



# **Outdoor 802.11n Wireless Access Point (P/N DA2131-V1)**

**Owner's Manual**

1308197 Rev. B

### **Federal Communications Commission Statement**

This device complies with Part 15 of the FCC Rules and RSS-210 Issue 8 of Canada. Operation is subject to the following two conditions:

- This device may not cause harmful interference, and
- This device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a class B digital device, pursuant to Part 15 of the Federal Communications Commission (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:

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

*Reprinted from the Code of Federal Regulations #47, part 15.193, 1993. Washington DC: Office of the Federal Register, National Archives and Records Administration, U.S. Government Printing Office.*

### **Canadian Department of Communications**

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

This Class B digital apparatus complies with Canadian ICES-003. Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

### **FCC Radio Frequency Exposure Caution Statement**

In order to maintain compliance with the FCC RF exposure guidelines, this equipment should be installed and operated with minimum distance 20cm between the radiator and your body. Use only with supplied antenna. Unauthorized antenna, modification, or attachments could damage the transmitter and may violate FCC regulations. Any changes of modifications not expressly approved by the grantee of this device could void the users authority to operate the equipment.

Installation and use of this Wireless LAN device must be in strict accordance with the instructions included in the user documentation provided with the product. Any changes or modifications (including the antennas) made to this device that are not expressly approved by the manufacturer may void the

user's authority to operate the equipment. The manufacturer is not responsible for any radio or television interference caused by unauthorized modification of this device, or the substitution or attachment of connecting cables and equipment other than manufacturer specified. It is the responsibility of the user to correct any interference caused by such unauthorized modification, substitution or attachment. Manufacturer and its authorized resellers or distributors will assume no liability for any damage or violation of government regulations arising from failing to comply with these guidelines.

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

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**Declaration of Conformity (R&TTE directive 1999/5/EC)**

The following items were completed and are considered relevant and sufficient:

- Essential requirements as in [Article 3]
- Protection requirements for health and safety as in [Article 3.1a]
- Testing for electric safety according to [EN 60950]
- Protection requirements for electromagnetic compatibility in [Article 3.1b]
- Testing for electromagnetic compatibility in [EN 301 489-1] & [EN 301]
- Testing according to [489-17]
- Effective use of the radio spectrum as in [Article 3.2]
- Testing for radio test suites according to [EN 300 328-2]

**WARNING: TO PREVENT FIRE OR SHOCK HAZARD, DO NOT EXPOSE THIS PRODUCT TO RAIN OR MOISTURE. THE UNIT MUST NOT BE EXPOSED TO DRIPPING OR SPLASHING WATER.**

**CAUTION: DO NOT OPEN THE UNIT. DO NOT PERFORM ANY SERVICING OTHER THAN THAT CONTAINED IN THE INSTALLATION AND TROUBLESHOOTING INSTRUCTIONS. REFER ALL SERVICING TO QUALIFIED SERVICE PERSONNEL.**

**CAUTION: THIS DEVICE MUST BE INSTALLED AND USED IN STRICT ACCORDANCE WITH THE MANUFACTURER'S INSTRUCTIONS AS DESCRIBED IN THE USER DOCUMENTATION THAT COMES WITH THE PRODUCT.**

**WARNING: POSTPONE INSTALLATION UNTIL THERE IS NO RISK OF THUNDERSTORM OR LIGHTNING ACTIVITY IN THE AREA.**

When using this device, basic safety precautions should always be followed to reduce the risk of fire, electric shock and injury to persons, including the following:

- Read all of the instructions {listed here and/or in the user manual} before you operate this equipment.
- Give particular attention to all safety precautions.

- Retain the instructions for future reference.
- Comply with all warning and caution statements in the instructions.
- Observe all warning and caution symbols that are affixed to this equipment.
- Comply with all instructions that accompany this equipment.
- Avoid using this product during an electrical storm. There may be a risk of electric shock from lightning. For added protection for this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug the power supply, and disconnect the Cat 5e to the N-WAP at the POE Injector. This will prevent damage to the product due to lightning and power surges. It is recommended that the customer install an AC surge protector in the AC outlet to which this device is connected. This is to avoid damaging the equipment by local lightning strikes and other electrical surges. Operate this product only from the type of power source indicated on the product's marking label.
- If you are not sure of the type of power supplied to your home, consult your dealer or local power company.
- Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in safe operating condition.

Installation of this product must be in accordance with national wiring codes and conform to local regulations.

Place POE Injector to allow for easy access when disconnecting the power cord/adaptor of the device from the AC wall outlet.

Wipe the unit with a clean, dry cloth. Never use cleaning fluid or similar chemicals. Do not spray cleaners directly on the unit or use forced air to remove dust.

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# Chapter 1

## Introduction

### Overview

The DA2131-V1 Outdoor Wireless Access Point from Legrand now extends your home network's wireless reach to locations outside the home, such as patios or pool areas. With its environmental protection, the DA2131-V1 can perform under rigorous weather conditions including heavy rain and wind. With its Power over Ethernet (PoE) design, it can be easily installed in the areas where power outlets are not available.

With built-in IEEE 802.11b/g/n wireless network capability, the Outdoor N-WAP allows any computer and wireless enabled network client connect to it without additional cabling. With an 802.11n compatible wireless adapter installed in your PC, the files can be transferred at speeds up to 150Mbps. The radio coverage is also designed specifically for outdoor use.

To secure the wireless communication, the Outdoor N-WAP supports the most up-to-date encryption: 64/128-bit WEP, WPA / WPA2, WPA-PSK / WPA2-PSK and 802.1x authority to secure and protect your wireless LAN. MAC filtering and SSID broadcast control are provided to consolidate the wireless network security and prevent unauthorized wireless connection.

The DA2131-V1 supports multiple modes, including AP/Client, WDS Bridge and WDS Repeater.

### Product Features

- IEEE 802.11b/g/n wireless standard compliant
- 10/100Mbps RJ-45 ports with auto MDI/MDI-X supported
- Supports 64/128-bit WEP, WPA, WPA-PSK, WPA2, WPA2-PSK and 802.1x encryption

### Package Content

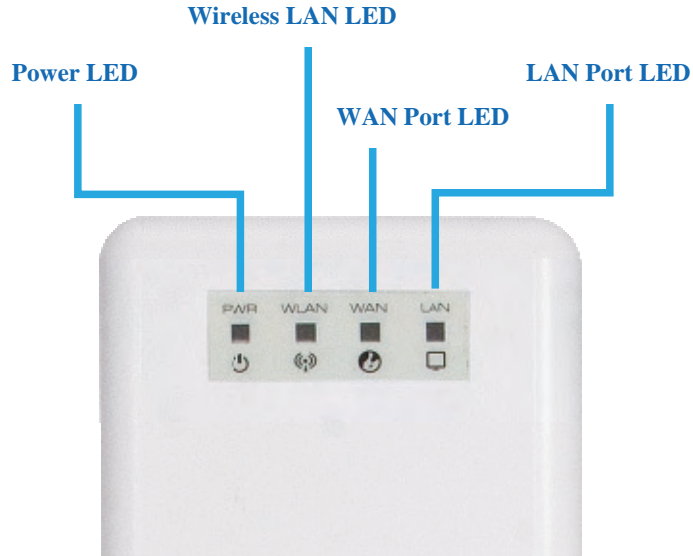
The contents of your product package should include the following items:

- DA2131-V1 802.11n Outdoor Wireless Access Point
- POE Injector with reset button
- Power Adaptor (12V, 1A)
- Mounting Tie x 2
- Installation/Instruction Sheet
- A CD containing this manual.

## Physical Details

The following figures illustrate the physical details of the Outdoor N-WAP.

### 1.1 The Rear Panel – LED



**Figure 1-1** Rear Panel LED Identification

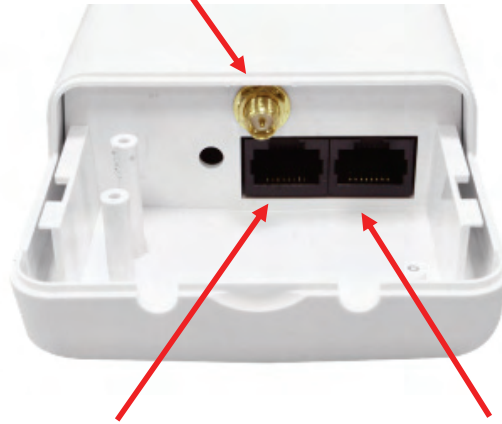
### 1.2 LED Indications

LED	State	Meaning
Power	On	System On
	Off	System Off
WLAN	On	Wireless Radio ON.
	Off	Wireless Radio Off.
	Blinking	Data is transmitting or receiving on the wireless.
WAN	On	Port linked.
	Off	No link.
	Blinking	Data is transmitting or receiving on the WAN interface.
LAN	On	Port linked.
	Off	No link.
	Blinking	Data is transmitting or receiving on the LAN interface.



1.3 The Rear Panel – Port & Connector

RP-SMA Connector for External Antenna (not supplied)



LAN Port with PoE

WAN Port with PoE

Figure 1-2 Port and Connector of DA2131-V1



Figure 2-3 Port and Connector description label

Interface	Function
RP-SMA Connector	For external antenna. You can use the reverse SMA connector to connect a 2.4GHz external antenna (not supplied by Legrand).
LAN	The RJ-45 jack allows LAN connection through a Category 5 cable. Supports auto-sensing on 10/100M speed and half/ full duplex; complys with IEEE 802.3/ 802.3u respectively.
WAN	The RJ-45 jack allows WAN connection through a Category 5 cable. Supports auto-sensing on 10/100M speed and half/ full duplex; complys with IEEE 802.3/ 802.3u respectively.



1. For External Antenna Mode, you MUST physically attach antenna before powering on.
2. When using an external antenna, you should configure the **Antenna Switch** from “Internal” to “External” via Web UI.

## 1.4 PoE Injector

### ■ PoE Module



Figure 1-4 Top view of PoE Injector

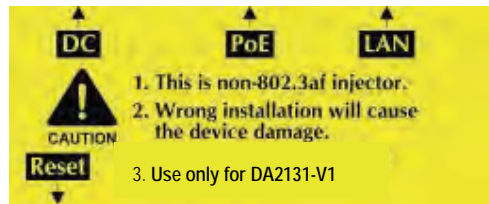


Figure 1-5 Label of PoE Injector

### ■ PoE Reset Button

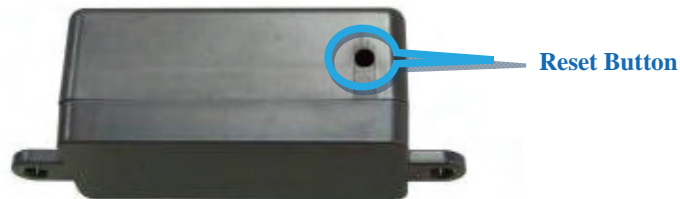


Figure 1.6 Reset Button of PoE Injector

Active	Time
Reset	Push and hold the reset button of POE injector about 5 ~ 10 seconds to reset the configuration parameters to factory defaults.

## Chapter 2

# Physical Installation

### Physical Installation Steps

#### 2.1 Preparation before Installation

##### 2.1.1 Professional Installation Required

Please seek assistance from a professional installer who is well trained in Wireless data product installation and knowledgeable in the local regulations.

##### 2.1.2 Safety Precautions

1. To keep you safe and install the hardware properly, please read and follow these safety precautions.
2. If you are installing the DA2131-V1 for the first time, for your safety as well as others', please seek assistance from a professional installer who has received safety training on the hazards involved.
3. Keep safety as well as performance in mind when selecting your installation site, especially where there are electric power and phone lines.
4. When installing the DA2131-V1, please note the following things:
  - ◆ Do not use a metal ladder;
  - ◆ Do not work on a wet or windy day;
  - ◆ Wear shoes with rubber soles and heels, rubber gloves, long sleeved shirt or jacket.
5. When the system is operational, avoid standing directly in front of it. Strong RF fields are present when the transmitter is on.

##### 2.1.3 Installation Precautions

To avoid damage to the DA2131-V1 while you are installing it, please read and follow these installation precautions.

1. Users **MUST** use a proper and well-installed surge arrestor with the DA2131-V1; otherwise, a random lightning strike could easily cause fatal damage to the product. **EMD (Lightning) DAMAGE IS NOT COVERED UNDER WARRANTY.**
2. **Users MUST use the "Power cord & PoE Injector" shipped in the box with the DA2131-V1.** Use of other options may cause damage to the product.
3. **Users MUST power off the DA2131-V1 first before connecting any external antenna to it.** Do not switch from built-in antenna to the external antenna from WEB management without physically attaching the external antenna onto the device first; otherwise, damage might be caused to the DA2131-V1.

## 2.2 Hardware Installation

### 2.2.1 Installation Steps

**Step 1.** Push the latch in the bottom of DA2131-V1 to remove the sliding cover.



**Figure 2-1** Move the cover

**Step 2.** Plug the RJ-45 Ethernet cable into the LAN Port of DA2131-V1.



**Figure 2-2** Cable Connection



RJ-45 8P8C Ethernet cable is required.

**Step 3.** Slide the cover back to seal the bottom of the DA2131-V1.



**Figure 2-3** Seal the bottom

**Step 4.** Take out the AC adapter and PoE injector, plug the power cord into the DC port and plug the other side of the RJ-45 cable from STEP 2 into the POE port of the PoE injector.

**DC:** Insert adapter DC power cord

**POE:** This jack is connected to LAN port of the Outdoor N-WAP with the supplied Cat5 cable.

**LAN:** This jack is connected to LAN side PC/Hub or Router/ADSL modem device with a Cat5 cable

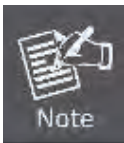


**Figure 2-4** Connect to PoE Injector

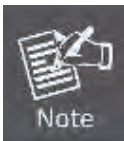
**Step 5.** Complete the hardware installation as indicated on the illustration below.



**Figure 2-5** Cabling complete



It will take about 50 seconds to complete the boot up sequence after powering on the Outdoor N-WAP; Power LED will be active, and after that the WLAN Activity LED will be flashing to show the WLAN interface is enabled and working now.



To avoid lightning strike damage, consider installing a lightning arrestor between the NWAP and PoE injector.

### 2.2.2 Pole Mounting

**Step 1.** Turn the DA2131-V1 over. Feed a pole mounting tie through the middle hole of the rear structure.

**Step 2.** Mount DA2131-V1 securely to the pole by fastening both mounting ties tightly.

**Step 3.** Now you have completed the hardware installation of DA2131-V1 as shown in the figure below.

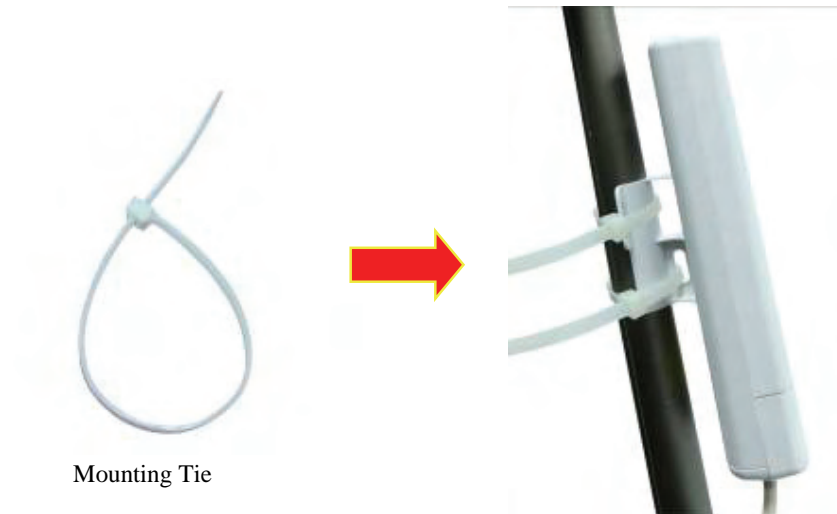


Figure 2-6 Pole Mounting

### 2.2.3 Surface Mounting

Notice the rear bracket flange of the DA2131-V1 contains a screw hole in each corner for mounting to a flat surface with appropriate screws (provided).

### 2.2.4 Using an External Antenna

If you prefer to use the external antenna with SMA-type connector for your application instead of the built-in directional antenna, please follow the steps below.

**Step 1.** Connect your antenna with the SMA-type connector on the bottom of DA2132-V1.

**Step 2.** Power on the DA2131-V1, and then go to **Wireless Settings-> Basic** to configure the **Antenna Switch** from “**Internal**” to “**External**”.



1. If you are going to use an external antenna on DA2131-V1, get some cable in advance.
2. Users **MUST** power off the DA2131-V1 first before connecting the external antenna to it. **Do not switch from built-in antenna to the external antenna from WEB management without physically attaching the external antenna onto the DA2131-V1**; otherwise, damage might be caused to the Outdoor NWAP itself.

## Chapter 3

### Network Settings

#### Configuring and monitoring your DA2131-V1 from a web browser

The DA2131-V1 integrates a web-based graphical user interface that can cover most configurations and machine status monitoring. Via a standard web browser, you can configure and check machine status from anywhere around the world.

**NOTE:** The DA2131-V1 comes from the factory with the following IP configuration:

**Default IP Address: 192.168.40.252**

**Default IP Subnet Mask: 255.255.255.0**

**WEB login User Name; admin**

**WEB login Password: admin**

#### 3.1 Connecting to the Outdoor NWA

##### For OS of Microsoft Windows 2000/ XP:

1. Click the **Start** button and select Settings, then click **Control Panel**. The **Control Panel** window will appear.
2. Move mouse and double-click the right button on **Network and Dial-up Connections** icon. Move mouse and double-click the **Local Area Connection** icon. The **Local Area Connection** window will appear. Click **Properties** button in the **Local Area Connection** window.

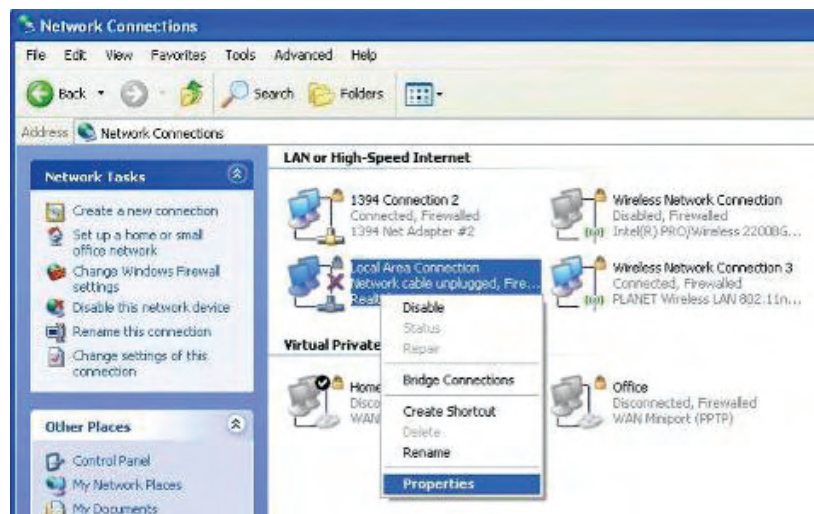


Figure 3-1

3. Check the installed list of **Network Components**. If TCP/IP is not installed, click the **Add** button to install it; otherwise go to step 6.



4. Select **Protocol** in the **Network Component Type** dialog box and click **Add** button.
5. Select **TCP/IP** in Microsoft of Select **Network Protocol** dialog box then click **OK** button to install the TCP/IP protocol, it may need the Microsoft Windows CD to complete the installation. Close and go back to **Network** dialog box after the TCP/IP installation.
6. Select **TCP/IP** and click the properties button on the **Network** dialog box.

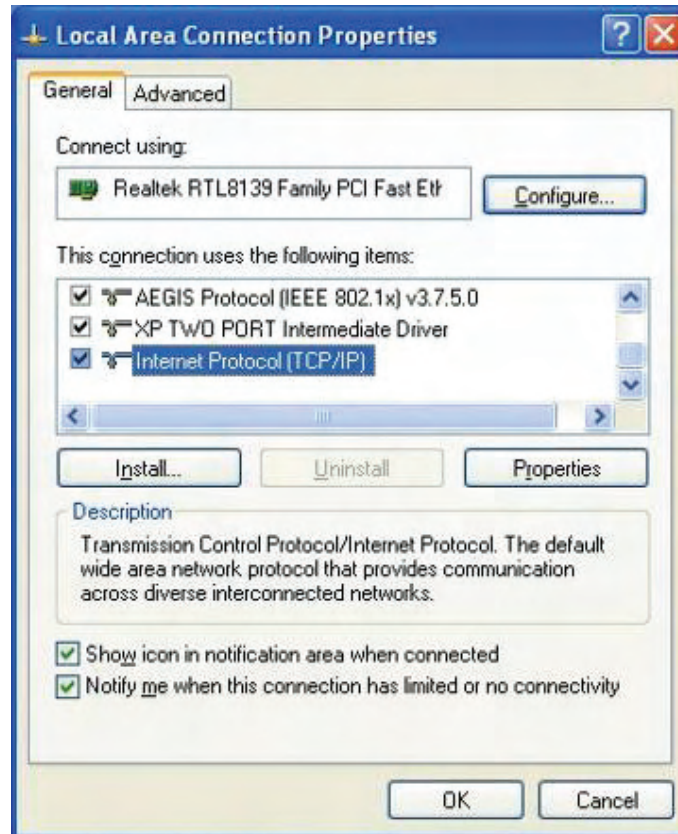


Figure 3-2

7. Select Specify an IP address and type in values as following example.  
 IP Address: *192.168.40.2*, or any IP address within *192.168.40.2* to *192.168.40.251* is good to connect to the Outdoor NWAP.  
 IP Subnet Mask: *255.255.255.0*

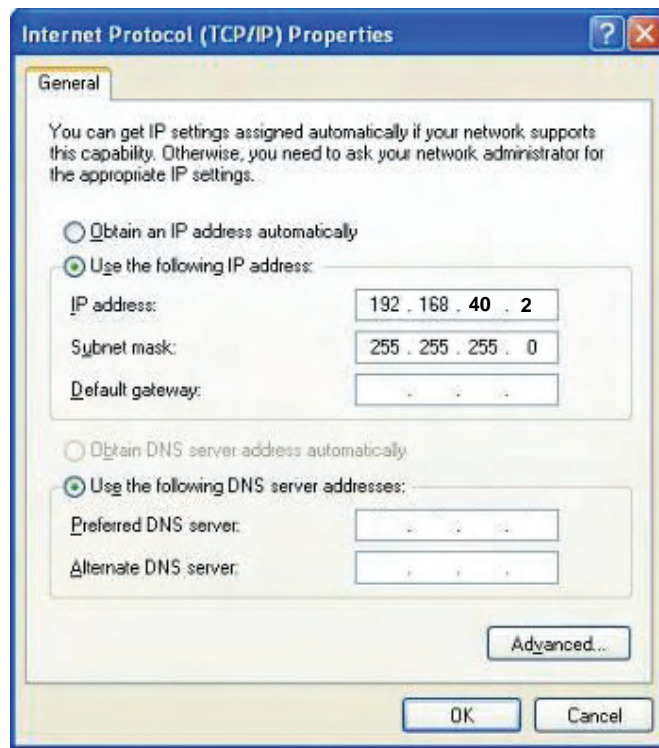


Figure 3-3

8. Click **OK** to complete the IP parameters setting.

#### For OS of Microsoft Windows Vista / 7:

1. Click the *Start* button and select *Settings*, then click **Control Panel**. The *Control Panel* window will appear.
2. Move mouse and double-click the right button on **Network Connections** item. The *Network Connections* window will appear. Double click **Local Area Connection icon**, then User Account Control window shown. Right click Continue button to set properties.
3. In *Local Area Connection Properties* window, Choose **Networking** tab, move mouse and click **Internet Protocol Version 4 (TCP/IPv4)**, then click *Properties* button.

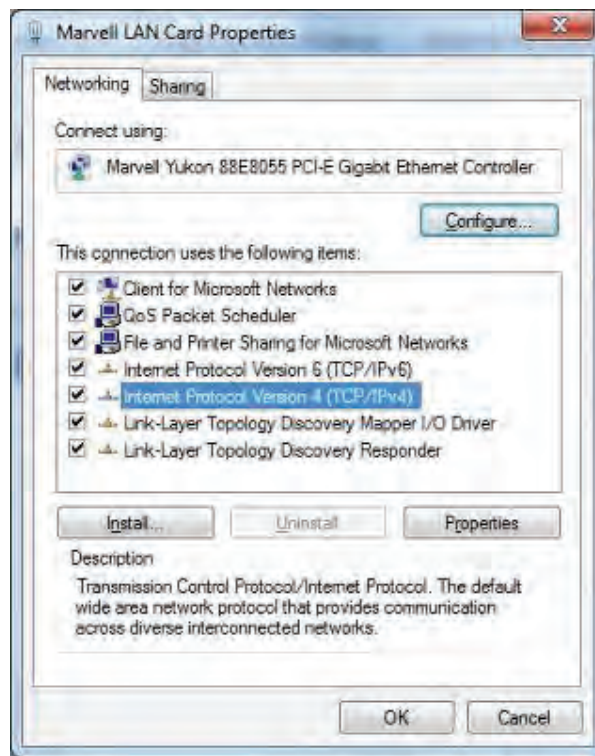


Figure 3-4

4. Move mouse and click **General** tab, Select **Specify an IP address** and type in values as following example.

IP Address: *192.168.40.2*, or any IP address within *192.168.40.2* to *192.168.40.251* is good to connect to the Outdoor NWAP. IP Subnet Mask: *255.255.255.0*

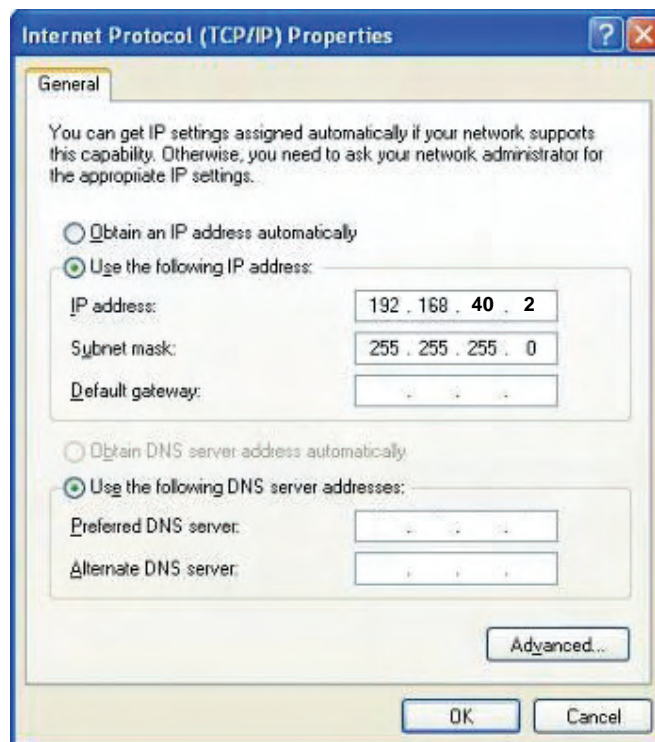


Figure 3-5

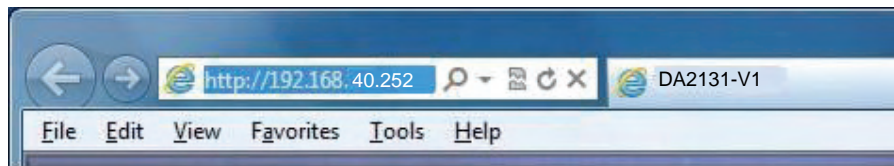
5. Click **OK** to complete the IP parameters setting.

**For OS of Microsoft Windows NT:**

1. Click the *Start* button and select Settings, then click *Control Panel*. The *Control Panel* window will appear.
2. Move mouse and double-click the right button on Network icon. The Network window will appear. Click Protocol tab from the Network window.
3. Check the installed list of Network Protocol window. If TCP/IP is not installed, click the Add button to install it; otherwise go to step 6.
4. Select Protocol in the Network Component Type dialog box and click Add button.
5. Select *TCP/IP* in *Microsoft of Select Network Protocol* dialog box then click OK button to install the TCP/IP protocol, it may need the Microsoft Windows CD to complete the installation. Close and go back to *Network* dialog box after the TCP/IP installation.
6. Select *TCP/IP* and click the properties button on the *Network* dialog box.
7. Select Specify an IP address and type in values as following example.  
 IP Address: *192.168.40.2*, or any IP address within *192.168.40.2* to *192.168.40.251* is good to connect to the Outdoor NWAP.  
 IP Subnet Mask: *255.255.255.0*
8. Click *OK* to complete the IP parameters setting.

**3.2 Web Login**

Open a WEB browser, i.e. Microsoft Internet Explore 6.1 SP1 or above, then enter **192.168.40.252** on the URL to connect the DA2131-V1.



**Figure 3-6**

After a moment, a login window will appear. Enter the User Name and Password. Then click the **OK** button.

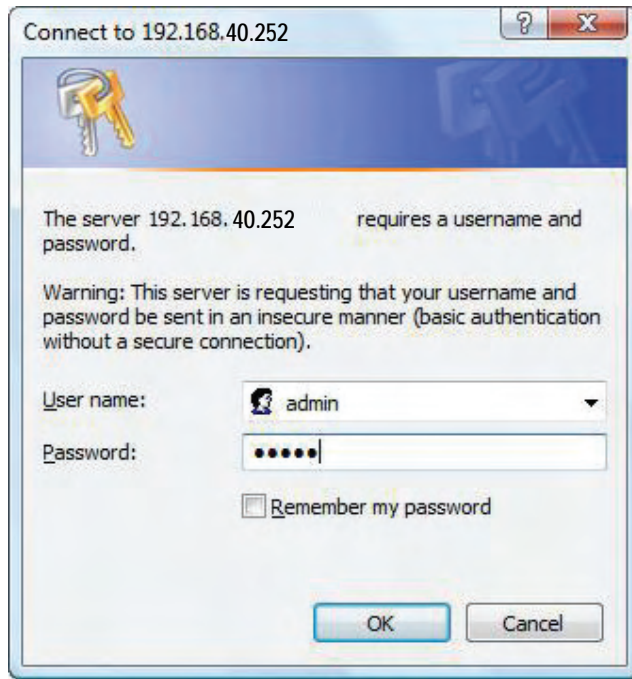
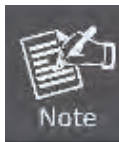


Figure 3-7 Login Window

Default User name: **admin**

Default Password: **admin**



If the above screen does not pop up, it may mean that your web-browser has been set to a proxy. Go to Tools menu>Internet Options>Connections>LAN Settings, in the screen that appears, cancel the Using Proxy checkbox, and click OK to finish it.

After you enter the username and password, the main screen appears as [Figure 3-8](#)

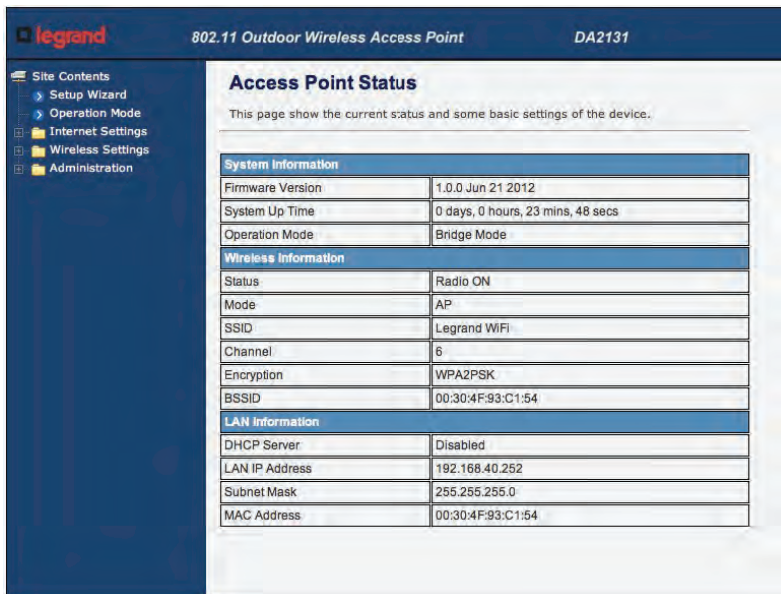


Figure 3-8 Web UI Screenshot

The next chapter will introduce the functions of the web UI.



# Chapter 4. Basic System Settings

## Setup Wizard

This Setup Wizard page guides you to configure the Internet connection and Wireless Settings quickly.

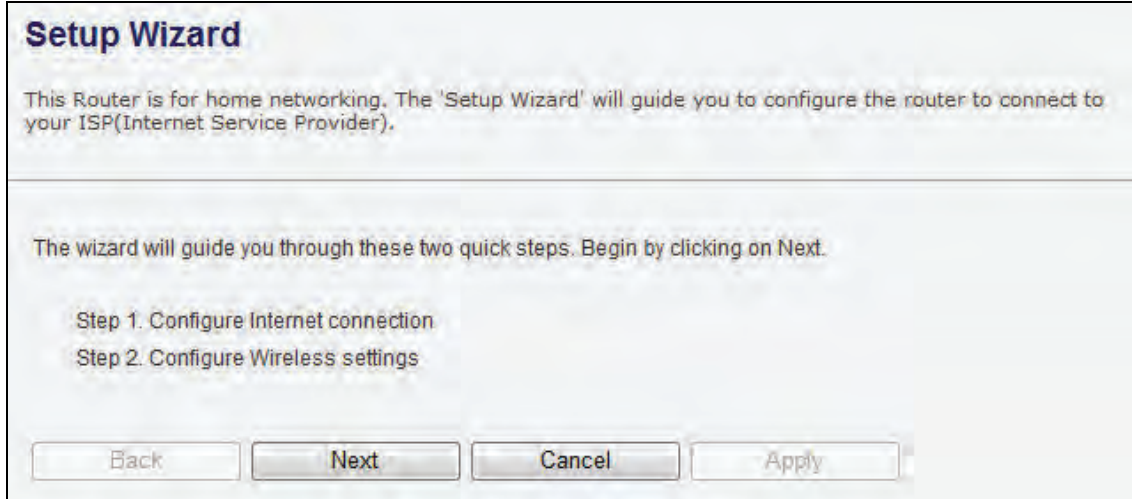


Figure 4-1 Setup Wizard

Click *Next* button to next step for Internet connection settings. There are five options (DHCP, Static Mode, PPPOE, L2TP, PPTP) for Internet connection on WAN port.

### a. DHCP (Auto Config)

If your ISP provides the DHCP service, please choose **Dynamic IP** type, and the NWAP will automatically obtain IP parameters from your ISP. You can see the page as follows

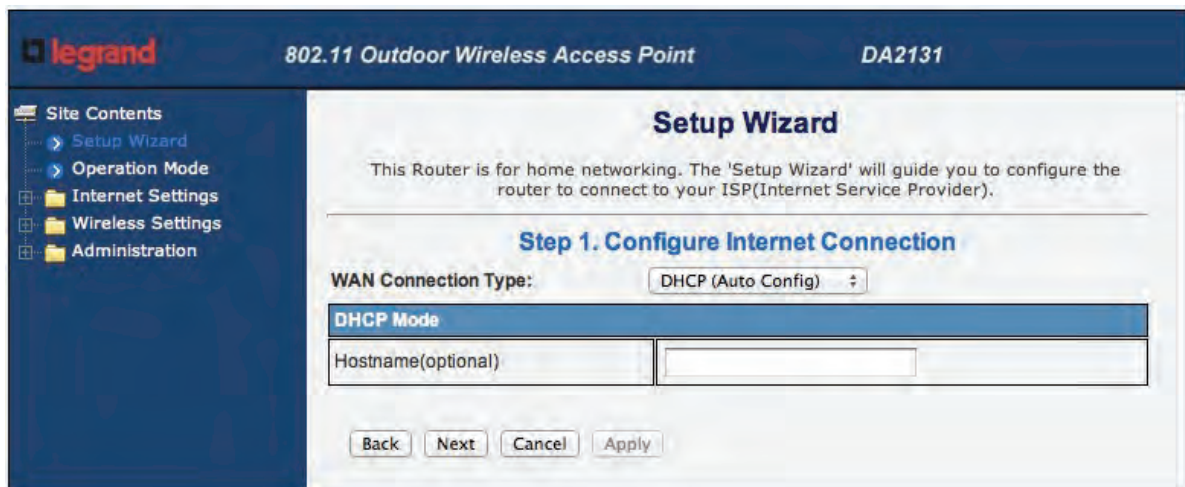


Figure 4-2 Step 1. DHCP

The page includes the following fields:

Object	Description
Host Name	This option specifies the Host Name of the Router.

**b. Static IP Address**

If your ISP provides a static or fixed IP Address, Subnet Mask, Gateway and DNS setting, select **Static Mode (fixed IP)**. The Static IP settings page will appear, shown as following.

**Setup Wizard**

This Router is for home networking. The 'Setup Wizard' will guide you to configure the router to connect to your ISP(Internet Service Provider).

**Step 1. Configure Internet Connection**

WAN Connection Type: **Static Mode (fixed IP)**

**Static Mode**

IP Address	<input type="text"/>
Subnet Mask	<input type="text"/>
Default Gateway	<input type="text"/>
Primary DNS Server	<input type="text"/>
Secondary DNS Server	<input type="text"/>

Buttons: Back, Next, Cancel, Apply

**Figure 4-3** Step 1. Static Mode

The page includes the following fields:

Object	Description
IP Address	Enter the IP address in dotted-decimal notation provided by your ISP.
Subnet Mask	Enter the subnet Mask in dotted-decimal notation provided by your ISP, usually is 255.255.255.0
Default Gateway	(Optional) Enter the gateway IP address in dotted-decimal notation provided by your ISP.
Primary/Secondary DNS	(Optional) Enter one or two DNS addresses in dotted-decimal notation provided by your ISP.

**c. PPPOE Connection**

If your ISP provides a PPPoE connection, select **PPPoE** option. And enter the following parameters.

**Setup Wizard**

This Router is for home networking. The 'Setup Wizard' will guide you to configure the router to connect to your ISP(Internet Service Provider).

**Step 1. Configure Internet Connection**

WAN Connection Type: **PPPOE (ADSL)**

**PPPoE Mode**

User Name:

Password:

Verify Password:

Operation Mode: **Keep Alive**

Keep Alive Mode: Redial Period  seconds

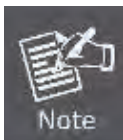
On demand Mode: Idle Time  minutes

Back Next Cancel Apply

**Figure 4-4** Step 1. PPPOE

The page includes the following fields:

Object	Description
<b>User Name/Password</b>	Enter the User Name and Password provided by your ISP. These fields are case-sensitive.
<b>Verify Password</b>	Fill in the password again for verification.
<b>Operation Mode</b>	<ul style="list-style-type: none"> <li>■ <b>Keep Alive:</b> Keep the PPPoE connection all the time. Please also configure the Redial Period field.</li> <li>■ <b>On Demand:</b> Please configure the Idle Time field. When time is up, the PPPoE connection will disconnect. The connection will re-connect when any outgoing packet arise.</li> <li>■ <b>Manual:</b> Let user connect the PPPoE connection manually.</li> </ul>



Sometimes the connection cannot be terminated although you specify a time to Idle Time, since some applications are visiting the Internet continually in the background.



**d. L2TP**

If your ISP provides L2TP connection, please select **L2TP** option. And enter the following parameters.

**Setup Wizard**

This Router is for home networking. The 'Setup Wizard' will guide you to configure the router to connect to your ISP(Internet Service Provider).

**Step 1. Configure Internet Connection**

WAN Connection Type: **L2TP**

**L2TP Mode**

L2TP Server IP Address	
User Name	
Password	
Address Mode	Static
IP Address	
Subnet Mask	
Default Gateway	
Operation Mode	Keep Alive
	Keep Alive Mode: Redial Period 60 seconds

Back Next Cancel Apply

**Figure 4-5** Step 1. L2TP

The page includes the following fields:

Object	Description
<b>L2TP Server IP Address</b>	Allow user to make a tunnel with remote site directly to secure the data transmission among the connection. User can use embedded L2TP client supported by this router to make a VPN connection.  If you select the L2TP support on WAN interface, fill in the IP address for it.
<b>User Name/Password</b>	Enter the User Name and Password provided by your ISP. These fields are case-sensitive.
<b>Address Mode</b>	<ul style="list-style-type: none"> <li>■ <b>Static:</b> To configure the IP address information by manually, please fill in the related setting at below.</li> <li>■ <b>Dynamic:</b> The option allows the machine to get IP address information automatically from DHCP server on WAN side.</li> </ul>

<b>IP Address</b>	Fill in the IP address for WAN interface.
<b>Subnet Mask</b>	Fill in the subnet mask for WAN interface.
<b>Default Gateway</b>	Fill in the default gateway for WAN interface out going data packets.
<b>Operation Mode</b>	<ul style="list-style-type: none"> <li>■ <b>Keep Alive:</b> Keep the L2TP connection all the time. Please also configure the Redial Period field.</li> <li>■ <b>Manual:</b> Let user connect the L2TP connection manually.</li> </ul>

**e. PPTP**

If your ISP provides PPTP connection, please select **PPTP** option. And enter the following parameters.

**Setup Wizard**

This Router is for home networking. The 'Setup Wizard' will guide you to configure the router to connect to your ISP(Internet Service Provider).

**Step 1. Configure Internet Connection**

WAN Connection Type: **PPTP**

**PPTP Mode**

PPTP Server IP Address:

User Name:

Password:

Address Mode: **Static**

IP Address:

Subnet Mask:

Default Gateway:

Operation Mode: **Keep Alive**

Keep Alive Mode: Redial Period **60** seconds

Back Next Cancel Apply

**Figure 4-6 Step1. PPTP**

The page includes the following fields:

Object	Description
<b>PPTP Server IP Address</b>	<p>Allow user to make a tunnel with remote site directly to secure the data transmission among the connection. User can use embedded PPTP client supported by this router to make a VPN connection.</p> <p>If you select the PPTP support on WAN interface, fill in the IP address for it.</p>
<b>User Name/Password</b>	<p>Enter the User Name and Password provided by your ISP. These fields are case-sensitive.</p>
<b>Address Mode</b>	<p><b>Static:</b> To configure the IP address information by manually, please fill in the related setting at below.</p> <p><b>Dynamic:</b> The option allows the machine to get IP address information automatically from DHCP server on WAN side.</p>
<b>IP Address</b>	<p>Fill in the IP address for WAN interface.</p>
<b>Subnet Mask</b>	<p>Fill in the subnet mask for WAN interface.</p>
<b>Default Gateway</b>	<p>Fill in the default gateway for WAN interface out going data packets.</p>
<b>Operation Mode</b>	<p><b>Keep Alive:</b> Keep the PPTP connection all the time. Please also configure the Redial Period field.</p> <p><b>Manual:</b> Let user connect the PPTP connection manually.</p>

When you finish these settings, then click *Next* button to jump at Step2.

**Step 2: configure Wireless Settings**

There are five options (Disable, OPENWEP, SHAREDWEP, WPA-PSK, WPA2-PSK) for Wireless security connection.

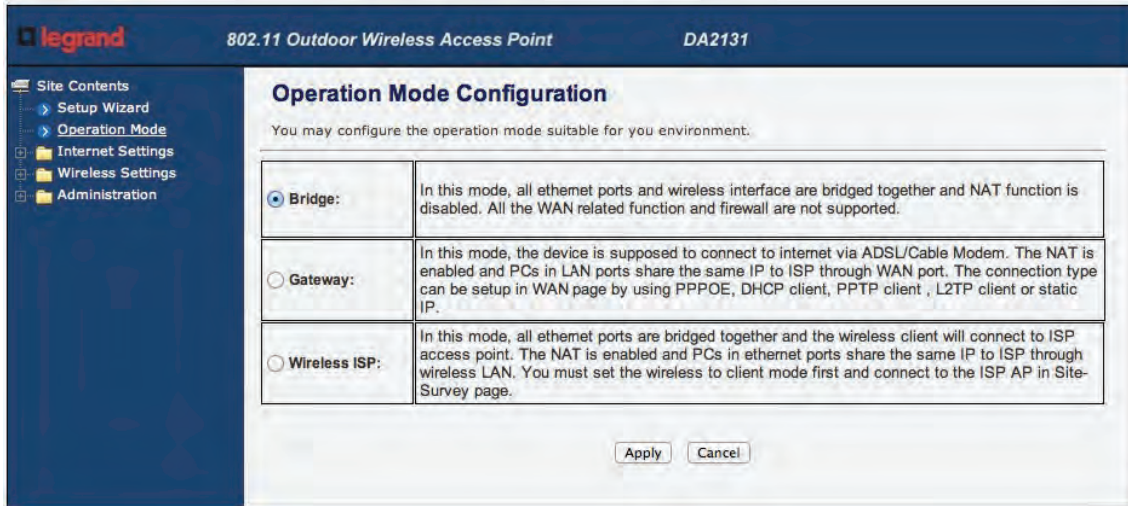


**Figure 4-7** Step 2. Configure Wireless Settings

Object	Description
<b>Network Mode</b>	This field determines the wireless mode which the NWAP works on.
<b>Frequency (Channel)</b>	This field determines which operating frequency will be used. The default channel is set to <b>AutoSelect</b> , so the NWAP will choose the best channel automatically. It is not necessary to change the wireless channel unless you notice interference problems with another nearby access point.
<b>Network Name (SSID)</b>	Enter a value of up to 32 characters. The same name of SSID (Service Set Identification) must be assigned to all wireless devices in your network. The default SSID is set to be Legrand WiFi. This value is case-sensitive. For example, <i>LEGRAND</i> is NOT the same as Legrand.
<b>Channel Bandwidth</b>	Select the operating channel width 20 MHz or 20/40 MHz.
<b>Security Mode</b>	<ul style="list-style-type: none"> <li>■ <b>Disable:</b> No security required</li> <li>■ <b>OPENWEP / SHAREDWEP:</b> When you select WEP, please input 5, 13 (ASCII), 10 or 26 (HEX) characters for WEP Key.</li> <li>■ <b>WPA-PSK / WPA2-PSK:</b> You can enter ASCII characters between 8 and 63 characters or 8 to 64 Hexadecimal characters.</li> </ul>

When you finish these settings, then click *Apply* button to save.

## 4.2 Operation Mode



**Figure 4-8** Operation Mode Configurations

### a. Bridge:

The **Bridge** mode allows that all Ethernet and wireless interfaces are bridged into a single **Bridge** interface.

### b. Gateway:

The **Gateway** mode allows that the first Ethernet port is treated as WAN port and the Ethernet port and the wireless interface are bridged together and are treated as LAN ports.

### c. Wireless ISP:

The **Wireless ISP** mode allows that the wireless interface is treated as WAN port, and the Ethernet ports are LAN ports.

### 4.3 Internet Settings

#### 4.3.1 WAN

Figure 4-9 WAN Settings

#### a. STATIC

Object	Description
<b>IP Address</b>	Enter the IP address in dotted-decimal notation provided by your ISP.
<b>Subnet Mask</b>	Enter the subnet Mask in dotted-decimal notation provided by your ISP, usually is 255.255.255.0
<b>Default Gateway</b>	(Optional) Enter the gateway IP address in dotted-decimal notation provided by your ISP.
<b>Primary/Secondary DNS</b>	(Optional) Enter one or two DNS addresses in dotted-decimal notation provided by your ISP.

#### b. DHCP

Object	Description
<b>Host Name</b>	This option specifies the Host Name of the Router.
<b>MAC Clone</b>	Take NIC MAC address of PC on LAN side as the MAC address of WAN interface.



c. PPPoE

Object	Description
User Name/Password	Enter the User Name and Password provided by your ISP. These fields are case-sensitive.
Verify Password	Fill in the password again for verification.
Operation Mode	<p><b>Keep Alive:</b> Keep the PPPoE connection all the time. Please also configure the Redial Period field.</p> <p><b>On Demand:</b> Please configure the Idle Time field. When time is up, the PPPoE connection will disconnect. The connection will re-connect when any outgoing packet arise.</p> <p><b>Manual:</b> Let user connect the PPPoE connection manually.</p>

d. L2TP

Object	Description
L2TP Server IP Address	<p>Allow user to make a tunnel with remote site directly to secure the data transmission among the connection. User can use embedded L2TP client supported by this router to make a VPN connection.</p> <p>If you select the L2TP support on WAN interface, fill in the IP address for it.</p>
User Name/Password	Enter the User Name and Password provided by your ISP. These fields are case-sensitive.
Address Mode	<ul style="list-style-type: none"> <li>■ <b>Static:</b> To configure the IP address information by manually, please fill in the related setting at below.</li> <li>■ <b>Dynamic:</b> The option allows the machine to get IP address information automatically from DHCP server on WAN side.</li> </ul>
IP Address	Fill in the IP address for WAN interface.
Subnet Mask	Fill in the subnet mask for WAN interface.
Default Gateway	Fill in the default gateway for WAN interface out going data packets.
Operation Mode	<ul style="list-style-type: none"> <li>■ <b>Keep Alive:</b> Keep the L2TP connection all the time. Please also configure the Redial Period field.</li> <li>■ <b>Manual:</b> Let user connect the L2TP connection manually.</li> </ul>

e. PPTP

Object	Description
PPTP Server IP Address	Allow user to make a tunnel with remote site directly to secure the data transmission among the connection. User can use embedded PPTP client supported by this router to make a VPN connection.

	If you select the PPTP support on WAN interface, fill in the IP address for it.
<b>User Name/Password</b>	Enter the User Name and Password provided by your ISP. These fields are case-sensitive.
<b>Address Mode</b>	<ul style="list-style-type: none"> <li>■ <b>Static:</b> To configure the IP address information by manually, please fill in the related setting at below.</li> <li>■ <b>Dynamic:</b> The option allows the machine to get IP address information automatically from DHCP server on WAN side.</li> </ul>
<b>IP Address</b>	Fill in the IP address for WAN interface.
<b>Subnet Mask</b>	Fill in the subnet mask for WAN interface.
<b>Default Gateway</b>	Fill in the default gateway for WAN interface out going data packets.
<b>Operation Mode</b>	<ul style="list-style-type: none"> <li>■ <b>Keep Alive:</b> Keep the PPTP connection all the time. Please also configure the Redial Period field.</li> <li>■ <b>Manual:</b> Let user connect the PPTP connection manually.</li> </ul>

#### 4.3.2 LAN

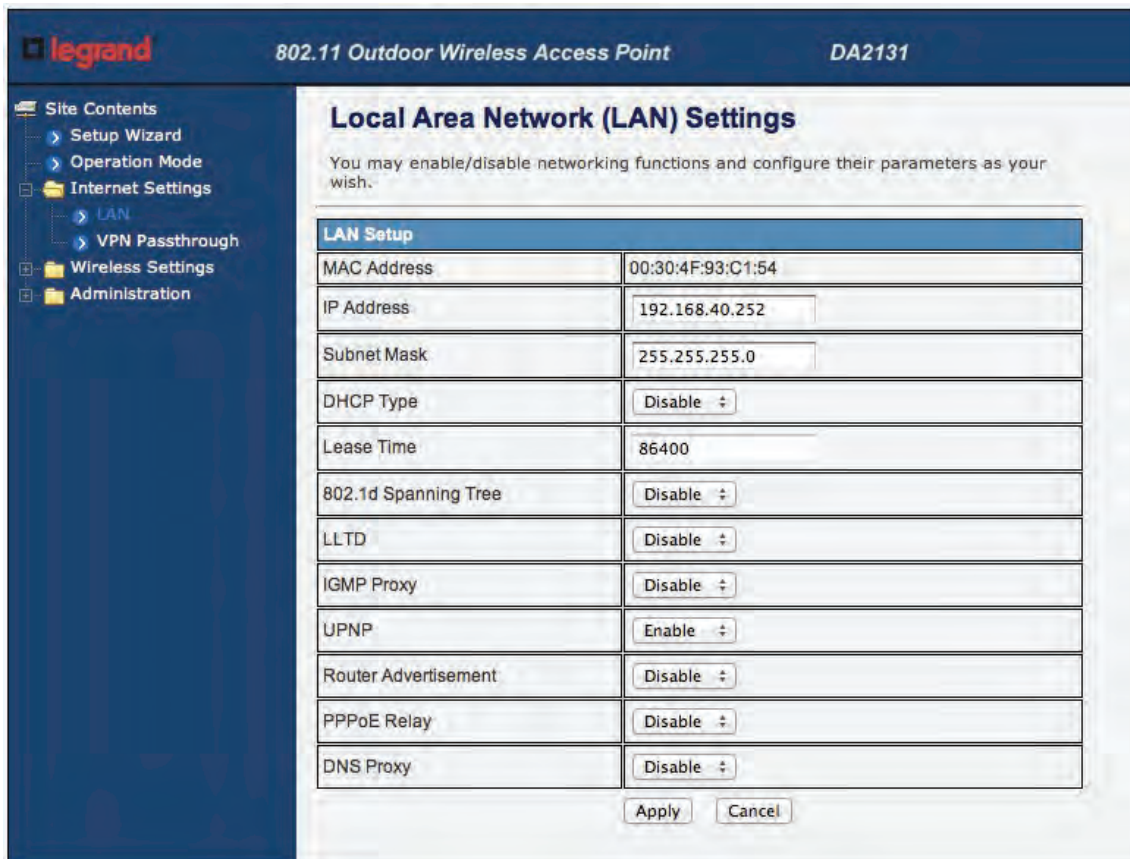


Figure 4-10 LAN Settings

The page includes the following fields:



Object	Description
MAC Address	The physical address of the NWAP, as seen from the LAN. The value can't be changed.
IP Address	Enter the IP address of your NWAP or reset it in dotted-decimal notation (factory default: 192.168.40.252).
Subnet Mask	An address code that determines the size of the network. Normally use 255.255.255.0 as the subnet mask.
Default Gateway	Fill in the default gateway for LAN interfaces out going data packets.
DHCP Type	<ul style="list-style-type: none"> <li>■ <b>Disable:</b> Disable DHCP server on LAN side.</li> <li>■ <b>Server:</b> Enable DHCP server on LAN side.</li> </ul>
Start IP Address	Fill in the start IP address to allocate a range of IP addresses; client with DHCP function set will be assigned an IP address from the range.
End IP Address	Fill in the end IP address to allocate a range of IP addresses; client with DHCP function set will be assigned an IP address from the range.
Lease Time	Fill in the lease time of DHCP server function.
802.1d Spanning Tree	Select enable or disable the IEEE 802.1d Spanning Tree function from pull-down menu.
LLTD	Select enable or disable the Link Layer Topology Discover function from pull-down menu.
IGMP Proxy	Select enable or disable the IGMP proxy function from pull-down menu.
UPNP	Select enable or disable the UPnP protocol from pull-down menu.
DNS Proxy	Select enable or disable the DNS Proxy function from pull-down menu.



### 4.3.3 DHCP Clients

The “DHCP clients” page shows all the active DHCP clients. The table window shows the active clients with their Hostname, MAC address, assigned IP address, and time expired information.

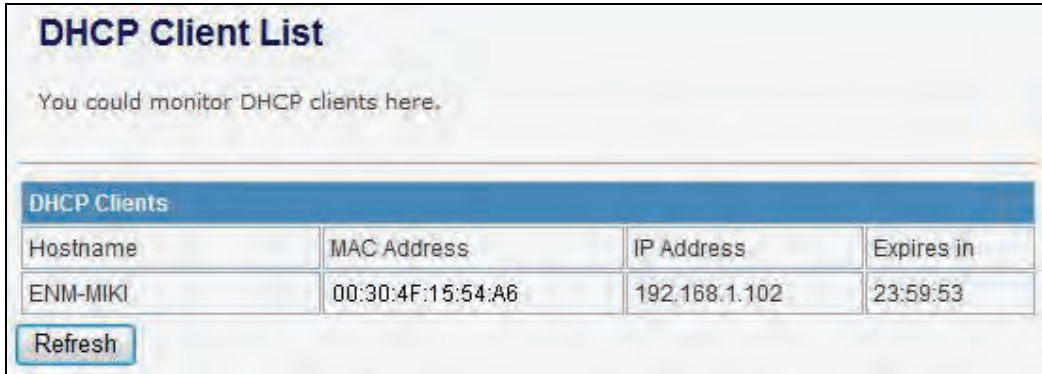


Figure 4-11 DHCP Clients

### 4.3.4 VPN Passthrough

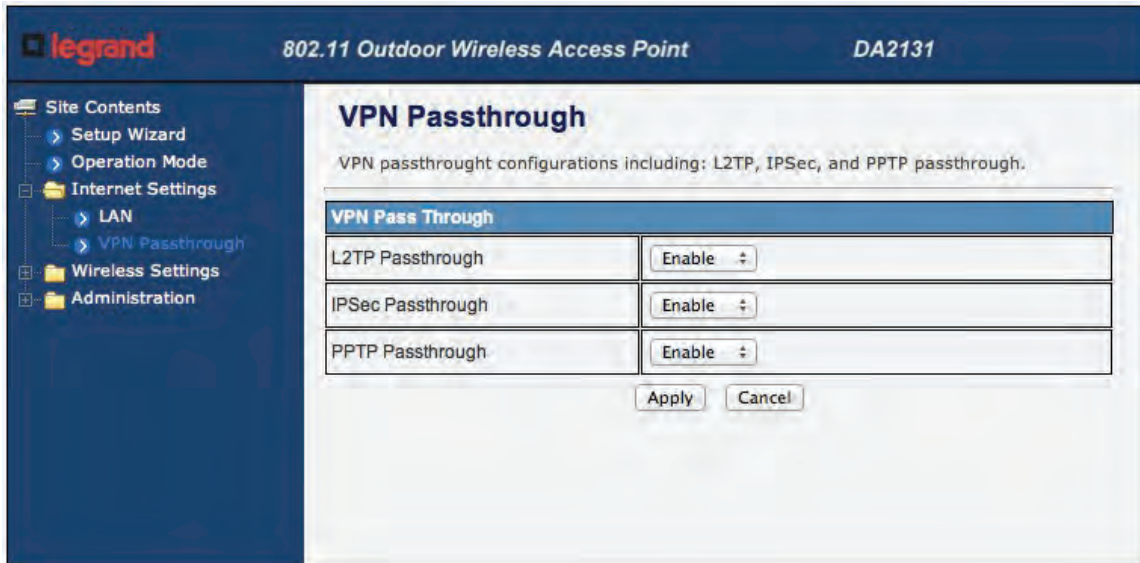


Figure 4-12 VPN Passthrough

The page includes the following fields:

Object	Description
L2TP Passthrough	Select enable or disable the L2TP pass-through function from pull-down menu.
IPSec Passthrough	Select enable or disable the IPSec pass-through function from pull-down menu.
PPTP Passthrough	Select enable or disable the PPTP pass-through function from pull-down menu.

4.4 Wireless

4.4.1 Basic

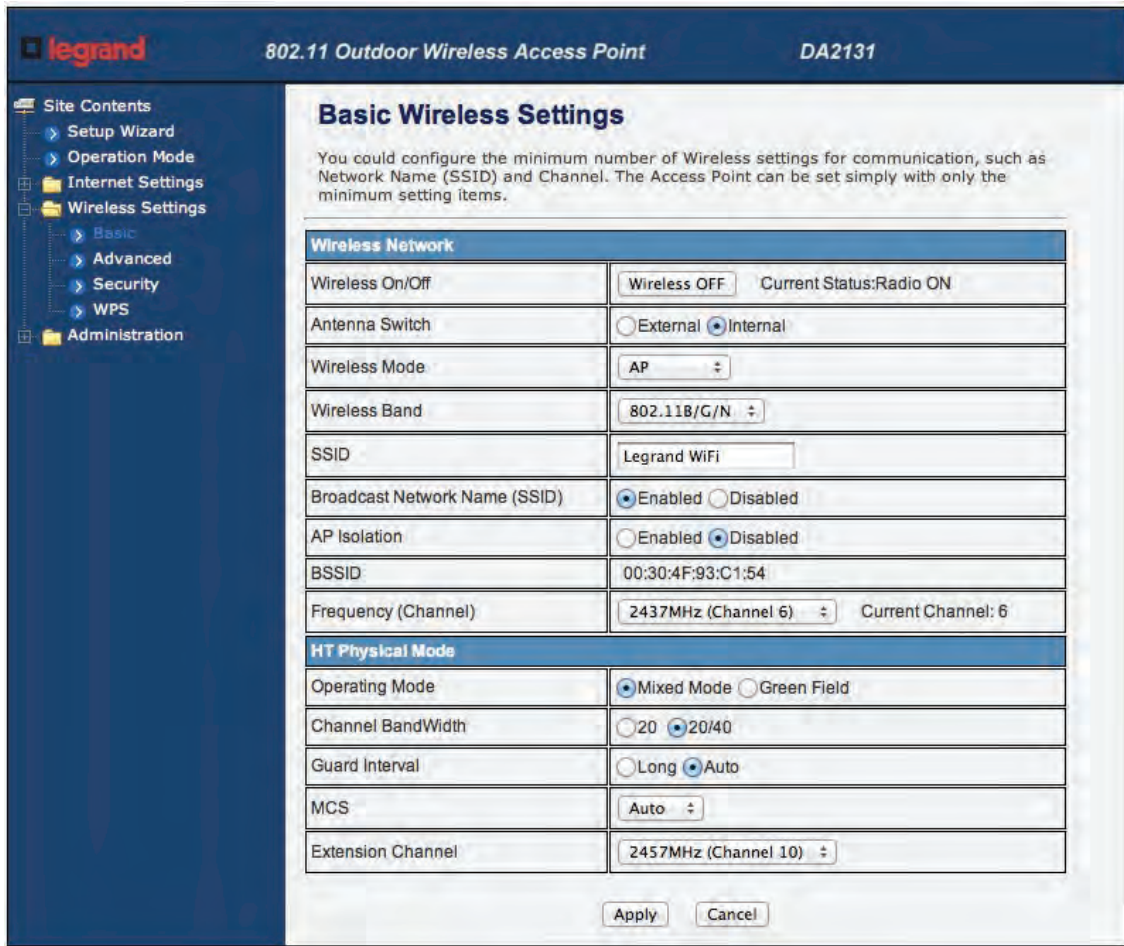


Figure 4-13 Basic Wireless Settings

The page includes the following fields:

Object	Description
Wireless On/Off	Click <b>Wireless OFF</b> button to turn off wireless RF radio. Click <b>Wireless ON</b> button to turn on wireless RF radio.
Antenna Switch	Select Internal antenna or External antenna for using. The default is using Internal antenna.
Wireless Mode	Click to select wireless mode from pull down menu.
SSID	It is the wireless network name. The SSID can be 32 bytes long. User can use the default SSID or change it.

<b>Broadcast Network Name (SSID)</b>	Enable or disable the SSID broadcast function.
<b>AP Isolation</b>	<p>Wireless network is similar to the virtual local area network. All of the Wireless client devices can access each other completely.</p> <p>When you enable this function, it will turn off connection between wireless clients. Only allows connection between wireless client and this AP router.</p>
<b>MBSSID AP Isolation</b>	Enable this function will turn off connection between clients with different MBSSID. Example: The client connected with BSSID 1. When enable this function, it will not connect with BSSID 2. Only can access between clients with SSID 1.
<b>BSSID</b>	Show the MAC address of Wireless interface.
<b>Frequency (Channel)</b>	Select the wireless communication frequency/channel from pull-down menu.
<b>Operating Mode</b>	Select "Mixed Mode" for 11b/g/n mode or "Green Field" for 11n mode.
<b>Channel BandWidth</b>	Select the operating channel width 20 MHz or 20/40 MHz.
<b>Guard Interval</b>	Select "Long" or "Auto". Guard intervals are used to ensure that distinct transmissions do not interfere with one another. Only effect under Mixed Mode.
<b>MCS</b>	Select 0~7 or "Auto" from pull down menu. The default is "Auto". Only effect under Mixed Mode.

4.4.2 Advanced

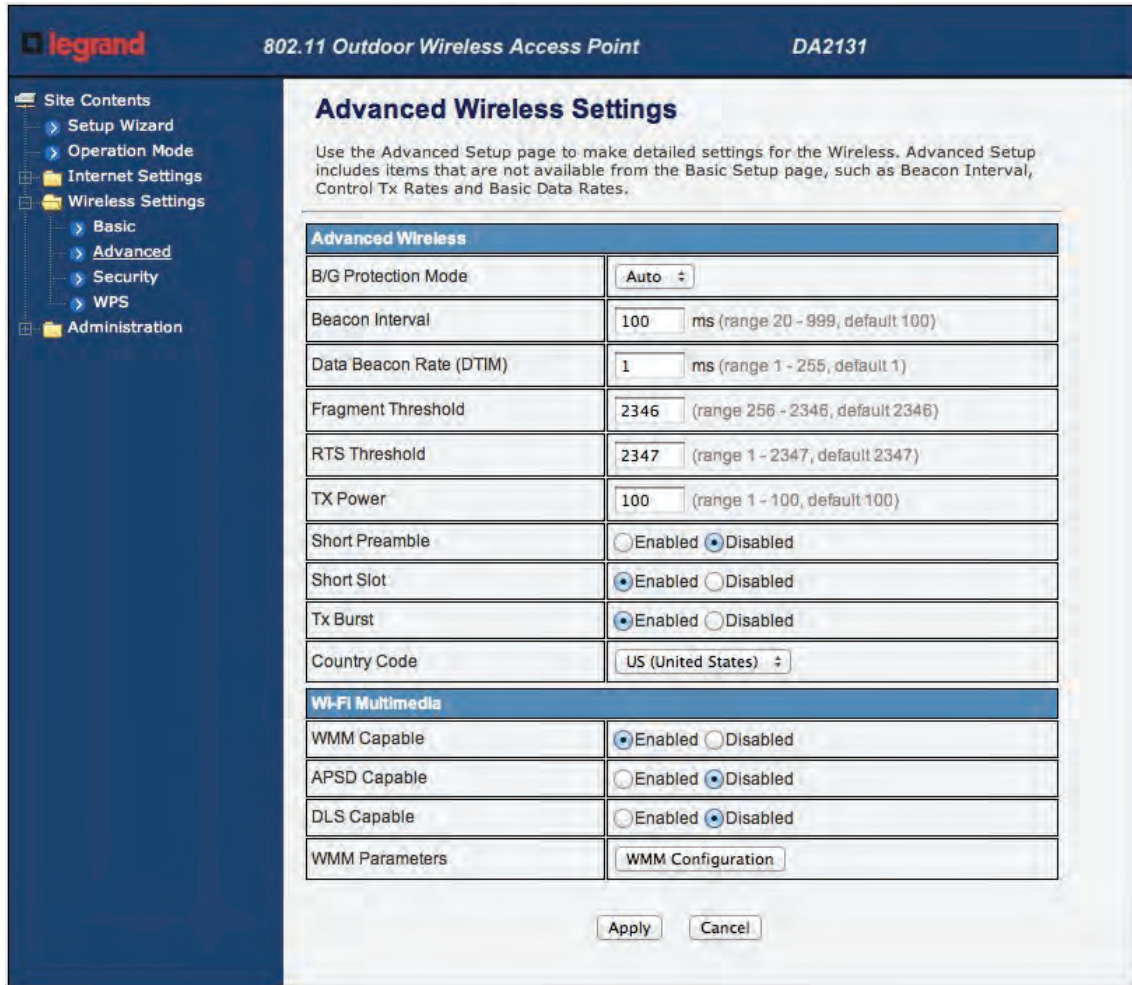


Figure 4-14 Advanced Wireless Settings

The page includes the following fields:

Object	Description
<b>B/G Protection Mode</b>	Default: <b>Auto</b> . You can select the other options including <b>On</b> and <b>Off</b> . The B/G protection technology is CTS-To-Self. It will try to reserve the throughput for 11g clients from 11b clients connecting to the device as AP mode.
<b>Beacon Interval</b>	Beacons are the packets sending by Access point to synchronize the wireless network. The beacon interval is the time interval between beacons sending by this unit in AP or AP+WDS operation. The default and recommended beacon interval is 100 milliseconds.
<b>Data Beacon Rate(DTIM)</b>	This is the Delivery Traffic Indication Map. It is used to alert the clients that multicast and broadcast packets buffered at the AP will be transmitted immediately after the transmission of this beacon frame. You can change the value from 1 to 255. The AP will check the

	buffered data according to this value. For example, selecting "1" means to check the buffered data at every beacon.
<b>Fragment Threshold</b>	The fragmentation threshold determines the size at which packets are fragmented (sent as several pieces instead of as one block). Use a low setting in areas where communication is poor or where there is a great deal of radio interference. This function will help you to improve the network performance.
<b>RTS Threshold</b>	The RTS threshold determines the packet size at which the radio issues a request to send (RTS) before sending the packet. A low RTS Threshold setting can be useful in areas where many client devices are associating with the device, or in areas where the clients are far apart and can detect only the device and not each other. You can enter a setting ranging from 0 to 2347 bytes.
<b>TX Power</b>	The default TX power is 100%. In case of shortening the distance and the coverage of the wireless network, input a smaller value to reduce the radio transmission power. For example, input 80 to apply 80% Tx power.
<b>Short Preamble</b>	Default: Disable. It is a performance parameter for 802.11 b/g mode and not supported by some of very early stage of 802.11b station cards. If there is no such kind of stations associated to this AP, you can enable this function.
<b>Short Slot</b>	It is used to shorten the communication time between this AP and station.
<b>TX Burst</b>	The device will try to send a serial of packages with single ACK reply from the clients. Enable this function to apply it.
<b>Country Code</b>	Select the country code for wireless from pull down menu.





### 4.4.3 Security

#### a. Disable



Figure 4-15 Wireless Security Settings

If you set Security Mode to “**Disable**”, the wireless data transmission will not include encryption to prevent from unauthorized access and monitoring.

**b. OPEN-WEP**

### Wireless Security/Encryption Settings

Setup the wireless security and encryption to prevent from unauthorized access and monitoring.

---

Security Wireless

Security Mode	OPEN-WEP ▼
---------------	------------

---

Wire Equivalence Protection (WEP)

Default Key	Key 1 ▼
-------------	---------

WEP Keys	WEP Key 1 :		Hex ▼
	WEP Key 2 :		Hex ▼
	WEP Key 3 :		Hex ▼
	WEP Key 4 :		Hex ▼

---

Access Policy

Policy	Disabled ▼
--------	------------

Add a station Mac:	
--------------------	--

**Figure 4-16 OPEN-WEP**

If you set Security Mode to “**OPEN-WEP**” or “**SHARED-WEP**”, please fill in the related configurations at below.

Object	Description
Default Key	Specify a Key number for effective.
WEP Keys (1~4)	When you select the encryption type as WEP, please input 5, 13 (ASCII), 10 or 26 (HEX) characters for WEP Key.



C. SHARED-WEP

Figure 4-17 SHARED-WEP

If you set Security Mode to “OPEN-WEP” or “SHARED-WEP”, please fill in the related configurations at below.

Object	Description
Default Key	Specify a Key number for effective.
WEP Keys (1~4)	When you select the encryption type as WEP, please input 5, 13 (ASCII), 10 or 26 (HEX) characters for WEP Key.

d. WPA-RADIUS

### Wireless Security/Encryption Settings

Setup the wireless security and encryption to prevent from unauthorized access and monitoring.

---

**Security Wireless**

Security Mode	WPA-RADIUS ▼
---------------	--------------

---

**WPA**

WPA Cipher Suite	<input type="radio"/> TKIP <input checked="" type="radio"/> AES <input type="radio"/> TKIPAES
Key Renewal Interval	3600 seconds (60 ~ 9999)

---

**Radius Server**

IP Address	0
Port	1812
Shared Secret	ralink
Session Timeout	0
Idle Timeout	

Figure 4-18 WPA-RADIUS

The page includes the following fields:

Object	Description
<b>WPA Cipher Suite</b>	Select <b>TKIP</b> , <b>AES</b> or <b>TKIPAES</b> for WPA algorithms.
<b>Key Renewal Interval</b>	Please fill in a number for Group Key Renewal interval time.
<b>IP Address</b>	Enter the RADIUS Server's IP Address provided by your ISP.
<b>Port</b>	Enter the RADIUS Server's port number provided by your ISP. (The Default is 1812.)
<b>Shared Secret</b>	Enter the password that the Wireless Router shares with the RADIUS Server.
<b>Session Timeout</b>	Session timeout interval is for 802.1x re-authentication setting. Set to zero to disable 802.1x re-authentication service for each session. Session timeout interval unit is second and must be larger than 60.
<b>Idle Timeout</b>	Enter the idle timeout in the column.

e. WPA-PSK

**Wireless Security/Encryption Settings**

Setup the wireless security and encryption to prevent from unauthorized access and monitoring.

---

**Security Wireless**

Security Mode: WPA-PSK ▾

---

**WPA**

WPA Cipher Suite:  TKIP  AES  TKIPAES

Pre-Shared Key:

Key Renewal Interval:  seconds (60 ~ 9999)

---

**Access Policy**

Policy: Disabled ▾

Add a station Mac:

Apply Cancel

Figure 4-19 WPA-PSK

The page includes the following fields:

Object	Description
<b>WPA Cipher Suite</b>	Select <b>TKIP</b> , <b>AES</b> or <b>TKIPAES</b> for WPA algorithms.
<b>Pre-Shared Key</b>	Please fill in a passphrase like 'test wpa 123', or a hexadecimal string like '65E4 E123 456 E1'.
<b>Key Renewal Interval</b>	Please fill in a number for Group Key Renewal interval time.

f. WPA2-RADIUS

### Wireless Security/Encryption Settings

Setup the wireless security and encryption to prevent from unauthorized access and monitoring.

---

**Security Wireless**

Security Mode	WPA2-RADIUS ▼
---------------	---------------

**WPA**

WPA Cipher Suite	<input type="radio"/> TKIP <input checked="" type="radio"/> AES <input type="radio"/> TKIPAES
Key Renewal Interval	3600 seconds (60 ~ 9999)
PMK Cache Period	10 minute
Pre-Authentication	<input checked="" type="radio"/> Disable <input type="radio"/> Enable

**Radius Server**

IP Address	0
Port	1812
Shared Secret	ralink
Session Timeout	0
Idle Timeout	

Figure 4-20 WPA2-RADIUS

The page includes the following fields:

Object	Description
<b>WPA Cipher Suite</b>	Select <b>TKIP</b> , <b>AES</b> or <b>TKIPAES</b> for WPA algorithms.
<b>Key Renewal Interval</b>	Please fill in a number for Group Key Renewal interval time.
<b>PMK Cache Period</b>	Only valid in WPA2 security. Set WPA2 PMKID cache timeout period, after time out, the cached key will be deleted. PMK Cache Period unit is minute.
<b>Pre-Authentication</b>	Only valid in WPA2 security. The most important features beyond WPA to become standardized through 802.11i/WPA2 are: Pre-authentication, which enables secure fast roaming without noticeable signal latency.
<b>Shared Secret</b>	Enter the password that the Wireless Router shares with the RADIUS Server.

<b>Session Timeout</b>	Session timeout interval is for 802.1x re-authentication setting. Set to zero to disable 802.1x re-authentication service for each session. Session timeout interval unit is second and must be larger than 60.
<b>IP Address</b>	Enter the RADIUS Server's IP Address provided by your ISP.
<b>Port</b>	Enter the RADIUS Server's port number provided by your ISP. (The Default is 1812.)
<b>Shared Secret</b>	Enter the password that the Wireless Router shares with the RADIUS Server.
<b>Session Timeout</b>	Session timeout interval is for 802.1x re-authentication setting. Set to zero to disable 802.1x re-authentication service for each session. Session timeout interval unit is second and must be larger than 60.
<b>Idle Timeout</b>	Enter the idle timeout in the column.

g. WPA2-PSK

The screenshot shows the 'Wireless Security/Encryption Settings' page. It includes a title bar, a description, and several configuration sections: 'Security Wireless' with a dropdown for 'WPA2-PSK', 'WPA' with radio buttons for 'TKIP', 'AES' (selected), and 'TKIPAES', a 'Pre-Shared Key' text field, a 'Key Renewal Interval' field set to '3600 seconds (60 ~ 9999)', 'Access Policy' with a dropdown for 'Disabled', and an 'Add a station Mac' text field. At the bottom are 'Apply' and 'Cancel' buttons.

Figure 4-21 WPA2-PSK

The page includes the following fields:

Object	Description
<b>WPA Cipher Suite</b>	Select <b>TKIP</b> , <b>AES</b> or <b>TKIPAES</b> for WPA algorithms.
<b>Pre-Shared Key</b>	Please fill in a passphrase like 'test wpa 123', or a hexadecimal string like '65E4 E123 456 E1'.
<b>Key Renewal Interval</b>	Please fill in a number for Group Key Renewal interval time.



h. 802.1X

### Wireless Security/Encryption Settings

Setup the wireless security and encryption to prevent from unauthorized access and monitoring.

---

**Security Wireless**

Security Mode	802.1X
---------------	--------

**802.1x WEP**

WEP	<input type="radio"/> Disable <input type="radio"/> Enable
-----	--

**Radius Server**

IP Address	0
Port	1812
Shared Secret	ralink
Session Timeout	0
Idle Timeout	

**Access Policy**

Figure 4-22 802.1X

The page includes the following fields:

Object	Description
<b>WEP</b>	Enable or Disable WEP encryption.
<b>IP Address</b>	Enter the RADIUS Server's IP Address provided by your ISP.
<b>Port</b>	Enter the RADIUS Server's port number provided by your ISP. (The Default is 1812.)
<b>Shared Secret</b>	Enter the password that the Wireless Router shares with the RADIUS Server.
<b>Session Timeout</b>	Session timeout interval is for 802.1x re-authentication setting. Set to zero to disable 802.1x re-authentication service for each session. Session timeout interval unit is second and must be larger than 60.
<b>Idle Timeout</b>	Enter the idle timeout in the column.

e. Access Policy

**Wireless Security/Encryption Settings**

Setup the wireless security and encryption to prevent from unauthorized access and monitoring.

---

**Security Wireless**

Security Mode: Disable

---

**Access Policy**

Policy: Allow

1	00:30:4F:15:54:A6	Del
---	-------------------	-----

Add a station Mac:

Apply      Cancel

Figure 4-23 Access Policy

The page includes the following fields:

Object	Description
<b>Policy</b>	Select the <b>Disabled</b> , <b>Allow</b> or <b>Reject</b> of drop down menu choose wireless access control mode. This is a security control function; only those clients registered in the access control list can link to this NWAP.
<b>Add a station MAC</b>	Fill in the MAC address of client to register this AP router access capability.



### 5.4.4 WDS

In the Basic Wireless Settings page, select the Wireless Mode to “WDS” to setup the WDS connection.

#### a. WDS Mode

WDS mode allows user to operate as a standard WDS that forwards traffic between WDS links (links that connect to other units in Repeater). The MAC addresses of WDS peers must be configured on the Wireless 11n Access Points/ Repeaters. Basically this mode is used when you have a 2.4GHz outdoor router with more than one WDS link to other AP/Repeaters.

**Note:** In this mode wireless clients will not be able to connect to the 2.4GHz outdoor router directly.

**Step 1.** In the Basic Wireless Settings, configure Wireless Mode to “WDS”.

The screenshot shows the 'Basic Wireless Settings' page. At the top, there is a title 'Basic Wireless Settings' and a descriptive paragraph: 'You could configure the minimum number of Wireless settings for communication, such as Network Name (SSID) and Channel. The Access Point can be set simply with only the minimum setting items.' Below this is a table of settings. The 'Wireless Mode' setting is highlighted with a red box and shows 'WDS' selected in a dropdown menu. Other settings include 'Wireless On/Off' (OFF), 'Antenna Switch' (Internal), 'Wireless Band' (802.11B/G/N), 'SSID' (default), 'Broadcast Network Name (SSID)' (Enabled), 'AP Isolation' (Disabled), 'MBSSID AP Isolation' (Disabled), 'BSSID' (00:30:4F:19:66:38), and 'Frequency (Channel)' (AutoSelect).

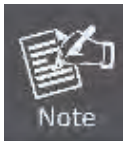
Wireless Network	
Wireless On/Off	Wireless OFF <span style="float: right;">Current Status:Radio ON</span>
Antenna Switch	<input type="radio"/> External <input checked="" type="radio"/> Internal
Wireless Mode	WDS ▼
Wireless Band	802.11B/G/N ▼
SSID	default
Broadcast Network Name (SSID)	<input checked="" type="radio"/> Enabled <input type="radio"/> Disabled
AP Isolation	<input type="radio"/> Enabled <input checked="" type="radio"/> Disabled
MBSSID AP Isolation	<input type="radio"/> Enabled <input checked="" type="radio"/> Disabled
BSSID	00:30:4F:19:66:38
Frequency (Channel)	AutoSelect ▼ <span style="float: right;">Current Channel: 1</span>

Figure 4-24 Wireless Mode - WDS

**Step 2.** Go to “Wireless Settings-> WDS”, fill in the MAC Address of the remote site.

EncrypType	Encryp Key	AP MAC Address
NONE ▼	00:30:4F:11:22:33	
NONE ▼		
NONE ▼		
NONE ▼		

**Figure 4-25 WDS Configuration**



1. To Setup the WDS Connection, the channel must be the same in both sites. You should fix the channel from “AutoSelect” to a static one.
2. You must fill in the MAC Address by each other. For example, enter the MAC Address of the remote site to the settings of local site; and enter the MAC Address of the local site to the settings of remote site.
3. The Encryption Type must be the same in both sites if available.

**c. AP+WDS (Repeater) Mode**

Repeater mode allows user to operate as a wireless repeater, extending the range for remote wireless clients and connecting them to an AP connected to the wired network. The MAC addresses of WDS peers must be configured on the Wireless 2.4G Access Point/Repeater.

**Step 1.** In the Basic Wireless Settings, configure Wireless Mode to “AP+WDS”.

### Basic Wireless Settings

You could configure the minimum number of Wireless settings for communication, such as Network Name (SSID) and Channel. The Access Point can be set simply with only the minimum setting items.

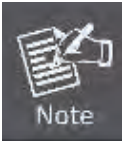
Wireless Network	
Wireless On/Off	<input type="button" value="Wireless OFF"/> <span style="float: right;">Current Status: Radio ON</span>
Antenna Switch	<input type="radio"/> External <input checked="" type="radio"/> Internal
Wireless Mode	<div style="border: 1px solid red; padding: 2px;">AP+WDS ▼</div>
Wireless Band	802.11B/G/N ▼
SSID	default
Broadcast Network Name (SSID)	<input checked="" type="radio"/> Enabled <input type="radio"/> Disabled
AP Isolation	<input type="radio"/> Enabled <input checked="" type="radio"/> Disabled
MBSSID AP Isolation	<input type="radio"/> Enabled <input checked="" type="radio"/> Disabled
BSSID	00:30:4F:19:66:38
Frequency (Channel)	AutoSelect ▼ <span style="float: right;">Current Channel: 1</span>
HT Physical Mode	
Operating Mode	<input checked="" type="radio"/> Mixed Mode <input type="radio"/> Green Field
Channel BandWidth	<input type="radio"/> 20 <input checked="" type="radio"/> 20/40
Guard Interval	<input type="radio"/> Long <input checked="" type="radio"/> Auto
MCS	Auto ▼

**Figure 4-26 Wireless Mode – AP+WDS**

**Step 3.** Go to “Wireless Settings-> WDS”, fill in the MAC Address of the remote site.

EncrypType	Encryp Key	AP MAC Address
NONE ▼	00:30:4F:11:22:33	
NONE ▼		
NONE ▼		
NONE ▼		

**Figure 4-27 WDS Configuration**



1. To Setup the WDS Connection, the channel must be the same in both sites. You should fix the channel from “AutoSelect” to a static one.
2. You must fill in the MAC Address by each other. For example, enter the MAC Address of the remote site to the settings of local site; and enter the MAC Address of the local site to the settings of remote site.
3. The Encryption Type must be the same in both sites if available.

#### 4.4.5 Site Survey

This page is used to view or configure other APs near yours.

To connect with other AP by site survey, you need to configure the DA2131-V1 as “AP Client” mode in the Basic Wireless Settings page as following.

**Step 1.** Go to “Wireless Settings-> Basic”, select the Wireless Mode to “AP Client”,

### Basic Wireless Settings

You could configure the minimum number of Wireless settings for communication, such as Network Name (SSID) and Channel. The Access Point can be set simply with only the minimum setting items.

Wireless Network	
Wireless On/Off	<input type="button" value="Wireless OFF"/> <span style="float: right;">Current Status: Radio ON</span>
Antenna Switch	<input type="radio"/> External <input checked="" type="radio"/> Internal
Wireless Mode	<input type="text" value="AP Client"/>
Wireless Band	<input type="text" value="802.11B/G/N"/>
SSID	<input type="text" value="default"/>
Broadcast Network Name (SSID)	<input checked="" type="radio"/> Enabled <input type="radio"/> Disabled
AP Isolation	<input type="radio"/> Enabled <input checked="" type="radio"/> Disabled
MBSSID AP Isolation	<input type="radio"/> Enabled <input checked="" type="radio"/> Disabled
BSSID	<input type="text" value="00:30:4F:19:66:38"/>
Frequency (Channel)	<input type="text" value="AutoSelect"/> <span style="float: right;">Current Channel: 11</span>

Figure 4-28 Basic Wireless Settings

**Step 2.** Go to “Wireless Settings->Site Survey” to scan the AP. Select the AP that you choose to connect, and then click “Next”.



### Site Survey

You could configure AP Client parameters here.

	SSID	BSSID	RSSI	Channel	Authentication	Wireless Mode
<input type="radio"/>	ADN-4100	00:30:4f:2a:f0:bf	20%	1	NONE	11b/g/n
<input checked="" type="radio"/>	test	00:30:4f:21:d4:37	100%	1	WPA2PSK/AES	11b/g/n
<input type="radio"/>	FRT40xN	00:30:4f:84:23:00	70%	5	NONE	11b/g/n
<input type="radio"/>	FRT-420SN	00:30:4f:81:96:b1	39%	6	NONE	11b/g/n

**Figure 4-29 Site Survey - 1**

The page includes the following fields:

Object	Description
<b>SSID</b>	It shows the SSID of AP.
<b>BSSID</b>	It shows BSSID of AP.
<b>RSSI</b>	It shows the signal strength of current AP.
<b>Channel</b>	It show the current channel of AP occupied.
<b>Encrypt</b>	It shows the encryption status.
<b>Wireless Mode</b>	It show the wireless mode of AP.

**Step 3.** If the AP has encryption setting, it will pop out a window for you filling the encryption setting. Please fill up the code, in this case, the code was “1234567890”, and click “Apply” to connect with the AP.

### Site Survey

You could configure AP Client parameters here.

AP Client Parameters	
SSID	test
MAC Address (Optional)	00:30:4f:21:d4:37
Frequency (Channel)	2412MHz (Channel 1) ▾ Current Channel: 1
Security Mode	WPA2PSK ▾
Encryption Type	AES ▾
Pass Phrase	1234567890
LAN Interface Setup	
DHCP Type	Disable ▾
IP Address	10.10.10.254

Figure 4-30 Site Survey - 2



**Step 4.** After connected with AP, you can open “Status” page under Administrator to check link status.

The screenshot shows the web interface for a Legrand 802.11 Outdoor Wireless Access Point (DA2131). The left sidebar contains a navigation menu with the following items: Site Contents, Setup Wizard, Operation Mode, Internet Settings, Wireless Settings, Administration, Management, QoS, Upload Firmware, Settings Management, Status (highlighted), and System Log. The main content area is titled "Access Point Status" and includes a sub-header "802.11 Outdoor Wireless Access Point" and the model number "DA2131". Below the title, a note states: "This page show the current status and some basic settings of the device." The status information is presented in three tables:

System Information	
Firmware Version	1.0.0 Jun 21 2012
System Up Time	0 days, 0 hours, 28 mins, 20 secs
Operation Mode	Bridge Mode

Wireless Information	
Status	Radio ON
Mode	AP
SSID	Legrand WiFi
Channel	6
Encryption	WPA2PSK
BSSID	00:30:4F:93:C1:54

LAN Information	
DHCP Server	Disabled
LAN IP Address	192.168.40.252
Subnet Mask	255.255.255.0
MAC Address	00:30:4F:93:C1:54

**Figure 4-31 AP Status**

#### 4.4.6 WPS

This section will guide you to add a new wireless device quickly to an existing network by **WPS (Wi-Fi Protected Setup)** function.

**Step 1.** Choose menu “WPS”, you will see the next screen.

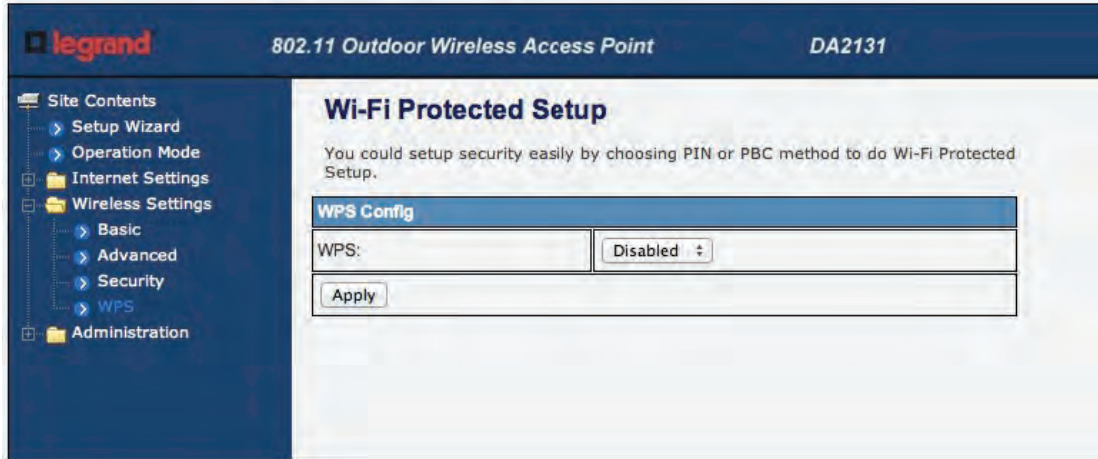


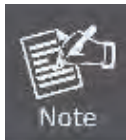
Figure 4-32 WPS Setup

The page includes the following fields:

Object	Description
<b>WPS</b>	Select <b>Enable</b> or <b>Disable</b> the Wi-Fi Protected Setup function. Then click <b>Apply</b> button to take effect function after change.

**Step 2.** To add a new device:

If the wireless adapter supports Wi-Fi Protected Setup (WPS), you can establish a wireless connection between wireless adapter and Router using either Push Button Configuration (PBC) method or PIN method.

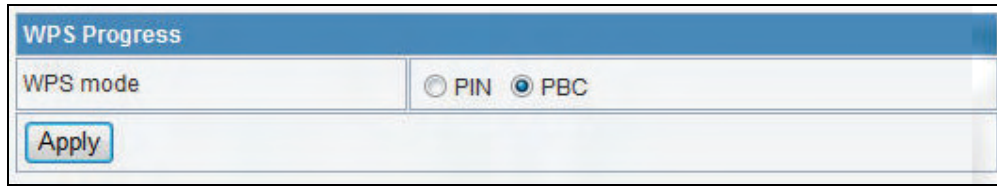


To build a successful connection by WPS, you should also do the corresponding configuration of the new device for WPS function meanwhile.

#### I. By Push Button Configuration (PBC)

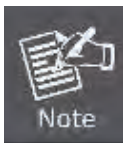
If the wireless adapter supports Wi-Fi Protected Setup and the Push Button Configuration (PBC) method, you can add it to the network by PBC with the following two methods.

**Step 1:** Choose PBC, and click “Apply”.



**Figure 4-33 WPS - PBC**

**Step 2:** Press and hold the WPS Button equipped on the adapter directly for 2 or 3 seconds. Or you can click the WPS button with the same function in the configuration utility of the adapter.



- 
- 1) Step 1 & 2 should process within two minutes.
  - 2) DA2131-V1 only supports PBC method.
- 

**Step 3:** Wait for a while until the connection established to complete the WPS configuration.

4.5 Firewall

4.5.1 MAC /IP /Port Filtering

**MAC/IP/Port Filtering Settings**

You may setup firewall rules to protect your network from virus, worm and malicious activity on the Internet.

**Basic Settings**

MAC/IP/Port Filtering: Disable ▼

Apply    Reset

**MAC/IP/Port Filter Settings**

Source MAC address:

Dest IP Address:

Source IP Address:

Protocol: None ▼

Dest Port Range:  -

Source Port Range:  -

Figure 4-37 MAC/IP/Port filtering

The page includes the following fields:

Object	Description
<b>MAC/IP/Port Filtering</b>	Select <b>Enable</b> or <b>Disable</b> the MAC/IP/Port Filtering function.
<b>Source MAC address</b>	Fill in the MAC address of source NIC, to restrict data transmission.
<b>Dest IP Address</b>	Fill in the IP address of destination, to restrict data transmission.
<b>Source IP Address</b>	Fill in the IP address of source, to restrict data transmission.
<b>Protocol</b>	Select the protocol that you want to restrict. There are four options: None, TCP, UDP and ICMP.
<b>Dest Port Range</b>	Fill in the start-port and end-port number of destination, to restrict data transmission.
<b>Source Port Range</b>	Fill in the start-port and end-port number of source, to restrict data transmission.

<b>Action</b>	Select <b>Accept</b> or <b>Drop</b> to specify the action of filtering policies.
<b>Comment</b>	Make a comment for the filtering policy.
<b>Delete Selected</b>	Click <b>Delete Selected</b> button to delete all that you selected.
<b>Reset</b>	Click <b>Reset</b> button to clear selected items.

#### 4.5.2 Port Forwarding

**Virtual Server Settings**

You may setup Virtual Servers to provide services on Internet.

**Port Forwarding**

Port Forwarding: Disable ▾

IP Address:

Port Range:  -

Protocol: TCP&UDP ▾

Comment:

(The maximum rule count is 32.)

**Current Port Forwarding in system:**

No.	IP Address	Port Range	Protocol	Comment
<input type="button" value="Delete Selected"/> <input type="button" value="Reset"/>				

**Figure 4-38 Port Forwarding**

The page includes the following fields:

Object	Description
<b>Port Forwarding</b>	Select <b>Enable</b> or <b>Disable</b> the Port Forwarding function.
<b>IP Address</b>	To forward data packets coming from WAN to a specific IP address that hosted in local network behind the NAT firewall, fill in the IP address.
<b>Port Range</b>	To forward data packets coming from WAN to a specific IP address

	that hosted in local network behind the NAT firewall, fill in the port range.
<b>Protocol</b>	Specify protocol, TCP&UDP, TCP or UDP.
<b>Comment</b>	Make a comment for the port forwarding policy.
<b>Delete Selected</b>	Click <b>Delete Selected</b> button to delete all that you selected.
<b>Reset</b>	Click <b>Reset</b> button to clear selected items.
<b>Virtual Server</b>	Select <b>Enable</b> or <b>Disable</b> the Virtual Server function.
<b>IP Address</b>	To forward data packets coming from WAN to a specific IP address that hosted in local network behind the NAT firewall, fill in the IP address.
<b>Public Port</b>	To forward data packets coming from WAN to a specific IP address that hosted in local network behind the NAT firewall, fill in the public port.
<b>Private Port</b>	To forward data packets coming from WAN to a specific IP address that hosted in local network behind the NAT firewall, fill in the private port.
<b>Protocol</b>	Specify protocol, TCP&UDP, TCP or UDP.
<b>Comment</b>	Make a comment for the virtual server policy.
<b>Delete Selected</b>	Click <b>Delete Selected</b> button to delete all that you selected.
<b>Reset</b>	Click <b>Reset</b> button to clear selected items.

#### 4.5.3 DMZ

**DMZ Settings**

You may setup a De-militarized Zone(DMZ) to separate internal network and Internet.

**DMZ Settings**

DMZ Settings: Disable ▼

DMZ IP Address:

Apply Reset

Figure 4-39 DMZ

The page includes the following fields:

Object	Description
<b>DMZ Settings</b>	Enable or Disable the DMZ function.
<b>DMZ IP Address</b>	To support DMZ in your firewall design, fill in the IP address of DMZ host that can be access from the WAN interface.

4.5.4 System Security

### System Security Settings

You may configure the system firewall to protect AP/Router itself from attacking.

---

Remote management

Remote management (via WAN)
Deny ▾

Ping form WAN Filter

Ping form WAN Filter
Disable ▾

Stateful Packet Inspection (SPI)

SPI Firewall
Disable ▾

Apply
Reset

Figure 5-40 System Security

The page includes the following fields:

Object	Description
<b>Remote management</b>	Select <b>Deny</b> or <b>Allow</b> for remote management function.
<b>Ping form WAN Filter</b>	Select <b>Disable</b> or <b>Enable</b> for Ping permit from WAN.
<b>SPI Firewall</b>	Select <b>Disable</b> or <b>Enable</b> for SPI firewall function.



4.5.5 Content Filtering

Figure 4-41 Content Filtering

The page includes the following fields:

Object	Description
<b>Keyword</b>	Fill in a word for Webs Host Filter policy.
<b>URL</b>	Fill in a URL string for URL filter. Then click <b>Add</b> button to save the URL filter policy or click <b>Reset</b> button to clear the field.
<b>Delete</b>	Click <b>Delete</b> button to delete all that you selected.
<b>Reset</b>	Click <b>Reset</b> button to clear selected items.

## 4.6 Administrator

### 4.6.1 Management

**802.11 Outdoor Wireless Access Point DA2131**

**System Management**

You may configure administrator account and password, NTP settings, and Dynamic DNS settings here.

**Language Settings**

Select Language:

**Administrator Settings**

Username:  Password:

**NTP Settings**

Current Time:

Time Zone:

NTP Server:  ex: time.nist.gov  
ntp0.broad.mit.edu  
time.stdtime.gov.tw

NTP synchronization(hours):

**DDNS Settings**

Dynamic DNS Provider:

Account:

Password:

DDNS:

Figure 4-42 System Management

The page includes the following fields:

Object	Description
<b>Username</b>	Fill in the user name for web management login control.
<b>Password</b>	Fill in the password for web management login control.
<b>Current Time</b>	It shows the current time.
<b>Time Zone</b>	Select the time zone in your country from pull-down menu..
<b>NTP Server</b>	Fill in NTP server IP address.
<b>NTP synchronization</b>	Fill in a number to decide the synchronization frequency with NTP server.
<b>Dynamic DNS Provider</b>	Click the drop down menu to pick up the right DDNS provider you registered.
<b>Account</b>	Fill in the account of DDNS you registered.
<b>Password</b>	Fill in the password of DDNS you registered.
<b>DDNS</b>	Fill in the domain name that you registered.

#### 4.6.2 Upload Firmware



Figure 4-43 Upload F/W

The page includes the following fields:

Object	Description
<b>Location</b>	Click the <b>Browse</b> button to select the new firmware image file on PC. And click the <b>Apply</b> button to upgrade firmware.

4.6.3 Settings Management



Figure 4-44 Setting Management

The page includes the following fields:

Object	Description
<b>Export Button</b>	Click <b>Export</b> button to export the current configuration to your PC.
<b>Settings file location</b>	Click <b>Browse</b> button to select the configuration file from your PC, then click <b>Import</b> button to update the configuration.
<b>Load Default Button</b>	Click the <b>Load Default</b> button to reset the configuration parameter to factory defaults.

#### 4.6.4 Status

This page shows the current status and some basic settings of the device, includes system info, Internet Configurations and Local Network.

The screenshot shows the web interface for a Legrand 802.11 Outdoor Wireless Access Point (DA2131). The left sidebar contains a navigation menu with the following items: Site Contents, Setup Wizard, Operation Mode, Internet Settings, Wireless Settings, Administration, Management, QoS, Upload Firmware, Settings Management, Status (highlighted), and System Log. The main content area is titled "Access Point Status" and includes a sub-header "Access Point Status" and a descriptive sentence: "This page show the current status and some basic settings of the device." Below this, there are three tables of information:

System Information	
Firmware Version	1.0.0 Jun 21 2012
System Up Time	0 days, 0 hours, 28 mins, 20 secs
Operation Mode	Bridge Mode

Wireless Information	
Status	Radio ON
Mode	AP
SSID	Legrand WiFi
Channel	6
Encryption	WPA2PSK
BSSID	00:30:4F:93:C1:54

LAN Information	
DHCP Server	Disabled
LAN IP Address	192.168.40.252
Subnet Mask	255.255.255.0
MAC Address	00:30:4F:93:C1:54

Figure 4-45 Status



4.6.5 System Log

This page is used to view the system logs.

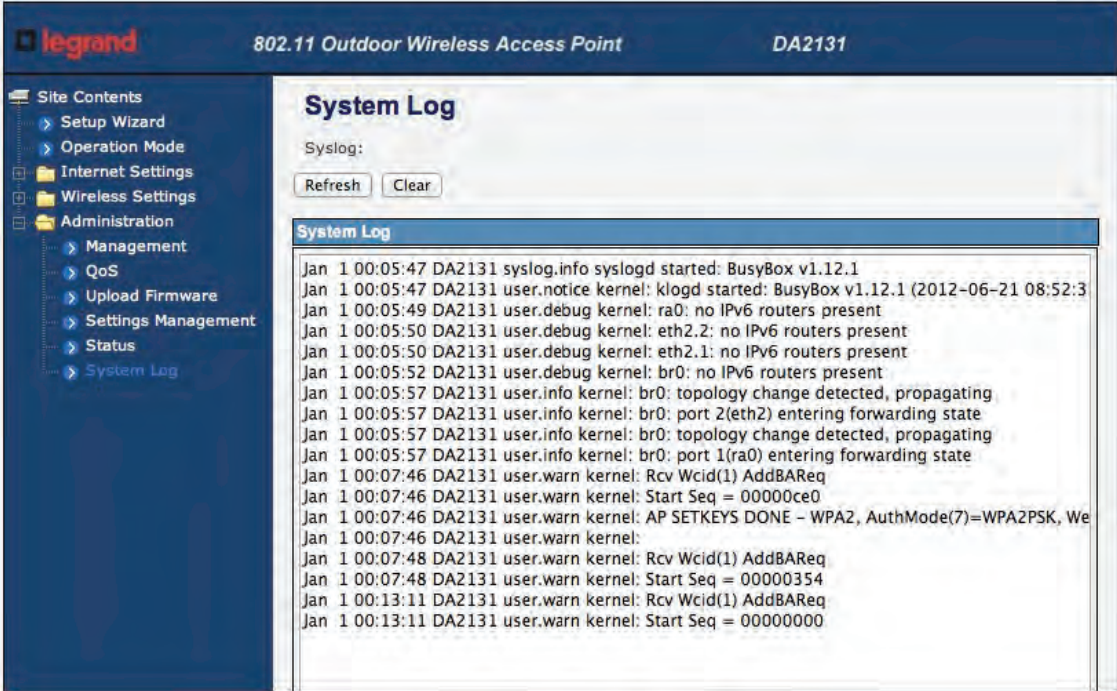


Figure 4-46 System Log

The page includes the following fields:

Object	Description
Refresh	Click the <i>Refresh</i> button to refresh the log shown on the screen.
Clear	Click the <i>Clear</i> button to clear the log display screen.

## Appendix A: Specifications

<b>Product</b>	<b>DA2131-V1</b> 150Mbps 802.11n Wireless Outdoor Access Point
<b>Hardware Specification</b>	
<b>Standard support</b>	IEEE802.11b/g IEEE 802.11n IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX IEEE 802.3x Flow Control
<b>Chipset</b>	Ralink RT3050
<b>Memory</b>	16 Mbytes DDR SDRAM 4 Mbytes Flash
<b>Interface</b>	Wireless IEEE802.11b/g/n LAN: 1 x 10/100Base-TX, Auto-MDI/MDIX WAN: 1 x 10/100Base-TX, Auto-MDI/MDIX
<b>Antenna</b>	Internal (Default): 12dBi directional antenna (Vertical-Pol) <ul style="list-style-type: none"> <li>■ Horizontal: 60 degree</li> <li>■ Vertical: 30 degree</li> </ul> External (Option): RP-SMA type Connector <ul style="list-style-type: none"> <li>■ Switchable by Software</li> <li>■ For External Antenna Mode, attach antenna before power on</li> </ul>
<b>Enclosure</b>	IP55 waterproof case
<b>PoE</b>	Passive PoE / 12V DC Reset Button on PoE Injector LAN RJ-45 Pin Assignment: PIN 4(+), PIN 7,8(-), PIN 5(Reset)
<b>Wireless Interface Specification</b>	
<b>Frequency Band</b>	2.4~2.4835GHz
<b>Modulation</b>	Transmission/Emission Type: DSSS / OFDM Data modulation type: OFDM with BPSK, QPSK, 16-QAM, 64-QAM, DBPSK, DQPSK, CCK
<b>Data Rate</b>	802.11b: 11, 5.5, 2 and 1 Mbps with auto-rate fall back 802.11g: 54, 48, 36, 24, 18, 12, 9 and 6Mbps 802.11n (20MHz): up to 72Mbps 802.11n (40MHz): up to 150Mbps
<b>Opt. Channel</b>	America/ FCC: 2.414~2.462GHz (11 Channels) Europe/ ETSI: 2.412~2.472GHz (13 Channels) Japan/ TELEC: 2.412~2.484GHz (14 Channels)
<b>RF Output Power</b>	802.11b: 27 ± 1dBm 802.11g: 26 ± 1dBm 802.11n: 22 ± 1dBm
<b>Receiver Sensitivity</b>	IEEE 802.11b: -93dBm IEEE 802.11g: -91dBm IEEE 802.11n: -81.2dBm
<b>Media Access Control</b>	CSMA/CA
<b>Output Power Control</b>	Range 1~100, default:100
<b>Power Requirements</b>	12V DC, 1A (switching)
<b>Wireless Management Features</b>	
<b>Wireless Mode</b>	■ AP



	<ul style="list-style-type: none"> <li>■ Client</li> <li>■ WDS PtP</li> <li>■ WDS PtMP</li> <li>■ WDS Repeater (AP+WDS)</li> <li>■ Universal Repeater (AP+Client)</li> </ul>
<b>Channel Width</b>	20MHz / 40MHz
<b>Encryption Security</b>	64/128-bits WEP WPA, WPA-PSK WPA2, WPA2-PSK 802.1X
<b>Wireless Isolation</b>	Enable it to isolate each connected wireless clients, to let them cannot access mutually.
<b>Wireless Security</b>	Provide wireless LAN ACL (Access Control List) filtering
	Wireless MAC address filtering
	Support WPS (WIFI Protected Setup )
	Enable/Disable SSID Broadcast
<b>B/G Protection Mode</b>	A protection mechanism prevents collisions among 802.11b/g modes
<b>Max. Wireless Client</b>	25
<b>Max. WDS AP</b>	4
<b>Software</b>	
<b>LAN</b>	Built-in DHCP server supporting static IP address distributing
	Support UPnP
	Support IGMP Proxy, DNS Proxy
	Support 802.1d STP - Spanning Tree Protocol
<b>WAN Protocol</b>	<ul style="list-style-type: none"> <li>■ Static IP</li> <li>■ DHCP (Dynamic IP)</li> <li>■ PPPoE</li> <li>■ PPTP</li> <li>■ L2TP</li> </ul>
<b>VPN Passthrough</b>	<ul style="list-style-type: none"> <li>■ PPTP</li> <li>■ L2TP</li> <li>■ IPSec</li> </ul>
<b>Operating Mode</b>	<ul style="list-style-type: none"> <li>■ Bridge</li> <li>■ Gateway</li> <li>■ Ethernet Converter (WISP)</li> </ul>
<b>Firewall</b>	NAT firewall with SPI (Stateful Packet Inspection)
	Built-in NAT server supporting Port Forwarding (Virtual Server), and DMZ
	Built-in firewall with Port/ IP address/ MAC/ URL filtering
<b>Max. Wired Client</b>	60
<b>NTP</b>	Network Time Management
<b>Management</b>	Web UI, DHCP Client, Configuration Backup & Restore, Dynamic DNS
<b>Diagnostic tool</b>	System Log
<b>Environment &amp; Certification</b>	
<b>Operation Temp.</b>	Temp.: -20~70°C, Humidity: 10%~95% non-condensing
<b>Storage Temp.</b>	Temp.: -30~80°C, Humidity: 5%~95% non-condensing
<b>IP Level</b>	IP65
<b>Regulatory</b>	CE / FCC / RoHS