

# ESR-9750

## Wireless Broadband 11n router

(802.11n, 802.11g & 802.11b)



## User Manual

*Version: 1.6*

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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 Introduction

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Congratulations on your purchase of ESR-9750 Wireless Network Broadband Router. ESR-9750 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-9750 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 steams 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-9750 encodes all wireless transmissions with WEP, WPA, and WPA2 encryption.

With inbuilt DHCP Server & powerful SPI firewall ESR-9750 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-9750 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**

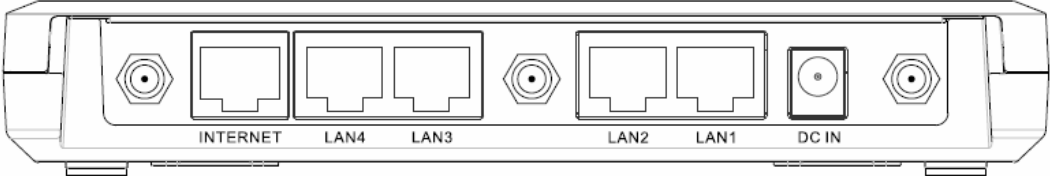
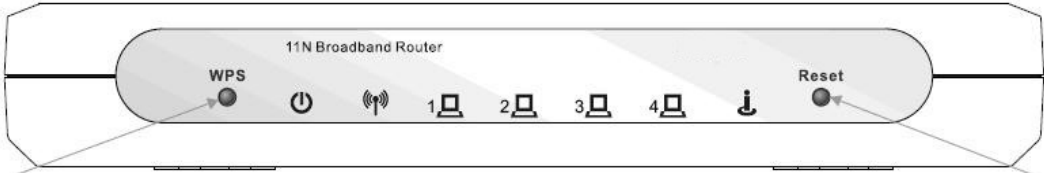
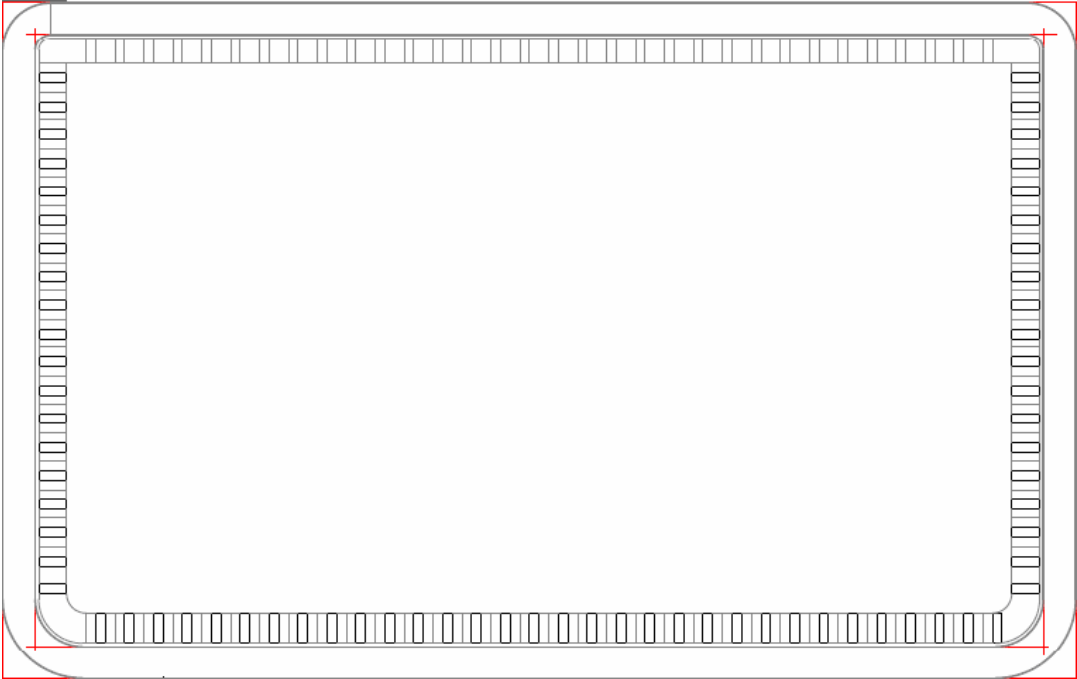
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Open the package carefully, and make sure that none of the items listed below are missing. Do not discard the packing materials, in case of return; the unit must be shipped back in its original package.

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

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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-9750, 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-9750 Placement

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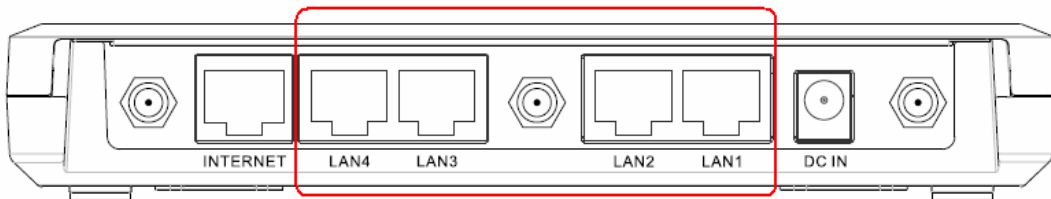
You can place ESR-9750 on a desk or other flat surface, or you can mount it on a wall. For optimal performance, place your Wireless Broadband Router in the center of your office (or your home) in a location that is away from any potential source of interference, such as a metal wall or microwave oven. 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

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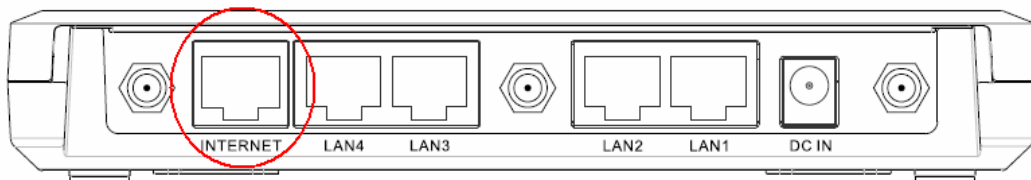
LAN connection:

Connect Ethernet cable between your PC/Notebook LAN port & one of the 4 available LAN ports on ESR-9750.



WAN connection:

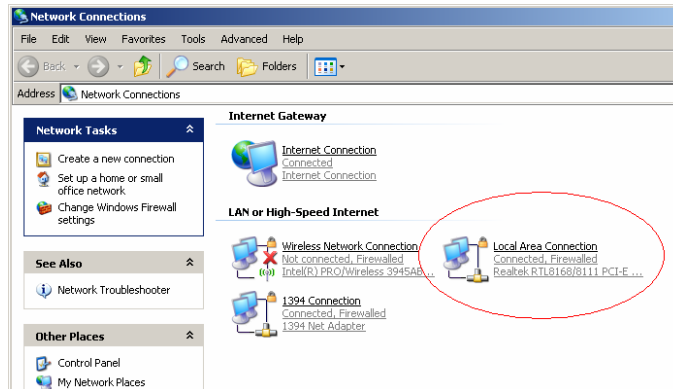
Connect Ethernet cable between WAN ports of your ADSL/CABLE modem & INTERNET port of ESR-9750. Make sure your ADSL/CABLE modem is working well. Contact your ISP if you have any questions.



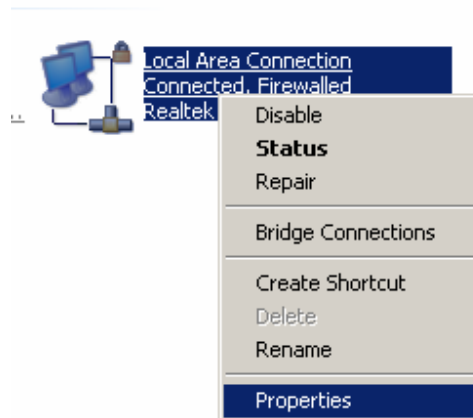
## 8 PC Network Adapter setup (*Windows XP*)

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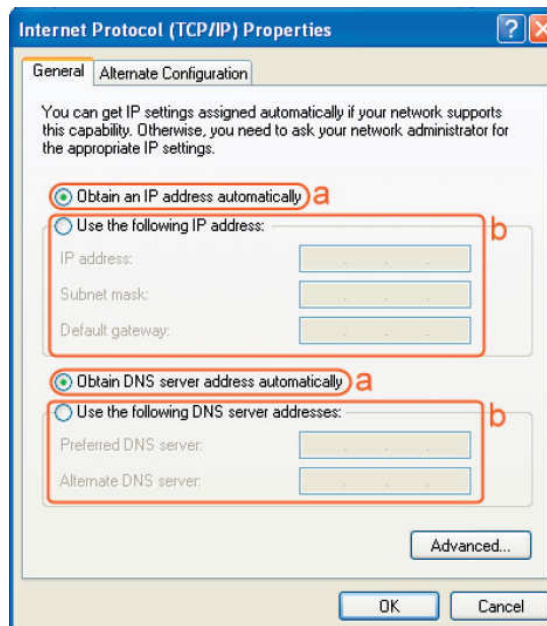
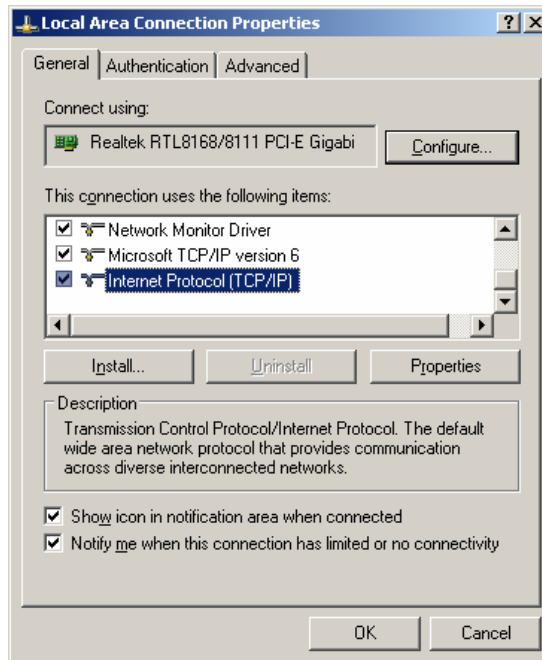
- Enter [Start Menu] → select [Control panel] → select [Network].



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



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



- Select the [General] tab.
- a. ESR-9750 supports [DHCP] function, please select both [Obtain an IP address automatically] and [Obtain DNS server address automatically].

## 9 Bring up ESR-9750

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Connect the supplied power-adapter to the power inlet port and connect it to a wall outlet. Then, ESR-9750 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

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### **CHECK**

- Internet connection should be setup & ready to use (ADSL or cable modem).
- Modem must provide RJ45 port to connect with ESR-9750.
- Microsoft Windows compatible PC/Notebook with UPnP enabled network adapter
- CAT 5 network cable(s), RJ45 port on PC/Notebook.

### **STEP 1**

Connect **ESR-9750 WAN** port & your **modem WAN** port with RJ45 cable.

### **STEP 2**

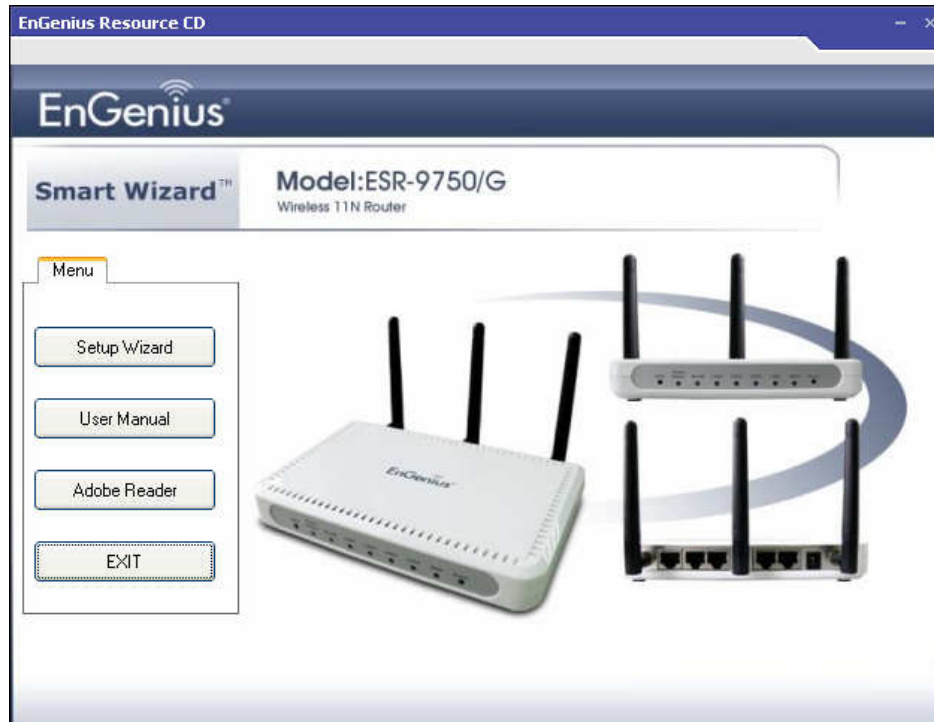
Power up **ESR-9750**. POWER led on front panel lights up & remains stable.

### **STEP 3**

Connect **ESR-9750 LAN** port & **PC/Notebook RJ45** port with network cable.



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



Click **Setup Wizard** to setup your ESR-9750 router.

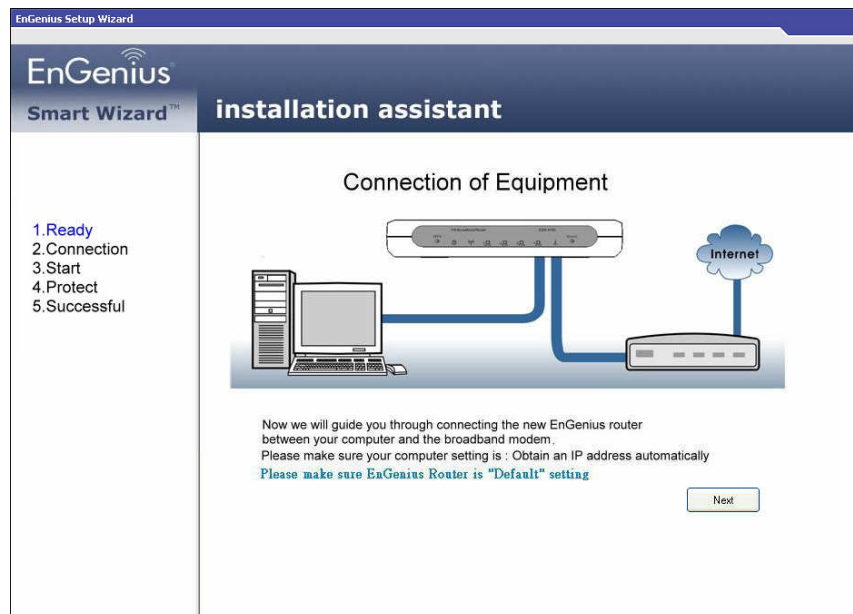
Click **User Manual** to launch smart wizard user manual.

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

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



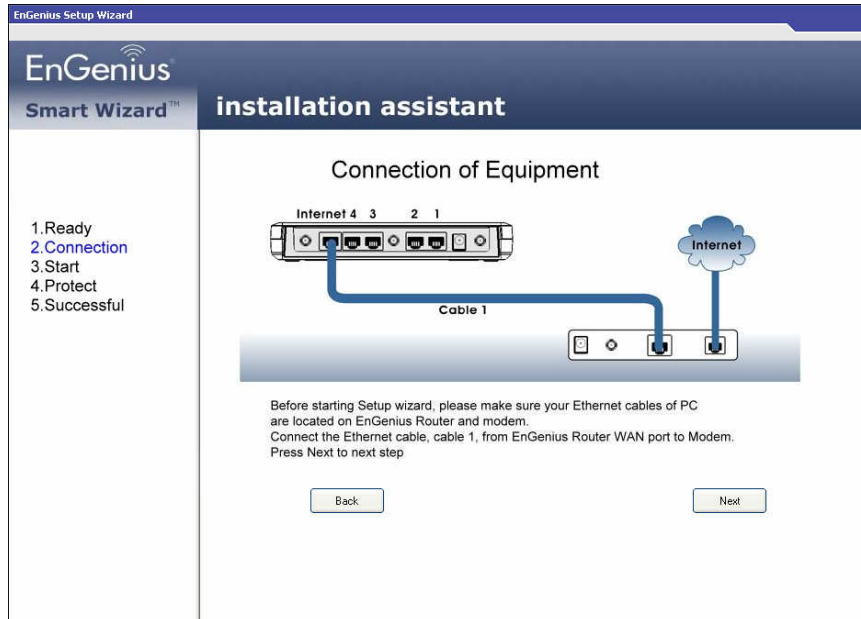
Click <Next> to proceed. Click <Exit> to abort.



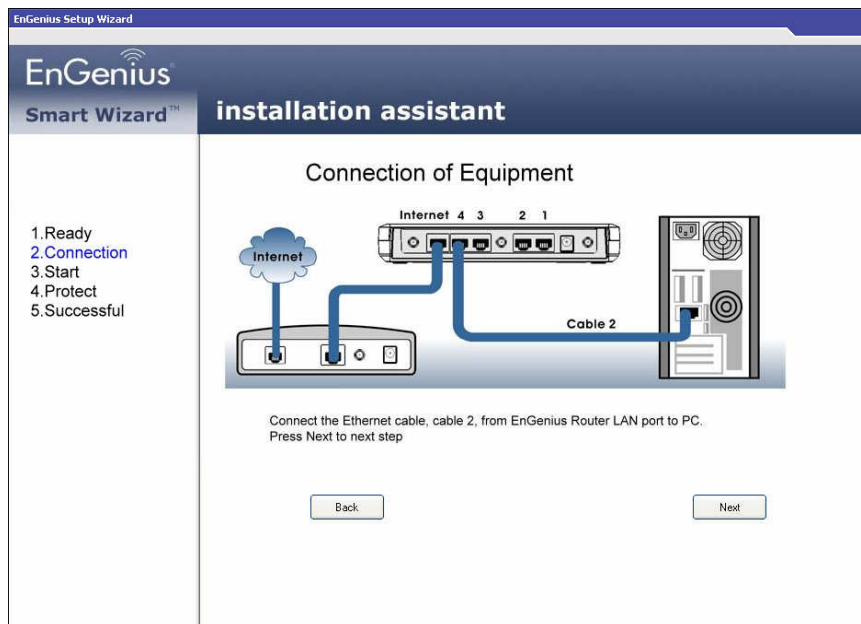
**ESR-9750** should be setup as depicted above.

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-9750 connection. It should be as shown below.

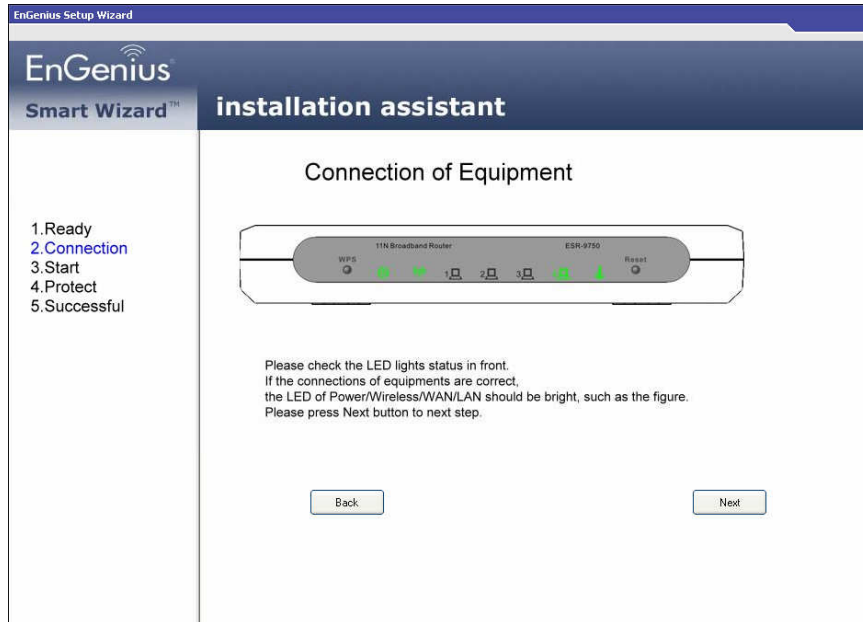


Check power connection for modem as well as ESR-9750.

Make sure antenna is connected to rear panel of ESR-9750.

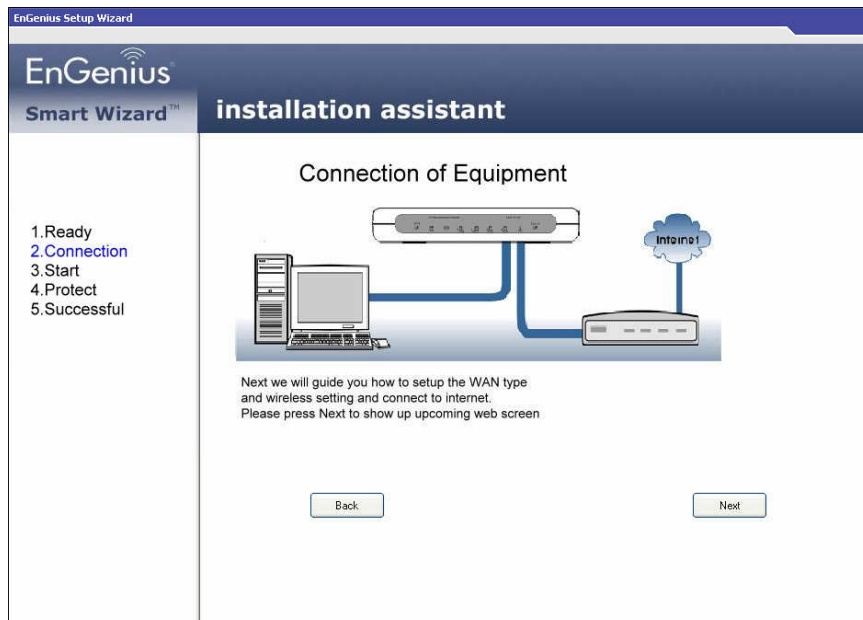
Click **<Next>** to proceed.





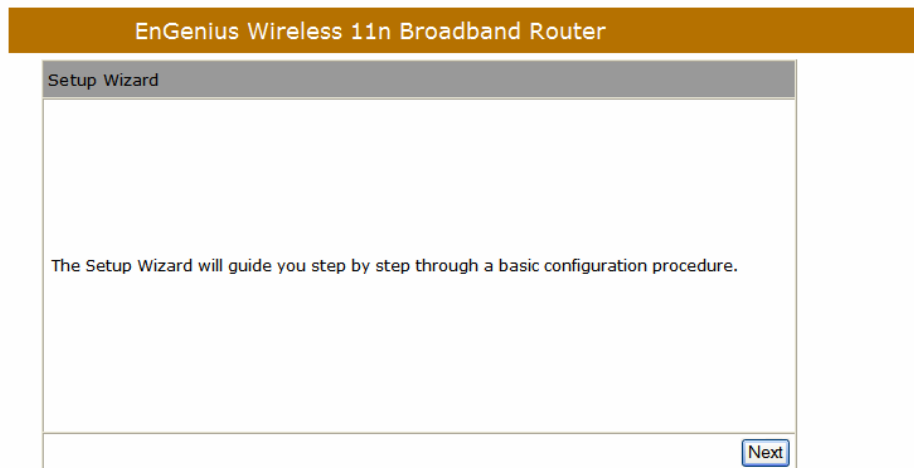
Notice the LED that should be light up at this stage. If not, check your procedures again.

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



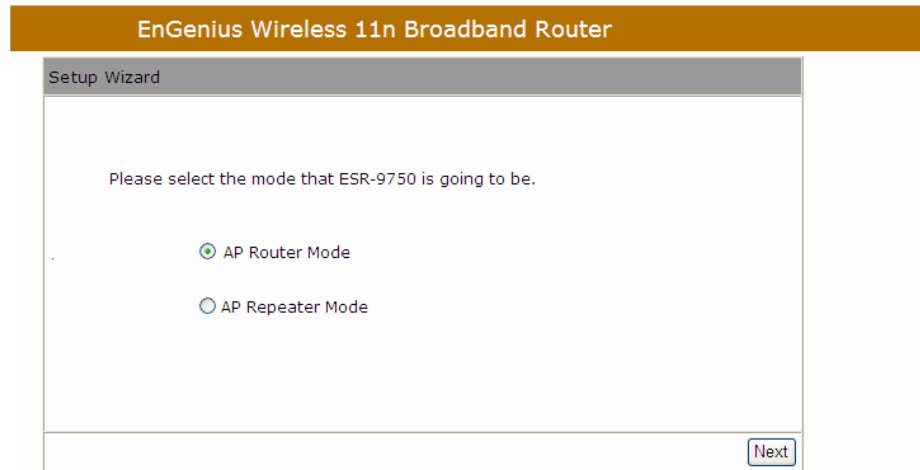


User name and password are **admin/admin**. Click **<OK>**. Your default browser will connect to ESR-9750 Web Server <http://192.168.0.1> .



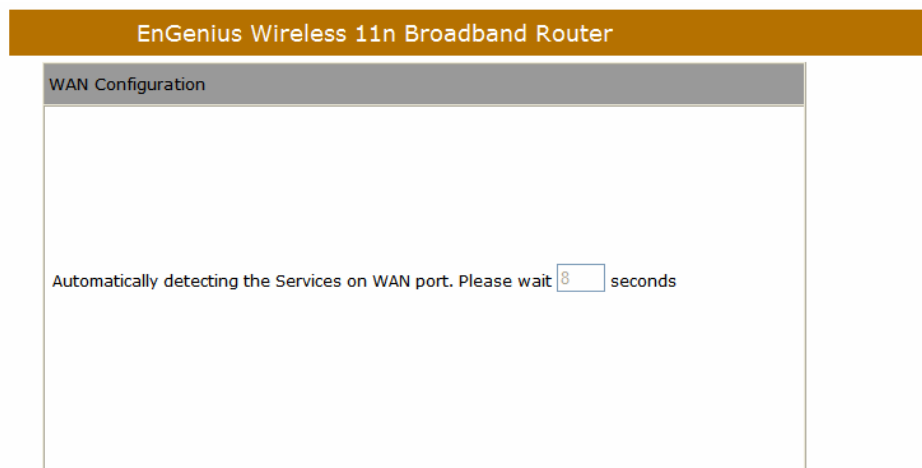
Click **<Next>** to enter mode selection.

Select the mode that ESR-9750 is going to be and set its configurations. **AP Repeater mode** does not enable WAN interface, Setup Wizard will skip WAN Configuration.



The screenshot shows the 'Setup Wizard' window for an 'EnGenius Wireless 11n Broadband Router'. The window title is 'Setup Wizard'. The main content area contains the text 'Please select the mode that ESR-9750 is going to be.' Below this text are two radio button options: 'AP Router Mode' (which is selected, indicated by a green dot) and 'AP Repeater Mode' (which is unselected, indicated by a blue dot). At the bottom right of the window is a 'Next' button.

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



The screenshot shows the 'WAN Configuration' window for an 'EnGenius Wireless 11n Broadband Router'. The window title is 'WAN Configuration'. The main content area contains the text 'Automatically detecting the Services on WAN port. Please wait 8 seconds', where '8' is displayed in a small input field. The window is currently empty, suggesting a loading or waiting state.

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

## EnGenius Wireless 11n Broadband Router

WAN Configuration

Please enter the data which is supplied by your ISP.

Connection Type:

Hostname :

Mac Address:

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

## EnGenius Wireless 11n Broadband Router

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:  
passed in the following key box.

SSID :

Key :

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

Click **<Next>** to proceed

## EnGenius Wireless 11n Broadband Router

Setup Successfully

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

**WLAN Configuration:**  
**SSID :** EnGenius112200  
**Security :** WEP  
**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.**

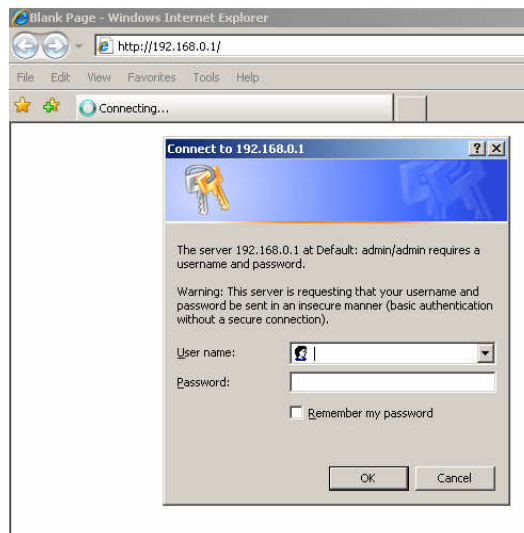
# 11 Initial Setup ESR-9750

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ESR-9750 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-9750 configuration home page.
4. You will see the home page of ESR-9750 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-9750.

**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.

**EnGenius Wireless 11n Broadband Router** AP Router Mode ▾

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

DHCP stands for Dynamic Host Control Protocol. The Router has a built-in DHCP server, which automatically assigns an IP address to the computers on the LAN/private network.

**LAN IP**

IP address :

IP Subnet Mask :

802.1d Spanning Tree :

**DHCP Server**

DHCP Server :

Lease time :

Start IP :

End IP :

Domain name :

**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

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.

EnGenius Wireless 11n Broadband Router AP Router Mode ▾

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

**DHCP Server**

DHCP Server :  ▾  
 Lease time :  ▾  
 Start IP :   
 End IP :   
 Domain name :

**DHCP Client Table:**

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

IP address	MAC address	Expiration Time
192.168.0.100	00:AA:02:DD:04:05	Forever

## - Schedule

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

EnGenius Wireless 11n Broadband Router AP Router Mode ▾

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

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

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.

EnGenius Wireless 11n Broadband Router
AP Router Mode ▼

Status
LAN
DHCP
Schedule
Event Log
Monitor

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.

<b>Schedule Description :</b>	schedule 02
<b>Service :</b>	<input type="checkbox"/> Firewall <input type="checkbox"/> Power Saving
<b>Days :</b>	<input type="checkbox"/> Every Day <input type="checkbox"/> Mon <input type="checkbox"/> Tue <input type="checkbox"/> Wed <input type="checkbox"/> Thu <input type="checkbox"/> Fri <input type="checkbox"/> Sat <input type="checkbox"/> Sun
<b>Time of day :</b>	<input type="checkbox"/> All Day (use 24-hour clock) From <input style="width: 30px;" type="text" value="0"/> : <input style="width: 30px;" type="text" value="0"/> To <input style="width: 30px;" type="text" value="0"/> : <input style="width: 30px;" type="text" value="0"/>

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

EnGenius Wireless 11n Broadband Router
AP Router Mode ▼

Status
LAN
DHCP
Schedule
Event Log
Monitor

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 1	Power Saving	All Time---Mon, Tue, Wed, Fri, Sat, Sun	<input type="checkbox"/>
2	schedule 2	Firewall	From 09:10 to 17:20---Wed, Thu, Fri, Sat	<input type="checkbox"/>
3	schedule 3	Power Saving+Firewall	From 09:10 to 17:20---Tue, Wed, Thu, Fri	<input type="checkbox"/>

## - 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.

EnGenius Wireless 11n Broadband Router AP Router Mode

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

View the system operation information. You can see the system start up time, connection process...etc. here.

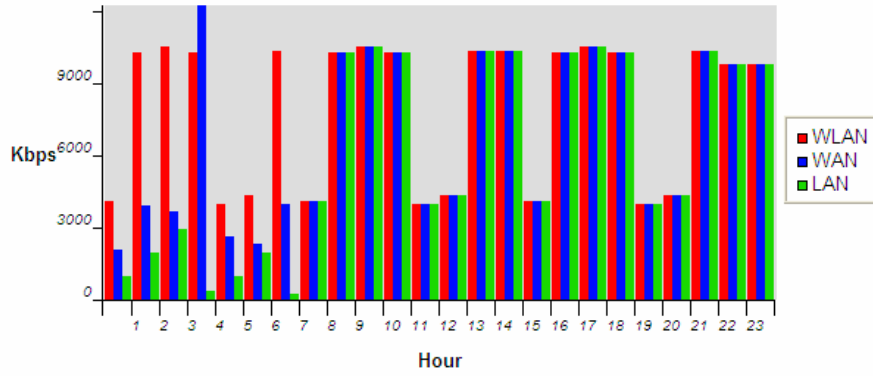
```
Mar 19 21:16:40 [SYSTEM]: DHCP Server, Sending ACK of 192.168.0.100
Mar 19 21:16:40 [SYSTEM]: DHCP Server, Sending OFFER of 192.168.0.100
Mar 19 21:16:40 [SYSTEM]: NTP, Local time=2008/03/19 21:16
Mar 19 21:16:40 [SYSTEM]: NTP, Daylight saving status: Disale
Mar 19 21:16:40 [SYSTEM]: NTP, Time zone = +0.0 Greenwich Mean Time: Dub
day 2 21:16:38 [SYSTEM]: UPNP, Starting
day 1 00:00:15 [SYSTEM]: UPNP, Stopping
day 1 00:00:15 [SYSTEM]: DDNS, Disabled
day 1 00:00:14 [SYSTEM]: NTP, NTP Client Starting
```

## - Monitor

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

View the system operation information. You can see the system start up time, connection process...etc. here.

Bandwidth Monitor



## 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>**.

The screenshot shows the web interface for the EnGenius Wireless 11n Broadband Router. The top navigation bar includes the router model name and a dropdown menu for 'AP Router Mode'. A left-hand sidebar contains a menu with options: System, Wizard (highlighted), Internet, Wireless, Firewall, Advanced, and Tools. The main content area is titled 'Setup Wizard' and contains the text: 'The Setup Wizard will guide you step by step through a basic configuration procedure.' A 'Next' button is located at the bottom right of the main content area.

Below the main interface is a promotional banner with three sections:

- WPS Easy to use:** Shows a hand pressing a button on a router.
- Better Connection:** Shows a router with signal waves and the text 'Enhance 3 times coverage'.
- Higher Speed 300Mbps:** Shows a speedometer graphic with the text 'Boost 6 times speed'.

# 13 INTERNET

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## - Status

This page shows the current Internet connection type and status

EnGenius Wireless 11n Broadband RouterAP Router Mode ▾

StatusDynamic IPStatic IPPPPOEPPTP

View the current internet connection status and related information.

<b>Attain IP Protocol :</b>	Dynamic IP
<b>IP address :</b>	10.0.174.2
<b>Subnet Mask :</b>	255.255.254.0
<b>Default Gateway :</b>	10.0.174.254
<b>MAC address :</b>	00:02:6F:36:9C:9A
<b>Primary DNS :</b>	10.0.174.254

## - 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

EnGenius Wireless 11n Broadband RouterAP Router Mode ▾

StatusDynamic IPStatic IPPPPOEPPTP

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

<b>Hostname :</b>	<input type="text" value="EnGenius9750"/>
<b>MAC address:</b>	<input type="text" value="0018F3369C01"/>

**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.

EnGenius Wireless 11n Broadband RouterAP Router Mode

StatusDynamic IPStatic IPPPPOEPPTP

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

IP address:	10.0.174.6
IP Subnet Mask :	255.255.255.0
Default Gateway :	10.0.174.254
Primary DNS :	10.0.174.254
Secondary DNS :	10.0.174.253

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

EnGenius Wireless 11n Broadband RouterAP Router Mode

StatusDynamic IPStatic IPPPPOEPPTP

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

Login :	username
Password :	•••••
Service Name	
MTU :	1492 <small>(512&lt;=MTU Value&lt;=1492)</small>
Type :	Keep connection <input type="button" value="v"/> <input type="button" value="Connect"/> <input type="button" value="Disconnect"/>
Idle Timeout :	90 <small>(1-1000 Minutes)</small>

**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)

EnGenius Wireless 11n 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.

Use dynamic IP address :

**Hostname :**

**MAC Address:**  Clone Mac

Use static IP address :

**My IP Address :**

**My Subnet Mask :**

**Server IP Address :**

**Login :**

**Password :**

**Server IP Address :**

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.

EnGenius Wireless 11n Broadband Router AP Router Mode

Module is reloading, please wait  seconds

# 14 Wireless Settings

## - General

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

The screenshot shows the configuration page for an EnGenius Wireless 11n Broadband Router. The page title is "EnGenius Wireless 11n Broadband Router" and the mode is set to "AP Router Mode". The "General" tab is selected, with other tabs being "Advanced", "Security", "Filter", and "WPS". A descriptive text states: "This page allows you to define Mode, Band, Multiple ESSID. You can also set up a static wireless channel or make Wireless Router move to a clean Wireless Channel automatically." The configuration fields are as follows:

Radio :	<input type="radio"/> Disable <input checked="" type="radio"/> Enable
Mode :	AP
Band :	2.4 GHz (B+G+N)
Enabled SSID#:	1
ESSID1 :	EnGenius033004
Auto Channel :	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
Channel :	11

**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.

The screenshot shows the configuration page for an EnGenius Wireless 11n Broadband Router in AP Router Mode. The settings are as follows:

- Radio :**  Disable  Enable
- Mode :** WDS
- Band :** 2.4 GHz (B+G+N)
- Enabled SSID#:** 1
- ESSID1 :** EnGenius033004
- Auto Channel :**  Disable  Enable
- Channel :** 11
- MAC address 1 :** 000000000000
- MAC address 2 :** 000000000000
- MAC address 3 :** 000000000000
- MAC address 4 :** 000000000000
- Set Security :** 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.

**EnGenius Wireless 11n Broadband Router** AP Router Mode ▾

General
Advanced
Security
Filter
WPS

These settings are only for expert user who is familiar with Wireless LAN procedure. Do not change these settings unless you know what effect the changes will have on your AP. Incorrect settings might reduce wireless performance.

<b>Fragment Threshold :</b>	<input style="width: 80px;" type="text" value="2346"/>	(256-2346)
<b>RTS Threshold :</b>	<input style="width: 80px;" type="text" value="2347"/>	(0-2347)
<b>Beacon Interval :</b>	<input style="width: 80px;" type="text" value="100"/>	(20-1024 ms)
<b>DTIM Period :</b>	<input style="width: 80px;" type="text" value="1"/>	(1-10)
<b>Data rate :</b>	Auto ▾	
<b>N Data rate:</b>	Auto ▾	
<b>Channel Bandwidth</b>	<input checked="" type="radio"/> Auto 20/40 MHZ <input type="radio"/> 20 MHZ	
<b>Preamble Type :</b>	<input type="radio"/> Long Preamble <input checked="" type="radio"/> Short Preamble	
<b>Broadcast ESSID :</b>	<input checked="" type="radio"/> Enable <input type="radio"/> Disable	

**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.

**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.

**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.

**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.

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

## - Security

This Access Point provides complete wireless LAN security functions, included are WEP, IEEE 802.11x, IEEE 802.11x 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.

**Encryption:** When you choose to disable encryption, it is very insecure to operate ESR-9750.



General Advanced **Security** Filter WPS

This page allows you setup the wireless security. You can turn on WEP or WPA by using Encryption Keys, besides you can enable 802.1x Authentication or RADIUS to coordinate with RADIUS server

ESSID Selection:	EnGenius033004 ▾
Encryption :	Disable ▾
<input type="checkbox"/> Enable 802.1x Authentication	

### **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.

Encryption :	Disable ▾
<input checked="" type="checkbox"/> Enable 802.1x Authentication	
RADIUS Server IP address :	192.168.1.1
RADIUS Server port :	1812
RADIUS Server password :	••••••••
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>	

### **WEP Encryption**

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

Encryption :	WEP
Authentication type :	<input checked="" type="radio"/> Open System <input type="radio"/> Shared Key <input type="radio"/> Auto
Key Length :	64-bit
Key type :	ASCII (5 characters)
Default key :	Key 1
Encryption Key 1 :	*****
Encryption Key 2 :	*****
Encryption Key 3 :	*****
Encryption Key 4 :	*****
<input checked="" type="checkbox"/> Enable 802.1x Authentication	
RADIUS Server IP address :	
RADIUS Server port :	1812
RADIUS Server password :	

**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.

<b>Encryption :</b>	WPA pre-shared key
<b>WPA type :</b>	<input checked="" type="radio"/> WPA(TKIP) <input type="radio"/> WPA2(AES) <input type="radio"/> WPA2 Mixed
<b>Pre-shared Key type :</b>	Passphrase
<b>Pre-shared Key :</b>	passphrase
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>	

### **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>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>	192.168.1.1
<b>RADIUS Server port :</b>	1812
<b>RADIUS Server password :</b>	••••••••
<input type="button" value="Apply"/> <input type="button" value="Cancel"/>	

## - MAC Address Filtering

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

The screenshot shows the configuration interface for an EnGenius Wireless 11n Broadband Router. At the top, there is a header bar with the router model name and a dropdown menu for 'AP Router Mode'. Below this are several tabs: 'General', 'Advanced', 'Security', 'Filter', and 'WPS'. The 'Filter' tab is selected. A message states: 'Using MAC Address Filtering could prevent unauthorized MAC Address to associate with the AP.' Below this is a section titled 'MAC Address Filtering Table' which contains a table with the following data:

NO.	MAC address	Comment	Select
1	00:01:02:03:04:05	MyPC	<input type="checkbox"/>

Below the table are three buttons: 'Delete Selected', 'Delete All', and 'Reset'. There is a checkbox labeled 'Enable Wireless MAC Filtering' which is currently unchecked. At the bottom, there is a 'New' section with two input fields: 'MAC address:' and 'Comment:'. To the right of these fields are two buttons: 'Add' and 'Reset'.

**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.

The screenshot shows the WPS configuration page of an EnGenius Wireless 11n Broadband Router. The page title is "EnGenius Wireless 11n Broadband Router" and the mode is "AP Router Mode". The navigation tabs are "General", "Advanced", "Security", "Filter", and "WPS". The WPS configuration is as follows:

<b>WPS:</b>	<input checked="" type="checkbox"/> Enable
<b>Wi-Fi Protected Setup Information</b>	
<b>WPS Current Status:</b>	Configured
<b>Self Pin Code:</b>	02089003
<b>SSID:</b>	EnGenius033004
<b>Authentication Mode:</b>	WPA2 pre-shared key
<b>Passphrase Key:</b>	EnGenius
<b>Interface:</b>	AP
<b>WPS Via Push Button:</b>	Start to Process
<b>WPS via PIN:</b>	<input type="text"/> 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.

## 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).

EnGenius Wireless 11n Broadband RouterAP Router Mode ▾

EnableDMZDoSMAC FilterIP FilterURL 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 module function :  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.

**EnGenius Wireless 11n Broadband Router** AP Router Mode ▾

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

DMZ(De-Militarized Zone) Host is a computer without the protection of the firewall. This feature allows a single computer to be exposed to the Internet.

**Enable DMZ**

**LAN 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.

**EnGenius Wireless 11n 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 page for MAC Filtering on an EnGenius Wireless 11n Broadband Router. The page title is "EnGenius Wireless 11n Broadband Router" and the mode is "AP Router Mode". The "MAC Filter" tab is selected among other options like "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 selected computers with MAC address listed below to access the network.  
 Allow selected computers 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

EnGenius Wireless 11n Broadband RouterAP Router Mode ▼

EnableDMZDoSMAC FilterIP FilterURL Filter

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

**Enable IP Filtering**

Deny selected computers with IP address listed below to access the network.  
 Allow selected computers with IP address listed below to access the network.

**Description :**

**Protocol :** Both ▼

**LAN IP Address :**  ~

**Port Range :**  ~

**IP Filtering Table**

NO.	Description	LAN IP Address	Protocol	Port range	Select
1	File Transfer	192.168.0.2-192.168.0.22	TCP	TCP Port=21-33	<input type="checkbox"/>

Delete SelectedDelete AllReset

**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.

The screenshot shows the configuration page for the URL Filter on an EnGenius Wireless 11n Broadband Router. The page title is "EnGenius Wireless 11n Broadband Router" and the mode is "AP Router Mode". The navigation tabs include "Enable", "DMZ", "DoS", "MAC Filter", "IP Filter", and "URL Filter".

The main content area contains the following text: "You can limit access to certain sites on the Internet. The URL filter will check each Web Site access. If the address , or part of the address, is included in the block site list, access will be denied."

There is a checkbox labeled "Enable URL Blocking" which is checked. Below it is a text input field labeled "URL/keyword" with an "Add" button and a "Reset" button.

Below the input field is a table titled "URL Blocking Table":

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

At the bottom of the table are buttons for "Delete Selected", "Delete All", and "Reset". At the bottom right of the page are "Apply" and "Cancel" buttons.

**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

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### - 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.

EnGenius Wireless 11n Broadband RouterAP Router Mode ▾

NAT	Port map.	Port fw.	Port tri.	ALG	UPNP	QoS	Routing
-----	-----------	----------	-----------	-----	------	-----	---------

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.

NAT :  Enable  Disable

### - 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.

**EnGenius Wireless 11n 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:**

**Type:**  ▾

**Port range:**  -

**Current Port Mapping Table:**

NO.	Description	Local IP	Type	Port range	Select
1	Forwarding1	192.168.0.1	BOTH	11000-11100	<input type="checkbox"/>
2	Forwarding2	192.168.0.2	TCP	12000-12100	<input type="checkbox"/>

**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).



**EnGenius Wireless 11n Broadband Router** AP Router Mode ▾

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

Users can specify some services to be visible from outside users. The router can detect incoming service requests and forward either a single port or a range of ports to the specific local computer to handle it.

**Enable Port Forwarding**

**Description:**

**Local IP:**

**Type:**  ▾

**Local Port:**

**Public Port:**

**Current Port Forwarding Table:**

NO.	Description	Local IP	Local Port	Type	Public Port	Select
1	PortForward1	192.168.1.1	21	BOTH	10023	<input type="checkbox"/>
2	PortForward2	192.168.1.2	22	TCP	10034	<input type="checkbox"/>

**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.

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

**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.

### **Add Port Forwarding**

Fill in the "**Local IP**", "**Local Port**", "**Type**", "**Public Port**" and "**Description**" 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.

**EnGenius Wireless 11n Broadband Router** AP Router Mode ▾

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

Special Applications, also called Port Triggering allows you to use Internet applications which normally do not function when used behind a firewall.

**Enable Trigger Port**

**Description:**

**Popular Applications :**  ▾

**Trigger Port:**  -

**Trigger Type:**  ▾

**Public Port:**  -

**Public Type:**  ▾

**Current Trigger-Port Table:**

NO.	Description	Trigger Port	Trigger Type	Public Port	Public Type	Select
1		21	Both	10023	Both	<input type="checkbox"/>
2		22	TCP	10034	UDP	<input type="checkbox"/>

**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.

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/Netmeeting	<input type="checkbox"/>
MMS	<input type="checkbox"/>
TFTP	<input type="checkbox"/>
Egg	<input type="checkbox"/>

## - UPNP

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

The screenshot shows the configuration page for an EnGenius Wireless 11n Broadband Router. At the top, there is a title bar with the router model name and a dropdown menu for 'AP Router Mode'. Below this is a navigation menu with tabs for NAT, Port map., Port fw., Port tri., ALG, UPNP, QoS, and Routing. The UPNP tab is currently selected. The main content area contains a description of UPnP: 'UPnP (Universal Plug and Play) allows automatic discovery and configuration of equipment attached to your LAN.' Below the description, there is a control for 'UPnP' with two radio buttons: 'Enable' and 'Disable'. The 'Disable' radio button is selected. At the bottom right of the control area, there are two buttons: 'Apply' and 'Cancel'.

**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.

EnGenius Wireless 11n 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: Port-based QoS

Enable Port-based QoS

Port No.	Priority	Flow Control	Ingress Rate (bps)	Egress Rate (bps)
WAN	<span style="border: 1px solid gray; padding: 2px;">Low</span>	<span style="border: 1px solid gray; padding: 2px;">Disable</span>	<span style="border: 1px solid gray; padding: 2px;">Full</span>	<span style="border: 1px solid gray; padding: 2px;">Full</span>
Port 1	<span style="border: 1px solid gray; padding: 2px;">Low</span>	<span style="border: 1px solid gray; padding: 2px;">Disable</span>	<span style="border: 1px solid gray; padding: 2px;">Full</span>	<span style="border: 1px solid gray; padding: 2px;">Full</span>
Port 2	<span style="border: 1px solid gray; padding: 2px;">Low</span>	<span style="border: 1px solid gray; padding: 2px;">Disable</span>	<span style="border: 1px solid gray; padding: 2px;">Full</span>	<span style="border: 1px solid gray; padding: 2px;">Full</span>
Port 3	<span style="border: 1px solid gray; padding: 2px;">Low</span>	<span style="border: 1px solid gray; padding: 2px;">Disable</span>	<span style="border: 1px solid gray; padding: 2px;">Full</span>	<span style="border: 1px solid gray; padding: 2px;">Full</span>
Port 4	<span style="border: 1px solid gray; padding: 2px;">Low</span>	<span style="border: 1px solid gray; padding: 2px;">Disable</span>	<span style="border: 1px solid gray; padding: 2px;">Full</span>	<span style="border: 1px solid gray; padding: 2px;">Full</span>

Apply Cancel

**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.

EnGenius Wireless 11n 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

**Unlimited Priority Queue**

IP Address	Description
	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

**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.

**EnGenius Wireless 11n 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

Download / Upload	Start IP Addr	End IP Addr	Protocol	Start Port	End Port	Policy	Rate (bps)	Enable
Download ▾	192.168.1.3	255.255.255.255	TCP ▾	80	88	Min ▾	Full ▾	<input checked="" type="checkbox"/>
Download ▾			TCP ▾			Min ▾	Full ▾	<input type="checkbox"/>

## - Routing

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

**EnGenius Wireless 11n Broadband Router** AP Router Mode ▾

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

You can enable Static Routing to 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 ▾

**Current Static Routing Table:**

NO.	Destination LAN IP	Subnet Mask	Default Gateway	Hops	Interface	Select
1	192.168.0.2	255.255.255.0	192.168.100.102	20	WAN	<input type="checkbox"/>
2	192.168.0.3	255.255.255.0	192.168.100.102	40	LAN	<input type="checkbox"/>



# 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.

EnGenius Wireless 11n Broadband RouterAP Router Mode ▾

AdminTimeDDNSPowerFirmwareSettingsReset

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

Old Password :	<input style="width: 60%;" type="text"/>
New Password :	<input style="width: 60%;" type="text"/>
Repeat New Password :	<input style="width: 60%;" type="text"/>

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
10.0.174.115	8080	<input checked="" 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.

EnGenius Wireless 11n Broadband RouterAP Router Mode ▾

AdminTimeDDNSPowerFirmwareSettingsReset

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.

<b>Time Zone :</b>	<input style="width: 100%;" type="text" value="(GMT+08:00)Taipei, Taiwan"/>
<b>NTP Time Server :</b>	<input style="width: 100%;" type="text" value="europe.pool.ntp.org"/>
<b>Daylight Saving :</b>	<input type="checkbox"/> Enable From <input type="text" value="January"/> <input type="text" value="1"/> To <input type="text" value="January"/> <input type="text" value="1"/>

**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 DDNS configuration page of an EnGenius Wireless 11n Broadband Router. The page has a navigation bar with tabs for Admin, Time, DDNS (selected), Power, Firmware, Settings, and Reset. Below the navigation bar, there is a description of DDNS: "DDNS (Dynamic DNS) allows Internet users to connect to Virtual Servers on your LAN using a domain name, even if your IP address is not fixed." The configuration form includes a "Dynamic DNS" section with radio buttons for "Enable" and "Disable" (selected). Below this are fields for "Server Address" (a dropdown menu showing "3322(qdns)"), "Host Name", "Username", and "Password". At the bottom right of the form are "Apply" and "Cancel" buttons.

**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 configuration page for an EnGenius Wireless 11n Broadband Router. At the top, there is a navigation bar with the router's name and a dropdown menu for 'AP Router Mode'. Below this is a menu with tabs for 'Admin', 'Time', 'DDNS', 'Power', 'Firmware', 'Settings', and 'Reset'. The 'Power' tab is selected. The main content area contains a heading 'Power Saving Mode' and two sections: 'WLAN :' and 'Ethernet :'. Each section has two radio button options: 'Enable' and 'Disable'. For 'WLAN', the 'Disable' option is selected. For 'Ethernet', the 'Enable' option is selected. At the bottom right, there are 'Apply' and 'Cancel' buttons.

## - 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.

EnGenius Wireless 11n Broadband Router AP Router Mode ▾

[Admin](#) | [Time](#) | [DDNS](#) | [Power](#) | **Firmware** | [Settings](#) | [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

## - Settings

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.

EnGenius Wireless 11n Broadband Router AP Router Mode ▾

[Admin](#) | [Time](#) | [DDNS](#) | [Power](#) | [Firmware](#) | **Settings** | [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.

**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.

The screenshot shows the web interface of an EnGenius Wireless 11n Broadband Router. At the top, there is a header bar with the text "EnGenius Wireless 11n Broadband Router" and a dropdown menu showing "AP Router Mode". Below the header is a navigation menu with tabs for "Admin", "Time", "DDNS", "Power", "Firmware", "Settings", and "Reset". The "Reset" tab is currently selected. Below the navigation menu, there is a paragraph of text explaining the reset process: "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." At the bottom right of the page, there are two buttons: "Apply" and "Cancel".

## 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 EnGenius ESR-9750 configuration interface in Repeater Mode. The top navigation bar includes tabs for Status, LAN, Schedule, Event Log, and Monitor. The main content area is divided into two sections: System and LAN Settings.

**System Information:**

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

**LAN Settings:**

IP address	192.168.0.1
Subnet Mask	255.255.255.0

Below the configuration page, there is a promotional banner for the ESR-9750. It features three main benefits: "Easy to use" (with a WPS button icon), "Better Connection" (with a diagram showing signal enhancement and "Enhance 3 times coverage"), and "Higher Speed 300Mbps" (with a "Boost 6 times speed" graphic).

### - 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-9750.

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 an EnGenius Wireless 11n Broadband Router. At the top, there is a title bar with the router name and a 'Repeater Mode' dropdown menu. Below this is a navigation bar with tabs for 'Status', 'LAN', 'Schedule', 'Event Log', and 'Monitor'. The 'LAN' tab is selected. A descriptive paragraph explains that DHCP stands for Dynamic Host Control Protocol and that the router has a built-in DHCP server. Below this is a section titled 'LAN IP' with three configuration fields: 'IP address' set to 192.168.0.1, 'IP Subnet Mask' set to 255.255.255.0, and '802.1d Spanning Tree' set to 'Enabled'. At the bottom right, there are 'Apply' and 'Cancel' buttons.

EnGenius Wireless 11n Broadband Router Repeater Mode

Status LAN Schedule Event Log Monitor

DHCP stands for Dynamic Host Control Protocol. The Router has a built-in DHCP server, which automatically assigns an IP address to the computers on the LAN/private 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.

EnGenius Wireless 11n Broadband Router Repeater Mode

Status LAN **Schedule** Event Log Monitor

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)

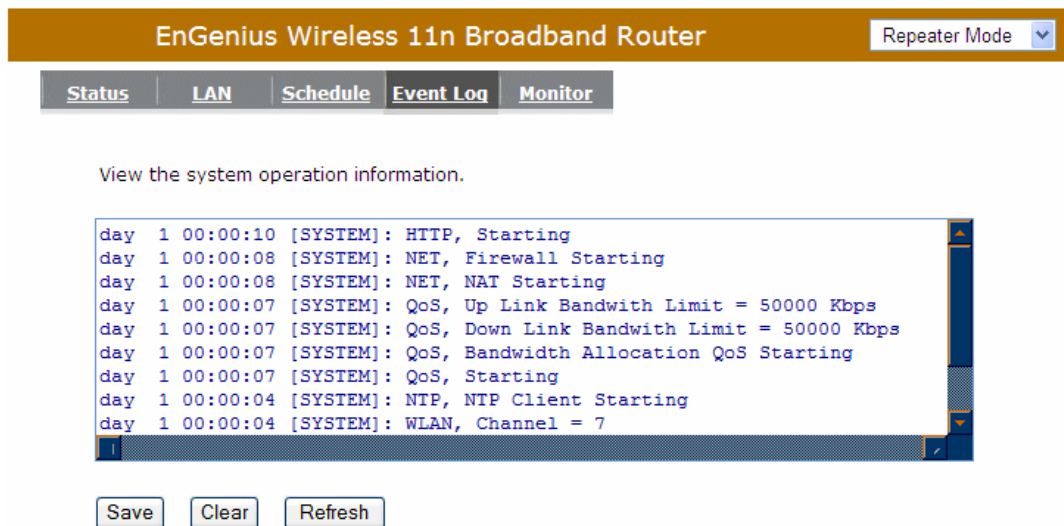
NO.	Description	Service	Schedule	Select
1	schedule 1	Power Saving	All Time---Mon, Tue, Wed, Fri, Sat, Sun	<input type="checkbox"/>

Add Edit Delete Selected Delete 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-9750**. 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.



EnGenius Wireless 11n Broadband Router Repeater Mode

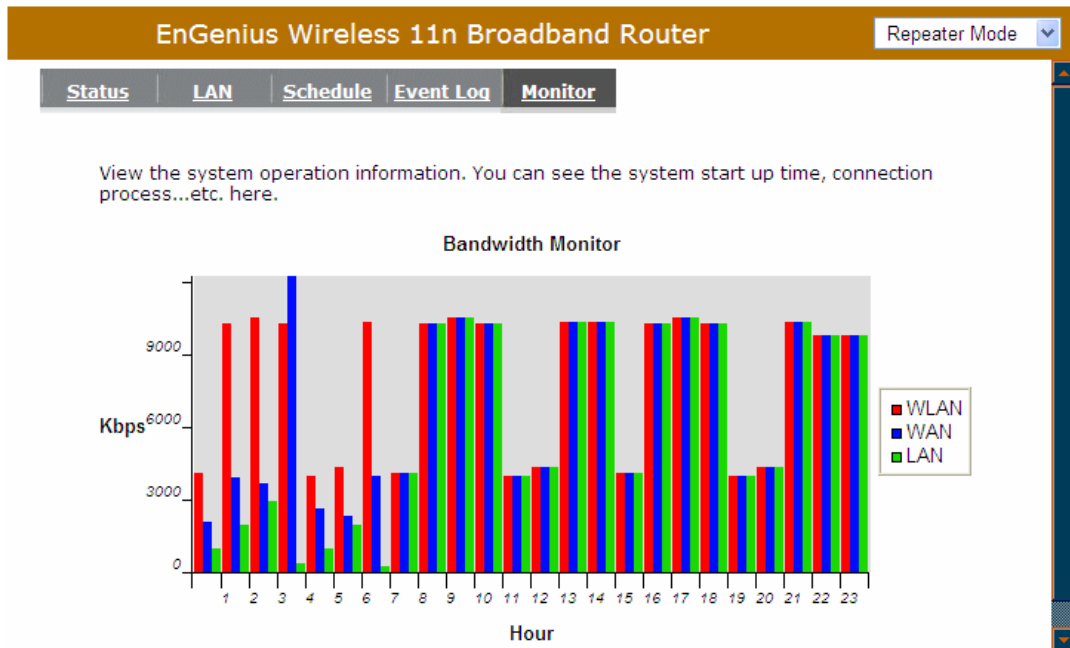
[Status](#) [LAN](#) [Schedule](#) [Event Log](#) [Monitor](#)

View the system operation information.

```
day 1 00:00:10 [SYSTEM]: HTTP, Starting
day 1 00:00:08 [SYSTEM]: NET, Firewall Starting
day 1 00:00:08 [SYSTEM]: NET, NAT Starting
day 1 00:00:07 [SYSTEM]: QoS, Up Link Bandwith Limit = 50000 Kbps
day 1 00:00:07 [SYSTEM]: QoS, Down Link Bandwith Limit = 50000 Kbps
day 1 00:00:07 [SYSTEM]: QoS, Bandwidth Allocation QoS Starting
day 1 00:00:07 [SYSTEM]: QoS, Starting
day 1 00:00:04 [SYSTEM]: NTP, NTP Client Starting
day 1 00:00:04 [SYSTEM]: WLAN, Channel = 7
```

## - Monitor

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



## - Wireless

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.

**EnGenius Wireless 11n Broadband Router** Repeater Mode ▾

**General**

This page allows you to define Mode, Band, Multiple ESSID. You can also set up a static wireless channel or make Wireless Router move to a clean Wireless Channel automatically.

**Radio :**  Disable  Enable

**Mode :** Repeater ▾

**Band :** 2.4 GHz (B+G+N) ▾

**Enabled SSID#:** 1 ▾

**ESSID1 :** EnGenius033004

**Site Survey :** Site Survey

**Wireless Information**

**SSID:** EnGenius033004

**Status:** Disconnected

**Channel:** 1

**Radio:** Enable or Disable Wireless function

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

**SSID:** This is the name of the wireless signal which is broadcasted. All the devices in the same wireless LAN should have the same ESSID.

**Channel Number:** The channel used by the wireless LAN. All devices in the same wireless LAN should use the same channel.

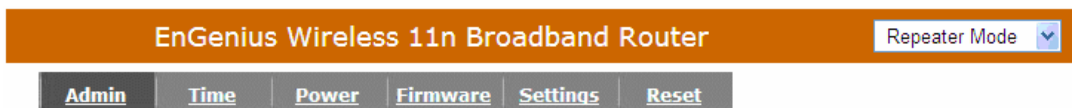
**Site Survey:** You can scan the current Wireless Access Point and connect on it.

### 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

## - 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.

[Admin](#) | [Time](#) | [Power](#) | [Firmware](#) | [Settings](#) | [Reset](#)

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

<b>Old Password :</b>	<input type="text"/>
<b>New Password :</b>	<input type="text"/>
<b>Repeat New Password :</b>	<input type="text"/>

**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

## - 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.

[Admin](#) [Time](#) [Power](#) [Firmware](#) [Settings](#) [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.

<b>Time Zone :</b>	(GMT+08:00)Taipei, Taiwan ▾
<b>NTP Time Server :</b>	192.168.0.168
<b>Daylight Saving :</b>	<input type="checkbox"/> Enable From <span>January ▾</span> <span>1 ▾</span> To <span>January ▾</span> <span>1 ▾</span>

**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.

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

**Power Saving Mode**

**WLAN :**  Enable  Disable

**Ethernet :**  Enable  Disable

**- 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.

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

## - Settings

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).

EnGenius Wireless 11n Broadband RouterRepeater Mode ▾

AdminTimePowerFirmwareSettingsReset

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 :	<input type="button" value="Reset"/>
Backup Settings:	<input type="button" value="Save"/>
Restore Settings:	<input style="width: 150px; border: 1px solid #ccc;" type="text"/> <input type="button" value="Browse"/> <input type="button" value="Upload"/>

**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.



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.

# Appendix B – CE Interference Statement

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## Europe – EU Declaration of Conformity

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

- EN60950-1:2001 A11:2004  
Safety of Information Technology Equipment
  
- EN50385 : (2002-08)
- Product standard to demonstrate the compliance of radio base stations and fixed terminal stations for wireless telecommunication systems with the basic restrictions or the reference levels related to human exposure to radio frequency electromagnetic fields (110MHz - 40 GHz) - General public
  
- 
- EN 300 328 V1.7.1: (2006-10)
- Electromagnetic compatibility and Radio spectrum Matters (ERM); Wideband Transmission systems; Data transmission equipment operating in the 2,4 GHz ISM band and using spread spectrum modulation techniques; Harmonized EN covering essential requirements under article 3.2 of the R&TTE Directive
  
- 
- EN 301 489-1 V1.6.1: (2005-09)  
Electromagnetic compatibility and Radio Spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements
  
- EN 301 489-17 V1.2.1 (2002-08)
- Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for 2,4 GHz wideband transmission systems and 5 GHz high performance RLAN equipment

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

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

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

# CE 0560

<p>☐ Česky [Czech]</p>	<p>[<i>Jméno výrobce</i>] tímto prohlašuje, že tento [<i>typ zařízení</i>] je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 1999/5/ES.</p>
<p>☐ Dansk [Danish]</p>	<p>Undertegnede [<i>fabrikantens navn</i>] erklærer herved, at følgende udstyr [<i>udstyrets typebetegnelse</i>] overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.</p>
<p>☐ Deutsch [German]</p>	<p>Hiermit erkläre [<i>Name des Herstellers</i>], dass sich das Gerät [<i>Gerätetyp</i>] in Übereinstimmung mit den grundlegenden Anforderungen und den übrigen einschlägigen Bestimmungen der Richtlinie 1999/5/EG befindet.</p>
<p>☐ Eesti [Estonian]</p>	<p>Käesolevaga kinnitab [<i>tootja nimi = name of manufacturer</i>] seadme [<i>seadme tüüp = type of equipment</i>] vastavust direktiivi 1999/5/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.</p>
<p>☐ English</p>	<p>Hereby, [<i>name of manufacturer</i>], declares that this [<i>type of equipment</i>] is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.</p>
<p>☐ Español [Spanish]</p>	<p>Por medio de la presente [<i>nombre del fabricante</i>] declara que el [<i>clase de equipo</i>] cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE.</p>
<p>☐ Ελληνική [Greek]</p>	<p>ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ [<i>name of manufacturer</i>] ΔΗΛΩΝΕΙ ΟΤΙ [<i>type of equipment</i>] ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ΕΚ.</p>
<p>☐ Français [French]</p>	<p>Par la présente [<i>nom du fabricant</i>] déclare que l'appareil [<i>type d'appareil</i>] est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE.</p>
<p>☐ Italiano [Italian]</p>	<p>Con la presente [<i>nome del costruttore</i>] dichiara che questo [<i>tipo di apparecchio</i>] è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.</p>
<p>Latviski [Latvian]</p>	<p>Ar šo [<i>name of manufacturer / izgatavotāja nosaukums</i>] deklarē, ka [<i>type of equipment / iekārtas tips</i>] atbilst Direktīvas 1999/5/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.</p>
<p>Lietuvių [Lithuanian]</p>	<p>Šiuo [<i>manufacturer name</i>] deklaruojama, kad šis [<i>equipment type</i>] atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.</p>
<p>☐ Nederlands [Dutch]</p>	<p>Hierbij verklaart [<i>naam van de fabrikant</i>] dat het toestel [<i>type van toestel</i>] in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG.</p>
<p>☐ Malti [Maltese]</p>	<p>Hawnhekk, [<i>isem tal-manifattur</i>], jiddikjara li dan [<i>il-mudel tal-prodott</i>] jikkonforma mal-ħtiġijiet essenzjali u ma provvedimenti oħrajn relevanti li hemm fid-Dirrettiva 1999/5/EC.</p>
<p>☐ Magyar [Hungarian]</p>	<p>Alulírott, [<i>gyártó neve</i>] nyilatkozom, hogy a [<i>... típus</i>] megfelel a vonatkozó alapvető követelményeknek és az 1999/5/EC irányelv egyéb előírásainak.</p>

[pl] Polski [Polish]	Niniejszym [ <i>nazwa producenta</i> ] oświadcza, że [ <i>nazwa wyrobu</i> ] jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 1999/5/EC.
[pt] Português [Portuguese]	[ <i>Nome do fabricante</i> ] declara que este [ <i>tipo de equipamento</i> ] está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.
[sl] Slovensko [Slovenian]	[ <i>Ime proizvajalca</i> ] izjavlja, da je ta [ <i>tip opreme</i> ] v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 1999/5/ES.
Slovensky [Slovak]	[ <i>Meno výrobcu</i> ] týmto vyhlasuje, že [ <i>typ zariadenia</i> ] spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 1999/5/ES.
[fi] Suomi [Finnish]	[ <i>Valmistaja = manufacturer</i> ] vakuuttaa täten että [ <i>type of equipment = laitteen tyyppimerkintä</i> ] tyypinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
[sv] Svenska [Swedish]	Härmed intygar [ <i>företag</i> ] att denna [ <i>utrustningstyp</i> ] står i överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.