

# IEEE802.11n Wireless LAN Router

WLN-2223

User's Guide

### ***Federal Communication Commission Interference Statement***

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

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

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

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

#### **IMPORTANT NOTE:**

##### **FCC Radiation Exposure Statement:**

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

The availability of some specific channels and/or operational frequency bands are country dependent and are firmware programmed at the factory to match the intended destination. The firmware setting is not accessible by the end user.

#### **For Taiwan 警語：**

經型式認證合格之低功率射頻電機，非經許可，公司、商號或使用者均不得擅自變更頻率、加大功率或變更原設計之特性及功能。

低功率射頻電機之使用不得影響飛航安全及干擾合法通信；經發現有干擾現象時，應立即停用，並改善至無干擾時方得繼續使用。前項合法通信，指依電信法規定作業之無線電通信。低功率射頻電機須忍受合法通信或工業、科學及醫療用電波輻射性電機設備之干擾。

## ***Europe – EU Declaration of Conformity***

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This device complies with the essential requirements of the R&TTE Directive 1999/5/EC. The following test methods have been applied in order to prove presumption of conformity with the essential requirements of the R&TTE Directive 1999/5/EC:

### **EN60950-1: 2010**

Safety of Information Technology Equipment

### **EN 50385: 2002**

Product standard to demonstrate the compliance of radio base stations and fixed terminal stations for wireless telecommunication systems with the basic restrictions or the reference levels related to human exposure to radio frequency electromagnetic fields (110MHz - 40 GHz) - General public

### **EN 300 328 V1.7.1 (2006-10)**

Electromagnetic compatibility and Radio spectrum Matters (ERM); Wideband transmission systems; Data transmission equipment operating in the 2,4 GHz ISM band and using wide band modulation techniques; Harmonized EN covering essential requirements under article 3.2 of the R&TTE Directive

### **EN 301 489-1 V1.8.1 (2008-04)**

Electromagnetic compatibility and Radio Spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements

### **EN 301 489-17 V2.1.1 (2009-05)**

Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for 2,4 GHz wideband transmission systems and 5 GHz high performance RLAN equipment

This device is a 2.4 GHz wideband transmission system (transceiver), intended for use in all EU member states and EFTA countries, except in France and Italy where restrictive use applies.

In Italy the end-user should apply for a license at the national spectrum authorities in order to obtain authorization to use the device for setting up outdoor radio links and/or for supplying public access to telecommunications and/or network services.

This device may not be used for setting up outdoor radio links in France and in some areas the RF output power may be limited to 10 mW EIRP in the frequency range of 2454 – 2483.5 MHz. For detailed information the end-user should contact the national spectrum authority in France.



<b>cs</b> Český [Czech]	<i>[Jméno výrobce]</i> tímto prohlašuje, že tento <i>[typ zařízení]</i> je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 1999/5/ES.
<b>da</b> Dansk [Danish]	Undertegnede <i>[fabrikantens navn]</i> erklærer herved, at følgende udstyr <i>[udstyrets typebetegnelse]</i> overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.
<b>de</b> Deutsch [German]	Hiermit erkläre <i>[Name des Herstellers]</i> , dass sich das Gerät <i>[Gerätetyp]</i> in Übereinstimmung mit den grundlegenden Anforderungen und den übrigen einschlägigen Bestimmungen der Richtlinie 1999/5/EG befindet.
<b>et</b> Eesti [Estonian]	Käesolevaga kinnitab <i>[tootja nimi = name of manufacturer]</i> seadme <i>[seadme tüüp = type of equipment]</i> vastavust direktiivi 1999/5/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.
<b>en</b> English	Hereby, <i>[name of manufacturer]</i> , declares that this <i>[type of equipment]</i> is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
<b>es</b> Español [Spanish]	Por medio de la presente <i>[nombre del fabricante]</i> declara que el <i>[clase de equipo]</i> cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE.
<b>el</b> Ελληνική [Greek]	ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ <i>[name of manufacturer]</i> ΔΗΛΩΝΕΙ ΟΤΙ <i>[type of equipment]</i> ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ΕΚ.
<b>fr</b> Français [French]	Par la présente <i>[nom du fabricant]</i> déclare que l'appareil <i>[type d'appareil]</i> est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE.
<b>it</b> Italiano [Italian]	Con la presente <i>[nome del costruttore]</i> dichiara che questo <i>[tipo di apparecchio]</i> è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.
Latviski [Latvian]	Ar šo <i>[name of manufacturer / izgatavotāja nosaukums]</i> deklarē, ka <i>[type of equipment / iekārtas tips]</i> atbilst Direktīvas 1999/5/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.
Lietuvių [Lithuanian]	Šiuo <i>[manufacturer name]</i> deklaruoją, kad šis <i>[equipment type]</i> atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.
<b>nl</b> Nederlands [Dutch]	Hierbij verklaart <i>[naam van de fabrikant]</i> dat het toestel <i>[type van toestel]</i> in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG.
<b>mt</b> Malti [Maltese]	Hawnhekk, <i>[isem tal-manifattur]</i> , jiddikjara li dan <i>[il-mudell tal-prodott]</i> jikkonforma mal-htigijiet essenzjali u ma provvedimenti oħrajn relevanti li hemm fid-Direttiva 1999/5/EC.
<b>hu</b> Magyar [Hungarian]	Alulírott, <i>[gyártó neve]</i> nyilatkozom, hogy a <i>[... típus]</i> megfelel a vonatkozó alapvető követelményeknek és az 1999/5/EC irányelv egyéb előírásainak.
<b>pl</b> Polski [Polish]	Niniejszym <i>[nazwa producenta]</i> oświadczam, że <i>[nazwa wyrobu]</i> jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 1999/5/EC.
<b>pt</b> Português [Portuguese]	<i>[Nome do fabricante]</i> declara que este <i>[tipo de equipamento]</i> está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.
<b>sl</b> Slovensko [Slovenian]	<i>[Ime proizvajalca]</i> izjavlja, da je ta <i>[tip opreme]</i> v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 1999/5/ES.
Slovensky [Slovak]	<i>[Meno výrobcu]</i> týmto vyhlasuje, že <i>[typ zariadenia]</i> spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 1999/5/ES.
<b>fi</b> Suomi [Finnish]	<i>[Valmistaja = manufacturer]</i> vakuuttaa täten että <i>[type of equipment = laitteen tyyppimerkintä]</i> tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
<b>sv</b> Svenska [Swedish]	Härmed intygar <i>[företag]</i> att denna <i>[utrustningstyp]</i> står i överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.

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## ***ABOUT THIS GUIDE***

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Congratulations on your purchase of this IEEE 802.11b/g/n Wireless Broadband Router. This integrated access device combines Internet gateway functions with wireless LAN and Fast Ethernet switch. It provides a complete solution for Internet surfing and office resource sharing, and it is easy to configure and operate for every user.

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### **Purpose**

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This manual discusses how to install the IEEE 802.11b/g/n Wireless Broadband Router.

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### **Terms/Usage**

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In this guide, the term “the WLAN Router” refers to your IEEE 802.11b/g/n Wireless Broadband Router.

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### **Overview of this User’s Guide**

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**Introduction.** Describes the IEEE 802.11b/g/n Wireless Broadband Router and its features.

**Unpacking and Setup.** Helps you get started with the basic installation of the IEEE 802.11b/g/n Wireless Broadband Router.

**Identifying External Components.** Describes the front panel, rear panel and LED indicators of the IEEE 802.11b/g/n Wireless Broadband Router.

**Connecting the WLAN Router.** Tells how you can connect the IEEE 802.11b/g/n Wireless Broadband Router to your xDSL/Cable Modem.

**Technical Specifications.** Lists the technical (general, physical and environmental, performance and Routers settings) specifications of the IEEE 802.11b/g/n Wireless Broadband Router.

## ***INTRODUCTION***

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With the explosive growth of the Internet, accessing information and services at any time, day or night has become a standard requirement for most people. The era of the standalone PC is waning. Networking technology is moving out of the exclusive domain of corporations and into homes with at least two computers.

This integrated access device combines Internet gateway functions with wireless LAN and Fast Ethernet switch. Designed for the business and home, it saves you the cost of installing a separate modem and ISP line for each computer, while providing ready connection for the users, with or without the network wires.

Broadband network access is also gaining ground. However, allowing more than two computers to access the Internet at the same time means less affordable, higher costs. Thus, there is a need to share one public IP address over a single Internet connection to link the home with the Internet.

The scarcity of IP addresses and using a shared Internet connection through an Internet sharing device can solve high network access costs. All linked computers can make full use of broadband capabilities over such a device.

This device not only comes equipped with a wide range of features, but also can be installed and configured right out of the box. This device supports a simple local area network and Internet access share, offering great cost savings.

The local area network connects home computers while also allowing any of the computers to access the Internet, share resources, or play online games—the basis of the family computing lifestyle.

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### **Applications:**

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#### **Broadband Internet access:**

Several computers can share one high-speed broadband connection through wireless or wired (WLAN, LAN and WAN-Internet).

#### **Resource sharing:**

Share resources such as printers, scanners and other peripherals.

#### **File sharing:**

Exchange data, messages, and distribute files thus making good use of hard disk space.

#### **Online gaming:**

Through the local area network, online gaming and e-commerce services can be easily setup.

#### **Firewall:**

A built-in firewall function — for security and anti-hacking systems.



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## **Supported Features:**

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- High speed data transfer rate
- NAT for sharing 1 IP address to all LAN/WLAN users.
- PPPoE and PPTP protocol for Dial-Up ADSL.
- 64/128 bit WEP Encryption
- WPA-PSK, WPA2-PSK, WPA, WPA2 security
- DHCP Server / Client.
- UPnP (Universal Plug and Play).
- WPS (Wi-Fi Protected Setup)
- Virtual Server mapping.
- MAC filtering.
- Protocol/IP filtering
- Domain/URL filtering
- DDNS
- Upgradeable firmware for future function.
- Simple installation using Setup Wizard.
- Easy configuration via Web Browser.

## ***UNPACKING AND SETUP***

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This chapter provides unpacking and setup information for the IEEE 802.11b/g/n Wireless Broadband Router.

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### **Unpacking**

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Open the box of the WLAN Router and carefully unpack it. The box should contain the following items:

- ◆ One IEEE 802.11b/g/n Wireless Broadband Router
- ◆ One CD contain User's Guide
- ◆ Two 2dBi gain dipole antenna
- ◆ One external power adapter

If any item is found missing or damaged, please contact your local reseller for replacement.

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### **Setup**

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The setup of the WLAN Router can be performed properly using the following methods:

- ◆ The power outlet should be within 1.82 meters (6 feet) of the Broadband Router.
- ◆ Visually inspect the DC power jack and make sure that it is fully secured to the power adapter.
- ◆ Make sure that there is proper heat dissipation and adequate ventilation around the Broadband Router. Do not place heavy objects on the Broadband Router.
- ◆ Fix the direction of the antennas. Try to place the Wireless Router in a position that can best cover your wireless network. Normally, the higher you place the antenna, the better the performance will be. The antenna's position enhances the receiving sensitivity.

# ***HARDWARE INSTALLATION***

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## **Front Panel**

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The figure below shows the front panel of the IEEE 802.11b/g/n Wireless Broadband Router.



**Front Panel**

### **POWER**

This indicator lights green when the hub is receives power, otherwise it is off.

### **SYSTEM**

This indicator blinking green means the WLAN Router is working successfully. Otherwise, this indicator always on or off means the function of the WLAN Router has failed.

### **WAN (Link/ACT)**

The indicators light green when the WAN port is connected to a xDSL/Cable modem successfully.

The indicators blink green while the WAN port was transmitting or receiving data from the xDSL/Cable modem.

### **WLAN (ACT)**

This indicator lights green when there are wireless devices connected and transmitting data to the WLAN Router.

## **LAN (Link/ACT)**

These indicators light green when the LAN ports were connected successfully.

These indicators blinking green while the LAN ports were accessing data.

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## Rear Panel

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The figure below shows the rear panel of the IEEE 802.11b/g/n Wireless Broadband Router.



Rear Panel

### Antenna

There is two 2dBi gain antennas on the rear panel for wireless connection.

### LAN (1-4)

Four RJ-45 10/100Mbps Auto-MDIX ports for connecting to either 10Mbps or 100Mbps Ethernet connections.

### WAN

In the four port broadband Router, there is an RJ-45 10/100Mbps Auto-MDIX port for the WAN that connects to the xDSL/Cable modem for Internet connectivity.

### POWER

Plug the power adapter to this power jack

### RESET

Use a pin-shaped item to push to reset this device to factory default settings. It will be a useful tool when the manager forgot the password to login, and needs to restore the device back to default settings.

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## Side Panel

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The figure below shows the side panel of the IEEE 802.11b/g/n Wireless Broadband Router.



**Side Panel**

### **WPS**

Push this button to execute the Wi-Fi Protected Setup process.

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## **Hardware connections**

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### **Connecting the WLAN Router**

1. Plug in one end of the network cable to the WAN port of the WLAN Router.
2. Plug in the other end of the network cable to the Ethernet port of the xDSL or Cable modem.
3. Use another network cable to connect to the Ethernet card on the computer system; the other end of the cable connects to the LAN port of the WLAN Router. Since the IEEE 802.11b/g/n Wireless Broadband Router has four ports, you can connect up to four computers directly to the unit. Then you do not have to buy a switch to connect these computers since one WLAN Router functions both as a connection-sharing unit and as a switch.

### **Check the installation**

The control LEDs of the WLAN Router are clearly visible and the status of the network link can be seen instantly:

1. With the power source on, once the device is connected to the broadband modem, the Power, System, LAN, WLAN and WAN port LEDs of the WLAN Router will light up indicating a normal status.
2. When the WAN Port is connected to the ADSL/Cable modem, the WAN LED will light up.
3. When the LAN Port is connected to the computer system, the LAN LED will light up.

## ***PC NETWORK TCP/IP SETTING***

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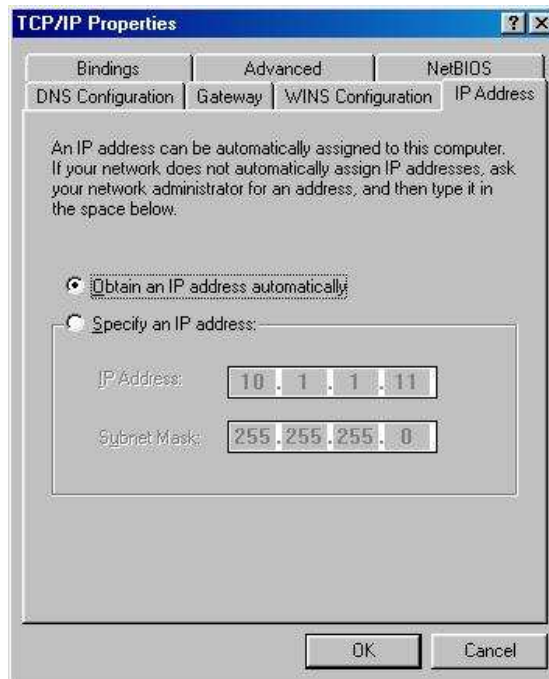
The network TCP/IP settings differ based on the computer's operating system (Win95/98/ME/NT/2000/XP) and are as follows.

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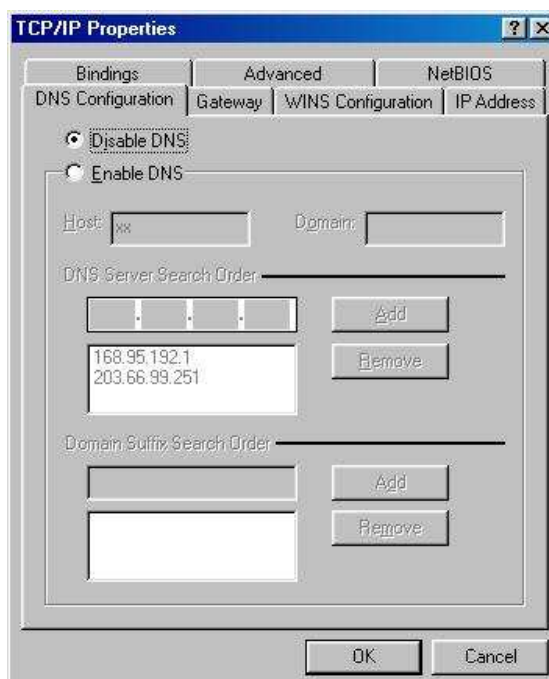
### **Windows 95/98/ME**

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1. Click on the “**Network neighborhood**” icon found on the desktop.
2. Click the right mouse button and a context menu will be show.
3. Select “**Properties**” to enter the TCP/IP setting screen.
4. Select “**Obtain an IP address automatically**” on the “**IP address**” field.

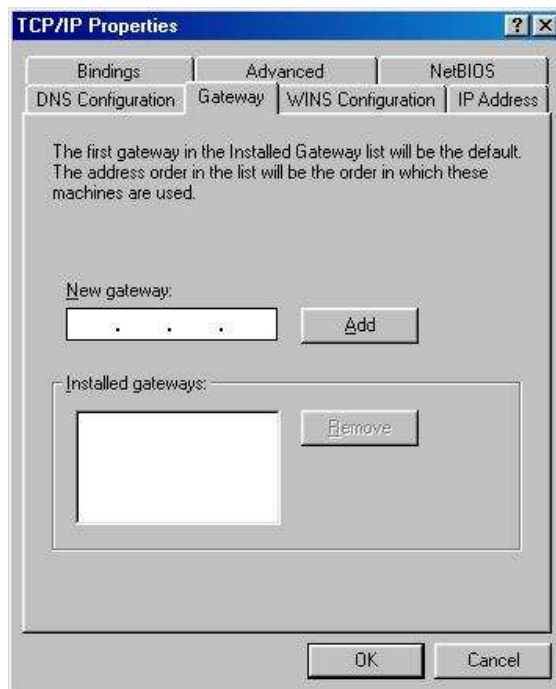


5. Select “**Disable DNS**” in the “**DNS**” field.





6. Select “None” for the “Gateway address” field.



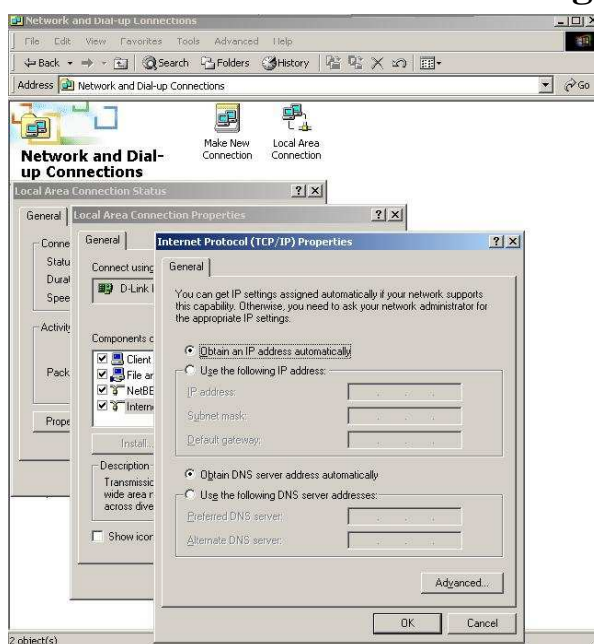
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## Windows 2000

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Double click on the “**My Computer**” icon on the desktop. When “**My Computer**” window opens, open the “**Control Panel**” and then open the “**Network dialup connection**” applet. Double click on the “**Local area network connection**” icon. Select “**Properties**” to enter the TCP/IP setting window.

1. In the “**Local area network status**” window, click on “**Properties.**”
2. In the “**Local area network connection**” window, first select TCP/IP setting and then select “**Properties.**”
3. Set both “**IP address**” and “**DNS**” to **Automatic configuration.**



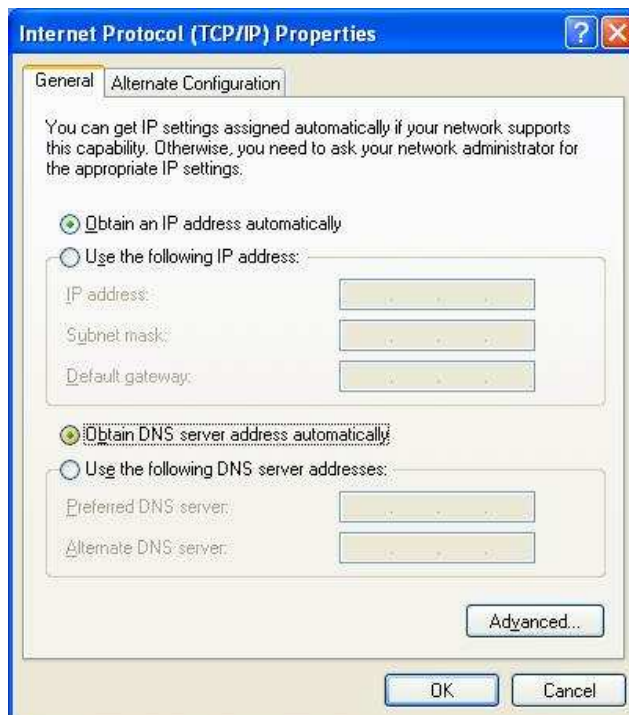
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## Windows XP / Vista

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Point the cursor and click the right button on the “My Network Place” icon. Select “properties” to enter the TCP/IP setting window.

1. Set “**IP address**” to “**Obtain an IP address automatically.**”
2. Set “**DNS**” to “**Obtain DNS server address automatically.**”



## ***CONFIGURATION***

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First make sure that the network connections are functioning normally.

This WLAN Router can be configured using Internet Explorer 5.0 or newer web browser versions.

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### **Login to the WLAN Router through Wireless LAN**

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Before configuring the WLAN Router through WLAN, make sure that the SSID, Channel and the WEP is set properly.

The default setting of the WLAN Router that you will use:

- ✓ SSID: N Router
  - ✓ Channel: 6
  - ✓ Security: disable
- 

### **Login to the WLAN Router**

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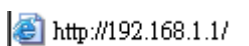
Before you configure this device, note that when the WLAN Router, make sure the host PC must be set on the **IP subnet** that can be accessed by the xDSL/Cable modem. For example, when the default network address of the xDSL/Cable modem Ethernet interface is 192.168.1.x, then the host PC should be set at 192.168.1.xxx (where xxx is a number between 2 and 254), and the default subnet mask is 255.255.255.0.

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### **Using the Web Browser**

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1. Open Internet Explorer 5.0 or above Internet browser.
2. Enter IP address <http://192.168.1.1> (the factory-default IP address setting) to the URL web address location.



3. When the following dialog box appears, enter the user name and password to login to the main configuration window, the default username and password is “*admin*”.

IEEE802.11n Wireless LAN Router

**Login**  
Log in to the router

User Name :

Password :

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## Setup Wizard

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Setup wizard is provided as part of the web configuration utility. User can simply follow the step-by-step process to get the wireless Router configuration ready to run in 6 easy steps by clicking on the “Wizard” button on the function menu. The following screen will appear. Please click “Next” to continue.



### Step 1: Set your new password

Setting the new admin password of the WLAN Router. Please click “Next” to continue.



## Step 2: Choose time zone

Select the time zone from the drop down list. Please click “Next” to continue.



## Step 3: Set LAN connection and DHCP server

Set user's IP address and mask. The default IP is 192.168.1.1. If the user chooses to enable DHCP, please click “Enable”. DHCP enabled is able to automatically assign IP addresses. Please assign the range of IP addresses in the fields of “Range start” and “Range end”. Please click “Next” to continue.



## Step 4: Set Internet connection

The WLAN Router will attempt to auto detect your Internet Connection.

## Obtain IP automatically (DHCP client):



If the user has enabled DHCP server, choose "Obtain IP automatically (DHCP client)" to have the WLAN Router assign IP addresses automatically.



## Fixed IP Address:



If the Internet Service Provider (ISP) assigns a fixed IP address, choose this option and enter the assigned WAN IP Address, WAN Subnet Mask, WAN Gateway Address and DNS Server Addresses for the WLAN Router.



## PPPOE



## PPPoE to obtain IP automatically:



If connected to the Internet using a PPPoE (Dial-up xDSL) connection, and the ISP provides a User Name and Password, then choose this option and enter the required information.



## PPPoE with a Specify IP address:

Welcome to Setup Wizard

► Set PPPoE Client

The service name is optional but may be required by your ISP. Click **Next** to continue.

Obtain IP Automatically  Specify IP

User Name :

Password :

Verify Password :

IP Address :

Service Name :  (optional)

BACK NEXT EXIT

If connected to the Internet using a PPPoE (Dial-up xDSL) connection, and the ISP provides a User Name, Password and a Fixed IP Address, choose this option and enter the required information.

## PPTP:



If connected to the Internet using a PPTP xDSL connection, enter your IP, Subnet Mask, Gateway, Server IP, PPTP Account and PPTP Password.



## L2TP:



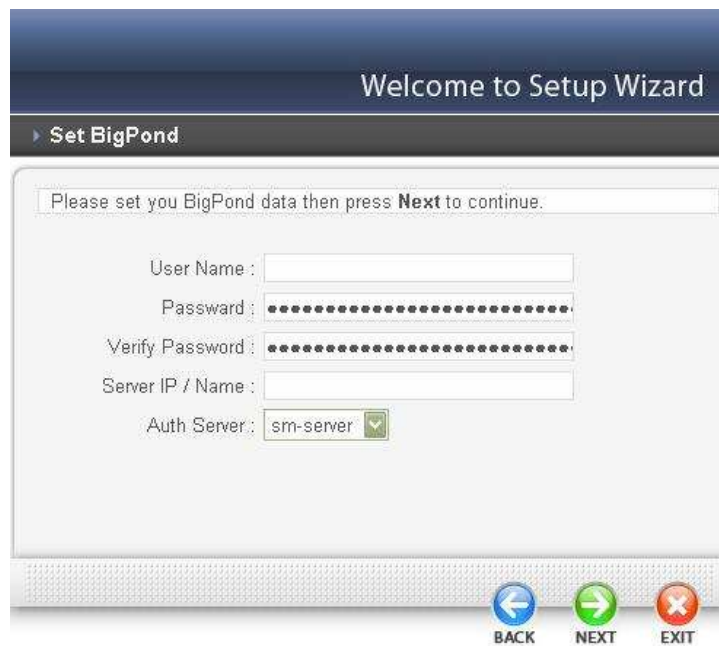
If connected to the Internet using a L2TP (Dial-up xDSL) connection and the ISP provides a Server IP, Account and Password information, choose this option and enter the required information.



## Big Pond Cable(Australia):



If your ISP is Big Pond Cable, the ISP will provide a User Name, Password, Authentication Server and Login Server IP (Optional). Choose this option and enter the required information.



## Step 5: Set Wireless LAN connection

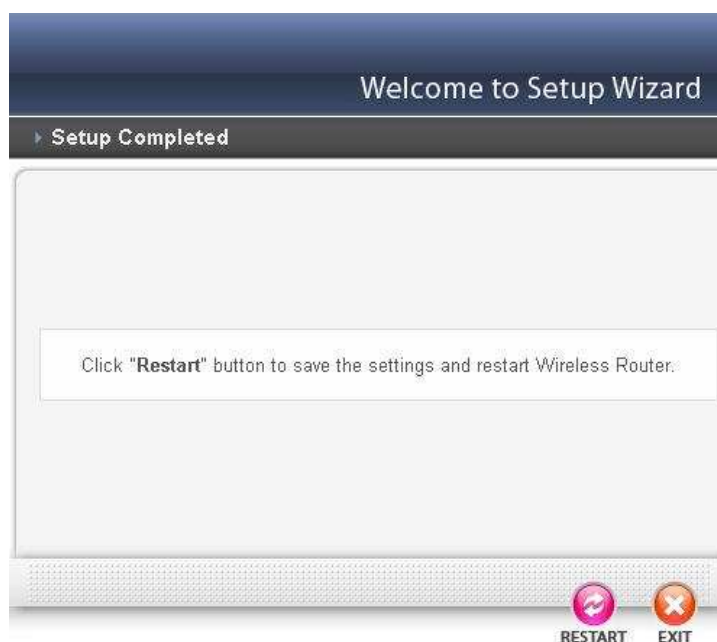
Click “Enable” to enable Wireless LAN. If user enables the Wireless LAN, type the SSID in the text box and select a communications channel. The SSID and channel must be the same as wireless devices attempting to connect to the WLAN Router.

(When in FCC domain, you could chose ch1~ch11; in ETSI domain, you could chose ch1~ch13)



## Step 6: Setup completed

The Setup wizard is now completed. The new settings will be effective after the WLAN Router restarts. Please click “Restart” to reboot the WLAN Router. If user does not want to make any changes, please click “Exit” to quit without any changes. User also can save the settings and restart Wireless Router by Click "Restart" button.



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## WAN Setting

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This function enables users to set up the WLAN Router WAN connection, specify the IP address for the WAN, add DNS numbers, and enter the MAC address.

**Connection Type:** Select the connection type, either DHCP client, Fixed IP or PPPoE, PPTP, L2TP or BigPond from the drop-down list.

### DHCP Client or Fixed IP

If user has enabled DHCP server, choose "Obtain IP automatically (DHCP client)" to have the router assign IP addresses automatically.

The screenshot shows the configuration interface for the WAN connection type on an IEEE802.11n Wireless LAN Router. The left sidebar contains navigation tabs: WAN, Connection Type (selected), Dynamic DNS, Wireless, LAN, Access Control, System, and Wizard. The main content area is titled "Connection Type" and features a dropdown menu set to "DHCP Client or Fixed IP". Below this, there are radio buttons for "Obtain IP Automatically" (selected) and "Specify IP". Under "Specify IP", there are text input fields for IP Address, Subnet Mask, and Gateway, all containing "0.0.0.0". There are also text input fields for DNS 1 and DNS 2, both containing "0.0.0.0". At the bottom, there is a "Clone MAC Address" section with a form containing the values "00", "98", "76", "ab", "cd", and "ef", followed by a "Clone MAC Address" button. At the very bottom of the configuration area are "Cancel" and "Apply" buttons.

**WAN IP Address:** Select whether user wants to specify an IP address manually, or want DHCP to obtain an IP address automatically. When Specify IP is selected, type the IP address, subnet mask, and default gateway in the text boxes. User's ISP will provide with this information.

**IP Address:** For the Specify mode, enter the specific IP address that provided by your ISP.

**Subnet Mask:** For the Specify mode, enter the specific subnet mask that provided by your ISP.

**Gateway:** For the Specify mode, enter the specific gateway IP address that provided by your ISP.

**DNS 1/2:** Manually specific DNS server IP address. For the Obtain IP Automatically mode, leave 0.0.0.0 hear, the DHCP server will provides DNS server automatically.

**Clone MAC Address:** If your ISP requires you to enter a specific MAC address, please enter it in. The Clone MAC Address button is used to copy the MAC address of your Ethernet adapter to the Router.

### PPPoE with Obtain IP Automatically

If connected to the Internet using a PPPoE (Dial-up xDSL) Modem, the ISP will provide a Password and User Name, and then the ISP uses PPPoE. Choose this option and enter the required information.

The screenshot displays the configuration interface for an IEEE802.11n Wireless LAN Router. On the left is a navigation menu with options: WAN, Connection Type, Dynamic DNS, Wireless, LAN, Access Control, System, and Wizard. The main content area is titled 'Connection Type' and shows the following settings:

- Connection Type: PPPoE (selected in a dropdown menu)
- WAN IP Address: Obtain IP Automatically (selected radio button), Specify IP 0.0.0.0 (unselected)
- Service Name: [Empty text box]
- User Name: [Empty text box]
- Password: [Masked text box]
- Verify Password: [Masked text box]
- MAC Address: [Empty text box] - [Empty text box] - [Empty text box] - [Empty text box] - [Empty text box] - [Empty text box] (optional). A 'Clone MAC Address' button is located below the input fields.
- DNS: Primary 0.0.0.0 [Empty text box], Secondary 0.0.0.0 [Empty text box] (optional)
- Auto-reconnect: Always On (unselected), Manual (unselected), Connect-on Demand (selected)
- Idle Time Out: 5 Minutes
- MTU: 1492

## PPPoE with Specify IP

If connected to the Internet using a PPPoE (Dial-up xDSL) Modem, the ISP will provide a Password, User Name and a Specify IP Address, choose this option and enter the required information.

The screenshot displays the configuration interface for an IEEE802.11n Wireless LAN Router. The page title is "IEEE802.11n Wireless LAN Router". On the left, a navigation menu includes "WAN", "Wireless", "LAN", "Access Control", "System", and "Wizard". The "WAN" section is expanded, showing "Connection Type" as the selected option. The main content area is titled "Connection Type" and contains the following fields and options:

- Connection Type:** A dropdown menu set to "PPPoE".
- WAN IP Address:** Two radio buttons: "Obtain IP Automatically" (unselected) and "Specify IP 0.0.0.0" (selected). A text input field contains "0.0.0.0".
- Service Name:** An empty text input field.
- User Name:** An empty text input field.
- Password:** A text input field filled with dots.
- Verify Password:** A text input field filled with dots.
- MAC Address:** A series of six empty input boxes separated by dashes, followed by "(optional)". A yellow button labeled "Clone MAC Address" is positioned below the boxes.
- DNS:** "Primary" 0.0.0.0 and "Secondary" 0.0.0.0 (optional) text input fields.
- Auto-reconnect:** Three radio buttons: "Always On" (unselected), "Manual" (unselected), and "Connect-on Demand" (selected).
- Idle Time Out:** A text input field with "5" and the label "Minutes".
- MTU:** A text input field with "1492".



## PPTP/L2TP with Obtain IP Automatically

If connected to the Internet using a PPTP/L2TP (Dial-up xDSL) connection, enter the your Server IP, PPTP/L2TP Account and PPTP/L2TP Password, if your ISP has provided you with a DNS IP address, enter it in the DNS field, otherwise, leave it zero.

The image displays two screenshots of the IEEE802.11n Wireless LAN Router configuration interface. Both screenshots show the 'WAN' tab selected in the left sidebar, with 'Connection Type' chosen. The left screenshot shows 'PPTP' selected as the connection type, and the right screenshot shows 'L2TP' selected. In both, the 'WAN IP Address' section has 'Obtain IP Automatically' selected. The 'Server IP/Name' field is present in both, but the 'L2TP Account' field is only present in the right screenshot. The 'Auto-reconnect' section is set to 'Connect-on Demand' in both. The 'Idle Time Out' is set to 5 minutes and the 'MTU' is set to 1400. 'Cancel' and 'Apply' buttons are at the bottom of each screen.

## PPTP/L2TP with Specify IP

If connected to the Internet using a PPTP/L2TP (Dial-up xDSL) connection, enter the your IP Address, Subnet Mask, Gateway IP address, DNS IP address, Server IP address, PPTP Account and PPTP Password.

The image displays two screenshots of the IEEE802.11n Wireless LAN Router configuration interface. Both screenshots show the 'WAN' tab selected in the left sidebar, with 'Connection Type' chosen. The left screenshot shows 'PPTP' selected as the connection type, and the right screenshot shows 'L2TP' selected. In both, the 'WAN IP Address' section has 'Specify IP' selected. The 'Server IP/Name' field is present in both, but the 'L2TP Account' field is only present in the right screenshot. The 'Auto-reconnect' section is set to 'Connect-on Demand' in both. The 'Idle Time Out' is set to 5 minutes and the 'MTU' is set to 1400. 'Cancel' and 'Apply' buttons are at the bottom of each screen.

## **BigPond Cable**

If your ISP is Big Pond Cable, the ISP will provide a User Name, Password, Authentication Server and Login Server IP (Optional). Choose this option and enter the required information.



The screenshot shows the configuration page for the IEEE802.11n Wireless LAN Router. The left sidebar contains navigation tabs: WAN, Connection Type, Dynamic DNS, Wireless, LAN, Access Control, System, and Wizard. The main content area is titled "Connection Type" and features a dropdown menu set to "BigPond Cable". Below this are input fields for "User Name", "Password", and "Verify Password", all masked with dots. There is also an optional "Server IP/Name" field and an "Auth Server" dropdown menu set to "sm-server". At the bottom, there is a "Clone MAC Address" section with a grid of input boxes containing the values "00", "98", "76", "ab", "cd", and "ef", followed by a "Clone MAC Address" button. At the bottom right, there are "Cancel" and "Apply" buttons.

## **Dynamic DNS:**

This synchronizes the DDNS server with your current Public IP address when you are online. First, you need to register your preferred DNS with the DDNS provider. Then, please selected one of DDNS server than fill the related information in the below fields: Host Name, User Name and Password.



The screenshot shows the configuration page for the IEEE802.11n Wireless LAN Router. The left sidebar contains navigation tabs: WAN, Connection Type, Dynamic DNS, Wireless, LAN, Access Control, System, and Wizard. The main content area is titled "Dynamic DNS" and features radio buttons for "DDNS" set to "Disabled". Below this is a "DDNS Server Selection List" dropdown menu set to "DynDns.org". There are input fields for "Host Name", "User Name", and "Password", with the password field masked with dots. At the bottom right, there are "Cancel" and "Apply" buttons.

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## Wireless setting

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This section enables user to set wireless communications parameters for the router's wireless LAN feature.

### Basic

This page allow user to enable and disable the wireless LAN function, create a SSID, and select the channel for wireless communications.

The screenshot shows the configuration interface for an IEEE802.11n Wireless LAN Router. The page title is "IEEE802.11n Wireless LAN Router". On the left is a navigation menu with options: WAN, Wireless (selected), Basic (selected), Security, Advanced, WiFi Protected Setup, LAN, Access Control, System, and Wizard. The main content area is titled "Basic" and contains the following settings:

- Wireless:  Enabled  Disabled
- SSID:
- SSID Broadcast:  Enabled  Disabled
- Channel:  (Domain :FCC)
- 802.11 Mode:
- Channel Width:

At the bottom right of the configuration area are two buttons: "Cancel" (with a red X icon) and "Apply" (with a green checkmark icon).

**Enable/Disable:** Enables or disables wireless LAN via the WLAN Router.

**SSID:** Type an SSID in the text box. The SSID of any wireless device must match the SSID typed here in order for the wireless device to access the LAN and WAN via the WLAN Router.

**Channel:** Select a transmission channel for wireless communications. The channel of any wireless device must match the channel selected here in order for the wireless device to access the LAN and WAN via the WLAN Router.(When in FCC domain, you could chose ch1~ch11; in ETSI domain, you could chose ch1~ch13)

**802.11 Mode:** Select one of the following:

- **802.11b only** - Select if you are using 802.11b wireless clients only.
- **802.11g only** - Select if you are using 802.11g wireless clients only.
- **802.11n only** - Select if you are using 802.11n wireless clients only.
- **Mixed 802.11b and 802.11g** - Select if you are using both 802.11b and 802.11n wireless clients.
- **Mixed 802.11n, 802.11b, and 802.11g** - Select if you are using a mix of 802.11n, 11g, and 11b wireless clients.

**Channel Width:** Select the Channel Width:

- **Auto 20/40** - This is the default setting. Select if you are using both 802.11n and non-802.11n wireless devices.
- **20MHz** - Select if you are not using any 802.11n wireless clients.

**SSID Broadcast:** While SSID Broadcast is enabled, all wireless clients will be able to view the WLAN Router's SSID. For security purposes, users may want to disable SSID Broadcast to ensure only authorized clients have access.

## Security

This function enables user to set authentication type for secure wireless communications. Open System allows public access to the router via wireless communications. Shared Key requires the user to set a WEP key to exchange data with other wireless clients that have the same WEP key. This router also supports WPA, WPA2 and WPA-PSK, WPA2-PSK.



**Authentication Type:** The authentication type default is set to open system. There are four options: Disabled, WEP, WPA, WPA2 and WPA-Auto.

# WEP



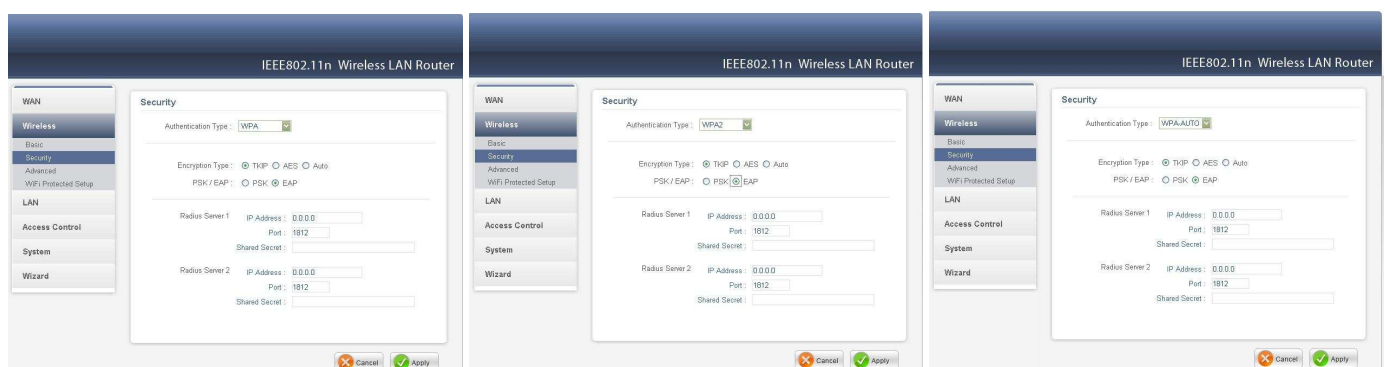
**WEP:** Open System and Shared Key requires the user to set a WEP key to exchange data with other wireless clients that have the same WEP key.

**WEP Key Format:** Select the key format from the drop-down list HEX or ASCII.

**WEP Key Length:** Select the level of encryption from the drop-down list. The WLAN Router supports, 64 and 128-bit encryption.

**WEP Key 1 ~ 4:** Enables users to create up to 4 different WEP keys. Manually enter a set of values for each key. Select a key to use by clicking the radio button next to the key. Click “Clear” to erase key values.

# WPA / WPA2/ WPA-Auto Security



If WPA, WPA2 or WPA-Auto EAP is selected, the above screen is shown. Please set the length of the encryption key and the parameters for the RADIUS server.

**Cipher Type:** Select the cipher type for TKIP or AES encryption, Selected Auto for auto detects the cipher type.

### **RADIUS Server:**

1. Enter the IP address, Port used and Shared Secret by the Primary Radius Server.
2. Enter the IP address, Port used and Shared Secret by the Secondary Radius Server. (optional)

### **WPA-PSK / WPA2-PSK Security**

If WPA, WPA2 or WPA-Auto PSK is selected.



**Cipher Type:** Select the cipher type for TKIP or AES encryption, Selected Auto for auto detects the cipher type.

**Passphrase:** The length should be 8 characters at least.

## Advanced

This function enables user to configure advanced wireless functions.



The screenshot displays the configuration interface for an IEEE802.11n Wireless LAN Router. The main title is "IEEE802.11n Wireless LAN Router". On the left, there is a navigation menu with the following items: WAN, Wireless (selected), Basic, Security, Advanced (highlighted), WiFi Protected Setup, LAN, Access Control, System, and Wizard. The main content area is titled "Advanced" and contains four configuration fields:

- Beacon Interval: 100 (default: 100 msec, range: 25 ~ 1000)
- RTS Threshold: 2346 (default: 2346, range: 256 ~ 2346)
- Fragmentation Threshold: 2346 (default: 2346, range: 1500 ~ 2346)
- DTIM Interval: 1 (default: 1, range: 1 ~ 255)

At the bottom right of the configuration area, there are two buttons: "Cancel" (with a red 'X' icon) and "Apply" (with a green checkmark icon).

**Beacon Interval:** Type the beacon interval in the text box. User can specify a value from 25 to 1000. The default beacon interval is 100.

**RTS Threshold:** Type the RTS (Request-To-Send) threshold in the text box. This value stabilizes data flow. If data flow is irregular, choose values between 256 and 2346 until data flow is normalized.

**Fragmentation Threshold:** Type the fragmentation threshold in the text box. If packet transfer error rates are high, choose values between 1500 and 2346 until packet transfer rates are minimized. (NOTE: set this fragmentation threshold value may diminish system performance.)

**DTIM Interval:** Type a DTIM (Delivery Traffic Indication Message) interval in the text box. User can specify a value between 1 and 255. The default value is 1.

## Wi-Fi Protected Setup

This screen enables users to configure the Wi-Fi Protected Setup function.

The screenshot shows the configuration interface for a Wireless LAN Router. The page title is "IEEE802.11n Wireless LAN Router". On the left is a navigation menu with categories: WAN, Wireless (selected), LAN, Access Control, System, and Wizard. Under "Wireless", the sub-menu items are Basic, Security, Advanced, and WiFi Protected Setup (selected). The main content area is titled "Wi-Fi Protected Setup" and contains the following sections:

- WPS:** WPS is set to  Enabled and  Disabled. There is an "Apply" button. Status is  UnConfigured and  Configured.
- Self-PIN Number:** Displayed as 12593743.
- Client PIN Number:** An empty text input field and a "Start PIN" button.
- Push Button Configuration:** A "Start PBC" button.
- Summary Table:**

Authentication	Encryption	Key
Disabled	None	-

**WPS:** Enable or Disable the WPS (Wi-Fi Protected Setup) function

**Status:** Display the state (Un-configured State/Configured State) information of WPS.

**Self-PIN Number:** Display the default PIN number of WLAN Router.

**Client PIN Number:** Type Client PIN number the client uses to negotiate with WLAN Router via WPS protocol. It is only used when users want their station to join Router's network.

**Push Button Configuration:** Clicking the *Start PBC* button will invoke the Push Button Configuration (PBC) method of WPS. It is only used when WLAN Router acts as a Registrar.



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## LAN Setting

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The function enables user to configure the LAN port IP address & DHCP Server.

### Basic

This page leads to set LAN port properties, such as the host name, IP address, and subnet mask.



The screenshot displays the configuration interface for an IEEE802.11n Wireless LAN Router. The title bar at the top reads "IEEE802.11n Wireless LAN Router". On the left side, there is a vertical navigation menu with the following options: WAN, Wireless, LAN (highlighted), Basic (highlighted), DHCP, Access Control, System, and Wizard. The main content area is titled "Basic" and contains three text input fields: "Host Name" with the value "N Router", "IP Address" with the value "192.168.1.1", and "Subnet Mask" with the value "255.255.255.0". At the bottom right of the form, there are two buttons: "Cancel" (with a red 'X' icon) and "Apply" (with a green checkmark icon).

**Host Name:** Type the host name in the text box. The host name is required by some ISPs. The default host name is " N Router"

**IP Address:** This is the IP address of the router. The default IP address is 192.168.1.1.

**Subnet Mask:** Type the subnet mask for the router in the text box. The default subnet mask is 255.255.255.0.

## DHCP

IEEE802.11n Wireless LAN Router

WAN

Wireless

LAN

Basic

DHCP

Access Control

System

Wizard

### DHCP

DHCP Server :  Enable  Disable

DHCP Server Start IP :

DHCP Server End IP :

Lease Time :  (minutes)

#### Add Static DHCP

Static DHCP :  Enable  Disable

Name :

MAC address :  -  -  -  -  -

IP address :

#### Static DHCP List

Host Name	IP Address	MAC Address
-----------	------------	-------------

#### Dynamic DHCP List

Host Name	IP Address	MAC Address	Expired Time
-----------	------------	-------------	--------------

**DHCP Server:** Enables the DHCP server to allow the router to automatically assign IP addresses to devices connecting to the LAN. DHCP is enabled by default.

**DHCP Server Start IP:** Type an IP address to serve as the start of the IP range that DHCP will use to assign IP addresses to all LAN devices connected to the router.

**DHCP Server End IP:** Type an IP address to serve as the end of the IP range that DHCP will use to assign IP addresses to all LAN devices connected to the router.

**Lease Time:** The lease time specifies the amount of connection time a network user be allowed with their current dynamic IP address.

**Add Static DHCP:** Selected Enable the Static DHCP allows you to assign a static IP address to the PC that has the IP address and MAC address mapping set in the Static DHCP List.

**Static DHCP List:** The static DHCP mapping will list in the table, providing the Host Name, MAC Address and IP Address.

**Dynamic DHCP List:** All dynamic DHCP client computers are listed in the table and providing the Host name, IP address, and MAC address and Expired Time of the client.

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## Access Control Setting

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This access control enables you to define access restrictions, set up protocol and IP filters, create virtual servers, define access for special applications such as games, and set firewall rules.

### Filter

Using filter to deny or allow the users to access. Five types of filters to select: MAC, IP Filter, URL blocking, Domain blocking and Protocol filter.

### MAC Filters

The screenshot shows the configuration interface for an IEEE802.11n Wireless LAN Router. The left sidebar contains navigation menus for WAN, Wireless, LAN, Access Control, Filter, Virtual Server, Special AP, DMZ, Firewall Settings, System, and Wizard. The main content area is titled 'Filters' and includes the following elements:

- A header: "Filters are used to allow or deny LAN users from accessing the Internet."
- Three radio button options:  MAC Filters,  Domain/URL Blocking, and  Protocol/IP Filters.
- A section titled "MAC Filter" with three radio button options:  Disabled,  Only **allow** computers with MAC address listed below to access the network, and  Only **deny** computers with MAC address listed below to access the network.
- An "Apply" button with a green checkmark.
- A section titled "MAC Table" with a "Name:" text box and a "MAC Address:" text box (formatted as [ ] - [ ] - [ ] - [ ] - [ ] - [ ]).
- Four buttons: "Add", "Update", "Delete", and "Clear".
- A table header with two columns: "Name" and "MAC Address".

**MAC Filter:** Enables you to allow or deny Internet access to users within the LAN based upon the MAC address of their network interface. Click the radio button next to Disabled to disable the MAC filter.

**Disable:** Disable the MAC filter function.

**Allow:** Only allow computers with MAC address listed in the MAC Table.

**Deny:** Computers in the MAC Table are denied Internet access.

**MAC Table:** Use this section to create a user profile which Internet access is denied or allowed. The user profiles are listed in the table at the bottom of the page.

(Note: Click anywhere in the item. Once the line is selected, the fields automatically load the item's parameters, which you can edit.)

**Name:** Type the name of the user to be permitted/denied access.

**MAC Address:** Type the MAC address of the user's network interface.

**Add:** Click to add the user to the list at the bottom of the page.

**Update:** Click to update information for the user, if you have changed any of the fields.

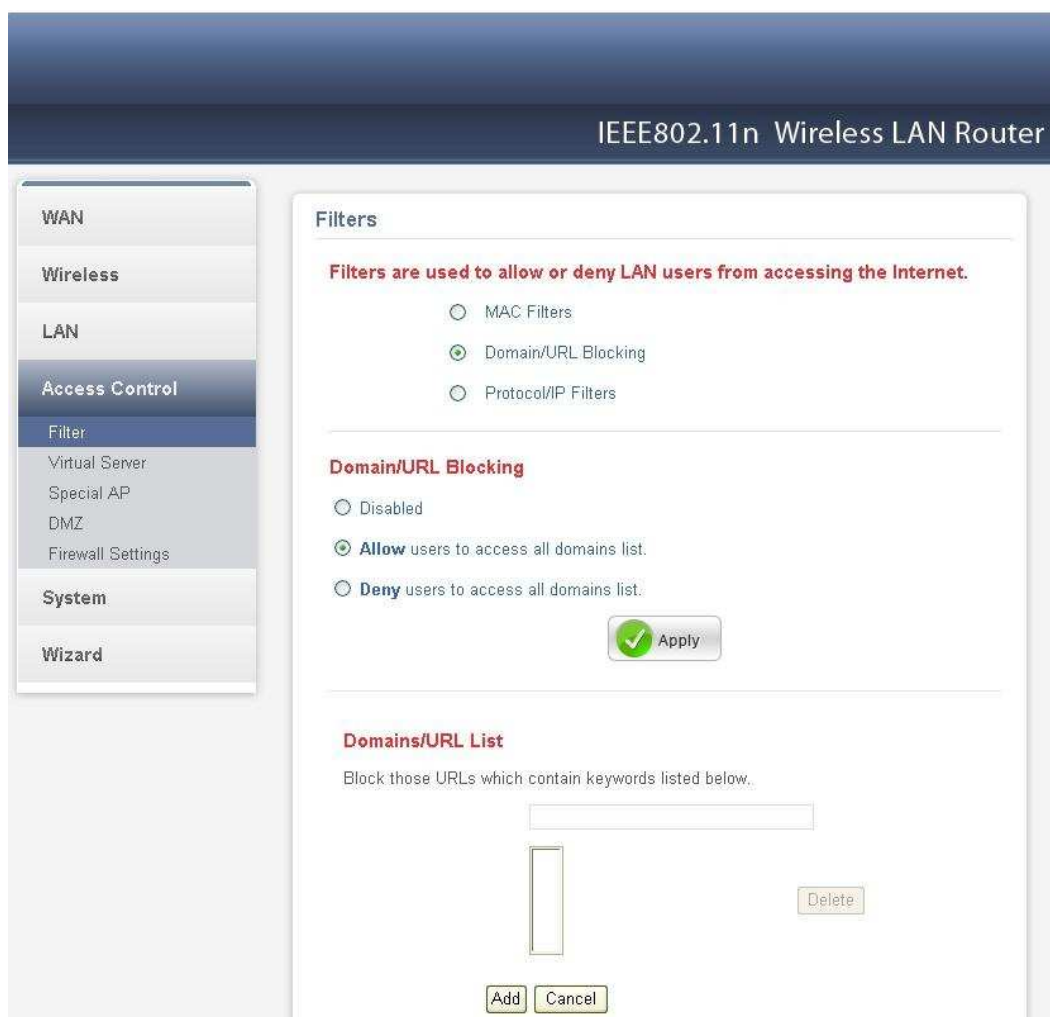
**Delete:** Select a user from the table at the bottom of the list and click to remove the user profile.

**Clear:** Click to erase all fields and enter new information.

The maximum number of MAC address that can be made in the Filters page is 25 entries. User can browse through the MAC address saved by selecting the MAC Filter List.

### **Domain/ URL Blocking**

You could enable Domain/URL blocking to deny the users from accessing the specified Domain/URL. Add those specified Domain/URL in the text box.



**Disable:** Disable the Domain/URL Blocking function.

**Allow:** Allow users to access all domains in the “Domains List”.

**Deny:** Deny users to access all domains in the “Domains List”.

**Blocked/Permitted Domains/URL:** List domains you will Blocked or Permitted.

**Apply:** Click to add domain to the Blocked/Permitted Domains/URL list.

**Delete:** Select a Domain/URL from the table at the bottom of the list and click Delete to remove the Domain/URL.

**Add:** Click to *Add* button to add domain to the Domains list.

**Cancel:** Click the *Cancel* button to erase all fields and enter new information.

## **Protocol/IP Filters**

This protocol filter enables you to allow and deny access based upon a communications protocol list you create. The protocol filter profiles are listed in the table at the bottom of the page.

*Note: When selecting items in the table at the bottom, click anywhere in the item. The line is selected, and the fields automatically load the item's parameters, which you can edit.*

The screenshot shows the configuration interface for an IEEE802.11n Wireless LAN Router. The left sidebar contains navigation menus for WAN, Wireless, LAN, Access Control, System, and Wizard. The 'Access Control' menu is expanded, showing 'Filter' as the selected option. The main content area is titled 'Filters' and includes a description: 'Filters are used to allow or deny LAN users from accessing the Internet.' Below this, three radio buttons are present: 'MAC Filters', 'Domain/URL Blocking', and 'Protocol/IP Filters', with the latter being selected. A section titled 'Edit Protocol/IP Filter in List' contains form fields for 'Enabled' (radio buttons for 'Enable' and 'Disabled'), 'Name' (text input), 'Protocol' (dropdown menu showing 'TCP'), 'Port' (text input with a range separator), and 'IP Range' (text input with a range separator). At the bottom of this section are 'Add', 'Update', 'Delete', and 'Clear' buttons. A table at the bottom lists existing filters:

	Name	Protocol	Port	IP Range
<input type="checkbox"/>	Filter FTP	Any	20-21	0.0.0.0-0.0.0.0
<input type="checkbox"/>	Filter HTTP	Any	80-80	0.0.0.0-0.0.0.0
<input type="checkbox"/>	Filter HTTPS	Any	443-443	0.0.0.0-0.0.0.0
<input type="checkbox"/>	Filter DNS	Any	53-53	0.0.0.0-0.0.0.0

**Enable:** Click to enable or disable the IP address filter.

**Name:** Type the name of the user to be denied access.

**Protocol:** Select a protocol (TCP or UDP) to use for the virtual server.

**Port:** Type the port range of the protocol.

**IP Range:** Type the IP range. IP addresses falling between this value and the Range End are not allowed to access the Internet.

**Add:** Click to add the IP range to the table at the bottom of the screen.

**Update:** Click to update information for the range if you have selected a list item and have made changes.

**Delete:** Select a list item and click Delete to remove the item from the list.

**Clear:** Click the *Clear* button to erase all fields and enter new information.

## Virtual Server

This screen enables users to create a virtual server via the WLAN Router. If the WLAN Router is set as a virtual server, remote users requesting Web or FTP services through the WAN are directed to local servers in the LAN. The WLAN Router redirects the request via the protocol and port numbers to the correct LAN server. The Virtual Server profiles are listed in the table at the bottom of the page.

Note: When selecting items in the table at the bottom, click anywhere in the item. The line is selected, and the fields automatically load the item's parameters, which user can edit.

IEEE802.11n Wireless LAN Router

Virtual Server

Enabled :  Enabled  Disabled

Name :

Protocol : TCP

Private Port :

Public Port :

LAN Server :

Add Update Delete Clear

	Name	Protocol	LAN Server
<input type="checkbox"/>	Virtual Server FTP	TCP 21/21	0.0.0.0
<input type="checkbox"/>	Virtual Server HTTP	TCP 80/80	0.0.0.0

**Enable:** Click to enable or disable the virtual server.

**Name:** Type a descriptive name for the virtual server.

**Protocol:** Select a protocol (TCP or UDP) to use for the virtual server.

**Private Port:** Type the port number of the computer on the LAN that is being used to act as a virtual server.

**Public Port:** Type the port number on the WAN that will be used to provide access to the virtual server.

**LAN Server:** Type the LAN IP address that will be assigned to the virtual server.

**Add:** Click to add the virtual server to the table at the bottom of the screen.

**Update:** Click to update information for the virtual server if the user has selected a listed item and has made changes.

**Delete:** Select a listed item and click “Delete” to remove the item from the list.

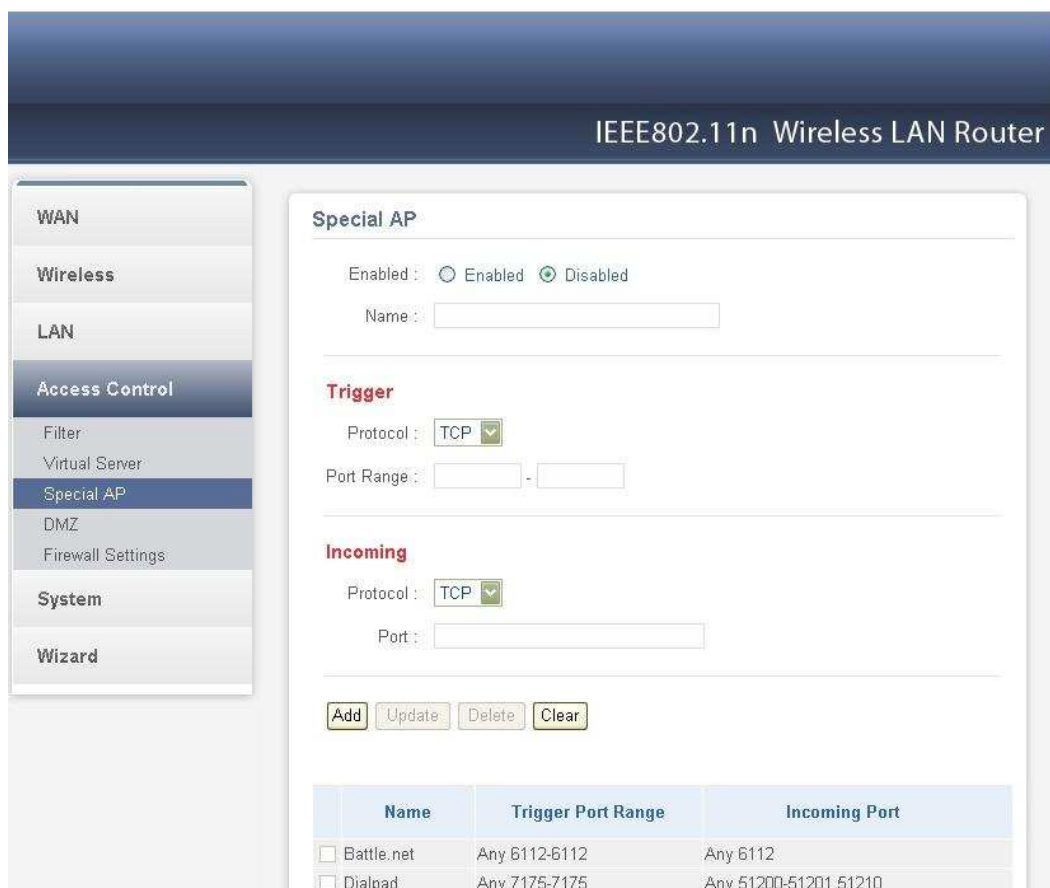
**Clear:** Click the *Clear* button to erase all fields and enter new information.



## Special AP

This screen enables users to specify special applications, such as games which require multiple connections that are blocked by NAT. The special applications profiles are listed in the table at the bottom of the page.

Note: When selecting items in the table at the bottom, click anywhere in the item. The line is selected, and the fields automatically load the item's parameters, which user can edit.



IEEE802.11n Wireless LAN Router

WAN  
Wireless  
LAN  
Access Control  
Filter  
Virtual Server  
Special AP  
DMZ  
Firewall Settings  
System  
Wizard

**Special AP**

Enabled:  Enabled  Disabled

Name:

**Trigger**

Protocol:

Port Range:  -

**Incoming**

Protocol:

Port:

	Name	Trigger Port Range	Incoming Port
<input type="checkbox"/>	Battle.net	Any 6112-6112	Any 6112
<input type="checkbox"/>	Dialpad	Any 7175-7175	Any 51200-51201,51210

**Enable:** Click to enable or disable the application profile. When enabled, users will be able to connect to the application via the WLAN Router's WAN connection. Click "Disabled" on a profile to prevent users from accessing the application on the WAN connection.

**Name:** Type a descriptive name for the application.

**Trigger:** Defines the outgoing communication that determines whether the user has legitimate access to the application.

- **Protocol:** Select the protocol (TCP, UDP, or ICMP) that can be used to access the application.
- **Port Range:** Type the port range that can be used to access the application in the text boxes.

**Incoming:** Defines which incoming communications users are permitted to connect with.

- **Protocol:** Select the protocol (TCP, UDP, or ICMP) that can be used by the incoming communication.
- **Port:** Type the port number that can be used for the incoming communication.

**Add:** Click to add the special application profile to the table at the bottom of the screen.

**Update:** Click to update information for the special application if user have selected a list item and have made changes.

**Delete:** Select a list item and click Delete to remove the item from the list.

**Clear:** Click the *Clear* button to erase all fields and enter new information.

## DMZ

This screen enables users to create a DMZ for those computers that cannot access Internet applications properly through the WLAN Router and associated security settings.

Note: Any clients added to the DMZ exposes the clients to security risks such as viruses and unauthorized access.



**Enable:** Click to enable or disable the DMZ.

**DMZ Host IP:** Type a host IP address for the DMZ. The computer with this IP address acts as a DMZ host with unlimited Internet access.

**Apply:** Click to save the settings.

## Firewall settings



A firewall protects your network from the outside world, this screen enables users to setup the simple firewall function on the wireless router.

**Endpoint Independent:** Any incoming traffic sent to an open port will be forwarded to the application that opened the port.

**Address Restricted:** Incoming traffic must match the IP address of the outgoing connection.

**Address And Port Restriction:** Incoming traffic must match the IP address and port of the outgoing connection

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## System Setting

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This system setting enables users to change password, set the device time, view the device information, restart the system, save and load different settings as profiles, restore factory default settings, upgrade the firmware, and ping remote IP addresses....etc.

### Password

This function enables users to set administrative and user passwords. These passwords are used to gain access to the WLAN Router interface.

The screenshot shows the configuration interface for an IEEE802.11n Wireless LAN Router. The left sidebar lists various system settings, with 'System' and 'Password' highlighted. The main area is titled 'Password' and contains two sections for setting passwords: 'Administrator' (login name 'admin') and 'User' (login name 'user'). Each section has 'New Password' and 'Confirm Password' fields. The interface includes 'Cancel' and 'Apply' buttons at the bottom right.

**Administrator:** Type the password the Administrator will use to log into the system. The password must be typed again for confirmation. The Administrator can also authorize users the ability to configure the WLAN Router.

**User:** Type the password the User will use to log in to the system. The password must be typed again for confirmation.

## Time

This function enables users to set the time and date for the WLAN Router's real-time clock, select properly time zone, and enable or disable daylight saving.

The screenshot shows the configuration interface for the IEEE802.11n Wireless LAN Router. The left sidebar contains a navigation menu with the following items: WAN, Wireless, LAN, Access Control, System (highlighted), Password, Time (highlighted), Device Information, Log, Log Setting, Statistic, Restart, Firmware, Configuration, UPnP, Ping Test, Remote Management, and Wizard. The main content area is titled "Time" and contains the following sections:

- Local Time:** Displays "May/7/2008 1:4:12".
- Time Zone:** A drop-down menu showing "(GMT-08:00) Pacific Time (US & Canada)".
- Time Setting:** A section with a label "Synchronize the Clock with NTP Server:" and a drop-down menu set to "Manual". Below it is a text box for "NTP Server:" with "( default)" to its right.
- Manually Date and Time Setting:** A section with date and time pickers: Year (2008), Month (May), Day (07), Hour (01), Minute (04), and Second (12). A "Set Time" button is located below these pickers.
- Daylight Saving:** A section with a label "Daylight Saving:" and two radio buttons: "Enabled" and "Disabled" (which is selected). Below the radio buttons are two date pickers: "Start" (Mar 3rd Sun) and "End" (Nov 2nd Sun).

At the bottom right of the configuration area, there are two buttons: "Cancel" (with a red X icon) and "Apply" (with a green checkmark icon).

**Local Time:** Displays the local time and date.

**Time Zone:** Select the time zone from the drop-down list.

**Synchronize the clock with NTP Server:** Enable or disable the WLAN Router automatically adjust the system time from NTP Server.

Automatic: Automatically adjust the system time from NTP Server.

Manual: Manually adjust the system time when you press the *Set Time* button.

**NTP server:** The Simple Network Time Protocol (SNTP) server allows the WLAN Router to synchronize the system clock to the global Internet through the SNTP Server. Specify the NTP domain name or IP address in the text box.

**Manually Date and Time Setting:** Manually setting the WLAN Router system time, press the *Set Time* button to update the system time.

**Daylight Saving:** Enables users to enable or disable daylight saving time. When enabled, select the start and end date for daylight saving time.

## Device Information

This function enables users to view the WLAN Router's WAN, Wireless, LAN and System configurations.

The screenshot displays the configuration page for an IEEE802.11n Wireless LAN Router. The page is titled "IEEE802.11n Wireless LAN Router" and features a navigation menu on the left with options: WAN, Wireless, LAN, Access Control, System, Password, Time, Device Information (selected), Log, Log Setting, Statistic, Restart, Firmware, Configuration, UPnP, Ping Test, Remote Management, and Wizard. The main content area is titled "Device Information" and is divided into three sections: WAN, Wireless, and LAN.

**WAN**

- MAC Address : 00:98:76:ab:cd:ef
- Connection Type : DHCP Client Disconnected (Buttons: DHCP Release, DHCP Renew)
- IP Address : 0.0.0.0
- Subnet Mask : 0.0.0.0
- Default Gateway : 0.0.0.0
- DNS :

**Wireless**

- Connection : Enabled
- SSID : N Router
- Channel : 6
- Authentication Type : Disable
- Wireless Client List : (Table with header: MAC Address)

**LAN**

- MAC Address : 00:98:76:ab:cd:ee
- IP Address : 192.168.1.1
- Subnet Mask : 255.255.255.0
- DHCP Server : Enabled (Link: DHCP Client List)

**WAN:** This section displays the WAN interface configuration including the MAC address, Connection status, DHCP client status, IP address, Subnet mask, Default gateway, and DNS.

**Wireless:** This section displays the wireless configuration information, including the MAC address, the Connection status, SSID, Channel and Authentication type.

**LAN:** This section displays the LAN interface configuration including the MAC address, IP Address, Subnet Mask, and DHCP Server Status. Click “DHCP Table” to view a list of client stations currently connected to the WLAN Router LAN interface.

Click “**DHCP Release**” to release all IP addresses assigned to client stations connected to the WAN via the WLAN Router. Click “**DHCP Renew**” to reassign IP addresses to client stations connected to the WAN.

## Log

This function enables users to view a running log of Router system statistics, events, and activities. The log displays up to 200 entries. Older entries are overwritten by new entries.



IEEE802.11n Wireless LAN Router

Log

1 / 1

Time	Type	Message
May 6 16:20:00	info	Sending discover...
May 6 16:20:00	info	DNS started
May 6 16:20:04	info	device_lan_ip=192.168.1.1 , device_lan_subnet_mask=255.255.255.0
May 6 16:20:04	info	DHCP server start.
May 6 16:20:04	info	Sending discover...
May 6 16:20:01	info	DHCP client start.
May 6 16:20:01	info	[Initialized, firmware version: 1.00 ]

The Log screen commands are as follows:

Click “**First Page**” to view the first page of the log

Click “**Last Page**” to view the final page of the log

Click “**Previous Page**” to view the page just before the current page

Click “**Next Page**” to view the page just after the current page

Click “**Clear Log**” to delete the contents of the log and begin a new log

Click “**Refresh**” to renew log statistics

**Time:** Displays the time and date that the log entry was created.

**Message:** Displays summary information about the log entry.



## Log Setting

This function enables users to set Router Log parameters.

The screenshot shows the configuration interface for an IEEE802.11n Wireless LAN Router. The left sidebar contains a menu with the following items: WAN, Wireless, LAN, Access Control, System (highlighted), Password, Time, Device Information, Log, Log Setting (highlighted), Statistic, Restart, Firmware, Configuration, UPnP, Ping Test, Remote Management, and Wizard. The main content area is titled "Log Setting" and contains the following fields and options:

- SMTP Authentication:** Radio buttons for Enabled (unselected) and Disabled (selected).
- SMTP Account:** Text input field.
- SMTP Password:** Text input field.
- SMTP Server:** Text input field.
- From Email Address:** Text input field.
- To Email Address:** Text input field.
- Email Log Now:** Button.
- Log Type:** A section with the following checked and unchecked options:
  - System Activity
  - Debug Information
  - Attacks
  - Dropped Packets
  - Notice

At the bottom right of the main content area, there are two buttons: "Cancel" (with a red X icon) and "Apply" (with a green checkmark icon).

**SMTP Authentication:** Selected the Enabled if the SMTP server need for authentication, fill in account name and password in SMTP Account field and SMTP Password field.

**SMTP Account:** If the SMTP Authentication enabled, fill in the SMTP account name here.

**SMTP Password:** If the SMTP Authentication enabled, fill in the password of the SMTP account here.

**SMTP Server:** Type your SMTP server address here.

**From/To Email Address:** Type an email address for the log to be sent to. Click “*Email Log Now*” to immediately send the current log.

**Syslog Server:** Type the IP address of the Syslog Server if user wants the WLAN Router to listen and receive incoming Syslog messages.

**Log Type:** Enables users to select what items will be included in the log:

**System Activity:** Displays information related to WLAN Router operation.

**Debug Information:** Displays information related to errors and system malfunctions.

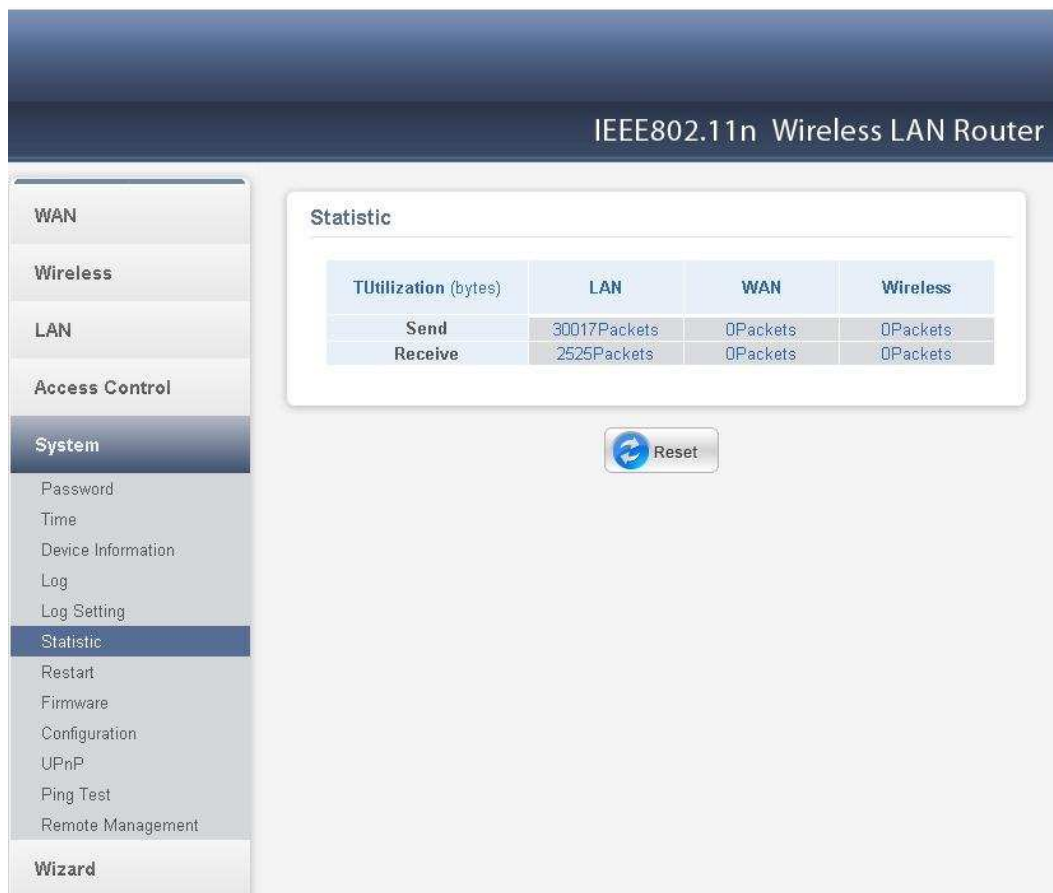
**Attacks:** Displays information about any malicious activity on the network.

**Dropped Packets:** Displays information about packets that have not been transferred successfully.

**Notice:** Displays important notices by the system administrator.

## Statistic

This function displays a table that shows the rate of packet transmission via the WLAN Router's LAN, WAN and Wireless ports (in bytes per second).



IEEE802.11n Wireless LAN Router

Statistic

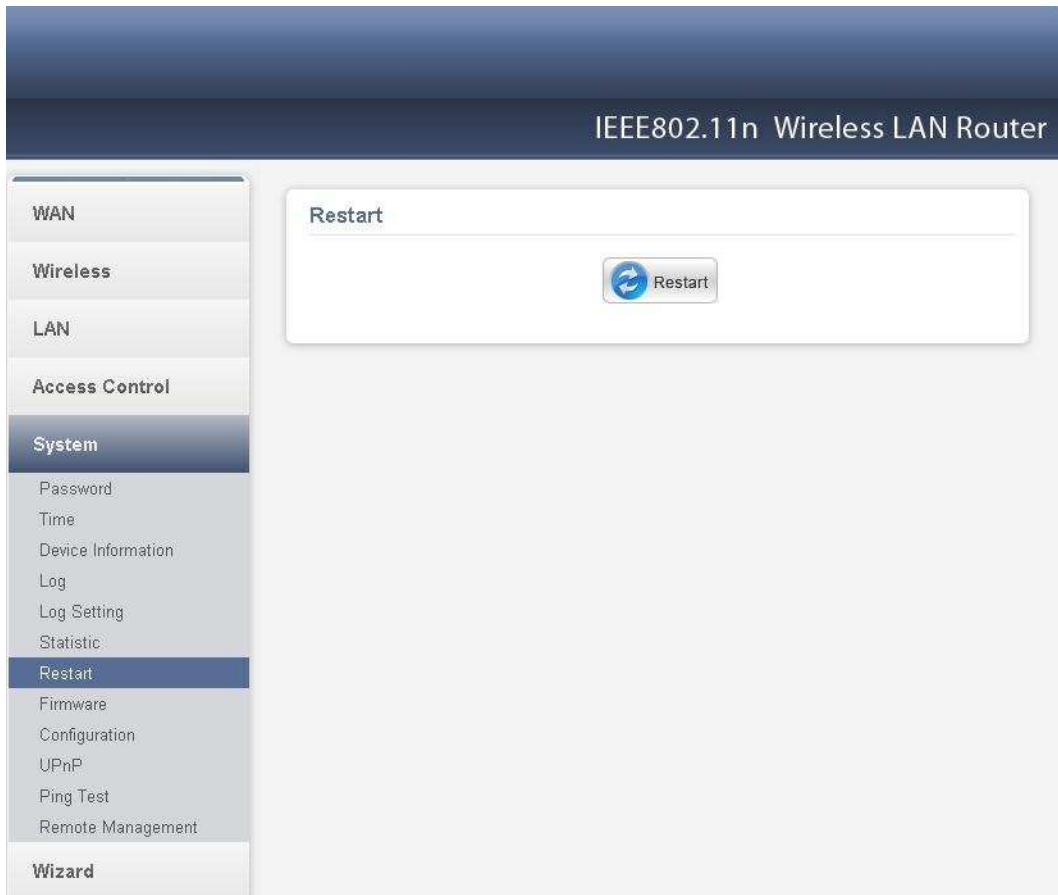
Utilization (bytes)	LAN	WAN	Wireless
Send	30017Packets	0Packets	0Packets
Receive	2525Packets	0Packets	0Packets

Reset

Click **“Reset”** to erase all statistics and begin logging statistics again.

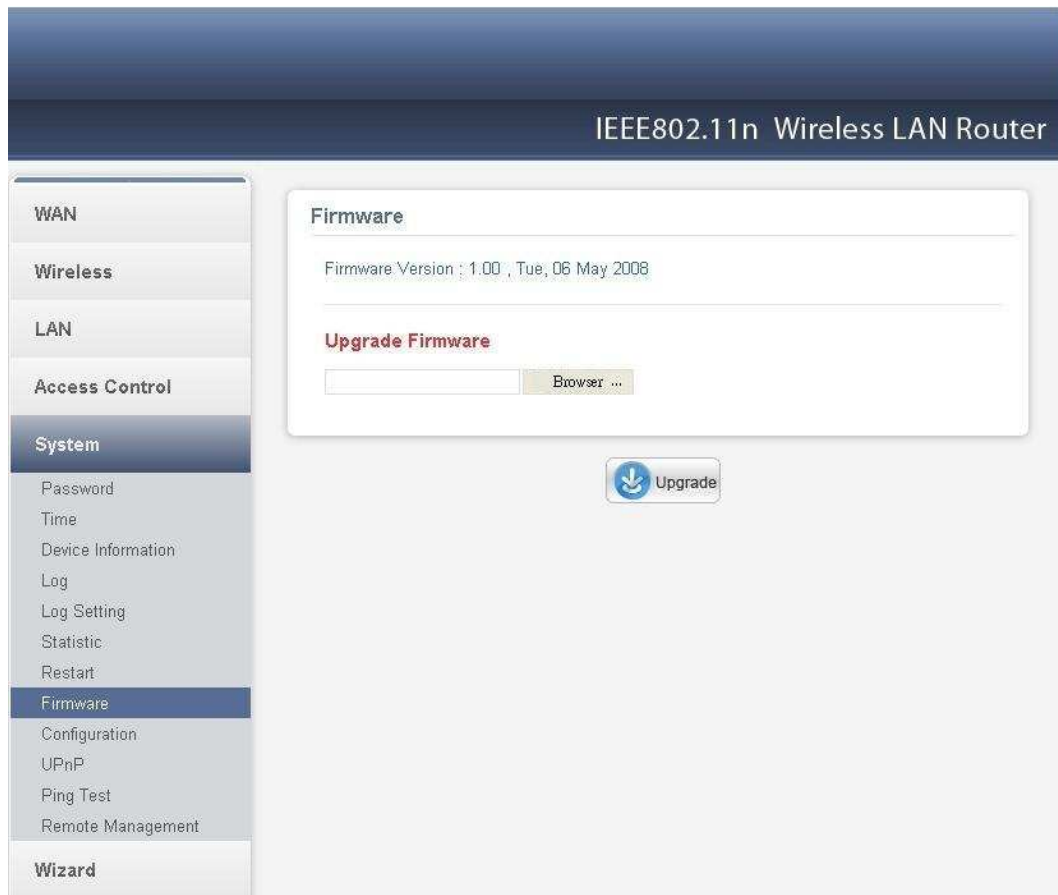
## Restart

Click “**Restart**” to restart the system in the event the system is not performing correctly.



## Firmware

This function enables users to keep the WLAN Router firmware up to date.



Please follow the below instructions:

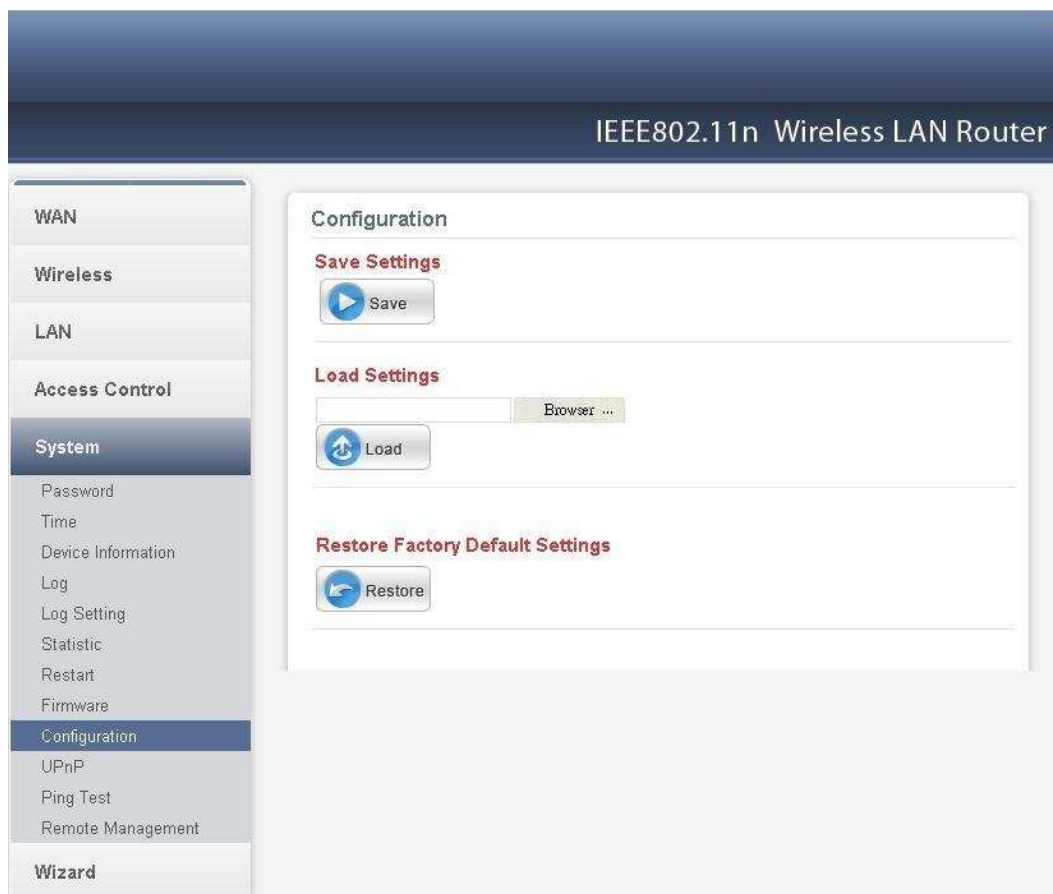
Download the latest firmware from the manufacturer's Web site, and save it to disk.

Click **“Browse”** and go to the location of the downloaded firmware file.

Select the file and click **“Upgrade”** to update the firmware to the latest release.

## Configuration

This function enables users to save settings as a profile and load profiles for different circumstances. User can also load the factory default settings, and run a setup wizard to configure the WLAN Router and Router interface.



## UPnP

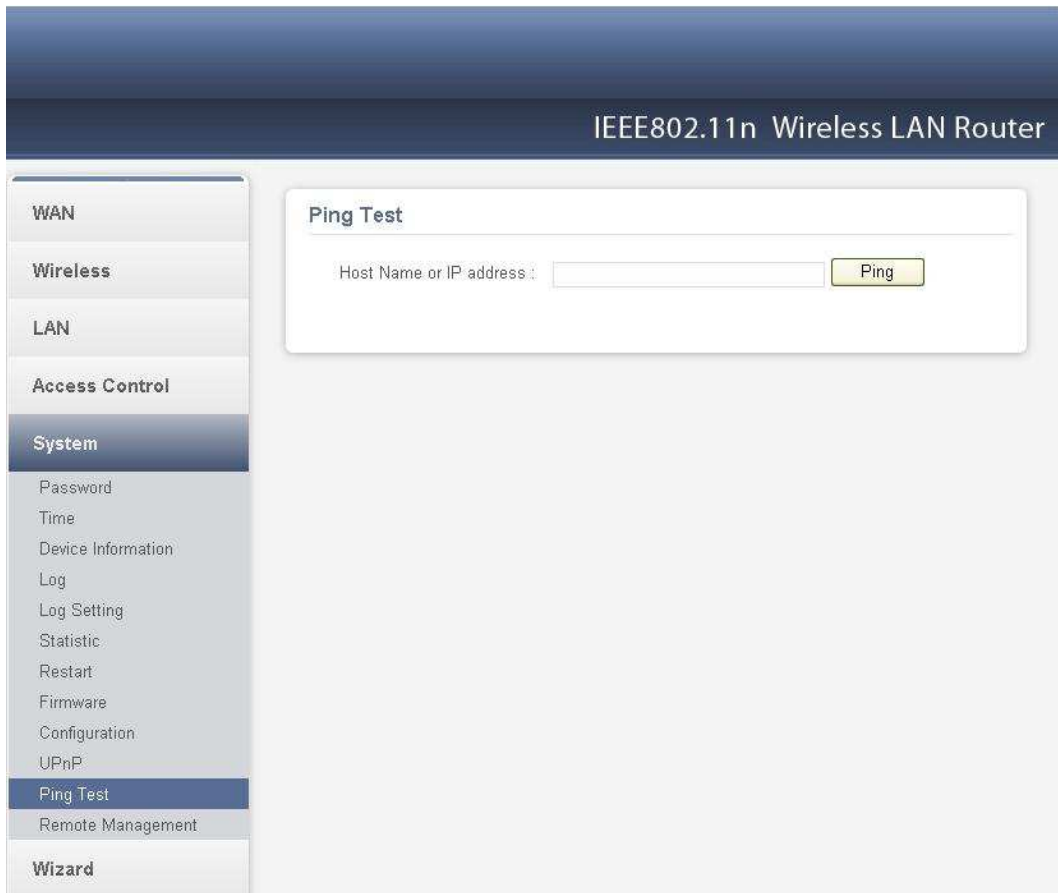
This function enables users to enable or disable the UPnP function on the WLAN Router.



**UPnP:** Select to enable or disable the UPnP function on the WLAN Router. UPnP is short for Universal Plug and Play that is a networking architecture that provides compatibility among networking equipment, software, and peripherals. The WLAN Router is an UPnP-enabled Router and will only work with other UPnP devices/software. If user does not want to use the UPnP functionality, select “Disabled” to disable it.

## Ping Test

The ping test enables users to determine whether an IP address or host is present on the Internet. Type the host name or IP address in the text box and click Ping button to start the Ping test.



The screenshot displays the configuration interface for an IEEE802.11n Wireless LAN Router. The page title is "IEEE802.11n Wireless LAN Router". On the left side, there is a navigation menu with the following items: WAN, Wireless, LAN, Access Control, System (highlighted), Password, Time, Device Information, Log, Log Setting, Statistic, Restart, Firmware, Configuration, UPnP, Ping Test (highlighted), Remote Management, and Wizard. The main content area is titled "Ping Test" and contains a text input field labeled "Host Name or IP address :" and a yellow "Ping" button.

## Remote Management

This function enables users to set up remote management. Using remote management, the WLAN Router can be configured through the WAN via a Web browser. A user name and password are required to perform remote management.

The screenshot shows the configuration interface for an IEEE802.11n Wireless LAN Router. The left sidebar contains a menu with the following items: WAN, Wireless, LAN, Access Control, System, Password, Time, Device Information, Log, Log Setting, Statistic, Restart, Firmware, Configuration, UPnP, Ping Test, Remote Management (highlighted), and Wizard. The main content area is titled "Remote Management" and contains the following settings:

- HTTP:**  Enable  Disable
- Port: 8080
- IP Address: From \*  To
- Allow to Ping WAN port:**  Enable  Disable
- PPTP:  Enabled  Disabled
- L2TP:  Enabled  Disabled
- IPSec:  Enabled  Disabled
- IDENT:  Stealth  Closed

At the bottom right of the configuration area, there are two buttons: "Cancel" (with a red X icon) and "Apply" (with a green checkmark icon).

**HTTP:** Enables users to set up HTTP access for port number, and Remote IP Range for remote management.

**IP Address:** Remote IP Range, to type a range of Router IP addresses that can be pinged from remote locations

**Allow to Ping WAN Port:** Enables users to allow to ping WAN Port.

**PPTP:** Enables users to set up PPTP access for remote management.

**L2TP:** Enables users to set up L2TP access for remote management.

**IPSec:** Enables users to set up IPSec access for remote management.

**IDENT:** Default is stealth. This enables users to set port 113 stealth.



## TECHNICAL SPECIFICATIONS

<b>General</b>	
Standards	IEEE 802.3u 100BASE-TX Fast Ethernet IEEE 802.11n 2.0; IEEE 802.11g; IEEE 802.11b
Protocol	CSMA/CA with ACK
Radio Technology	DSSS/OFDM
Data Transfer Rate	802.11n mode: up to 300Mbps (auto sense) 802.11g mode: up to 54Mbps (auto sense) 802.11b mode: up to 11Mbps (auto sense) Ethernet: 10Mbps (half duplex), 20Mbps (full-duplex) Fast Ethernet: 100Mbps (half duplex), 200Mbps (full- duplex)
Receiver Sensitivity	802.11n: -62dBm typical @ 300Mbps 802.11g: -68dBm typical @ 54Mbps 802.11b: -85dBm typical @ 11Mbps
TX Power	27.5dBm
Network Cables	10BASE-T: 2-pair UTP Cat. 3,4,5 (100 m), EIA/TIA- 568 100-ohm STP (100 m) 100BASE-TX: 2-pair UTP Cat. 5 (100 m), EIA/TIA-568 100-ohm STP (100 m)
Frequency Range	2412 ~ 2484 MHz ISM band
Modulation Schemes	DBPSK/DQPSK/CCK/OFDM
Security	64/128-bits WEP Encryption; WPA, WPA-PSK, WPA2, WPA2-PSK
Channels	1~11 Channels (US/NCC) 1~13 Channels (EU)
Number of Ports	LAN: 4 x 10/100Mbps Auto-MDIX Fast Ethernet port WAN: 1 x 10/100Mbps Auto-MDIX Fast Ethernet port
<b>Physical and Environmental</b>	
DC inputs	5VDC/2A
Power Consumption	3.0W (Max)
Temperature	Operating: 0°C ~ 40° C, Storage: -10° ~ 70° C
Humidity	Operating: 10% ~ 90%, Storage: 5% ~ 90%
Dimensions	147 x 115 x 35 mm (W x D x H) without Antenna
EMI:	FCC Class B, CE Mark B