA, HSPA+, CDMA2000, EV-DO, TD-SCDMA), iBurst, or Wi-Fi Hotspot.

Note. Users need to insert USB modem card for 3G and iBurst WAN connections.

The screenshot displays the 'Internet Setup' configuration page. The interface includes a top navigation bar with 'ADMINISTRATOR'S MAIN MENU', 'Status', 'Wizard', 'Advanced', and 'Logout'. Below this is a secondary navigation bar with 'BASIC SETTINGS', 'SECURITY SETTINGS', 'ADVANCED SETTINGS', and 'TOOLBOX'. The left sidebar shows a tree view with 'Network Setup', 'DHCP Server', 'Wireless', and 'Change Password'. The main content area is divided into two sections: 'LAN Setup' and 'Internet Setup'. The 'Internet Setup' section is expanded, showing a table of configuration items. The 'WAN Type' is set to '3G'. The 'Dial-Up Profile' is set to 'Manual'. The 'Country' is 'Albania', and the 'Telecom' is 'Vodafone'. The '3G Network' is 'WCDMAHSPA'. The 'APN', 'PIN Code', 'Dialed Number', 'Account', and 'Password' fields are optional. The 'Authentication' is set to 'Auto'. The 'Primary DNS' and 'Secondary DNS' fields are optional. The 'Connection Control' is set to 'Auto Reconnect (always-on)'. The 'Keep Alive' section has three options: 'Disable' (selected), 'LCP Echo Request' (with 'Interval' set to 10 seconds and 'Max Failure Time' set to 3 times), and 'Ping Remote Host' (with 'Host IP' and 'Interval' set to 60 seconds). 'Save' and 'Undo' buttons are at the bottom.

Item	Setting
LAN IP Address	192.168.1.1
Subnet Mask	255.255.255.0
Internet Setup [HELP]	
WAN Type	3G
Dial-Up Profile	<input type="radio"/> Auto-Detection <input checked="" type="radio"/> Manual
Country	Albania
Telecom	Vodafone
3G Network	WCDMAHSPA
APN	<input type="text"/> (optional)
PIN Code	<input type="text"/> (optional)
Dialed Number	<input type="text"/>
Account	<input type="text"/> (optional)
Password	<input type="password"/> (optional)
Authentication	<input checked="" type="radio"/> Auto <input type="radio"/> PAP <input type="radio"/> CHAP
Primary DNS	<input type="text"/> (optional)
Secondary DNS	<input type="text"/> (optional)
Connection Control	Auto Reconnect (always-on)
Keep Alive	<input checked="" type="radio"/> Disable
	<input type="radio"/> LCP Echo Request Interval: <input type="text" value="10"/> seconds Max Failure Time: <input type="text" value="3"/> times
	<input type="radio"/> Ping Remote Host Host IP: <input type="text"/> Interval: <input type="text" value="60"/> seconds

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.

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

iBurst Type: 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 iBurst network.

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

1. Account: Enter the new User Name for your PC card here, you can contact to your ISP to get it.
2. Password: Enter the new Password for your PC card here, you can contact to your ISP to get it.
3. Primary DNS/Secondary DNS: Optional, This feature allows you to assign a DNS Servers
4. 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.
5. Maximum Idle Time: the amount of time of inactivity before disconnecting your PPPoE session. Set it to zero or enable "Auto-reconnect" to disable this feature.
6. Service Name: optional. Input the service name if your ISP requires it. Otherwise, leave it blank.
7. Assigned IP Address: Optional, Input the IP address you want. Usually, leave it blank.

8. Maximum Transmission Unit (MTU): Most ISP offers MTU value to users. The default MTU value is 0(auto).
9. NAT disable: the option bridges data form WAN port to LAN port.

The screenshot shows the 'Internet Setup' window with the 'WAN Type' dropdown menu set to 'Wi-Fi HotSpot'. Below the dropdown is a button labeled 'Wi-Fi HotSpot Search'.

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.

This screenshot is identical to the previous one, but the 'Wi-Fi HotSpot Search' button is highlighted with a red rectangular border.

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.

The screenshot shows the 'Internet Setup' window with the 'WAN Type' set to 'Wi-Fi HotSpot'. Below this, there is a section titled 'Wireless AP List' containing a table of available Wi-Fi APs. At the bottom of the table are three buttons: 'Refresh', 'Select', and 'Cancel'.

Select	SSID	BSSID	Channel	Mode	Security	Signal Strength
<input type="radio"/>	SSID0	00:c0:02:ff:ca:80	1	B/G/N mixed	Open(None)	24%
<input checked="" type="radio"/>	LevelOne	00:02:6f:61:fb:14	4	B/G/N mixed	Open(None)	81%

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.

Internet Setup [HELP]	
▶ WAN Type	Wi-Fi HotSpot ▾
▶ WISP Name(ESSID)	LevelOne
▶ Wireless Channel	11
▶ Security	WPA-PSK (AES)
▶ Preshare Key	●●●●●●●●
<input type="button" value="Save"/> <input type="button" value="Choose other Wi-Fi HotSpot"/>	

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

Internet Setup [HELP]	
▶ WAN Type	Wi-Fi HotSpot ▾
▶ WISP Name(ESSID)	SSID0
▶ Wireless Channel	1
▶ Security	Open (None)
<input type="button" value="Save"/> <input type="button" value="Choose other Wi-Fi HotSpot"/> <input type="button" value="Reboot"/>	
Saved! The change doesn't take effect until router is rebooted.	

DHCP Server

DHCP Server [HELP]	
Item	Setting
▶ DHCP Server	<input type="radio"/> Disable <input checked="" type="radio"/> Enable
▶ IP Pool Starting Address	<input type="text" value="2"/>
▶ IP Pool Ending Address	<input type="text" value="50"/>
▶ Lease Time	<input type="text" value="86400"/> Seconds
▶ Domain Name	<input type="text"/>
<input type="button" value="Save"/> <input type="button" value="Undo"/> <input type="button" value="More..."/> <input type="button" value="Clients List..."/> <input type="button" value="Fixed Mapping..."/>	

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 Server [HELP]	
Item	Setting
▶ DHCP Server	<input type="radio"/> Disable <input checked="" type="radio"/> Enable
▶ IP Pool Starting Address	<input type="text" value="2"/>
▶ IP Pool Ending Address	<input type="text" value="50"/>
▶ Lease Time	<input type="text" value="86400"/> Seconds
▶ Domain Name	<input type="text"/>

DHCP Fixed Mapping

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

Fixed Mapping [HELP]			
DHCP clients -- select one -- <input type="button" value="Copy to"/> ID --			
ID	MAC Address	IP Address	Enable
1	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
2	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
3	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
4	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
5	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
6	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
7	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
8	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
9	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
10	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>
<input type="button" value=" <<Previous"/> <input type="button" value="Next>>"/> <input type="button" value="Save"/> <input type="button" value="Undo"/> <input type="button" value="Back"/>			

Wireless Settings

Wireless Setting [HELP]	
Item	Setting
▶ Network ID(SSID)	LevelOne
▶ SSID Broadcast	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
▶ Channel	Auto
▶ Wireless Mode	B/G/N mixed
▶ Security	None

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.

Wi-Fi Protected Setup	
Item	Setting
▶ WPS	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
▶ AP PIN	10582800 <input type="button" value="Generate New PIN"/>
▶ Config Mode	Registrar <input type="button" value="v"/>
▶ Config Status	CONFIGURED <input type="button" value="Release"/>
▶ Config Method	Push Button <input type="button" value="v"/>
▶ WPS status	NOUSED
<input type="button" value="Save"/> <input type="button" value="Trigger"/> <input type="button" value="Cancel"/>	

Wireless Client List

The list of wireless client is shows here.

Wireless Clients List	
ID	MAC Address
1	00-02-6F-97-06-6D
<input type="button" value="Back"/> <input type="button" value="Refresh"/>	

Change Password

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

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 Security Setting

SECURITY SETTING

- **Packet Filters**
 - Allows you to control access to a network by analyzing the incoming and outgoing packets and letting them pass or halting them based on the IP address of the source and destination.
- **URL Blocking**
 - URL Blocking will block LAN computers to connect to pre-defined websites.
- **MAC Address Control**
 - MAC Address Control allows you to assign different access right for different users and to assign a specific IP address to a certain MAC address.
- **Miscellaneous**
 - Remote Administrator Host: In general, only Intranet user can browse the built-in web pages to perform administration task. This feature enables you to perform administration task from remote host.
 - Administrator Time-out: The amount of time of inactivity before the device will automatically close the Administrator session. Set this to zero to disable it.
 - Discard PING from WAN side: When this feature is enabled, hosts on the WAN cannot ping the Device.

Packet Filters

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

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

URL Blocking

URL Blocking		[HELP]
Item	Setting	
▶ URL Blocking	<input type="checkbox"/> Enable	
▶ URL Logs	<input checked="" type="checkbox"/> Enable	
ID	URL	Enable
1	<input type="text"/>	<input type="checkbox"/>
2	<input type="text"/>	<input type="checkbox"/>
3	<input type="text"/>	<input type="checkbox"/>
4	<input type="text"/>	<input type="checkbox"/>
5	<input type="text"/>	<input type="checkbox"/>
6	<input type="text"/>	<input type="checkbox"/>
7	<input type="text"/>	<input type="checkbox"/>
8	<input type="text"/>	<input type="checkbox"/>
9	<input type="text"/>	<input type="checkbox"/>
10	<input type="text"/>	<input type="checkbox"/>
<input type="button" value="Save"/> <input type="button" value="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		[HELP]		
Item	Setting			
▶ MAC Address Control	<input type="checkbox"/> Enable			
<input type="checkbox"/> Connection control	Wireless clients with C checked can connect to this device; and unspecified MAC addresses to connect. <input type="button" value="allow"/> ▾			
<input type="checkbox"/> Association control	Wireless clients with A checked can associate to the wireless LAN; and <input type="button" value="allow"/> ▾ unspecified MAC addresses to associate.			
DHCP clients <input type="button" value="-- select one --"/> ▾ <input type="button" value="Copy to"/> ID <input type="button" value="--"/> ▾				
ID	MAC Address	IP Address	C	A
1	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>
5	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>	<input type="checkbox"/>
<input type="button" value="<<Previous"/> <input type="button" value="Next>>"/> <input type="button" value="Save"/> <input type="button" value="Undo"/>				

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

Miscellaneous Items		[HELP]
Item	Setting	Enable
▶ Administrator Time-out	<input type="text" value="300"/> seconds (0 to disable)	
▶ Remote Administrator Host : Port	<input type="text" value="0.0.0.0/0"/> : <input type="text" value="8080"/>	<input type="checkbox"/>
▶ Discard PING from WAN side		<input type="checkbox"/>
▶ DoS Attack Detection		<input type="checkbox"/>
▶ IP Address of DMZ Host	<input type="text"/>	<input type="checkbox"/>

1. Administrator Time-out

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

2. Remote Administrator Host/Port

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

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

3. Discard PING from WAN side

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

4. DoS Attack Detection

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

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

3.1.3 Advanced Settings

▣ **ADVANCED SETTING**

- **System Log**
 - Send system log to a dedicated host or email to specific receipts.
- **System Time**
 - Allow you to set device time manually or consult network time from NTP server.

Status

▣ System Time [Modify]	
Item	Status
System Time	Thu, 01 Jan 2009 00:51:02 +0000

System Log

▣ System Log [HELP]		
Item	Setting	Enable
▶ IP address for syslogd	<input type="text"/>	<input type="checkbox"/>
▶ Setting of Email alert		<input type="checkbox"/>
• SMTP Server : port	<input type="text"/> : <input type="text"/>	
• SMTP Username	<input type="text"/>	
• SMTP Password	<input type="text"/>	
• E-mail addresses	<input type="text"/>	
• E-mail subject	<input type="text"/>	

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

System Time

System Time [HELP]	
Item	Setting
▶ Time Zone	(GMT+08:00) Beijing, Chongqing, Hong Kong, Urumqi
▶ Auto-Synchronization	<input checked="" type="checkbox"/> Enable Time Server (RFC-868): Auto
<input type="button" value="Save"/> <input type="button" value="Undo"/>	
<input type="button" value="Sync with Time Server"/>	
Sync with my PC (Wednesday April 14, 2010 18:02:20)	

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

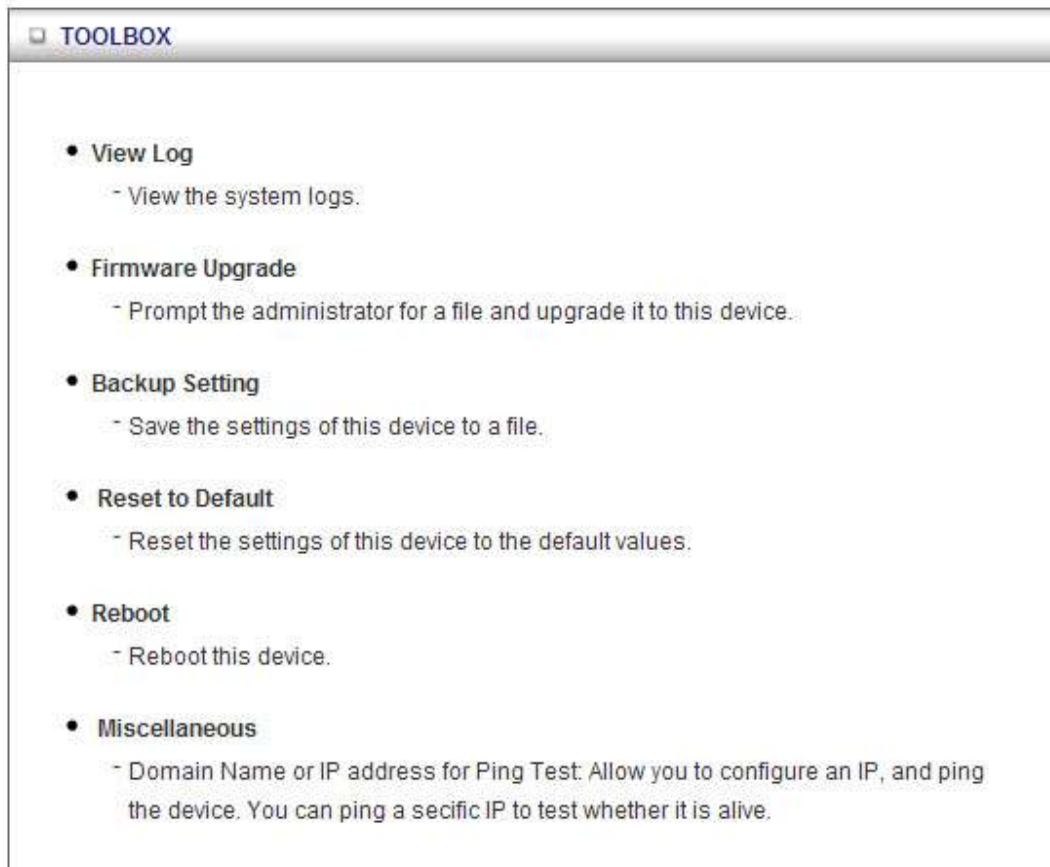
Select if you want to set Date and Time by NTP Protocol.

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.

3.1.4 TOOL BOX



System Info

System Information	
Item	Setting
▶ WAN Type	3G
▶ Display time	Thu, 01 Jan 2009 00:55:12 +0000
System Log	
Time	Log
Dec 31 23:59:59	kernel: klogd started: BusyBox v1.3.2 (2010-03-02 13:29:37 CST)
Jan 1 00:00:00	commander: CSID80012000 read err -61
Jan 1 00:00:09	udhcpd[1420]: udhcpd (v0.9.9-pre) started
Jan 1 00:00:09	udhcpd[1420]: Unable to open /var/run/udhcpd.leases for reading
Jan 1 00:00:10	init: Starting pid 1460, console /dev/ttyS1: '/bin/ash'
Jan 1 00:00:10	commander: STOP LOCAL_WANTYPE_3G
Jan 1 00:00:25	udhcpd[1422]: sending OFFER of 192.168.0.2
Jan 1 00:00:25	udhcpd[1422]: sending ACK to 192.168.0.2
Jan 1 00:44:49	udhcpd[1422]: Received a SIGUSR1
Page: 1/1 (Log Number:9)	
<input data-bbox="497 1088 660 1122" type="button" value=" <<Previous "/> <input data-bbox="683 1088 766 1122" type="button" value=" Next>> "/> <input data-bbox="788 1088 935 1122" type="button" value=" First Page "/> <input data-bbox="954 1088 1091 1122" type="button" value=" Last Page "/>	
<input data-bbox="577 1131 692 1164" type="button" value=" Refresh "/> <input data-bbox="705 1131 852 1164" type="button" value=" Download "/> <input data-bbox="865 1131 1011 1164" type="button" value=" Clear logs "/>	

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

Firmware Upgrade

The screenshot shows a web interface for a 'Firmware Upgrade'. At the top, there is a header 'Firmware Upgrade'. Below it, a section titled 'Firmware Filename' contains an empty text input field and a 'Browse...' button. Underneath, it states 'Current firmware version is V2.00a0_0413.' A note follows: 'Note! Do not interrupt the process or power off the unit when it is being upgraded. When the process is done successfully, the unit will be restarted automatically.' At the bottom of this section, there is a checkbox labeled 'Accept unofficial firmware.' and two buttons: 'Upgrade' and 'Cancel'.

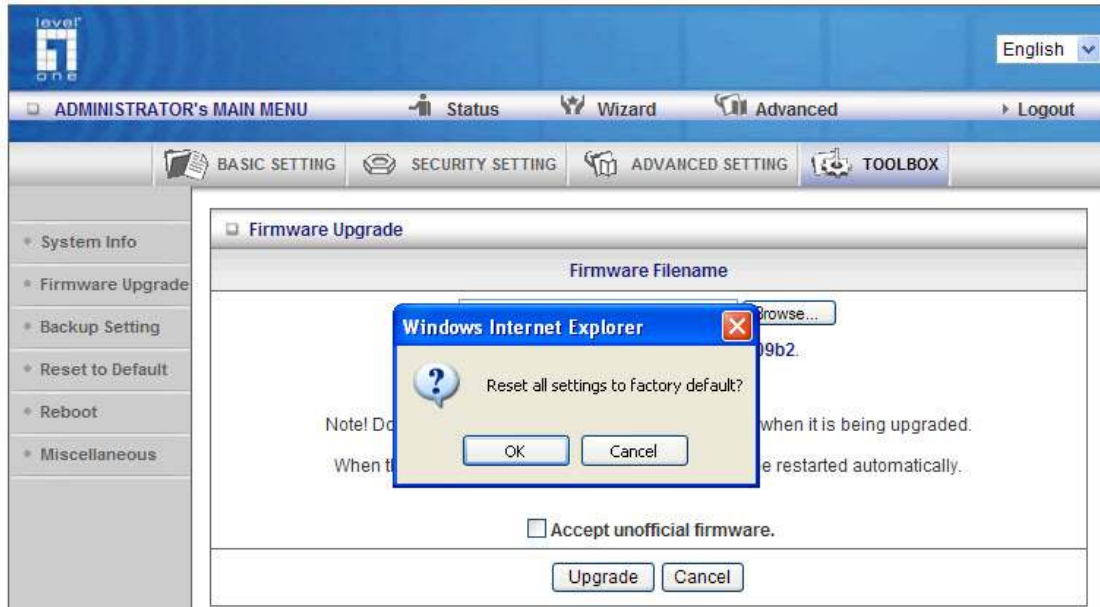
You can upgrade firmware by clicking “Upgrade” button.

Backup Setting

The screenshot shows the 'ADMINISTRATOR's MAIN MENU' with a sidebar on the left containing options like 'System Info', 'Firmware Upgrade', 'Backup Setting', 'Reset to Default', 'Reboot', and 'Miscellaneous'. The 'Backup Setting' option is selected. A 'File Download' dialog box is open in the foreground, asking 'Do you want to save this file, or find a program online to open it?'. The dialog provides details: Name: config.bin, Type: Unknown File Type, 786 bytes, and From: 192.168.1.1. It has 'Find', 'Save', and 'Cancel' buttons. A warning message at the bottom of the dialog reads: 'While files from the Internet can be useful, some files can potentially harm your computer. If you do not trust the source, do not find a program to open this file or save this file. [What's the risk?](#)'

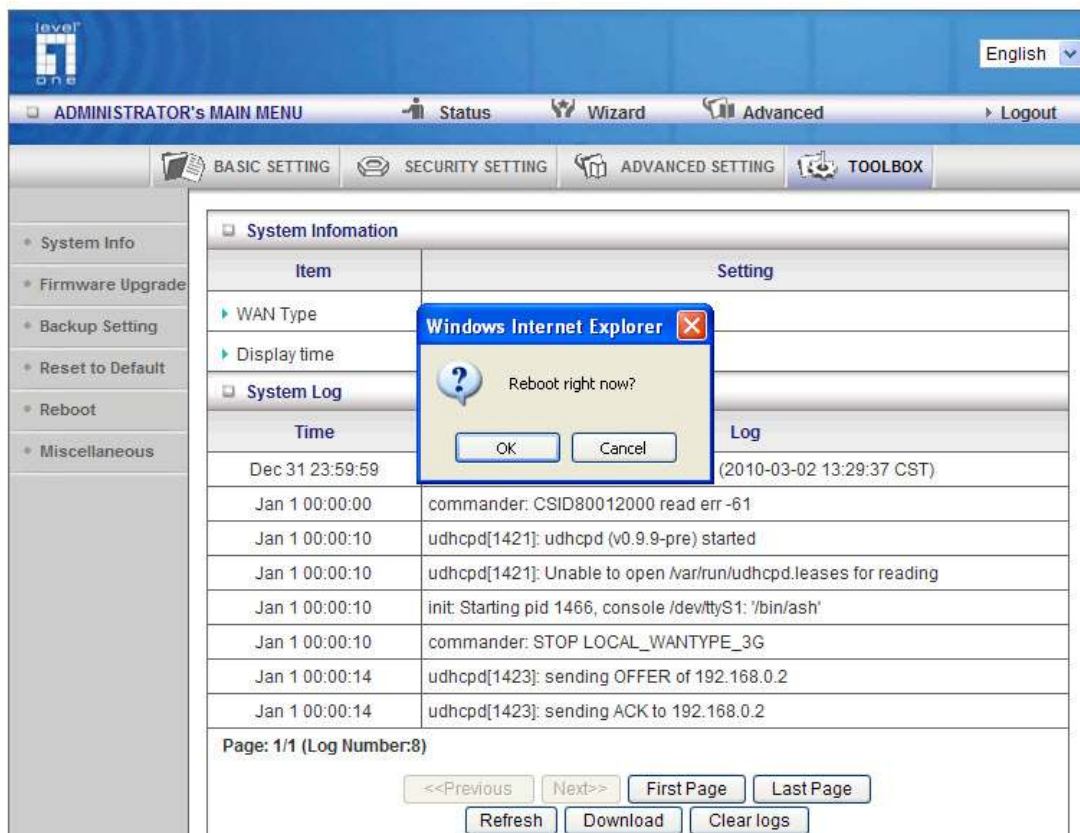
You can backup your settings by clicking the “**Backup Setting**” button and save it as a bin file. Once you want to restore these settings, please click Firmware Upgrade button and use the bin file you saved.

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

Miscellaneous Items [HELP]	
Item	Setting
▶ UPnP setting	<input checked="" type="checkbox"/> Enable
▶ Domain Name or IP address for Ping Test	<input type="text"/> <input type="button" value="Ping"/>
<input type="button" value="Save"/> <input type="button" value="Undo"/>	

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.

4. Troubleshooting

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

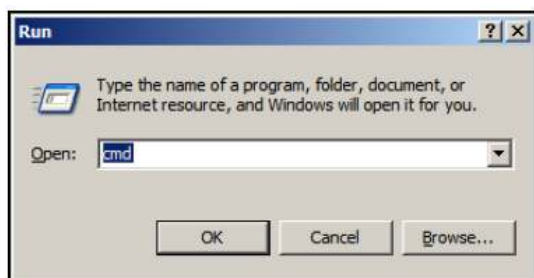
1 Why can't I configure the router even the cable is plugged and the LED is lit?

Do a **Ping test** to make sure that the WiFi Mobile Broadband 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 192.168.123.254"**. Assure that you ping the correct IP Address assigned to the WiFi Mobile Broadband 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 What can I do if my Ethernet connection does not work properly?

- A. Make sure the RJ45 cable connect with the router.
- B. Ensure that the setting on your Network Interface Card adapter is "Enabled".
- C. If settings are correct, ensure that you are not using a crossover Ethernet cable, not all Network Interface Cards are MDI/MDIX compatible, and use a patch cable is recommended.
- D. If the connection still doesn't work properly, then you can reset it to default.

3 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.

4 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 Mobile Broadband 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 Mobile Broadband 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 can not 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 Mobile Broadband Router to default setting

C. Why does my wireless connection keep dropping?

- I. Antenna Orientation.
 - i. Try different antenna orientations for the WiFi Mobile Broadband 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 Mobile Broadband 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.

5 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 Mobile Broadband Router to default setting

6 How to reset to default?

1. Ensure the WiFi Mobile Broadband 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 Mobile Broadband Router reboots, it has back to the factory **default** settings.

Appendix A Spec Summary Table

Device Interface		CDM531AM
Wireless WAN	USB 2.0 for external HSPA modem	1
Antenna	PIFA internal antenna	1
WPS/Reset Button	For WPS connection / Reset router setting to factory default	1
LED Indication	USB / WiFi	●
Power Switch	Slide ON/OFF switch	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 WCDMA/HSxPA/EVDO/Blackberry Phone)	●
	PPPoE (for iBurst)	●
	DHCP Client (for Flash-OFDM/WM Phone)	Optional
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)	106.5 x 76 x 21
	Package dimension (mm)	
	Package weight (g)	
Operation Temp.	Temp.: 0~40°C, Humidity 10%~90% non-condensing	●
Storage Temp.	Temp.: -10~70°C, Humidity: 0~95% non-condensing	●
EMI Certification	CE/FCC	●
RoHS	RoHS compliance	●

*Specifications are subject to change without prior notice.

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Linux-2.6.21 system kernel

busybox_1.3.2

bridge-utils 0.9.5

dhcpcd-1.3

ISC DHCP V2 P5

IPtables 1.4.2

syslogd spread from busybox

DNRD

wireless tools

GNU Wget

Availability of source code

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Version 2, June 1991

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