

ESR1221N

Wireless 11N Router

(IEEE 802.11 b/g/n)

User Manual

Version: 1.0

TABLE OF CONTENTS

1	INTRODUCTION	4
2	KEY FEATURES.....	5
3	PACKAGE CONTENTS.....	6
4	PRODUCT LAYOUT	7
5	NETWORK + SYSTEM REQUIREMENTS.....	8
6	ESR1221N PLACEMENT	9
	WALL MOUNTING.....	9
7	SETUP LAN, WAN	11
8	PC NETWORK ADAPTER SETUP (<i>WINDOWS XP</i>)	12
9	BRING UP ESR1221N.....	14
10	SMART WIZARD	14
11	INITIAL SETUP ESR1221N.....	23
12	AP ROUTER MODE.....	25
13	REPEATER MODE	78
	APPENDIX A – FCC INTERFERENCE STATEMENT	94
	APPENDIX B – IC INTERFERENCE STATEMENT	95

Revision History

Version	Date	Notes
1.0	2010/9/10	Modified from existing UM.

1 Introduction

Congratulations on your purchase of ESR1221N Wireless Network Broadband Router. ESR1221N is compatible with 802.11b/g/n gadgets. ESR1221N is not only a Wireless Access Point, but also doubles as a 4-port full-duplex Switch that connects your wired-Ethernet devices together at incredible speeds.

At 150Mbps wireless transmission rate, Access Point built into the Router uses advanced MIMO (Multi-Input, Multi-Output) technology to transmit multiple streams of data in a single wireless channel giving you seamless access to multimedia content. Robust RF signal travels farther, eliminates dead spots and extends network range. For data protection and privacy, ESR1221N encodes all wireless transmissions with WEP, WPA, and WPA2 encryption.

With inbuilt DHCP Server & powerful SPI firewall ESR1221N protects your computers against intruders and most known Internet attacks but provides safe VPN pass-through. With incredible speed and QoS function, ESR1221N is ideal for media-centric applications like streaming video, gaming, and VoIP telephony to run multiple media-intense data streams through the network at the same time, with no degradation in performance.

2 Key Features

Features	Advantages
Incredible Data Rate up to 150Mbps**	Heavy data payloads such as MPEG video streaming
IEEE 802.11b/g/n Compliant	Fully Interoperable with IEEE 802.11b / IEEE 802.11g & 801.11n compliant devices with legacy protection
Four 10/100 Mbps Fast Switch Ports (Auto-Crossover)	Scalability, extend your network.
Firewall supports, DMZ, MAC Filter, IP Filter, URL Filter, ICMP Blocking, SPI, Port Mapping, Port Forwarding, Port Trigger	Avoids the attacks of Hackers or Viruses from Internet
Support 802.1x Authenticator, 802.11i (WPA/WPA2, AES), VPN pass-through	Provide mutual authentication (Client and dynamic encryption keys to enhance security
WDS (Wireless Distribution System)	Make wireless AP and Bridge mode simultaneously as a wireless repeater

*** Theoretical wireless signal rate based on IEEE standard of 802.11, b, g, n chipset used. Actual throughput may vary. Network conditions and environmental factors lower actual throughput rate. All specifications are subject to change without notice.*

3 Package Contents

Open the package carefully, and make sure that none of the items listed below are missing. Do not discard the packing materials, in case of return; the unit must be shipped back in its original package.

1. SOHO Router
2. 100V~240V Power Adapter
3. 2dBi 2.4GHz SMA Upgradable Antennas x 1 pcs
4. Quick Install Guide
5. CD (User's Manual)

4 Product Layout

LED	Description
POWER	Lights up when powered ON. Blinks on TEST/RESET
WLAN	Lights up in ORANGE when WLAN is enabled. Blinks on traffic
LAN PORT ACTIVITY	Blinks on traffic for specific LAN PORT
100 Mbps	Lights up when 100 Mbps data rate enabled on that specific port

ITEM	Description
Reset	Click this button to restart the system, or Press this button and hold for 10 seconds to restart the system.
WPS	Click this button to start WPS function.
DC IN	Power connector, connects to DC 12V Power Adapter
LAN1 ~ 4	Local Area Network (LAN) ports 1 to 4
INTERNET	Wide Area Network(WAN) port

5 Network + System Requirements

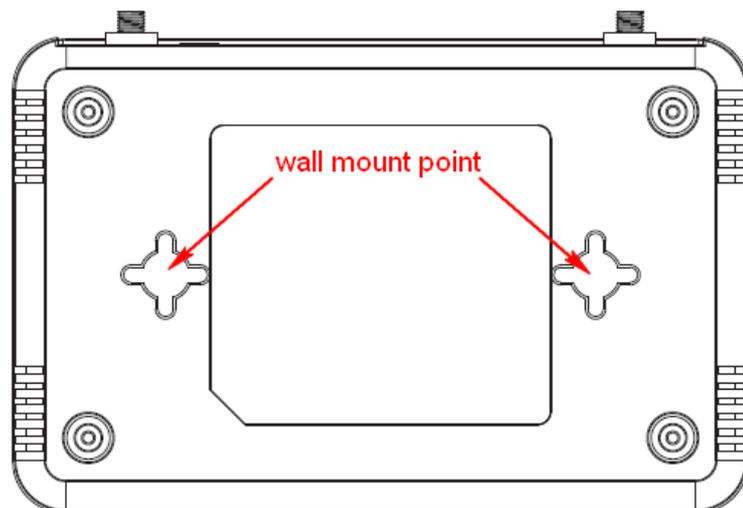
To begin using the ESR1221N, make sure you meet the following as minimum requirements:

- PC/Notebook.
- Operating System – Microsoft Windows 98SE/ME/XP/2000/VISTA
- 1 Free Ethernet port.
- WiFi card/USB dongle (802.11b/g/n) – optional.
- External xDSL (ADSL) or Cable modem with an Ethernet port (RJ-45).
- PC with a Web-Browser (Internet Explorer, Safari, Firefox, Opera etc.)
- Few Ethernet compatible CAT5 cables.

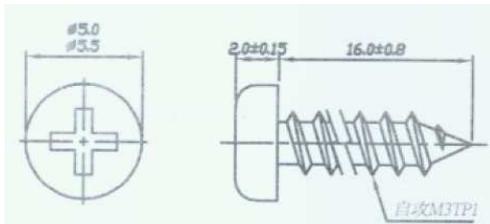
6 ESR1221N Placement

You can place ESR1221N on a desk or other flat surface, or you can mount it on a wall. For optimal performance, place your Wireless Broadband Router in the center of your office (or your home) in a location that is away from any potential source of interference, such as a metal wall or microwave oven. This location must be close to a power connection and your ADSL/Cable modem. If the antennas are not positioned correctly, performance loss can occur.

Wall Mounting



Screw Dimension: 18mm x 5mm

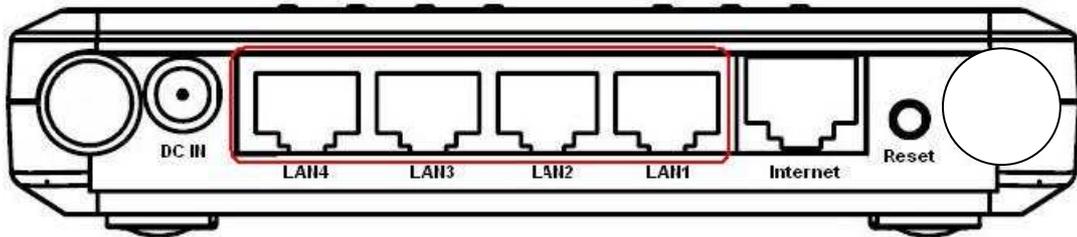


You can mount the device on the wall. There are two mounting points on the bottom of the device. Please find a proper spot where two nails can be applied. Finally, carefully mount the device onto the wall and make sure the nails are firmly locked on the mount points.

7 Setup LAN, WAN

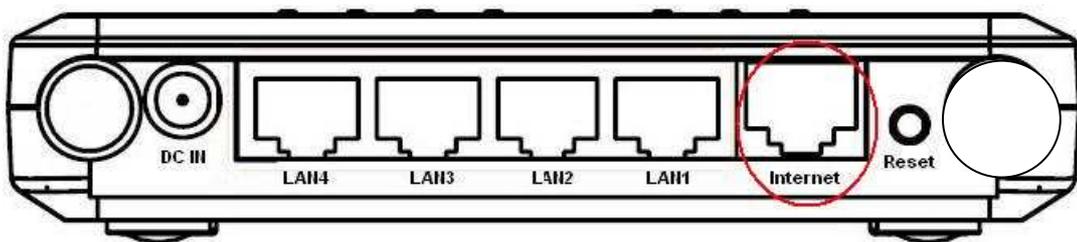
LAN connection:

Connect Ethernet cable between your PC/Notebook LAN port & one of the 4 available LAN ports on ESR1221N.



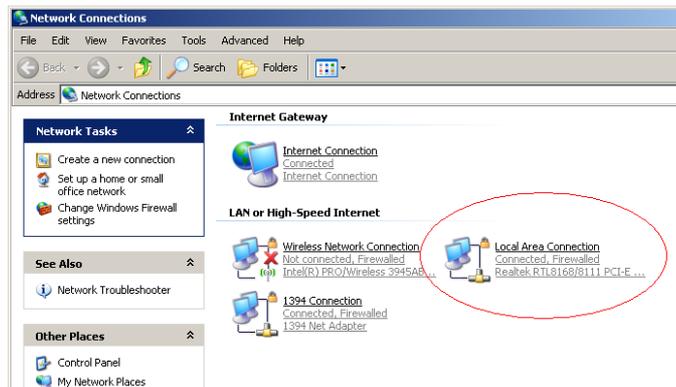
WAN connection:

Connect Ethernet cable between WAN ports of your ADSL/CABLE modem & INTERNET port of ESR1221N. Make sure your ADSL/CABLE modem is working well. Contact your ISP if you have any questions.

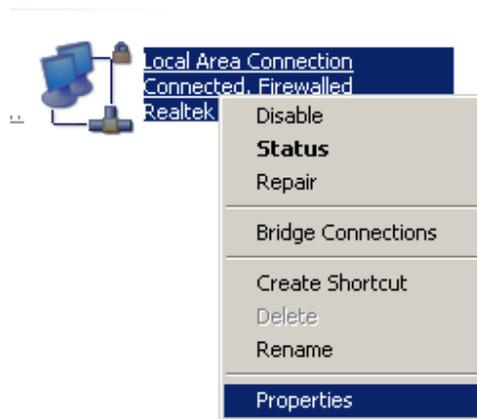


8 PC Network Adapter setup (*Windows XP*)

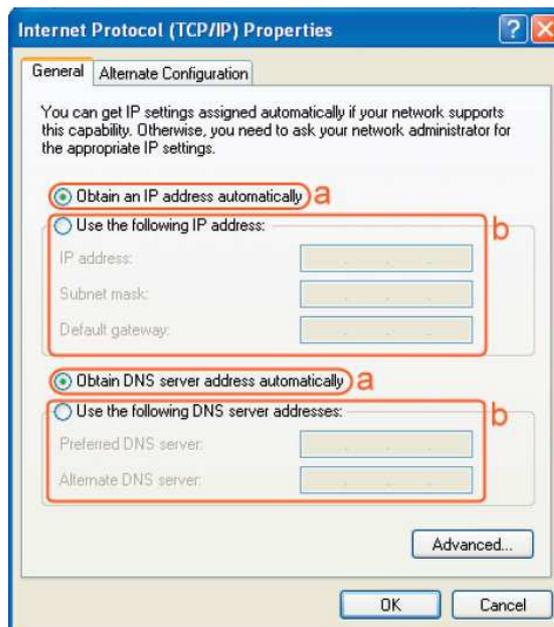
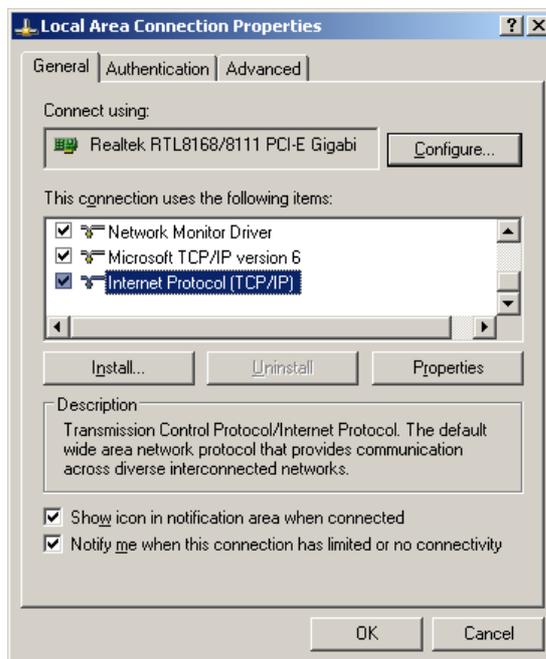
- Enter [Start Menu] → select [Control panel] → select [Network].



- Select [Local Area Connection] icon=>select [properties]



- Select [Internet Protocol (TCP/IP)] =>Click [Properties].



- Select the [General] tab.
- a. ESR1221N supports [DHCP] function, please select both [Obtain an IP address automatically] and [Obtain DNS server address automatically].

9 Bring up ESR1221N

Connect the supplied power-adaptor to the power inlet port and connect it to a wall outlet. Then, ESR1221N automatically enters the self-test phase. During self-test phase, Power LED will blink briefly, and then will be lit continuously to indicate that this product is in normal operation.

10 Smart Wizard

CHECK

- Internet connection should be setup & ready to use (ADSL or cable modem).
- Modem must provide an RJ45 port to connect with ESR1221N.
- Microsoft Windows compatible PC/Notebook with UPnP enabled network adapter.
- CAT 5 network cable(s), RJ45 port on PC/Notebook.

STEP 1

Connect **ESR1221N WAN** port & your **modem LAN** port with RJ45 cable.

STEP 2

Power up **ESR1221N**.POWER led on front panel lights up & remains stable.

STEP 3

Connect **ESR1221N LAN** port & **PC/Notebook RJ45** port with network cable.

STEP 4

Insert the **ESR-9752** CD into your DVD/CD drive and **SMART WIZARD** should run automatically with a few seconds. If not, please open Windows Explorer and find the root directory of CD. Double click on **Wizard.exe** icon to run it.

Double click on **Wizard.exe** icon to run it.



Click **Setup Wizard** to setup your ESR1221N.

Click **User Manual** to open user manual.

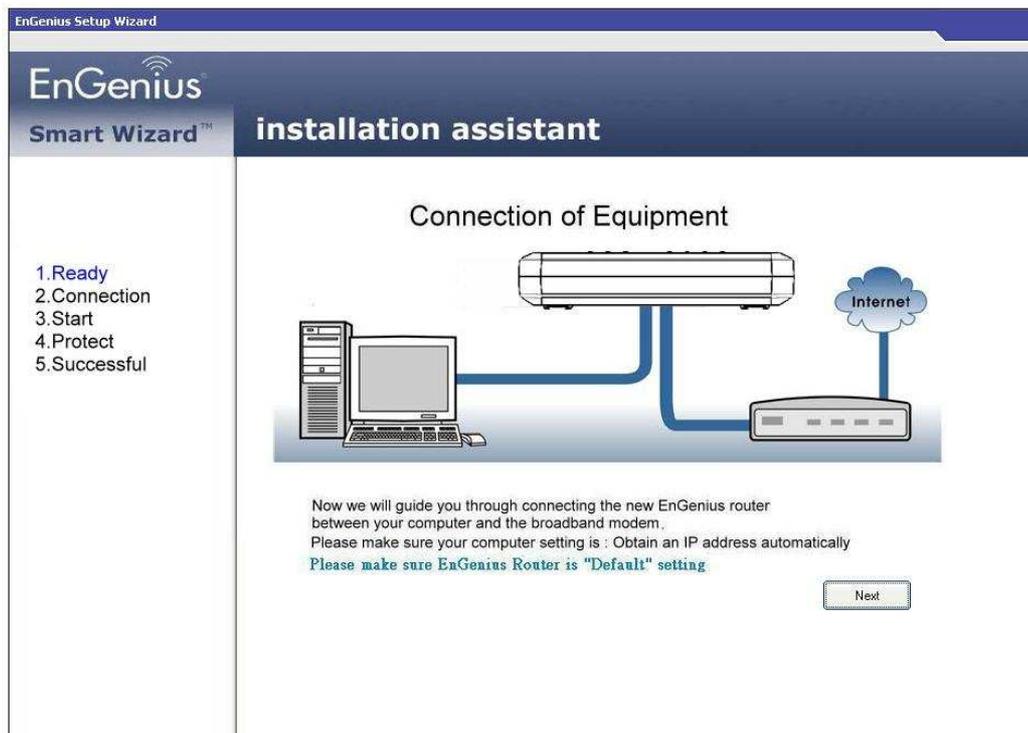
Click **Adobe Reader** to install Adobe Acrobat reader on your PC/Notebook.

Click **EXIT** anytime you want to abort.

Setup Wizard



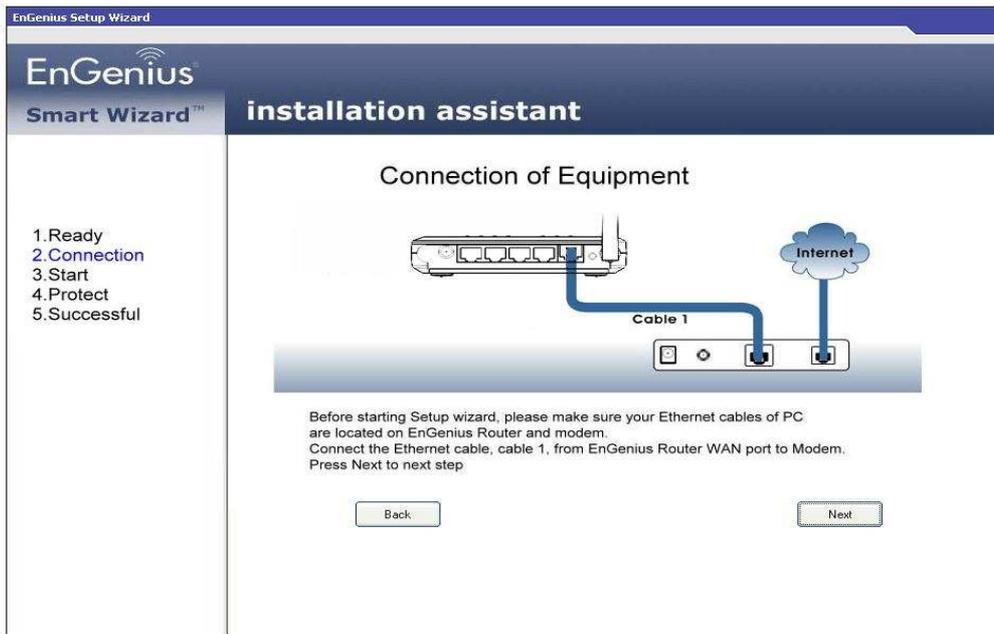
Click **<Next>** to proceed. Click **<Exit>** to abort.



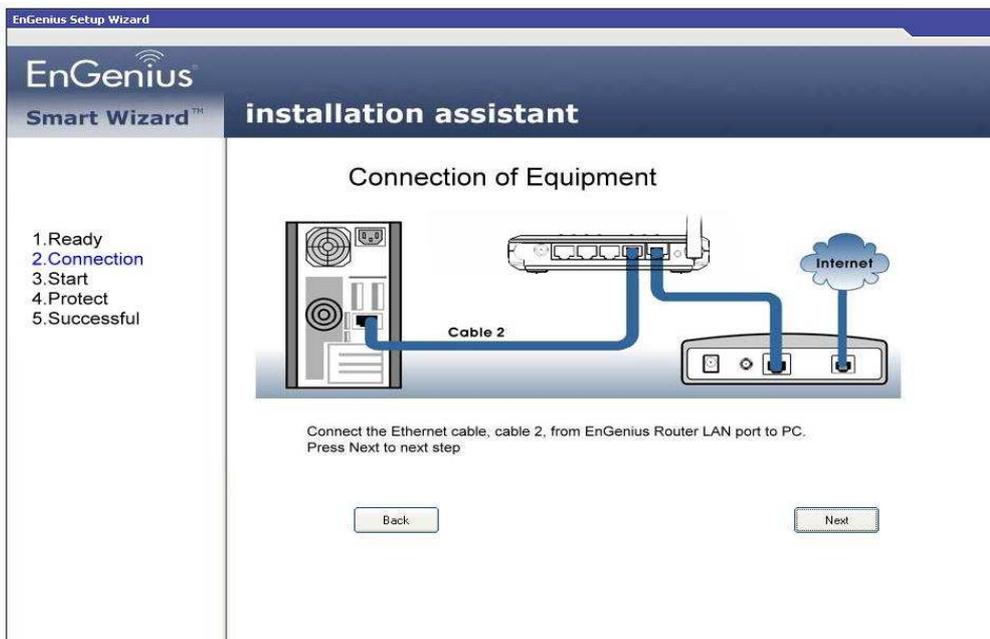
ESR1221N should be setup as depicted above.

Make sure your **DSL/CABLE modem** is setup and working. Else take the help of your internet service provider.

Click **<Next>** to proceed.



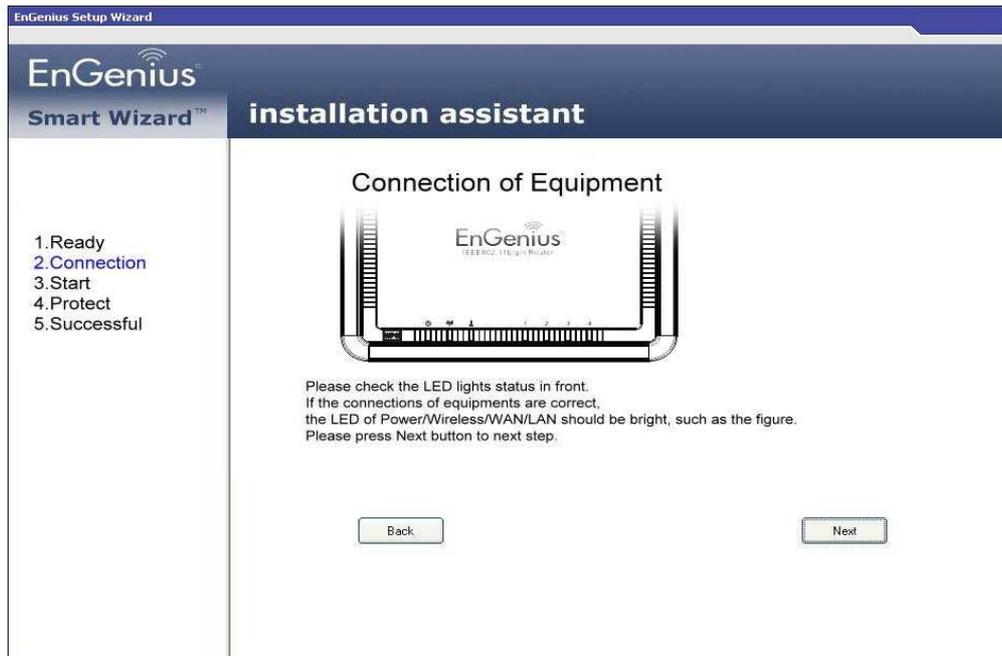
Check the MODEM and ESR1221N connection. It should be as shown below.



Check power connection for modem as well as ESR1221N.

Make sure the antenna is connected to rear panel of ESR1221N.

Click **<Next>** to proceed.

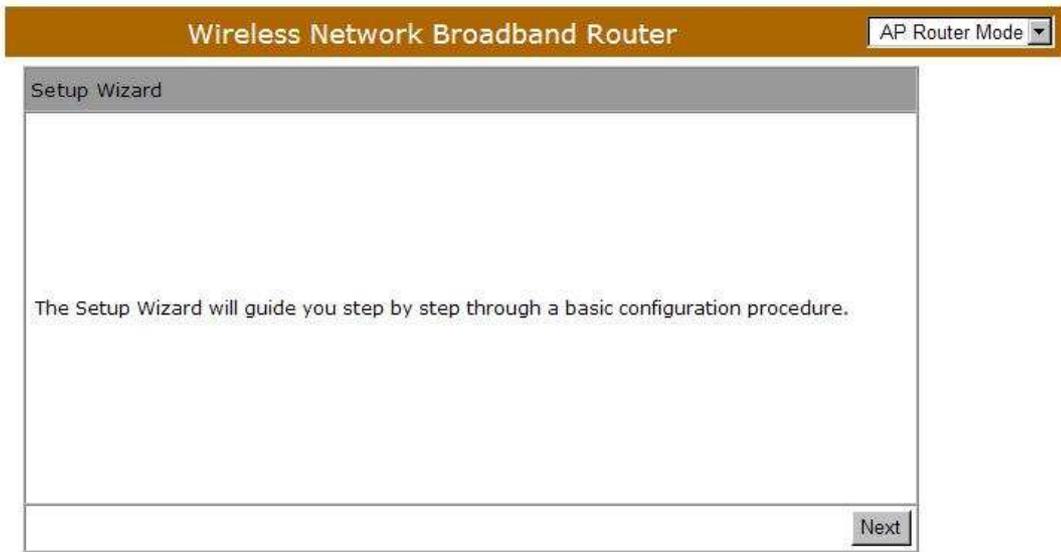


Notice the LED will light up at this stage. If not, check your procedures again.

Click **<Next>** to configure WAN & Wireless settings.

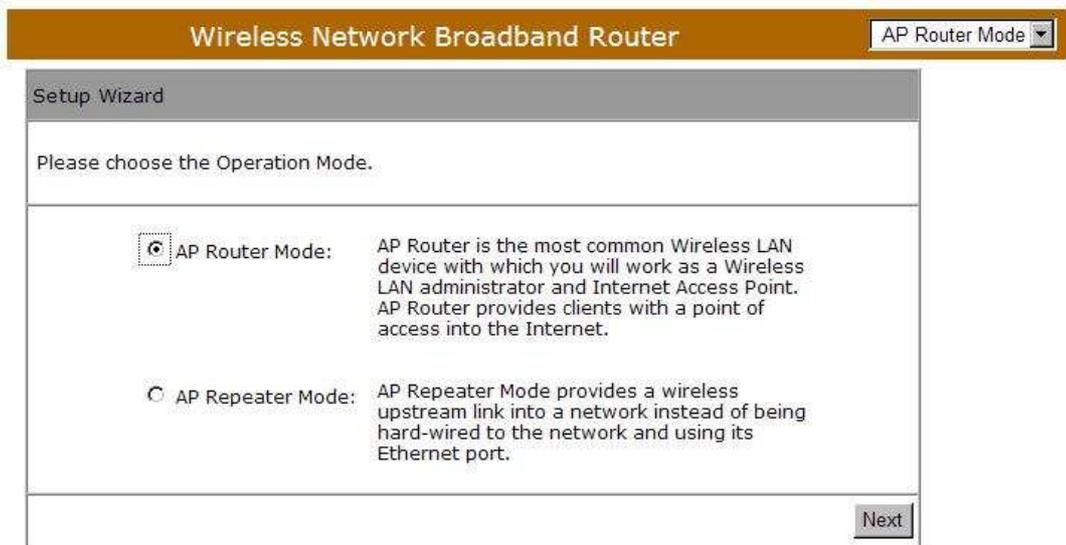


User name and password are **admin/admin**. Click **<OK>**. Your default browser will connect to ESR1221N Web Server <http://192.168.0.1>.



Click **<Next>** to enter mode selection.

Select the mode that ESR1221N is going to be and set its configurations. **AP Repeater mode** does not enable WAN interface, Setup Wizard will skip WAN Configuration.



Click **<Next>** to automatically detect your **Internet Network** settings.

You could choose your service type or select Others to setup WAN configurations manually.

No.	Service	Description
<input checked="" type="radio"/> 1.	DHCP	DHCP is used when your Modem is controlling your internet connection the Username & Password is stored on the Modem.
<input type="radio"/> 2.	PPPoE	PPPoE is used when your modem is set in Bridge Mode and your Router is used to control the internet connection. IE: router houses ISP's Username & Password.
<input type="radio"/> 3.	Others	

Smart Wizard has detected DHCP client. Configure the host name and MAC address of ESR1221N. Click Next to proceed.

Login Method:

Hostname :

Mac :

Smart Wizard has finished setting up **WAN Configuration**. Click **<Next>** to proceed.

Wireless Network Broadband Router AP Router Mode ▾

WLAN Configuration

Please choose the security level in the security bar

Lowest Highest

Encryption method: None
 Authentication Type: None
 Please input SSID in the following box.

SSID :

Enter the name for your wireless network (SSID) and security key

Click **<Next>** to proceed

Wireless Network Broadband Router AP Router Mode ▾

Setup Successfully

System Configuration:
Operation Mode : AP Router

WAN Configuration:
Connection Type : Dynamic IP

WLAN Configuration :
SSID : EnGeniusCCDD10
Security : Disabled
WLAN Key : ---

WLAN Router setup successfully. Please click reboot button to reboot system.

To apply the entire configuration, click **<Reboot>**.

NOTE:

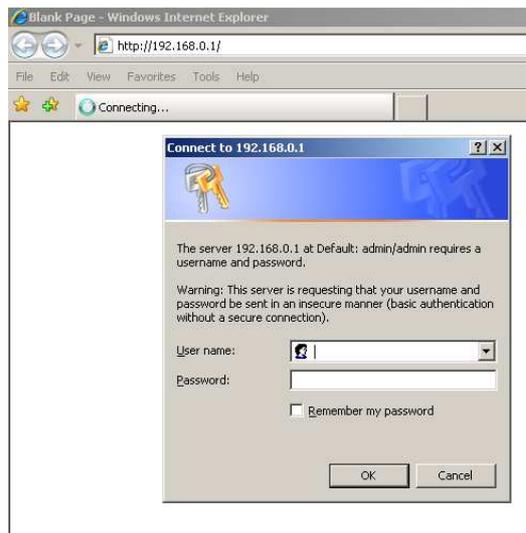
After Wireless settings are applied, you need to connect from your WLAN client with the security settings you just finished configuring. Remember the type of security & security key.

11 Initial Setup ESR1221N

ESR1221N uses web-interface for configuration to be accessed through your web browser, such as Internet Explorer or Firefox.

- LOGIN Procedure

1. OPEN your browser (e.g. Internet Explorer).
2. Type <http://192.168.0.1> in address bar and hit [Enter] button on your keyboard.





3. Click **<OK>** to navigate into ESR1221N configuration home page.
4. You will see the home page of ESR1221N as follows.

EnGenius ESR-9753

System
Wizard
Internet
Wireless
Firewall
Advanced
Tools

Wireless Network Broadband Router AP Router Mode

Status LAN DHCP Schedule Event Log Monitor Language

You can use the Status page to monitor the connection status for the WAN/LAN interfaces, firmware and hardware version numbers, any illegal attempts to access your network and information on all DHCP client PCs currently connected to your network.

System	
Model	Wireless Network Broadband Router
Mode	AP Router
Uptime	2 hours 2 min 12 sec
Hardware version	0.0.1
Serial Number	000000001
Kernel version	1.0.0
Application version	1.0.0

WAN Settings	
Attain IP Protocol	Dynamic IP Address

POWER SAVING **Antenna Upgradable** **HACKER SHIELD** **WEP TKIP AES** **WDS**

12 AP Router Mode

■ System

- Status

This page allows you to monitor the current status of your router.

System: You can see the Uptime, hardware information, serial number as well as firmware version information.

System

Model	Wireless Network Broadband Router
Mode	AP Router
Uptime	19 min 46 sec
Hardware version	0.0.1
Serial Number	000000001
Kernel version	1.0.0
Application version	1.0.0

WAN Settings: This section displays whether the WAN port is connected to a Cable/DSL connection. It also displays the router's WAN IP address, Subnet Mask, ISP Gateway, MAC address and the Primary DNS.

WAN Settings

Attain IP Protocol	Dynamic IP Address
IP address	10.0.174.13
Subnet Mask	255.255.254.0
Default Gateway	10.0.175.254
MAC address	00:AA:BB:CC:DD:11
Primary DNS	10.0.200.101,10.0.200.102

LAN Settings: This section displays the Broadband router LAN port's current information. It also shows whether the DHCP Server function is enabled / disabled.

LAN Settings

IP address	192.168.0.1
Subnet Mask	255.255.255.0
DHCP Server	Enabled
MAC address	00:AA:BB:CC:DD:10

WLAN Settings: This section displays the current WLAN configuration settings. Wireless configuration details such as SSID, Security settings, BSSID, Channel number and mode of operation are briefly shown.

WLAN Settings

Channel	11
---------	----

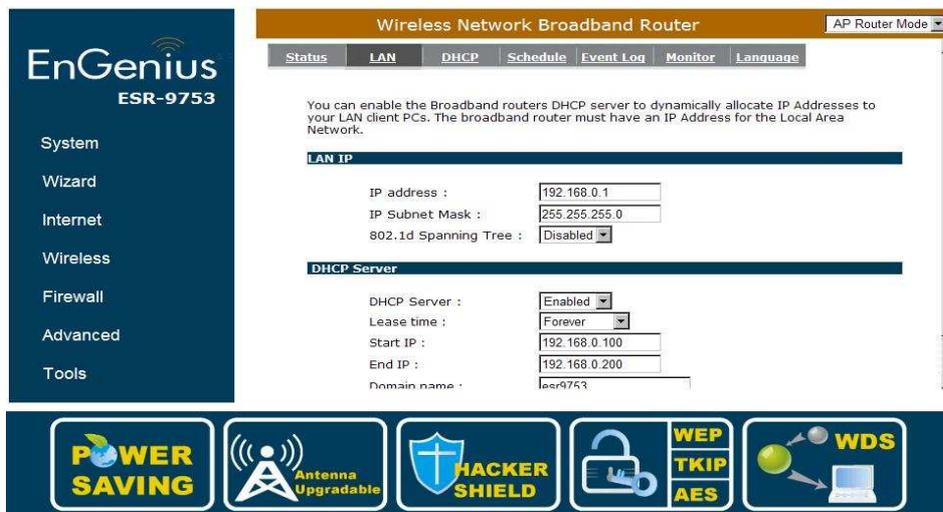
SSID_1

ESSID	EnGeniusCCDD10
Security	WEP
BSSID	00:AA:BB:CC:DD:10

- LAN

The LAN Tabs reveals LAN settings which can be altered at will. If you are an entry level user, try accessing a website from your browser. If you can access website without a glitch, just do not change any of these settings.

Click **<Apply>** at the bottom of this screen to save the changed configurations.



LAN IP

IP address: 192.168.0.1. It is the router's LAN IP address (the "Default Gateway" IP address of your LAN clients). It can be changed based on your own choice.

IP Subnet Mask: 255.255.255.0 Specify a Subnet Mask for your LAN segment.

802.1d Spanning Tree: This is disabled by default. If 802.1d Spanning Tree function is enabled, this router will use the spanning tree protocol to prevent network loops.

DHCP Server

DHCP Server: This can enable or disable the Dynamic Pool setting.

Lease time: This is the lease time of each assigned IP address.

Start IP: This is the beginning of the IP pool for DHCP client hosts.

End IP:. This is the end of the IP pool for DHCP client hosts

Domain name: The Domain Name for the existing or customized network.

- DHCP

View the current LAN clients which are assigned with an IP Address by the DHCP-server. This page shows all DHCP clients (LAN PCs) currently connected to your network. The table shows the assigned IP address, MAC address and expiration time for each DHCP leased client. Use the **<Refresh>** button to update the available information. Hit **<Refresh>** to get the updated table.

You can check **"Enable Static DHCP IP"**. It is possible to add more static DHCP IPs. They are listed in the table **"Current Static DHCP Table"**. IP address can be deleted at will.

Click **<Apply>** button to save the changed configuration.

Wireless Network Broadband Router AP Router Mode ▾

Status LAN DHCP Schedule Event Log Monitor Language

DHCP Client Table :

This DHCP Client Table shows client IP address assigned by the DHCP Server

IP address	MAC address	Expiration Time
192.168.0.101	00:11:25:28:BC:57	Forever

You can assign an IP address to the specific MAC address

Enable Static DHCP IP

IP address	MAC address
<input type="text"/>	<input type="text"/>

- Schedule

This page allows users to set up schedule function for Firewall and Power Saving

Wireless Network Broadband Router AP Router Mode ▾

Status LAN DHCP Schedule Event Log Monitor Language

You can use the Schedule page to Start/Stop the Services regularly. The Schedule will start to run, when it get GMT Time from Time Server. Please set up the Time Server correctly in Toolbox. The services will start at the time in the following Schedule Table or it will stop.

Enabled Schedule Table (up to 8)

NO.	Description	Service	Schedule	Select
1	schedule 01	Firewall	All Time---Mon, Tue, Wed, Thu, Fri, Sat, Sun	<input type="checkbox"/>

Edit schedule options to allow configuration of firewall and power savings services. Fill in the schedule and select type of service. Click <Apply> to keep the settings.

Wireless Network Broadband Router AP Router Mode ▾

[Status](#) | [LAN](#) | [DHCP](#) | **[Schedule](#)** | [Event Log](#) | [Monitor](#) | [Language](#)

You can use the Schedule page to Start/Stop the Services regularly. The services will start at the time in the following Schedule Table or it will stop.

Schedule Description :	<input type="text" value="schedule 02"/>
Service :	<input type="checkbox"/> Firewall <input type="checkbox"/> Power Saving
Days :	<input type="checkbox"/> Every Day <input type="checkbox"/> Mon <input type="checkbox"/> Tue <input type="checkbox"/> Wed <input type="checkbox"/> Thu <input type="checkbox"/> Fri <input type="checkbox"/> Sat <input type="checkbox"/> Sun
Time of day :	<input type="checkbox"/> All Day (use 24-hour clock) From <input type="text" value="0"/> : <input type="text" value="0"/> To <input type="text" value="0"/> : <input type="text" value="0"/>

The schedule table lists the pre-schedule service-runs. You can select any of the schedule record using the check box.

Wireless Network Broadband Router AP Router Mode ▾

Status | LAN | DHCP | **Schedule** | Event Log | Monitor | Language

You can use the Schedule page to Start/Stop the Services regularly. The Schedule will start to run, when it get GMT Time from Time Server. Please set up the Time Server correctly in Toolbox. The services will start at the time in the following Schedule Table or it will stop.

Enabled Schedule Table (up to 8)

NO.	Description	Service	Schedule	Select
1	schedule 01	Firewall	All Time--Mon, Tue, Wed, Thu, Fri, Sat, Sun	<input type="checkbox"/>
2	schedule 02	Power Saving	All Time--Mon, Tue, Wed, Thu, Fri, Sat, Sun	<input type="checkbox"/>
3	schedule 03	Power Saving+Firewall	All Time--Mon, Tue, Wed, Thu, Fri, Sat, Sun	<input type="checkbox"/>

Add | Edit | Delete Selected | Delete All

Apply | Cancel

- Event Log

View **operation event log**. This page shows the current system log of the Broadband router. It displays any event occurred after system start up. At the bottom of the page, the system log can be saved **<Save>** to a local file for further processing or the system log can be cleared **<Clear>** or it can be refreshed **<Refresh>** to get the most updated information. When the system is powered down, the system log will be cleared if not saved to a local file.

Wireless Network Broadband Router AP Router Mode ▾

Status | LAN | DHCP | Schedule | **Event Log** | Monitor | Language

View the system operation information.

```

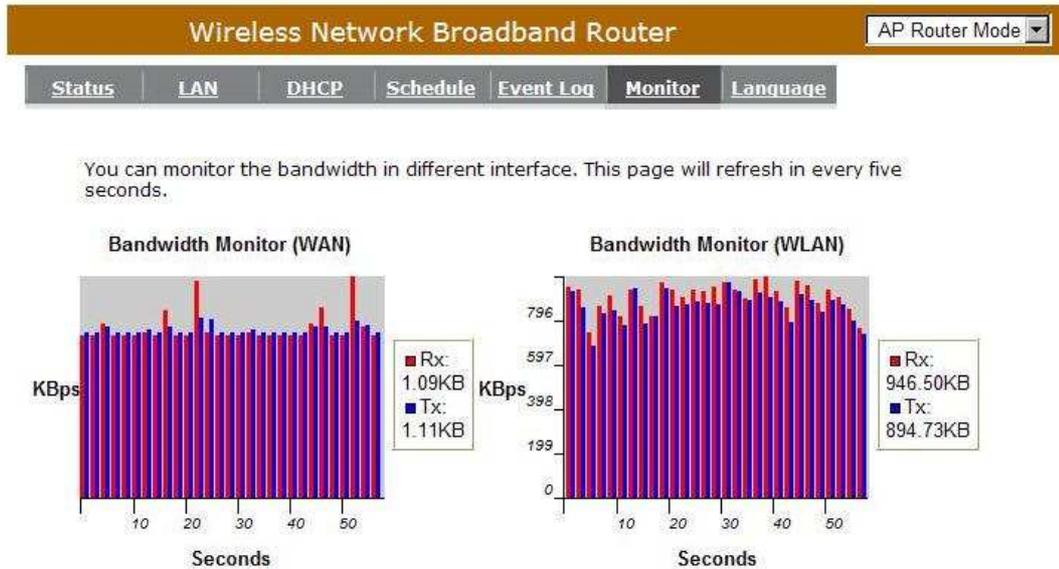
day 1 01:58:35 [SYSTEM]: WAN, Automatic Detection
day 1 01:55:35 [SYSTEM]: WAN, Automatic Detection
day 1 01:41:13 [SYSTEM]: DHCP Server, Sending ACK of 192.168.0.102
day 1 01:41:13 [SYSTEM]: DHCP Server, Sending OFFER of 192.168.0.102
day 1 01:32:34 [SYSTEM]: DHCP Server, Sending ACK of 192.168.0.100
day 1 01:32:34 [SYSTEM]: DHCP Server, Sending OFFER of 192.168.0.100
day 1 01:31:48 [SYSTEM]: DHCP Server, Sending ACK of 192.168.0.100
day 1 01:31:47 [SYSTEM]: DHCP Server, Sending OFFER of 192.168.0.100
day 1 00:00:29 [SYSTEM]: UPNP, Stopping

```

Save | Clear | Refresh

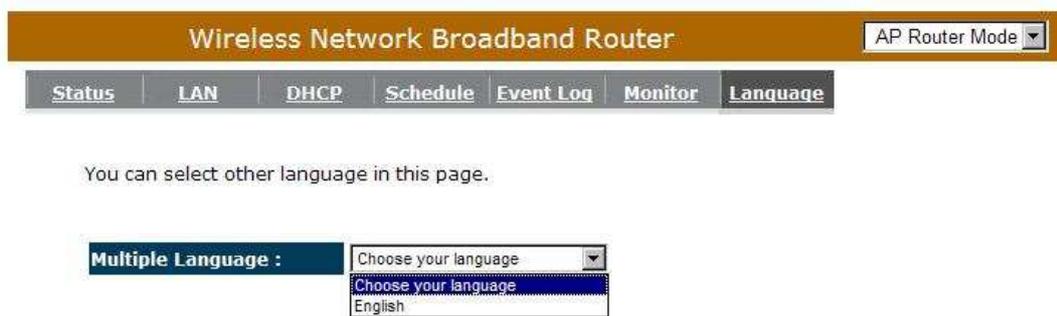
- Monitor

Show histogram for network connection on WAN, LAN & WLAN. Auto refresh keeps information updated frequently.



- Language

This Wireless Router support multiple language of web pages, You could select your native language here.



■ Wizard

Click **Wizard** to configure the Broadband Router. Setup wizard will now be displayed; check that the modem is connected and click **<Next>**. The details please refer to **Smart Wizard <Page 13>**.

The screenshot shows the web interface of an EnGenius ESR-9753 Wireless Network Broadband Router. On the left is a dark blue navigation menu with the following items: System, Wizard (highlighted with a dotted border), Internet, Wireless, Firewall, Advanced, and Tools. The main content area has a title bar that says "Wireless Network Broadband Router" and "AP Router Mode" with a dropdown arrow. Below the title bar is a window titled "Setup Wizard" containing the text: "The Setup Wizard will guide you step by step through a basic configuration procedure." and a "Next" button at the bottom right. At the bottom of the page is a dark blue banner with five feature icons: "POWER SAVING" (a globe), "Antenna Upgradable" (an antenna), "HACKER SHIELD" (a shield with a cross), "WEP TKIP AES" (a padlock), and "WDS" (a laptop and a sphere).

INTERNET

- Status

This page shows the current Internet connection type and status

Wireless Network Broadband Router AP Router Mode ▾

Status Dynamic IP Static IP PPPOE PPTP

View the current internet connection status and related information.

WAN Settings

Attain IP Protocol	Dynamic IP Address
IP address	10.0.174.59
Subnet Mask	255.255.254.0
Default Gateway	10.0.175.254
MAC address	00:AA:BB:CC:DD:11
Primary DNS	10.0.200.101,10.0.200.102

- Dynamic IP

Use the MAC address when registering for Internet service, and do not change it unless required by your ISP. If your ISP used the MAC address of the Ethernet card as an identifier, connect only the PC with the registered MAC address to the broadband router and click the **<Clone MAC Address>** button. This will replace the current MAC address with the already registered Ethernet card MAC address.

Wireless Network Broadband Router AP Router Mode ▾

Status Dynamic IP Static IP PPPOE PPTP

You can select the type of the account you have with your ISP provider.

Hostname :		
MAC address:	000000000000	<input type="button" value="Clone MAC"/>

Host Name: This is optional.

MAC address: The default value is set to the WAN's physical interface of the broadband router.

- Static IP

If your ISP Provider has assigned a fixed IP address, enter the assigned IP address, Subnet mask, Default Gateway IP address, and Primary DNS and Secondary DNS (if available) of your ISP provider.

Wireless Network Broadband RouterAP Router Mode ▾

StatusDynamic IPStatic IPPPPOEPPTP

You can select the type of the account you have with your ISP provider.

IP address:	172.1.1.1
IP Subnet Mask :	255.255.0.0
Default Gateway :	172.1.1.254
Primary DNS :	
Secondary DNS :	

Apply Cancel

- Point-to-Point over Ethernet Protocol (PPPoE)

Wireless Network Broadband RouterAP Router Mode ▾

StatusDynamic IPStatic IPPPPOEPPTP

You can select the type of the account you have with your ISP provider.

Login :	username
Password :	●●●●●●●●
Service Name	
MTU :	1492 (512<=MTU Value<=1492)
Authentication type :	Auto ▾
Type :	Keep Connection ▾ Connect Disconnect
Idle Timeout :	10 (1-1000 Minutes)

Apply Cancel

Login / Password: Enter the PPPoE username and password assigned by your ISP Provider.

Service Name: This is normally optional.

Maximum Transmission Unit (MTU): This is the maximum size of the packets.

Type: Enable the **Automatic Connection** option to automatically re-establish the connection when an application attempts to access the Internet again.

Idle Timeout (available only under Automatic Connection): This is a maximum period of time for which the Internet connection is maintained during inactivity. If the connection is inactive for longer than the Maximum Idle Time, it will be dropped.

- Point-to-Point Tunneling Protocol (PPTP)

The screenshot shows the configuration page for a Wireless Network Broadband Router, specifically the PPTP settings. The page has a header with the router name and a dropdown menu for 'AP Router Mode'. Below the header is a navigation bar with tabs for 'Status', 'Dynamic IP', 'Static IP', 'PPPOE', and 'PPTP'. The main content area contains a message: 'You can select the type of the account you have with your ISP provider.' Below this, there are two sections: 'WAN Interface Settings' and 'PPTP Settings'. The 'WAN Interface Settings' section includes a dropdown for 'WAN Interface Type' (set to 'Dynamic IP Address'), a text field for 'Hostname', and a text field for 'MAC Address' (set to '000000000000') with a 'Clone Mac' button. The 'PPTP Settings' section includes text fields for 'Login', 'Password', 'Service IP address', 'ConnectionID' (set to '0' with '(Optional)' next to it), and 'MTU' (set to '1400' with '(512<=MTU Value<=1492)' next to it).

PPTP allows the secure connection over the Internet by simply dialing in a local point provided by your ISP provider. The following screen allows client PCs to establish a normal PPTP session and provides hassle-free configuration of the PPTP client on each client PC.

Click <Apply> to save configuration and connect to ISP provider.

■ Wireless Settings

- Basic

In basic setting page, you can set wireless Radio, Mode, Band, SSID, and Channel.

The screenshot shows the configuration page for a Wireless Network Broadband Router. The title bar indicates 'AP Router Mode'. The 'Basic' tab is selected, with other tabs including Advanced, Security, Filter, WPS, Client List, and Policy. A descriptive text states: 'This page allows you to define SSID, and Channel for the wireless connection. These parameters are used for the wireless stations to connect to the Access Point.' The configuration fields are as follows:

Radio :	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Mode :	AP
Band :	2.4 GHz (B+G+N)
Enabled SSID#:	1
SSID1 :	EnGeniusCCDD10
Auto Channel :	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
Channel :	11

Buttons for 'Apply' and 'Cancel' are located at the bottom right of the form.

Radio: You can turn on/off wireless radio. If wireless Radio is off, you cannot associate with AP through wireless.

Mode: In this device, we support three operation modes which are **AP router** and **AP route with WDS**. If you choose AP Router Mode, you can select AP or WDS function in the drop-down menu.

Band: You can select the wireless standards running on your network environment.

2.4 GHz(B): If all your clients are 802.11b, select this one.

2.4 GHz(N): If all your clients are 802.11n, select this one.

2.4 GHz(B+G): Either 802.11b or 802.11g wireless devices are in your environment.

2.4 GHz(G): If all your clients are 802.11g, select this one.

2.4 GHz(B+G+N): Either 802.11b, 802.11g, or 802.11n wireless devices are in your environment.

Enable ESSID: We support 4 multiple SSIDs in this device. Please select how many SSIDs you would like to use in your network environment.

ESSID1~4: ESSID is the name of your wireless network. It might be a unique name to identify this wireless device in the Wireless LAN. It is case sensitive and up to 32 printable characters. You might change the default ESSID for added security.

Auto Channel: Device will search all valid channels, then select a cleanest channel and change to this channel if you enable this function. Depend on this function is enabled or not, you will see different items below **Auto Channel**.

Channel: If Auto Channel is disabled, you should choose a static channel and AP will use this channel to communicate with other clients.

Check Channel Time: If Auto Channel is enabled, you can choose a period from the drop-down menu. AP will change to a clean channel periodically.

- WDS with AP Router

Wireless Distribution System, a system that enables the wireless interconnection of access point, allows a wireless network to be extended using multiple APs without a wired backbone to link them. Each WDS AP needs same channel and encryption type settings.

The screenshot shows the configuration page for a Wireless Network Broadband Router in AP Router Mode. The page has a navigation bar with tabs: Basic, Advanced, Security, Filter, WPS, Client List, and Policy. The WPS tab is selected. Below the navigation bar, there is a descriptive text: "This page allows you to define SSID, and Channel for the wireless connection. These parameters are used for the wireless stations to connect to the Access Point." The configuration fields are as follows:

Radio :	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
Mode :	WDS
Band :	2.4 GHz (B+G+N)
Enabled SSID#:	1
SSID1 :	EnGeniusCCDD10
Auto Channel :	<input type="radio"/> Enable <input checked="" type="radio"/> Disable
Channel :	11
MAC address 1 :	000000000000
MAC address 2 :	000000000000

MAC address 1~4: Please enter the MAC address(es) of the neighboring APs which participate in WDS. There can be maximum of 4 devices now.

Set Security: WDS Security depends on your AP security settings. Note: it does not support **mixed mode** such as WPA-PSK/WPA2-PSK Mixed mode.

- Advanced

This tab allows you to set the advanced wireless options. You should not change these parameters unless you know what effect the changes will have on the router.

The screenshot shows the 'Advanced' tab of a 'Wireless Network Broadband Router' configuration page. The page title is 'Wireless Network Broadband Router' and the mode is 'AP Router Mode'. The 'Advanced' tab is selected, with other tabs being 'Basic', 'Security', 'Filter', 'WPS', 'Client List', and 'Policy'. A warning message states: 'These settings are only for more technically advanced users who have a sufficient knowledge about wireless LAN. These settings should not be changed unless you know what effect the changes will have on your Broadband router.' The settings are as follows:

Fragment Threshold :	<input type="text" value="2346"/>	(256-2346)
RTS Threshold :	<input type="text" value="2347"/>	(0-2347)
Beacon Interval :	<input type="text" value="100"/>	(20-1024 ms)
DTIM Period :	<input type="text" value="1"/>	(1-10)
Data rate :	<input type="text" value="Auto"/>	
N Data rate:	<input type="text" value="Auto"/>	
Channel Bandwidth	<input checked="" type="radio"/> Auto 20/40 MHZ <input type="radio"/> 20 MHZ	
Preamble Type :	<input type="radio"/> Long Preamble <input checked="" type="radio"/> Short Preamble	
CTS Protection :	<input type="radio"/> Auto <input type="radio"/> Always <input checked="" type="radio"/> None	

Fragment Threshold: This specifies the maximum size of a packet during the fragmentation of data to be transmitted. If you set this value too low, it will result in bad performance.

RTS Threshold: When the packet size is smaller than the RTS threshold, the wireless router will not use the RTS/CTS mechanism to send this packet.

Beacon Interval: This is the interval of time that this wireless router broadcasts a beacon. A Beacon is used to synchronize the wireless network.

DTIM Period: Enter a value between 1 and 255 for the Delivery Traffic Indication Message (DTIM). A DTIM is a countdown informing clients of the next window for listening to broadcast and multicast messages.

Data Rate: The “Data Rate” is the rate that this access point uses to transmit data packets. The access point will use the highest possible selected transmission rate to transmit the data packets.

N Data Rate: The “Data Rate” is the rate that this access point uses to transmit data packets for N compliant wireless nodes. Highest to lowest data rate can be fixed.

Channel Bandwidth: This is the range of frequencies that will be used.

Preamble Type: The “Long Preamble” can provide better wireless LAN compatibility while the “Short Preamble” can provide better wireless LAN performance.

CTS Protection: It is recommended to enable the protection mechanism. This mechanism can decrease the rate of data collision between 802.11b and 802.11g wireless stations. When the protection mode is enabled, the throughput of the AP will be a little lower due to a lot of frame-network that is transmitted.

- Security

This Access Point provides complete wireless LAN security functions, included are WEP, IEEE 802.1x, IEEE 802.1x with WEP, WPA with pre-shared key and WPA with RADIUS. With these security functions, you can prevent your wireless LAN from illegal access. Please make sure your wireless stations use the same security function, and are setup with the same security key.

Wireless Network Broadband Router AP Router Mode

Basic Advanced **Security** Filter WPS Client List Policy

This page allows you setup the wireless security. Turn on WEP or WPA by using Encryption Keys could prevent any unauthorized access to your wireless network.

SSID Selection : EnGeniusCCDD10

Broadcast SSID : Enable

WMM : Enable

Encryption : Disable

Enable 802.1x Authentication

Apply Cancel

ESSID Selection: This broadband router support multiple ESSID, you could select and set up the wanted ESSID.

Broadcast ESSID: If you enabled “Broadcast ESSID”, every wireless station located within the coverage of this AP can discover this AP easily. If you are building a public wireless network, enabling this feature is recommended. Disabling “Broadcast ESSID” can provide better security.

WMM: Wi-Fi MultiMedia if enabled supports QoS for experiencing better audio, video and voice in applications.

Encryption: When you choose to disable encryption, it is very insecure to operate ESR1221N.

Enable 802.1x Authentication

IEEE 802.1x is an authentication protocol. Every user must use a valid account to login to this Access Point before accessing the wireless LAN. The authentication is processed by a RADIUS server. This mode only authenticates users by IEEE 802.1x, but it does not encrypt the data during communication.

SSID Selection :	EnGeniusCCDD10
Broadcast SSID :	Enable
WMM :	Enable
Encryption :	Disable
<input checked="" type="checkbox"/> Enable 802.1x Authentication	
RADIUS Server IP address :	
RADIUS Server port :	1812
RADIUS Server password :	
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>	

WEP Encryption

When you select 64-bit or 128-bit WEP key, you have to enter WEP keys to encrypt data. You can generate the key by yourself and enter it. You can enter four WEP keys and select one of them as a default key. Then AP can receive any packet encrypted by one of the four keys.

SSID Selection :	EnGeniusCCDD10
Broadcast SSID :	Enable
WMM :	Enable
Encryption :	WEP
Authentication type :	<input checked="" type="radio"/> Open System <input type="radio"/> Shared Key <input type="radio"/> Auto
Key Length :	64-bit
Key type :	ASCII (5 characters)
Default key :	Key 1
Encryption Key 1 :	*****
Encryption Key 2 :	*****
Encryption Key 3 :	*****
Encryption Key 4 :	*****

Authentication Type: There are two authentication types: "**Open System**" and "**Shared Key**". Both AP and wireless client must be configured with the same authentication type.

Key Length: You can select the WEP key length for encryption, 64-bit or 128-bit. The larger the key will be the higher level of security is used, but the throughput will be lower.

Key Type: You may select ASCII Characters (alphanumeric format) or Hexadecimal Digits (in the "A-F", "a-f" and "0-9" range) to be the WEP Key.

Default Key: It's the key used to encrypt data.

Key1 - Key4: The WEP keys are used to encrypt data transmitted in the wireless network. Use the following rules to setup a WEP key on the device.

64-bit WEP: input 10-digits Hex values (in the "A-F", "a-f" and "0-9" range) or 5-digit ASCII character as the encryption keys.

128-bit WEP: input 26-digit Hex values (in the "A-F", "a-f" and "0-9" range) or 13-digit ASCII characters as the encryption keys.

Click **<Apply>** at the bottom of the screen to save the above configurations.

WPA Pre-Shared Key Encryption

Wi-Fi Protected Access (WPA) is an advanced security standard. You can use a pre-shared key to authenticate wireless stations and encrypt data during communication. It uses TKIP or CCMP (AES) to change the encryption key frequently. So the encryption key is not easy to be cracked by hackers. This is the best security available.

SSID Selection :	EnGeniusCCDD10
Broadcast SSID :	Enable
WMM :	Enable
Encryption :	WPA pre-shared key
WPA type :	<input checked="" type="radio"/> WPA(TKIP) <input type="radio"/> WPA2(AES) <input type="radio"/> WPA2 Mixed
Pre-shared Key type :	Passphrase
Pre-shared Key :	

WPA-RADIUS Encryption

Wi-Fi Protected Access (**WPA**) is an advanced security standard. You can use an external RADIUS server to authenticate wireless stations and provide the session key to encrypt data during communication.

It uses **TKIP** or CCMP (**AES**) to change the encryption key frequently. Press **<Apply>** button when you are done.

SSID Selection :	EnGeniusCCDD10
Broadcast SSID :	Enable
WMM :	Enable
Encryption :	WPA RADIUS
WPA type :	<input checked="" type="radio"/> WPA(TKIP) <input type="radio"/> WPA2(AES) <input type="radio"/> WPA2 Mixed
RADIUS Server IP address :	
RADIUS Server port :	1812
RADIUS Server password :	

- MAC Address Filtering

This wireless router supports MAC Address Control, which prevents unauthorized clients from accessing your wireless network.

The screenshot shows the configuration interface for a Wireless Network Broadband Router. The title bar reads "Wireless Network Broadband Router" and "AP Router Mode". The navigation tabs include Basic, Advanced, Security, Filter, WPS, Client List, and Policy. The "Filter" tab is selected. The main content area contains the following elements:

- A text box: "For security reason, the Access Point features MAC Address Filtering which only allows authorized MAC Addresses to associate with the Access Point."
- A checkbox: Enable Wireless Access Control
- A table for adding MAC addresses:

Description	MAC address
<input type="text"/>	<input type="text"/>

Buttons: Add, Reset
- A table titled "MAC Address Filtering Table":

NO.	Description	MAC address	Select
-----	-------------	-------------	--------

Buttons: Delete Selected, Delete All, Reset
- Buttons: Apply, Cancel

Enable wireless access control: Enable the wireless access control function

Adding an address into the list

Enter the "MAC Address" and "Description" of the wireless station to be added and then click **<Add>**. The wireless station will now be added into the "MAC Address Filtering Table" below. If you are having any difficulties filling in the fields, just click "Reset" and both "MAC Address" and "Description" fields will be cleared.

Remove an address from the list

If you want to remove a MAC address from the "MAC Address Filtering Table", select the MAC address that you want to remove in the list and then click "Delete Selected". If you want to remove all the MAC addresses from the list, just click the **<Delete All>** button. Click **<Reset>** will clear your current selections.

Click **<Apply>** at the bottom of the screen to save the above configurations.

- Wi-Fi Protected Setup (WPS)

WPS is the simplest way to establish a connection between the wireless clients and the wireless router. You don't have to select the encryption mode and fill in a long encryption passphrase every time when you try to setup a wireless connection. You only need to press a button on both wireless client and wireless router, and the WPS will do the rest for you.

The wireless router supports two types of WPS: WPS via Push Button and WPS via PIN code. If you want to use the Push Button, you have to push a specific button on the wireless client or in the utility of the wireless client to start the WPS mode, and switch the wireless router to WPS mode. You can simply push the WPS button of the wireless router, or click the 'Start to Process' button in the web configuration interface. If you want to use the PIN code, you have to know the PIN code of the wireless client and switch it to WPS mode, then fill-in the PIN code of the wireless client through the web configuration interface of the wireless router.

The screenshot shows the configuration page for a Wireless Network Broadband Router, specifically the WPS (Wi-Fi Protected Setup) settings. The page title is "Wireless Network Broadband Router" and it is currently in "AP Router Mode". The navigation tabs include Basic, Advanced, Security, Filter, WPS, Client List, and Policy. The WPS settings are as follows:

WPS:	<input checked="" type="checkbox"/> Enable
Wi-Fi Protected Setup Information	
WPS Current Status:	unConfigured
Self Pin Code:	34259368
SSID:	EnGeniusCCDD10
Authentication Mode:	Disable
Passphrase Key:	<input type="text"/>
WPS Via Push Button:	<input type="button" value="Start to Process"/>
WPS via PIN:	<input type="text"/> <input type="button" value="Start to Process"/>

WPS: Check the box to enable WPS function and uncheck it to disable the WPS function.

WPS Current Status: If the wireless security (encryption) function of this wireless router is properly set, you'll see a 'Configured' message here. Otherwise, you'll see '**UnConfigured**'.

Self Pin Code: This is the WPS PIN code of the wireless router. You may need this information when connecting to other WPS-enabled wireless devices.

SSID: This is the network broadcast name (SSID) of the router.

Authentication Mode: It shows the active authentication mode for the wireless connection.

Passphrase Key: It shows the passphrase key that is randomly generated by the wireless router during the WPS process. You may need this information when using a device which doesn't support WPS.

Interface: If device is set to repeater mode, you can choose "**Client**" interface to connect with other AP by using WPS, otherwise you may choose "**AP**" interface to do WPS with other clients.

WPS via Push Button: Press the button to start the WPS process. The router will wait for the WPS request from the wireless devices within 2 minutes.

WPS via PIN: You can fill-in the PIN code of the wireless device and press the button to start the WPS process. The router will wait for the WPS request from the wireless device within 2 minutes.

- Client List

This WLAN Client Table shows the Wireless client associate to this Wireless Router.

Wireless Network Broadband RouterAP Router Mode ▾

BasicAdvancedSecurityFilterWPSClient ListPolicy

WLAN Client Table :

This WLAN Client Table shows client MAC address associate to this Broadband Router

Interface	MAC address	Signal (%)	Idle Time
EnGeniusCCDD10	00:0C:43:28:70:00	100	5 secs

- Policy

The Broadband router can allow you to set up the Wireless Access Policy.

WAN Connection: Allow Wireless Client on specific SSID to access WAN port.

Communication between Wireless clients: Allow Wireless Client to communicate with other Wireless Client on specific SSID.

Communication between Wireless clients and wired clients: Allow Wireless Client to communicate with other Wireless Client on specific SSID and Wired Client on the switch. Or Wireless Client will allow to access WAN port only

Wireless Network Broadband RouterAP Router Mode ▾

BasicAdvancedSecurityFilterWPSClient ListPolicy

SSID 1 Connection Control Policy

WAN Connection	Enable ▾
Communication between Wireless clients	Enable ▾
Communication between Wireless clients and Wired clients	Enable ▾

■ Firewall Settings

The Broadband router provides extensive firewall protection by restricting connection parameters, thus limiting the risk of hacker attacks, and defending against a wide array of common Internet attacks. However, for applications that require unrestricted access to the Internet, you can configure a specific client/server as a Demilitarized Zone (DMZ).

The screenshot shows the 'Wireless Network Broadband Router' configuration page. At the top right, there is a dropdown menu for 'AP Router Mode'. Below this is a navigation bar with tabs for 'Enable', 'Advanced', 'DMZ', 'DoS', 'MAC Filter', 'IP Filter', and 'URL Filter'. The 'Enable' tab is currently selected. Below the navigation bar, there is a text box containing the following information: 'Firewall automatically detects and blocks Denial of Service (DoS) attacks. URL blocking, packet filtering and SPI (Stateful Packet Inspection) are also supported. The hackers attack will be recorded associated with timestamp in the security logging area.' Below this text box, there is a 'Firewall' section with two radio buttons: 'Enable' (which is selected) and 'Disable'. At the bottom right of the page, there is an 'Apply' button.

Note: To enable the Firewall settings select Enable and click Apply

- Advanced

You can allow the VPN packets to pass through this Broadband router.

The screenshot shows the 'Advanced' tab of the Firewall settings. At the top right, there is a dropdown menu for 'AP Router Mode'. Below this is a navigation bar with tabs for 'Enable', 'Advanced', 'DMZ', 'DoS', 'MAC Filter', 'IP Filter', and 'URL Filter'. The 'Advanced' tab is currently selected. Below the navigation bar, there is a table with two columns: 'Description' and 'Select'. The table contains two rows: 'VPN PPTP Pass-Through' and 'VPN IPSec Pass-Through', both of which have a checked checkbox in the 'Select' column. At the bottom right of the page, there are 'Apply' and 'Cancel' buttons.

Description	Select
VPN PPTP Pass-Through	<input checked="" type="checkbox"/>
VPN IPSec Pass-Through	<input checked="" type="checkbox"/>

- Demilitarized Zone (DMZ)

If you have a client PC that cannot run an Internet application (e.g. Games) properly behind the NAT firewall, then you can open up the firewall restrictions to unrestricted two-way Internet access by defining a DMZ Host. The DMZ function allows you to re-direct all packets going to your WAN port IP address to a particular IP address in your LAN. The difference between the virtual server and the DMZ function is that the virtual server re-directs a particular service/Internet application (e.g. FTP, websites) to a particular LAN client/server, whereas DMZ re-directs all packets (regardless of services) from your WAN IP address to a particular LAN client/server.

The screenshot shows the configuration interface for a Wireless Network Broadband Router. At the top, there is a title bar with the text "Wireless Network Broadband Router" and a dropdown menu set to "AP Router Mode". Below the title bar is a navigation menu with tabs for "Enable", "Advanced", "DMZ", "DoS", "MAC Filter", "IP Filter", and "URL Filter". The "DMZ" tab is currently selected. Below the navigation menu, there is a descriptive text: "If you have a local client PC that cannot run an Internet application properly from behind the NAT firewall, you can open unrestricted two-way Internet access for this client by defining a Virtual DMZ Host." Below this text is a checkbox labeled "Enable DMZ" which is currently unchecked. To the right of the checkbox is a label "Local IP Address:" followed by an empty text input field and a dropdown menu with the text "Please select a PC.". At the bottom right of the form are two buttons: "Apply" and "Cancel".

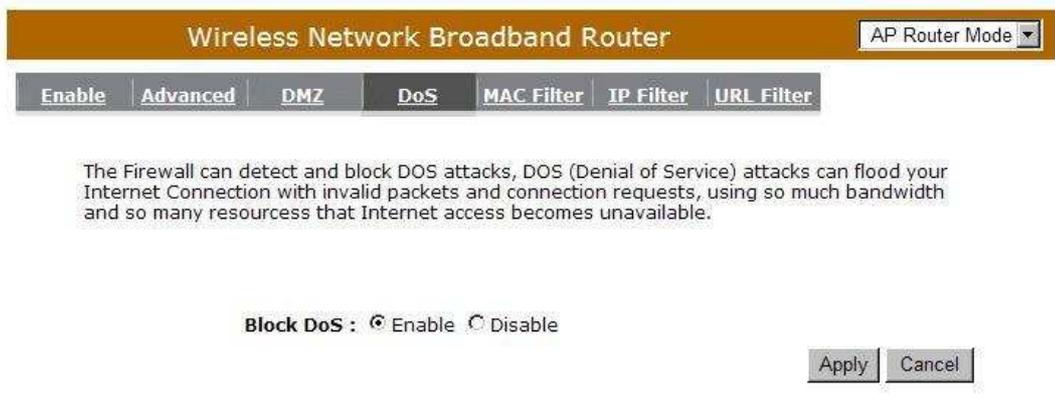
Enable DMZ: Enable/disable DMZ

LAN IP Address: Fill-in the IP address of a particular host in your LAN Network or select a PC from the list on the right that will receive all the packets originally from the WAN port/Public IP address.

Click **<Apply>** at the bottom of the screen to save the above configurations.

- Denial of Service (DoS)

The Broadband router's firewall can block common hacker attacks, including Denial of Service, Ping of Death, Port Scan and Sync Flood. If Internet attacks occur the router can log the events.



Ping of Death: Protections from Ping of Death attack.

Discard Ping From WAN: The router's WAN port will not respond to any Ping requests

Port Scan: Protects the router from Port Scans.

Sync Flood: Protects the router from Sync Flood attack.

- MAC Filter

If you want to restrict users from accessing certain Internet applications / services (e.g. Internet websites, email, FTP etc.), and then this is the place to set that configuration. MAC Filter allows users to define the traffic type permitted in your LAN. You can control which PC client can have access to these services.

Wireless Network Broadband Router AP Router Mode

[Enable](#) [Advanced](#) [DMZ](#) [DoS](#) [MAC Filter](#) [IP Filter](#) [URL Filter](#)

MAC Filters are used to deny or allow LAN computers from accessing the Internet.

Enable MAC filtering

Deny all clients with MAC address listed below to access the network

Allow all clients with MAC address listed below to access the network

Description	LAN MAC Address
<input type="text"/>	<input type="text"/>

MAC Filtering table:

NO.	Description	LAN MAC Address	Select
-----	-------------	-----------------	--------

Enable MAC Filtering: Check to enable or disable MAC Filtering.

Deny: If you select “Deny” then all clients will be allowed to access Internet except the clients in the list below.

Allow: If you select “Allow” then all clients will be denied to access Internet except the PCs in the list below.

Add PC MAC Address

Fill in “**LAN MAC Address**” and **<Description>** of the PC that is allowed / denied to access the Internet, and then click **<Add>**. If you find any typo before adding it and want to retype again, just click **<Reset>** and the fields will be cleared.

Remove PC MAC Address

If you want to remove some PC from the "**MAC Filtering Table**", select the PC you want to remove in the table and then click **<Delete Selected>**. If you want to remove all PCs from the table, just click the **<Delete All>** button. If you want to clear the selection and re-select again, just click **<Reset>**.

Click **<Apply>** at the bottom of the screen to save the above configurations.

- IP Filter

Wireless Network Broadband Router AP Router Mode

Enable Advanced DMZ DoS MAC Filter **IP Filter** URL Filter

IP Filters are used to deny or allow LAN computers from accessing the Internet.

Enable IP Filtering Table

Deny all clients with IP address listed below to access the network
 Allow all clients with IP address listed below to access the network

Description :

Protocol : Both

Local IP Address : ~

Port range : ~

Add Reset

NO.	Description	Local IP Address	Protocol	Port range	Select

Delete Selected Delete All Reset

Enable IP Filtering: Check to enable or uncheck to disable IP Filtering.

Deny: If you select “**Deny**” then all clients will be allowed to access Internet except for the clients in the list below.

Allow: If you select “**Allow**” then all clients will be denied to access Internet except for the PCs in the list below.

Add PC IP Address

You can click **<Add>** PC to add an access control rule for users by an IP address or IP address range.

Remove PC IP Address

If you want to remove some PC IP from the **<IP Filtering Table>**, select the PC you want to remove in the table and then click **<Delete Selected>**. If you want to remove all PCs from the table, just click the **<Delete All>** button.

Click **<Apply>** at the bottom of the screen to save the above configurations.

- URL Filter

You can block access to some Web sites from particular PCs by entering a full URL address or just keywords of the Web site.

Wireless Network Broadband RouterAP Router Mode ▾

EnableAdvancedDMZDoSMAC FilterIP FilterURL Filter

You can block access to certain Web sites for a particular PC by entering either a full URL address or just a keyword of the Web site

Enable URL Blocking

URL/keyword

Current URL Blocking Table:

NO.	URL/keyword	Select
1	hello	<input type="checkbox"/>

Enable URL Blocking: Enable or disable URL Blocking

Add URL Keyword

Fill in "URL/Keyword" and then click **<Add>**. You can enter the full URL address or the keyword of the web site you want to block. If you happen to make a mistake and want to retype again, just click "Reset" and the field will be cleared.

Remove URL Keyword

If you want to remove some URL keywords from the "**Current URL Blocking Table**", select the URL keyword you want to remove in the table and then click **<Delete Selected>**.

If you want remove all URL keywords from the table, click **<Delete All>** button. If you want to clear the selection and re-select again, just click **<Reset>**.

Click **<Apply>** at the bottom of the screen to save the above configurations

■ Advanced Settings

- Network Address Translation (NAT)

Network Address Translation (NAT) allows multiple users at your local site to access the Internet through a single Public IP Address or multiple Public IP Addresses. NAT provides Firewall protection from hacker attacks and has the flexibility to allow you to map Private IP Addresses to Public IP Addresses for key services such as Websites and FTP. Select Disable to disable the NAT function.

The screenshot shows the configuration interface for a Wireless Network Broadband Router. At the top, there is a title bar with the text "Wireless Network Broadband Router" and a dropdown menu set to "AP Router Mode". Below this is a navigation bar with several tabs: "NAT", "Port map.", "Port fw.", "Port tri.", "ALG", "UPnP", "QoS", and "Routing". The "NAT" tab is currently selected. Below the navigation bar, there is a descriptive paragraph: "NAT(Network Address Translation) involves re-writing the source and/or destination addresses of IP packets as they pass through a Router or firewall, NAT enable multiple hosts on a private network to access the Internet using a single public IP address." Underneath this text, there is a label "NAT:" followed by two radio buttons: "Enable" (which is selected) and "Disable". At the bottom right of the configuration area, there is an "Apply" button.

- Port Mapping

Port Mapping allows you to re-direct a particular range of service port numbers (from the Internet / WAN Port) to a particular LAN IP address. It helps you to host servers behind the router NAT firewall.

The screenshot shows the configuration interface for a Wireless Network Broadband Router. At the top, there is a title bar with the text "Wireless Network Broadband Router" and a dropdown menu set to "AP Router Mode". Below the title bar is a navigation menu with tabs for "NAT", "Port map.", "Port fw.", "Port tri.", "ALG", "UPnP", "QoS", and "Routing". The "Port map." tab is selected.

Below the navigation menu, there is a descriptive text: "Entries in this table allow you to automatically redirect common network services to a specific PC behind the NAT firewall. These settings are only necessary if you wish to host some sort of server like a web server or mail server on the local network."

There is a checkbox labeled "Enable Port Mapping" which is currently unchecked.

Below the checkbox are four input fields:

- Description : [text input]
- Local IP : [text input]
- Protocol : [dropdown menu with "Both" selected]
- Port range : [text input] ~ [text input]

There are two buttons: "Add" and "Reset".

Below the input fields is a section titled "Current Port Mapping Table:" followed by a table with the following columns: "NO.", "Description", "Local IP", "Type", "Port range", and "Select".

Enable Port Mapping: Enable or disable port mapping function.

Description: description of this setting.

Local IP: This is the local IP of the server behind the NAT firewall.

Protocol: This is the protocol type to be forwarded. You can choose to forward "TCP" or "UDP" packets only, or select "BOTH" to forward both "TCP" and "UDP" packets.

Port Range: The range of ports to be forward to the private IP.

Add Port Mapping

Fill in the "Local IP", "Protocol", "Port Range" and "Description" of the setting to be added and then click "Add". Then this Port Mapping setting will be added into the "Current Port Mapping Table" below. If you find any typo before adding it and want to retype again, just click <Reset> and the fields will be cleared.

Remove Port Mapping

If you want to remove a Port Mapping setting from the "Current Port Mapping Table", select the Port Mapping setting that you want to remove in the table and then click <Delete Selected>. If you want to remove all Port Mapping settings from the table, click <Delete All> button. Click <Reset> will clear your current selections.

Click <Apply> at the bottom of the screen to save the above configurations.

- Port Forwarding (Virtual Server)

Use the Port Forwarding (Virtual Server) function when you want different servers/clients in your LAN to handle different service/Internet application type (e.g. Email, FTP, Web server etc.) from the Internet. Computers use numbers called port numbers to recognize a particular service/Internet application type. The Virtual Server allows you to re-direct a particular service port number (from the Internet/WAN Port) to a particular LAN private IP address (See Glossary for an explanation on Port number).

The screenshot shows the configuration interface for a Wireless Network Broadband Router. At the top, there is a title bar with the text "Wireless Network Broadband Router" and a dropdown menu set to "AP Router Mode". Below the title bar is a navigation menu with tabs for "NAT", "Port map.", "Port fw.", "Port tri.", "ALG", "UPnP", "QoS", and "Routing". The "Port fw." tab is currently selected. The main content area contains a descriptive paragraph: "You can configure the router as a Virtual Server allowing remote users to access services such as Web or FTP at your local PC. Depending on the requested service (TCP/UDP) port number, the router will redirect the external service request to the appropriate internal server (located at one of your local PCs)." Below this text is a checkbox labeled "Enable Port Forwarding" which is currently unchecked. Underneath the checkbox are five input fields: "Description :", "Local IP :", "Protocol :", "Local Port :", and "Public Port :". The "Protocol :" field has a dropdown menu with "Both" selected. At the bottom of the form are two buttons: "Add" and "Reset". Below the form is a section labeled "Current Port Forwarding Table :" followed by a table structure that is mostly empty.

Enable Port Forwarding: Enable or disable Port Forwarding.

Description: The description of this setting.

Local IP / Local Port: This is the LAN Client/Host IP address and Port number that the Public Port number packet will be sent to.

Protocol: Select the port number protocol type (TCP, UDP or both). If you are unsure, then leave it to the default "both" setting. Public Port enters the service (service/Internet application) port number from the Internet that will be re-directed to the above Private IP address host in your LAN Network.

Public Port: Port number will be changed to Local Port when the packet enters your LAN Network.

Add Port Forwarding

Fill in the "**Description**" , "**Local IP**", "**Local Port**", "**Protocol**" and "**Public Port**" of the setting to be added and then click **<Add>** button. Then this Virtual Server setting will be added into the "**Current Port Forwarding Table**" below. If you find any typo before adding it and want to retype again, just click **<Reset>** and the fields will be cleared.

Remove Port Forwarding

If you want to remove Port Forwarding settings from the "**Current Port Forwarding Table**", select the Port Forwarding settings you want to remove in the table and then click "**Delete Selected**". If you want to remove all Port Forwarding settings from the table, just click the **<Delete All>** button. Click **<Reset>** will clear your current selections.

Click **<Apply>** at the bottom of the screen to save the above configurations.

- Port Triggering (Special Applications)

Some applications require multiple connections, such as Internet games, video Conferencing, Internet telephony and others. In this section you can configure the router to support multiple connections for these types of applications.

The screenshot shows the configuration page for Port Triggering on a Wireless Network Broadband Router. The page title is "Wireless Network Broadband Router" and the mode is "AP Router Mode". The navigation menu includes NAT, Port map., Port fw., Port tri., ALG, UPnP, QoS, and Routing. The main content area explains that Port Triggering allows using Internet applications behind a firewall. There is a checkbox for "Enable Trigger Port". Below it are several fields: "Description" (text input), "Popular applications" (dropdown menu with "Add" button), "Trigger port" (two text inputs with a tilde separator), "Trigger type" (dropdown menu), "Public Port" (text input), and "Public type" (dropdown menu). At the bottom, there are "Add" and "Reset" buttons, and a section for the "Current Trigger-Port Table" which is currently empty.

Enable Trigger Port: Enable or disable the Port Trigger function.

Trigger Port: This is the outgoing (Outbound) range of port numbers for this particular application.

Trigger Type: Select whether the outbound port protocol is "TCP", "UDP" or "BOTH".

Public Port: Enter the In-coming (Inbound) port or port range for this type of application (e.g. 2300-2400, 47624)

Public Type: Select the Inbound port protocol type: "TCP", "UDP" or "BOTH"

Popular Applications: This section lists the more popular applications that require multiple connections. Select an application from the Popular Applications selection. Once you have selected an application, select a location (1-5) in the "Add" selection box and then click the <Add> button. This will automatically list the Public Ports required for this popular application in the location (1-5) you specified.

Add Port Triggering

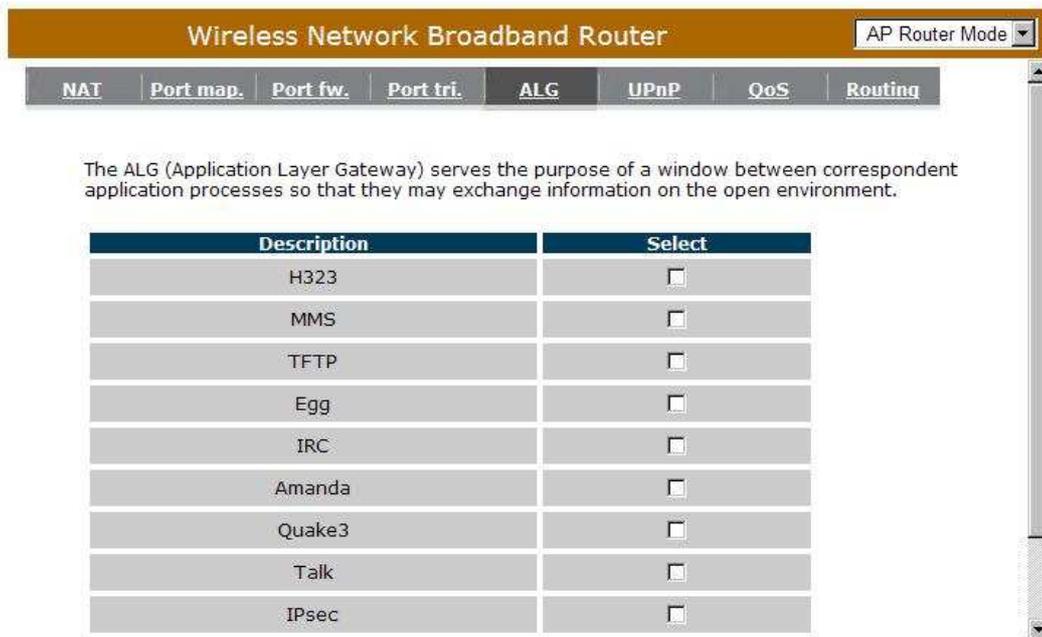
Fill in the "**Trigger Port**", "**Trigger Type**", "**Public Port**", "**Public Type**", "**Public Port**" and "**Description**" of the setting to be added and then Click <Add>. The Port Triggering setting will be added into the "**Current Trigger-Port Table**" below. If you happen to make a mistake, just click <Reset> and the fields will be cleared.

Remove Port Triggering

If you want to remove Special Application settings from the "**Current Trigger-Port Table**", select the Port Triggering settings you want to remove in the table and then click <Delete Selected>. If you want remove all Port Triggering settings from the table, just click the <Delete All> button. Click <Reset> will clear your current selections.

- Application Layer Gateway (ALG)

You can select applications that need **ALG** support. The router will let the selected application to correctly pass through the NAT gateway.

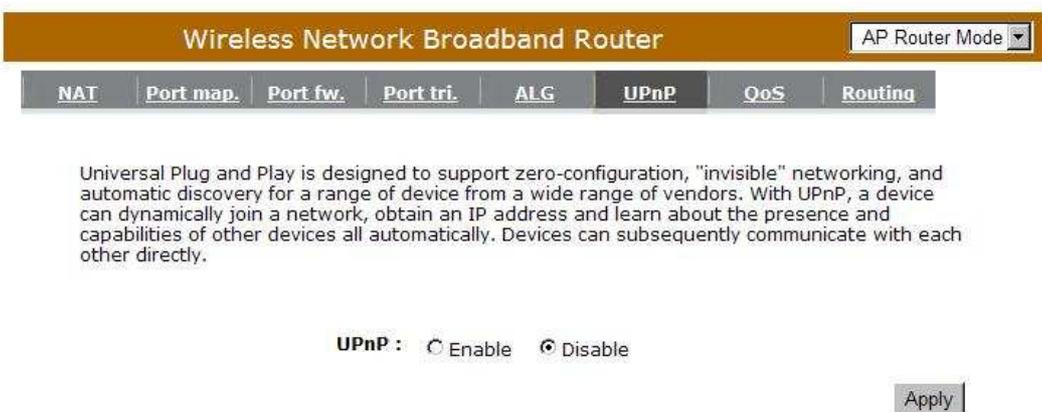


The screenshot shows the configuration page for the ALG (Application Layer Gateway) on a Wireless Network Broadband Router. The page title is "Wireless Network Broadband Router" and the mode is "AP Router Mode". The navigation tabs include NAT, Port map., Port fw., Port tri., ALG (selected), UPnP, QoS, and Routing. A descriptive text states: "The ALG (Application Layer Gateway) serves the purpose of a window between correspondent application processes so that they may exchange information on the open environment." Below this is a table with two columns: "Description" and "Select".

Description	Select
H323	<input type="checkbox"/>
MMS	<input type="checkbox"/>
TFTP	<input type="checkbox"/>
Egg	<input type="checkbox"/>
IRC	<input type="checkbox"/>
Amanda	<input type="checkbox"/>
Quake3	<input type="checkbox"/>
Talk	<input type="checkbox"/>
IPsec	<input type="checkbox"/>

- UPNP

With UPnP, all PCs in your Intranet will discover this router automatically. So, you don't have to configure your PC and it can easily access the Internet through this router.



The screenshot shows the configuration page for UPnP (Universal Plug and Play) on a Wireless Network Broadband Router. The page title is "Wireless Network Broadband Router" and the mode is "AP Router Mode". The navigation tabs include NAT, Port map., Port fw., Port tri., ALG, UPnP (selected), QoS, and Routing. A descriptive text states: "Universal Plug and Play is designed to support zero-configuration, 'invisible' networking, and automatic discovery for a range of device from a wide range of vendors. With UPnP, a device can dynamically join a network, obtain an IP address and learn about the presence and capabilities of other devices all automatically. Devices can subsequently communicate with each other directly." Below this is a radio button control for "UPnP" with "Enable" and "Disable" options. The "Disable" option is selected. An "Apply" button is located at the bottom right.

UPnP : Enable Disable

Apply

Enable/Disable UPnP: You can enable or Disable the UPnP feature here. After you enable the UPnP feature, all client systems that support UPnP, like Windows XP, can discover this router automatically and access the Internet through this router without having to configure anything. The NAT Traversal function provided by UPnP can let applications that support UPnP connect to the internet without having to configure the virtual server sections.

- Quality of Service (QoS)

QoS can let you classify Internet application traffic by source/destination IP address and port number. You can assign priority for each type of application and reserve bandwidth for it. The packets of applications with higher priority will always go first. Lower priority applications will get bandwidth after higher priority applications get enough bandwidth. This can let you have a better experience in using critical real time services like Internet phone, video conference ...etc. All the applications not specified by you are classified as rule "Others".

Bandwidth Allocation:

This can reserve / limit the throughput of specific protocols and port range. You can set the upper bound and Lower bound.

Wireless Network Broadband Router AP Router Mode

NAT Port map. Port fw. Port tri. ALG UPnP QoS Routing

Quality of Service (QoS) refers to the capability of a network to provide better service to selected network traffic. The primary goal of QoS is to provide priority including dedicated bandwidth, controlled jitter and latency (required by some real-time and interactive traffic), and improved loss characteristics. Also important is making sure that providing priority for one or more flows does not make other flows fail.

QoS : Priority Queue Bandwidth Allocation Disabled

Type : Download

Local IP range : ~

Protocol : ALL

Port range : 1 ~ 65535

Policy : Min

Rate(bps) : FULL

Add Reset

Type: Specify the direction of packets. Upload, download or both.

IP range: Specify the IP address range. You could also fill one IP address

Protocol: Specify the packet type. The default ALL will put all packets in the QoS priority Queue.

Port range: Specify the Port range. You could also fill one Port.

Policy: Specify the policy the QoS, **Min** option will reserve the selected data rate in QoS queue. **Max** option will limit the selected data rate in QoS queue.

Rate: The data rate of QoS queue.

Disabled: This could turn off QoS feature.

The screenshot shows the 'QoS' configuration page. At the top, there is a title bar 'Wireless Network Broadband Router' and a dropdown menu 'AP Router Mode'. Below the title bar are several tabs: 'NAT', 'Port map.', 'Port fw.', 'Port tri.', 'ALG', 'UPnP', 'QoS', and 'Routing'. The 'QoS' tab is selected. The main content area contains a paragraph explaining Quality of Service (QoS) and its goals. Below this, there are three radio buttons for 'QoS': 'Priority Queue', 'Bandwidth Allocation', and 'Disabled'. The 'Disabled' option is selected. At the bottom right, there are 'Apply' and 'Cancel' buttons.

- Routing

You can set enable Static Routing to let the router forward packets by your routing policy.

The screenshot shows the 'Static Routing' configuration page. At the top, there is a title bar 'Wireless Network Broadband Router' and a dropdown menu 'AP Router Mode'. Below the title bar are two tabs: 'Enable' and 'Routing'. The 'Routing' tab is selected. The main content area contains a paragraph explaining Static Routing and its effect on NAT. Below this, there is a checkbox 'Enable Static Routing' which is unchecked. Underneath are several input fields: 'Destination LAN IP:', 'Subnet Mask:', 'Default Gateway:', 'Hops:', and 'Interface:'. The 'Interface:' field has a dropdown menu with 'LAN' selected. Below these fields are 'Add' and 'Reset' buttons. At the bottom, there is a section titled 'Current Static Routing Table:' followed by a table with columns: 'NO.', 'Destination LAN IP', 'Subnet Mask', 'Default Gateway', 'Hops', 'Interface', and 'Select'.

Destination LAN IP: Specify the destination LAN IP address of static routing rule.

Subnet Mask: Specify the Subnet Mask of static routing rule.

Default Gateway: Specify the default gateway of static routing rule.

Hops: Specify the Max Hops number of static routing rule.

Interface: Specify the Interface of static routing rule.

■ TOOLS Settings

- Admin

You can change the password required to log into the broadband router's system web-based management. By default, the password is: admin. Passwords can contain 0 to 12 alphanumeric characters, and are case sensitive.

The screenshot shows the 'Admin' tab of a 'Wireless Network Broadband Router' interface. At the top right, there is a dropdown menu for 'AP Router Mode'. Below the navigation tabs, a text box explains that the password is for router access, not the ISP account. Three input fields are provided for 'Old Password', 'New Password', and 'Repeat New Password'. Below these, a section for 'Remote management' includes a table with columns for 'Host Address', 'port', and 'Enable'. The 'port' field contains '8080' and the 'Enable' checkbox is unchecked. 'Apply' and 'Reset' buttons are located at the bottom right of the form.

Host Address	port	Enable
<input type="text"/>	8080	<input type="checkbox"/>

Old Password: Fill in the current password to allow changing to a new password.

New Password: Enter your new password and type it again in **Repeat New Password** for verification purposes

Remote management

This allows you to designate a host in the Internet the ability to configure the Broadband router from a remote site. Enter the designated host IP Address in the Host IP Address field.

Host Address: This is the IP address of the host in the Internet that will have management/configuration access to the Broadband router from a remote site. If the Host Address is left 0.0.0.0 this means anyone can access the router's web-based configuration from a remote location, providing they know the password.

Port: The port number of the remote management web interface.

Enabled: Check to enable the remote management function.

Click <**Apply**> at the bottom of the screen to save the above configurations.

- Time

The Time Zone allows your router to reference or base its time on the settings configured here, which will affect functions such as Log entries and Firewall settings.

Time Setup:

Synchronize with the NTP server

The Router reads the correct time from NTP servers on the Internet and sets its system clock accordingly. The Daylight Savings option merely advances the system clock by one hour. The time zone setting is used by the system clock when displaying the correct time in schedule and the log files.

Time Setup : Synchronize with the NTP Server

Time Zone : (GMT)Greenwich Mean Time: Dublin, Edinburgh, Lisbon, London

NTP Time Server :

Daylight Saving : Enable
From January 1 To January 1

Apply Reset

Time Zone: Select the time zone of the country you are currently in. The router will set its time based on your selection.

NTP Time Server: The router can set up external NTP Time Server.

Daylight Savings: The router can also take Daylight Savings into account. If you wish to use this function, you must select the Daylight Savings Time period and check/tick the enable box to enable your daylight saving configuration.

Click **<Apply>** at the bottom of the screen to save the above configurations.

Synchronize with PC

You could synchronize timer with your Local PC time.

The screenshot shows the configuration interface for a Wireless Network Broadband Router. At the top, there is a title bar with the text "Wireless Network Broadband Router" and a dropdown menu set to "AP Router Mode". Below this is a navigation menu with tabs for "Admin", "Time", "DDNS", "Power", "Diagnosis", "Firmware", "Back-up", and "Reset". The "Time" tab is selected. The main content area contains a paragraph explaining that the router reads time from NTP servers and sets its system clock accordingly. Below the text are three configuration sections: "Time Setup" with a dropdown menu set to "Synchronize with PC"; "PC Date and Time" with a text field displaying "2008年11月18日 上午 11:37:42"; and "Daylight Saving" with an unchecked "Enable" checkbox and a date range selector set to "From January 1 To January 1". At the bottom right of the configuration area are "Apply" and "Reset" buttons.

PC Date and Time: This field would display the PC date and time.

Daylight Savings: The router can also take Daylight Savings into account. If you wish to use this function, you must select the Daylight Savings Time period and check/tick the enable box to enable your daylight saving configuration.

Click **<Apply>** at the bottom of the screen to save the above configurations.

- DDNS

DDNS allows you to map the static domain name to a dynamic IP address. You must get an account, password and your static domain name from the DDNS service providers. This router supports DynDNS, TZO and other common DDNS service providers.

Wireless Network Broadband Router AP Router Mode

[Admin](#) [Time](#) [DDNS](#) [Power](#) [Diagnosis](#) [Firmware](#) [Back-up](#) [Reset](#)

DDNS allows users to map a static domain name to a dynamic IP address. You must get an account, password and your static domain name from the DDNS service provider..

Dynamic DNS : Enable Disable

Server Address : 3322(qdns)

Host Name :

Username :

Password :

Enable/Disable DDNS: Enable or disable the DDNS function of this router

Server Address: Select a DDNS service provider

Host Name: Fill in your static domain name that uses DDNS.

Username: The account that your DDNS service provider assigned to you.

Password: The password you set for the DDNS service account above

Click **<Apply>** at the bottom of the screen to save the above configurations.

- Power

Saving power in WLAN mode can be enabled / disabled in this page.

Wireless Network Broadband RouterAP Router Mode ▾

AdminTimeDDNSPowerDiagnosisFirmwareBack-upReset

You can use the power page to save energy for WLAN interfaces.

Power Saving Mode :

WLAN : Enable Disable

- Diagnosis

This page could let you diagnosis your current network status.

Wireless Network Broadband RouterAP Router Mode ▾

AdminTimeDDNSPowerDiagnosisFirmwareBack-upReset

This page can diagnose the current network status

Address to Ping :

Ping Result :

- Firmware

This page allows you to upgrade the router's firmware. To upgrade the firmware of your Broadband router, you need to download the firmware file to your local hard disk, and enter that file name and path in the appropriate field on this page. You can also use the Browse button to find the firmware file on your PC.

The screenshot shows the 'Firmware' tab selected in the router's configuration interface. The page title is 'Wireless Network Broadband Router' and the mode is 'AP Router Mode'. The navigation menu includes Admin, Time, DDNS, Power, Diagnosis, Firmware, Back-up, and Reset. The main content area contains instructions: 'You can upgrade the firmware of the router in this page. Ensure, the firmware you want to use is on the local hard drive of your computer. Click on Browse to browse and locate the firmware to be used for your update.' Below the text is a text input field and a '浏览...' (Browse...) button. At the bottom right, there are 'Apply' and 'Cancel' buttons.

Once you've selected the new firmware file, click **<Apply>** at the bottom of the screen to start the upgrade process

- Back-up

This page allows you to save the current router configurations. When you save the configurations, you also can re-load the saved configurations into the router through the **Restore Settings**. If extreme problems occur you can use the **Restore to Factory Defaults** to set all configurations to its original default settings.

The screenshot shows the configuration interface for a Wireless Network Broadband Router. At the top, there is a header bar with the text "Wireless Network Broadband Router" and a dropdown menu set to "AP Router Mode". Below the header is a navigation menu with buttons for "Admin", "Time", "DDNS", "Power", "Diagnosis", "Firmware", "Back-up", and "Reset". The "Back-up" button is highlighted. Below the navigation menu, there is a text block explaining the backup and restore functions: "Use BACKUP to save the routers current configuration to a file named config.dif. You can use RESTORE to restore the saved configuration. Alternatively, you can use RESTORE TO FACTORY DEFAULT to force the router to restore the factory default settings." Below this text are three rows of controls: "Restore to factory default :" with a "Reset" button; "Backup Settings :" with a "Save" button; and "Restore Settings :" with a file selection button (labeled "浏览...") and an "Upload" button.

Backup Settings: This can save the Broadband router current configuration to a file named "**config.bin**" on your PC. You can also use the **<Upload>** button to restore the saved configuration to the Broadband router. Alternatively, you can use the "**Restore to Factory Defaults**" tool to force the Broadband router to perform a power reset and restore the original factory settings.

- Reset

You can reset the broadband router when system stops responding correctly or stop functions.



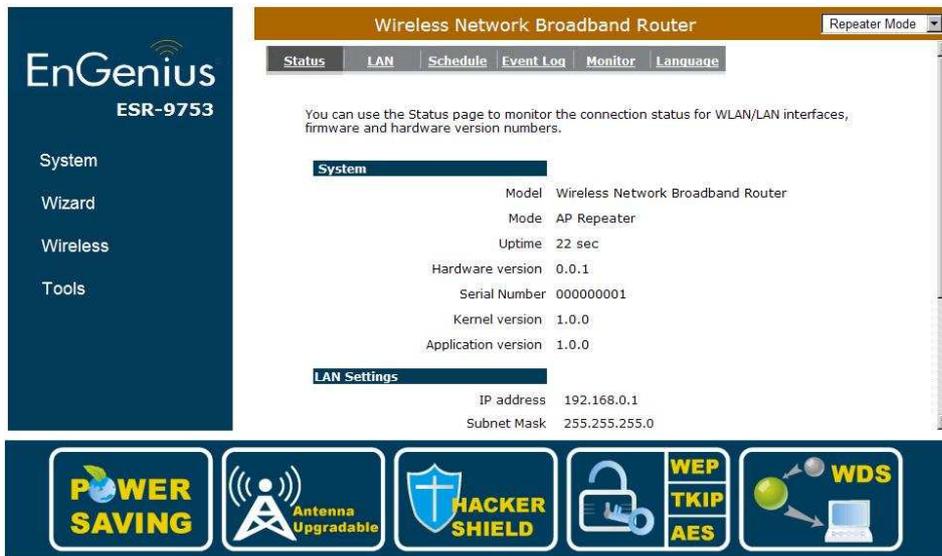
In the event the system stops responding correctly or stops functioning, you can perform a reset. Your settings will not be changed. To perform the reset, click on the APPLY button. You will be asked to confirm your decision. The reset will be completed when the LED Power light stops blinking.



13 Repeater Mode

Repeater mode has limited settings compared to the AP mode. Choose “Repeater mode” on the top right corner of the configuration page.

System restarts and connects to the IP address <http://192.168.0.1>
You will see the configuration homepage under “**REPEATER**” mode now.



■ System

- Status

System status section allows you to monitor the current status of your router.

You can see the Uptime, hardware information, serial number as well as firmware version information.

LAN Settings: This page displays the Broadband router LAN port's current LAN & WLAN information.

WLAN Settings: Wireless configuration details such as SSID, Security settings, BSSID, Channel number, mode of operation are briefly shown.

- LAN

The LAN Tabs reveals LAN settings which can be altered at will. If you are an entry level user, try accessing a website from your browser. If you can access website without a glitch, just do not change any of these settings.

Click **<Apply>** at the bottom of this screen to save the changed configurations.

The screenshot shows the configuration interface for a Wireless Network Broadband Router. At the top, there is a title bar with the text "Wireless Network Broadband Router" and a "Repeater Mode" dropdown menu. Below the title bar is a navigation menu with tabs for "Status", "LAN", "Schedule", "Event Log", "Monitor", and "Language". The "LAN" tab is currently selected. Below the navigation menu, there is a text box explaining that the DHCP server can be enabled to dynamically allocate IP addresses to LAN client PCs, provided the router has a local IP address. Below this text is a section titled "LAN IP" with three input fields: "IP address" (192.168.0.1), "IP Subnet Mask" (255.255.255.0), and "802.1d Spanning Tree" (Disabled). At the bottom right of the form are "Apply" and "Cancel" buttons.

IP address: It is the router's LAN IP address (Your LAN clients default gateway IP address). It can be changed based on your own choice.

IP Subnet Mask: Specify a Subnet Mask for your LAN segment.

802.1d Spanning Tree: This is disabled by default. If 802.1d Spanning Tree function is enabled, this router will use the spanning tree protocol to prevent network loops.

- Schedule

Add schedule, edit schedule options allow configuration of power savings services. Fill in the schedule and select type of service. Click **<Apply>** to implement the settings.

The screenshot shows the configuration interface for a Wireless Network Broadband Router. At the top, there is a title bar with the text "Wireless Network Broadband Router" and a "Repeater Mode" dropdown menu. Below the title bar is a navigation menu with tabs for "Status", "LAN", "Schedule", "Event Log", "Monitor", and "Language". The "Schedule" tab is selected. Below the navigation menu is a paragraph of text: "You can use the Schedule page to Start/Stop the Services regularly. The Schedule will start to run, when it get GMT Time from Time Server. Please set up the Time Server correctly in Toolbox. The services will start at the time in the following Schedule Table or it will stop." Below this text is a checkbox labeled "Enabled Schedule Table (up to 8)". Below the checkbox is a table with the following columns: "NO.", "Description", "Service", "Schedule", and "Select". The table contains one row with the following data: "1", "schedule 01", "Firewall", "All Time---Mon, Tue, Wed, Thu, Fri, Sat, Sun", and an unchecked checkbox. Below the table are four buttons: "Add", "Edit", "Delete Selected", and "Delete All". To the right of these buttons are two more buttons: "Apply" and "Cancel".

NO.	Description	Service	Schedule	Select
1	schedule 01	Firewall	All Time---Mon, Tue, Wed, Thu, Fri, Sat, Sun	<input type="checkbox"/>

The schedule table lists the pre-schedule service-runs. You can select any of them using the check box.

- Event Log

View operation **log of ESR1221N**. This page shows the current system log of the Broadband router. It displays any event occurred after system start up. At the bottom of the page, the system log can be saved **<Save>** to a local file for further processing or the system log can be cleared **<Clear>** or it can be refreshed **<Refresh>** to get the most updated information. When the system is powered down, the system log will disappear if not saved to a local file.

Wireless Network Broadband Router Repeater Mode

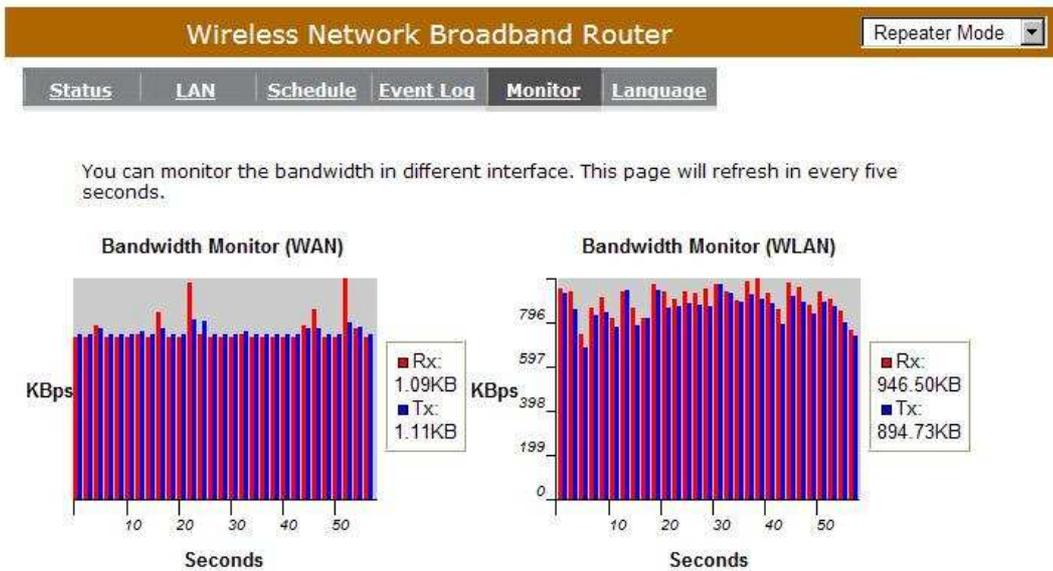
[Status](#) [LAN](#) [Schedule](#) [Event Log](#) [Monitor](#) [Language](#)

View the system operation information.

```
day 1 00:00:04 [SYSTEM]: HTTP, start
day 1 00:00:03 [SYSTEM]: NET, Firewall Disabled
day 1 00:00:03 [SYSTEM]: NET, NAT Disabled
day 1 00:00:03 [SYSTEM]: NTP, start NTP Client
day 1 00:00:01 [SYSTEM]: WLAN, Channel = 11
day 1 00:00:00 [SYSTEM]: LAN, IP address=192.168.0.1
day 1 00:00:00 [SYSTEM]: LAN, start
day 1 00:00:00 [SYSTEM]: BR, start
day 1 00:00:00 [SYSTEM]: Start Log Message Service!
```

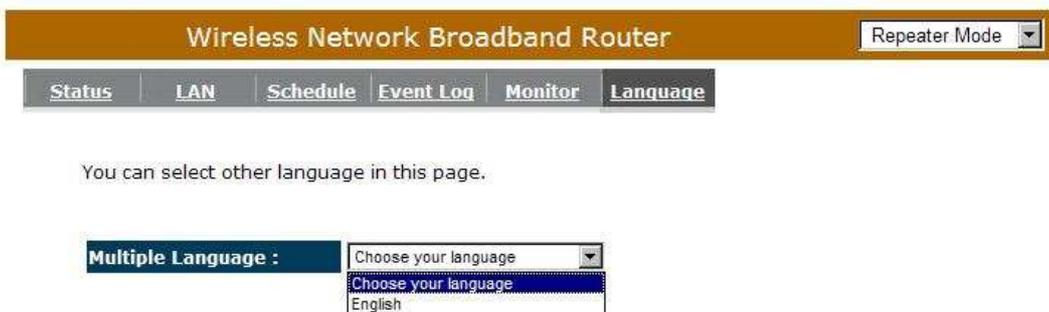
- Monitor

Show the network packets histogram for network connection on WAN, LAN & WLAN. Auto refresh keeps information updated frequently.



- Language

This Wireless Router support multiple language of web pages, you could select your native language here.



■ Wireless

-Basic

You can set parameters that are used for the wireless stations to connect to this router. The parameters include Mode, ESSID, Channel Number and Associated Client.

The screenshot shows the configuration page for a Wireless Network Broadband Router. The page title is "Wireless Network Broadband Router" and the mode is set to "Repeater Mode". The "Basic" tab is selected, with "Client List" and "Policy" tabs also visible. A descriptive text states: "This page allows you to define SSID, and Channel for the wireless connection. These parameters are used for the wireless stations to connect to the Access Point." The configuration fields are as follows:

- Radio :** Enable Disable
- Mode :** Repeater
- Band :** 2.4 GHz (B+G+N)
- Enabled SSID#:** 1
- SSID1 :** EnGeniusCCDD10
- Site Survey :** Site Survey

Below these fields is a "Wireless Information" section with the following details:

SSID:	EnGeniusCCDD10
Status:	Disconnected
Channel:	

Radio: Enable or Disable Wireless function

Band: Allows you to set the AP fixed at 802.11b, 802.11g or 802.11n mode. You can also select B+G mode to allow 802.11b and 802.11g clients at the same time.

Enable ESSID: You can specify the maximum ESSID number.

ESSID1~3: Allow you to specify ESSID of WLAN.

Site Survey: You can scan the current Wireless Access Point and connect on it.

Site Survey

NO.	Select	Channel	SSID	BSSID	Encryption	Auth	Signal (%)	Mode
1	<input type="radio"/>	1	ADSL_1	00:02:6f:4c:64:a0	AES	WPA2PSK	50	11b/g/n
2	<input type="radio"/>	3	ADSL_2	00:02:6f:48:0d:8b	WEP	OPEN	100	11b/g
3	<input type="radio"/>	9	ADSL_3	00:16:b6:28:07:34	NONE	OPEN	65	11b/g

-Client List

This WLAN Client Table shows the Wireless client associate to this Wireless Router.

Wireless Network Broadband RouterRepeater Mode ▾

Basic**Client List**Policy

WLAN Client Table :

This WLAN Client Table shows client MAC address associate to this Broadband Router

Interface	MAC address	Signal (%)	Idle Time
EnGeniusCCDD10	00:0C:43:28:70:00	100	3 secs

-Policy

The Broadband router can allow you to set up the Wireless Access Policy.

Communication between Wireless clients:

Allow Wireless Client to communicate with other Wireless Client on specific SSID.

Communication between Wireless clients and wired clients:

Allow Wireless Client to communicate with other Wireless Client on specific SSID and Wired Client on the switch.

The screenshot shows the configuration interface for a Wireless Network Broadband Router. At the top, there is a title bar with the text "Wireless Network Broadband Router" and a dropdown menu for "Repeater Mode". Below the title bar, there are three tabs: "Basic", "Client List", and "Policy". The "Policy" tab is selected. Underneath, the section "SSID 1 Connection Control Policy" is visible. It contains two rows of configuration options, each with a label and a dropdown menu. The first row is "Communication between Wireless clients" with a dropdown set to "Enable". The second row is "Communication between Wireless clients and Wired clients" with a dropdown set to "Enable". At the bottom right of the configuration area, there are two buttons: "Apply" and "Cancel".

SSID 1 Connection Control Policy	
Communication between Wireless clients	Enable
Communication between Wireless clients and Wired clients	Enable

Apply Cancel

■ Tools

- Admin

You can change the password required to log into the broadband router's system web-based management. By default, the password is: admin. Passwords can contain 0 to 12 alphanumeric characters, and are case sensitive.

The screenshot shows the 'Admin' page of a 'Wireless Network Broadband Router'. At the top, there is a navigation bar with tabs for 'Admin', 'Time', 'Power', 'Diagnosis', 'Firmware', 'Back-up', and 'Reset'. A 'Repeater Mode' dropdown menu is visible on the right. Below the navigation bar, a text box explains that the password being changed is for the router's web management, not the ISP account. There are three input fields: 'Old Password', 'New Password', and 'Repeat New Password'. Below these fields, a section for 'Remote management' includes a table with columns 'Host Address', 'port', and 'Enable'. The 'port' field contains '8080' and the 'Enable' checkbox is unchecked. 'Apply' and 'Reset' buttons are located at the bottom right of the form.

Host Address	port	Enable
<input type="text"/>	8080	<input type="checkbox"/>

Old Password: Fill in the current password to allow changing to a new password.

New Password: Enter your new password and in **Repeat New Password** for verification purposes

Click **<Apply>** at the bottom of the screen to save the above configurations

Remote management

This allows you to designate a host in the Internet the ability to configure the Broadband router from a remote site. Enter the designated host IP Address in the Host IP Address field.

Host Address: This is the IP address of the host in the Internet that will have management/configuration access to the Broadband router from a remote site. If the Host Address is left 0.0.0.0 this means anyone can access the router's web-based configuration from a remote location, providing they know the password.

Port: The port number of the remote management web interface.

Enabled: Check to enable the remote management function.

Click <**Apply**> at the bottom of the screen to save the above configurations.

- Time

The Time Zone allows your router to reference or base its time on the settings configured here, which will affect functions such as Event Log entries and Schedule settings.

Time Setup:

Synchronize with the NTP server

The Router reads the correct time from NTP servers on the Internet and sets its system clock accordingly. The Daylight Savings option merely advances the system clock by one hour. The time zone setting is used by the system clock when displaying the correct time in schedule and the log files.

Time Setup : Synchronize with the NTP Server

Time Zone : (GMT)Greenwich Mean Time: Dublin, Edinburgh, Lisbon, London

NTP Time Server :

Daylight Saving : Enable
From January 1 To January 1

Apply Reset

Time Zone: Select the time zone of the country you are currently in. The router will set its time based on your selection.

NTP Time Server: This accept local the IP Address of Local NTP Time Server Address.

Daylight Savings: The router can also take Daylight Savings into account. If you wish to use this function, you must select the Daylight Savings Time period and check/tick the enable box to enable your daylight saving configuration.

Click <Apply> at the bottom of the screen to save the above configurations

Synchronize with PC

You could synchronize timer with your Local PC time.

Wireless Network Broadband RouterRepeater Mode ▾

AdminTimePowerDiagnosisFirmwareBack-upReset

The Router reads the correct time from NTP servers on the Internet and sets its system clock accordingly. The Daylight Savings option merely advances the system clock by one hour. The time zone setting is used by the system clock when displaying the correct time in schedule and the log files.

Time Setup :	Synchronize with PC ▾
PC Date and Time :	2008年11月18日 上午 11:49:33
Daylight Saving :	<input type="checkbox"/> Enable From January ▾ 1 ▾ To January ▾ 1 ▾

Apply Reset

PC Date and Time: This field would display the PC date and time.

Daylight Savings: The router can also take Daylight Savings into account. If you wish to use this function, you must select the Daylight Savings Time period and check/tick the enable box to enable your daylight saving configuration.

Click **<Apply>** at the bottom of the screen to save the above configurations.

- Power

Saving power in WLAN mode can be enabled / disabled in this page.

Wireless Network Broadband RouterRepeater Mode ▾

AdminTimePowerDiagnosisFirmwareBack-upReset

You can use the power page to save energy for WLAN interfaces.

Power Saving Mode :

WLAN : Enable Disable

- Diagnosis

This page could let you diagnosis your current network status.

Wireless Network Broadband RouterRepeater Mode ▾

AdminTimePowerDiagnosisFirmwareBack-upReset

This page can diagnose the current network status

Address to Ping :

Ping Result :

- Firmware

This page allows you to upgrade the router's firmware. To upgrade the firmware of your Broadband router, you need to download the firmware file to your local hard disk, and enter that file name and path in the appropriate field on this page. You can also use the Browse button to find the firmware file on your PC.

The screenshot shows the 'Firmware' tab selected in a navigation menu. The page title is 'Wireless Network Broadband Router' with a 'Repeater Mode' dropdown menu. The navigation menu includes 'Admin', 'Time', 'Power', 'Diagnosis', 'Firmware', 'Back-up', and 'Reset'. The main content area contains the following text: 'You can upgrade the firmware of the router in this page. Ensure, the firmware you want to use is on the local hard drive of your computer. Click on Browse to browse and locate the firmware to be used for your update.' Below this text is a text input field followed by a '瀏覽...' (Browse) button. At the bottom right of the form area are 'Apply' and 'Cancel' buttons.

Once you've selected the new firmware file, click **<Apply>** at the bottom of the screen to start the upgrade process

- Back-up

The page allows you to save (Backup) the router's current configuration settings. When you save the configuration setting (Backup) you can re-load the saved configuration into the router through the **Restore selection**. If extreme problems occur you can use the **Restore to Factory Defaults** selection, this will set all configurations to its original default settings (e.g. when you first purchased the router).

The screenshot shows the configuration interface for a Wireless Network Broadband Router. At the top, there is a title bar with the text "Wireless Network Broadband Router" and a dropdown menu for "Repeater Mode". Below the title bar is a navigation menu with buttons for "Admin", "Time", "Power", "Diagnosis", "Firmware", "Back-up", and "Reset". The "Back-up" button is highlighted. Below the navigation menu, there is a text box with the following instructions: "Use BACKUP to save the routers current configuration to a file named config.dif. You can use RESTORE to restore the saved configuration. Alternatively, you can use RESTORE TO FACTORY DEFAULT to force the router to restore the factory default settings." Below the text box, there are three rows of controls: 1. "Restore to factory default :" with a "Reset" button. 2. "Backup Settings :" with a "Save" button. 3. "Restore Settings :" with a text input field, a "浏览..." (Browse...) button, and an "Upload" button.

Backup Settings: This can save the Broadband router current configuration to a file named "**config.bin**" on your PC. You can also use the **<Upload>** button to restore the saved configuration to the Broadband router. Alternatively, you can use the "**Restore to Factory Defaults**" to force the Broadband router to perform a power reset and restore the original factory settings.

- Reset

You can reset the broadband router when system stops responding correctly or stop functions.



In the event the system stops responding correctly or stops functioning, you can perform a reset. Your settings will not be changed. To perform the reset, click on the APPLY button. You will be asked to confirm your decision. The reset will be completed when the LED Power light stops blinking.



Appendix A – FCC Interference Statement

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 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.

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.

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.

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.

We declare that the product is limited in CH1~CH11 by specified firmware controlled in the USA.

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

Appendix B – IC Interference Statement

Industry Canada statement:

This device complies with RSS-210 of the Industry Canada 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:

Radiation Exposure Statement:

This equipment complies with IC 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 device has been designed to operate with an antenna having a maximum gain of 2 dBi. Antenna having a higher gain is strictly prohibited per regulations of Industry Canada. The required antenna impedance is 50 ohms.