

# ESR-9752

## Wireless Broadband 11n router

(802.11n, 802.11g & 802.11b)



## User Manual

*Version: 0.1*

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# Revision History

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<b>Version</b>	<b>Date</b>	<b>Notes</b>
1.0	March16, 2008	Modified from existing UM.
1.5	March22, 2008	Update new features
1.7	May 30, 2008	Add Power Saving feature

# 1 Introduction

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Congratulations on your purchase of ESR-9752 Wireless Network Broadband Router. ESR-9752 is compliant with draft 802.11n v 2.0 up to 6 times faster than standard 802.11g based routers while still being compatible with 802.11g & 802.11b gadgets. ESR-9752 is not only a Wireless Access Point, but also doubles as a 4-port full-duplex Gigabit Switch that connects your wired-Ethernet devices together at incredible speeds.

At 300 Mbps 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, ESR-9752 encodes all wireless transmissions with WEP, WPA, and WPA2 encryption.

With inbuilt DHCP Server & powerful SPI firewall ESR-9752 protects your computers against intruders and most known Internet attacks but provides safe VPN pass-through. With incredible speed and QoS function of 802.11n, (draft2.0) ESR-9752 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

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Features	Advantages
Incredible Data Rate up to 300Mbps**	<b>Heavy data payloads such as MPEG video streaming</b>
IEEE 802.11n Compliant and backward compatible with 802.11b/g	<b>Fully Interoperable with IEEE 802.11b / IEEE802.11g compliant devices with legacy protection</b>
Four 10/100/1000 Mbps Fast Switch Ports (Auto-Crossover)	<b>Scalability, extend your network.</b>
Firewall supports Virtual Server Mapping, DMZ, IP Filter, ICMP Blocking, SPI	<b>Avoids the attacks of Hackers or Viruses from Internet</b>
Support 802.1x Authenticator, 802.11i (WPA/WPA2, AES), VPN pass-through	<b>Provide mutual authentication (Client and dynamic encryption keys to enhance security</b>
WDS (Wireless Distribution System)	<b>Make wireless AP and Bridge mode simultaneously as a wireless repeater</b>

*\*\* Theoretical wireless signal rate based on IEEE standard of 802.11a, 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.*

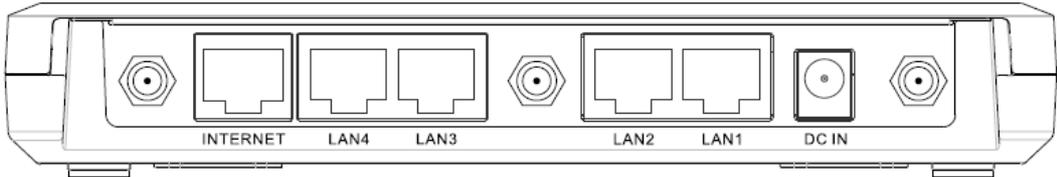
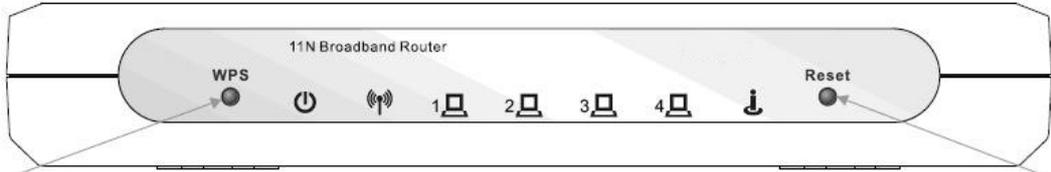
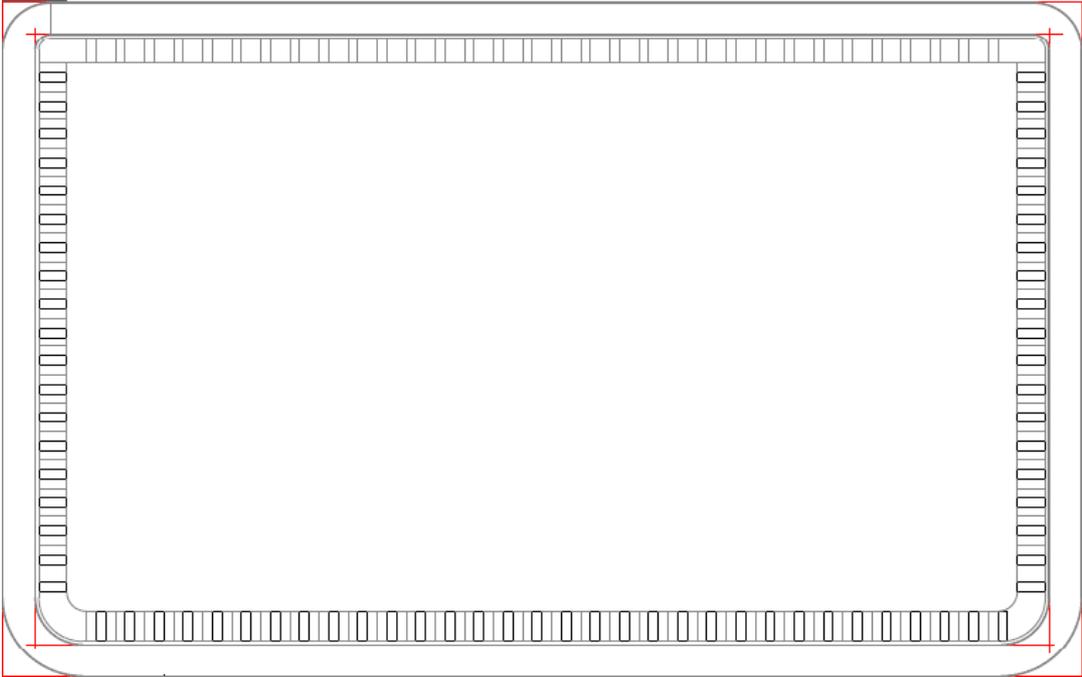
## **3 Package Contents**

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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. 802.11n SOHO Router
2. 100V~240V Power Adapter
3. 2dBi 2.4GHz Dipole Antennas x 3 pcs
4. Quick Install Guide
5. CD (User's Manual)
6. Warranty card

# 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
1000 Mbps	Lights up when 1000 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

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To begin using the ESR-9752, 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 (802.11 a/b/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 ESR-9752 Placement

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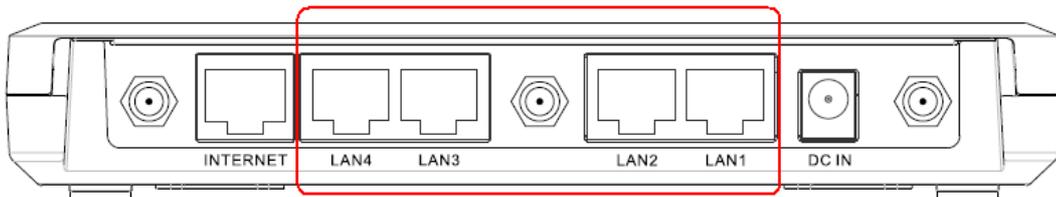
You can place ESR-9752 on a desk or other flat surface, or you can mount it on a wall. For optimal performance, place your Wireless Broadband Router in the center of your office (or your home) in a location that is away from any potential source of interference, such as a metal wall or microwave oven. 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.

## 7 Setup LAN, WAN

---

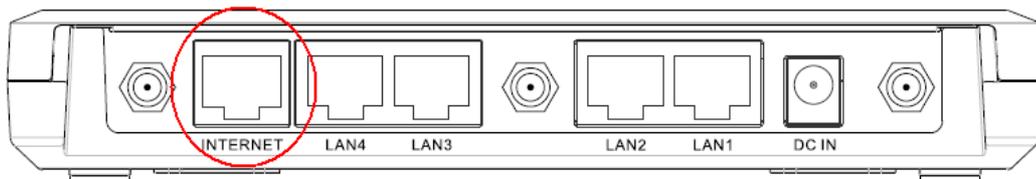
LAN connection:

Connect Ethernet cable between your PC/Notebook LAN port & one of the 4 available LAN ports on ESR-9752.



WAN connection:

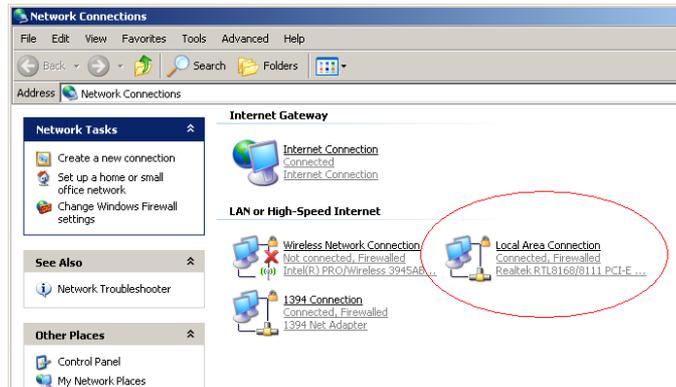
Connect Ethernet cable between WAN ports of your ADSL/CABLE modem & INTERNET port of ESR-9752. Make sure your ADSL/CABLE modem is working well. Contact your ISP if you have any questions.



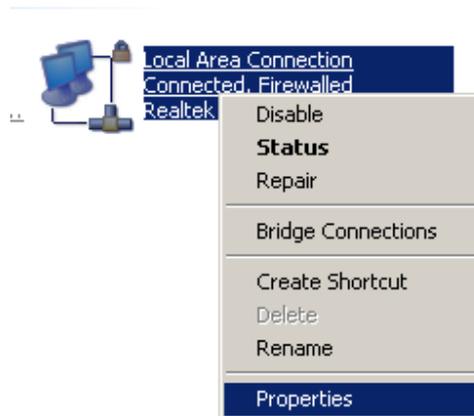
## 8 PC Network Adapter setup (*Windows XP*)

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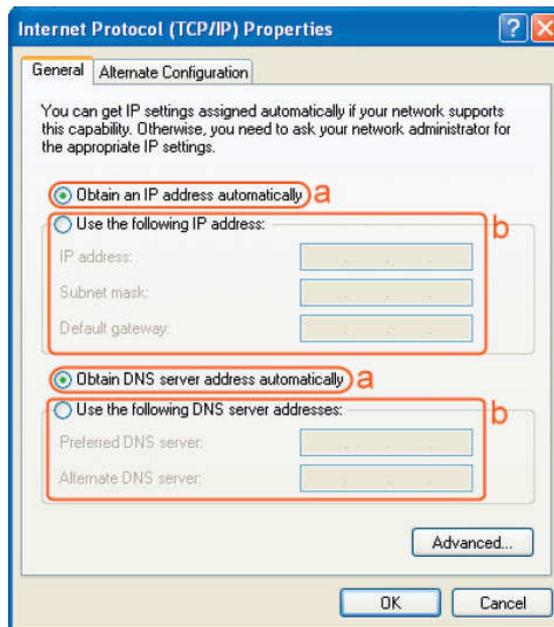
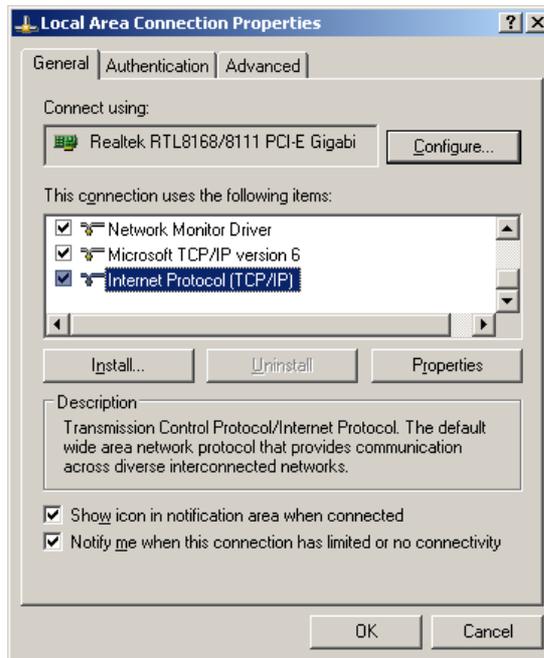
- Enter [Start Menu] → select [Control panel] → select [Network].



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



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



- Select the [General] tab.
- a. ESR-9752 supports [DHCP] function, please select both [Obtain an IP address automatically] and [Obtain DNS server address automatically].

## 9 Bring up ESR-9752

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Connect the supplied power-adaptor to the power inlet port and connect it to a wall outlet. Then, ESR-9752 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 RJ45 port to connect with ESR-9752.
- Microsoft Windows compatible PC/Notebook with UPnP enabled network adapter
- CAT 5 network cable(s), RJ45 port on PC/Notebook.

### **STEP 1**

Connect **ESR-9752 WAN** port & your **modem WAN** port with RJ45 cable.

### **STEP 2**

Power up **ESR-9752**.POWER led on front panel lights up & remains stable.

### **STEP 3**

Connect **ESR-9752 LAN** port & **PC/Notebook RJ45** port with network cable.



Click on this icon to run **SMART WIZARD**.



Click **Setup Wizard** to setup your ESR-9752 router.

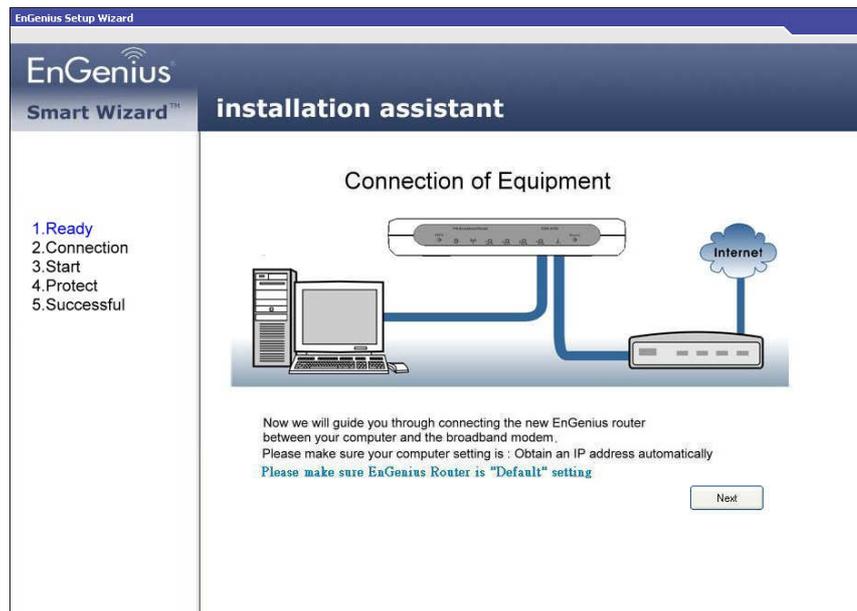
Click **User Manual** to launch smart wizard user manual.

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

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



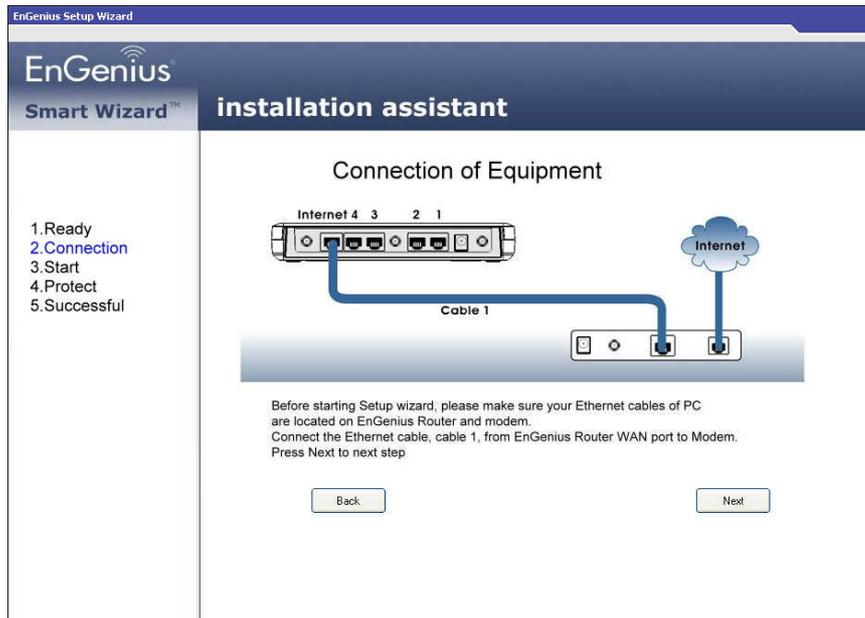
Click <Next> to proceed. Click <Exit> to abort.



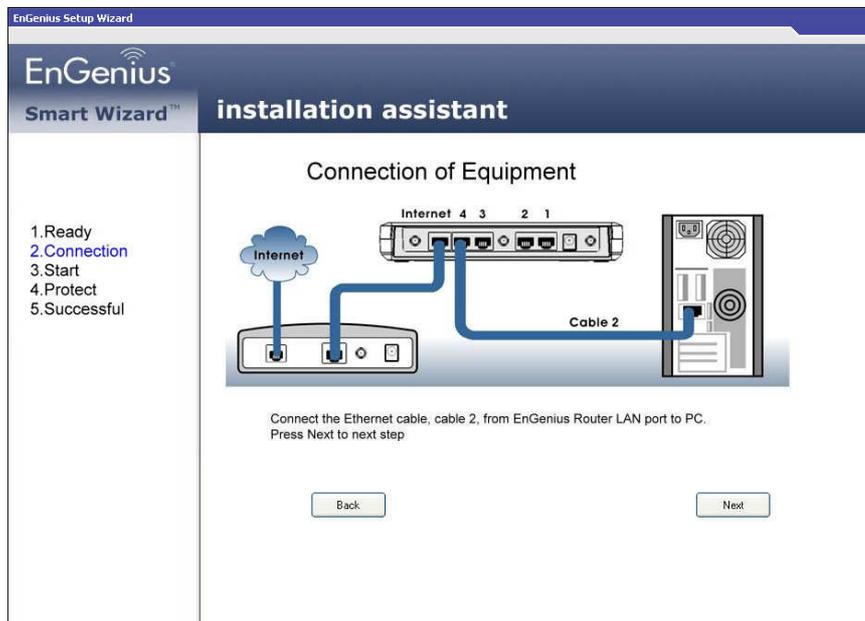
**ESR-9752** should be setup as depicted above.

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

Click <Next> to proceed.



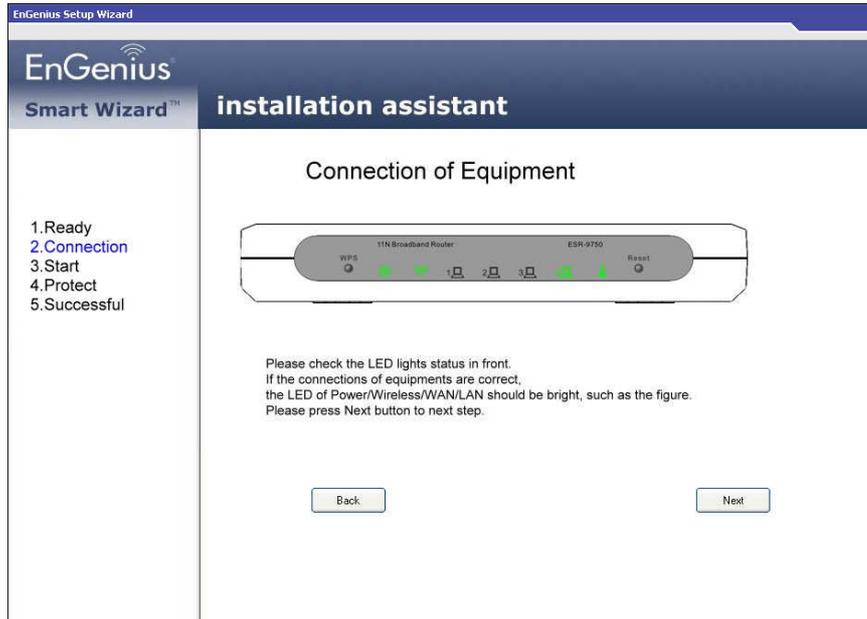
Check the MODEM and ESR-9752 connection. It should be as shown below.



Check power connection for modem as well as ESR-9752.

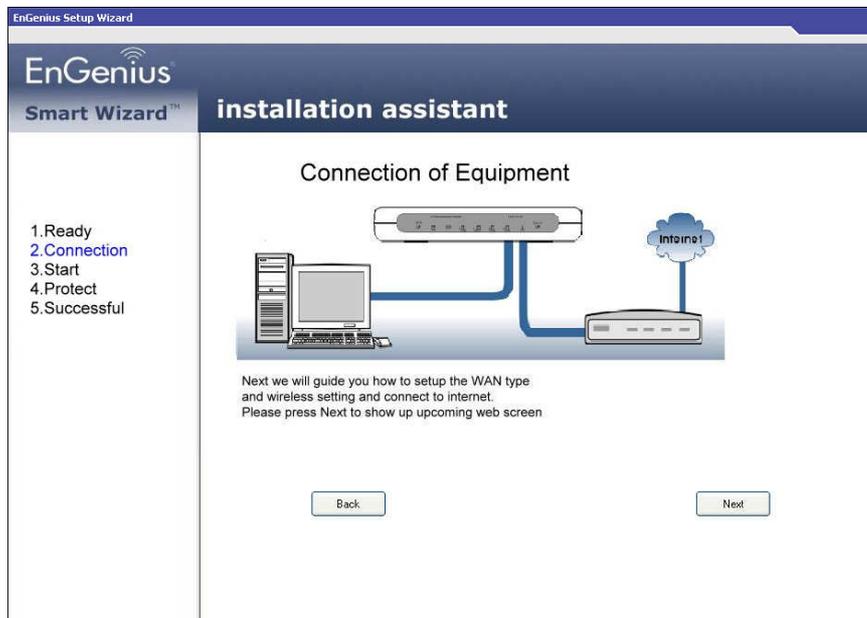
Make sure antenna is connected to rear panel of ESR-9752.

Click **<Next>** to proceed.



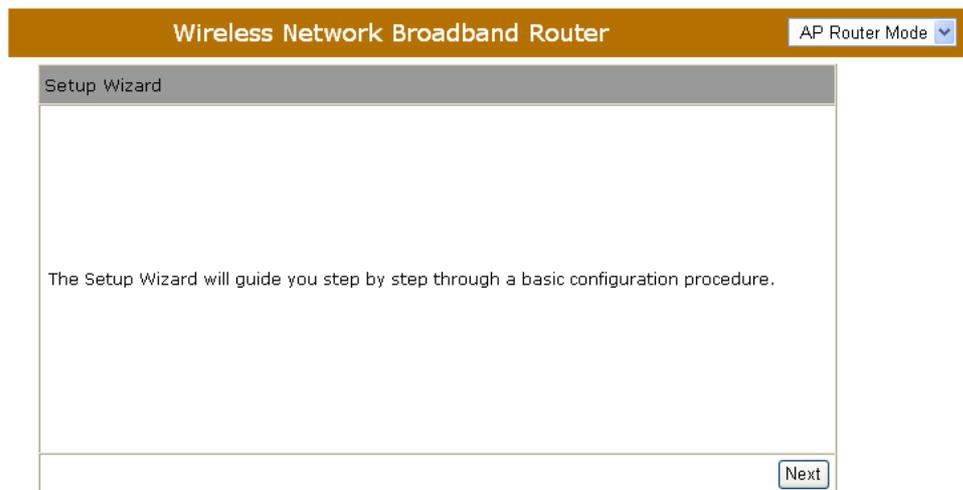
Notice the LED that should be light up at this stage. If not, check your procedures again.

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





User name and password are **admin/admin**. Click **<OK>**. Your default browser will connect to ESR-9752 Web Server <http://192.168.0.1> .



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

Select the mode that ESR-9752 is going to be and set its configurations. **AP Repeater mode** does not enable WAN interface, Setup Wizard will skip WAN Configuration.

Wireless Network Broadband Router AP Router Mode

Setup Wizard

Please choose the Operation Mode.

AP Router Mode: AP Router is probably the most common Wireless LAN device with which you will work as a Wireless LAN administrator and Internet Access Point. AP Router provides clients with a point of access into the Internet.

AP Repeater Mode: AP Repeater Mode provides a wireless upstream link into a network instead of being hard-wired to the network and using its Ethernet port.

Next

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

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

Wireless Network Broadband Router AP Router Mode

Setup Wizard

Please, enter the data which is supplied by your ISP.

Login Method: Dynamic IP Address

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: WEP  
Authentication Type: Shared Key  
Please input SSID in the following box.  
Please input 10 or 26 hexadecimal characters,  
eg: 012345678, 5 or 13 ascii characters, eg:  
passd in the following key box.

SSID :

Key :

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

Click **<Next>** to proceed

**Wireless Network Broadband Router** AP Router Mode ▾

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Setup Successfully

**System Configuration:**  
**Operation Mode :** AP Router

**WAN Configuration:**  
**Connection Type :** Dynamic IP

**WLAN Configuration :**  
**SSID :** EnGenius112244  
**Security :** WEP  
**WLAN Key :** 1234567890

---

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 ESR-9752

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ESR-9752 uses web-interface for configuration to be accessed through your web browser, such as Internet Explorer or Netscape Communicator.

## - 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 ESR-9752 configuration home page.
4. You will see the home page of ESR-9752 as follows.

## - Status

This page allows you to monitor the current status of your router. You can use the status page to quickly see if you have any updated firmware available (bug fixes, updates). You can navigate from this page with a few interesting options for reminding or skipping this page forever & so forth.

Once you click on **<OK>** button to go to the requested page, you can see the status page of the ESR-9752.

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

System	
Model	Wireless Network Broadband Router
Mode	AP Router
Uptime	00:16:20
Hardware version	Rev. A
Serial Number	0000013
Boot code version	1.0
Runtime code version	1.1

**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, and ISP Gateway as well as MAC address, the Primary DNS. Press **<Renew>** button to renew your WAN IP address.

WAN Settings	
Attain IP Protocol	Dynamic IP
IP address	10.0.174.1
Subnet Mask	255.255.254.0
Default Gateway	10.0.174.254
MAC address	00:02:6F:36:9C:9A
Primary DNS	10.0.174.254

**LAN Settings:** This section displays the Broadband router LAN port's current LAN & WLAN 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	Disabled
MAC address	00:10:DC:01:22:EF

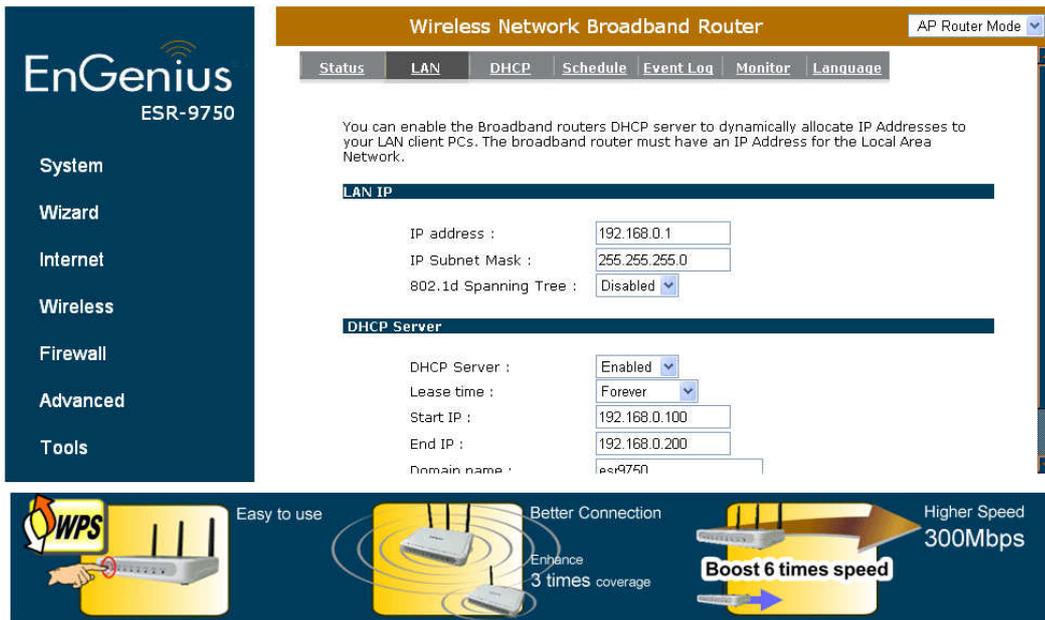
**WLAN Settings:** This section displays the current WLAN configuration settings you've configured in the Wizard / Basic Settings / Wireless Settings section. Wireless configuration details such as SSID, Security settings, BSSID, Channel number, mode of operation are briefly shown.

WLAN Settings	
Channel	10
SSID_1	
ESSID	EnGenius_SSID1
Security	WPA/WPA2 pre-shared key
BSSID	00:01:02:03:04:01
SSID_2	
ESSID	EnGenius_SSID2
Security	WPA RADIUS
BSSID	00:01:02:03:04:02

## - 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 (Your LAN clients default gateway IP address). 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 will enable or disable the Dynamic Pool setting..

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

**Start IP:** This will be the beginning of the pool of IP addresses available for client devices.

**End IP:** This will be the end of the pool of IP addresses available for client devices.

**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 from the table.

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 user 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	Power Saving	All Time---Mon, Tue, Wed, Fri, Sat, Sun	<input type="checkbox"/>

Add
Edit
Delete Selected
Delete All

Apply
Cancel

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

Service :
 Firewall  Power Saving

Days :
 Every Day  
 Mon  Tue  Wed  Thu  Fri  Sat  Sun

Time of day :
 All Day (use 24-hour clock)  
 From  :  To  :

Apply
Cancel

The schedule table lists the pre-schedule service-runs. You can select any of them 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	Power Saving	All Time---Mon, Tue, Wed, Fri, Sat, Sun	<input type="checkbox"/>
2	schedule 02	Firewall	From 09:10 to 17:20---Wed, Thu, Fri, Sat	<input type="checkbox"/>
3	schedule 03	Power Saving+Firewall	From 09:10 to 17:20---Wed, Thu, Fri, Sat	<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 disappear 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 00:06:21 [SYSTEM]: SCHEDULE, Schedule Stopping
day 1 00:00:12 [SYSTEM]: DHCP Server, Sending ACK of 192.168.0.101
day 1 00:00:10 [SYSTEM]: UPNP, Stopping
day 1 00:00:10 [SYSTEM]: DDNS, Disabled
day 1 00:00:10 [SYSTEM]: NTP, NTP Client Starting
day 1 00:00:10 [SYSTEM]: DNS, DNS Proxy Starting
day 1 00:00:08 [SYSTEM]: NET, Firewall Starting
day 1 00:00:08 [SYSTEM]: NET, NAT Starting
day 1 00:00:08 [SYSTEM]: NET, Firewall Stopping
  
```

## - Monitor

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

**Wireless Network Broadband Router** AP Router Mode ▾

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

You can monitor the bandwidth in different interface. This page will refresh in every five seconds.

**Bandwidth Monitor (WAN)**

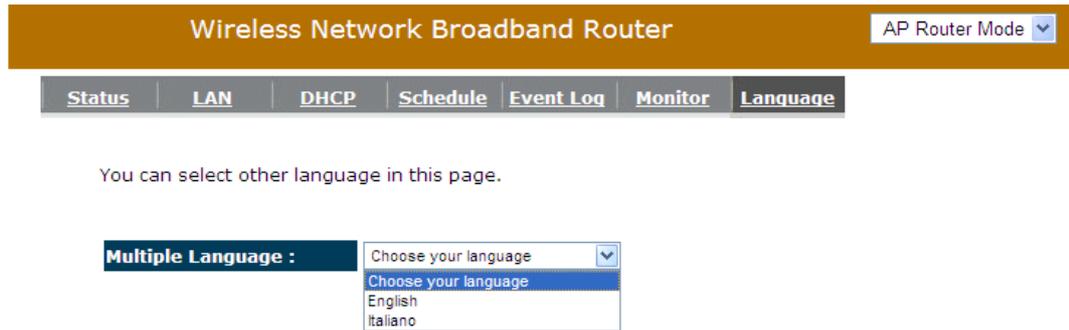
■ Rx: 1.09KB  
■ Tx: 1.11KB

**Bandwidth Monitor (WLAN)**

■ Rx: 946.50KB  
■ Tx: 894.73KB

## - Language

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



The screenshot shows the top navigation bar of the router's web interface. The title is "Wireless Network Broadband Router" and the mode is "AP Router Mode". The navigation menu includes "Status", "LAN", "DHCP", "Schedule", "Event Log", "Monitor", and "Language". Below the menu, a message states: "You can select other language in this page." The "Multiple Language" section features a dropdown menu with the following options: "Choose your language", "Choose your language", "English", and "Italiano".

Wireless Network Broadband Router		AP Router Mode				
Status	LAN	DHCP	Schedule	Event Log	Monitor	Language

You can select other language in this page.

**Multiple Language :**

- Choose your language
- Choose your language
- English
- Italiano

# 12 Wizard

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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 18>**.

EnGenius  
ESR-9750

System  
**Wizard**  
Internet  
Wireless  
Firewall  
Advanced  
Tools

Wireless Network Broadband Router AP Router Mode

Setup Wizard

The Setup Wizard will guide you step by step through a basic configuration procedure.

Next

WPS Easy to use Better Connection Enhance 3 times coverage Higher Speed 300Mbps Boost 6 times speed

# 13 INTERNET

---

## - Status

This page shows the current Internet connection type and status

Wireless Network Broadband RouterAP Router Mode ▾

StatusDynamic IPStatic IPPPPOEPPTP

View the current internet connection status and related information.

**WAN Settings**

Attain IP Protocol	Dynamic IP Address
IP address	192.168.88.101
Subnet Mask	255.255.255.0
Default Gateway	192.168.88.2
MAC address	00:11:25:28:BC:57
Primary DNS	192.168.88.2

## - 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 RouterAP Router Mode ▾

StatusDynamic IPStatic IPPPPOEPPTP

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

Hostname :		
MAC address:	00112528BC57	<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 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:	<input style="width: 90%;" type="text" value="172.1.1.1"/>
IP Subnet Mask :	<input style="width: 90%;" type="text" value="255.255.0.0"/>
Default Gateway :	<input style="width: 90%;" type="text" value="172.1.1.254"/>
Primary DNS :	<input style="width: 90%;" type="text"/>
Secondary DNS :	<input style="width: 90%;" type="text"/>

## - 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 :	<input style="width: 90%;" type="text" value="username"/>
Password :	<input style="width: 90%;" type="password" value="••••••"/>
Service Name	<input style="width: 90%;" type="text"/>
MTU :	<input style="width: 40%;" type="text" value="1452"/> (512<=MTU Value<=1492)
Type :	<input type="button" value="Keep Connection"/> ▾ <input type="button" value="Connect"/> <input type="button" value="Disconnect"/>
Idle Timeout :	<input style="width: 40%;" type="text" value="10"/> (1-1000 Minutes)

**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 Auto-reconnect option to automatically re-establish the connection when an application attempts to access the Internet again.

**Idle Timeout:** 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 in AP Router Mode. The 'PPTP' tab is selected. The page includes a note about selecting the account type and two main sections: WAN Interface Settings and PPTP Settings. The WAN Interface Type is set to 'Dynamic IP Address'. The PPTP Settings include fields for Login, Password, Service IP address, ConnectionID (set to 0), and MTU (set to 1462).

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.				
<b>WAN Interface Settings :</b>				
WAN Interface Type :	Dynamic IP Address			
Hostname :	<input type="text"/>			
MAC Address:	<input type="text"/>	Clone Mac		
<b>PPTP Settings :</b>				
Login :	<input type="text"/>			
Password :	<input type="text"/>			
Service IP address :	<input type="text"/>			
ConnectionID :	<input type="text" value="0"/>	(Optional)		
MTU :	<input type="text" value="1462"/>	(512<=MTU Value<=1492)		

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.

The screenshot shows the same configuration page as above, but with a message at the top: 'Module is reloading, please wait 13 seconds'. The 'PPTP' tab is still selected.

Wireless Network Broadband Router		AP Router Mode
Module is reloading, please wait <input type="text" value="13"/> seconds		

# 14 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 page title is "Wireless Network Broadband Router" and the mode is set to "AP Router Mode". The "Basic" tab is selected, with other tabs being "Advanced", "Security", "Filter", "WPS", and "Client List". A descriptive text states: "This page allows you to define ESSID, 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
ESSID 1 :	EnGenius112244
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**, **AP route with WDS** (we will introduce this function later section), and **repeater**. 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 an 802.11b or an 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 decide a most clean channel and change to this channel if you enable this function. Depend on this function enable or not, you will see different item 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 expanded using multiple access points without a wired backbone to like them. Each WDS APs need setting as same channel and encryption type.

Wireless Network Broadband Router
AP Router Mode ▾

**Radio :**  Enable  Disable

**Mode :** WDS ▾

**Band :** 2.4 GHz (B+G+N) ▾

**Enabled SSID#:** 1 ▾

**ESSID1 :**

**Auto Channel :**  Enable  Disable

**Channel :** 11 ▾

**MAC address 1 :**

**MAC address 2 :**

**MAC address 3 :**

**MAC address 4 :**

**Set Security :**

**MAC address 1~4:** Please enter the MAC address of the neighboring APs that participates in WDS, we support 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. The options included are Authentication Type, Fragment Threshold, RTS Threshold, Beacon Interval, and Preamble Type. You should not change these parameters unless you know what effect the changes will have on the router.

Wireless Network Broadband Router
AP Router Mode ▼

Basic
Advanced
Security
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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.

Fragment Threshold :	2346	(256-2346)
RTS Threshold :	2347	(0-2347)
Beacon Interval :	100	(20-1024 ms)
DTIM Period :	1	(1-10)
Data rate :	Auto <span style="font-size: 0.8em;">▼</span>	
N Data rate:	Auto <span style="font-size: 0.8em;">▼</span>	
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:** 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.

**TX Power:** This can be set to a bare minimum or maximum power.

## - 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

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.

ESSID Selection :	EnGenius112244 ▾
Broadcast ESSID :	Disable ▾
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 access point can discover this access point 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 ESR-9752.

### **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.

ESSID Selection :	EnGenius112244 ▾
Broadcast ESSID :	Disable ▾
WMM :	Enable ▾
Encryption :	Disable ▾
<input checked="" type="checkbox"/> Enable 802.1x Authentication	
RADIUS Server IP address :	<input type="text"/>
RADIUS Server port :	1812
RADIUS Server password :	<input type="text"/>
<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 the router can receive any packets encrypted by one of the four keys.

ESSID Selection :	EnGenius112244 ▾
Broadcast ESSID :	Disable ▾
WMM :	Enable ▾
Encryption :	WEP ▾
Authentication type :	<input type="radio"/> Open System <input checked="" type="radio"/> Shared Key <input type="radio"/> Auto
Key Length :	64-bit ▾
Key type :	Hex (10 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**". When you select "**Open System**", wireless stations can associate with this wireless router without WEP encryption. When you select "**Shared Key**", you should also setup a WEP key in the "**Encryption**" page. After this has been done, make sure the wireless clients that you want to connect to the device are also setup with the same encryption key.

**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.

**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. You can now configure other sections by choosing Continue, or choose Apply to apply the settings and reboot the device.

### **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.

ESSID Selection :	EnGenius112244
Broadcast ESSID :	Disable
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.

<b>ESSID Selection :</b>	EnGenius112244
<b>Broadcast ESSID :</b>	Disable
<b>WMM :</b>	Enable
<b>Encryption :</b>	WPA RADIUS
<b>WPA type :</b>	<input checked="" type="radio"/> WPA(TKIP) <input type="radio"/> WPA2(AES) <input type="radio"/> WPA2 Mixed
<b>RADIUS Server IP address :</b>	<input type="text"/>
<b>RADIUS Server port :</b>	1812
<b>RADIUS Server password :</b>	<input type="text"/>

## - MAC Address Filtering

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

AP Router Mode

Basic
Advanced
Security
Filter
WPS
Client List

For security reason, the Access Point features MAC Address Filtering which only allows authorized MAC Addresses to associate with the Access Point.

**Enable Wireless Access Control**

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

**MAC Address Filtering Table:**

NO.	Description	MAC address	Select
1	MyPC	00:02:6F:12:34:56	<input type="checkbox"/>

**Enable wireless access control:** Enable the wireless access control function

### Adding an address into the list

Enter the "MAC Address" and "Comment" of the wireless station to be added and then click **<Add>**. The wireless station will now be added into the "Current Access Control List" below. If you are having any difficulties filling in the fields, just click "Clear" and both "MAC Address" and "Comment" fields will be cleared.

### **Remove an address from the list**

If you want to remove a MAC address from the "Current Access Control List ", 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.

Wireless Network Broadband Router
AP Router Mode ▼

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**WPS:**  Enable

**Wi-Fi Protected Setup Information**

**WPS Current Status:** Configured

**Self Pin Code:** 11228844

**SSID:** EnGenius112244

**Authentication Mode:** WEP

**Passphrase Key:**

**Interface :** AP ▼

**WPS Via Push Button:** Start to Process

**WPS via PIN:**  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 List

**WLAN Client Table :**

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

MAC address	Signal
00:02:6F:07:F4:57	100

## 15 Firewall Settings

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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).

Wireless Network Broadband Router AP Router Mode

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

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.

Firewall :  Enable  Disable

Apply

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

### - Demilitarized Zone (DMZ)

If you have a client PC that cannot run an Internet application (e.g. Games) properly from 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) going to your WAN IP address to a particular LAN client/server.

**Wireless Network Broadband Router** AP Router Mode ▾

Enable DMZ DoS MAC Filter IP Filter URL Filter

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.

**Enable DMZ**

**Local IP Address :**

**Enable DMZ:** Enable/disable DMZ

**LAN IP Address:** Fill-in the IP address of a particular host in your LAN Network that will receive all the packets originally going to the WAN port/Public IP address above.

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.

**Wireless Network Broadband Router** AP Router Mode ▾

Enable DMZ DoS MAC Filter IP Filter URL Filter

The Firewall can detect and block DOS attacks, DOS (Denial of Service) attacks can flood your Internet Connection with invalid packets and connection requests, using so much bandwidth and so many resources that Internet access becomes unavailable.

**Block DoS :**  Enable  Disable

**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. Access Control allows users to define the traffic type permitted in your LAN. You can control which PC client can have access to these services.

The screenshot shows the configuration interface for a Wireless Network Broadband Router. The page title is "Wireless Network Broadband Router" and it is in "AP Router Mode". The "MAC Filter" tab is selected, with other tabs for "Enable", "DMZ", "DoS", "IP Filter", and "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 accept for the clients in the list below.

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

### **Add PC MAC Address**

Fill in “**LAN MAC Address**” and **<Description>** of the PC that is allowed 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](#) [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 MAC address listed below to access the network  
 Allow all clients with MAC address listed below to access the network

Description :

Protocol : Both

Local IP Address :  ~

Port range :  ~

NO.	Description	Local IP Address	Protocol	Port range	Select
<input type="button" value="Delete Selected"/> <input type="button" value="Delete All"/> <input type="button" value="Reset"/>					

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

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

**Allow:** If you select “**Allow**” then all clients will be denied to access Internet accept 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 Router AP Router Mode

Enable DMZ DoS MAC Filter IP Filter **URL 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

Add Reset

**Current URL Blocking Table:**

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

Delete Selected Delete All Reset

Apply Cancel

**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

# 16 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 page 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 "NAT" tab is currently selected. Below the navigation menu 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." Below this text are two radio buttons: "NAT :  Enable  Disable". At the bottom right of the form 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.

**Wireless Network Broadband Router** AP Router Mode ▾

NAT | **Port map.** | Port fw. | Port tri. | ALG | UPNP | QoS | Routing

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.

**Enable Port Mapping**

**Description :**   
**Local IP :**   
**Protocol :** Both ▾  
**Port range :**  ~

**Current Port Mapping Table:**

NO.	Description	Local IP	Type	Port range	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.

**Type:** 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", "Type", "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 <Clear> 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 **D<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 and its service port number. (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 "Wireless Network Broadband Router" and a dropdown menu for "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 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 is a checkbox labeled "Enable Port Forwarding" which is currently unchecked. There are five input fields: "Description :", "Local IP :", "Protocol :" (with a dropdown menu set to "Both"), "Local Port :", and "Public Port :". At the bottom of the form are "Add" and "Reset" buttons. Below the form is a section titled "Current Port Forwarding Table :" followed by a horizontal line.

**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.

**Type:** 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**", "**Type**" 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 **<Clear>** 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 it is in "AP Router Mode". The navigation tabs include NAT, Port map., Port fw., Port tri., ALG, UPNP, QoS, and Routing. The "Port tri." tab is selected. The page contains the following fields and controls:

- Enable Trigger Port
- Description : [Text input field]
- Popular applications : [Dropdown menu with "Select an application" and an "Add" button]
- Trigger port : [Text input field] ~ [Text input field]
- Trigger type : [Dropdown menu with "Both" selected]
- Public Port : [Text input field]
- Public type : [Dropdown menu with "Both" selected]
- [Add] [Reset] buttons

Below the form, there is a section labeled "Current Trigger-Port Table:".

**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 (1-10) in the Copy to selection box and then click the Copy to button. This will automatically list the Public Ports required for this popular application in the location (1-10) 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 **<Clear>** 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.

Wireless Network Broadband Router AP Router Mode ▾

[NAT](#) | [Port map.](#) | [Port fw.](#) | [Port tri.](#) | **ALG** | [UPnP](#) | [QoS](#) | [Routing](#)

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.

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"/>
FTP	<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.

Wireless Network Broadband Router AP Router Mode ▾

[NAT](#) | [Port map.](#) | [Port fw.](#) | [Port tri.](#) | [ALG](#) | **UPnP** | [QoS](#) | [Routing](#)

Universal Plug and Play is designed to support zero-configuration, "invisible" networking, and automatic discovery for a range of devices 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.

UPnP :  Enable  Disable

**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". The rule with a smaller priority number has a higher priority; the rule with a larger priority number has a lower priority. You can adjust the priority of the rules by moving them up or down.

### Port-based QoS

This is hardware port-based QoS control method. It will limit the packets throughput in LAN1~4, WAN port.

The screenshot shows the configuration page for a Wireless Network Broadband Router, specifically the QoS settings. The page title is "Wireless Network Broadband Router" and it is in "AP Router Mode". The navigation tabs include NAT, Port map., Port fw., Port tri., ALG, UPNP, QoS, and Routing. The QoS section is active, showing a description of QoS and a dropdown menu for "QoS Types" set to "Port-based QoS". There is an unchecked checkbox for "Enable Port-based QoS". Below this is a table with columns for Port No., Priority, Flow Control, Ingress Rate (bps), and Egress Rate (bps). The table lists WAN, Port 1, Port 2, Port 3, and Port 4, all with a priority of "Low", flow control "Enable", and ingress/egress rates of "Full".

Port No.	Priority	Flow Control	Ingress Rate (bps)	Egress Rate (bps)
WAN	Low	Enable	Full	Full
Port 1	Low	Enable	Full	Full
Port 2	Low	Enable	Full	Full
Port 3	Low	Enable	Full	Full
Port 4	Low	Enable	Full	Full

**Enable Port-based QoS:** Check this to enable port-based QoS functionality for the LAN/WAN port. You can also uncheck to disable.

**Priority:** High or Low priority level of the transmit packets.

**Ingress Rate:** The throughput limit of receiving packets.

**Egress Rate:** The throughput limit of sending packets.

### Application-based QoS

This is the application based QoS control method. You can reserve or limit the bandwidth of some LAN IP address and port number. They will guarantee the throughput in WAN connection.

### Priority Queue Type:

This can put the packets of specific protocols in High/Low Queue. The packets in High Queue will process first.

The screenshot shows the configuration page for a Wireless Network Broadband Router in AP Router Mode. It includes a description of QoS, a dropdown for QoS Types set to 'Application-based QoS', and radio buttons for Priority Queue (selected), Bandwidth Allocation, and Disabled. Below are two tables: 'Unlimited Priority Queue' with one entry for an IP address, and 'High/Low Priority Queue' with entries for FTP and HTTP.

Wireless Network Broadband Router AP Router Mode

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 Types : Application-based QoS

QoS :  Priority Queue  Bandwidth Allocation  Disabled

**Unlimited Priority Queue**

IP Address	Description
<input type="text"/>	The IP address will not be bounded in the QoS limitation

**High/Low Priority Queue**

Protocol	High Priority	Low Priority	Specific Port
FTP	<input type="radio"/>	<input checked="" type="radio"/>	21
HTTP	<input type="radio"/>	<input checked="" type="radio"/>	80

**Unlimited Priority Queue:** The LAN IP address will not be bounded in the QoS limitation.

**High/Low Priority Queue:** This can put the packets in the protocol and port range to High/Low QoS Queue.

## Bandwidth Allocation:

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

The screenshot shows the configuration page for a Wireless Network Broadband Router. The page title is "Wireless Network Broadband Router" and it is in "AP Router Mode". The navigation menu includes NAT, Port map., Port fw., Port tri., ALG, UPNP, QoS, and Routing. The QoS section is active and contains the following text: "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." Below this text, there is a "QoS Types" dropdown menu set to "Application-based QoS". Under "QoS", there are three radio buttons: "Priority Queue" (unselected), "Bandwidth Allocation" (selected), and "Disabled" (unselected). The configuration fields are as follows: "Type" is set to "Download"; "IP range" is set to "192.168.0.10 ~ 192.168.0.100"; "Protocol" is set to "ALL"; "Port range" is set to "1 ~ 65535"; "Policy" is set to "Min"; and "Rate(bps)" is set to "FULL".

**Type:** Specify the direction of packets. Upload or download.

**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.

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 Types : Application-based QoS

QoS :  Priority Queue  Bandwidth Allocation  Disabled

Apply Cancel

## - Routing

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

Wireless Network Broadband Router AP Router Mode

Enable **Routing**

You can enable Static Routing to turn off the NAT function of the router and let the router forward packets by your routing policy.  
To take Static Route effect, please disable NAT function.

Enable Static Routing

Destination LAN IP:

Subnet Mask:

Default Gateway:

Hops:

Interface : LAN

Add Reset

Current Static Routing Table:

NO.	Destination LAN IP	Subnet Mask	Default Gateway	Hops	Interface	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.

# 17 TOOLS Settings

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## - 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.

Wireless Network Broadband RouterAP Router Mode ▾

AdminTimeDDNSPowerDiagnosisFirmwareBack-upReset

You can change the password that you use to access the router, this is not you ISP account password.

Old Password :

New Password :

Repeat New Password :

Remote management allows the router to be configured from the Internet by a web browser, A username and password is still required to access the Web-Management interface.

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

**Current 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.

The screenshot shows the configuration page for a Wireless Network Broadband Router. At the top, there is a navigation bar with the title "Wireless Network Broadband Router" and a dropdown menu for "AP Router Mode". Below this is a secondary navigation bar 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 this are three configuration sections: "Time Zone" with a dropdown menu set to "(GMT)Greenwich Mean Time: Dublin, Edinburgh, Lisbon, London"; "NTP Time Server" with an empty text input field; and "Daylight Saving" with an "Enable" checkbox and a date range selector set to "From January 1 To January 1". At the bottom right of the form are "Apply" and "Reset" buttons.

**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.

## - 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.

The screenshot shows the configuration page for DDNS 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 Admin, Time, DDNS, Power, Diagnosis, Firmware, Back-up, and Reset. The DDNS section contains the following fields and options:

- Dynamic DNS :**  Enable  Disable
- Server Address :** 3322(qdns) (dropdown menu)
- Host Name :** (text input field)
- Username :** (text input field)
- Password :** (text input field)

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

**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/Ethernet mode can be enabled/disabled in this page.

The screenshot shows the router's configuration interface. 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 tabs for "Admin", "Time", "DDNS", "Power", "Diagnosis", "Firmware", "Back-up", and "Reset". The "Power" tab is selected. The main content area contains the text: "You can use the power page to save energy for WLAN interfaces." Below this, there is a section titled "Power Saving Mode :". Underneath, there is a label "WLAN :" followed by two radio buttons: "Enable" (which is unselected) and "Disable" (which is selected). At the bottom right of this section are two buttons: "Apply" and "Cancel".

## - Diagnosis

This page could let you diagnosis your current network status.

The screenshot shows the router's configuration interface. 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 tabs for "Admin", "Time", "DDNS", "Power", "Diagnosis", "Firmware", "Back-up", and "Reset". The "Diagnosis" tab is selected. The main content area contains the text: "This page can diagnosis the current network status". Below this, there is a section for performing a ping test. It includes a label "Address to Ping :" followed by a text input field and a "Start" button. Below that is a label "Ping Result :" followed by another text input field.

## - 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.

Wireless Network Broadband Router AP Router Mode

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

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.

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.

Wireless Network Broadband Router AP Router Mode

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

Use BACKUP to save the routers current configuration to a file named config.bin. 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.

**Restore to factory default :**

**Backup settings:**

**Restore Settings:**

**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.

## 18 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.

The screenshot displays the configuration interface for an EnGenius ESR-9750 router in Repeater Mode. The page title is "Wireless Network Broadband Router" and the mode is set to "Repeater Mode". The navigation menu includes Status, LAN, Schedule, Event Log, Monitor, and Language. The main content area shows the following information:

You can use the Status page to monitor the connection status for WLAN/LAN interfaces, firmware and hardware version numbers.

System	
Model	Wireless Network Broadband Router
Mode	AP Repeater
Uptime	10 min 28 sec
Hardware version	0.0.0
Serial Number	012345678
Kernel version	1.1.0
Application version	1.1.0

LAN Settings	
IP address	192.168.0.1
Subnet Mask	255.255.255.0

At the bottom of the page, there are three promotional banners: "Easy to use" with a WPS button, "Better Connection" with "Enhance 3 times coverage", and "Higher Speed 300Mbps" with "Boost 6 times speed".

### - Status

System status section allows you to monitor the current status of your router. You can use the status page to quickly see if you have any updated firmware available (bug fixes, updates). You can navigate from this page with a few interesting options for reminding or skipping this page forever & so forth.

Once you click on **<OK>** button to go to the requested page, you can see the status page of the ESR-9752.

You can see the UP time, 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. It also shows whether the DHCP Server function is enabled / disabled. Wireless configuration details such as SSID, Security settings, BSSID, Channel number, mode of operation are briefly shown.

**WLAN Settings:** View Broadband router's current configuration settings. Device Status displays the configuration settings you've configured in the Wizard / Basic Settings / Wireless Settings section

## - 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 dropdown menu for "Repeater Mode". 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 paragraph of text explaining the DHCP server function: "You can enable the Broadband routers DHCP server to dynamically allocate IP Addresses to your LAN client PCs. The broadband router must have an IP Address for the Local Area Network." 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 two buttons: "Apply" and "Cancel".

Wireless Network Broadband Router Repeater Mode

Status LAN Schedule Event Log Monitor Language

You can enable the Broadband routers DHCP server to dynamically allocate IP Addresses to your LAN client PCs. The broadband router must have an IP Address for the Local Area Network.

**LAN IP**

IP address :

IP Subnet Mask :

802.1d Spanning Tree :

**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.

Wireless Network Broadband RouterRepeater Mode ▼

StatusLANScheduleEvent LogMonitorLanguage

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	Power Saving	All Time---Mon, Tue, Wed, Fri, Sat, Sun	<input type="checkbox"/>

AddEditDelete SelectedDelete All

Apply Cancel

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 ESR-9752**. 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.

The screenshot shows the 'Event Log' page of a 'Wireless Network Broadband Router'. The page title is 'Wireless Network Broadband Router' and it is in 'Repeater Mode'. The navigation menu includes 'Status', 'LAN', 'Schedule', 'Event Log', 'Monitor', and 'Language'. The main content area displays the following system log entries:

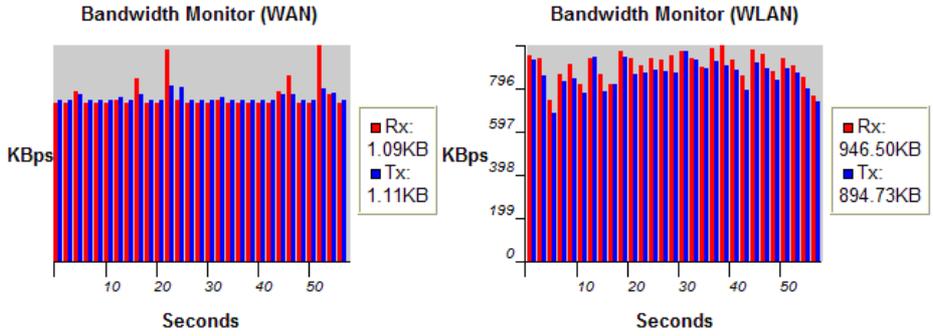
```
day 1 00:00:06 [SYSTEM]: HTTP, Starting
day 1 00:00:05 [SYSTEM]: NET, Firewall Disabled
day 1 00:00:05 [SYSTEM]: NET, NAT Disabled
day 1 00:00:05 [SYSTEM]: NTP, NTP Client Starting
day 1 00:00:04 [SYSTEM]: WLAN, Channel = 11
day 1 00:00:03 [SYSTEM]: LAN, IP address=192.168.0.1
day 1 00:00:03 [SYSTEM]: LAN, Starting
day 1 00:00:03 [SYSTEM]: BR, Starting
```

At the bottom of the log area, there are three buttons: 'Save', 'Clear', and 'Refresh'.

## - Monitor

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

You can monitor the bandwidth in different interface. This page will refresh in every five seconds.



### - Language

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

You can select other language in this page.

**Multiple Language :**

- Choose your language
- English
- Italiano

## -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 in Repeater Mode. The page has two tabs: 'Basic' (selected) and 'Client List'. Below the tabs is a descriptive text: 'This page allows you to define ESSID, 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 (dropdown)
- Band :** 2.4 GHz (B+G+N) (dropdown)
- Enabled SSID#:** 1 (dropdown)
- ESSID1 :** EnGenius112244 (text input)
- Site Survey :** Site Survey (button)

Below the configuration fields is a 'Wireless Information' section:

<b>SSID:</b>	EnGenius112244
<b>Status:</b>	Disconnected

**Radio:** Enable or Disable Wireless function

**Mode:**

**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

Refresh

Connect

## -Client List

Wireless Network Broadband Router Repeater Mode

[Basic](#) [Client List](#)

**WLAN Client Table :**

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

MAC address	Signal
No client connecting to the Router.	

Refresh

## - Tools

This section has many useful and miscellaneous features.

## - 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.

Wireless Network Broadband Router
Repeater Mode ▼

Admin
Time
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Back-up
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You can change the password that you use to access the router, this is not you ISP account password.

Old Password :

New Password :

Repeat New Password :

Remote management allows the router to be configured from the Internet by a web browser, A username and password is still required to access the Web-Management interface.

Host Address	port	Enable
<input style="width: 95%;" type="text"/>	8080	<input type="checkbox"/>

**Current 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.

Wireless Network Broadband Router Repeater Mode

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

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 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

## - Power

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

The screenshot shows the 'Power' tab selected in the router's configuration interface. 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 text: 'You can use the power page to save energy for WLAN interfaces.' Below this, the 'Power Saving Mode' section is visible, with 'WLAN' selected. There are two radio buttons: 'Enable' (unselected) and 'Disable' (selected). At the bottom right, there are 'Apply' and 'Cancel' buttons.

## - Diagnosis

This page could let you diagnosis your current network status.

The screenshot shows the 'Diagnosis' tab selected in the router's configuration interface. 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 text: 'This page can diagnosis the current network status'. Below this, there are two input fields: 'Address to Ping :' and 'Ping Result :'. A 'Start' button is located to the right of the 'Address to Ping :' field.

## - 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.

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

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.

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 'Back-up' page of a 'Wireless Network Broadband Router'. At the top, there is a navigation bar with 'Wireless Network Broadband Router' on the left and 'Repeater Mode' with a dropdown arrow on the right. Below this is a menu with tabs for 'Admin', 'Time', 'Power', 'Diagnosis', 'Firmware', 'Back-up', and 'Reset'. The 'Back-up' tab is currently selected. The main content area contains the following text: 'Use BACKUP to save the routers current configuration to a file named config.bin. 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 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 'Browse' button, and an 'Upload' button.

**Restore 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.

- Admin
- Time
- Power
- Diagnosis
- Firmware
- Back-up
- Reset

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

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## Federal Communication Commission Interference Statement

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