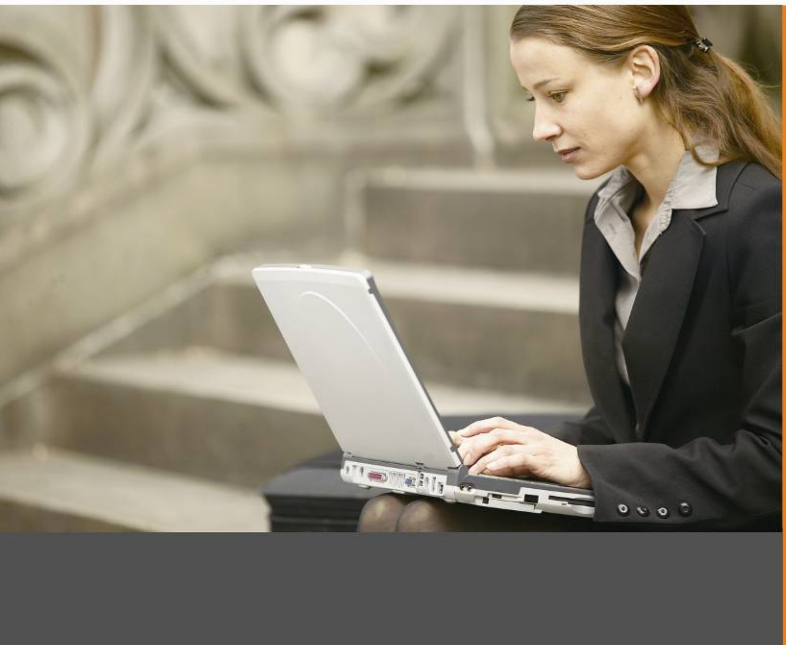
User's Manual

2.4GHz
802.11n Wireless
Outdoor Access Point

► **WNAP-6305**



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Federal Communication Commission Interference Statement

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of 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 technician for help.

FCC Caution:

To assure continued compliance, (example-use only shielded interface cables when connecting to computer or peripheral devices) any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

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

(1) This device may not cause harmful interference

(2) This Device must accept any interference received, including interference that may cause undesired operation.

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

Federal Communication Commission (FCC) Radiation Exposure Statement

This equipment complies with FCC radiation exposure set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20 cm (8 inches) during normal operation.

CE Mark Warning

This is a Class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

Energy Saving Note of the Device

This power required device does not support Standby mode operation.

For energy saving, please remove the DC-plug to disconnect the device from the power circuit. Without remove the DC-plug, the device still consuming power from the power circuit. In the view of Saving the Energy and reduce the unnecessary power consuming, it is strongly suggested to remove the DC-plug for the device if this device is not intended to be active.

Protection requirements for health and safety – Article 3.1a

Testing for electric safety according to EN 60950 has been conducted. These are considered relevant and sufficient.

Protection requirements for electromagnetic compatibility – Article 3.1b

Testing for electromagnetic compatibility according to EN 301 489-1, EN 301 489-17 and EN 55024 has been conducted. These are considered relevant and sufficient.

Effective use of the radio spectrum – Article 3.2

Testing for radio test suites according to EN 300 328-2 has been conducted. These are considered relevant and sufficient.

CE in which Countries where the product may be used freely:

Germany, UK, Italy, Spain, Belgium, Netherlands, Portugal, Greece, Ireland, Denmark, Luxembourg, Austria, Finland, Sweden, Norway and Iceland.

France: except the channel 10 through 13, law prohibits the use of other channels.

R&TTE Compliance Statement

This equipment complies with all the requirements of DIRECTIVE 1999/5/CE OF THE EUROPEAN PARLIAMENT AND THE COUNCIL OF 9 March 1999 on radio equipment and telecommunication terminal Equipment and the mutual recognition of their conformity (R&TTE).

The R&TTE Directive repeals and replaces in the directive 98/13/EEC (Telecommunications Terminal Equipment and Satellite Earth Station Equipment) As of April 8, 2000.

Safety

This equipment is designed with the utmost care for the safety of those who install and use it. However, special attention must be paid to the dangers of electric shock and static electricity when working with electrical equipment. All guidelines of this and of the computer manufacture must therefore be allowed at all times to ensure the safe use of the equipment.

National Restrictions

This device is intended for home and office use in all EU countries (and other countries following the EU directive 1999/5/EC) without any limitation except for the countries mentioned below:

Country	Restriction	Reason/remark
Bulgaria	None	General authorization required for outdoor use and public service
France	Outdoor use limited to 10 mW e.i.r.p. within the band 2454-2483.5 MHz	Military Radiolocation use. Refarming of the 2.4 GHz band has been ongoing in recent years to allow current relaxed regulation. Full implementation planned 2012
Italy	None	If used outside of own premises, general authorization is required
Luxembourg	None	General authorization required for network and service supply(not for spectrum)
Norway	Implemented	This subsection does not apply for the geographical area within a radius of 20 km from the centre of Ny-Ålesund
Russian Federation	None	Only for indoor applications

WEEE regulation

To avoid the potential effects on the environment and human health as a result of the presence of hazardous substances in electrical and electronic equipment, end users of electrical and electronic equipment should understand the meaning of the crossed-out wheeled bin symbol. Do not dispose of WEEE as unsorted municipal waste and have to collect such WEEE separately.

Revision

User’s Manual for PLANET 802.11n Wireless Outdoor Access Point

Model: WNAP-6305

Rev: 1.0 (June, 2011)

Table of Contents

Chapter 1. Product Introduction

1.1 Package contents

The following items should be contained in the package:

- WNAP-6305 Wireless Outdoor AP
- Power Adapter (12V, 1A)
- PoE Injector with reset button
- Mounting Tie x 2
- Quick Installation Guide
- CD-ROM (User's Manual included)

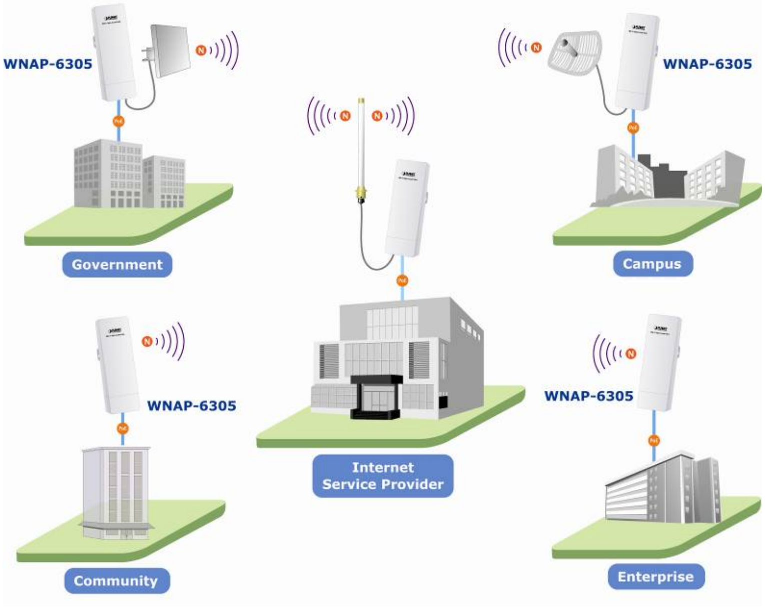
If there is any item missed or damaged, please contact the seller immediately.

1.2 Product Description

The WNAP-6305 is an affordable IEEE 802.11b/g /n specifications of Outdoor Router solution. It provides a setting of SOHO and enterprise standard for high performance, secure, manageable and reliable WLAN. This document describes the steps required for the initial IP address assign and other configuration of the outdoor router.

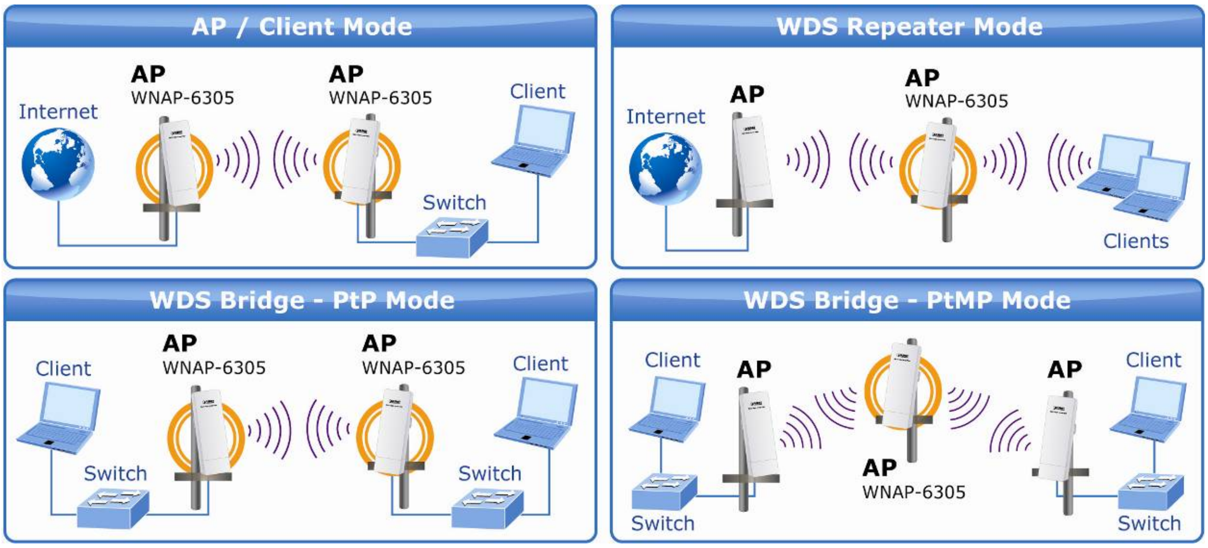
Faster Speed and Widely Range

Adopting IEEE 802.11n advanced MIMO technology; it provides reliable wireless network coverage, and incredible improvement in the wireless performance. As an IEEE 802.11b/g/n compliant wireless device, the WNAP-6305 is able to give stable and efficient wireless performance for long distance application, while designed with IEEE 802.11n standard and 1T1R MIMO technology makes it possible to deliver three times faster data rate up to 150Mbps than normal 802.11g wireless device. With its adjustable output power up to 600mW can extend the higher coverage up to 10Km for outdoor long range application.



Multiple Operating & Wireless Modes

It supports multiple wireless communication connectivity (AP / Client CPE / WDS PtP / WDS PtMP / Repeater / Universal Repeater), allowing for various application requirements that gives user more comprehensive experience when using WNAP-6305. It also helps user easily to build wireless network and extend the wireless range of existed wireless network.



Advanced Wireless Security

In aspect of security, besides 64/128- bit WEP encryption, the WNAP-6305 integrates WPA / WPA2, WPA-PSK / WPA2-PSK and 802.1x authority to secure and protect your wireless LAN. The wireless MAC filtering and SSID broadcast control to consolidate the wireless network security and prevent unauthorized wireless connection.

Perfect Solution for Outdoor Environment

The WNAP-6305 is perfectly suitable to be installed in outdoor environments and exposed locations. With its IP-65 casing protection, the WNAP-6305 can perform normally under rigorous weather conditions including heavy rain and wind. With the proprietary Power over Ethernet (PoE) design, the WNAP-6305 can be easily installed in the areas where power outlets are not available. It is the best way using the WNAP-6305 to build outdoor wireless access applications between buildings on campuses, business, rural areas and etc.

Easy Installation & Management

With User-friendly Web UI and step by step Setup Wizard, it is easier to install, even through a user who never experiencing setup a wireless network.

1.3 Product Features

- **Industrial Compliant Wireless LAN & LAN**
  - Compliant with IEEE 802.11n wireless technology capable of up to 150Mbps data rate
  - Backward compatible with 802.11b/g standard
  - Equipped with 10/100Mbps RJ-45 Ports for LAN & WAN, Auto MDI/ MDI-X supported
- **Fixed-network Broadband Router**
  - Supported connection types: Dynamic IP/ Static IP / PPPoE / PPTP / L2TP
  - Support multiple sessions IPSec, L2TP and PPTP VPN pass-through
  - Support Virtual Server, DMZ and Port Forwarding for various networking applications
  - Support DHCP Server, UPnP, Dynamic DNS
- **RF Interface Characteristics**
  - Built-in 9dBi Directional Antenna
  - High Output Power Up to 600mWwith multiple adjustable transmit power control
  - Reserve RP-SMA Type Connector
- **Outdoor Environmental Characteristics**
  - IP-65 Enclosure, Outdoor UV Stabilized Plastic
  - Passive Power Over Ethernet Design
  - Reset Button on PoE Injector
  - Operating Temperature: -20~70°C
- **Multiple Operation & Wireless Mode**
  - Multiple Operation Modes: WDS, Gateway, Ethernet Converter
  - Multiple Wireless Modes: AP, Client CPE(WISP), WDS PtP, WDS PtMP, Repeater, Universal Repeater
- **Secure Network Connection**
  - Support Software Wi-Fi Protected Setup (WPS)
  - Advanced security: 64/128-bit WEP, WPA/WPA2, WPA-PSK/WPA2-PSK(TKIP/AES), and 802.1x Authentication
  - Support NAT firewall features, with SPI function to protect against DoS attacks.
  - Support IP / Protocol-based access control and MAC Filtering
- **Easy Installation & Management**
  - Web-based UI and Quick Setup Wizard for easy configuration
  - Remote Management allows configuration from a remote site
  - System status monitoring includes DHCP Client, System Log

1.4 Product Specification

Product	**WNAP-6305** 150Mbps 802.11n Wireless Outdoor Access Point
Hardware Specification	
Standard support	IEEE802.11b/g IEEE 802.11n IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX IEEE 802.3x Flow Control
Chipset	Ralink RT3050
Memory	16 Mbytes DDR SDRAM 4 Mbytes Flash
Interface	Wireless IEEE802.11b/g/n LAN: 1 x 10/100Base-TX, Auto-MDI/MDIX WAN: 1 x 10/100Base-TX, Auto-MDI/MDIX
Antenna	Internal (Default): 9dBi directional antenna (Vertical-Pol) ■ Horizontal: 60 degree ■ Vertical: 30 degree External (Option): RP-SMA type Connector ■ Switchable by Software ■ For External Antenna Mode, attach antenna before power on
Enclosure	IP65 waterproof case
PoE	Passive PoE / 12V DC Reset Button on PoE Injector LAN RJ-45 Pin Assignment: PIN 4(+), PIN 7,8(-), PIN 5(Reset)
Wireless Interface Specification	
Frequency Band	2.4~2.4835GHz
Modulation	Transmission/Emission Type: DSSS / OFDM Data modulation type: OFDM with BPSK, QPSK, 16-QAM, 64-QAM, DBPSK, DQPSK, CCK
Data Rate	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 150Mbp
Opt. Channel	America/ FCC: 2.414~2.462GHz (11 Channels) Europe/ ETSI: 2.412~2.472GHz (13 Channels) Japan/ TELEC: 2.412~2.484GHz (14 Channels)
RF Output Power	802.11b: 27 ± 1dBm 802.11g: 26 ± 1dBm 802.11n: 22 ± 1dBm
Receiver Sensitivity	IEEE 802.11b: -93dBm IEEE 802.11g: -91dBm IEEE 802.11n: -89dBm
Media Access Control	CSMA/CA
Output Power Control	Range 1~100, default:100
Power Requirements	12V DC, 1A (switching)
Wireless Management Features	
Wireless Mode	■ AP ■ Client

	■ WDS PtP ■ WDS PtMP ■ WDS Repeater (AP+WDS) ■ Universal Repeater (AP+Client)
Channel Width	20MHz / 40MHz
Encryption Security	64/128-bits WEP WPA, WPA-PSK WPA2, WPA2-PSK 802.1X
Wireless Isolation	Enable it to isolate each connected wireless clients, to let them cannot access mutually.
Wireless Security	Provide wireless LAN ACL (Access Control List) filtering
	Wireless MAC address filtering
	Support WPS (WIFI Protected Setup)
	Enable/Disable SSID Broadcast
B/G Protection Mode	A protection mechanism prevents collisions among 802.11b/g modes
Max. Wireless Client	25
Max. WDS AP	4
Software	
LAN	Built-in DHCP server supporting static IP address distributing
	Support UPnP
	Support IGMP Proxy, DNS Proxy
	Support 802.1d STP - Spanning Tree Protocol
WAN Protocol	■ Static IP ■ DHCP (Dynamic IP) ■ PPPoE ■ PPTP ■ L2TP
VPN Passthrough	■ PPTP ■ L2TP ■ IPSec
Operating Mode	■ Bridge ■ Gateway ■ Ethernet Converter (WISP)
Firewall	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
Max. Wired Client	60
NTP	Network Time Management
Management	Web UI, DHCP Client, Configuration Backup & Restore, Dynamic DNS
Diagnostic tool	System Log
Environment & Certification	
Operation Temp.	Temp.: -20~70°c, Humidity: 10%~95% non-condensing
Storage Temp.	Temp.: -30~80°c, Humidity: 5%~95% non-condensing
IP Level	IP-65
Regulatory	CE / FCC / RoHS

1.5 Wireless Performance

The following information will help you utilizing the wireless performance, and operating coverage of WNAP-6305.

1. Site selection

To avoid interferences, please locate WNAP-6305 and wireless clients away from transformers, microwave ovens, heavy-duty motors, refrigerators, fluorescent lights, and other industrial equipments. Keep the number of walls, or ceilings between AP and clients as few as possible; otherwise the signal strength may be seriously reduced. Place WNAP-6305 in open space or add additional WNAP-6305 as needed to improve the coverage.

2. Environmental factors

The wireless network is easily affected by many environmental factors. Every environment is unique with different obstacles, construction materials, weather, etc. It is hard to determine the exact operating range of WNAP-6305 in a specific location without testing.

Chapter 2. Hardware Description

2.1 The Rear Panel – LED

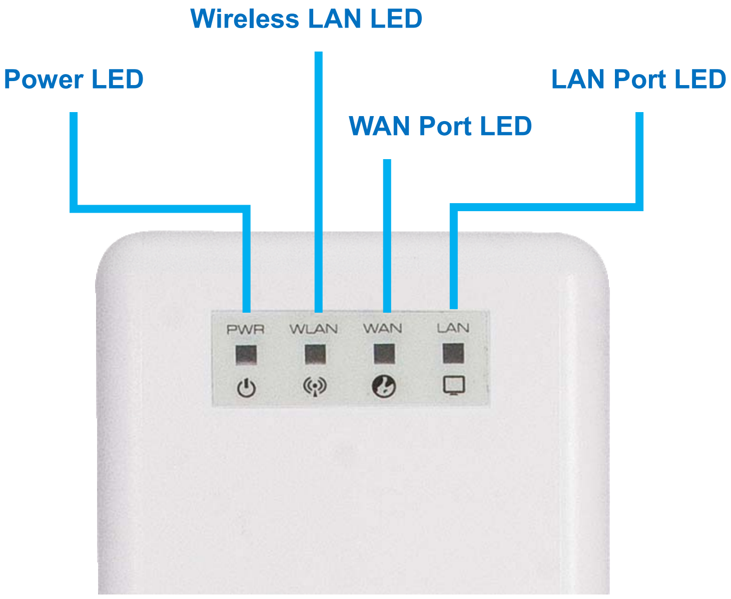


Figure 2-1 Rear Panel LED Identification

2.2 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.

2.3 The Rear Panel – Port & Connector

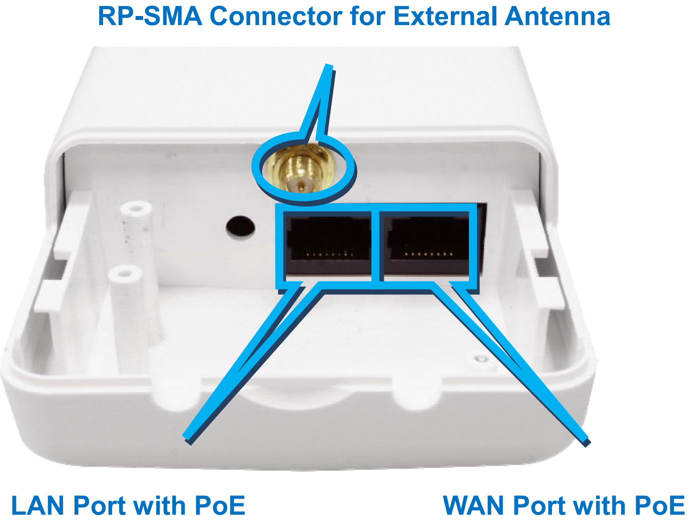
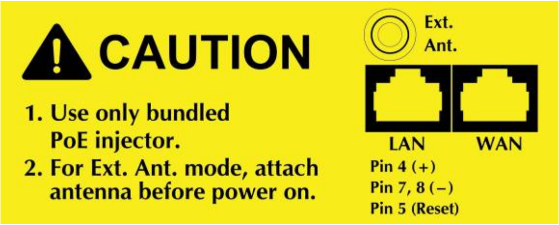


Figure 2-2 Port and Connector of WNAP-6305


CAUTION

1. Use only bundled PoE injector.
2. For Ext. Ant. mode, attach antenna before power on.

Ext. Ant.

LAN WAN

Pin 4 (+)
Pin 7, 8 (−)
Pin 5 (Reset)

Figure 2-3 Port and Connector description label

Interface	Function
RP-SMA Connector	For external antenna. You can use the SMA connector to connect with 2.4GHz external antenna.
LAN	The RJ-45 sockets allow LAN connection through Category 5 cables. Support auto-sensing on 10/100M speed and half/ full duplex; comply with IEEE 802.3/ 802.3u respectively.
WAN	The RJ-45 socket allows WAN connection through a Category 5 cable. Support auto-sensing on 10/100M speed and half/ full duplex; comply with IEEE 802.3/ 802.3u respectively.

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

2.4 PoE Injector

■ Hardware Button

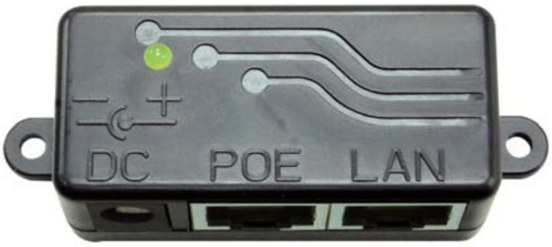
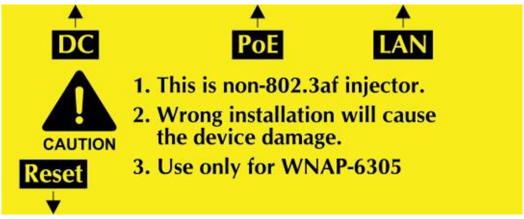


Figure 2-4 Top view of PoE Injector



DC PoE LAN

CAUTION

1. This is non-802.3af injector.
2. Wrong installation will cause the device damage.
3. Use only for WNAP-6305

Reset

Figure 2-5 Label of PoE Injector

■ Hardware Button

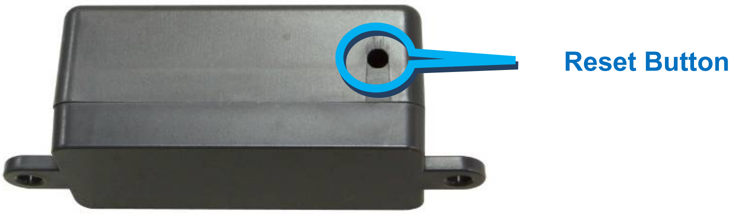


Figure 2.6 Reset Button of PoE Injector

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

Chapter 3. Hardware installation

This chapter describes safety precautions and product information you have to know and check before installing WNAP-6305.

3.1 Preparation before Installation

3.1.1 Professional Installation Required

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

3.1.2 Safety Precautions

1. To keep you safe and install the hardware properly, please read and follow these safety precautions.
2. If you are installing WNAP-6305 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 WNAP-6305, 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.

3.1.3 Installation Precautions

To keep the WNAP-6305 well 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 WNAP-6305; otherwise, a random lightening could easily cause fatal damage to WNAP-6305. **EMD (Lightning) DAMAGE IS NOT COVERED UNDER WARRNTY.**

2. **Users MUST use the "Power cord & PoE Injector" shipped in the box with the WNAP-6305**. Use of other options will cause damage to the WNAP-6305.

3. **Users MUST power off the WNAP-6305 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 WNAP-6305; otherwise, damage might be caused to the WNAP-6305 itself.

3.2 Hardware Installation

3.2.1 Connect Up

Step 1. Push the latch in the bottom of WNAP-6305 to remove the sliding cover.

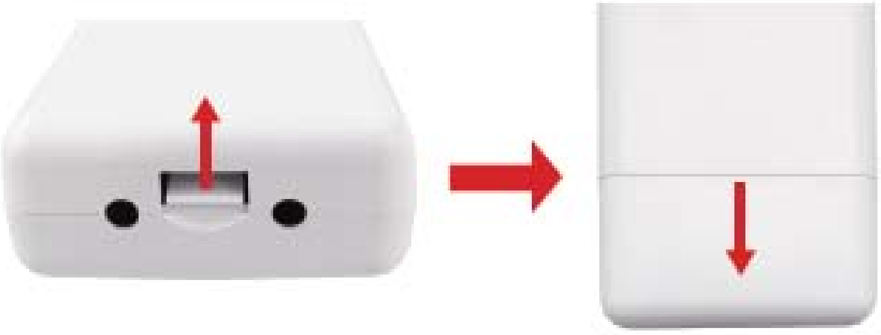


Figure 3-1 Move the cover

Step 2. Plug the RJ-45 Ethernet cable into the LAN Port of WNAP-6305.

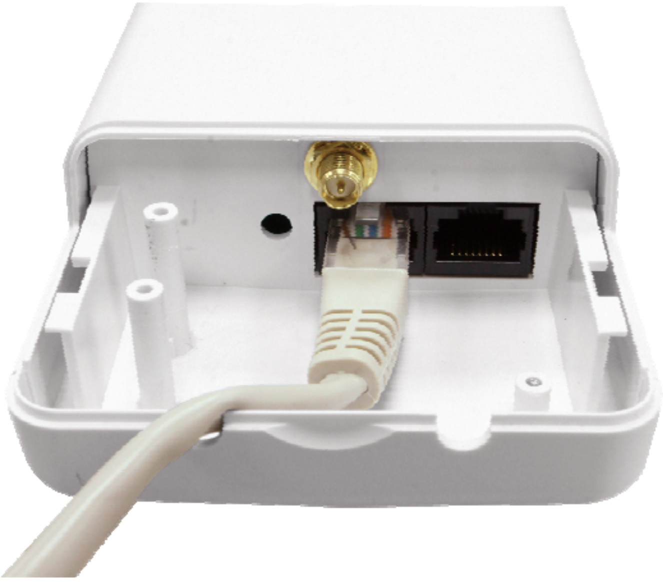


Figure 3-2 Cable Connection

Note

RJ-45 8P8C Ethernet cable is required.

Step 3. Slide the cover back to seal the bottom of the WNAP-6305.

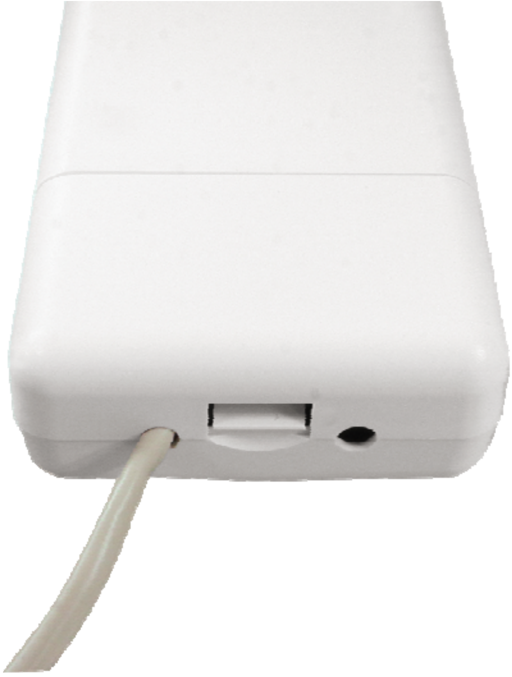


Figure 3-3 Seal the bottom

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

DC: Insert adapter

POE: This hole is linked to LAN port of the Outdoor Router with RJ-45.

LAN: This hole is linked to LAN side PC/Hub or Router/ADSL modem device with RJ-45

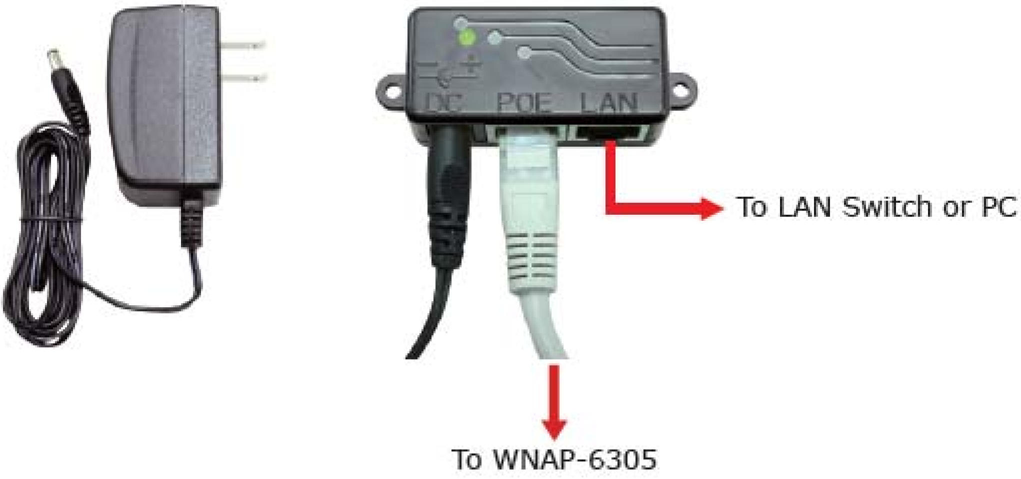


Figure 3-4 Connect to PoE Injector

Step 5. Complete the hardware installation as diagram at below.

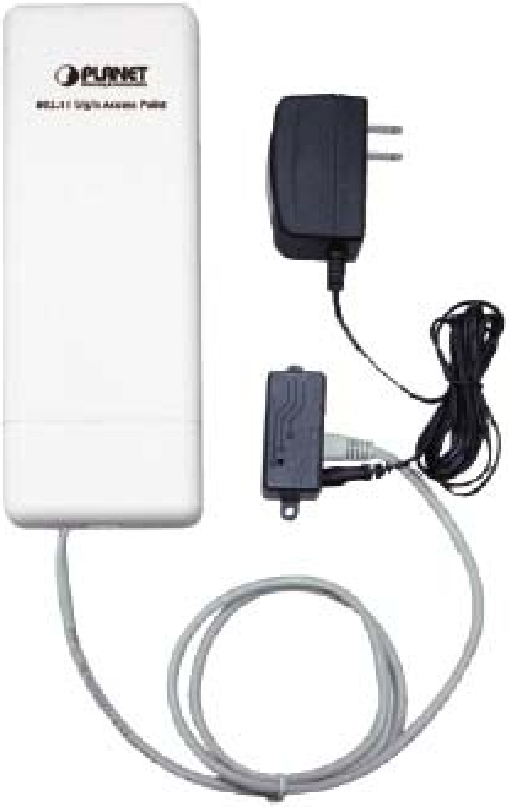


Figure 3-5 Complete set

Note

It will take about 50 seconds to complete the boot up sequence after powered on the Outdoor Router; 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.

Note

To avoid thunder strike, consider to install ELA-100, thunder arrester toward the CPE AP and the PoE injector.

3.2.2 Pole Mounting

Step 1. Turn the WNAP-6305 over. Put the pole mounting tie through the middle hole of it.

Step 2. Mount WNAP-6305 steadily to the pole by fastening the mounting tie tightly.

Step 3. Now you have completed the hardware installation of WNAP-6305 as figure below.

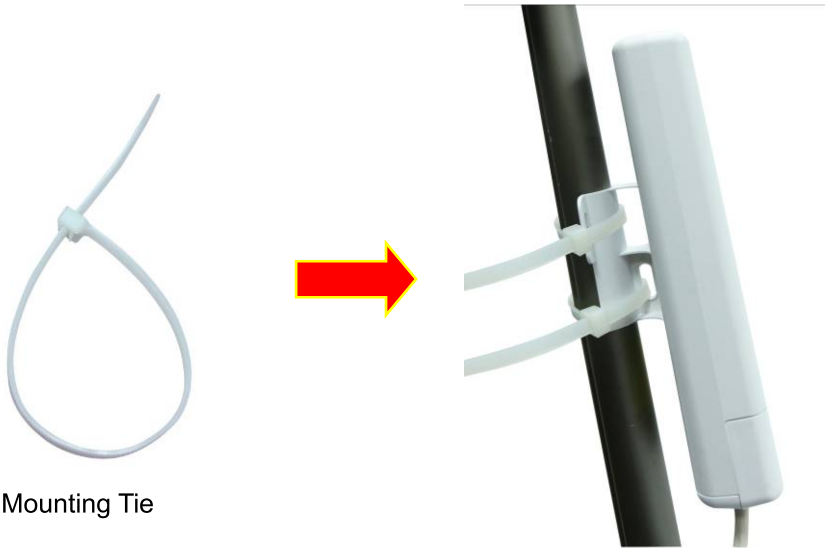


Figure 3-6 Pole Mounting

3.2.3 Using the 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 WNAP-6305.

Step 2. Power on the WNAP-6305, 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 WNAP-6305, get some cable in advance.
1. Users MUST power off the WNAP-6305 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 WNAP-6305**; otherwise, damage might be caused to the WNAP-6305 itself.

Chapter 4. Software Installation

4.1 Software Configuration

There are web based management and configuration functions allowing you to have the jobs done easily. The WNAP-6305 is delivered with the following factory default parameters on the Ethernet LAN interfaces.

Default IP Address: 192.168.1.1

Default IP subnet mask: 255.255.255.0

WEB login User Name: admin

WEB login Password: admin

4.2 Connecting the AP

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.

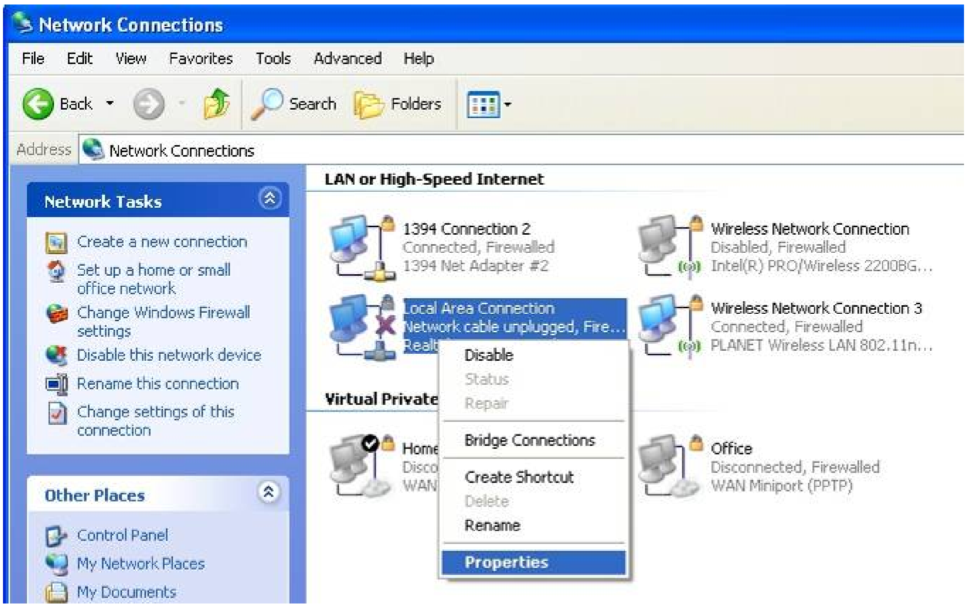


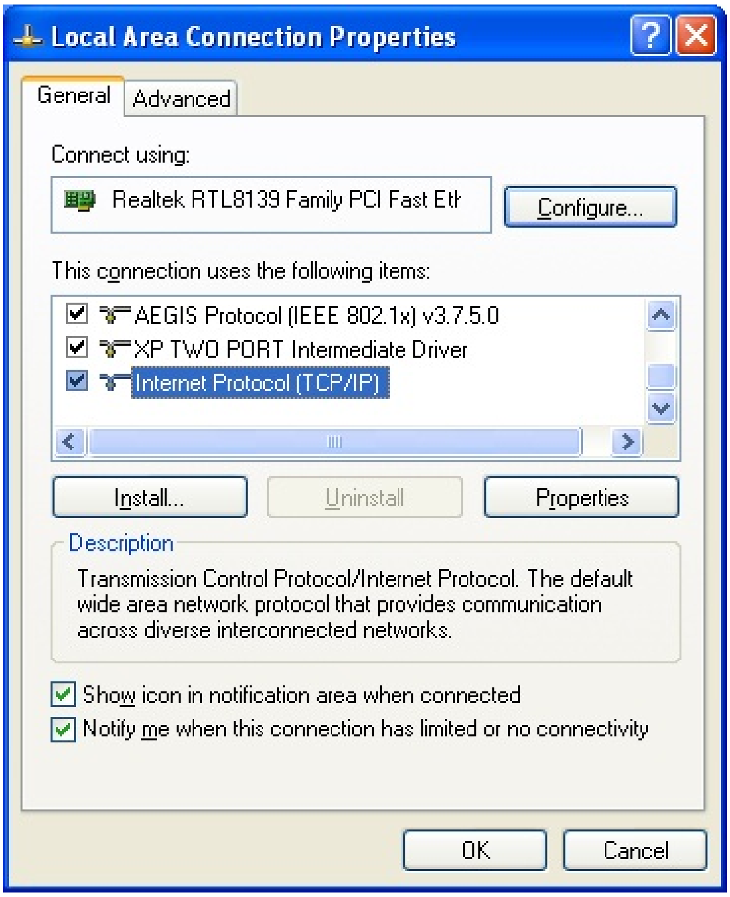
Figure 4-1

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.



Connect using:

Realtek RTL8139 Family PCI Fast Eth

This connection uses the following items:

☑ AEGIS Protocol (IEEE 802.1x) v3.7.5.0

☑ XP TWO PORT Intermediate Driver

☑ Internet Protocol (TCP/IP)

Description

Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.

☑ Show icon in notification area when connected

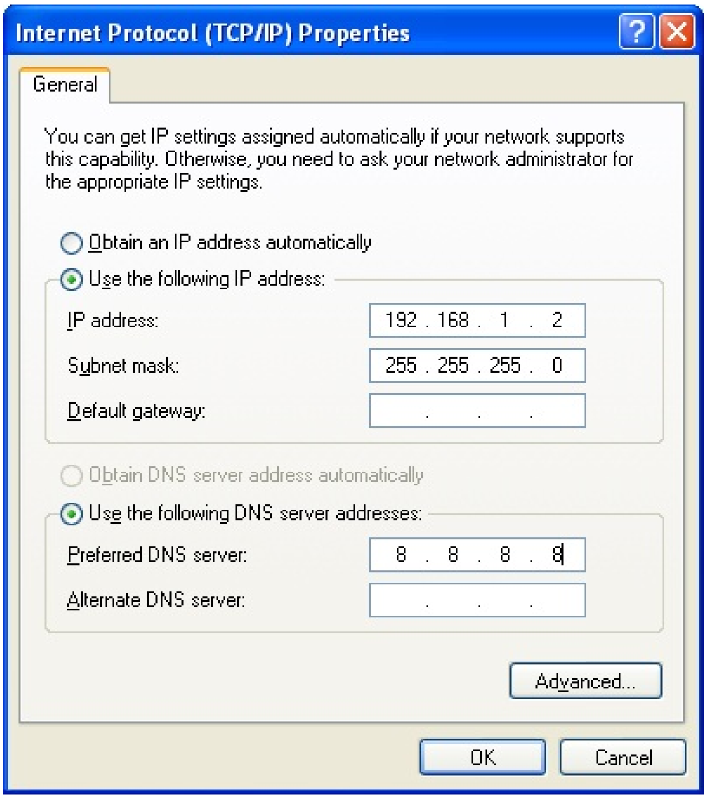
☑ Notify me when this connection has limited or no connectivity

Figure 4-2

7. Select Specify an IP address and type in values as following example.

IP Address: *192.168.1.2*, any IP address within 192.168.1.2 to 192.168.1.254 is good to connect the Wireless LAN Access Point.

IP Subnet Mask: *255.255.255.0*



Internet Protocol (TCP/IP) Properties

General

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

○ Obtain an IP address automatically

● Use the following IP address:

IP address: 192 . 168 . 1 . 2

Subnet mask: 255 . 255 . 255 . 0

Default gateway: . . .

○ Obtain DNS server address automatically

● Use the following DNS server addresses:

Preferred DNS server: 8 . 8 . 8 . 8

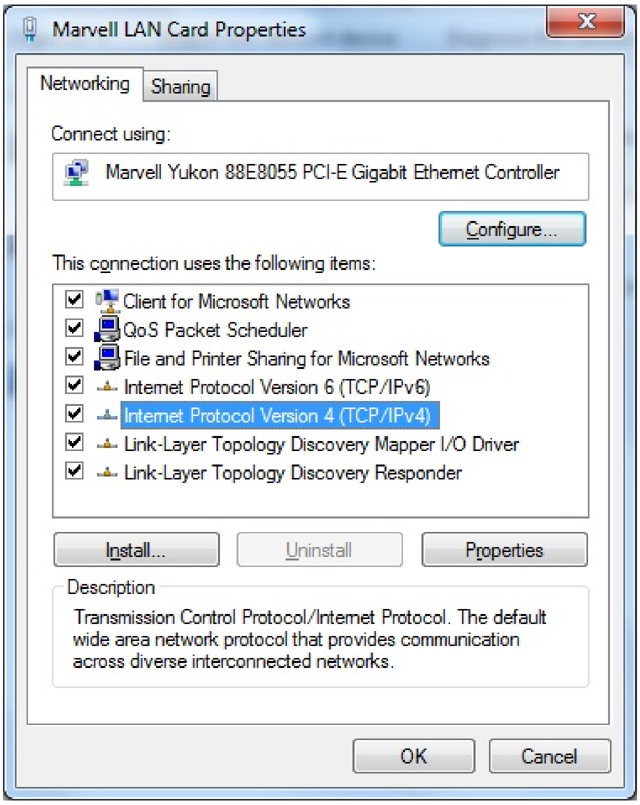
Alternate DNS server: . . .

Figure 4-3

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.



Marvell LAN Card Properties

Networking | Sharing

Connect using:

Marvell Yukon 88E8055 PCI-E Gigabit Ethernet Controller

This connection uses the following items:

- ☑ Client for Microsoft Networks
- ☑ QoS Packet Scheduler
- ☑ File and Printer Sharing for Microsoft Networks
- ☑ Internet Protocol Version 6 (TCP/IPv6)
- ☑ Internet Protocol Version 4 (TCP/IPv4)
- ☑ Link-Layer Topology Discovery Mapper I/O Driver
- ☑ Link-Layer Topology Discovery Responder

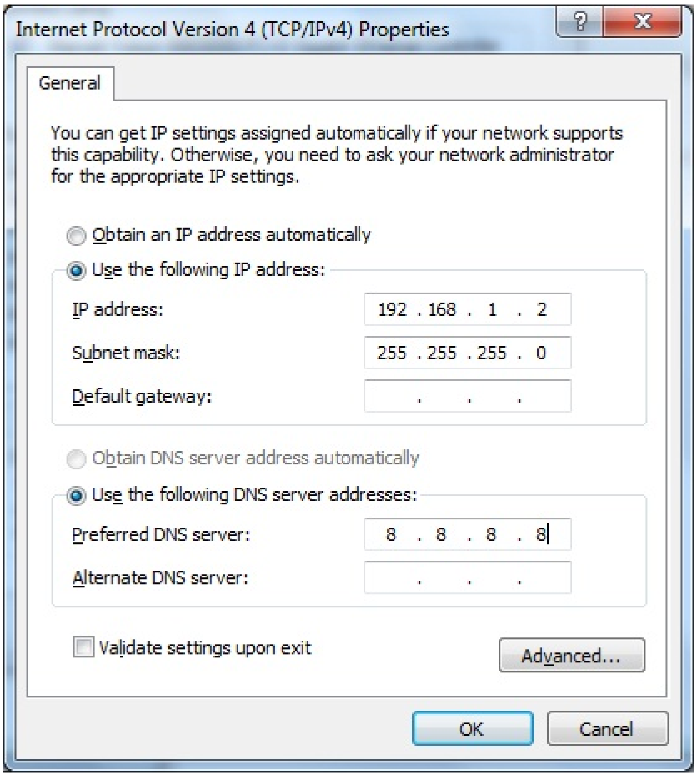
Description

Transmission Control Protocol/Internet Protocol. The default wide area network protocol that provides communication across diverse interconnected networks.

Figure 4-4

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

   IP Address: *192.168.1.2*, any IP address within 192.168.1.2 to 192.168.1.254 is good to connect the Wireless LAN Access Point. IP Subnet Mask: *255.255.255.0*



Internet Protocol Version 4 (TCP/IPv4) Properties

General

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

○ Obtain an IP address automatically

● Use the following IP address:

IP address: 192 . 168 . 1 . 2

Subnet mask: 255 . 255 . 255 . 0

Default gateway: . . .

○ Obtain DNS server address automatically

● Use the following DNS server addresses:

Preferred DNS server: 8 . 8 . 8 . 8

Alternate DNS server: . . .

□ Validate settings upon exit

Figure 4-5

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: *192.168.1.2*, any IP address within 192.168.1.2 to 192.168.1.254 is good to connect the Wireless LAN Access Point.

   IP Subnet Mask: *255.255.255.0*
8. Click *OK* to complete the IP parameters setting.

4.3 Web Login

Open a WEB browser, i.e. Microsoft Internet Explore 6.1 SP1 or above, then enter **192.168.1.1** on the URL to connect the WNAP-6305.

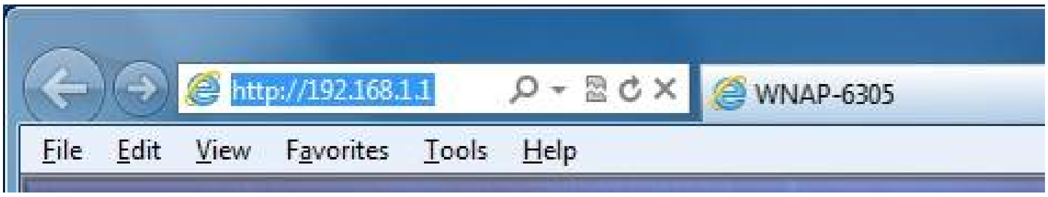
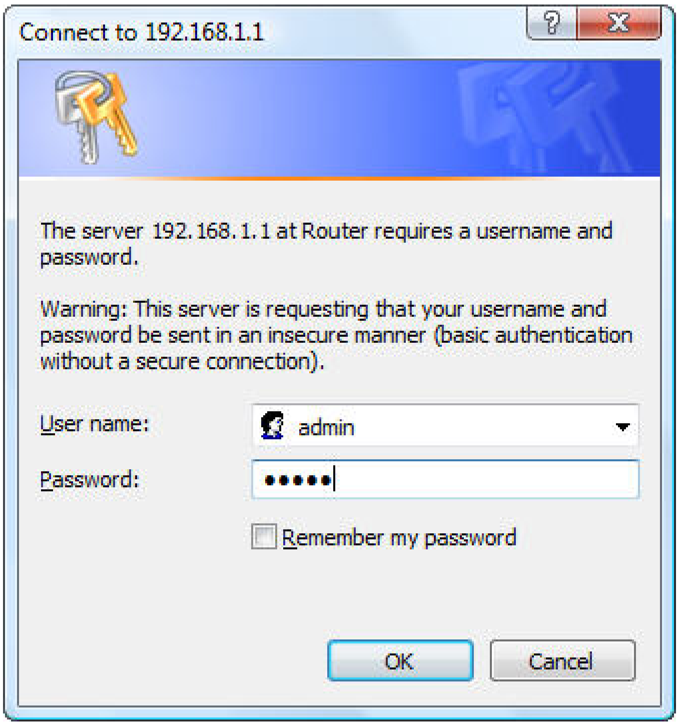

http://192.168.1.1

Figure 4-6

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



The server 192.168.1.1 at Router requires a username and password.

Warning: This server is requesting that your username and password be sent in an insecure manner (basic authentication without a secure connection).

User name: admin

Password: •••••

□ Remember my password

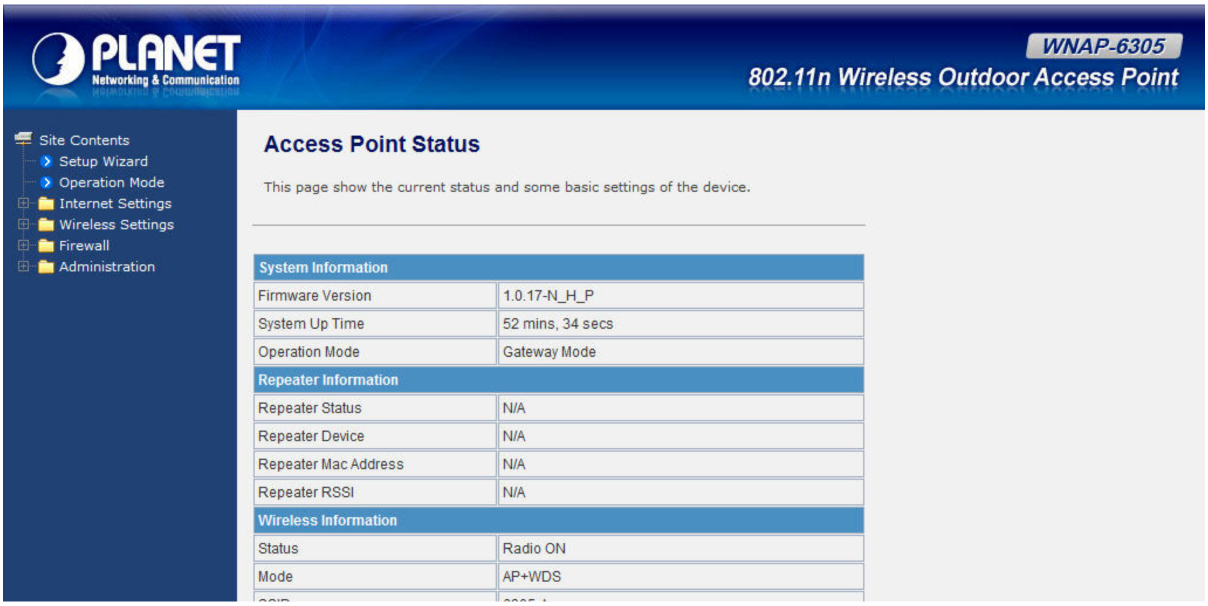
Figure 4-7 Login Window

Default User name: **admin**

Default Password: **admin**

> Note
>
> 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 4-8



Access Point Status

This page show the current status and some basic settings of the device.

System Information	
Firmware Version	1.0.17-N_H_P
System Up Time	52 mins, 34 secs
Operation Mode	Gateway Mode
Repeater Information	
Repeater Status	N/A
Repeater Device	N/A
Repeater Mac Address	N/A
Repeater RSSI	N/A
Wireless Information	
Status	Radio ON
Mode	AP+WDS

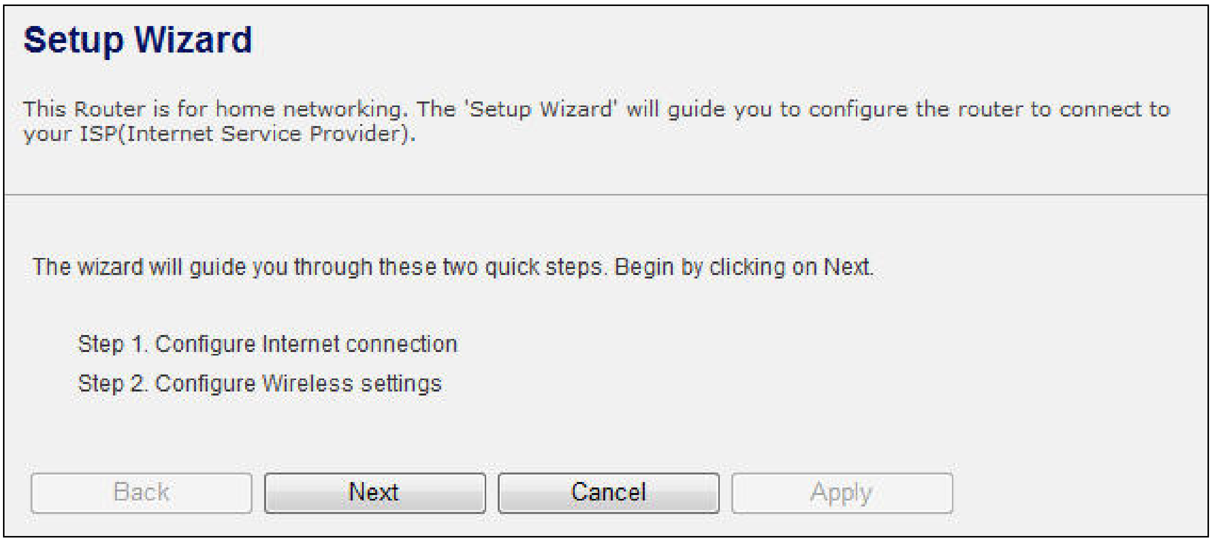
Figure 4-8 Web UI Screenshot

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

Chapter 5. Basic System Settings

5.1 Setup Wizard

This Setup Wizard page guides you to configure the Internet connect and Wireless Setting quickly.



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).

The wizard will guide you through these two quick steps. Begin by clicking on Next.

Step 1. Configure Internet connection

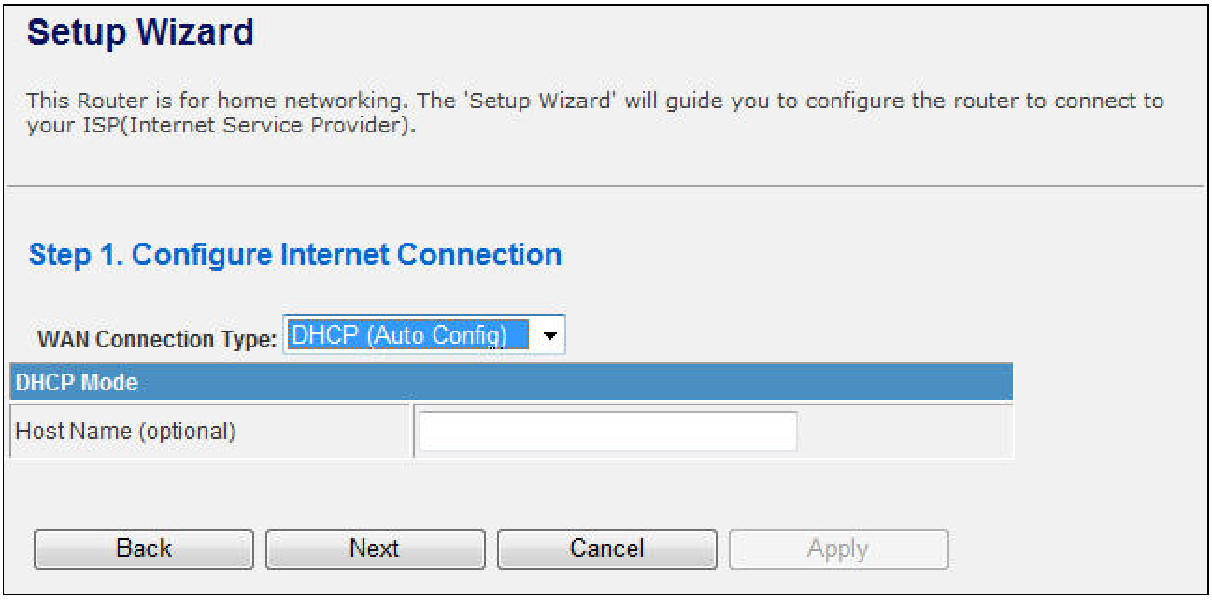
Step 2. Configure Wireless settings

Figure 5-1 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 Router will automatically obtain IP parameters from your ISP. You can see the page as follows



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: DHCP (Auto Config)

DHCP Mode

Host Name (optional):

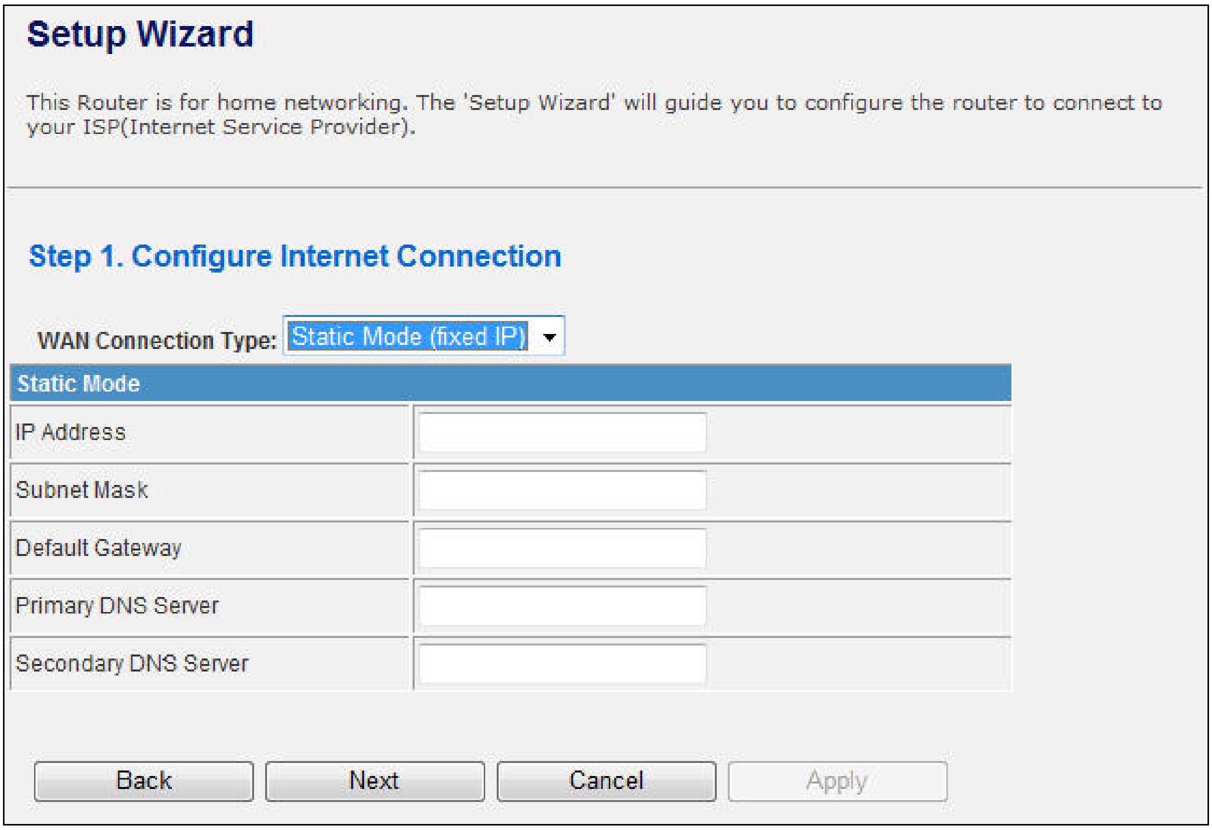
Figure 5-2 Step 1. DHCP

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	
Subnet Mask	
Default Gateway	
Primary DNS Server	
Secondary DNS Server	

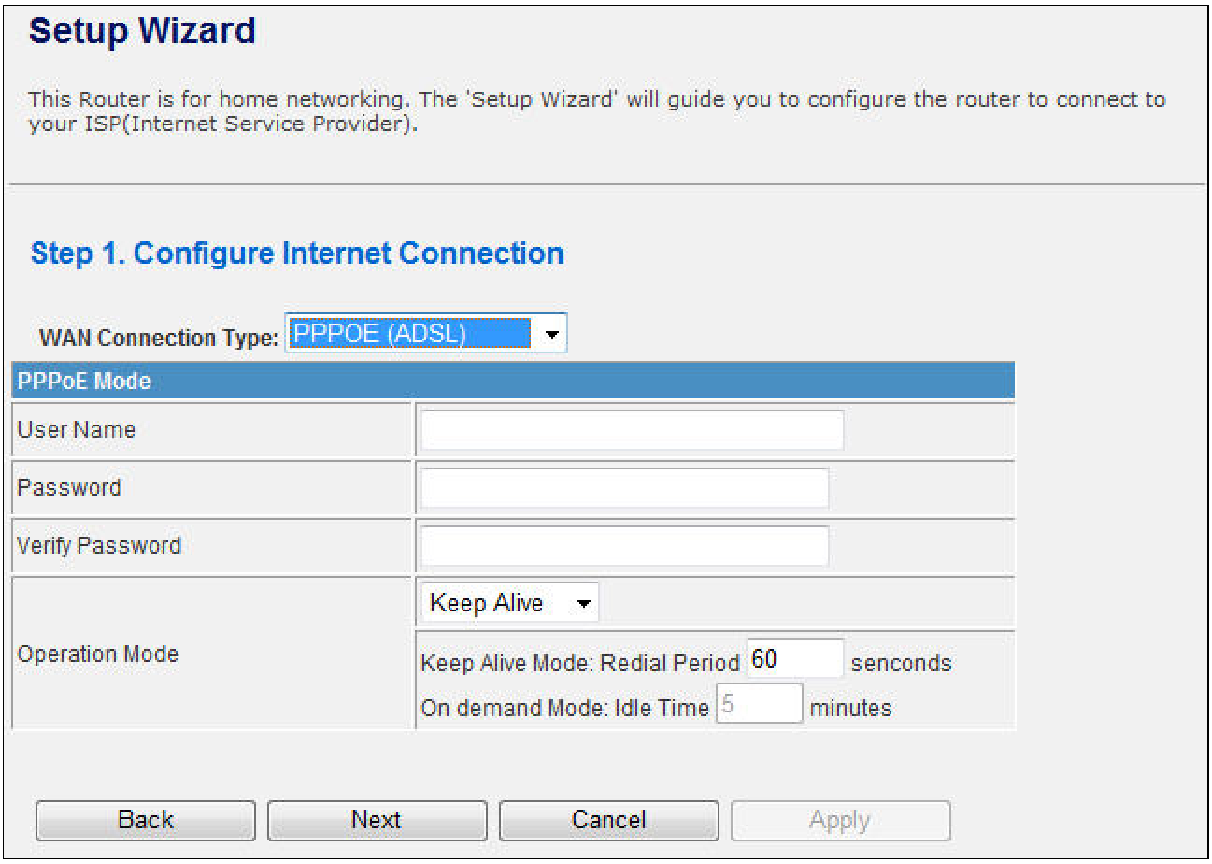
Figure 5-3 Step 1. Static Mode

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 60 senconds On demand Mode: Idle Time 5 minutes

Figure 5-4 Step 1. PPPOE

The page includes the following fields:

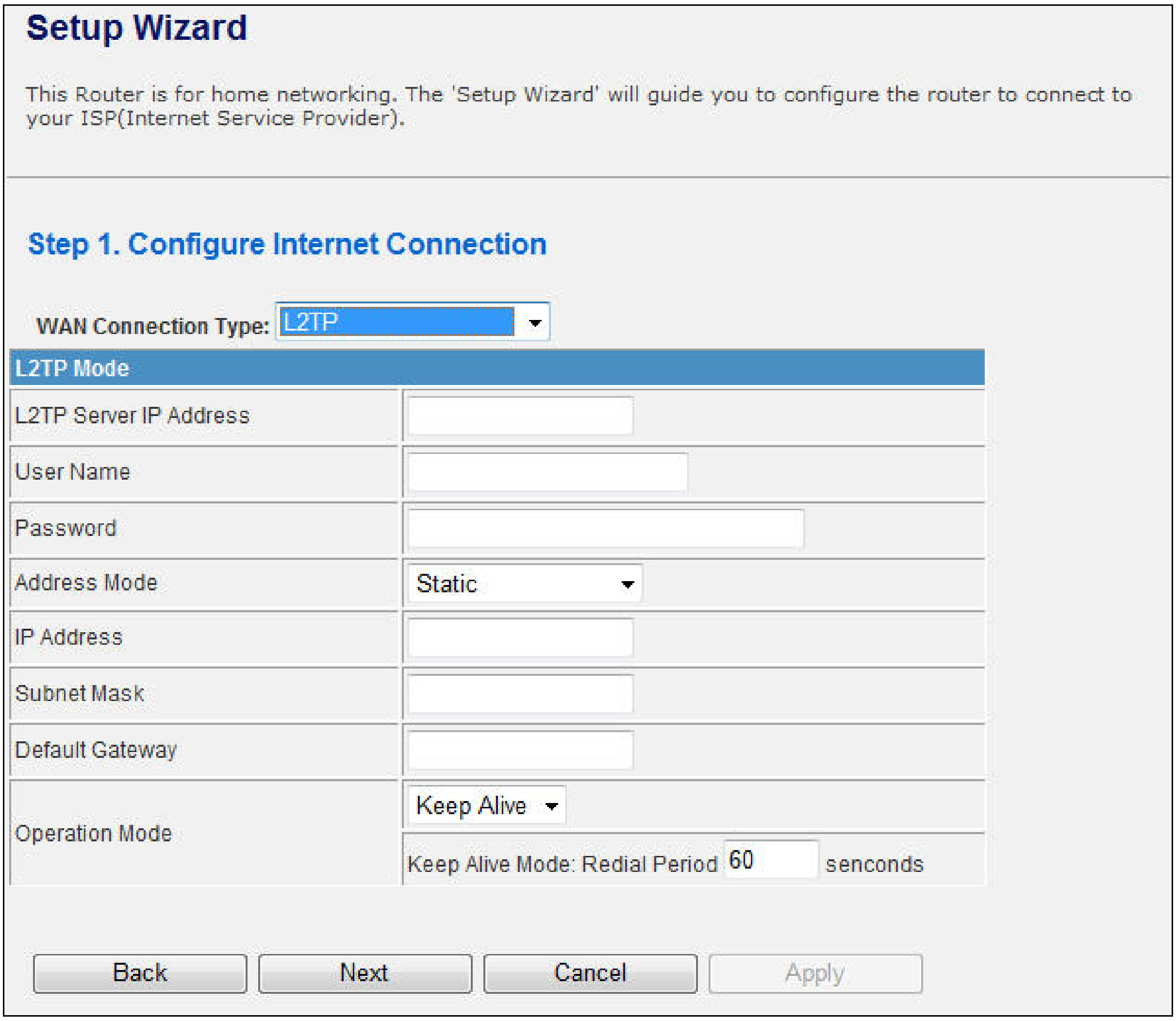
Object	Description
User Name/Password	Enter the User Name and Password provided by your ISP. These fields are case-sensitive.
Verify Password	Fill in the password again for verification.
Operation Mode	■ **Keep Alive:** Keep the PPPoE connection all the time. Please also configure the Redial Period field. ■ **On Demand:** 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. ■ **Manual:** Let user connect the PPPoE connection manually.

Note

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 senconds

Figure 5-5 Step 1. L2TP

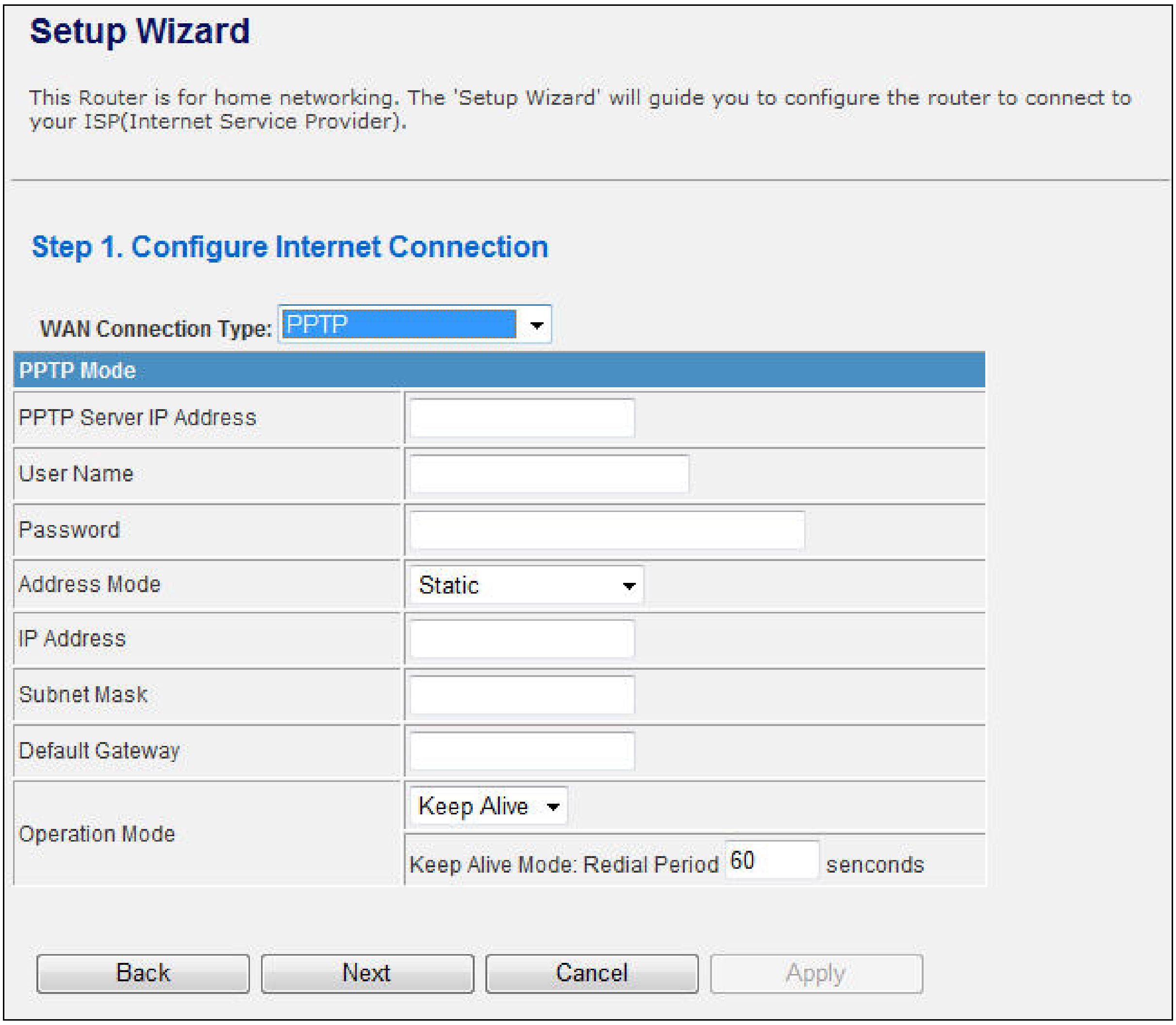
The page includes the following fields:

Object	Description
L2TP 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 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.
User Name/Password	Enter the User Name and Password provided by your ISP. These fields are case-sensitive.
Address Mode	■ **Static:** To configure the IP address information by manually, please fill in the related setting at below. ■ **Dynamic:** The option allows the machine to get IP address information automatically from DHCP server on WAN side.

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	■ **Keep Alive:** Keep the L2TP connection all the time. Please also configure the Redial Period field. ■ **Manual:** Let user connect the L2TP connection manually.

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 senconds

Figure 5-6 Step1. PPTP

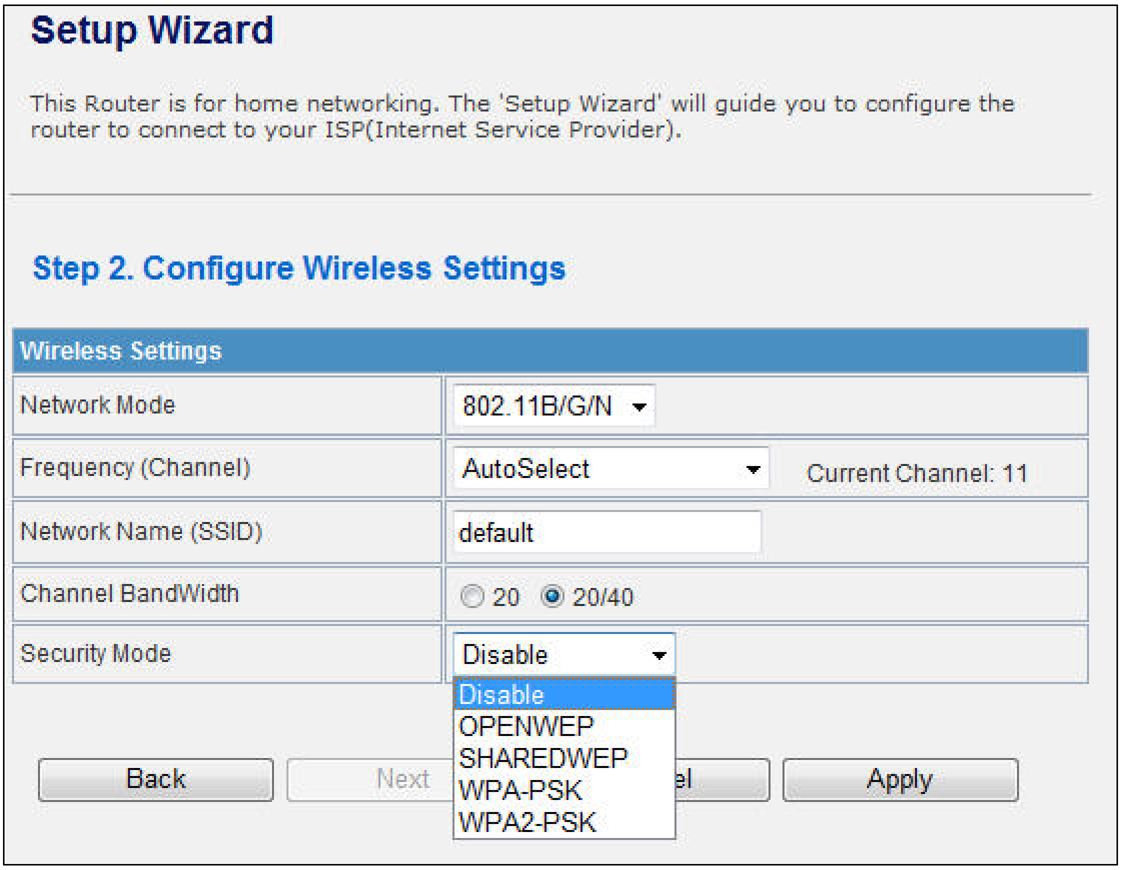
The page includes the following fields:

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.
User Name/Password	Enter the User Name and Password provided by your ISP. These fields are case-sensitive.
Address Mode	**Static:** To configure the IP address information by manually, please fill in the related setting at below. **Dynamic:** The option allows the machine to get IP address information automatically from DHCP server on WAN side.
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	**Keep Alive:** Keep the PPTP connection all the time. Please also configure the Redial Period field. **Manual:** Let user connect the PPTP connection manually.

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.



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 2. Configure Wireless Settings

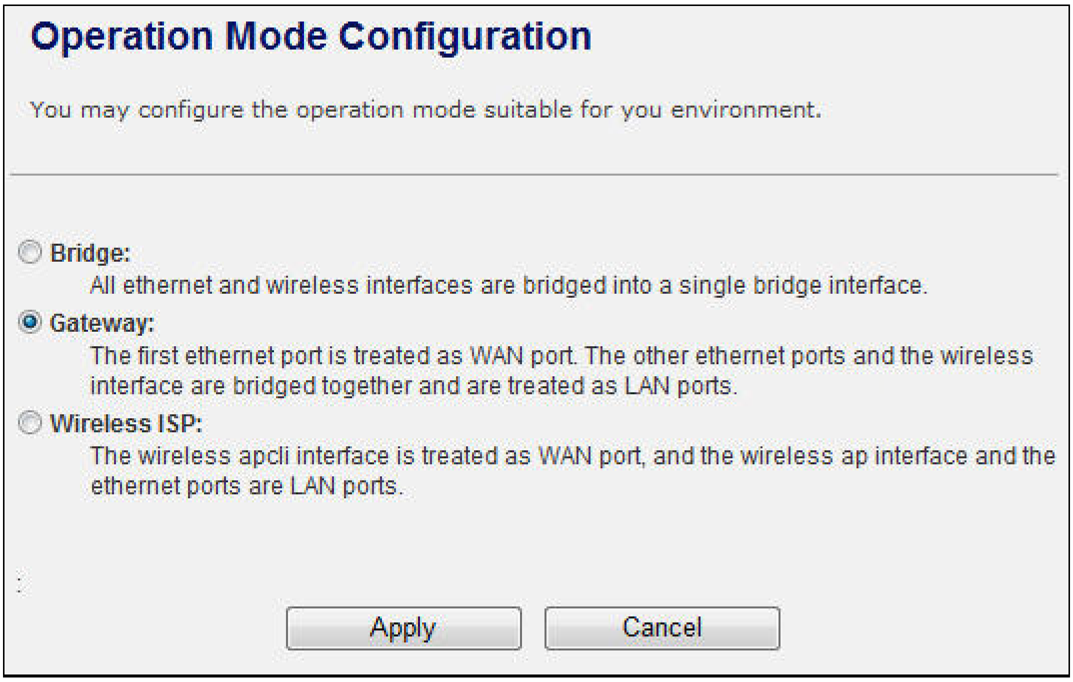
Wireless Settings	
Network Mode	802.11B/G/N
Frequency (Channel)	AutoSelect Current Channel: 11
Network Name (SSID)	default
Channel BandWidth	○ 20 ● 20/40
Security Mode	Disable

Figure 5-7 Step 2. Configure Wireless Settings

Object	Description
Network Mode	This field determines the wireless mode which the Router works on.
Frequency (Channel)	This field determines which operating frequency will be used. The default channel is set to **AutoSelect**, so the router 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.
Network Name (SSID)	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. Considering your wireless network security, the default SSID is set to be default. This value is case-sensitive. For example, *PLANET* is NOT the same as planet.
Channel Bandwidth	Select the operating channel width 20 MHz or 20/40 MHz.
Security Mode	■ **Disable:** No security required ■ **OPENWEP / SHAREDWEP:** When you select WEP, please input 5, 13 (ASCII), 10 or 26 (HEX) characters for WEP Key. ■ **WPA-PSK / WPA2-PSK:** You can enter ASCII characters between 8 and 63 characters or 8 to 64 Hexadecimal characters.

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

5.2 Operation Mode



Operation Mode Configuration

You may configure the operation mode suitable for you environment.

○ Bridge:
All ethernet and wireless interfaces are bridged into a single bridge interface.

● Gateway:
The first ethernet port is treated as WAN port. The other ethernet ports and the wireless interface are bridged together and are treated as LAN ports.

○ Wireless ISP:
The wireless apcli interface is treated as WAN port, and the wireless ap interface and the ethernet ports are LAN ports.

Figure 5-8 Operation Mode Configurations

a. Bridge:

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

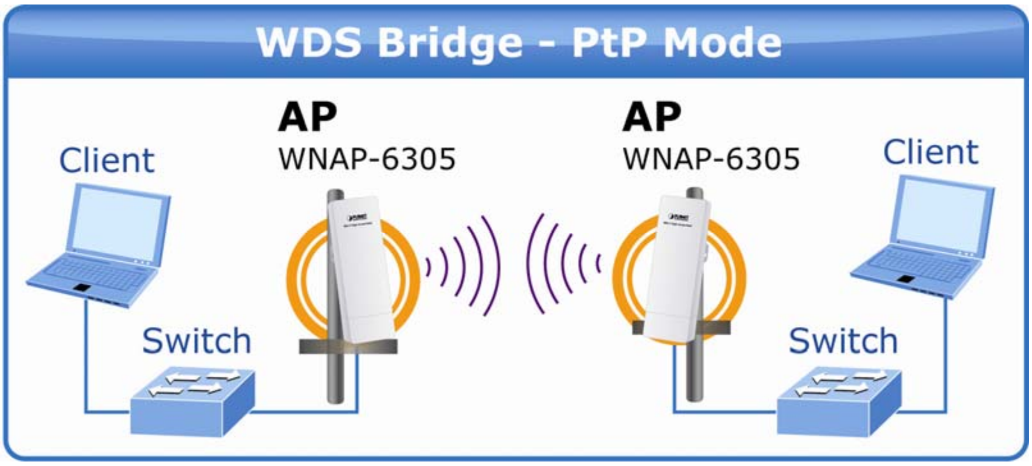


Figure 5-9 WDS Bridge

b. Gateway:

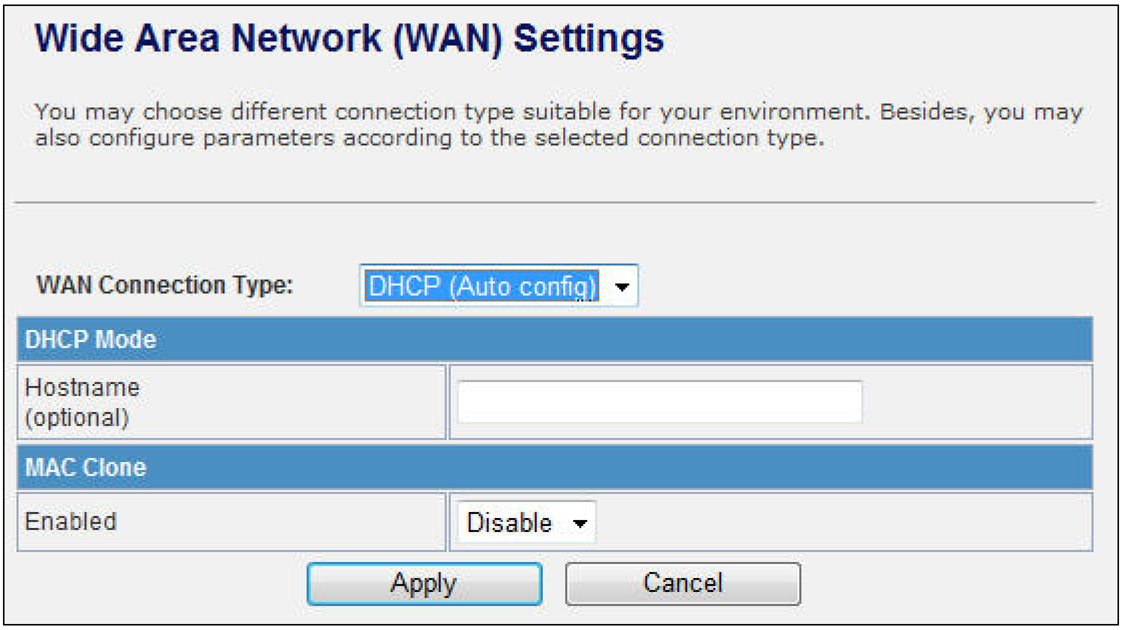
The **Gateway** mode allows that the first Ethernet port is treated as WAN port and the Ethernet port and the wireless interface are bridged together and are treated as LAN ports.

c. Wireless ISP:

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

5.3 Internet Settings

5.3.1 WAN



Wide Area Network (WAN) Settings

You may choose different connection type suitable for your environment. Besides, you may also configure parameters according to the selected connection type.

WAN Connection Type: DHCP (Auto config)

DHCP Mode	
Hostname (optional)	

MAC Clone	
Enabled	Disable

Figure 5-10 WAN Settings

a. STATIC

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.

b. DHCP

Object	Description
Host Name	This option specifies the Host Name of the Router.
MAC Clone	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	**Keep Alive:** Keep the PPPoE connection all the time. Please also configure the Redial Period field. **On Demand:** 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. **Manual:** Let user connect the PPPoE connection manually.

d. L2TP

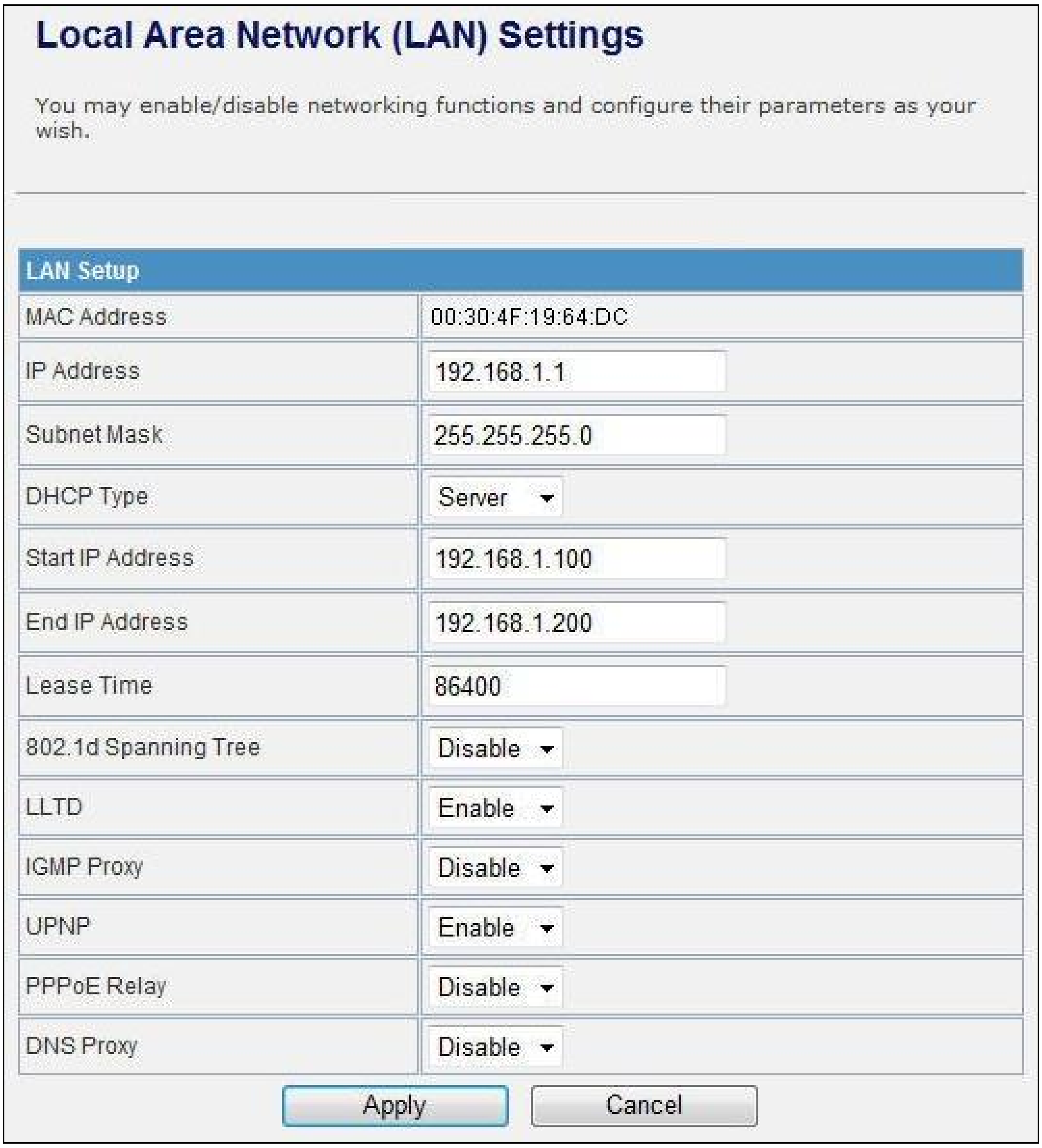
Object	Description
L2TP Server IP Address	Allow user to make a tunnel with remote site directly to secure the data transmission among the connection. User can use embedded L2TP client supported by this router to make a VPN connection. If you select the L2TP support on WAN interface, fill in the IP address for it.
User Name/Password	Enter the User Name and Password provided by your ISP. These fields are case-sensitive.
Address Mode	■ **Static:** To configure the IP address information by manually, please fill in the related setting at below. ■ **Dynamic:** The option allows the machine to get IP address information automatically from DHCP server on WAN side.
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	■ **Keep Alive:** Keep the L2TP connection all the time. Please also configure the Redial Period field. ■ **Manual:** Let user connect the L2TP connection manually.

e. PPTP

Object	Description
PPTP Server IP	Allow user to make a tunnel with remote site directly to secure the data transmission among the connection. User can use embedded PPTP

Address	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.
User Name/Password	Enter the User Name and Password provided by your ISP. These fields are case-sensitive.
Address Mode	■ **Static:** To configure the IP address information by manually, please fill in the related setting at below. ■ **Dynamic:** The option allows the machine to get IP address information automatically from DHCP server on WAN side.
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	■ **Keep Alive:** Keep the PPTP connection all the time. Please also configure the Redial Period field. ■ **Manual:** Let user connect the PPTP connection manually.

5.3.2 LAN



Local Area Network (LAN) Settings

You may enable/disable networking functions and configure their parameters as your wish.

LAN Setup	
MAC Address	00:30:4F:19:64:DC
IP Address	192.168.1.1
Subnet Mask	255.255.255.0
DHCP Type	Server
Start IP Address	192.168.1.100
End IP Address	192.168.1.200
Lease Time	86400
802.1d Spanning Tree	Disable
LLTD	Enable
IGMP Proxy	Disable
UPNP	Enable
PPPoE Relay	Disable
DNS Proxy	Disable

Figure 5-11 LAN Settings

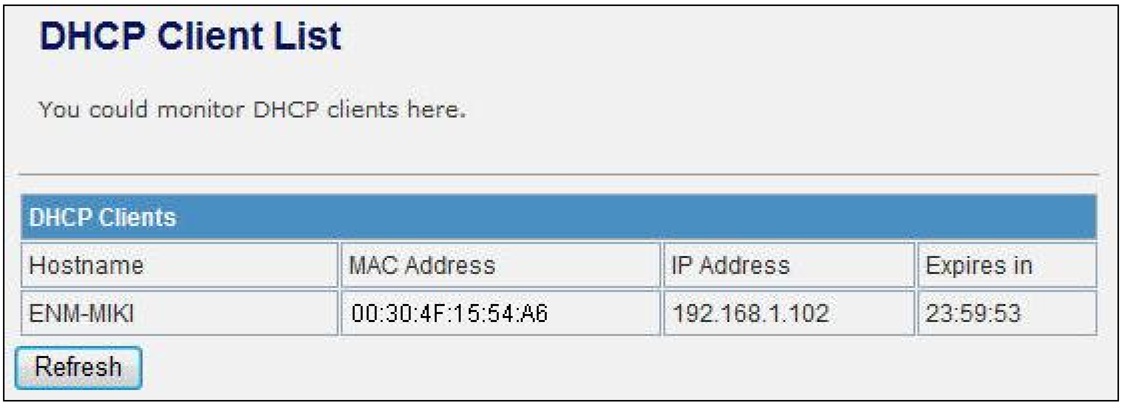
The page includes the following fields:

Object	Description
MAC Address	The physical address of the Router, as seen from the LAN. The value can't be changed.
IP Address	Enter the IP address of your Router or reset it in dotted-decimal notation (factory default: 192.168.1.1).
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	■ **Disable:** Disable DHCP server on LAN side.

	■ **Server:** Enable DHCP server on LAN side.
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.

5.3.3 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.



DHCP Client List

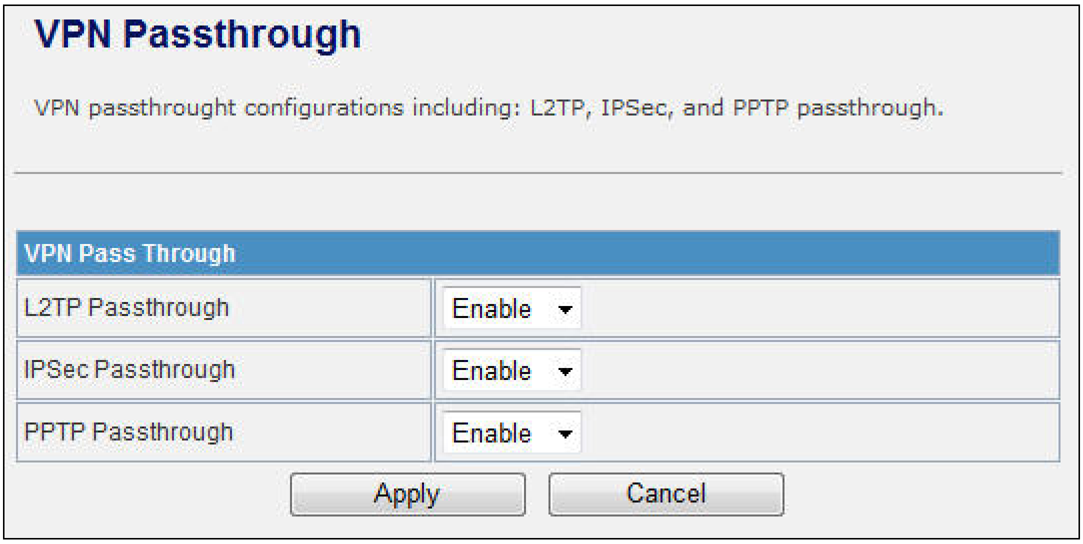
You could monitor DHCP clients here.

DHCP Clients

Hostname	MAC Address	IP Address	Expires in
ENM-MIKI	00:30:4F:15:54:A6	192.168.1.102	23:59:53

Figure 5-12 DHCP Clients

5.3.4 VPN Passthrough



VPN Passthrough

VPN passthrought configurations including: L2TP, IPSec, and PPTP passthrough.

VPN Pass Through

L2TP Passthrough	Enable
IPSec Passthrough	Enable
PPTP Passthrough	Enable

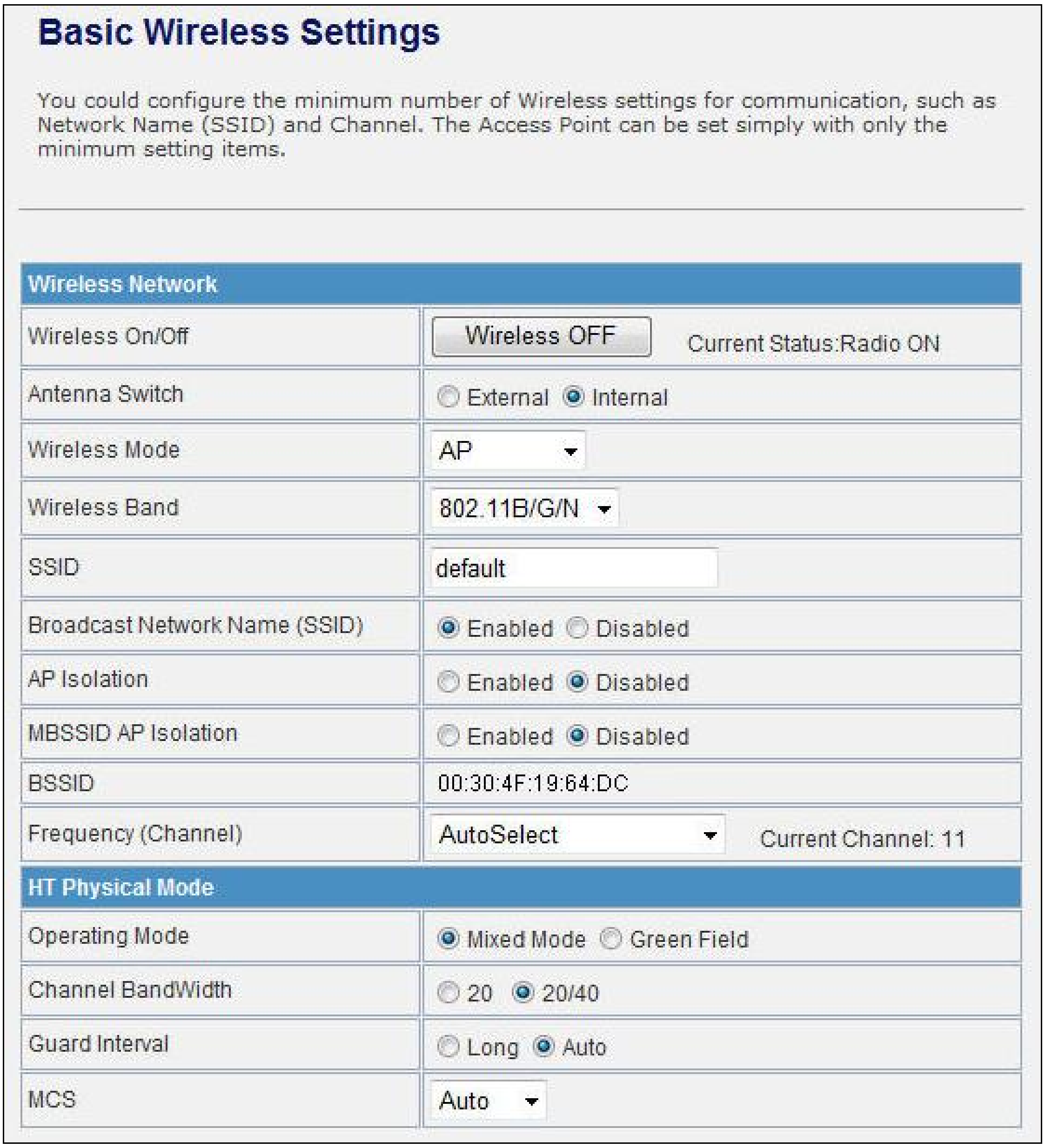
Figure 5-13 VPN Passthrough

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.

5.4 Wireless

5.4.1 Basic



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	Wireless OFF Current Status:Radio ON
Antenna Switch	○ External ● Internal
Wireless Mode	AP
Wireless Band	802.11B/G/N
SSID	default
Broadcast Network Name (SSID)	● Enabled ○ Disabled
AP Isolation	○ Enabled ● Disabled
MBSSID AP Isolation	○ Enabled ● Disabled
BSSID	00:30:4F:19:64:DC
Frequency (Channel)	AutoSelect Current Channel: 11
HT Physical Mode	
Operating Mode	● Mixed Mode ○ Green Field
Channel BandWidth	○ 20 ● 20/40
Guard Interval	○ Long ● Auto
MCS	Auto

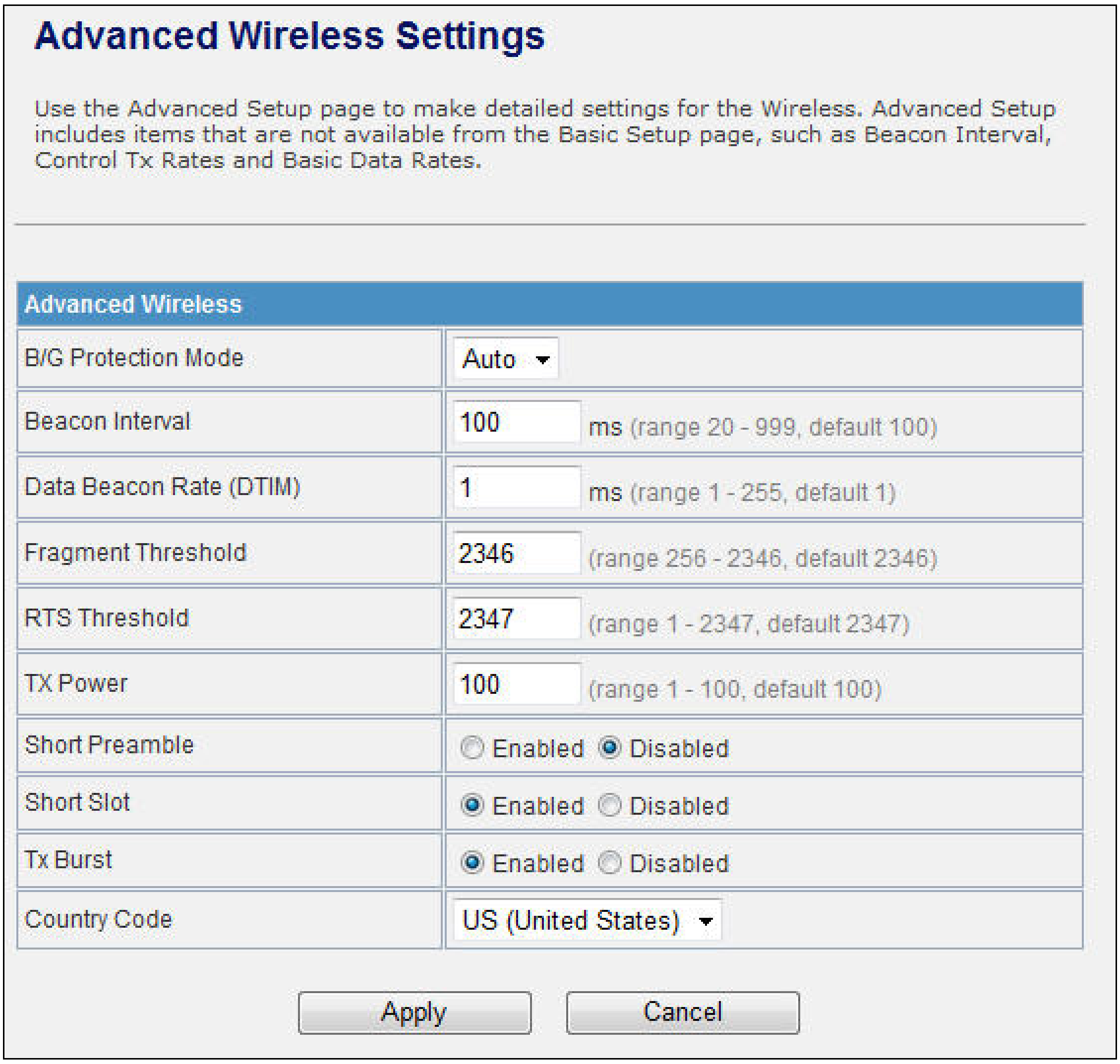
Figure 5-14 Basic Wireless Settings

The page includes the following fields:

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

5.4.2 Advanced



Advanced Wireless Settings

Use the Advanced Setup page to make detailed settings for the Wireless. Advanced Setup includes items that are not available from the Basic Setup page, such as Beacon Interval, Control Tx Rates and Basic Data Rates.

Advanced Wireless	
B/G Protection Mode	Auto
Beacon Interval	100 ms (range 20 - 999, default 100)
Data Beacon Rate (DTIM)	1 ms (range 1 - 255, default 1)
Fragment Threshold	2346 (range 256 - 2346, default 2346)
RTS Threshold	2347 (range 1 - 2347, default 2347)
TX Power	100 (range 1 - 100, default 100)
Short Preamble	○ Enabled ● Disabled
Short Slot	● Enabled ○ Disabled
Tx Burst	● Enabled ○ Disabled
Country Code	US (United States)

Figure 5-15 Advanced Wireless Settings

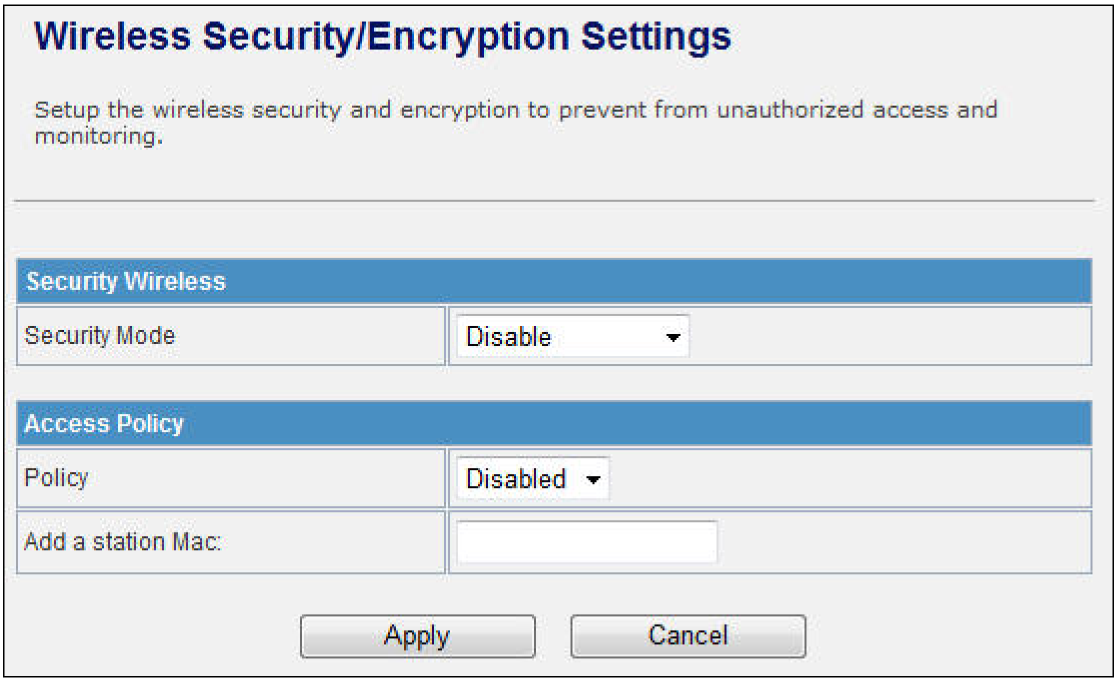
The page includes the following fields:

Object	Description
B/G Protection Mode	Default: **Auto**. You can select the other options including **On** and **Off**. 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.
Beacon Interval	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.
Data Beacon Rate(DTM)	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.
Fragment Threshold	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.
RTS Threshold	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.
TX Power	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.
Short Preamble	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.
Short Slot	It is used to shorten the communication time between this AP and station.
TX Burst	The device will try to send a serial of packages with single ACK reply from the clients. Enable this function to apply it.
Country Code	Select the country code for wireless from pull down menu.

5.4.3 Security

a. Disable



Wireless Security/Encryption Settings

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

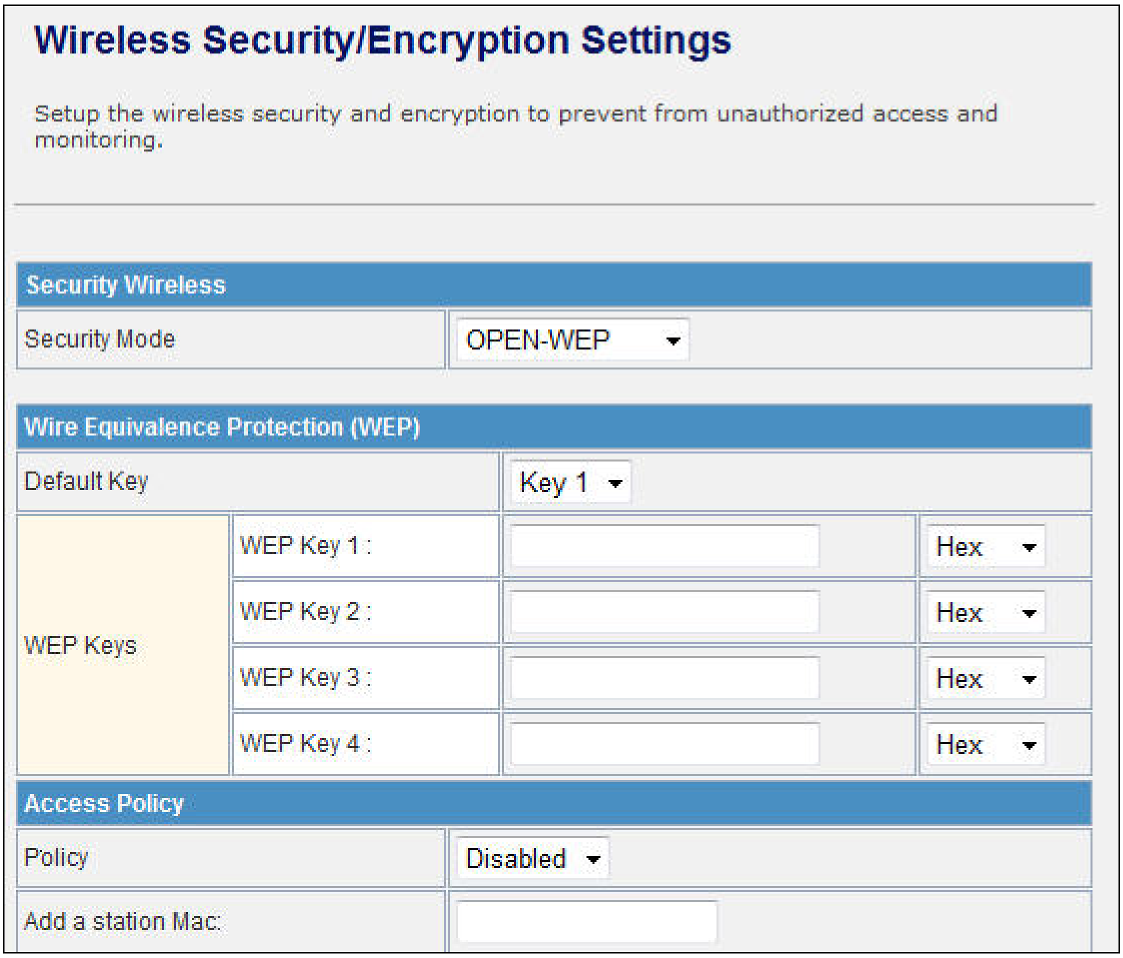
Security Wireless	
Security Mode	Disable

Access Policy	
Policy	Disabled
Add a station Mac:	

Figure 5-16 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

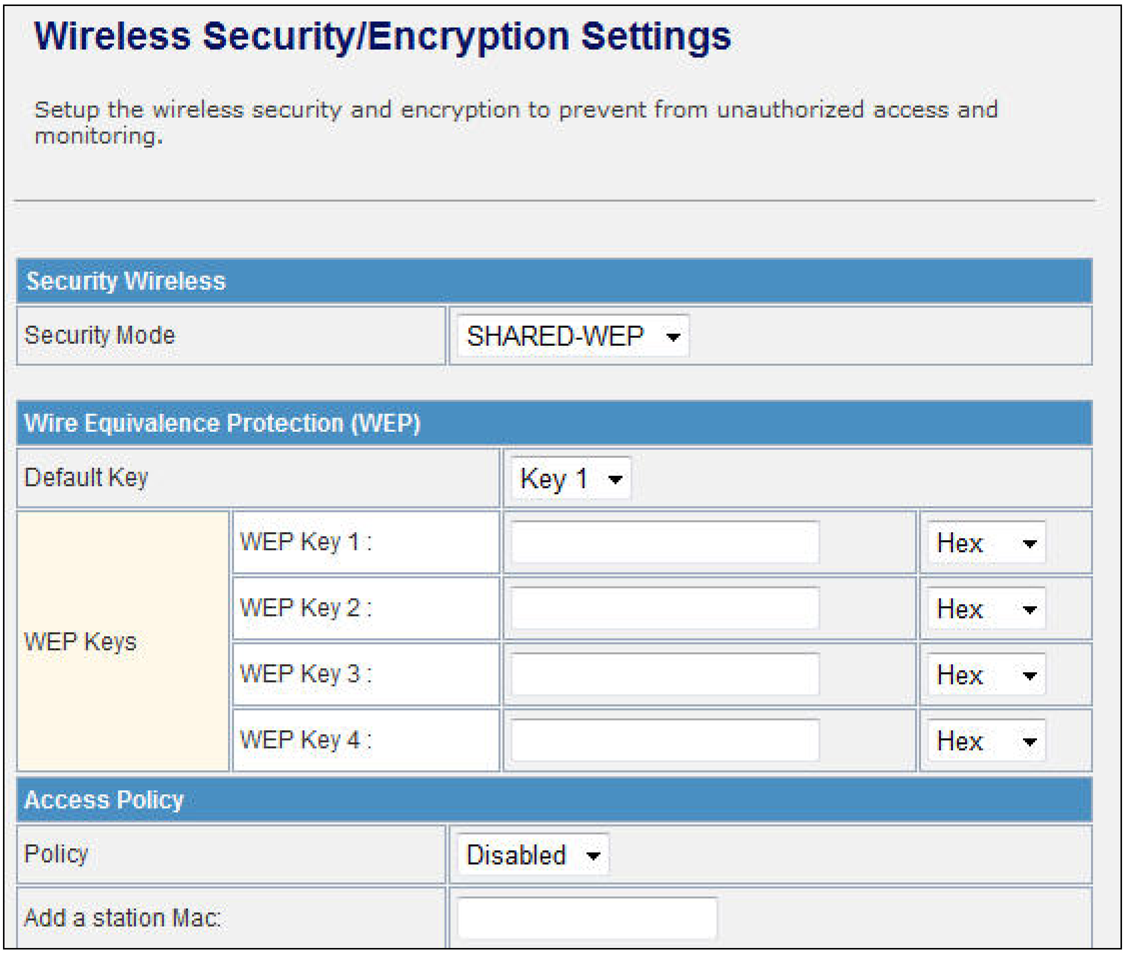
Access Policy	
Policy	Disabled
Add a station Mac:	

Figure 5-17 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



Wireless Security/Encryption Settings

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

Security Wireless

Security Mode	SHARED-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

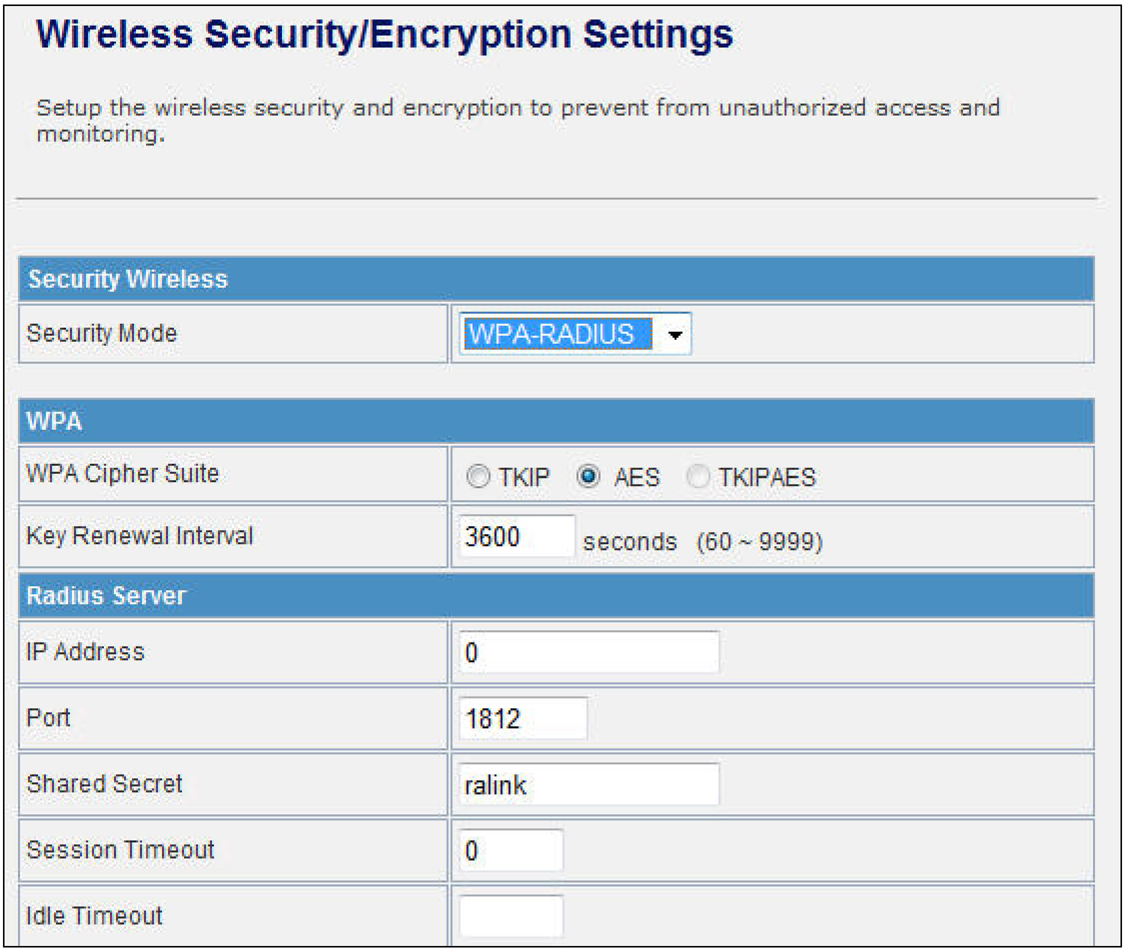
Policy	Disabled
Add a station Mac:	

Figure 5-18 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.

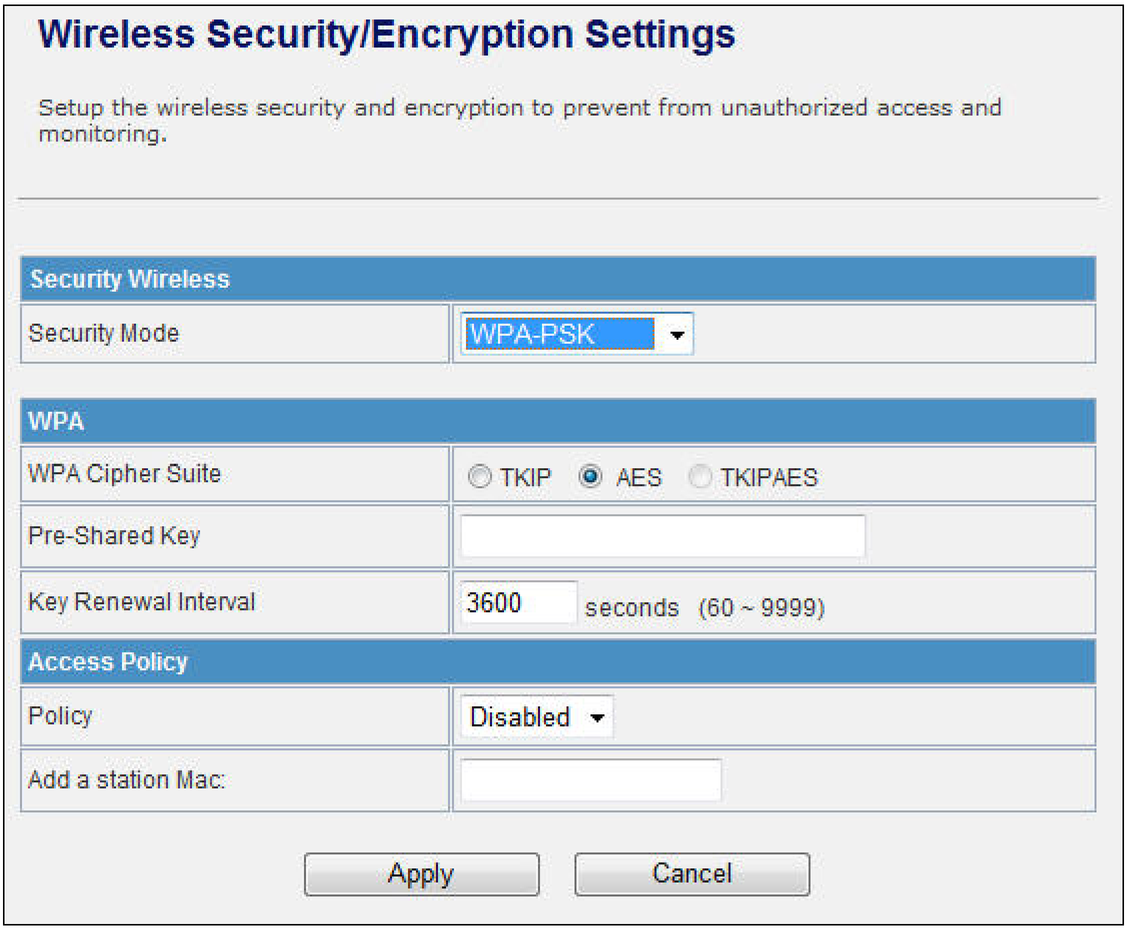
Security Wireless	
Security Mode	WPA-RADIUS
WPA	
WPA Cipher Suite	○ TKIP ● AES ○ TKIPAES
Key Renewal Interval	3600 seconds (60 ~ 9999)
Radius Server	
IP Address	0
Port	1812
Shared Secret	ralink
Session Timeout	0
Idle Timeout	

Figure 5-19 WPA-RADIUS

The page includes the following fields:

Object	Description
WPA Cipher Suite	Select **TKIP, AES** or **TKIPAES** for WPA algorithms.
Key Renewal Interval	Please fill in a number for Group Key Renewal interval time.
IP Address	Enter the RADIUS Server's IP Address provided by your ISP.
Port	Enter the RADIUS Server's port number provided by your ISP. (The Default is 1812.)
Shared Secret	Enter the password that the Wireless Router shares with the RADIUS Server.
Session Timeout	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.
Idle Timeout	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.

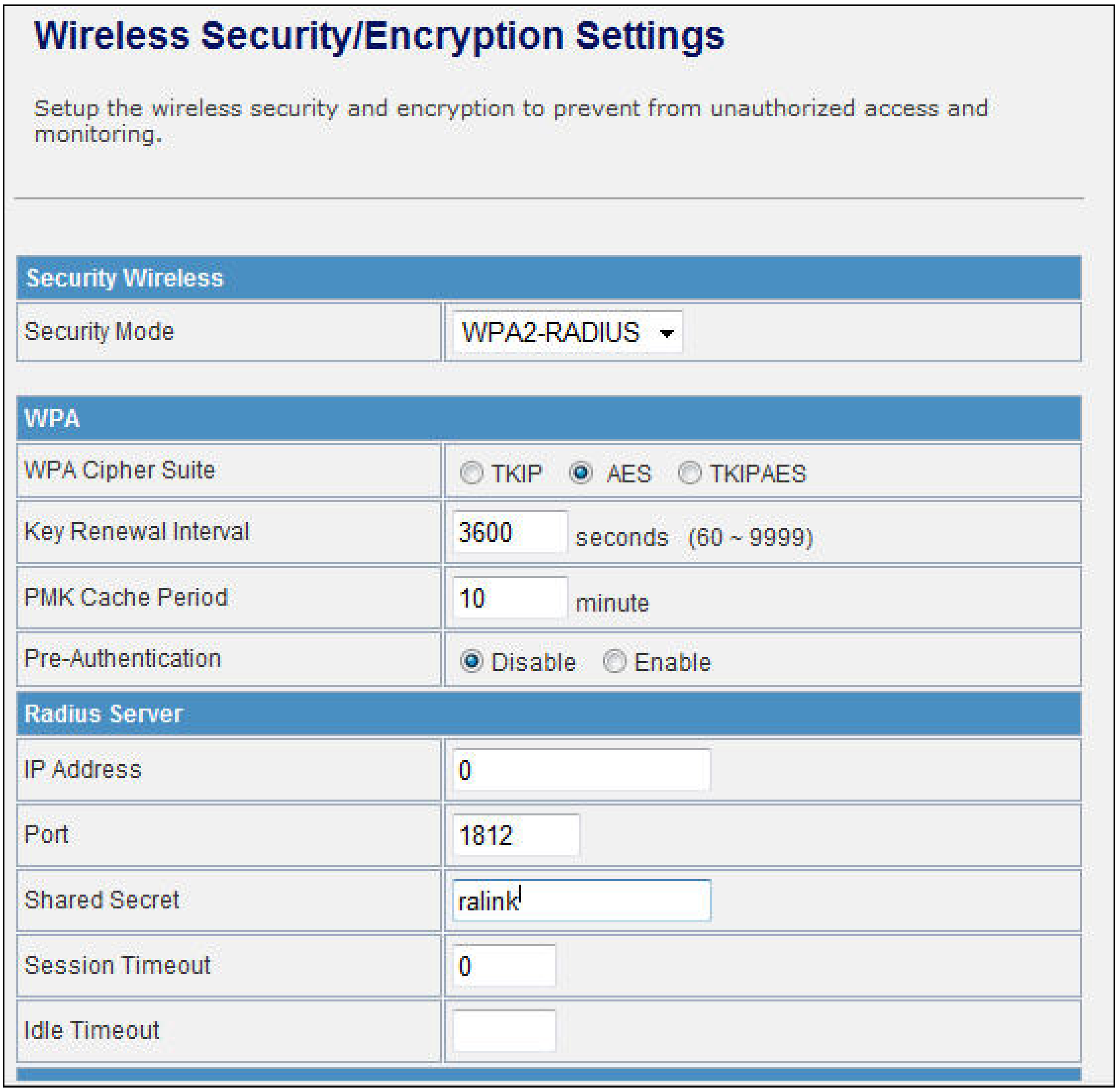
Security Wireless	
Security Mode	WPA-PSK
WPA	
WPA Cipher Suite	○ TKIP ● AES ○ TKIPAES
Pre-Shared Key	
Key Renewal Interval	3600 seconds (60 ~ 9999)
Access Policy	
Policy	Disabled
Add a station Mac:	

Figure 5-20 WPA-PSK

The page includes the following fields:

Object	Description
WPA Cipher Suite	Select **TKIP, AES** or **TKIPAES** for WPA algorithms.
Pre-Shared Key	Please fill in a passphrase like 'test wpa 123', or a hexadecimal string like '65E4 E123 456 E1'.
Key Renewal Interval	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	○ TKIP ● AES ○ TKIPAES
Key Renewal Interval	3600 seconds (60 ~ 9999)
PMK Cache Period	10 minute
Pre-Authentication	● Disable ○ Enable
Radius Server	
IP Address	0
Port	1812
Shared Secret	ralink
Session Timeout	0
Idle Timeout	

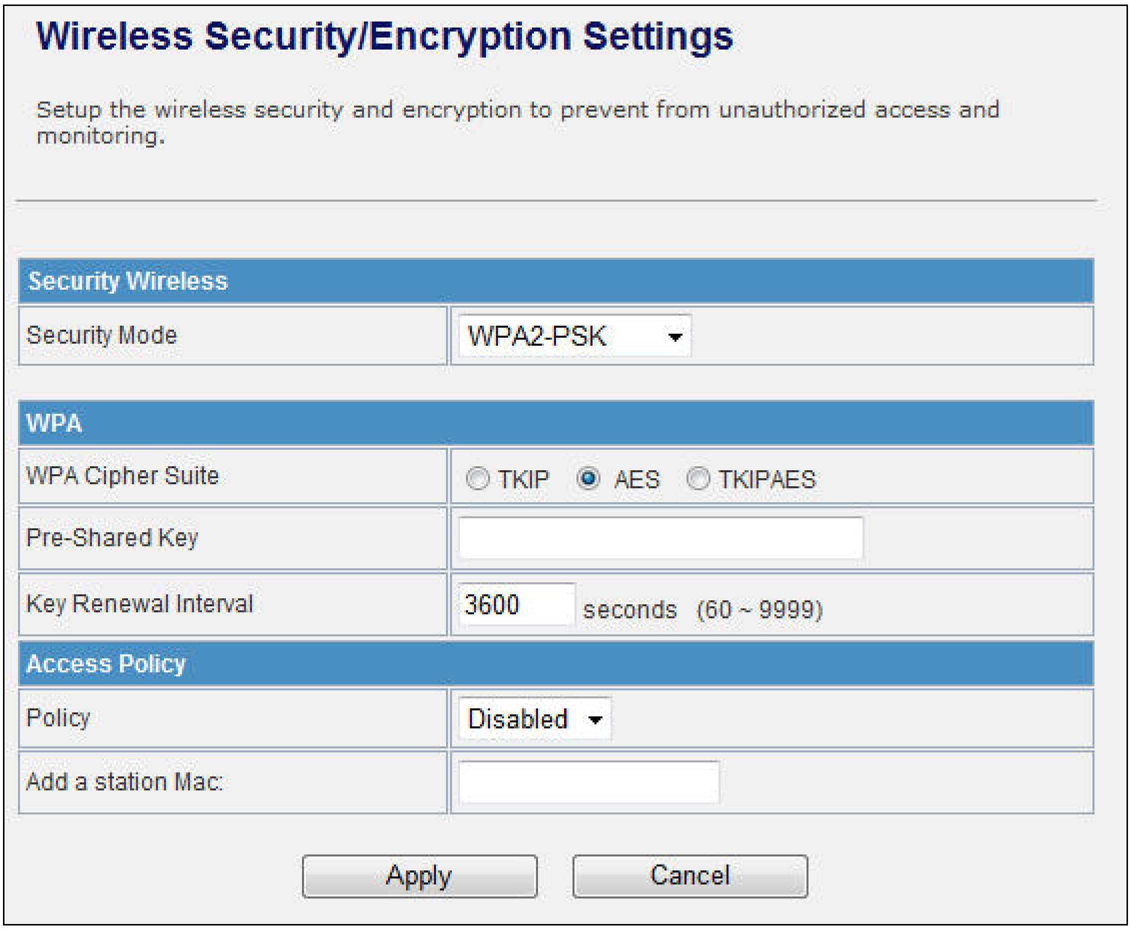
Figure 5-21 WPA2-RADIUS

The page includes the following fields:

Object	Description
WPA Cipher Suite	Select **TKIP, AES** or **TKIPAES** for WPA algorithms.
Key Renewal Interval	Please fill in a number for Group Key Renewal interval time.
PMK Cache Period	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.
Pre-Authentication	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.

Shared Secret	Enter the password that the Wireless Router shares with the RADIUS Server.
Session Timeout	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.
IP Address	Enter the RADIUS Server's IP Address provided by your ISP.
Port	Enter the RADIUS Server's port number provided by your ISP. (The Default is 1812.)
Shared Secret	Enter the password that the Wireless Router shares with the RADIUS Server.
Session Timeout	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.
Idle Timeout	Enter the idle timeout in the column.

g. WPA2-PSK



Wireless Security/Encryption Settings

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

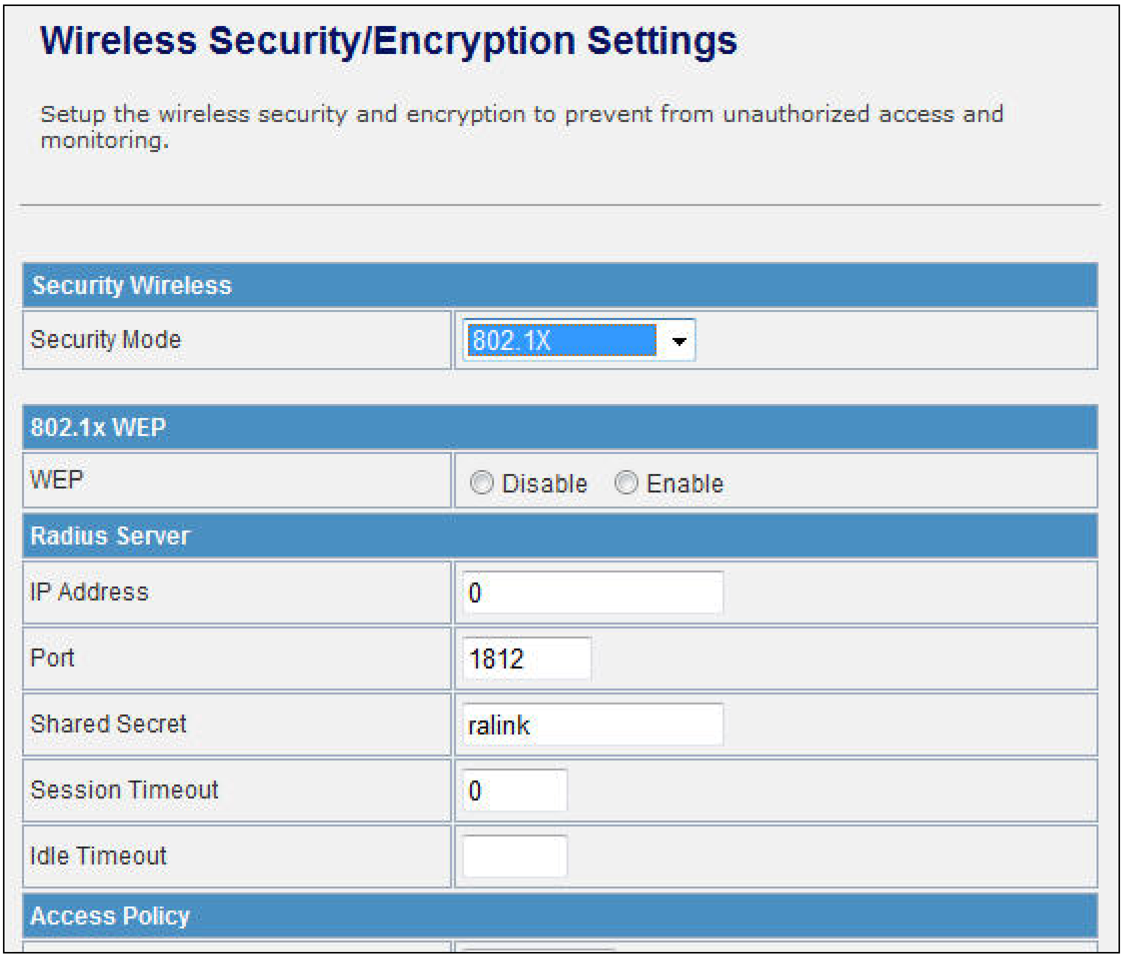
Security Wireless	
Security Mode	WPA2-PSK
WPA	
WPA Cipher Suite	○ TKIP ● AES ○ TKIPAES
Pre-Shared Key	
Key Renewal Interval	3600 seconds (60 ~ 9999)
Access Policy	
Policy	Disabled
Add a station Mac:	

Figure 5-22 WPA2-PSK

The page includes the following fields:

Object	Description
WPA Cipher Suite	Select **TKIP, AES** or **TKIPAES** for WPA algorithms.
Pre-Shared Key	Please fill in a passphrase like 'test wpa 123', or a hexadecimal string like '65E4 E123 456 E1'.
Key Renewal Interval	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	○ Disable ○ Enable

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

Access Policy

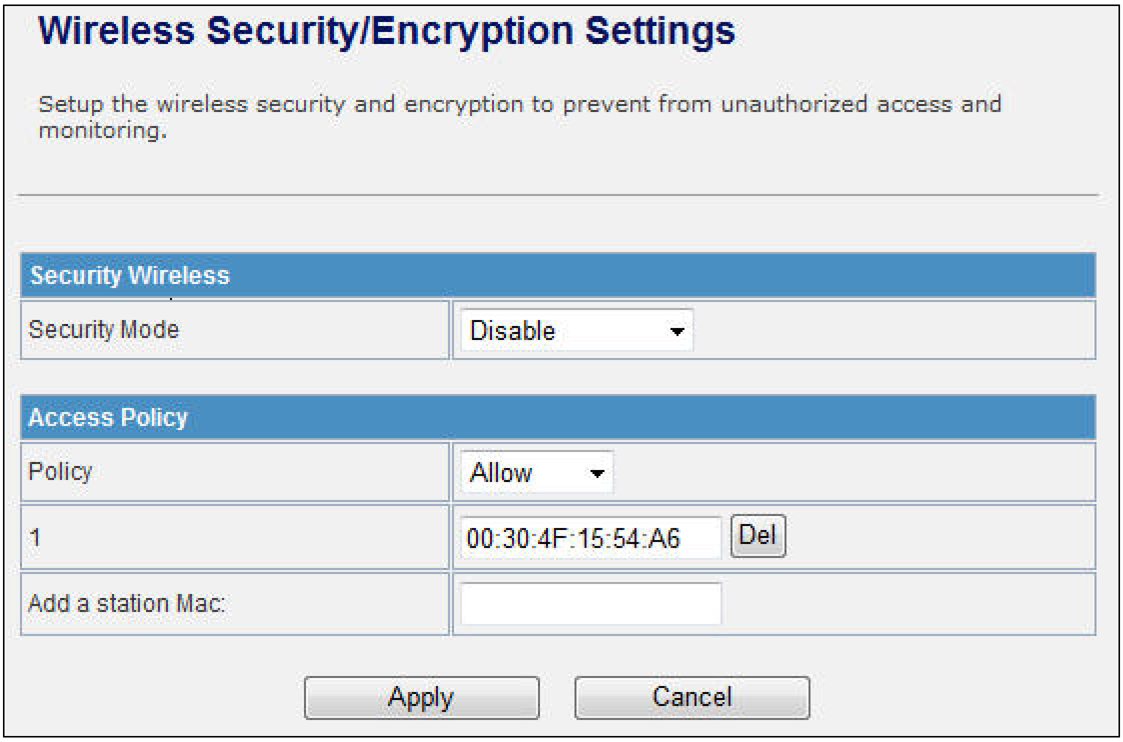
Figure 5-23 802.1X

The page includes the following fields:

Object	Description
WEP	Enable or Disable WEP encryption.
IP Address	Enter the RADIUS Server's IP Address provided by your ISP.
Port	Enter the RADIUS Server's port number provided by your ISP. (The Default is 1812.)

Shared Secret	Enter the password that the Wireless Router shares with the RADIUS Server.
Session Timeout	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.
Idle Timeout	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:

Figure 5-24 Access Policy

The page includes the following fields:

Object	Description
Policy	Select the **Disabled, Allow** or **Reject** 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 WLAN Broadband Router.
Add a station MAC	Fill in the MAC address of client to register this AP router access capability.

5.4.4 WDS

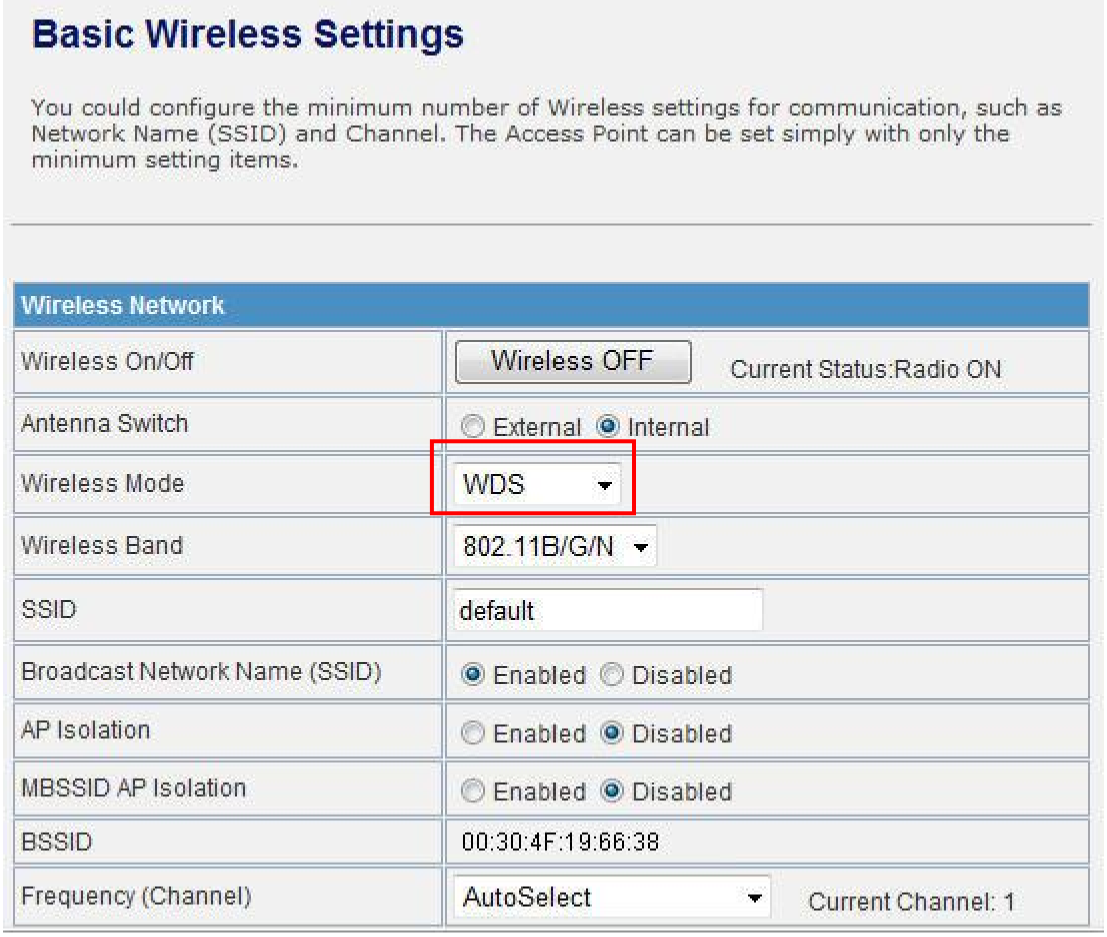
In the Basic Wireless Settings page, select the Wireless Mode to "WDS" to setup the WDS connection.

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**".



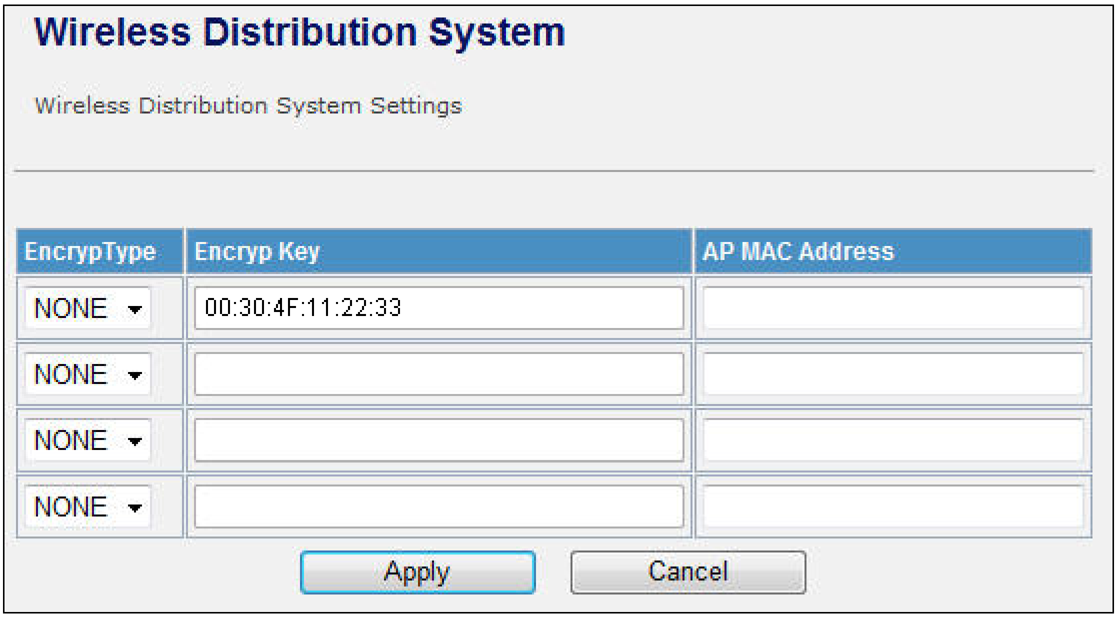
Basic Wireless Settings

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	Wireless OFF Current Status:Radio ON
Antenna Switch	○ External ● Internal
Wireless Mode	WDS
Wireless Band	802.11B/G/N
SSID	default
Broadcast Network Name (SSID)	● Enabled ○ Disabled
AP Isolation	○ Enabled ● Disabled
MBSSID AP Isolation	○ Enabled ● Disabled
BSSID	00:30:4F:19:66:38
Frequency (Channel)	AutoSelect Current Channel: 1

Figure 5-25 Wireless Mode - WDS

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



Wireless Distribution System

Wireless Distribution System Settings

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

Figure 5-26 WDS Configuration

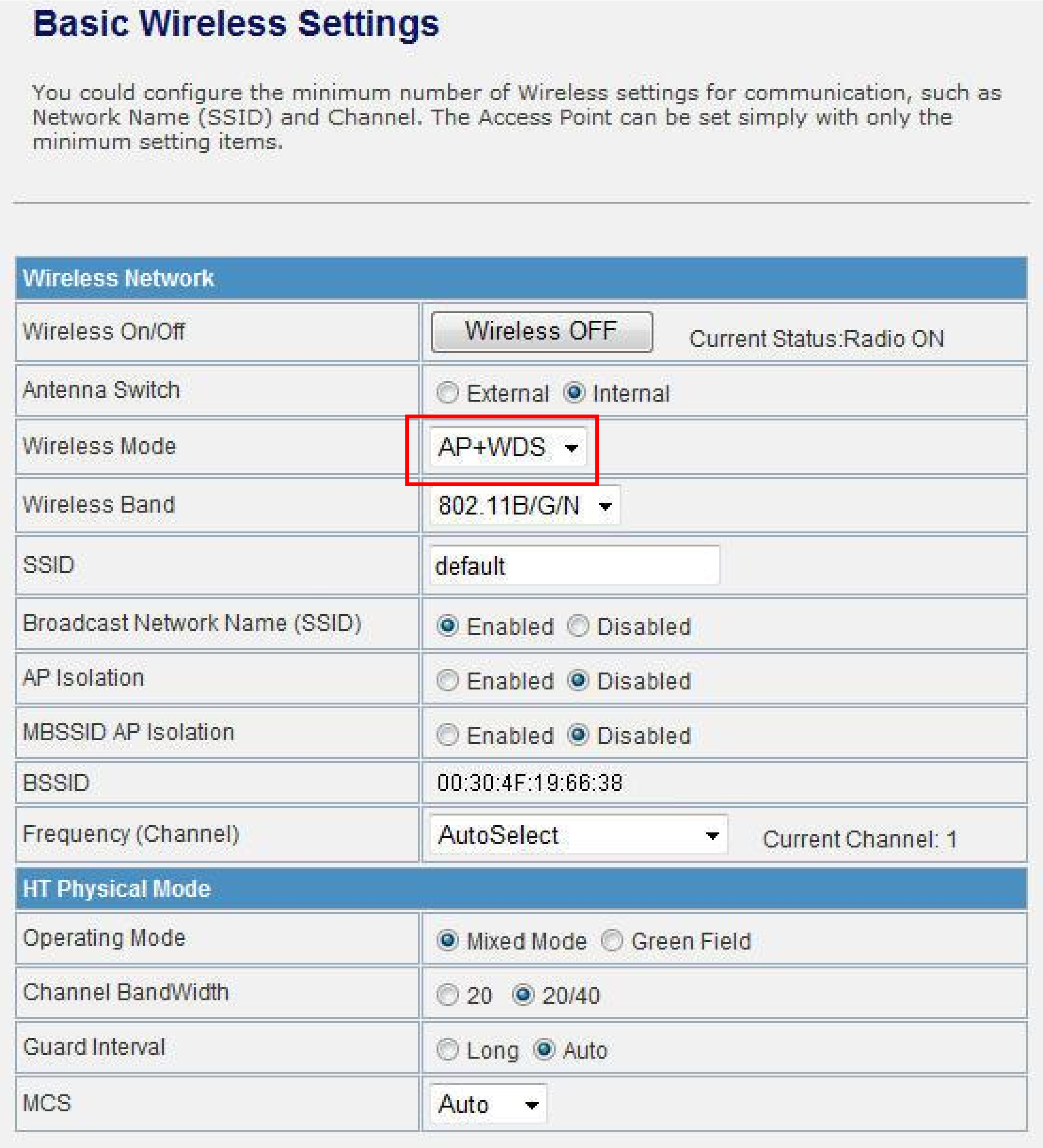
Note

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**".



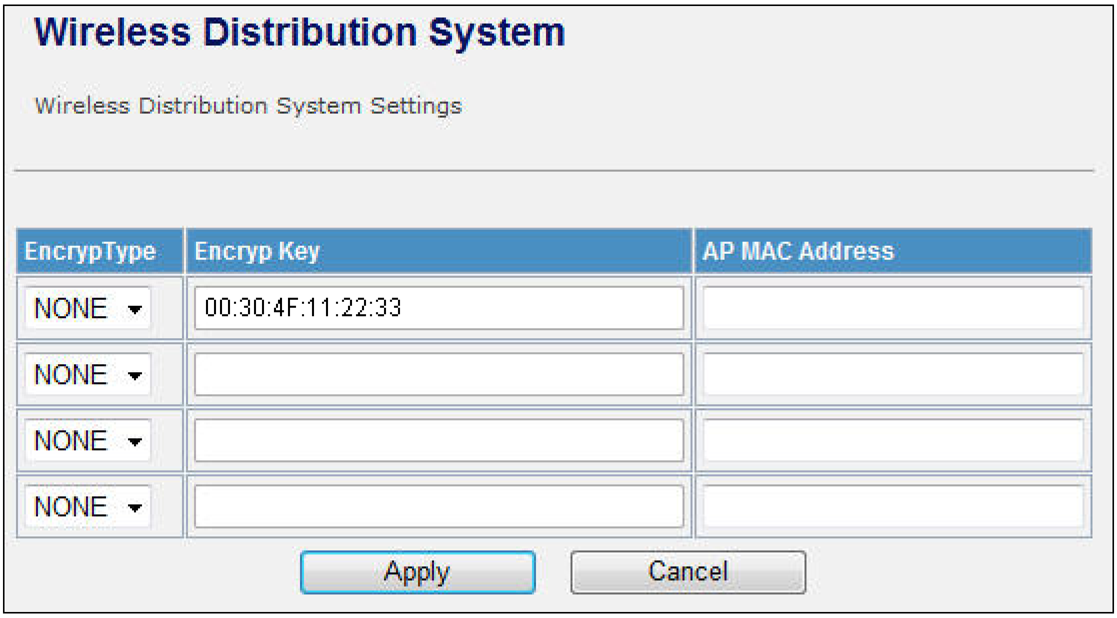
Basic Wireless Settings

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	Wireless OFF Current Status:Radio ON
Antenna Switch	○ External ● Internal
Wireless Mode	AP+WDS
Wireless Band	802.11B/G/N
SSID	default
Broadcast Network Name (SSID)	● Enabled ○ Disabled
AP Isolation	○ Enabled ● Disabled
MBSSID AP Isolation	○ Enabled ● Disabled
BSSID	00:30:4F:19:66:38
Frequency (Channel)	AutoSelect Current Channel: 1
HT Physical Mode	
Operating Mode	● Mixed Mode ○ Green Field
Channel BandWidth	○ 20 ● 20/40
Guard Interval	○ Long ● Auto
MCS	Auto

Figure 5-27 Wireless Mode – AP+WDS

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



Wireless Distribution System

Wireless Distribution System Settings

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

Figure 5-28 WDS Configuration

Note

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.

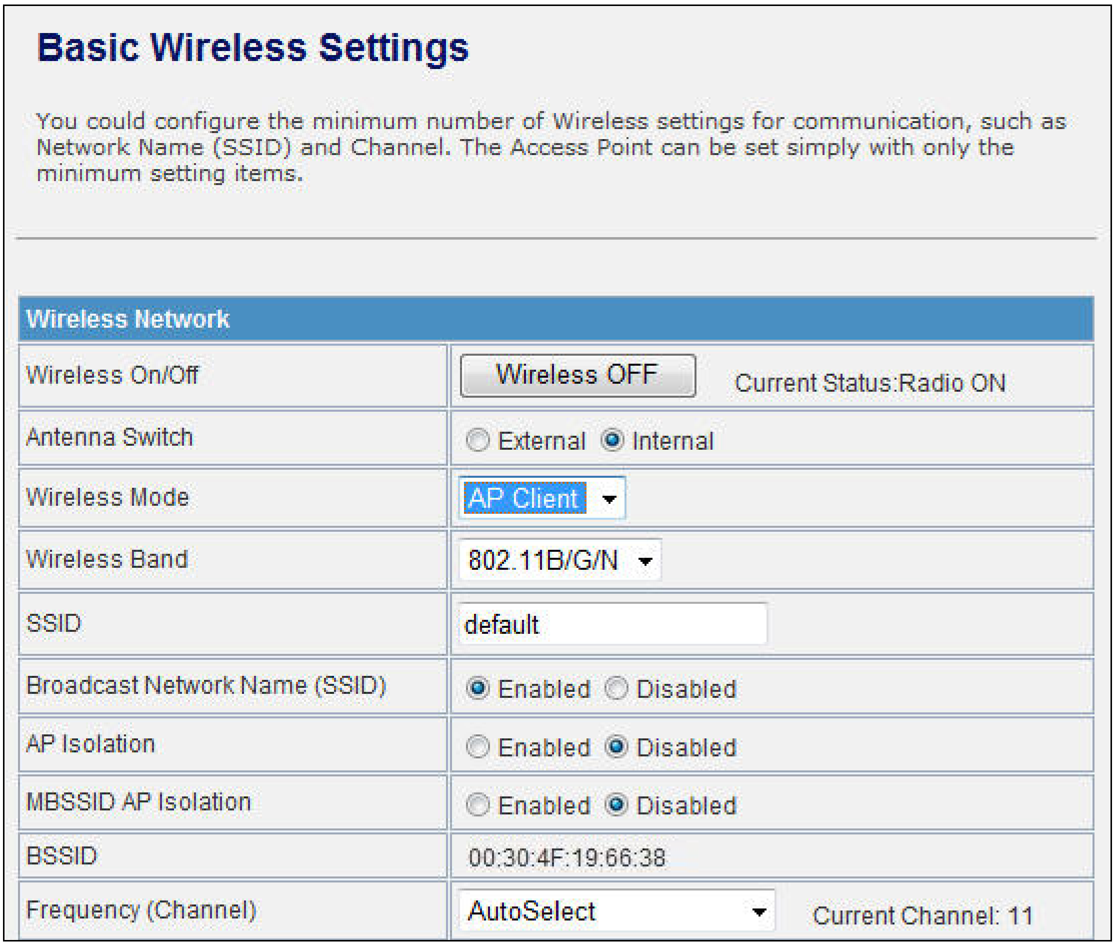
3. The Encryption Type must be the same in both sites if available.

5.4.5 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 WNAP-6305 as "AP Client" mode in the Basic Wireless Settings page as following.

Step 1. Go to "**Wireless Settings-> Basic**", select the Wireless Moe to "AP Client",



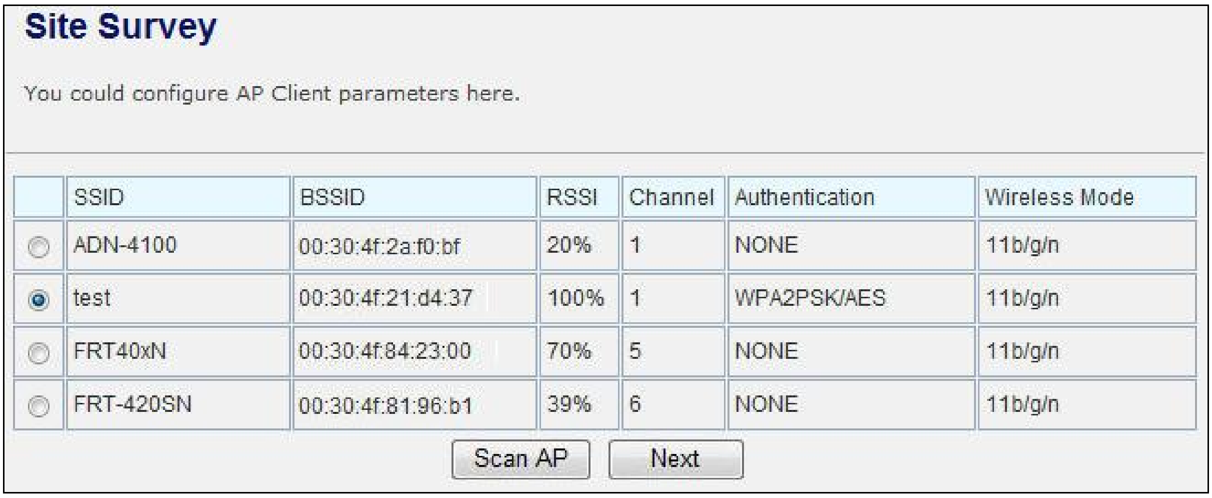
Basic Wireless Settings

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	Wireless OFF Current Status:Radio ON
Antenna Switch	○ External ● Internal
Wireless Mode	AP Client
Wireless Band	802.11B/G/N
SSID	default
Broadcast Network Name (SSID)	● Enabled ○ Disabled
AP Isolation	○ Enabled ● Disabled
MBSSID AP Isolation	○ Enabled ● Disabled
BSSID	00:30:4F:19:66:38
Frequency (Channel)	AutoSelect Current Channel: 11

Figure 5-29 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.

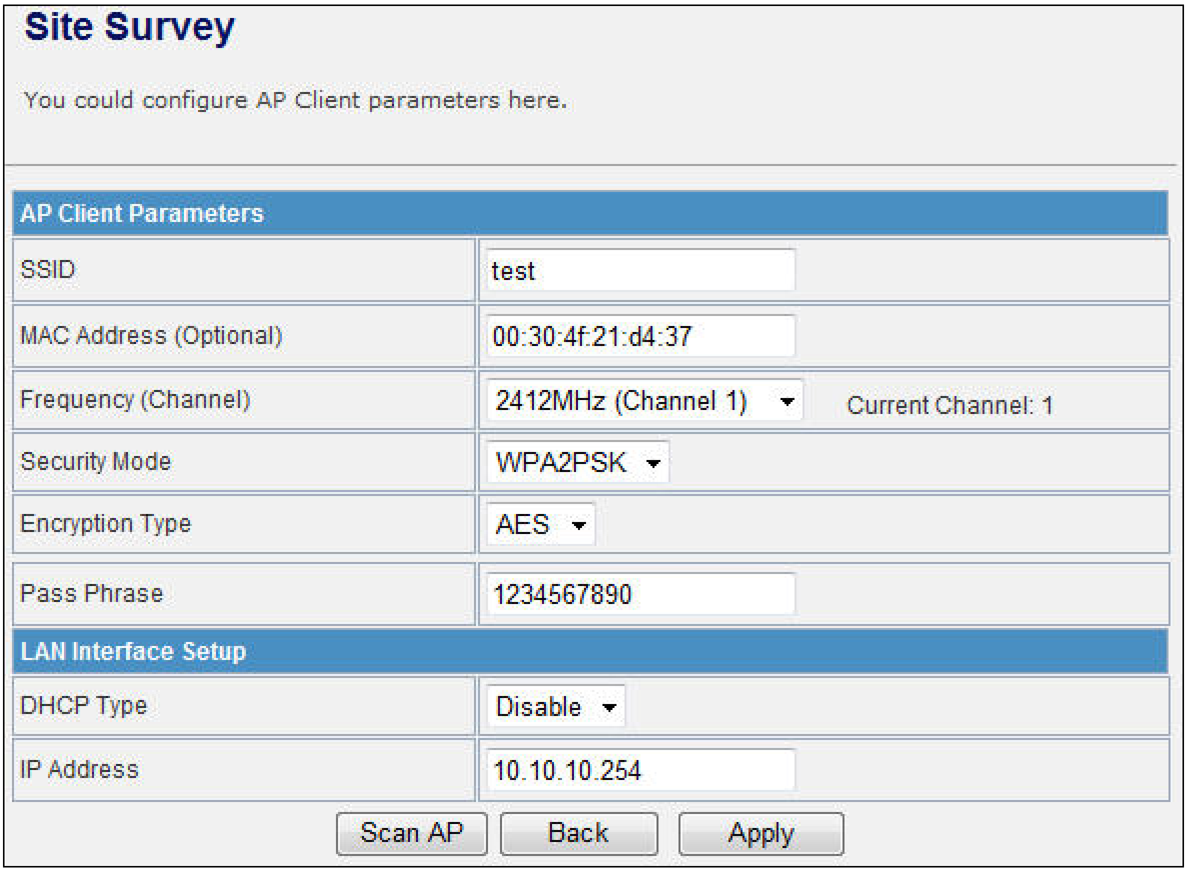
	SSID	BSSID	RSSI	Channel	Authentication	Wireless Mode
○	ADN-4100	00:30:4f:2a:f0:bf	20%	1	NONE	11b/g/n
●	test	00:30:4f:21:d4:37	100%	1	WPA2PSK/AES	11b/g/n
○	FRT40xN	00:30:4f:84:23:00	70%	5	NONE	11b/g/n
○	FRT-420SN	00:30:4f:81:96:b1	39%	6	NONE	11b/g/n

Figure 5-30 Site Survey - 1

The page includes the following fields:

Object	Description
SSID	It shows the SSID of AP.
BSSID	It shows BSSID of AP.
RSSI	It shows the signal strength of current AP.
Channel	It show the current channel of AP occupied.
Encrypt	It shows the encryption status.
Wireless Mode	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.



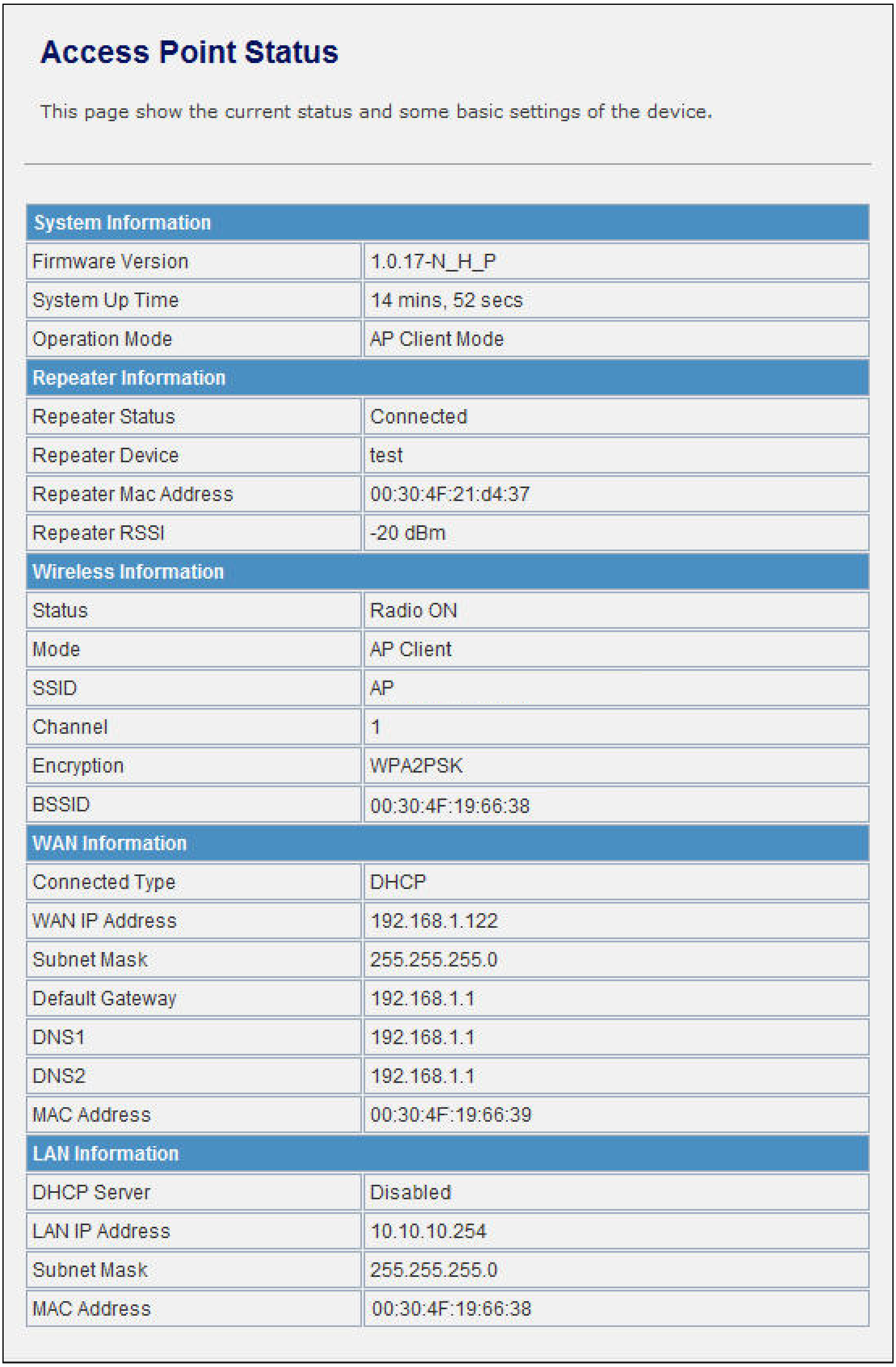
Site Survey

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 5-31 Site Survey - 2

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



Access Point Status

This page show the current status and some basic settings of the device.

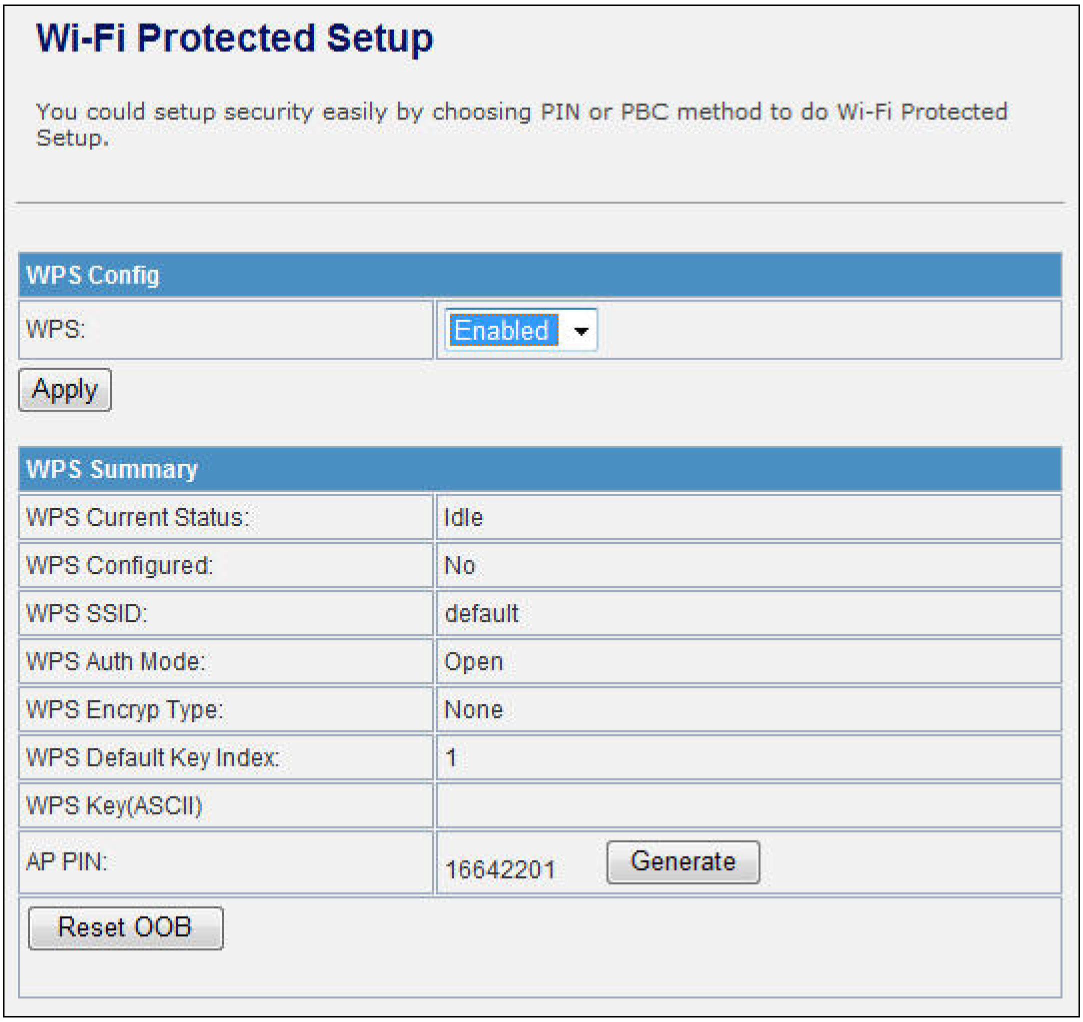
System Information	
Firmware Version	1.0.17-N_H_P
System Up Time	14 mins, 52 secs
Operation Mode	AP Client Mode
Repeater Information	
Repeater Status	Connected
Repeater Device	test
Repeater Mac Address	00:30:4F:21:d4:37
Repeater RSSI	-20 dBm
Wireless Information	
Status	Radio ON
Mode	AP Client
SSID	AP
Channel	1
Encryption	WPA2PSK
BSSID	00:30:4F:19:66:38
WAN Information	
Connected Type	DHCP
WAN IP Address	192.168.1.122
Subnet Mask	255.255.255.0
Default Gateway	192.168.1.1
DNS1	192.168.1.1
DNS2	192.168.1.1
MAC Address	00:30:4F:19:66:39
LAN Information	
DHCP Server	Disabled
LAN IP Address	10.10.10.254
Subnet Mask	255.255.255.0
MAC Address	00:30:4F:19:66:38

Figure 5-32 AP Status

5.4.6 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.



Wi-Fi Protected Setup

You could setup security easily by choosing PIN or PBC method to do Wi-Fi Protected Setup.

WPS Config	
WPS:	Enabled

Apply

WPS Summary	
WPS Current Status:	Idle
WPS Configured:	No
WPS SSID:	default
WPS Auth Mode:	Open
WPS Encryp Type:	None
WPS Default Key Index:	1
WPS Key(ASCII)	
AP PIN:	16642201 Generate

Reset OOB

Figure 5-33 WPS Setup

The page includes the following fields:

Object	Description
WPS	Select **Enable** or **Disable** the Wi-Fi Protected Setup function. Then click ***Apply*** button to take effect function after change.
WPS Summary	After enabling the WPS function, if there is connection the WPS Summary will show related information and status.
AP PIN	Here shows the AP's PIN code (Personal Identification Number) that the enrollee should enter the registrar's PIN code to make a connection. Click ***Generate*** button to generate a new AP PIN code.

Reset OOB	Click ***Reset OOB*** button to reset WPS AP to the OOB (out-of-box) configuration.
WPS mode	Select WPS mode. **PIN**: Personal Identification Number. **PBC**: Push Button Communication.
PIN	Input enrollee's PIN code to AP-registrar.

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.

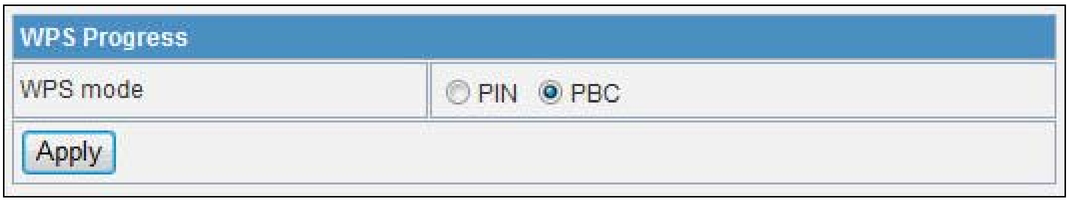
Note

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".



WPS Progress

WPS mode	○ PIN ● PBC

Figure 5-34 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.

Note

1) Step 1 & 2 should process within two minutes.

2) WNAP-6305 only supported Software PBC.

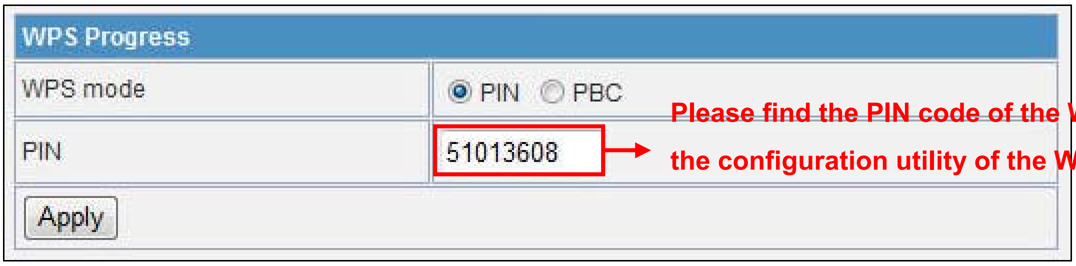
Step 3: Wait for a while until the connection established to complete the WPS configuration.

II. By PIN

If the new device supports Wi-Fi Protected Setup and the PIN method, you can add it to the network by PIN with the following two methods.

Method One: Enter the PIN of your Wireless adapter into the configuration utility of the Router

Step 1: Choose PIN, and enter the PIN code of the wireless adapter.



WPS Progress

WPS mode: ● PIN ○ PBC

PIN: 51013608

Please find the PIN code of the Wireless adapter from the configuration utility of the WPS.

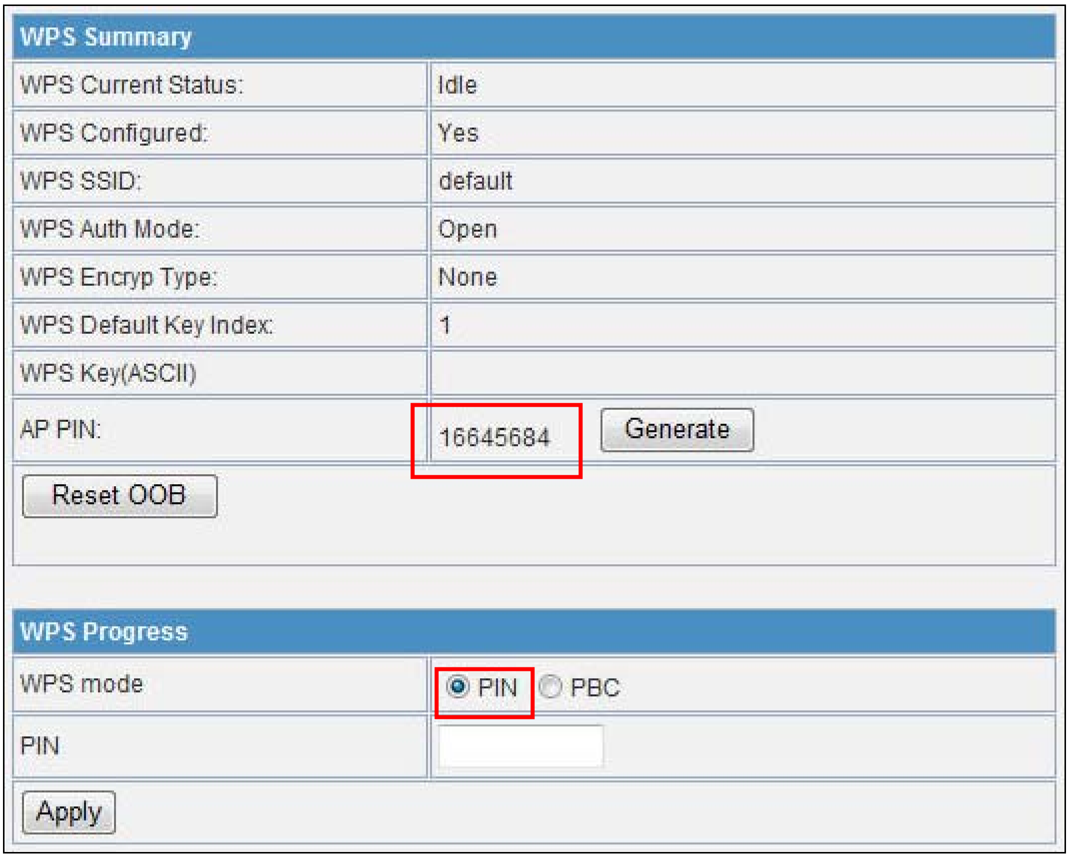
Figure 5-35 WPS – PIN of Wireless adapter

Note: The PIN code of the adapter is always displayed on the WPS configuration screen.

Step 2: For the configuration of the wireless adapter, please choose the option that you want to **enter PIN into the Router** in the configuration utility of the WPS, and click **Next.**

Method Two: Enter the PIN of the Router into the configuration utility of your Wireless adapter

Step 1: Choose PIN option, and get the Current PIN code of the Router in WPS Summary table (each Router has its unique PIN code).



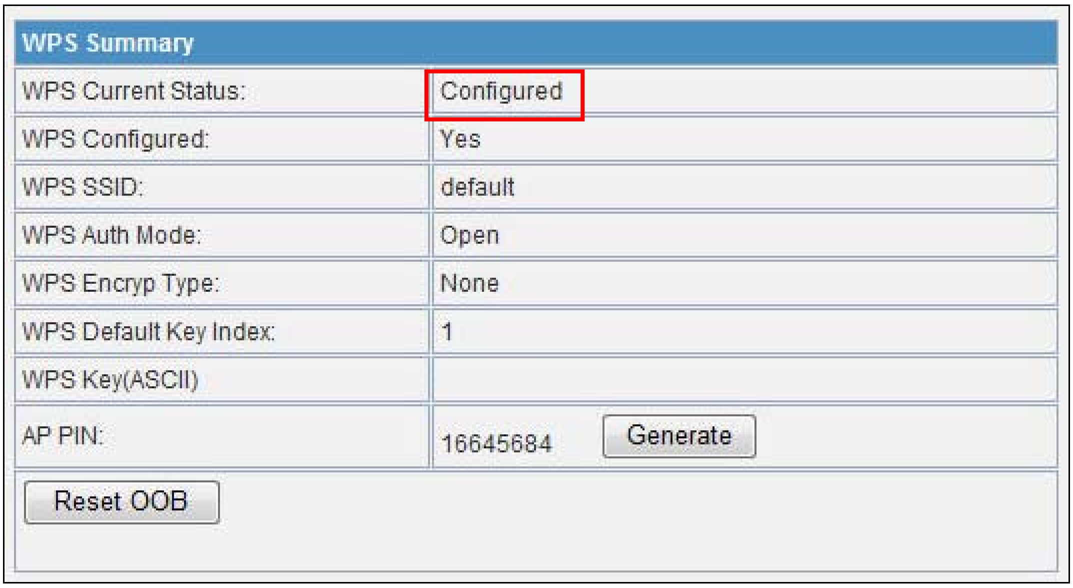
WPS Summary	
WPS Current Status:	Idle
WPS Configured:	Yes
WPS SSID:	default
WPS Auth Mode:	Open
WPS Encryp Type:	None
WPS Default Key Index:	1
WPS Key(ASCII)	
AP PIN:	16645684

WPS Progress	
WPS mode	● PIN ○ PBC
PIN	

Figure 5-36 WPS – PIN of AP

Step 2: For the configuration of the wireless adapter, please choose the option that you want to **enter the PIN of the Router** in the configuration utility of the Wireless adapter, and enter it into the field. Then click **Next.**

Step 3: You will see the WPS Current Status is "**Configured**" when the new device has successfully connected to the network.



WPS Summary	
WPS Current Status:	Configured
WPS Configured:	Yes
WPS SSID:	default
WPS Auth Mode:	Open
WPS Encryp Type:	None
WPS Default Key Index:	1
WPS Key(ASCII)	
AP PIN:	16645684

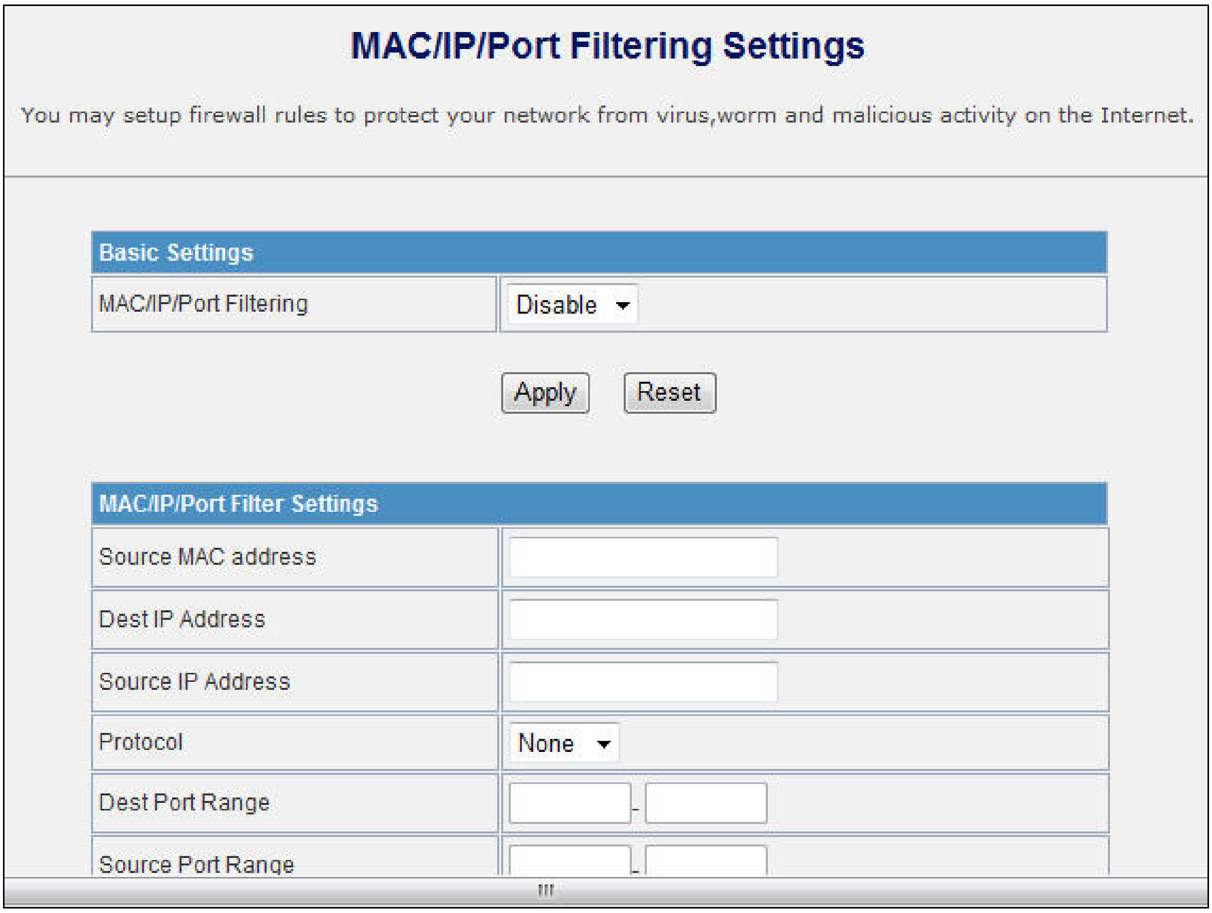
Figure 5-37 WPS – Configured

Note

1) The WPS function cannot be configured if the Wireless Function of the Router is disabled. Please make sure the Wireless Function is enabled before configuring the WPS.

5.5 Firewall

5.5.1 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

MAC/IP/Port Filter Settings

Source MAC address	
Dest IP Address	
Source IP Address	
Protocol	None
Dest Port Range	-
Source Port Range	-

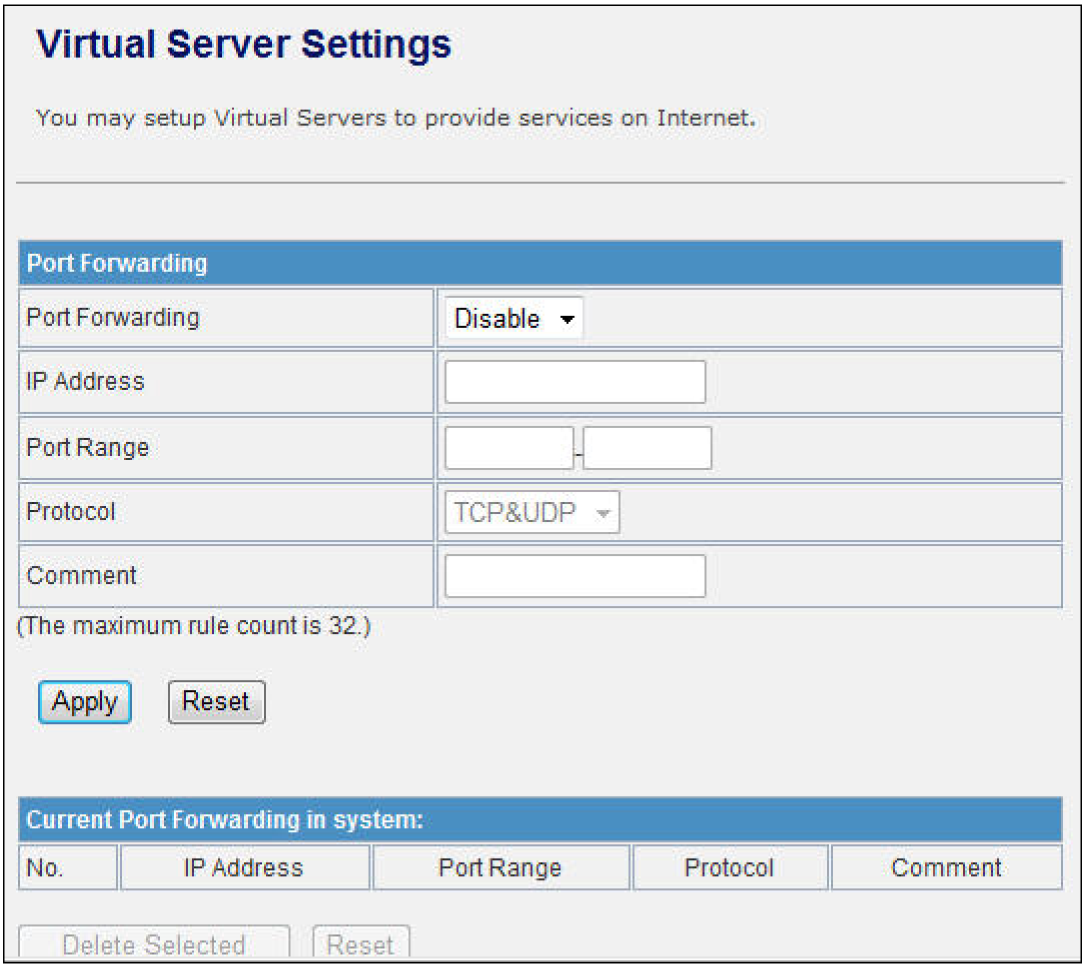
Figure 5-38 MAC/IP/Port filtering

The page includes the following fields:

Object	Description
MAC/IP/Port Filtering	Select **Enable** or **Disable** the MAC/IP/Port Filtering function.
Source MAC address	Fill in the MAC address of source NIC, to restrict data transmission.

Dest IP Address	Fill in the IP address of destination, to restrict data transmission.
Source IP Address	Fill in the IP address of source, to restrict data transmission.
Protocol	Select the protocol that you want to restrict. There are four options: None, TCP, UDP and ICMP.
Dest Port Range	Fill in the start-port and end-port number of destination, to restrict data transmission.
Source Port Range	Fill in the start-port and end-port number of source, to restrict data transmission.
Action	Select **Accept** or **Drop** to specify the action of filtering policies.
Comment	Make a comment for the filtering policy.
Delete Selected	Click ***Delete Selected*** button to delete all that you selected.
Reset	Click ***Reset*** button to clear selected items.

5.5.2 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

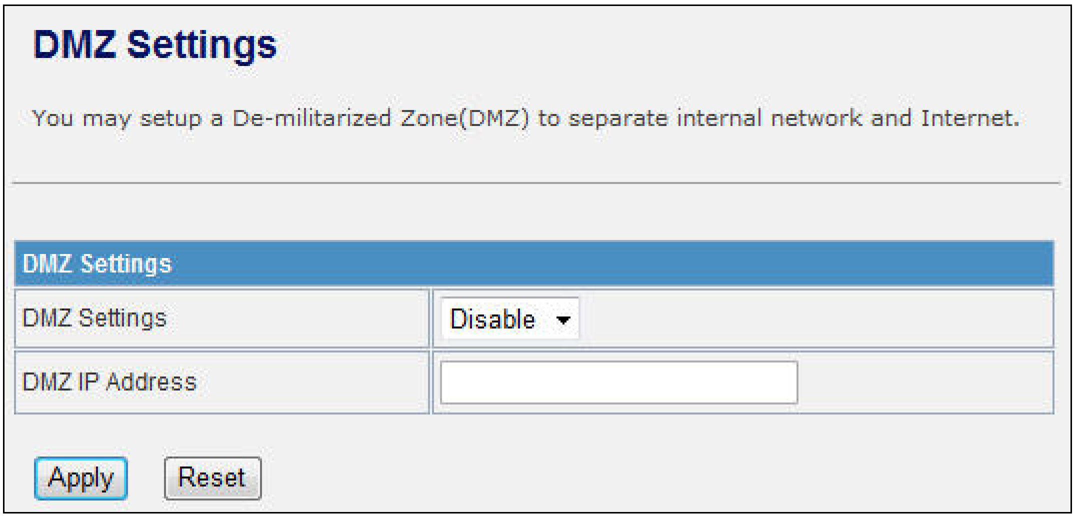
Figure 5-39 Port Fordwarding

The page includes the following fields:

Object	Description
Port Forwarding	Select **Enable** or **Disable** the Port Forwarding function.
IP Address	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.
Port Range	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.
Protocol	Specify protocol, TCP&UDP, TCP or UDP.
Comment	Make a comment for the port forwarding policy.
Delete Selected	Click ***Delete Selected*** button to delete all that you selected.
Reset	Click ***Reset*** button to clear selected items.
Virtual Server	Select **Enable** or **Disable** the Virtual Server function.

IP Address	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.
Public Port	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.
Private Port	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.
Protocol	Specify protocol, TCP&UDP, TCP or UDP.
Comment	Make a comment for the virtual server policy.
Delete Selected	Click ***Delete Selected*** button to delete all that you selected.
Reset	Click ***Reset*** button to clear selected items.

5.5.3 DMZ



DMZ Settings

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

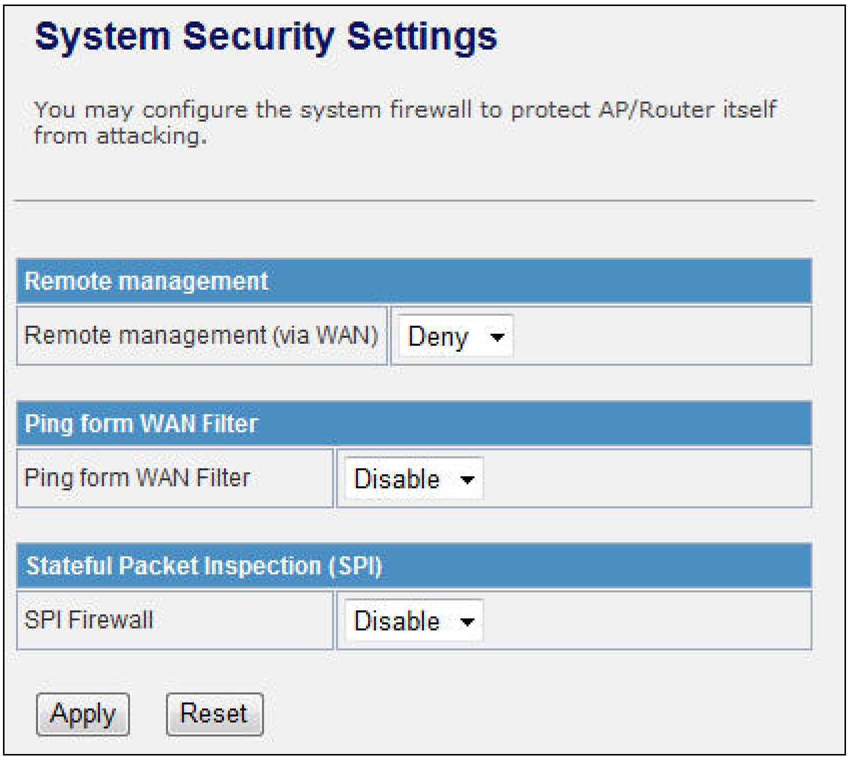
DMZ Settings	
DMZ Settings	Disable
DMZ IP Address	

Figure 5-40 DMZ

The page includes the following fields:

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

5.5.4 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)

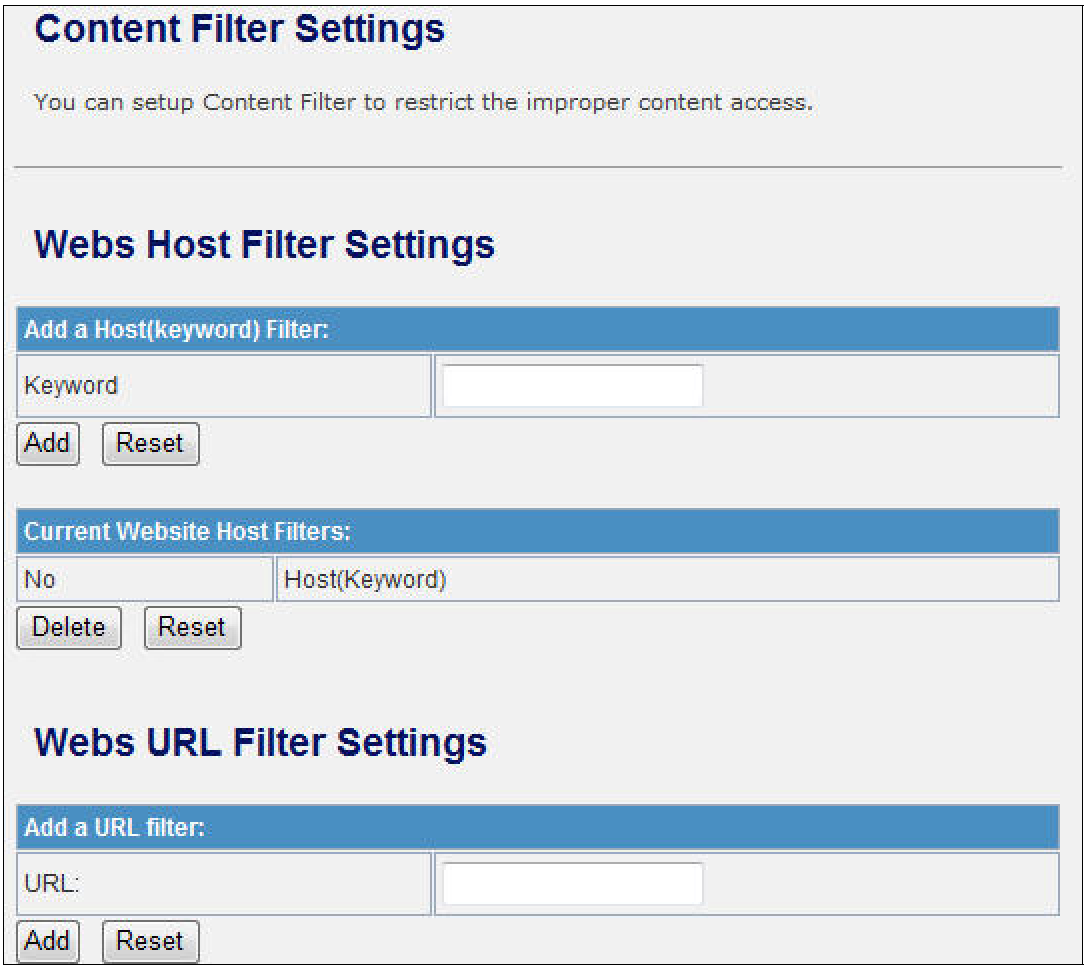
SPI Firewall: Disable

Figure 5-41 System Security

The page includes the following fields:

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

5.5.5 Content Filtering



Content Filter Settings

You can setup Content Filter to restrict the improper content access.

Webs Host Filter Settings

Add a Host(keyword) Filter:

Keyword

Current Website Host Filters:

No	Host(Keyword)

Webs URL Filter Settings

Add a URL filter:

URL:

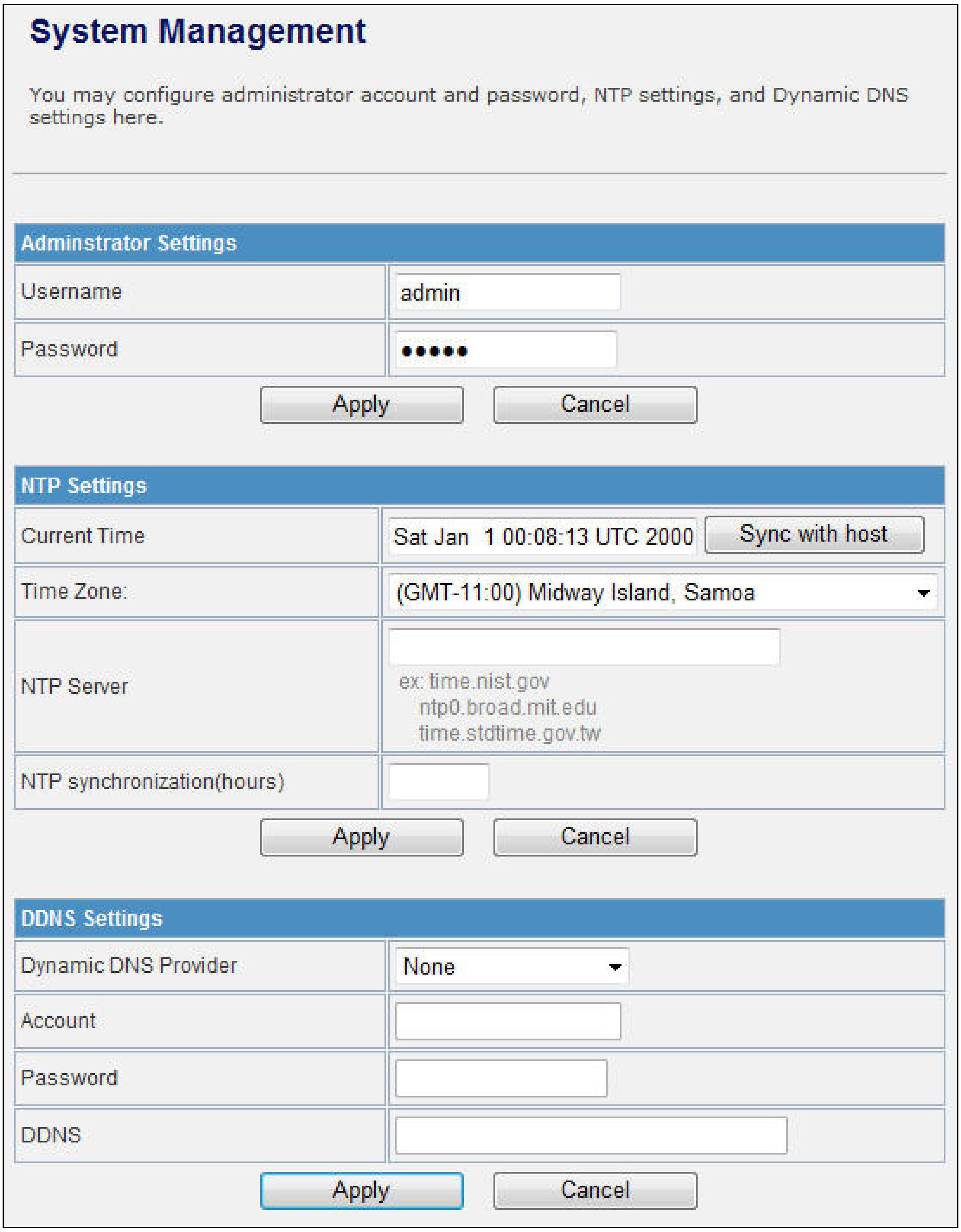
Figure 5-42 Content Filtering

The page includes the following fields:

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

5.6 Administrator

5.6.1 Management



System Management

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

Adminstrator Settings

Username	admin
Password	●●●●●

NTP Settings

Current Time	Sat Jan 1 00:08:13 UTC 2000
Time Zone:	(GMT-11:00) Midway Island, Samoa
NTP Server	ex: time.nist.gov ntp0.broad.mit.edu time.stdtime.gov.tw
NTP synchronization(hours)	

DDNS Settings

Dynamic DNS Provider	None
Account	
Password	
DDNS	

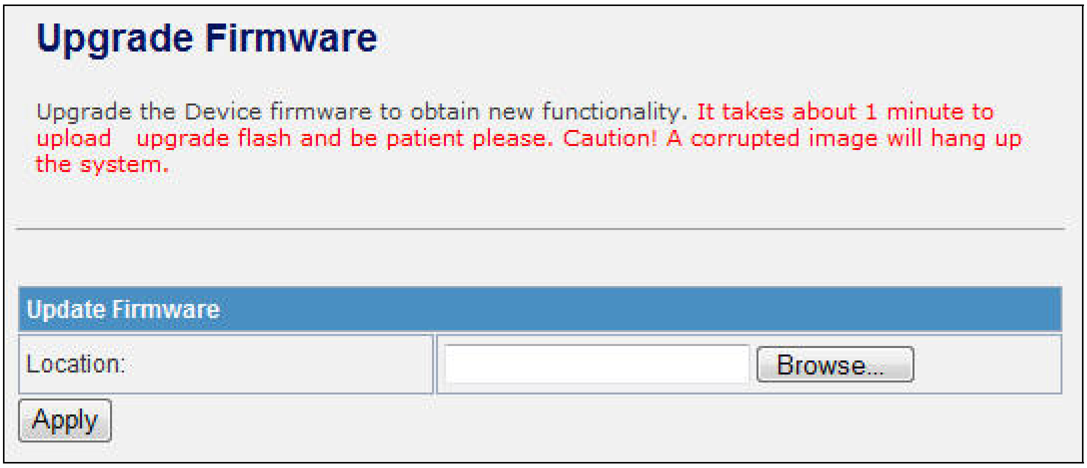
Figure 5-43 System Management

The page includes the following fields:

Object	Description
Username	Fill in the user name for web management login control.
Password	Fill in the password for web management login control.
Current Time	It shows the current time.

Time Zone	Select the time zone in your country from pull-down menu..
NTP Server	Fill in NTP server IP address.
NTP synchronization	Fill in a number to decide the synchronization frequency with NTP server.
Dynamic DNS Provider	Click the drop down menu to pick up the right DDNS provider you registered.
Account	Fill in the account of DDNS you registered.
Password	Fill in the password of DDNS you registered.
DDNS	Fill in the domain name that you registered.

5.6.2 Upload Firmware



Upgrade Firmware

Upgrade the Device firmware to obtain new functionality. It takes about 1 minute to upload   upgrade flash and be patient please. Caution! A corrupted image will hang up the system.

Update Firmware

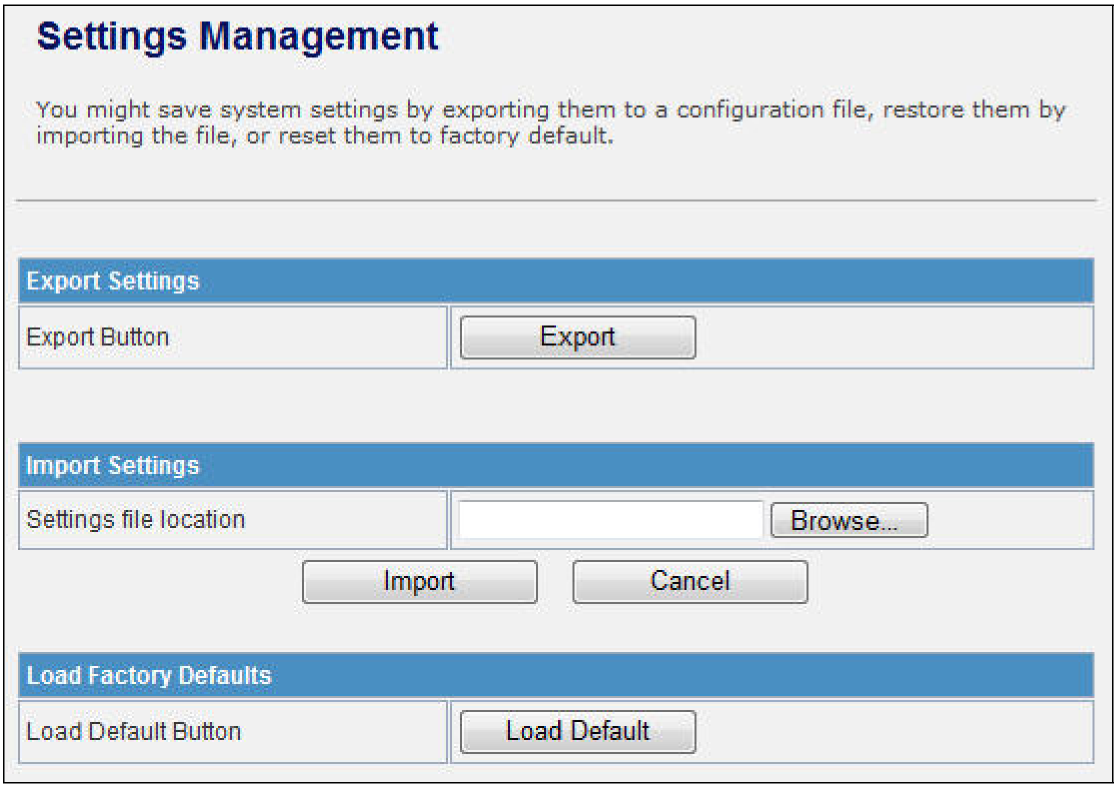
Location:

Figure 5-44 Upload F/W

The page includes the following fields:

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

5.6.3 Settings Management



Settings Management

You might save system settings by exporting them to a configuration file, restore them by importing the file, or reset them to factory default.

Export Settings	
Export Button	Export

Import Settings	
Settings file location	Browse...

Load Factory Defaults	
Load Default Button	Load Default

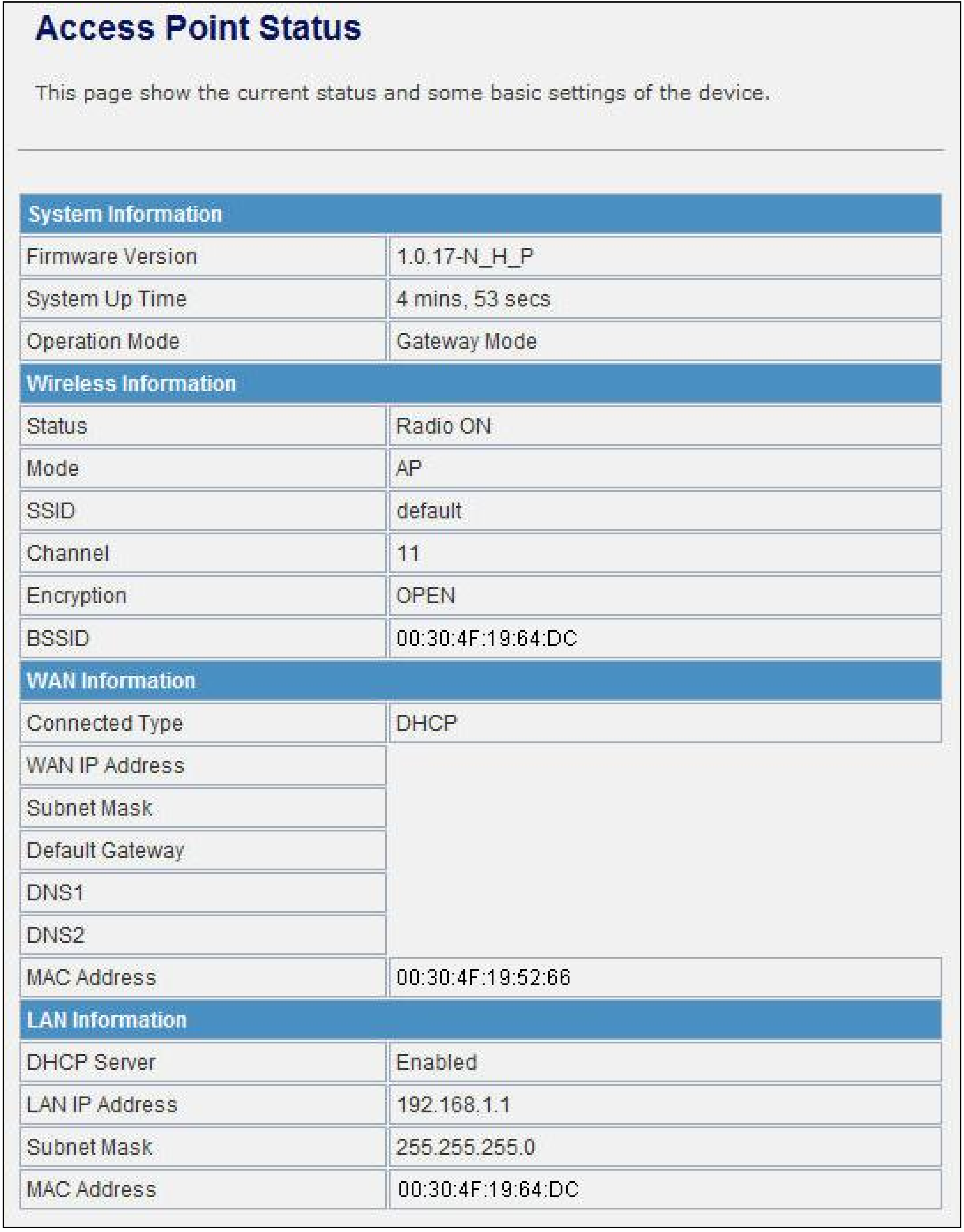
Figure 5-45 Setting Management

The page includes the following fields:

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

5.6.4 Status

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



Access Point Status

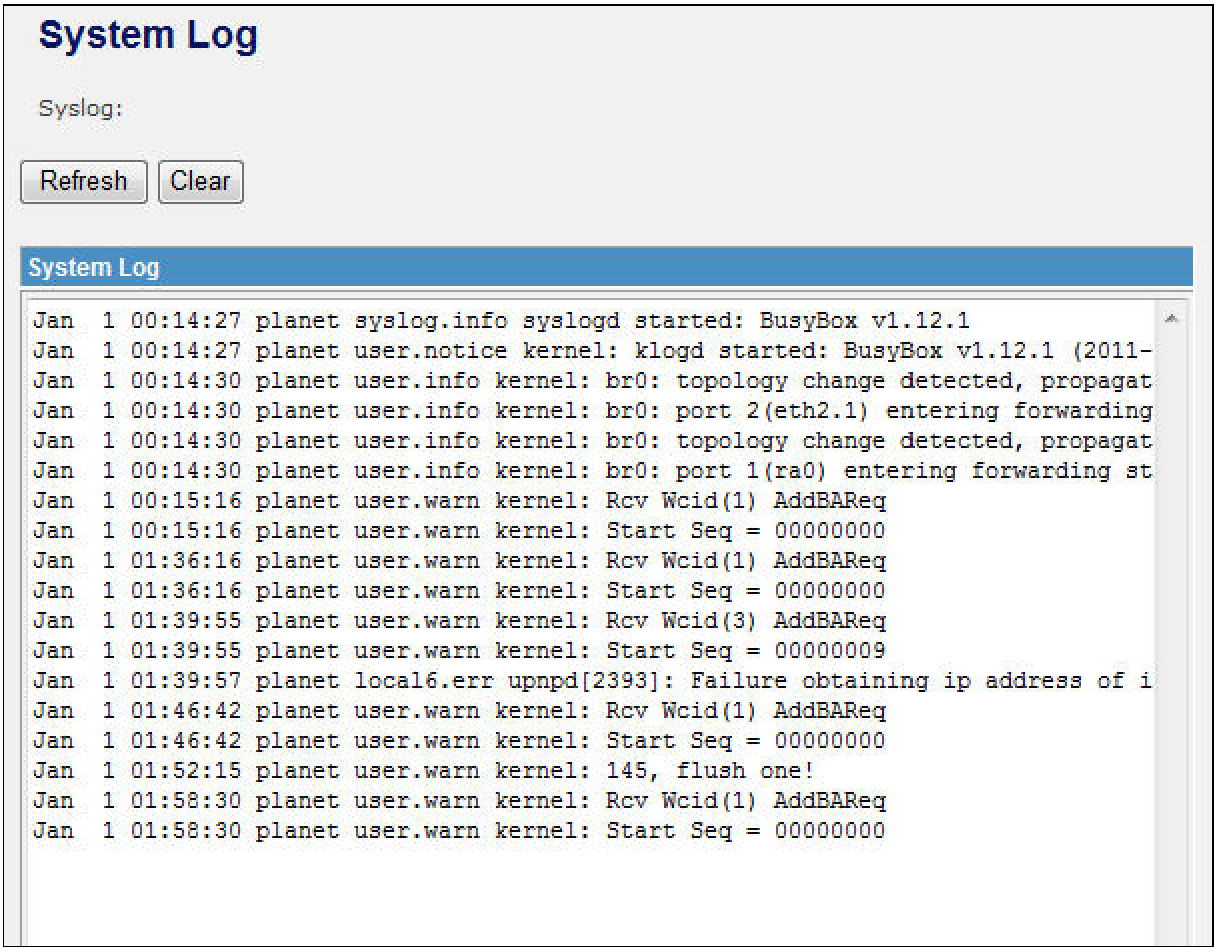
This page show the current status and some basic settings of the device.

System Information	
Firmware Version	1.0.17-N_H_P
System Up Time	4 mins, 53 secs
Operation Mode	Gateway Mode
Wireless Information	
Status	Radio ON
Mode	AP
SSID	default
Channel	11
Encryption	OPEN
BSSID	00:30:4F:19:64:DC
WAN Information	
Connected Type	DHCP
WAN IP Address	
Subnet Mask	
Default Gateway	
DNS1	
DNS2	
MAC Address	00:30:4F:19:52:66
LAN Information	
DHCP Server	Enabled
LAN IP Address	192.168.1.1
Subnet Mask	255.255.255.0
MAC Address	00:30:4F:19:64:DC

Figure 5-46 Status

5.6.5 System Log

This page is used to view the system logs.



```
Jan  1 00:14:27 planet syslog.info syslogd started: BusyBox v1.12.1
Jan  1 00:14:27 planet user.notice kernel: klogd started: BusyBox v1.12.1 (2011-
Jan  1 00:14:30 planet user.info kernel: br0: topology change detected, propagat
Jan  1 00:14:30 planet user.info kernel: br0: port 2(eth2.1) entering forwarding
Jan  1 00:14:30 planet user.info kernel: br0: topology change detected, propagat
Jan  1 00:14:30 planet user.info kernel: br0: port 1(ra0) entering forwarding st
Jan  1 00:15:16 planet user.warn kernel: Rcv Wcid(1) AddBAReq
Jan  1 00:15:16 planet user.warn kernel: Start Seq = 00000000
Jan  1 01:36:16 planet user.warn kernel: Rcv Wcid(1) AddBAReq
Jan  1 01:36:16 planet user.warn kernel: Start Seq = 00000000
Jan  1 01:39:55 planet user.warn kernel: Rcv Wcid(3) AddBAReq
Jan  1 01:39:55 planet user.warn kernel: Start Seq = 00000009
Jan  1 01:39:57 planet local6.err upnpd[2393]: Failure obtaining ip address of i
Jan  1 01:46:42 planet user.warn kernel: Rcv Wcid(1) AddBAReq
Jan  1 01:46:42 planet user.warn kernel: Start Seq = 00000000
Jan  1 01:52:15 planet user.warn kernel: 145, flush one!
Jan  1 01:58:30 planet user.warn kernel: Rcv Wcid(1) AddBAReq
Jan  1 01:58:30 planet user.warn kernel: Start Seq = 00000000
```

Figure 5-47 System Log

The page includes the following fields:

Object	Description
Refresh	Click the ***Refresh*** button to refresh the log shown on the screen.
Clear	Click the ***Clear*** button to clear the log display screen.

Appendix A: FAQ

1. What and how to find my PC's IP and MAC address?

IP address is the identifier for a computer or device on a TCP/IP network. Networks using the TCP/IP protocol route messages based on the IP address of the destination. The format of an IP address is a 32-bit numeric address written as four numbers separated by periods. Each number can be zero to 255. For example, 191.168.1.254 could be an IP address

The MAC (Media Access Control) address is your computer's unique hardware number. (On an Ethernet LAN, it's the same as your Ethernet address.) When you're connected to the Internet from your computer (or host as the Internet protocol thinks of it), a correspondence table relates your IP address to your computer's physical (MAC) address on the LAN.

To find your PC's IP and MAC address,

(1) Open the Command program in the Microsoft Windows.

(2) Type in "ipconfig /all", then press the Enter button.

(3) Your PC's IP address is the one entitled IP Address and your PC's MAC address is the one entitled Physical Address.

2. What is Wireless LAN?

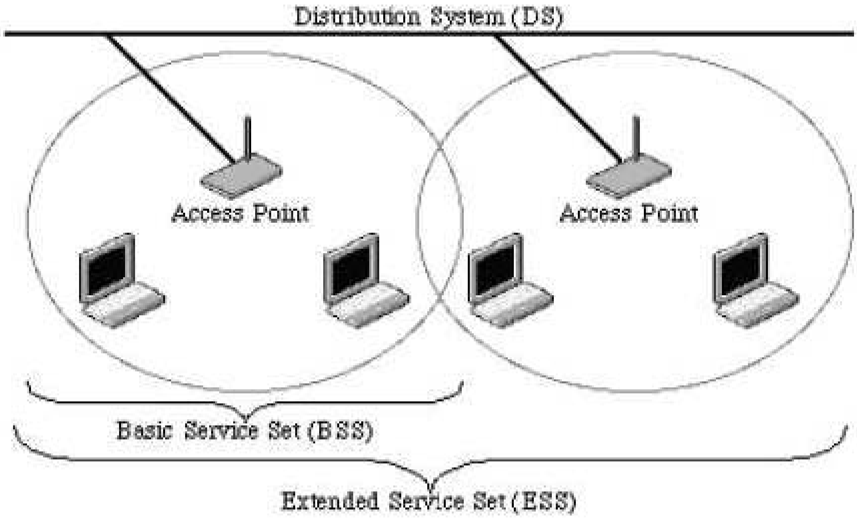
A wireless LAN (WLAN) is a network that allows access to Internet without the need for any wired connections to the user's machine.

3. What are ISM bands?

ISM stands for Industrial, Scientific and Medical; radio frequency bands that the Federal Communications Commission (FCC) authorized for wireless LANs. The ISM bands are located at 915 +/-13 MHz, 2450 +/-50 MHz and 5800 +/-75 MHz.

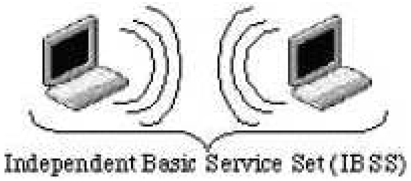
4. How does wireless networking work?

The 802.11 standard define two modes: infrastructure mode and ad hoc mode. In infrastructure mode, the wireless network consists of at least one access point connected to the wired network infrastructure and a set of wireless end stations. This configuration is called a Basic Service Set (BSS). An Extended Service Set (ESS) is a set of two or more BSSs forming a single sub-network. Since most corporate WLANs require access to the wired LAN for services (file servers, printers, Internet links) they will operate in infrastructure mode.



Example 1: wireless Infrastructure Mode

Ad hoc mode (also called peer-to-peer mode or an Independent Basic Service Set, or IBSS) is simply a set of 802.11 wireless stations that communicate directly with one another without using an access point or any connection to a wired network. This mode is useful for quickly and easily setting up a wireless network anywhere that a wireless infrastructure does not exist or is not required for services, such as a hotel room, convention center, or airport, or where access to the wired network is barred (such as for consultants at a client site).



Example 2: wireless Ad Hoc Mode

5. What is BSSID?

A six-byte address is that distinguish a particular a particular access point from others. Also know as just SSID. Serve as a network ID or name.

6. What is ESSID?

The Extended Service Set ID (ESSID) is the name of the network you want to access. It is used to identify different wireless networks.

7. What are potential factors that may causes interference?

Factors of interference:

- Obstacles: walls, ceilings, furniture… etc.
- Building Materials: metal door, aluminum studs.
- Electrical devices: microwaves, monitors and electrical motors.

Solutions to overcome the interferences:

- Minimizing the number of walls and ceilings.
- Position the WLAN antenna for best reception.
- Keep WLAN devices away from other electrical devices, eg: microwaves, monitors, electric motors…etc.
- Add additional WLAN Access Points if necessary.

8. What are the Open System and Shared Key authentications?

IEEE 802.11 supports two subtypes of network authentication services: open system and shared key. Under open system authentication, any wireless station can request authentication. The station that needs to authenticate with another wireless station sends an authentication management frame that contains the identity of the sending station. The receiving station then returns a frame that indicates whether it recognizes the sending station. Under shared key authentication, each wireless station is assumed to have received a secret shared key over a secure channel that is independent from the 802.11 wireless network communications channel.

9. What is WEP?

An option of IEEE 802.11 function is that offers frame transmission privacy similar to a wired network. The Wired Equivalent Privacy generates secret shared encryption keys that both source and destination stations can use to alert frame bits to avoid disclosure to eavesdroppers.

WEP relies on a secret key that is shared between a mobile station (e.g. a laptop with a wireless Ethernet card) and an access point (i.e. a base station). The secret key is used to encrypt packets before they are transmitted, and an integrity check is used to ensure that packets are not modified in transit.

10. What is Fragment Threshold?

The proposed protocol uses the frame fragmentation mechanism defined in IEEE 802.11 to achieve parallel transmissions. A large data frame is fragmented into several fragments each of size equal to fragment threshold. By tuning the fragment threshold value, we can get varying fragment sizes. The determination of an efficient fragment threshold is an important issue in this scheme. If the fragment threshold is small, the overlap part of the master and parallel transmissions is large. This means the spatial reuse ratio of parallel transmissions is high. In contrast, with a large fragment threshold, the overlap is small and the spatial reuse ratio is low. However high fragment threshold leads to low fragment overhead. Hence there is a trade-off between spatial re-use and fragment overhead.
Fragment threshold is the maximum packet size used for fragmentation. Packets larger than the size programmed in this field will be fragmented.
If you find that your corrupted packets or asymmetric packet reception (all send packets, for example). You may want to try lowering your fragmentation threshold. This will cause packets to be broken into smaller fragments. These small fragments, if corrupted, can be resent faster than a larger fragment. Fragmentation increases overhead, so you'll want to keep this value as close to the maximum value as possible.

11. What is RTS (Request to Send) Threshold?

The RTS threshold is the packet size at which packet transmission is governed by the RTS/CTS transaction. The IEEE 802.11-1997 standard allows for short packets to be transmitted without RTS/ CTS transactions. Each station can have a different RTS threshold. RTS/CTS is used when the data packet size exceeds the defined RTS threshold. With the CSMA/CA transmission mechanism, the transmitting station sends out an RTS packet to the receiving station, and waits for the receiving station to send back a CTS (Clear to Send) packet before sending the actual packet data.

This setting is useful for networks with many clients. With many clients, and a high network load, there will be many more collisions. By lowering the RTS threshold, there may be fewer collisions, and performance should improve. Basically, with a faster RTS threshold, the system can recover from problems faster. RTS packets consume valuable bandwidth, however, so setting this value too low will limit performance.

12. What is Beacon Interval?

In addition to data frames that carry information from higher layers, 802.11 include management and control frames that support data transfer. The beacon frame, which is a type of management frame, provides the "heartbeat" of a wireless LAN, enabling stations to establish and maintain communications in an orderly fashion.

Beacon Interval represents the amount of time between beacon transmissions. Before a station enters power save mode, the station needs the beacon interval to know when to wake up to receive the beacon (and learn whether there are buffered frames at the access point).

13. What is Preamble Type?

There are two preamble types defined in IEEE 802.11 specification. A long preamble basically gives the decoder more time to process the preamble. All 802.11 devices support a long preamble. The short preamble is designed to improve efficiency (for example, for VoIP systems). The difference between the two is in the Synchronization field. The long preamble is 128 bits, and the short is 56 bits.

14. What is SSID Broadcast?

Broadcast of SSID is done in access points by the beacon. This announces your access point (including various bits of information about it) to the wireless world around it. By disabling that feature, the SSID configured in the client must match the SSID of the access point.

Some wireless devices don't work properly if SSID isn't broadcast (for example the D-link DWL-120 USB 802.11b adapter). Generally if your client hardware supports operation with SSID disabled, it's not a bad idea to run that way to enhance network security. However it's no replacement for WEP, MAC filtering or other protections.

15. What is Wi-Fi Protected Access (WPA)?

Wi-Fi's original security mechanism, Wired Equivalent Privacy (WEP), has been viewed as insufficient for securing confidential business communications. A longer-term solution, the IEEE 802.11i standard, is under development. However, since the IEEE 802.11i standard is not expected to be published until the end of 2003, several members of the WI-Fi Alliance teamed up with members of the IEEE 802.11i task group to develop a significant near-term enhancement to Wi-Fi security. Together, this team developed Wi-Fi Protected Access.

To upgrade a WLAN network to support WPA, Access Points will require a WPA software upgrade. Clients will require a software upgrade for the network interface card, and possibly a software update for the operating system. For enterprise networks, an authentication server, typically one that supports RADIUS and the selected EAP authentication protocol, will be added to the network.

16. What is WPA2?

It is the second generation of WPA. WPA2 is based on the final IEEE 802.11i amendment to the 802.11 standard.

17. What is 802.1x Authentication?

802.1x is a framework for authenticated MAC-level access control, defines Extensible Authentication Protocol (EAP) over LANs (WAPOL). The standard encapsulates and leverages much of EAP, which was defined for dial-up authentication with Point-to-Point Protocol in RFC 2284.

Beyond encapsulating EAP packets, the 802.1x standard also defines EAPOL messages that convey the shared key information critical for wireless security.

18. What is Temporal Key Integrity Protocol (TKIP)?

The Temporal Key Integrity Protocol, pronounced tee-kip, is part of the IEEE 802.11i encryption standard for wireless LANs. TKIP is the next generation of WEP, the Wired Equivalency Protocol, which is used to secure 802.11 wireless LANs. TKIP provides per-packet key mixing, a message integrity check and a re-keying mechanism, thus fixing the flaws of WEP.

19. What is Advanced Encryption Standard (AES)?

Security issues are a major concern for wireless LANs, AES is the U.S. government's next-generation cryptography algorithm, which will replace DES and 3DES.

20. What is Inter-Access Point Protocol (IAPP)?

The IEEE 802.11f Inter-Access Point Protocol (IAPP) supports Access Point Vendor interoperability, enabling roaming of 802.11 Stations within IP subnet.

IAPP defines messages and data to be exchanged between Access Points and between the IAPP and high layer management entities to support roaming. The IAPP protocol uses TCP for inter-Access

Point communication and UDP for RADIUS request/response exchanges. It also uses Layer 2 frames to update the forwarding tables of Layer 2 devices.

21. What is Wireless Distribution System (WDS)?

The Wireless Distribution System feature allows WLAN AP to talk directly to other APs via wireless channel, like the wireless WDS or repeater service.

22. What is Universal Plug and Play (UPnP)?

UPnP is an open networking architecture that consists of services, devices, and control points. The ultimate goal is to allow data communication among all UPnP devices regardless of media, operating system, programming language, and wired/wireless connection.

23. What is Maximum Transmission Unit (MTU) Size?

Maximum Transmission Unit (MTU) indicates the network stack of any packet is larger than this value will be fragmented before the transmission. During the PPP negotiation, the peer of the PPP connection will indicate its MRU and will be accepted. The actual MTU of the PPP connection will be set to the smaller one of MTU and the peer’s MRU.

24. What is Clone MAC Address?

Clone MAC address is designed for your special application that request the clients to register to a server machine with one identified MAC address. Since that all the clients will communicate outside world through the WLAN Broadband Router, so have the cloned MAC address set on the WLAN Broadband Router will solve the issue.

25. What is DDNS?

DDNS is the abbreviation of Dynamic Domain Name Server. It is designed for user owned the DNS server with dynamic WAN IP address.

26. What is NTP Client?

NTP client is designed for fetching the current timestamp from internet via Network Time protocol. User can specify time zone, NTP server IP address.

27. What is VPN?

VPN is the abbreviation of Virtual Private Network. It is designed for creating point-to point private link via shared or public network.

28. What is IPSEC?

IPSEC is the abbreviation of IP Security. It is used to transferring data securely under VPN.

29. What is WLAN Block Relay between Clients?

An Infrastructure Basic Service Set is a BSS with a component called an Access Point (AP). The access point provides a local relay function for the BSS. All stations in the BSS communicate with the access point and no longer communicate directly. All frames are relayed between stations by the access point. This local relay function effectively doubles the range of the IBSS.

30. What is WMM?

WMM is based on a subset of the IEEE 802.11e WLAN QoS draft standard. WMM adds prioritized capabilities to Wi-Fi networks and optimizes their performance when multiple concurring applications, each with different latency and throughput requirements, compete for network resources. By using WMM, end-user satisfaction is maintained in a wider variety of environments and traffic conditions. WMM makes it possible for home network users and enterprise network managers to decide which data streams are most important and assign them a higher traffic priority.

31. What is WLAN ACK TIMEOUT?

ACK frame has to receive ACK timeout frame. If remote does not receive in specified period, it will be retransmitted.

32. What is Modulation Coding Scheme (MCS)?

MCS is Wireless link data rate for 802.11n. The throughput/range performance of an AP will depend on its implementation of coding schemes. MCS includes variables such as the number of spatial streams, modulation, and the data rate on each stream. Radios establishing and maintaining a link must automatically negotiate the optimum MCS based on channel conditions and then continuously adjust the selection of MCS as conditions change due to interference, motion, fading, and other events.

33. What is Frame Aggregation?

Every 802.11 packet, no matter how small, has a fixed amount of overhead associated with it. Frame Aggregation combines multiple smaller packets together to form one larger packet. The larger packet can be sent without the overhead of the individual packets. This technique helps improve the efficiency of the 802.11n radio allowing more end user data to be sent in a given time.

34. What is Guard Intervals (GI)?

A GI is a period of time between symbol transmission that allows reflections (from multipath) from the previous data transmission to settle before transmitting a new symbol. The 802.11n draft specifies two guard intervals: 400ns (short) and 800ns (long). Support of the 400ns GI is optional for transmit and receive. The purpose of a guard interval is to introduce immunity to propagation delays, echoes, and reflections to which digital data is normally very sensitive.

Appendix B: Configuration Example

1. Example – PPPoE on the WAN

Sales division of Company ABC likes to establish a WLAN network to support mobile communication on sales' Notebook PCs. MIS engineer collects information and plans the WLAN Broadband Router implementation by the following configuration.

WAN configuration:PPPoE

User Name	user123
Password	password123

Note: User Name and password that ISP provided.

LAN configuration:

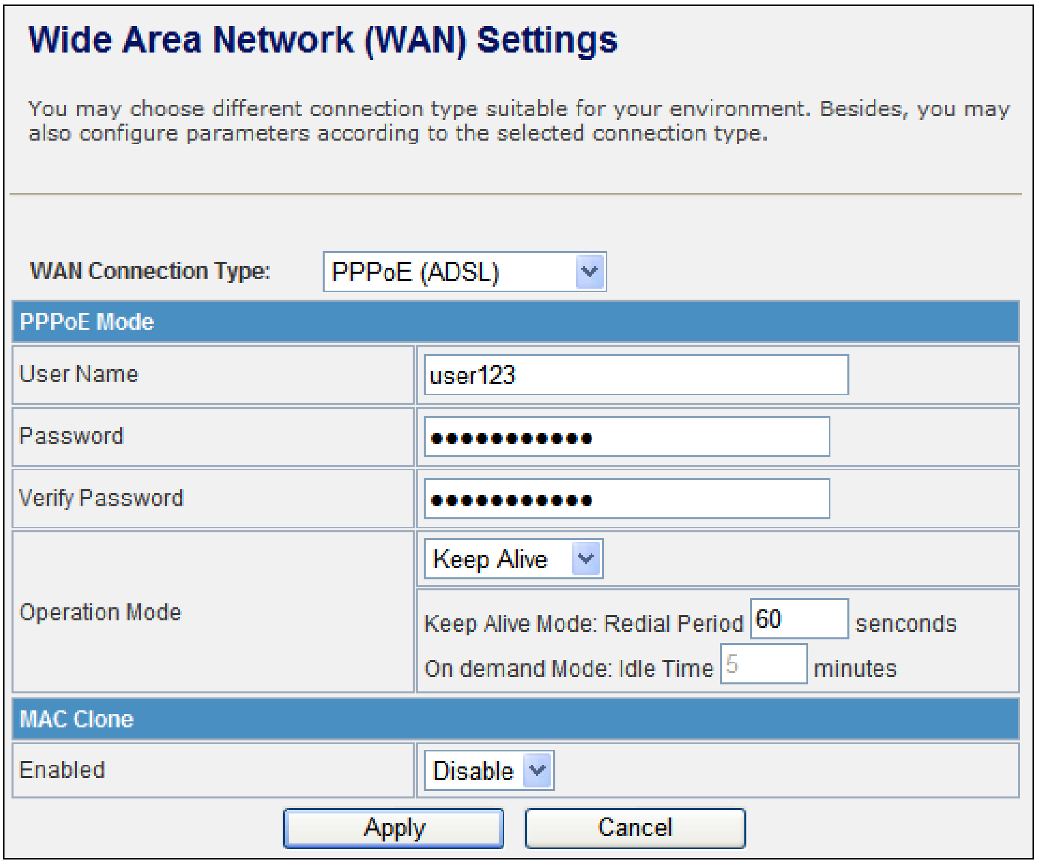
IP Address	10.10.10.254
Subnet Mask	255.255.255.0
DHCP Client Range	10.10.10.100 – 10.10.10.200

WLAN configuration:

SSID	AP
Channel Number	AutoSelect

1) Configure the WAN interface:

- Open "Wide Area Network (WAN) Settings" page, select PPPoE then enter the User Name "user123" and Password "password123", the password is encrypted to display on the screen.
- Press "***Apply***" button to confirm the configuration setting.



Wide Area Network (WAN) Settings

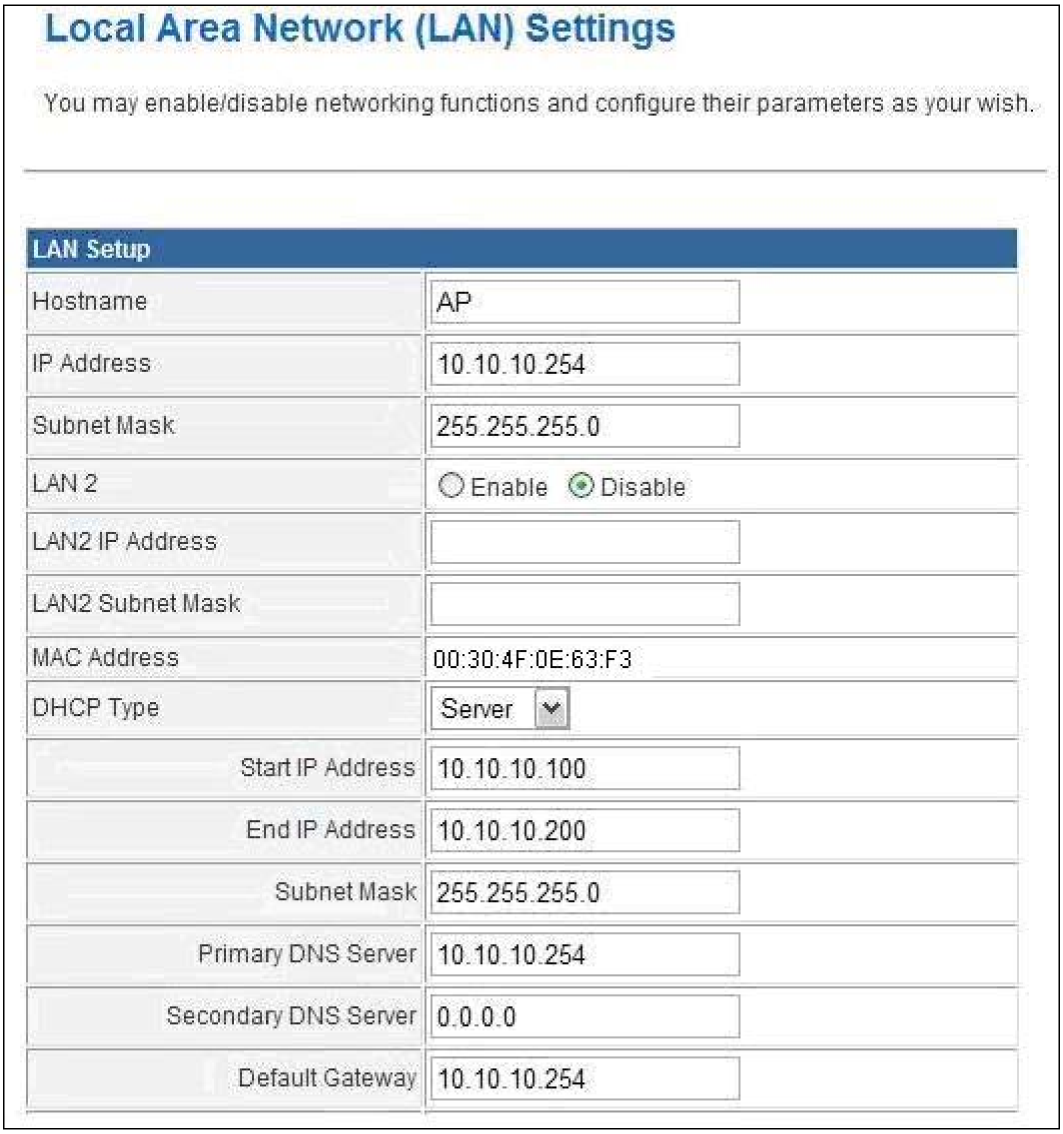
You may choose different connection type suitable for your environment. Besides, you may also configure parameters according to the selected connection type.

WAN Connection Type: PPPoE (ADSL)

PPPoE Mode	
User Name	user123
Password	●●●●●●●●●●●
Verify Password	●●●●●●●●●●●
Operation Mode	Keep Alive Keep Alive Mode: Redial Period 60 senconds On demand Mode: Idle Time 5 minutes
MAC Clone	
Enabled	Disable

2) Configure the LAN interface:

- Open "Local Area Network (LAN) settings" page, enter the IP Address "10.10.10.254", Subnet Mask "255.255.255.0".
- Enable DHCP Server, DHCP client range "10.10.10.100" to "10.10.10.200", default Gateway "10.10.10.254" .
- Press "***Apply***" button to confirm the configuration setting.



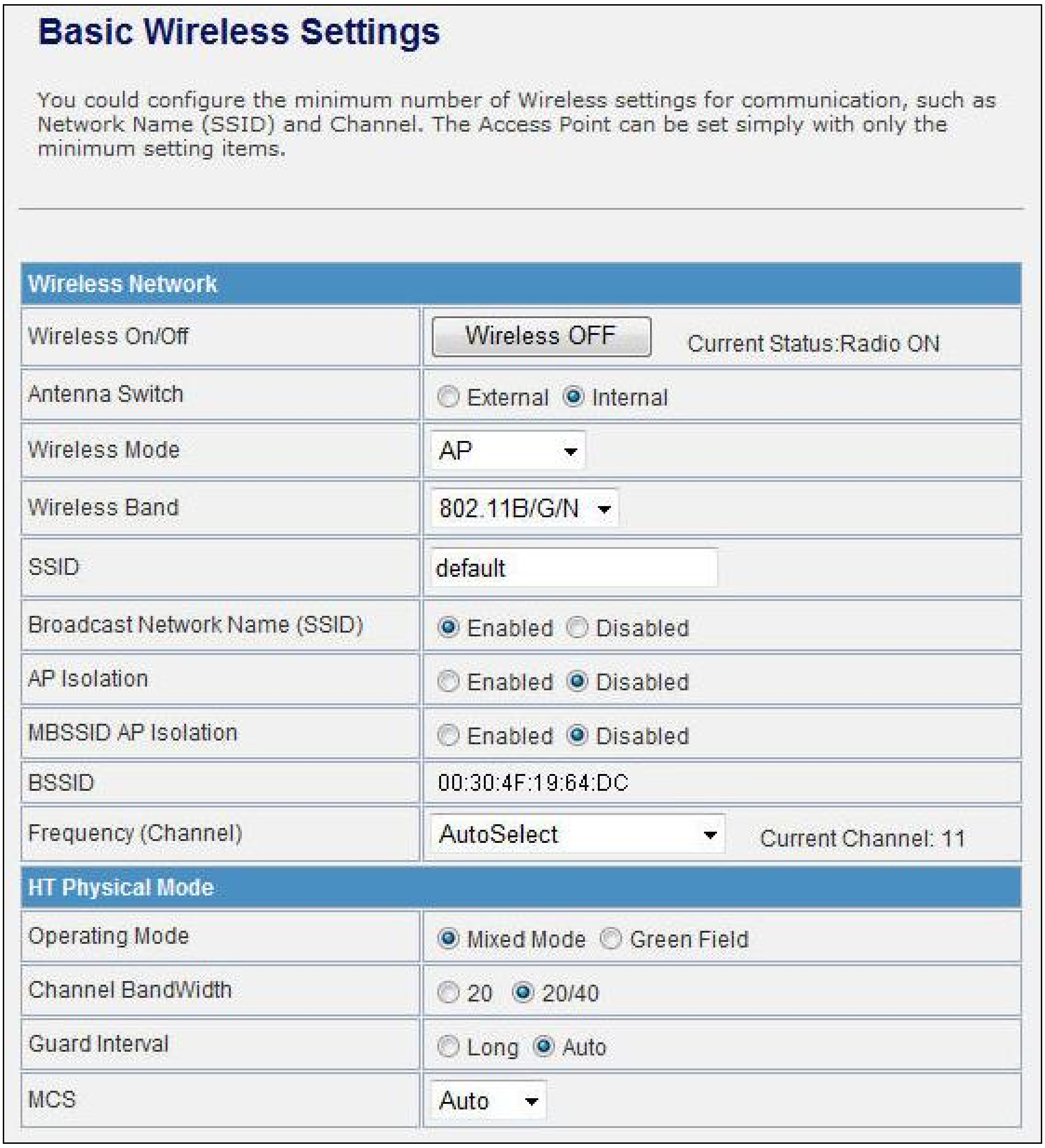
Local Area Network (LAN) Settings

You may enable/disable networking functions and configure their parameters as your wish.

LAN Setup	
Hostname	AP
IP Address	10.10.10.254
Subnet Mask	255.255.255.0
LAN 2	○ Enable ● Disable
LAN2 IP Address	
LAN2 Subnet Mask	
MAC Address	00:30:4F:0E:63:F3
DHCP Type	Server
Start IP Address	10.10.10.100
End IP Address	10.10.10.200
Subnet Mask	255.255.255.0
Primary DNS Server	10.10.10.254
Secondary DNS Server	0.0.0.0
Default Gateway	10.10.10.254

3) Configure the WLAN interface:

- Open “Basic Wireless Settings” page, enter the SSID ”AP”, Channel Number ”AutoSelect”.
- Press “***Apply***” button to confirm the configuration setting.



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	Wireless OFF Current Status:Radio ON
Antenna Switch	○ External ● Internal
Wireless Mode	AP
Wireless Band	802.11B/G/N
SSID	default
Broadcast Network Name (SSID)	● Enabled ○ Disabled
AP Isolation	○ Enabled ● Disabled
MBSSID AP Isolation	○ Enabled ● Disabled
BSSID	00:30:4F:19:64:DC
Frequency (Channel)	AutoSelect Current Channel: 11
HT Physical Mode	
Operating Mode	● Mixed Mode ○ Green Field
Channel BandWidth	○ 20 ● 20/40
Guard Interval	○ Long ● Auto
MCS	Auto

2. Example – fixed IP on the WAN

Company ABC likes to establish a WLAN network to support mobile communication on all employees' Notebook PCs. MIS engineer collects information and plans the WLAN Broadband Router implementation by the following configuration.

WAN configuration : Fixed IP

IP Address	192.168.20.254
Subnet Mask	255.255.255.0
Default Gateway	192.168.20.1
Primary DNS Address	168.95.1.1

LAN configuration:

IP Address	10.10.10.254
Subnet Mask	255.255.255.0
DHCP Client Range	10.10.10.100 – 10.10.10.200

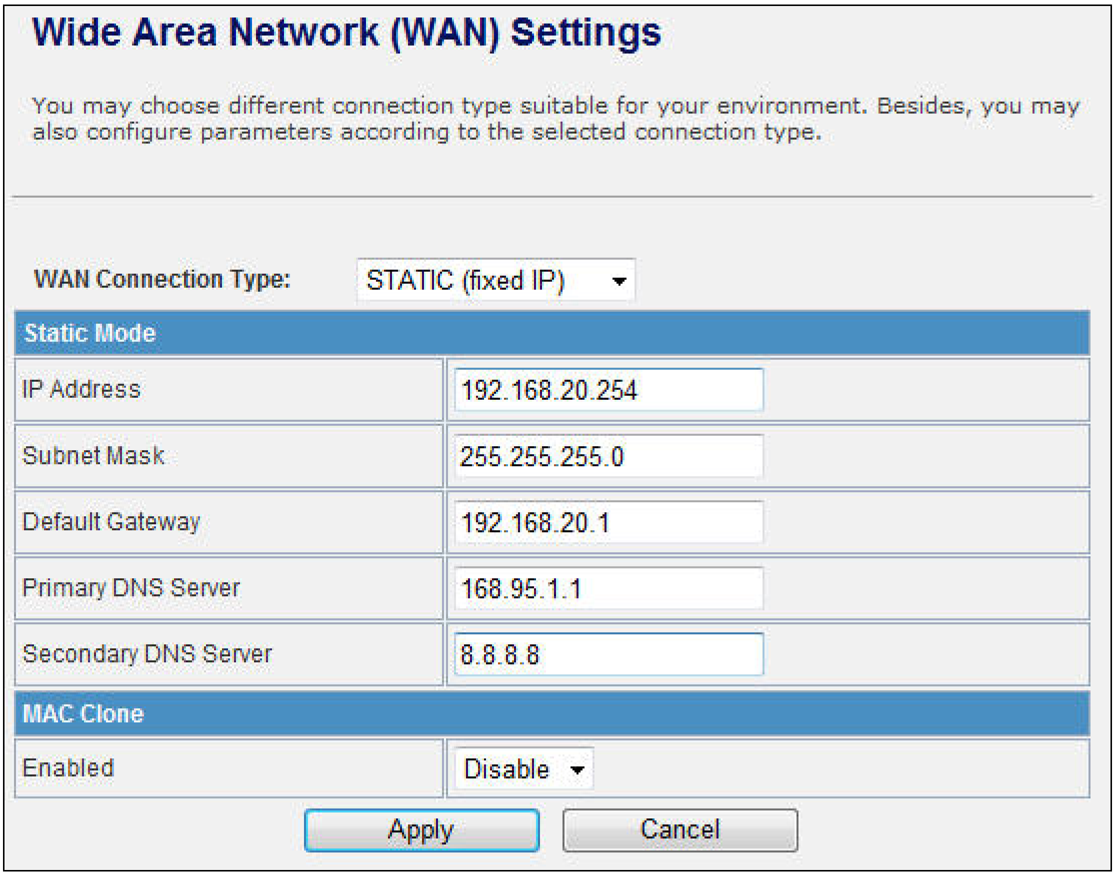
WLAN configuration:

SSID	AP
Channel Number	AutoSelect

1) Configure the WAN interface:

Open "Wide Area Network (WAN) Settings" page, select STATIC(fixed IP) then enter IP Address "192.168.20.254", subnet mask "255.255.255.0", Default gateway "192.168.20.1".

Press "***Apply***" button to confirm the configuration setting.



Wide Area Network (WAN) Settings

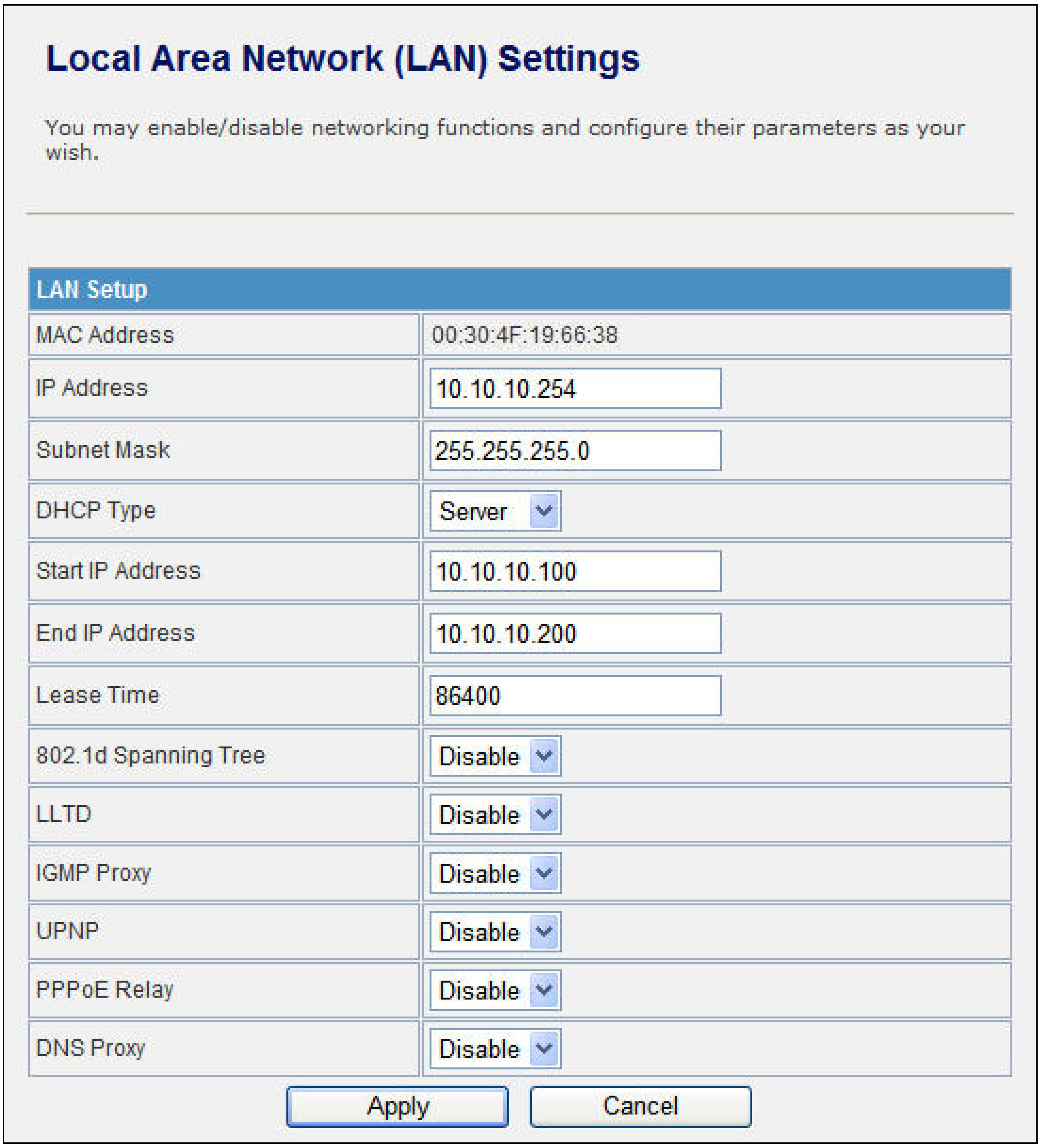
You may choose different connection type suitable for your environment. Besides, you may also configure parameters according to the selected connection type.

WAN Connection Type: STATIC (fixed IP)

Static Mode	
IP Address	192.168.20.254
Subnet Mask	255.255.255.0
Default Gateway	192.168.20.1
Primary DNS Server	168.95.1.1
Secondary DNS Server	8.8.8.8
MAC Clone	
Enabled	Disable

2) Configure the LAN interface:

- Open "Local Area Network (LAN) settings" page, enter the IP Address "10.10.10.254", Subnet Mask "255.255.255.0".
- Enable DHCP Server, DHCP client range "10.10.10.100" to "10.10.10.200", default Gateway "10.10.10.254" .
- Press "***Apply***" button to confirm the configuration setting.



Local Area Network (LAN) Settings

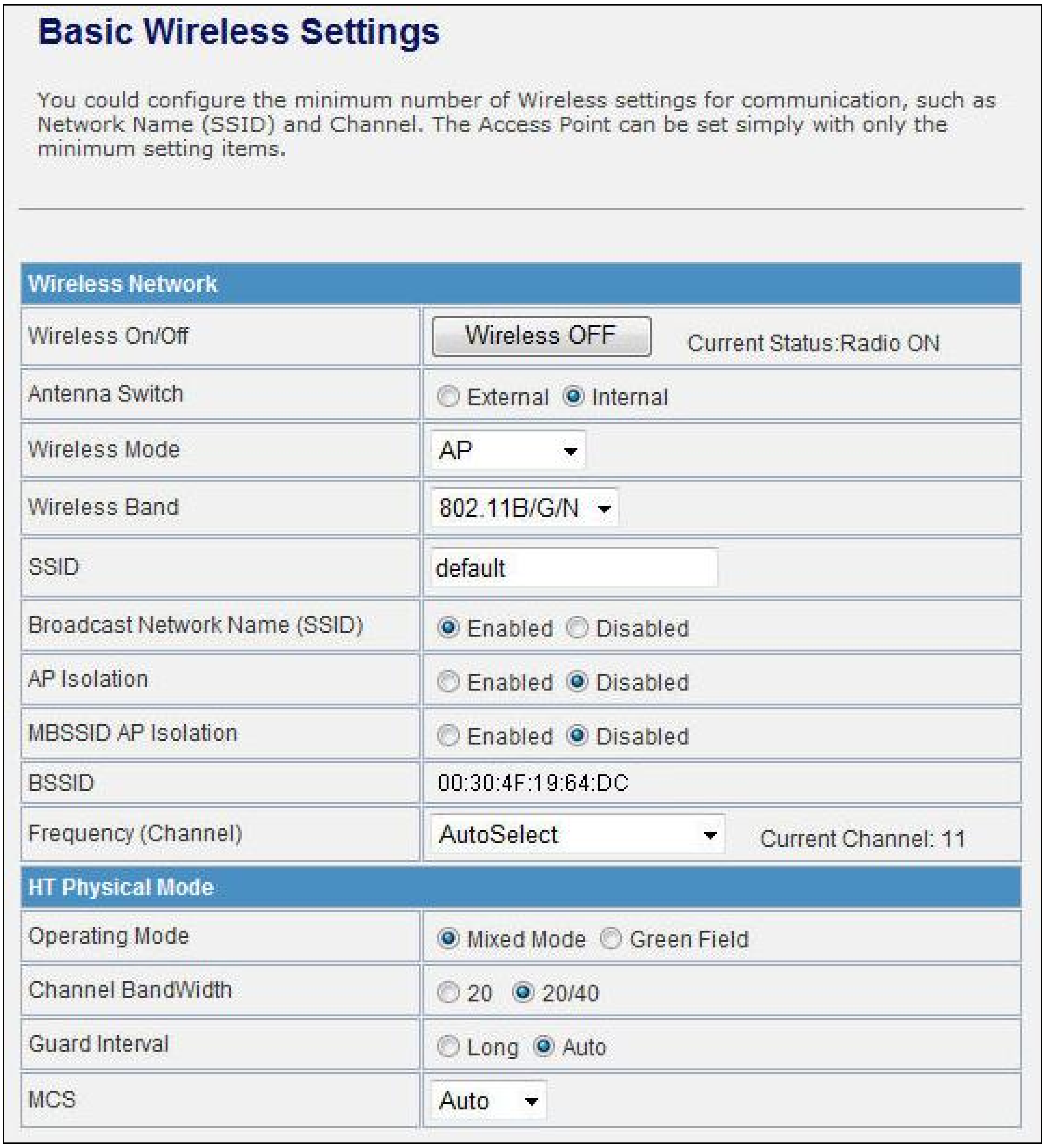
You may enable/disable networking functions and configure their parameters as your wish.

LAN Setup	
MAC Address	00:30:4F:19:66:38
IP Address	10.10.10.254
Subnet Mask	255.255.255.0
DHCP Type	Server
Start IP Address	10.10.10.100
End IP Address	10.10.10.200
Lease Time	86400
802.1d Spanning Tree	Disable
LLTD	Disable
IGMP Proxy	Disable
UPNP	Disable
PPPoE Relay	Disable
DNS Proxy	Disable

3) Configure the WLAN interface:

Open “Basic Wireless Settings” page, enter the SSID ”AP”, Channel Number ”AutoSelect”.

Press “***Apply***” button to confirm the configuration setting.



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	Wireless OFF Current Status:Radio ON
Antenna Switch	○ External ● Internal
Wireless Mode	AP
Wireless Band	802.11B/G/N
SSID	default
Broadcast Network Name (SSID)	● Enabled ○ Disabled
AP Isolation	○ Enabled ● Disabled
MBSSID AP Isolation	○ Enabled ● Disabled
BSSID	00:30:4F:19:64:DC
Frequency (Channel)	AutoSelect Current Channel: 11
HT Physical Mode	
Operating Mode	● Mixed Mode ○ Green Field
Channel BandWidth	○ 20 ● 20/40
Guard Interval	○ Long ● Auto
MCS	Auto

3. Example – set WLAN to be WAN as WiFi Client

User Mr. ABC likes to configure this WLAN Broadband Router to be a WiFi client. In order to communicate with another AP. Mr. ABC collects information and plans the WLAN Broadband Router implementation by the following configuration.

■ WiFi client:

WAN configuration: DHCP (Auto config)

IP Address	n/a
Subnet Mask	n/a
Default Gateway	n/a
Primary DNS Address	n/a

LAN configuration:

IP Address	10.10.10.254
Subnet Mask	255.255.255.0
DHCP Client Range	10.10.10.100 – 10.10.10.200

WLAN configuration:

SSID	Depend on AP
Channel Number	Depend on AP

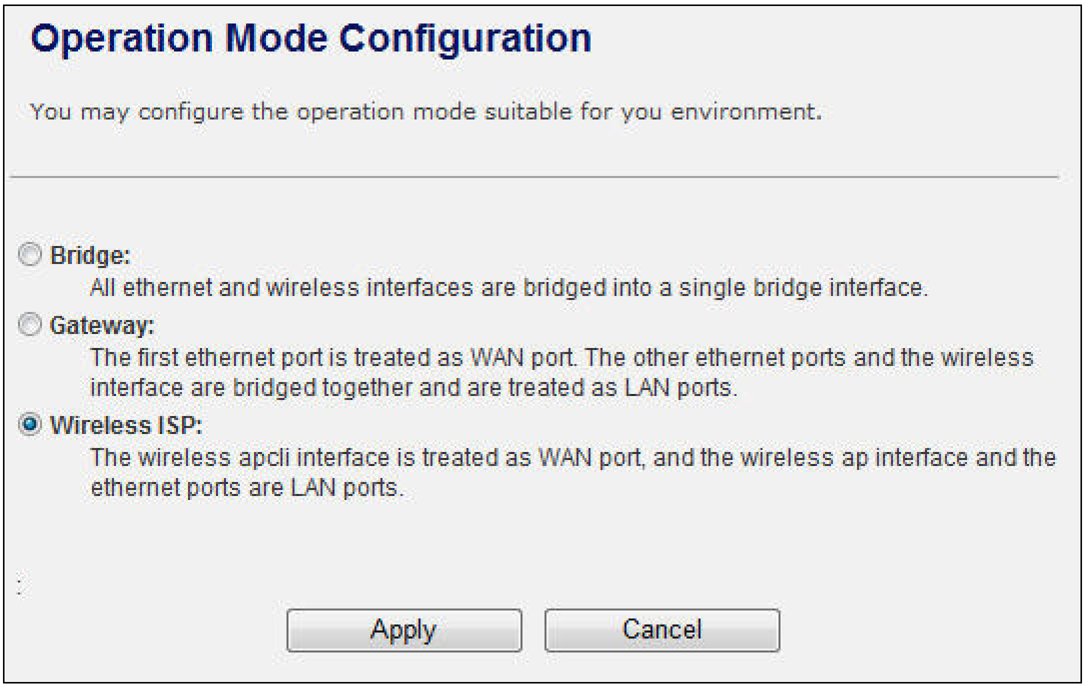
■ WiFi server:

AP configuration:

SSID	Test
Channel Number	Channel 1
Wireless Encryption	WPA2
DHCP server	192.168.1.33~192.168.1.254

1) Configure the Operation Mode:

Open "Operation Mode Configuration" page, select **Wireless ISP**, then click "***Apply***" button to confirm the configuration setting and reboot the WLAN Broadband Router. After reboot, the wireless LAN will become to WAN interface.



Operation Mode Configuration

You may configure the operation mode suitable for you environment.

○ Bridge:
All ethernet and wireless interfaces are bridged into a single bridge interface.

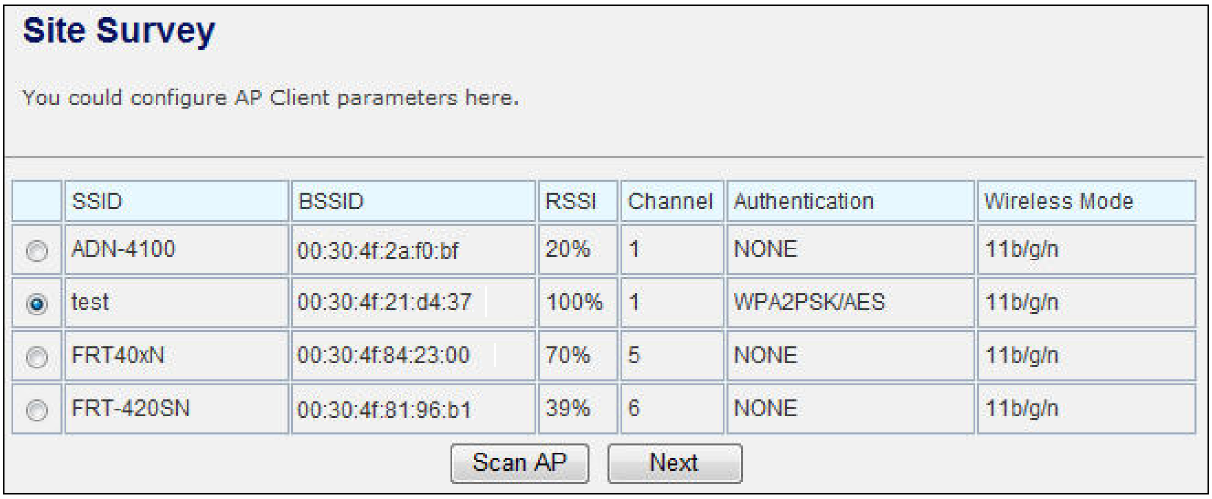
○ Gateway:
The first ethernet port is treated as WAN port. The other ethernet ports and the wireless interface are bridged together and are treated as LAN ports.

● Wireless ISP:
The wireless apcli interface is treated as WAN port, and the wireless ap interface and the ethernet ports are LAN ports.

2) Site Survey:

Open "Site Survey" page under Wireless Settings, and select the AP "test".

Press "***Connect***" button to connect with the AP.



Site Survey

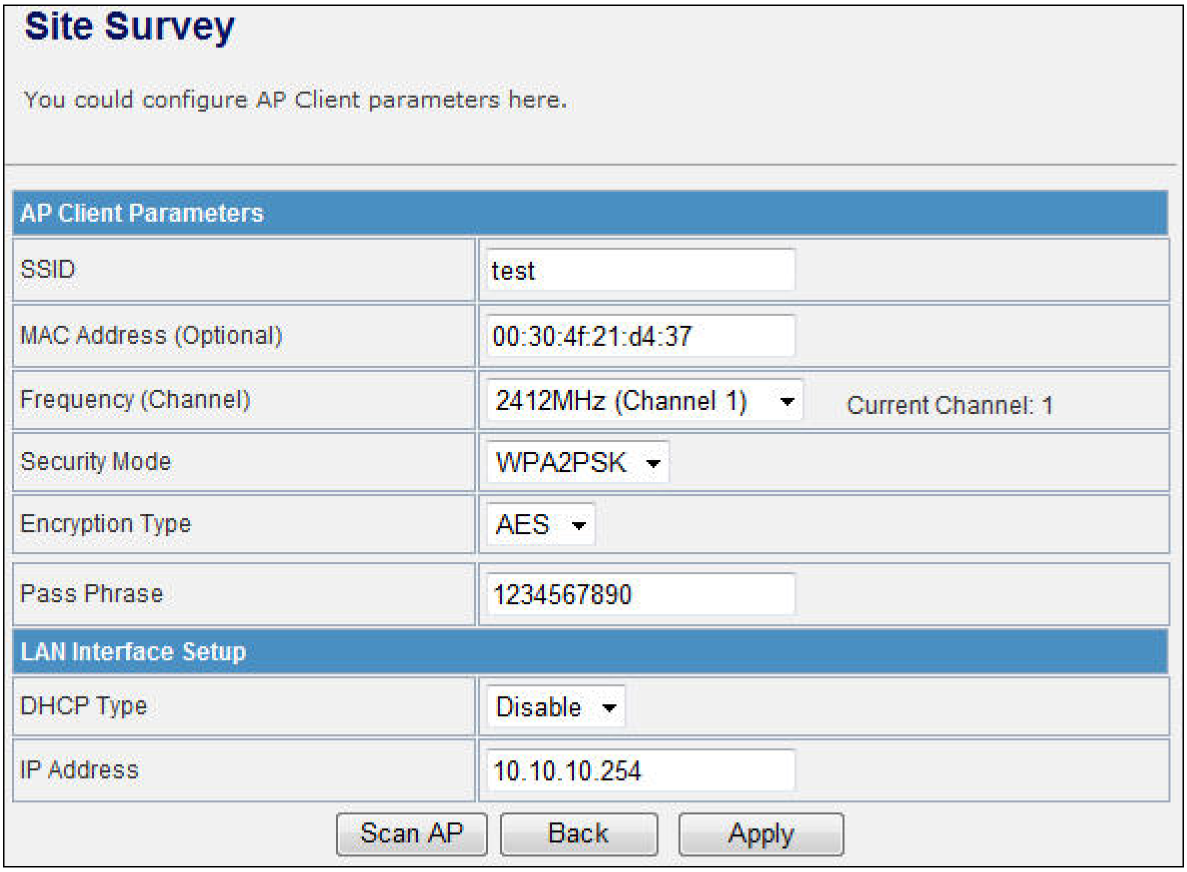
You could configure AP Client parameters here.

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

3) Wireless encryption setting:

If the AP has encryption setting, it will pop out a window for you filling the encryption setting.

Please fill up the encryption code and click "***Apply***" button to connect with the AP.



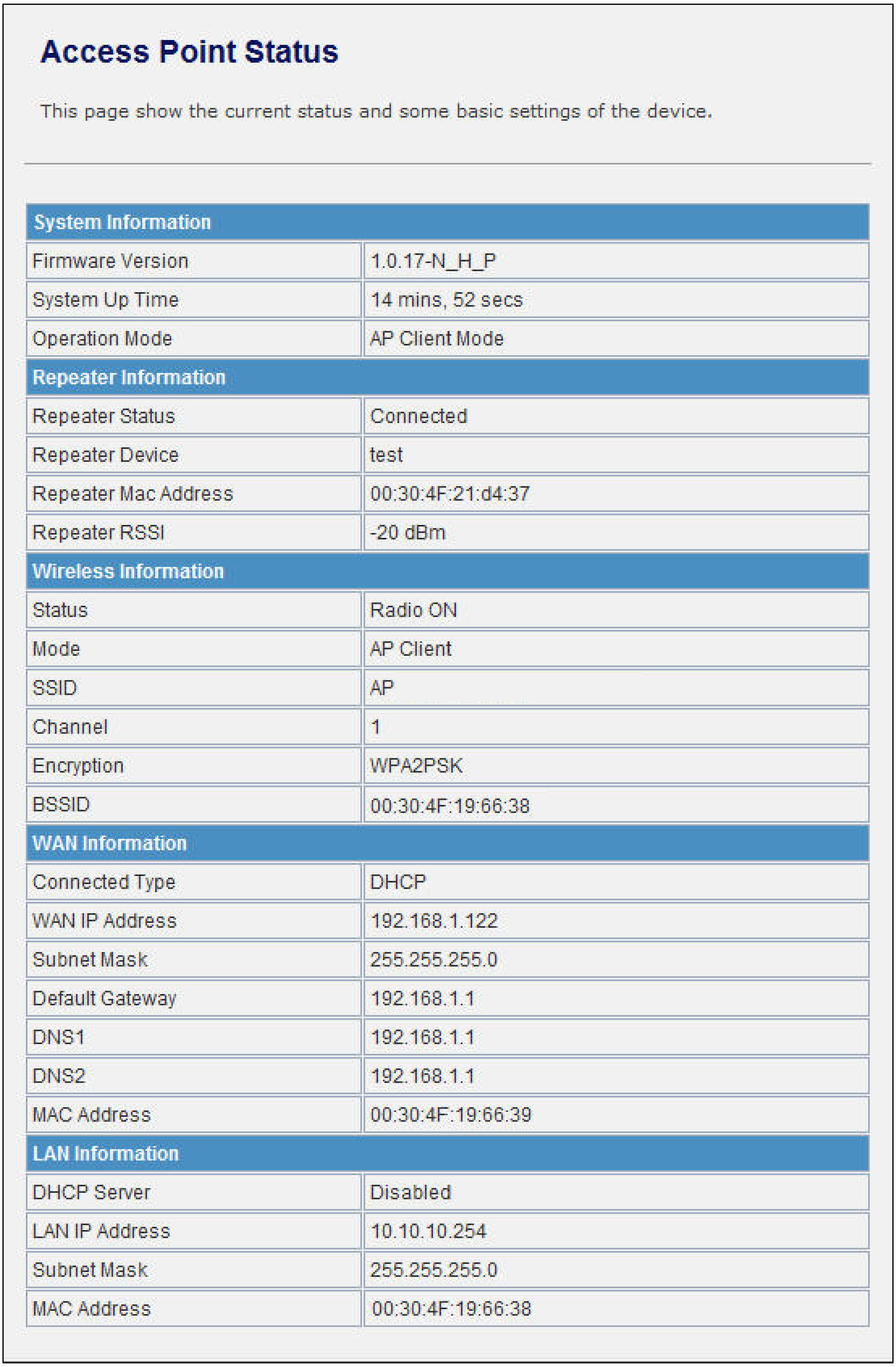
Site Survey

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

5) Status:

After connected with AP, you can open "**Status**" page under Administration to check Link Status and Internet Configurations.



Access Point Status

This page show the current status and some basic settings of the device.

System Information	
Firmware Version	1.0.17-N_H_P
System Up Time	14 mins, 52 secs
Operation Mode	AP Client Mode
Repeater Information	
Repeater Status	Connected
Repeater Device	test
Repeater Mac Address	00:30:4F:21:d4:37
Repeater RSSI	-20 dBm
Wireless Information	
Status	Radio ON
Mode	AP Client
SSID	AP
Channel	1
Encryption	WPA2PSK
BSSID	00:30:4F:19:66:38
WAN Information	
Connected Type	DHCP
WAN IP Address	192.168.1.122
Subnet Mask	255.255.255.0
Default Gateway	192.168.1.1
DNS1	192.168.1.1
DNS2	192.168.1.1
MAC Address	00:30:4F:19:66:39
LAN Information	
DHCP Server	Disabled
LAN IP Address	10.10.10.254
Subnet Mask	255.255.255.0
MAC Address	00:30:4F:19:66:38

Appendix C: Specifications

Product	**WNAP-6305** 150Mbps 802.11n Wireless Outdoor Access Point
Hardware Specification	
Standard support	IEEE802.11b/g IEEE 802.11n IEEE 802.3 10Base-T IEEE 802.3u 100Base-TX IEEE 802.3x Flow Control
Chipset	Ralink RT3050
Memory	16 Mbytes DDR SDRAM 4 Mbytes Flash
Interface	Wireless IEEE802.11b/g/n LAN: 1 x 10/100Base-TX, Auto-MDI/MDIX WAN: 1 x 10/100Base-TX, Auto-MDI/MDIX
Antenna	Internal (Default): 9dBi directional antenna (Vertical-Pol) ■ Horizontal: 60 degree ■ Vertical: 30 degree External (Option): RP-SMA type Connector ■ Switchable by Software ■ For External Antenna Mode, attach antenna before power on
Enclosure	IP65 waterproof case
PoE	Passive PoE / 12V DC Reset Button on PoE Injector LAN RJ-45 Pin Assignment: PIN 4(+), PIN 7,8(-), PIN 5(Reset)
Wireless Interface Specification	
Frequency Band	2.4~2.4835GHz
Modulation	Transmission/Emission Type: DSSS / OFDM Data modulation type: OFDM with BPSK, QPSK, 16-QAM, 64-QAM, DBPSK, DQPSK, CCK
Data Rate	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 150Mbp
Opt. Channel	America/ FCC: 2.414~2.462GHz (11 Channels) Europe/ ETSI: 2.412~2.472GHz (13 Channels) Japan/ TELEC: 2.412~2.484GHz (14 Channels)
RF Output Power	802.11b: 27 ± 1dBm 802.11g: 26 ± 1dBm 802.11n: 22 ± 1dBm
Receiver Sensitivity	IEEE 802.11b: -93dBm IEEE 802.11g: -91dBm IEEE 802.11n: -89dBm
Media Access Control	CSMA/CA
Output Power Control	Range 1~100, default:100
Power Requirements	12V DC, 1A (switching)
Wireless Management Features	
Wireless Mode	■ AP

	■ Client ■ WDS PtP ■ WDS PtMP ■ WDS Repeater (AP+WDS) ■ Universal Repeater (AP+Client)
Channel Width	20MHz / 40MHz
Encryption Security	64/128-bits WEP WPA, WPA-PSK WPA2, WPA2-PSK 802.1X
Wireless Isolation	Enable it to isolate each connected wireless clients, to let them cannot access mutually.
Wireless Security	Provide wireless LAN ACL (Access Control List) filtering
	Wireless MAC address filtering
	Support WPS (WIFI Protected Setup)
	Enable/Disable SSID Broadcast
B/G Protection Mode	A protection mechanism prevents collisions among 802.11b/g modes
Max. Wireless Client	25
Max. WDS AP	4
Software	
LAN	Built-in DHCP server supporting static IP address distributing
	Support UPnP
	Support IGMP Proxy, DNS Proxy
	Support 802.1d STP - Spanning Tree Protocol
WAN Protocol	■ Static IP ■ DHCP (Dynamic IP) ■ PPPoE ■ PPTP ■ L2TP
VPN Passthrough	■ PPTP ■ L2TP ■ IPSec
Operating Mode	■ Bridge ■ Gateway ■ Ethernet Converter (WISP)
Firewall	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
Max. Wired Client	60
NTP	Network Time Management
Management	Web UI, DHCP Client, Configuration Backup & Restore, Dynamic DNS
Diagnostic tool	System Log
Environment & Certification	
Operation Temp.	Temp.: -20~70°c, Humidity: 10%~95% non-condensing
Storage Temp.	Temp.: -30~80°c, Humidity: 5%~95% non-condensing
IP Level	IP-65
Regulatory	CE / FCC / RoHS

Appendix D: Glossary

3DES	Triple Data Encryption Standard
AES	Advanced Encryption Standard
ANSI	American National Standards Institute
AP	Access Point
CCK	Complementary Code Keying
CSMA/CA	Carrier Sense Multiple Access/Collision Avoidance
CSMA/CD	Carrier Sense Multiple Access/Collision Detection
DDNS	Dynamic Domain Name Server
DH	Diffie-Hellman Algorithm
DHCP	Dynamic Host Configuration Protocol
DSSS	Direct Sequence Spread Spectrum
EAP	Extensible Authentication Protocol
ESP	Encapsulating Security Payload
FCC	Federal Communications Commission
FTP	File Transfer Protocol
IEEE	Institute of Electrical and Electronic Engineers
IKE	Internet Key Exchange
IP	Internet Protocol
ISM	Industrial, Scientific and Medical
LAN	Local Area Network
MAC	Media Access Control
MD5	Message Digest 5
NAT	Network Address Translation
NT	Network Termination
NTP	Network Time Protocol
PPTP	Point to Point Tunneling Protocol
PSD	Power Spectral Density
RF	Radio Frequency
SHA1	Secure Hash Algorithm
SNR	Signal to Noise Ratio
SSID	Service Set Identification
TCP	Transmission Control Protocol
TFTP	Trivial File Transfer Protocol
TKIP	Temporal Key Integrity Protocol
UPNP	Universal Plug and Play

VPN	Virtual Private Network
WDS	Wireless Distribution System
WEP	Wired Equivalent Privacy
WLAN	Wireless Local Area Network
WPA	Wi-Fi Protected Access

EC Declaration of Conformity

For the following equipment:

*Type of Product : 802.11n Wireless Outdoor Access Point
*Model Number : WNAP-6305

* Produced by:
Manufacturer's Name : **Planet Technology Corp.**
Manufacturer's Address: 10F., No.96, Minquan Rd., Xindian Dist.,
New Taipei City 231, Taiwan (R.O.C.)

is herewith confirmed to comply with the requirements set out in the Council Directive on the Approximation of the Laws of the Member States relating to 1999/5/EC R&TTE. For the evaluation regarding the R&TTE the following standards were applied:

EN 60950-1	(2006 2nd Edition + A11: 2009 + A1:2010)
EN 300 328 V1.7.1	(2006-10)
EN 301 489-1 V1.8.1	(2008)
EN 301 489-17 V2.1.1	(2009)

Responsible for marking this declaration if the:

☒ **Manufacturer** □ **Authorized representative established within the EU**

Authorized representative established within the EU (if applicable):

Company Name: **Planet Technology Corp.**

Company Address: **10F., No.96, Minquan Rd., Xindian Dist., New Taipei City 231, Taiwan (R.O.C.)**

Person responsible for making this declaration

Name, Surname **Kent Kang**

Position / Title : **Product Manager**

Kent Kang

Taiwan — *Place*

17th July, 2011 — *Date*

Legal Signature

EC Declaration of Conformity

English	Hereby, **PLANET Technology Corporation,** declares that this **802.11n Wireless Outdoor AP** is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.	**Lietuviškai**	Šiuo **PLANET Technology Corporation,**, skelbia, kad **802.11n Wireless Outdoor AP** tenkina visus svarbiausius 1999/5/EC direktyvos reikalavimus ir kitas svarbias nuostatas.
Česky	Společnost **PLANET Technology Corporation,** tímto prohlašuje, že tato **802.11n Wireless Outdoor AP** splňuje základní požadavky a další příslušná ustanovení směrnice 1999/5/EC.	**Magyar**	A gyártó **PLANET Technology Corporation**, kijelenti, hogy ez a **802.11n Wireless Outdoor AP** megfelel az 1999/5/EK irányelv alapkövetelményeinek és a kapcsolódó rendelkezéseknek.
Dansk	**PLANET Technology Corporation,** erklærer herved, at følgende udstyr **802.11n Wireless Outdoor AP** overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF	**Malti**	Hawnhekk, **PLANET Technology Corporation,** jiddikjara li dan **802.11n Wireless Outdoor AP** jikkonforma mal-ħtiġijiet essenzjali u ma provvedimenti oħrajn relevanti li hemm fid-Dirrettiva 1999/5/EC
Deutsch	Hiermit erklärt **PLANET Technology Corporation,** dass sich dieses Gerät **802.11n Wireless Outdoor AP** in Übereinstimmung mit den grundlegenden Anforderungen und den anderen relevanten Vorschriften der Richtlinie 1999/5/EG befindet". (BMWi)	**Nederlands**	Hierbij verklaart , **PLANET Technology orporation,** dat **802.11n Wireless Outdoor AP** in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG
Eesti keeles	Käesolevaga kinnitab **PLANET Technology Corporation,** et see **802.11n Wireless Outdoor AP** vastab Euroopa Nõukogu direktiivi 1999/5/EC põhinõuetele ja muudele olulistele tingimustele.	**Polski**	Niniejszym firma **PLANET Technology Corporation,** oświadcza, że **802.11n Wireless Outdoor AP** spełnia wszystkie istotne wymogi i klauzule zawarte w dokumencie „Directive 1999/5/EC".
Ελληνικά	*ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ* , **PLANET Technology Corporation,** *ΔΗΛΩΝΕΙ ΟΤΙ ΑΥΤΟ* **802.11n Wireless Outdoor AP** *ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ΕΚ*	**Português**	**PLANET Technology Corporation,** declara que este **802.11n Wireless Outdoor AP** está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.
Español	Por medio de la presente, **PLANET Technology Corporation,** declara que **802.11n Wireless Outdoor AP** cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE	**Slovensky**	Výrobca **PLANET Technology Corporation,** týmto deklaruje, že táto **802.11n Wireless Outdoor AP** je v súlade so základnými požiadavkami a ďalšími relevantnými predpismi smernice 1999/5/EC.
Français	Par la présente, **PLANET Technology Corporation,** déclare que les appareils du **802.11n Wireless Outdoor AP** sont conformes aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE	**Slovensko**	**PLANET Technology Corporation**, s tem potrjuje, da je ta **802.11n Wireless Outdoor AP** skladen/a z osnovnimi zahtevami in ustreznimi določili Direktive 1999/5/EC.
Italiano	Con la presente , **PLANET Technology Corporation,** dichiara che questo **802.11n Wireless Outdoor AP** è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva. 1999/5/CE.	**Suomi**	**PLANET Technology Corporation,** vakuuttaa täten että **802.11n Wireless Outdoor AP** tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
Latviski	Ar šo **PLANET Technology Corporation,** apliecina, ka šī **802.11n Wireless Outdoor AP** atbilst Direktīvas 1999/5/EK pamatprasībām un citiem atbilstošiem noteikumiem.	**Svenska**	Härmed intygar, **PLANET Technology Corporation,** att denna **802.11n Wireless Outdoor AP** står i överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.