User Manual

TOTOLINK Wireless-N Router

TOTOLINK

www.totolink.net

Content

Package List

Open the box carefully, check the contents listed below:

- Wireless Broadband Router
- Power adapter
- CD
- Quick Installation Guide
- UTP cable

Note: If any of the listed contents are damaged or missing, please contact the retailer from whom you purchased the wireless router for assistance.

Introduction

Thank you for purchasing TOTOLINK Wireless-N Broadband Router! It is a hybrid design product which combines Ethernet technology and wireless access into a single stand-alone unit. The device allows you to take advantages of both mobility and fast connection.

TOTOLINK not only complies with all the mainstream features of a wireless broadband router, but also allows you to surf on the Internetmore secure and stable. It complies with IEEE 802.11n (Draft 2.0) standards, supports up to 150Mbps / 300Mbps (1Tx-1Rx / 2Tx-2Rx) wireless transmission speed, adopting MIMO technology to ensure a good performance, stability and coverage to bring you an enjoyable new experience.

TOTOLINK wireless router provides multiple security protection, which can protect the wireless access security effectively. It supports SSID broadcasting, 64/128 bits WEP encryption and built-in firewall function.

TOTOLINK wireless router is easy to install and configure with user friendly interface. For better use of the router functions, please read this user manual carefully.

Section 1: Product Overview

1.1 Product Features

- Complies with IEEE 802.11n; 802.11g; 802.11b standard for 2.4GHz Wireless LAN.
- Supports PPPoE, Dynamic IP, and static IP broadband connection.
- Supports UPnP, DDNS, static routing, VPN Pass-through.
- Wi-Fi protected security(WPS), set your security at a push button.
- Supports virtual server, special application and DMZ host.
- Supports SSID broadcast control and MAC access control list.
- Supports 64/128bit WEP, 128bit WPA standard (TKIP/AES), supports MIC, IV Expansion, Shared Key Authentication and IEEE 802.1X.
- Built-in fire wall, supports IP, MAC and URL filtering.
- Built-in DHCP server with automatic dynamic IP address distribution.
- Supports configuration file backup and restore.
- Supports VPN Server (PPTP) & QoS bandwidth control.
- Supports Remote and Web management.

1.2 Specifications

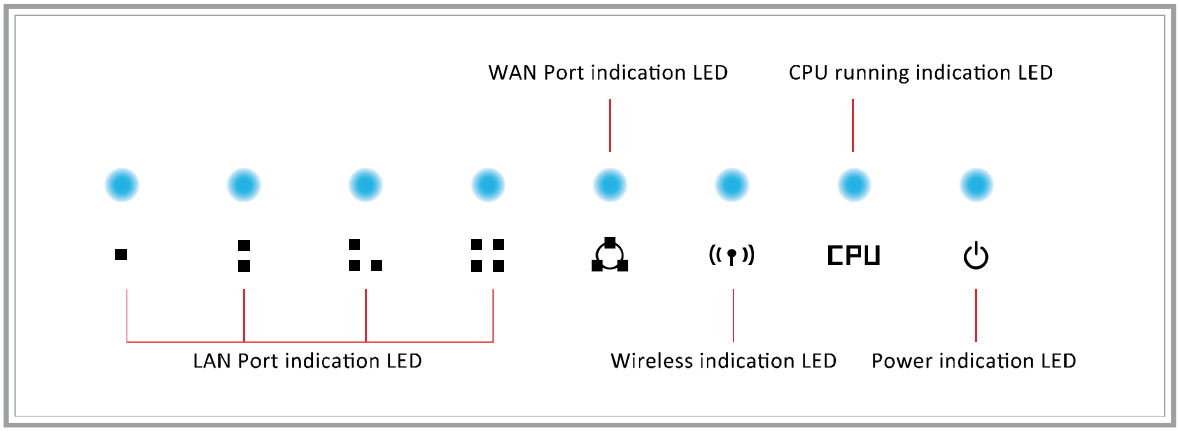
Standards	IEEE802.11n current draft, IEEE 802.11g, IEEE 802.11b, IEEE 802.3, IEEE 802.3u, IEEE 802.3x
Protocol	CSMA/CA, CSMA/CD, TCP/IP, ICMP, NAT, PPPoE, DHCP, PPTP, UDP, NAT, DN, DDNS, VPN
Port LAN	4*100M/1000M BaseTX (Auto MDI/MDIX)
Port WAN	1*100M/1000M BaseTX (Auto MDI/MDIX)
Wireless parameter **RF Frequency**	2.4~2.4835GHz
Data Rate	**11n:** 300/270/243/216/162/108/81/54/27Mbps 135/121.5/108/81/54/40.5/27/13.5Mbps 130/117/104/78/52/39/26/13Mbps 72/65/58.5/52/39/26/19.5/13/6.5Mbps **11g:** 54/48/36/24/18/12/9/6M（auto-negotiation） **11b:** 11/5.5/2/1M（auto-negotiation）

Wireless Transmit Power	20dBm(MAX)
Receiver Sensitivity	270M: -65dBm@10% PER 135M: -65dBm@10% PER 54M: -68dBm@10% PER 11M: -85dBm@8% PER 6M: -88dBm@10% PER 1M: -90dBm@8% PER
Channels	1-11 (North America); 1-13 (General Europe)
WLAN Modulation Scheme	BPSK, QPSK, CCK and OFDM (BPSK/QPSK/16-QAM/ 64-QAM)
Antenna Type	2.4GHz omni antenna
Wireless Operation Mode	Wireless Bridge /Client/ WAN /WDS
Wireless Security	WEP 64/128 bit; MAC based Association; SSID broadcast disable; Wi-Fi Protection Access (TBD), WPA, WPA2, WPS
LED	1*Power, 1*CPU Status, 1*Wireless, 1*WAN, 4*LAN
Media	100BASE-TX: UTP/STP
Management type	Local/Remote Web-based configuration
Operating Temperature	0 ~ 55℃
Storage	-20 ~ 65℃
Humidity	5 ~ 95% non-condensing
Power External	Input 110V/240V Output DC: 5V, 2.5A (N300RG); 5V, 1A (N150RA, N150RT,N300RT); 9V, 0.8A (N300R).

Section 2: Hardware installation

2.1 Panel layout

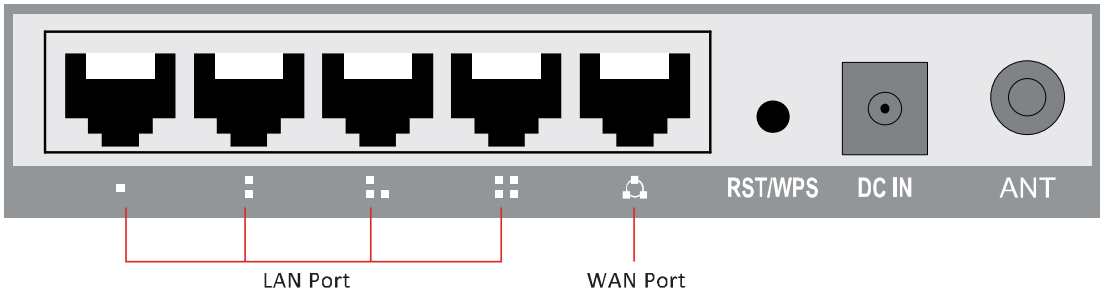
2.1.1 Front panel



LED indicators:

Led Name	Action	Description
Power	Off	Power off
	On	power on
CPU	Off	the router has a hardware error
	Flashing	the router is working properly
WLAN	Off	wireless function is disabled
	Flashing	wireless function is enabled
WAN / LAN 1, 2, 3, 4	Off	there is no device connected to the corresponding port
	On	there is a device connected to the corresponding port
	Flashing	there is an active device connected to the corresponding port

2.1.2 Back panel



DC IN		Plug in the DC power jack. Note: Please use the original power adapter to prevent the unsuitable power adapter damage to your router.
WAN port		WAN port (RJ-45). Connect xDSL Modem / Cable Modem or Ethernet
LAN port		4 RJ-45 ports. PC and hub / switch connect to LAN port through cable
RST/WPS	**RST**	Press this button for **five** seconds, the system will be restored to the factory default settings.
	WPS	When your wireless LAN adapter connected with the wireless router, press this button in the router, and press the "WPS" button in your wireless LAN adapter within **two** minutes, it will generate a secret key automatically between your LAN adapter and router, on the premise that the LAN adapter with WPS function.
Antenna Interface		Fixed or detachable omni antenna adjust to different models

2.2 System Requirements

- Broadband Internet access service (DSL/Cable/Ethernet)
- One DSL/Cable modem that has an RJ-45 connector (you do not need it if you connect the router to Ethernet)
- Each PC on the LAN needs a working Ethernet Adapter and an Ethernet cable with RJ45 connectors
- TCP/IP protocol must be installed on each PC
- Web browser, such as Microsoft Internet Explorer 5.0 or later, Netscape Navigator 6.0 or later

2.3 Installation Environment

- Not in direct sunlight or near a heater or heating vent
- Not cluttered or crowded. There should be at least 2 inches (5cm) of clear space on all sides of the router
- Well ventilated (especially if it is in a closet)
- Operating temperature: 0℃~40℃
- Operating Humidity: 5%~90%RH, Non-condensing

2.4 Hardware Installation Steps

Before you install the router, you should connect your PC to the Internet through your broadband service successfully. If there is any problem, please contact your ISP. After that, please install the router according to the following steps. Don't forget to pull out the power plug and keep your hands dry.

1. Power off your PC(s), Cable/DSL modem, and the router.
2. Locate an optimum location for the router. The best place is usually near the center of the area in which your PC(s) will wirelessly connect. The place must comply with the

Installation Environment Requirements.

3. Adjust the direction of the antenna. Normally, upright is a good direction.
4. Connect the PC(s) and each Switch/Hub on your LAN to the LAN Ports in the router.
5. Connect the DSL/Cable Modem to the WAN port on the router.
6. Connect the DC power adapter to the power port (DC IN) in the router, and plug the power plug in the electrical outlet. The router will begin to work automatically.
7. Power on your PC(s) and Cable/DSL modem.

Section 3:Quick Installation Guide

After connecting the wireless router into your network, you should configure it. This chapter describes how to configure the basic functions of your wireless router. These procedures only take you a few minutes. You can access the Internet via the router immediately after successfully configured.

3.1 TCP/IP configuration

The default IP address of the wireless router is **192.168.1.1**, and the default Subnet Mask is **255.255.255.0**. These values can be seen from the LAN. They can be changed as you desire, as an example we use the default values for description in this guide.

Connect the local PC to the LAN ports in the router. There are two methods to configure the IP address for your PC.

Configure the IP address manually

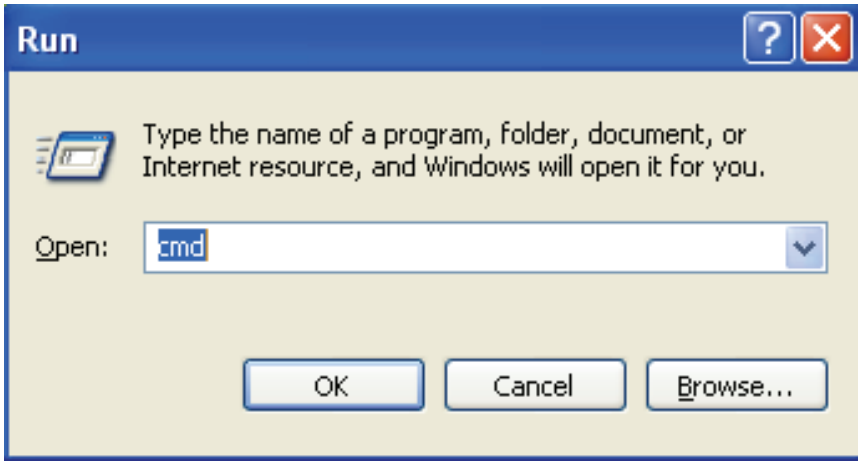
1) Set up the TCP/IP Protocol for your PC(s).
2) Configure the network parameters. The IP address is 192.168.1.xxx ("xxx" is from 2 to 254), Subnet Mask is 255.255.255.0, and Gateway is 192.168.1.1 (The router's default IP address)

Obtain an IP address automatically

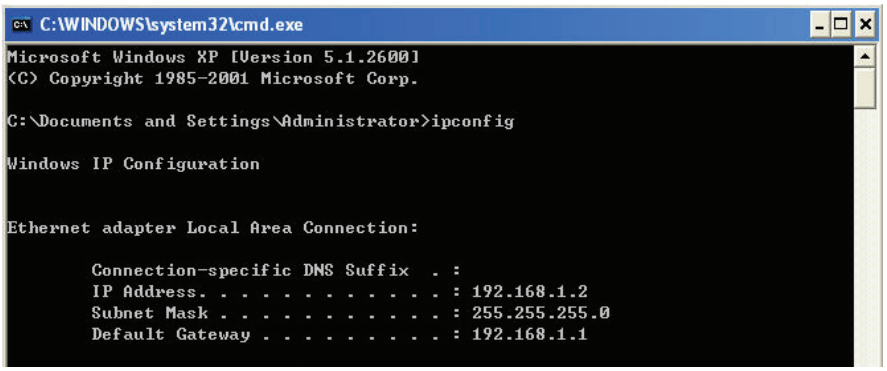
1) Set up the TCP/IP Protocol in "Obtain an IP address automatically" mode on your PC(s).
2) Power off the router and PC(s). Then turn on the router, and restart the PC(s). The built-in DHCP server will assign IP address for the PC(s).

Now, you can run the Ping command in the command prompt to verify the network connection between your PC(s) and the router. Open a command prompt, and type *ping 192.168.1.1*, and then press “enter”.

A. Click “Start” -> “Run”
B. Type the command “cmd”, and then click "OK"



C. Type “ipconfig” and press “enter”



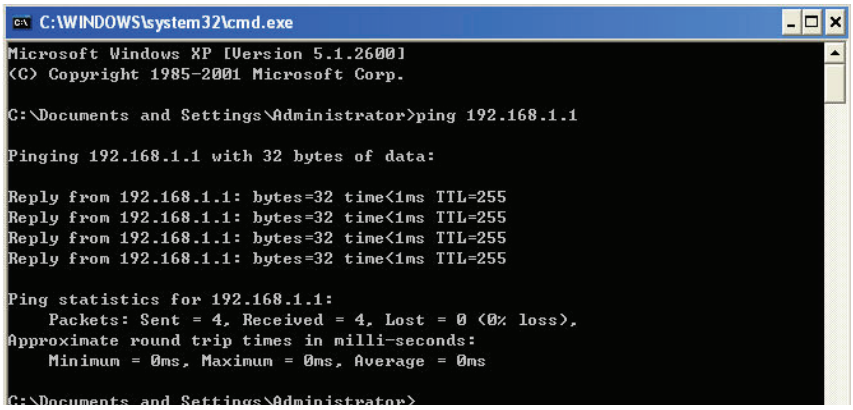
D. If the result displayed is similar to that shown in the below figure, the connection between your PC and the router has been established, or else please repeat the above steps and restart the PC.

IP address from 192.168.1.2 to 192.168.1.254

Subnet mask is 255.255.255.0 ;

Default gateway is 192.168.1.1 ;

E. Enter the command “ping 192.168.1.1”, and then press ”enter”



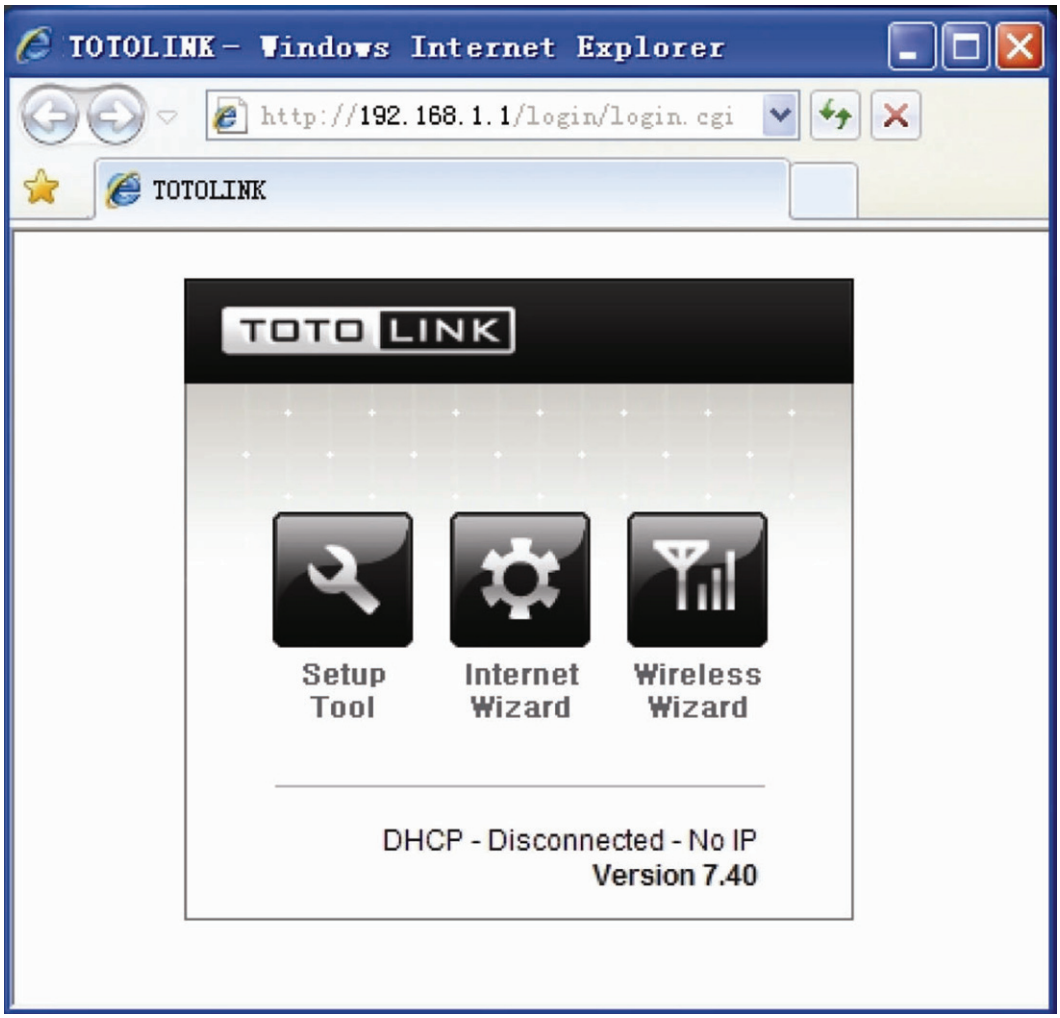
If you can see similar result displayed “Reply from 192.168.1.1：bytes=32 time<1ms TTL=255”, it means the user's PC has been connected with the router.

3.2 Quick Installation Guide

With a Web-based (Internet Explorer or Netscape® Navigator) utility, the wireless router is easy to configure and manage. The Web-based utility can be used on any Windows, Macintosh or UNIX OS with a web browser.

1) Run Internet Explorer ( )

2) Input **http://192.168.1.1** in Internet Explorer's address bar, you will see the homepage.



192.168.1.1 is the default router LAN IP address

"Setup Tool" enables you enter into the configuration interface;

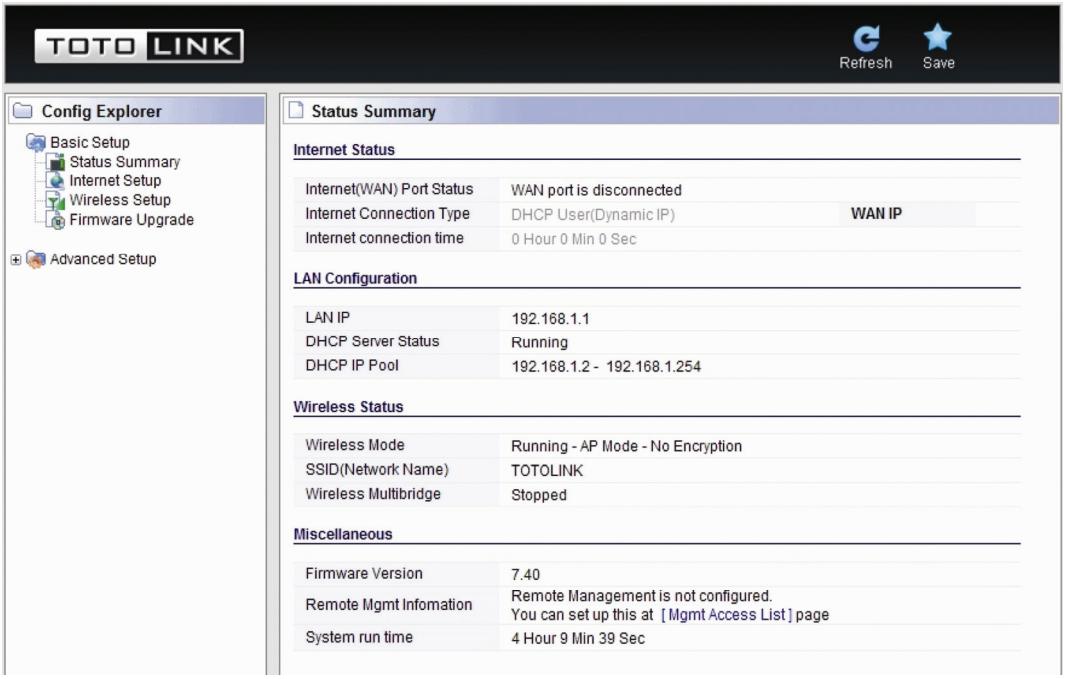
"Internet Wizard" enables you to configure the router WAN port connection quickly and conveniently.

"Wireless Wizard" enables you to configure the wireless setting.

3) Click , you will see the following login page,

Enter **"admin"** for the User name and Password, both in lower case letters. Then click the **"OK"** or press **"Enter"**.

4) You will enter into the wireless router configuration interface.

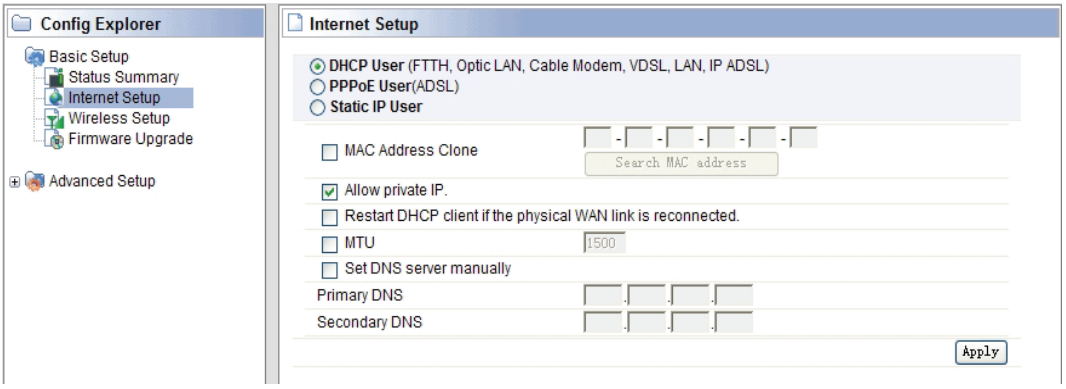


3.2.1 Internet setup

This page is used to configure the parameters for Internet network which connects to your wireless router WAN port. WAN access mode: you can choose DHCP, PPPoE or Static IP.

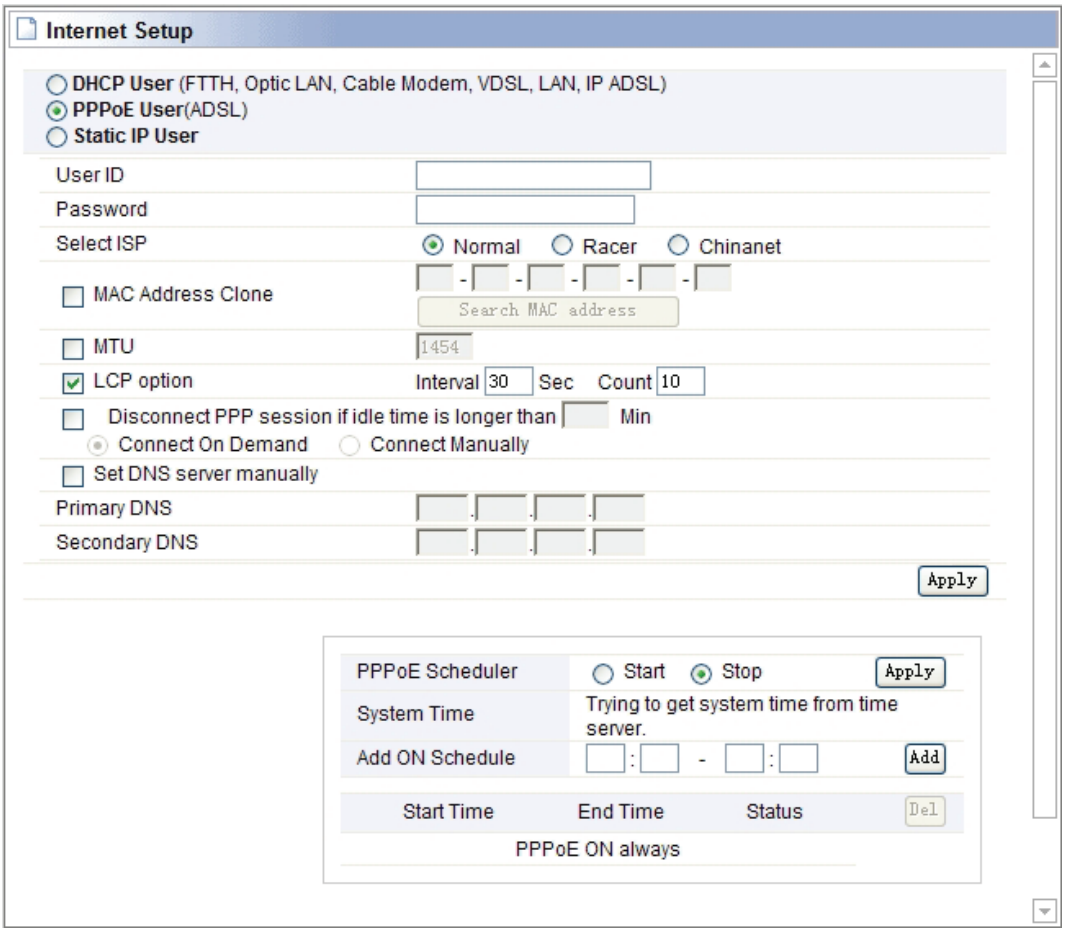
1). **DHCP User setup**

Click **"Internet setup"**, you will see following interface, dynamic IP address can be obtained from the ISP operator



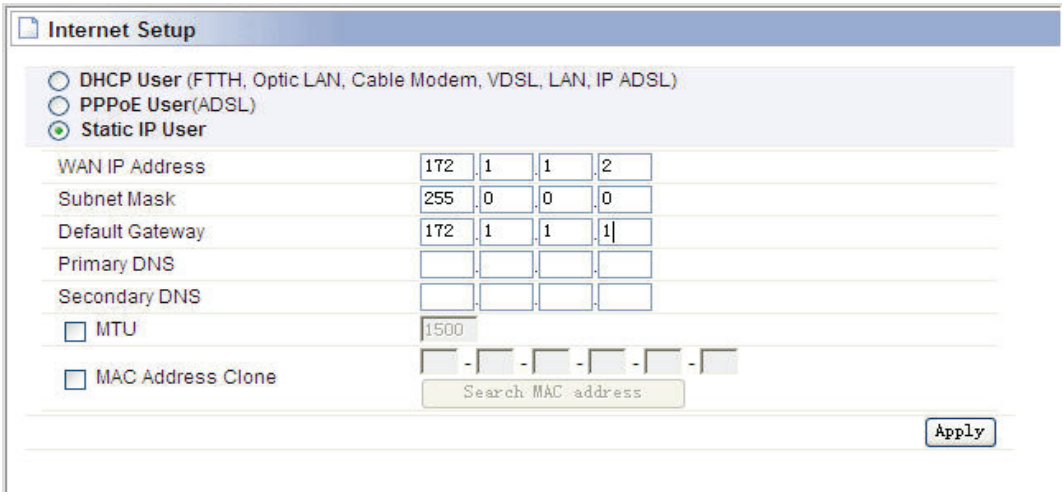
2). **PPPoE User (ADSL) setup**

This connection method is suitable for virtual dial-up Internet access. Input the User ID and Password provided by your Internet service provider, then click “Apply”.



3) Static IP User setup

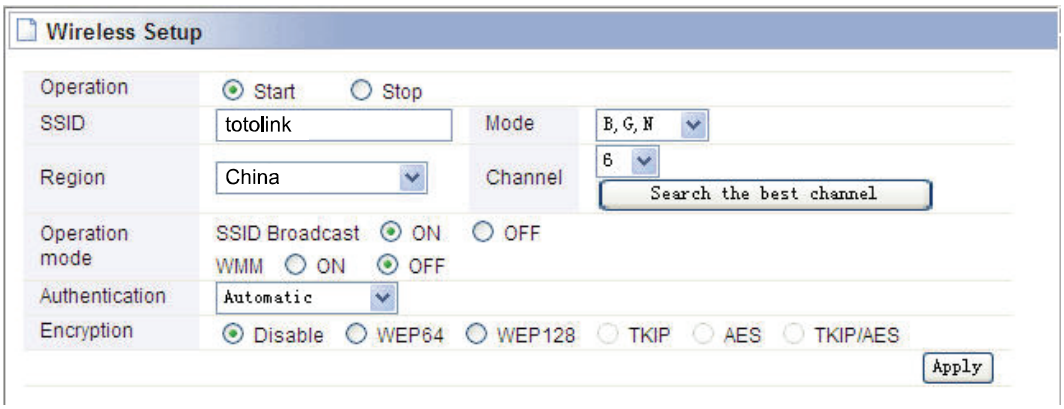
Input the IP address that provided by your ISP (Internet Service Provider). If you are not clear about this, please consult with your local ISP.



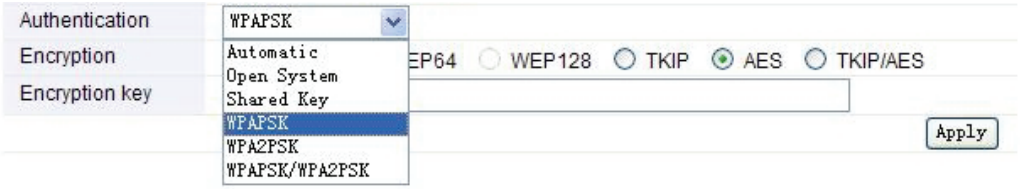
3.2.2 Wireless setup

Click **"Basic Setup"->"Wireless Setup"**, you will see below interface:

This webpage show the basic wireless parameters and wireless authentication way.



You can set up encryption key at here.



3.2.3 Firmware upgrade

Click **“Base Setup”** ->**“Firmware Upgrade”**, you will see firmware upgrade webpage as below, you can choose “Auto Upgrade” or “Manual Upgrade”

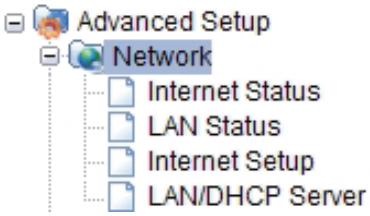
This page allows you to upgrade the wireless router firmware to the latest version. Please note, do not power off the device during the uploading because it may damage the system.

Section 4: Advanced Setup

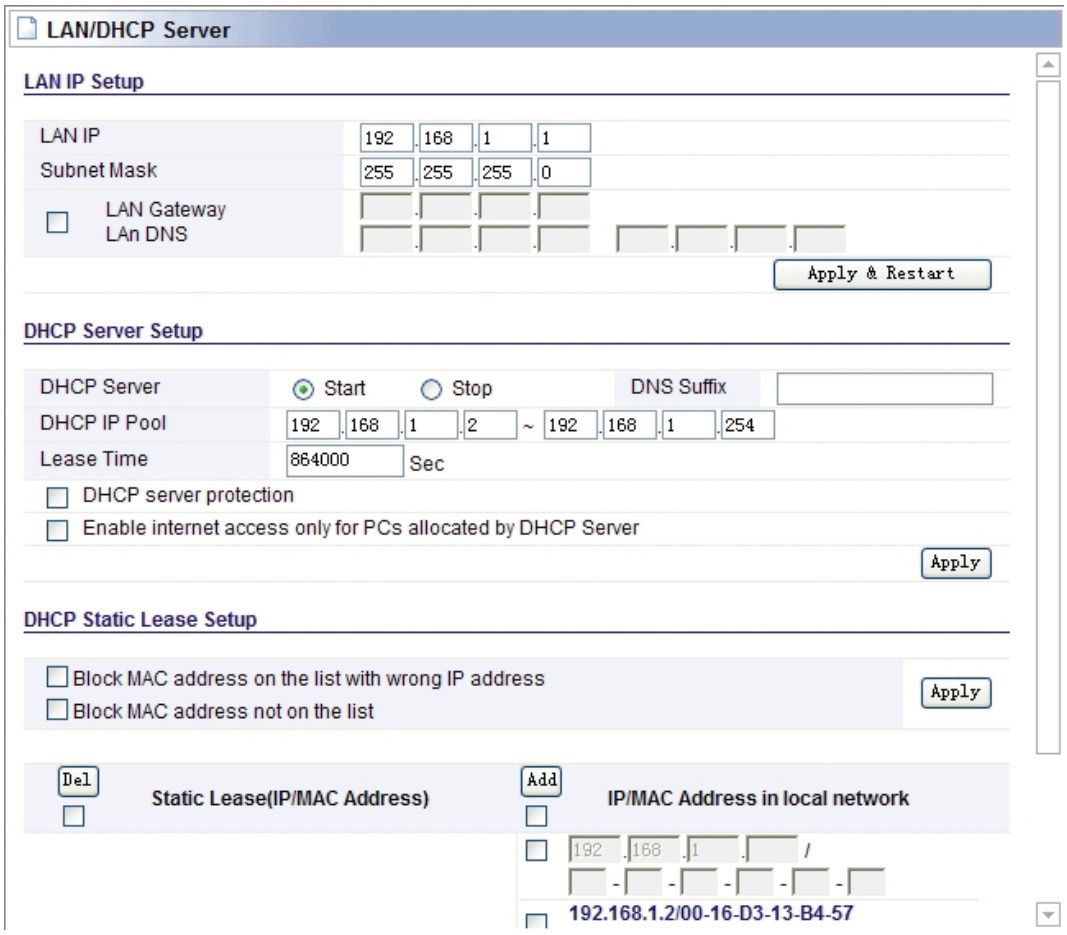
The advanced setup includes Network, Wireless, NAT, Firewall, Utility, Traffic and System. These settings are only for more technically advanced users who have sufficient knowledge about wireless LAN. These settings should not be changed unless you know what effect the changes will have on your wireless router.

4.1 Network

Click “Network” menu, you will see:



Click **“LAN/DHCP Server”,** you will see:



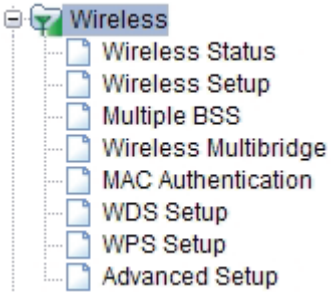
LAN port basic parameter and DHCP server parameter can be setup in this page.

Notes:

1. In order to use DHCP function of the IP Router, TCP/IP protocol of PCs in LAN must be configured as "Obtain an IP address automatically".
2. After configured please click "Apply" to make the configuration valid. Please save the configuration, otherwise configuration will be lost when IP Router is power off or restarts.

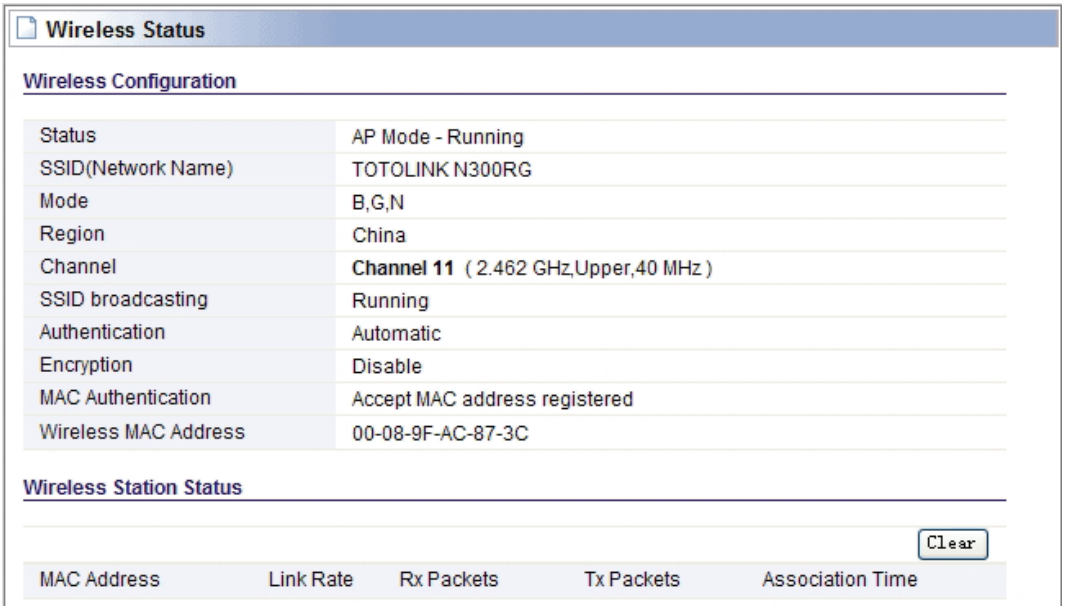
4.2 Wireless

Click "Wireless" menu, and you will see:



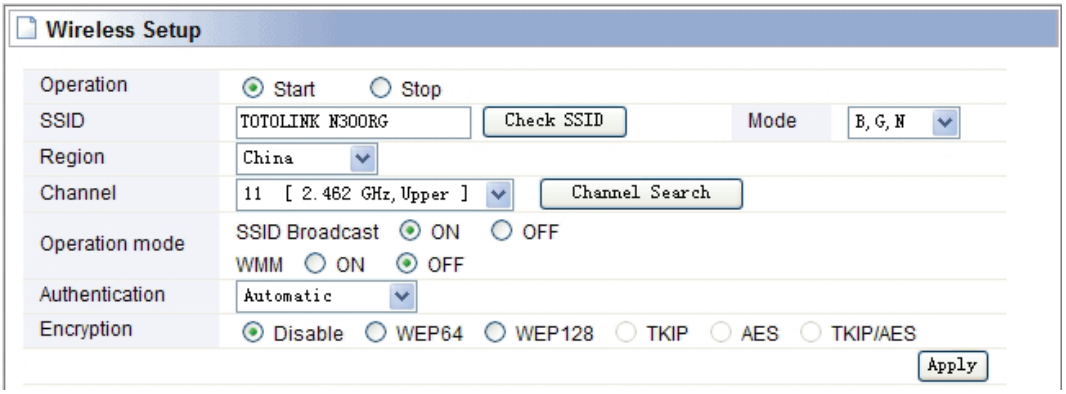
4.2.1 Wireless Status

Click "**Wireless Status**" menu, you will see your wireless router configuration and station status.



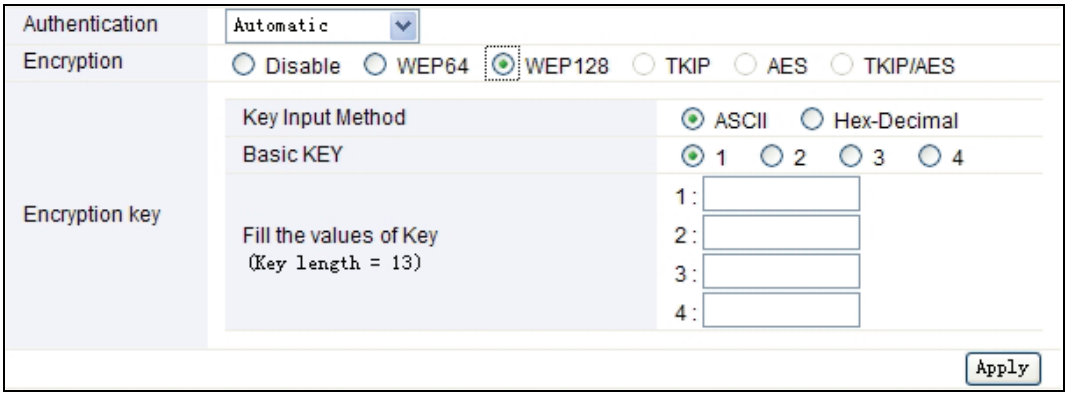
4.2.2 Wireless setup

Click **"Wireless Setup",** you will see



The interface will show the basic wireless parameter and wireless certification way configuration.

- **Wireless Status:** Show current **Wireless Configuration and** wireless station status.
- **Operation:** You can choose **Start** or **Stop** the wireless function
- **SSID:** You can change the SSID for your wireless router
- **Mode:** If wireless connection conforms to 11G and 11B and 11N standard ,
- **Region:** Area where you are using the wireless router
- **Channel:** Choose the wireless channel in AP mode; if in client mode, channel option is disabling.
- **Encryption:** You can choose Disable, WEP64, WEP128, TKIP, AES and TKIP/AES
- **WEP:** Wired Equivalent Protocol
- **WPA:** WI-FI Protected Access Wi-Fi, WPA is an intermediate solution for the security issues. It uses Temporal Key Integrity Protocol (TKIP) to replace WEP.
- **TKIP:** TKIP is a compromise on strong security and possibility to use existing hardware. It still uses RC4 for the encryption like WEP, but with per-packet RC4 keys. In addition, it implements replay protection, keyed packet authentication mechanism (Michael MIC).
- **802.1X:** The original security mechanism of IEEE 802.11 standard was not designed to be strong and has proven to be insufficient for most networks that require some kind of security. Task group I (Security) of IEEE 802.11 working group has worked to address the flaws of the base standard and in practice completed its work in May 2004. The IEEE 802.11i amendment to the IEEE 802.11 standard was approved in June 2004 and published in July 2004.



- **WEP Setup:** Configure Certification way and WEP key.

- **Authentication Type:** Choose authentication type (automatic/open system/share Key).
- **Encryption Strength:** Choose Key length (64/128bits).
- **Key Input Method:** Choose ASII, HEX or Pass phrase.
- **Basic Key:** Fill in Key value

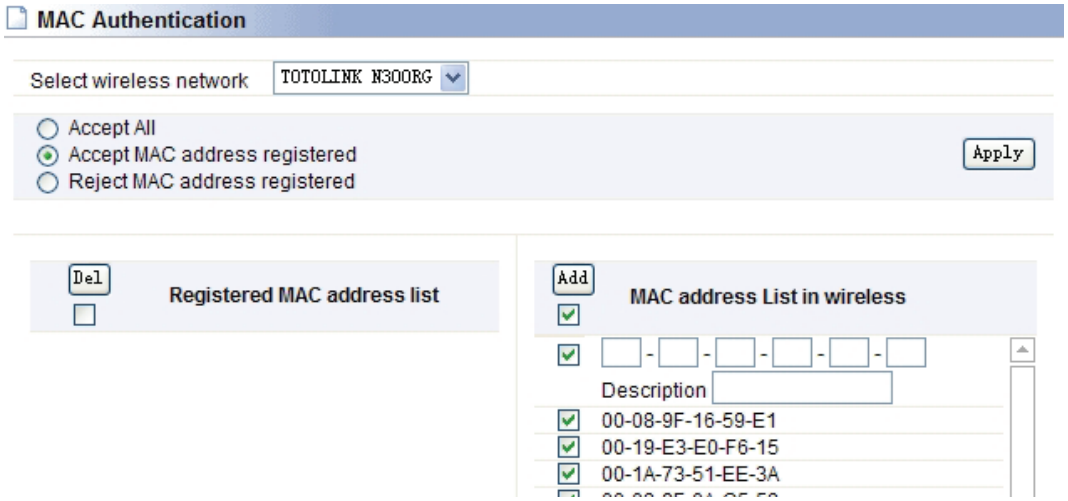
After finished configuration, click “Apply”.

Notes:

After setup, please click Save, save IP router configuration, otherwise, configuration will be lost when power off or router is restarted.

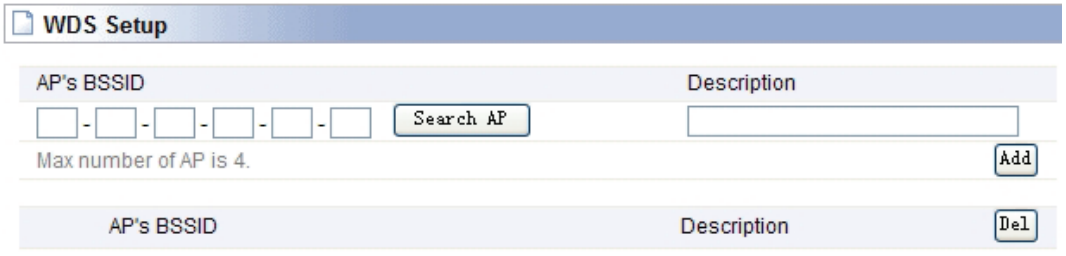
4.2.3 MAC Authentication

You can control the PC to connect the wireless router through MAC authentication.



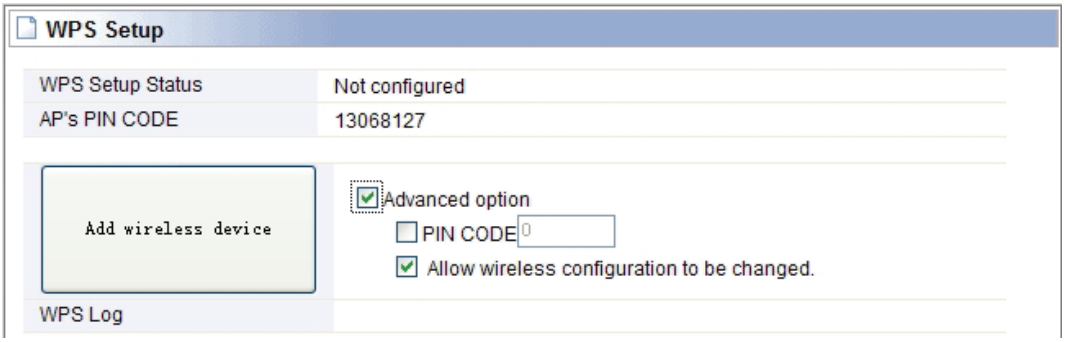
4.2.4 WDS Setup

Wireless Distribution System uses wireless media to communicate with other APs, like the Ethernet does. To do this, you must set these APs in the same channel and set MAC address of other APs which you want to communicate with in the table and then enable the WDS.



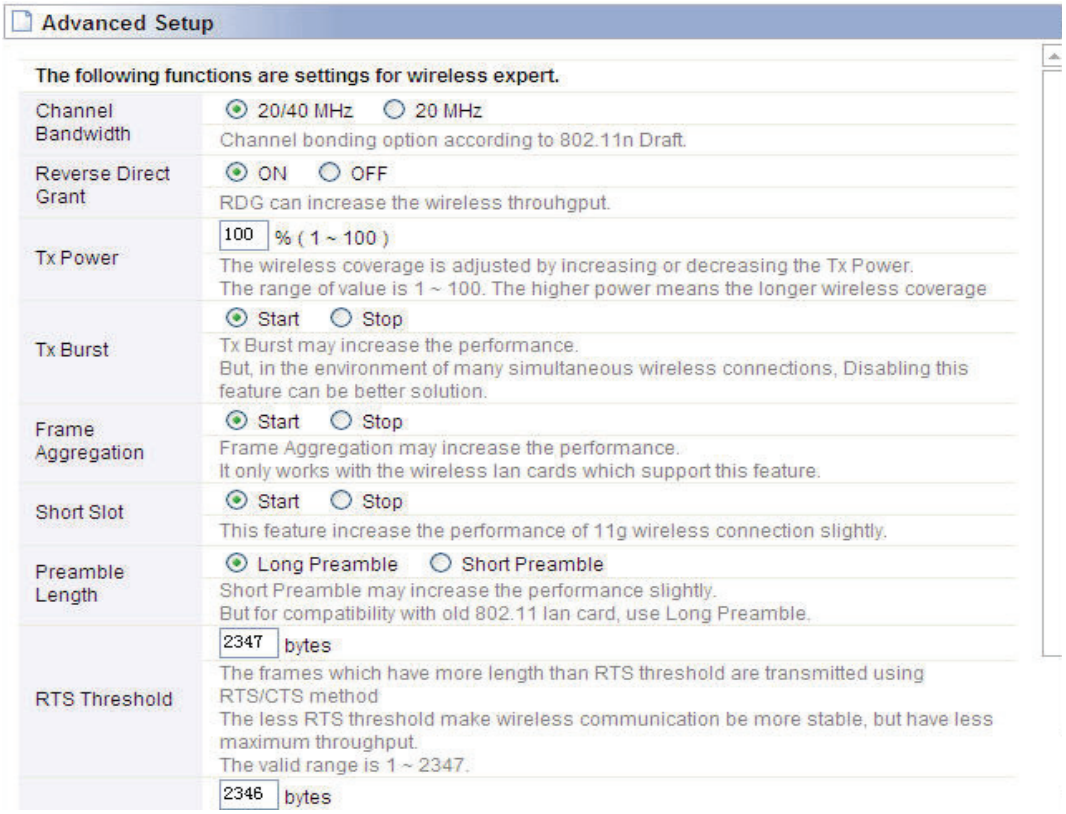
4.2.5 WPS Setup

This page allows you to change the setting for WPS (Wi-Fi Protected Setup). Using this feature could make your wireless client automatically synchronize its setting and connect to the Access Point in a minute without any hassle.



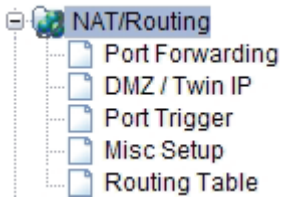
4.2.6 Advanced Setup

Advanced Setup is for advanced parameter settings; keep the default configuration for common users.



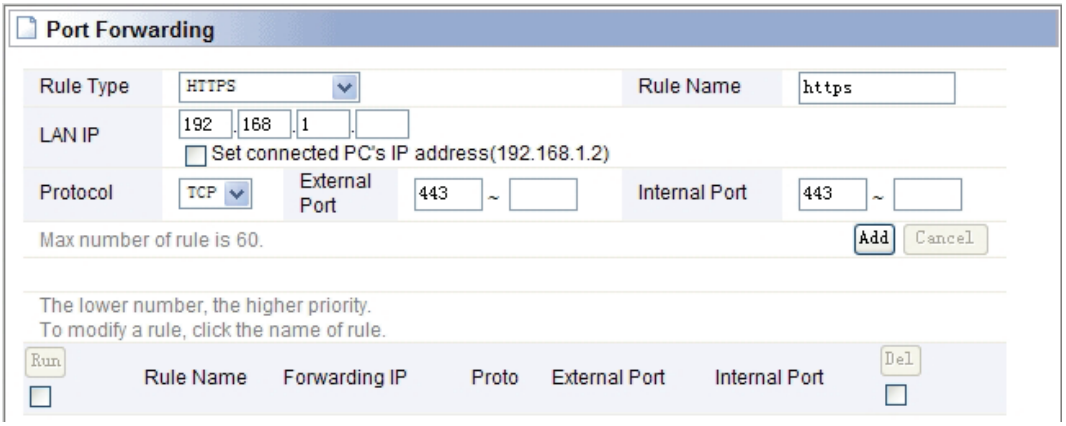
4.3 NAT/Routing

Click "NAT/Routing" menu, you can see following interface:



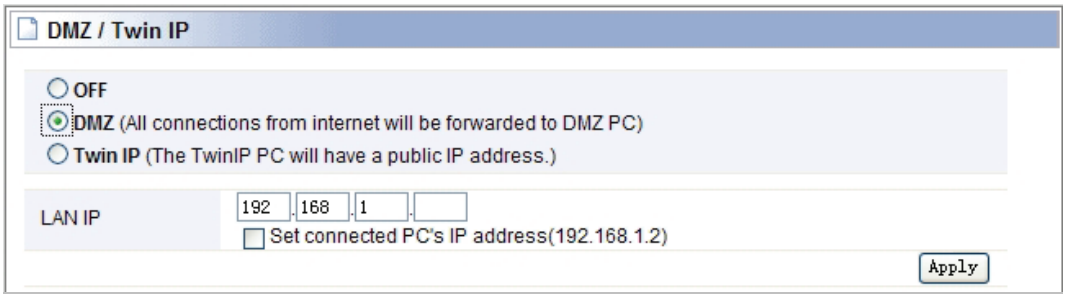
4.3.1 Port Forwarding

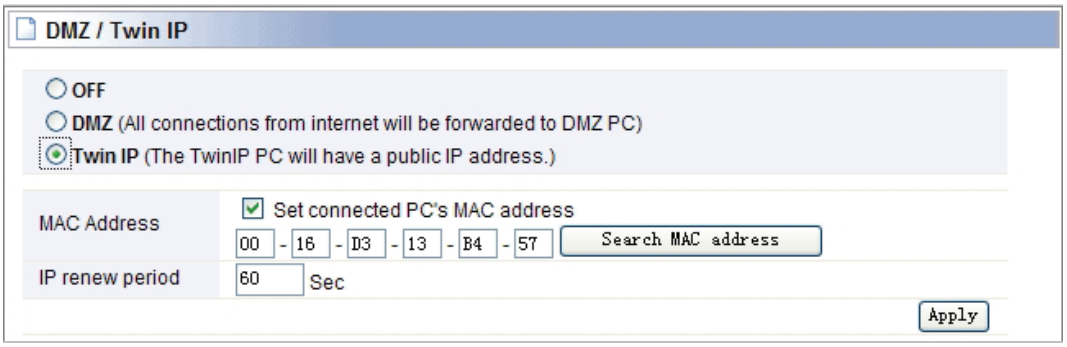
Entered into this interface, you can redirect common network services automatically to a specific device behind the NAT firewall. This setting is only necessary when you want to host some sort of servers like a Web server or mail server on the private local network behind your Gateway's NAT firewall.



4.3.2 DMZ Host

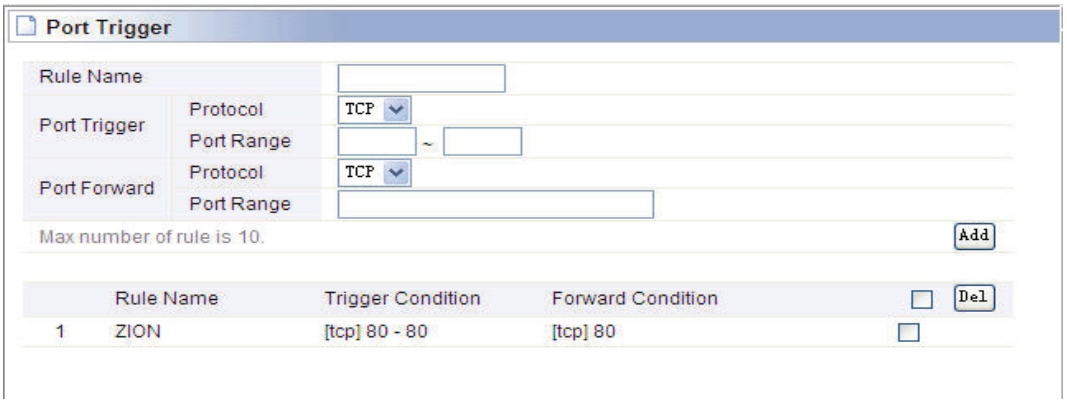
The DMZ (Demilitarized Zone) host feature allows one local host to be exposed to the Internet for a special-purpose service such as Online Game and video conferencing. DMZ host forwards all the ports at the same time. Any PCs which port is being forwarded must have its DHCP client function disabled and should have a new static IP Address assigned to it, because its IP Address may be changed when using the DHCP function.



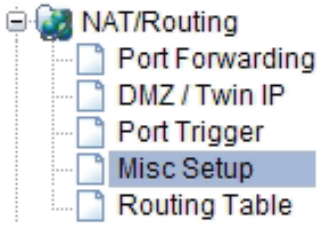


4.3.3 Port Trigger

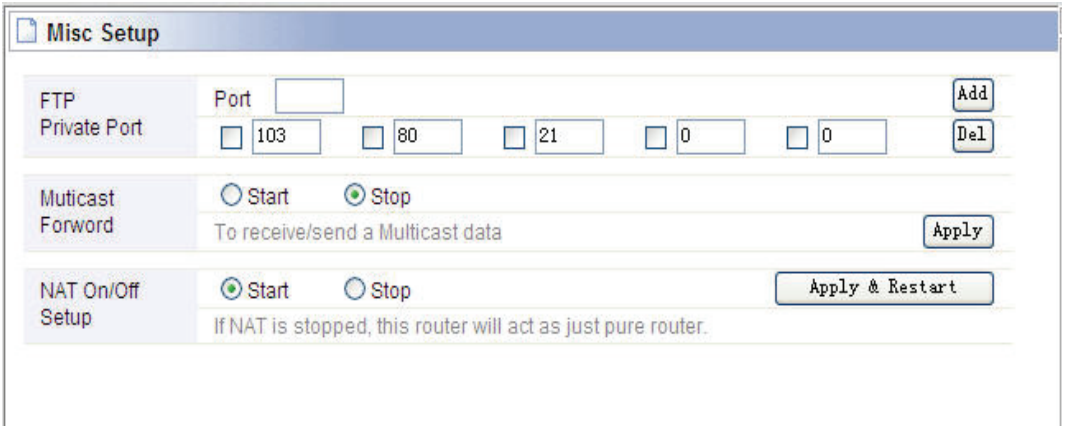
You can achieve some special purposes by this setting.



4.3.4 Misc Setup

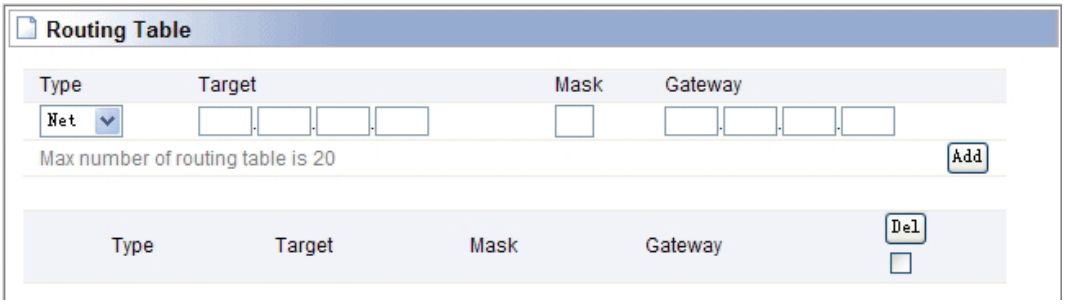


Misc setup provides FTP Private Port, Multicast Forward and NAT on/off setup.



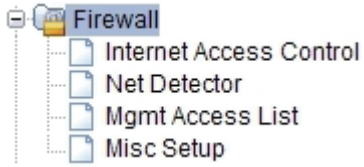
4.3.5 Routing Table

You can add or delete the static routing rules at here.



4.4 Firewall

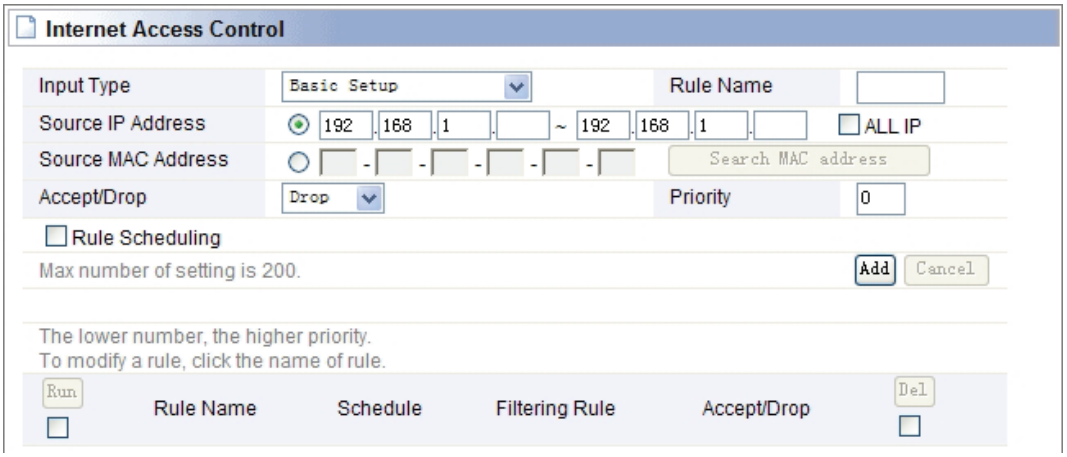
Click "Firewall" menu, you will see:



Click the sub-items, you can set up the corresponding function.

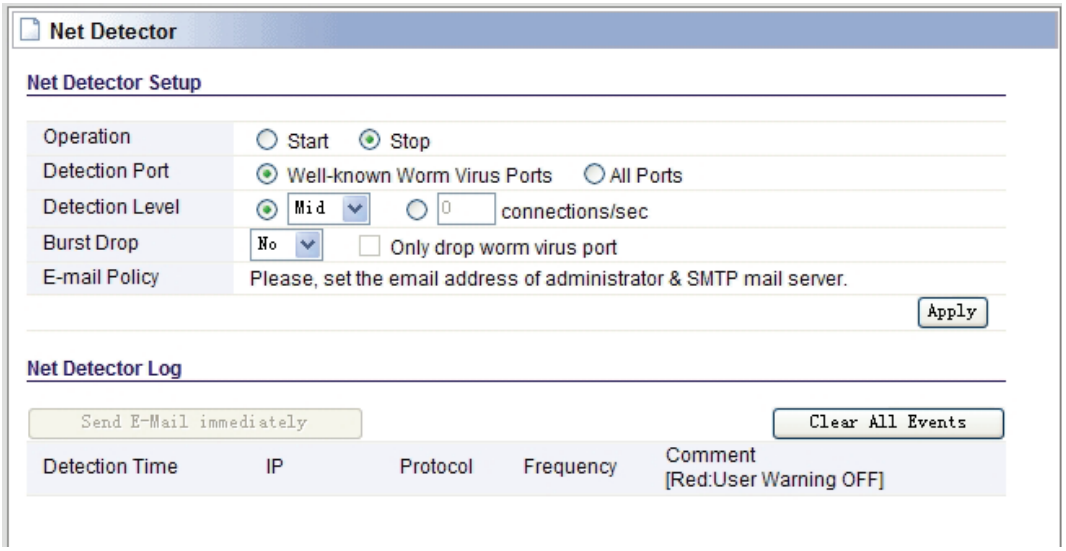
4.4.1 Internet Access Control

Internet Access Control provides multiple security protection. It can achieve MAC/Port/IP filtering, Internet access time control, URL filtering functions, etc. facilitating the user to control Internet access.

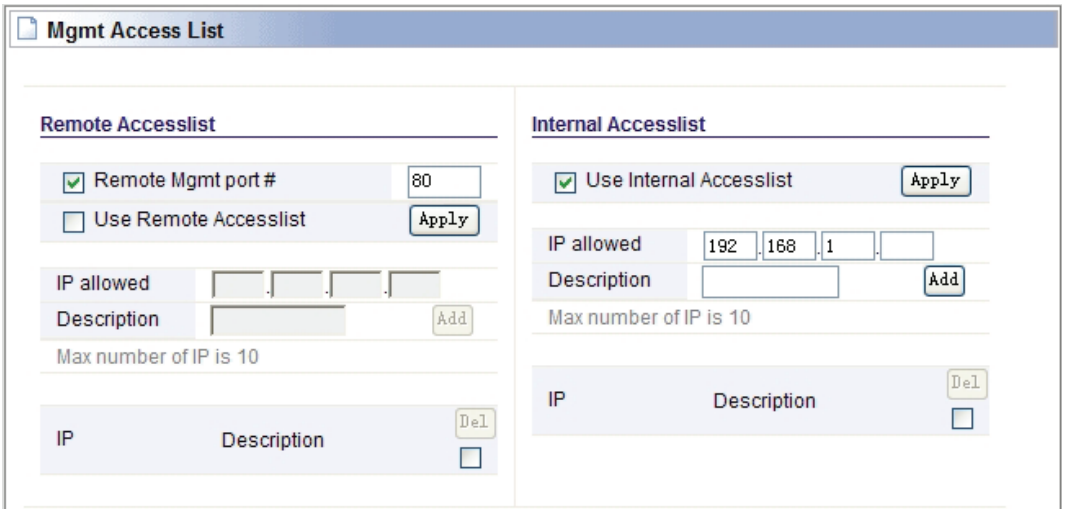


4.4.2 Net Detector

Net Detector provides some basic virus protection function; enable the user to have a safer network communication.



4.4.3 Mgmt Access List

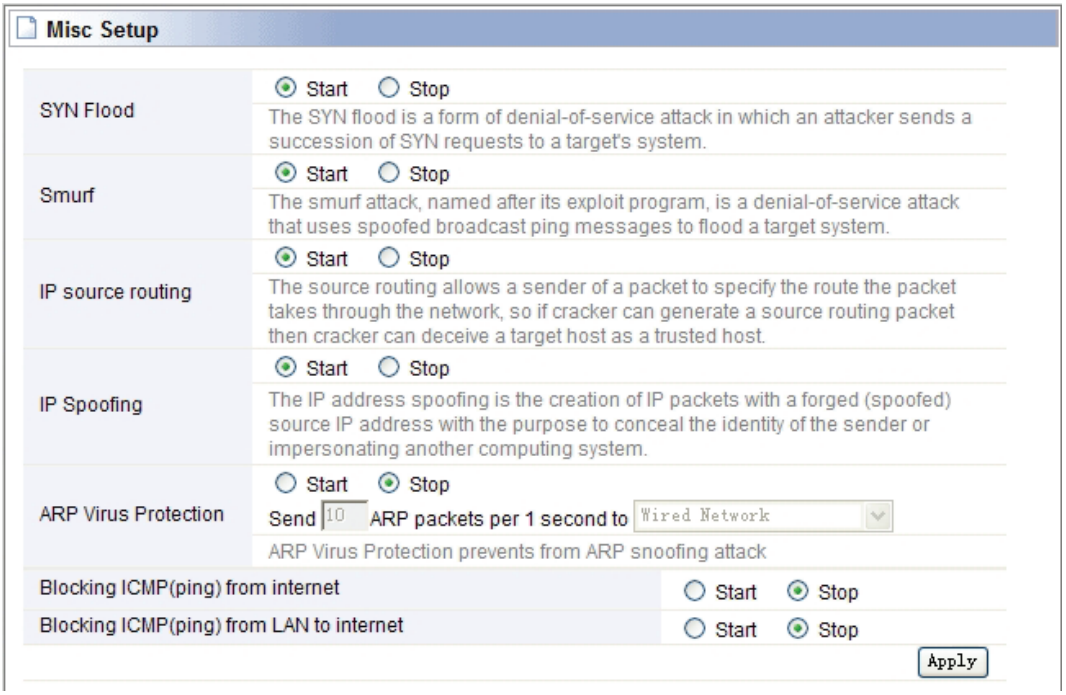


Notes:

If you want to login through the 80-port router, you must use "IP address (for the router WAN port IP address) port" approach to log router implementation of WEB interface control. (For example, http://220.135.211.56:80)

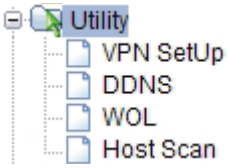
4.4.4 Misc Setup

Misc Setup: Generally maintain the default.



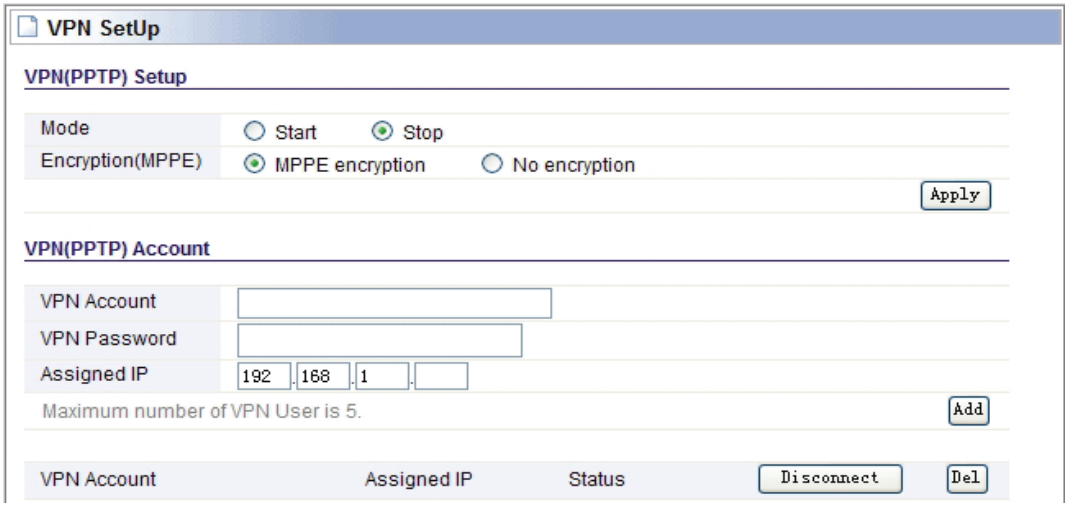
4.5 Utility

Click "Utility" menu, you will see:



4.5.1 VPN Setup

The wireless router provides PPTP protocol VPN connection, and it supports 5 VPN users at most.



4.5.2 DDNS

DDNS (Dynamic Domain Name Server), its main function is to achieve a fixed domain name to dynamic IP resolution, for the use of dynamic IP address users, Internet access in each new IP, the installation on the host software on the dynamics of the domain name to IP address will be sent to the DDNS service provider from the dynamic analysis server (3322, dyndns.org and to update the DNS database. When other users on the Internet want to access this domain name, the dynamic DNS server will return the correct IP address. In this way, most users do not use fixed IP, can also name the fixed network system.

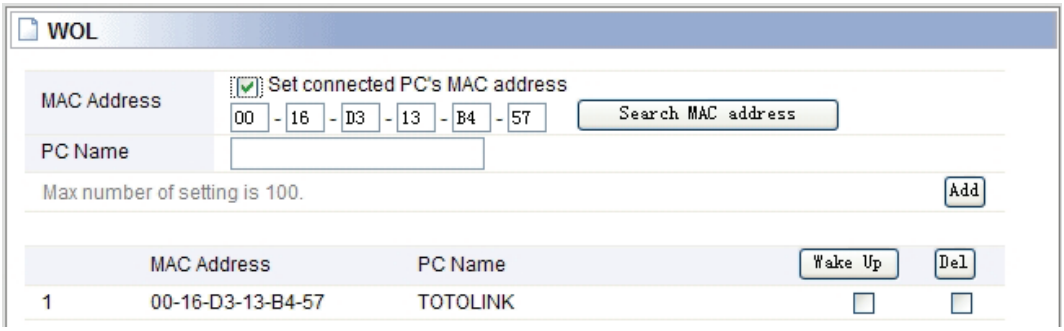
In order to set up DDNS, please comply with following steps:

1. Choose your **service provider.**
2. Type the **User Name** for your DDNS account.
3. Type the **Password** for your DDNS account.
4. **Host Name -** the domain names are displayed here.

   Click **Add** to apply the modification.

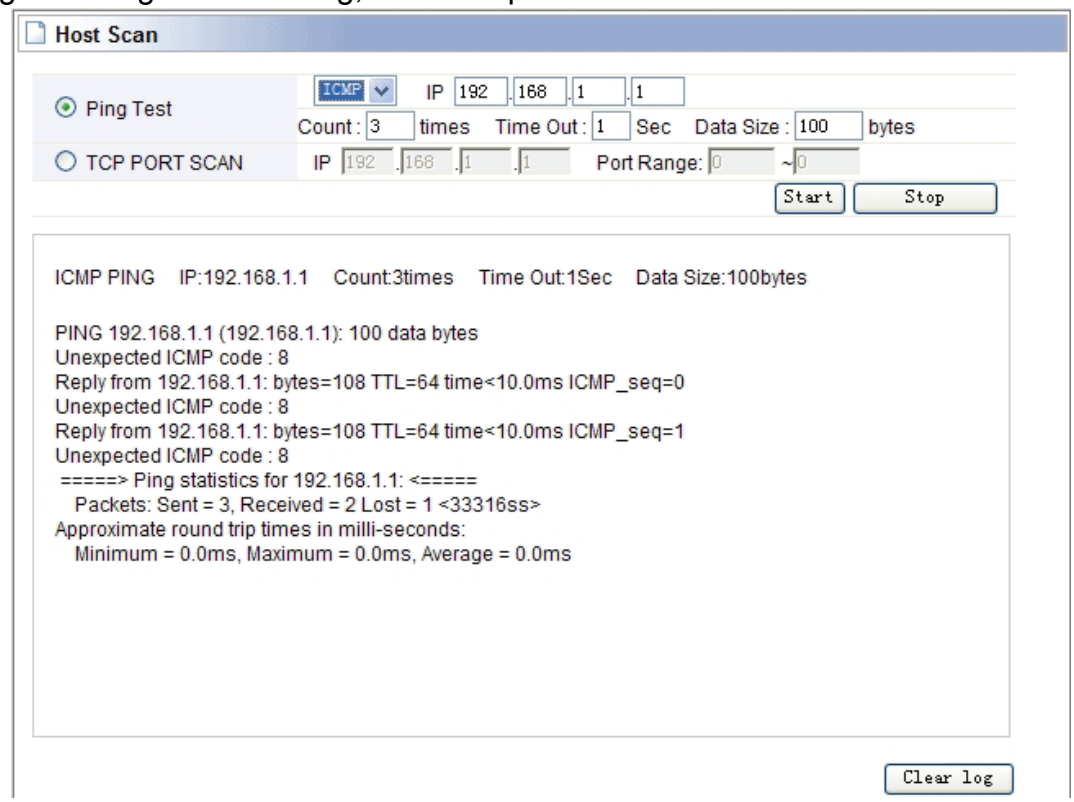
4.5.3 WOL

Users can use this Wake On Line function to start the PC remotely.



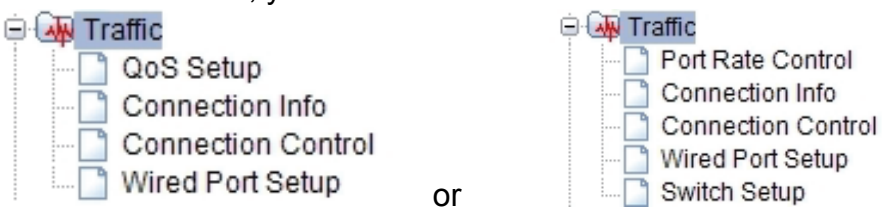
4.5.4 Host Scan

It facilitates the user to view the working status of the PC, including status of ICMP, ARP package sending and receiving, and TCP port communication information.

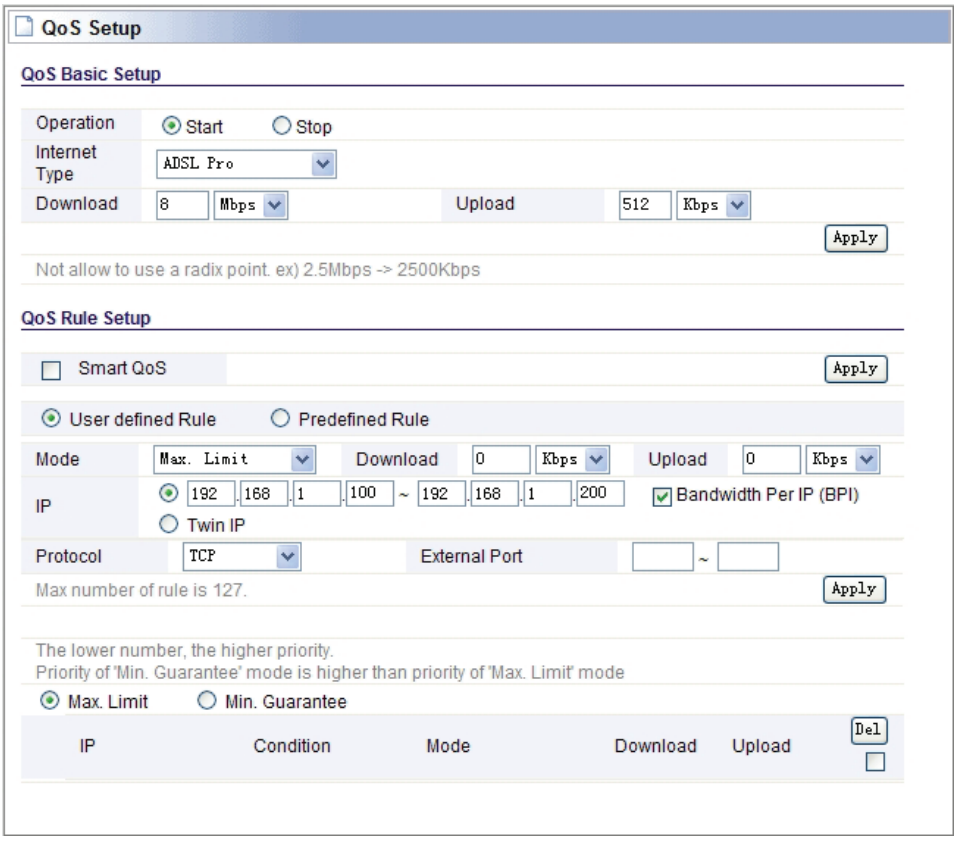


4.6 Traffic

Click "Traffic" menu, you will see:



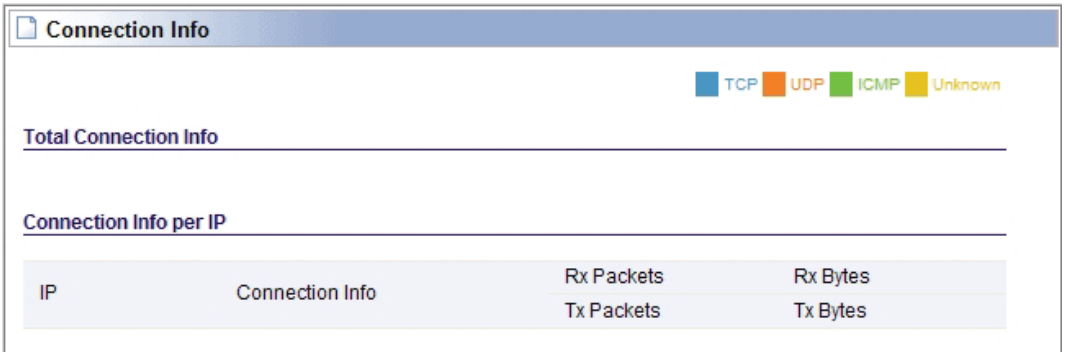
4.6.1 QoS Setup



Do not allow to use radix point, ex: 2.5Mbps -25000kbps.
You can choose this as user defined rule or predefined rule
IP addresses can be a single IP address; also can be set to an IP address segment.

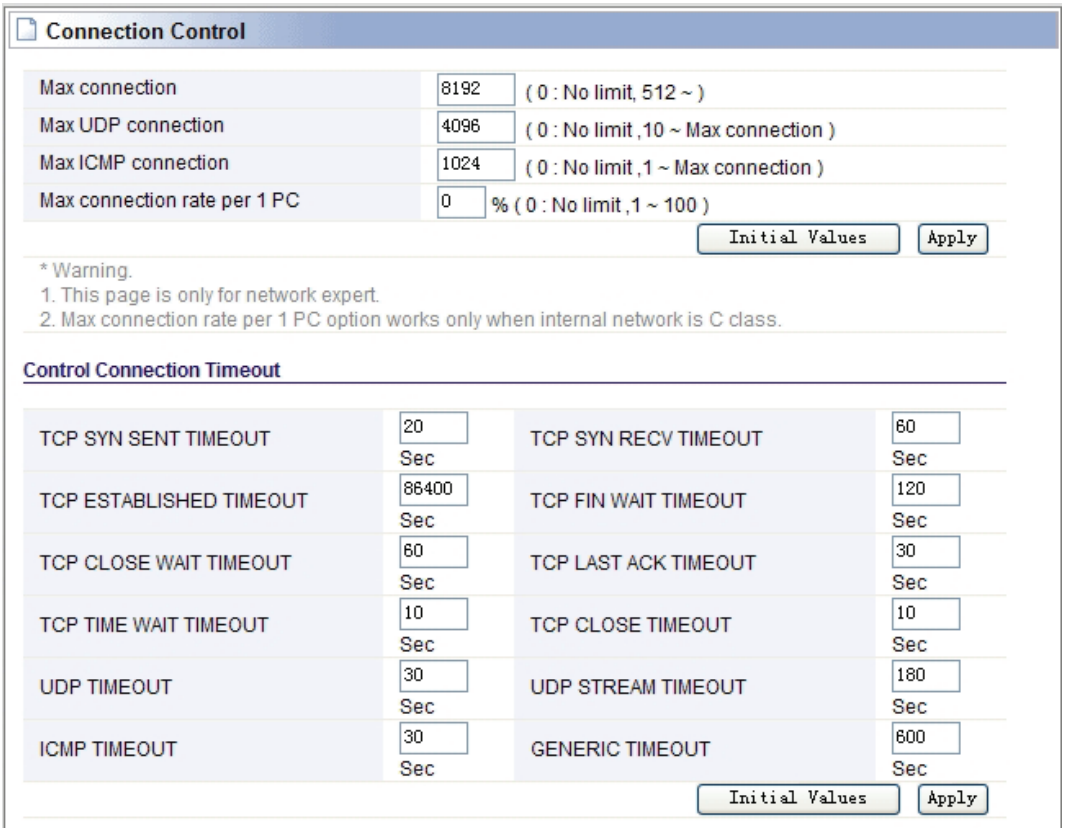
4.6.2 Connection Info

It indicates the present connection information of the wireless router in graphic and digital, data package sending and receiving status of each PC in connection.



4.6.3 Connection Control

Connection Control shows the Max connection, Max UDP connection, Max ICMP connection, and Max connection per PC. These settings are only for advanced users, common users are not recommended to change them.



Connection Control

Max connection	8192	(0 : No limit, 512 ~)
Max UDP connection	4096	(0 : No limit ,10 ~ Max connection)
Max ICMP connection	1024	(0 : No limit ,1 ~ Max connection)
Max connection rate per 1 PC	0	% (0 : No limit ,1 ~ 100)

Initial Values Apply

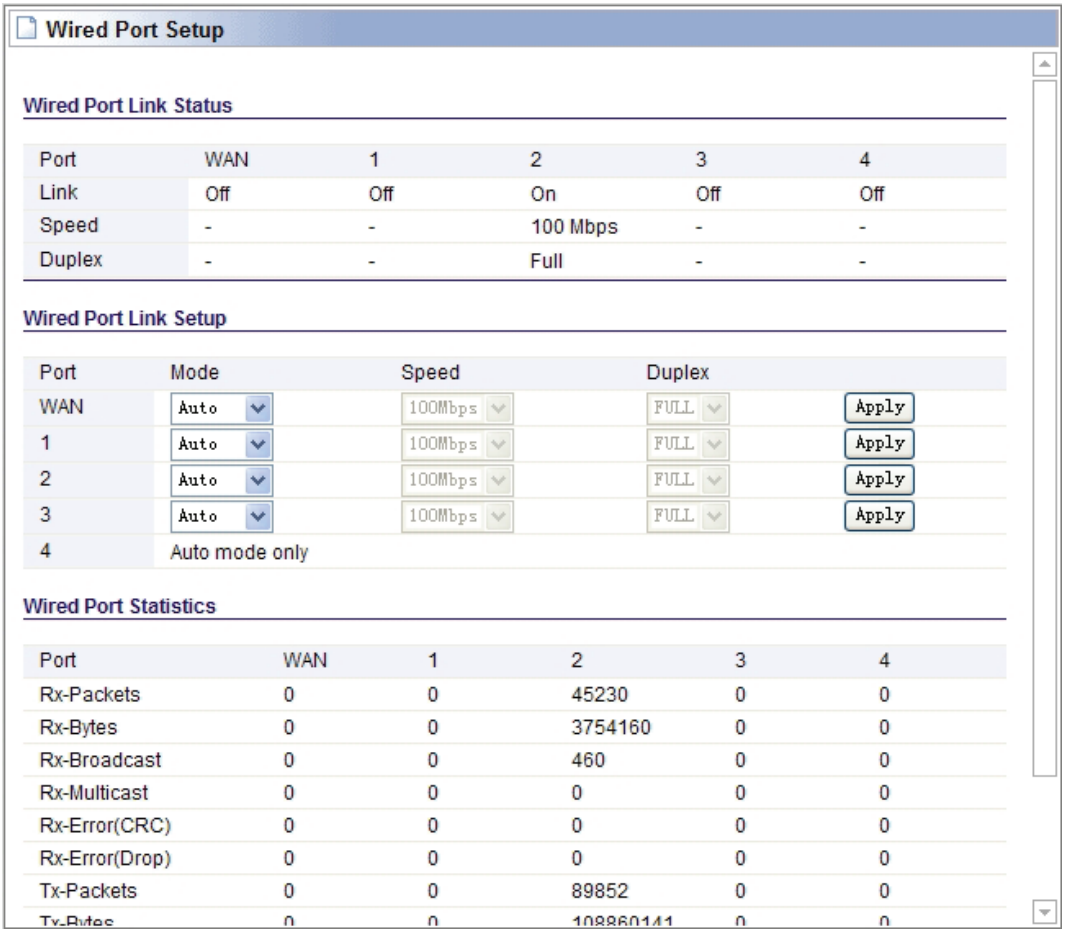
* Warning.
1. This page is only for network expert.
2. Max connection rate per 1 PC option works only when internal network is C class.

Control Connection Timeout

TCP SYN SENT TIMEOUT	20 Sec	TCP SYN RECV TIMEOUT	60 Sec
TCP ESTABLISHED TIMEOUT	86400 Sec	TCP FIN WAIT TIMEOUT	120 Sec
TCP CLOSE WAIT TIMEOUT	60 Sec	TCP LAST ACK TIMEOUT	30 Sec
TCP TIME WAIT TIMEOUT	10 Sec	TCP CLOSE TIMEOUT	10 Sec
UDP TIMEOUT	30 Sec	UDP STREAM TIMEOUT	180 Sec
ICMP TIMEOUT	30 Sec	GENERIC TIMEOUT	600 Sec

Initial Values Apply

4.6.4 Wired Port Setup



Wired Port Setup

Wired Port Link Status

Port	WAN	1	2	3	4
Link	Off	Off	On	Off	Off
Speed	-	-	100 Mbps	-	-
Duplex	-	-	Full	-	-

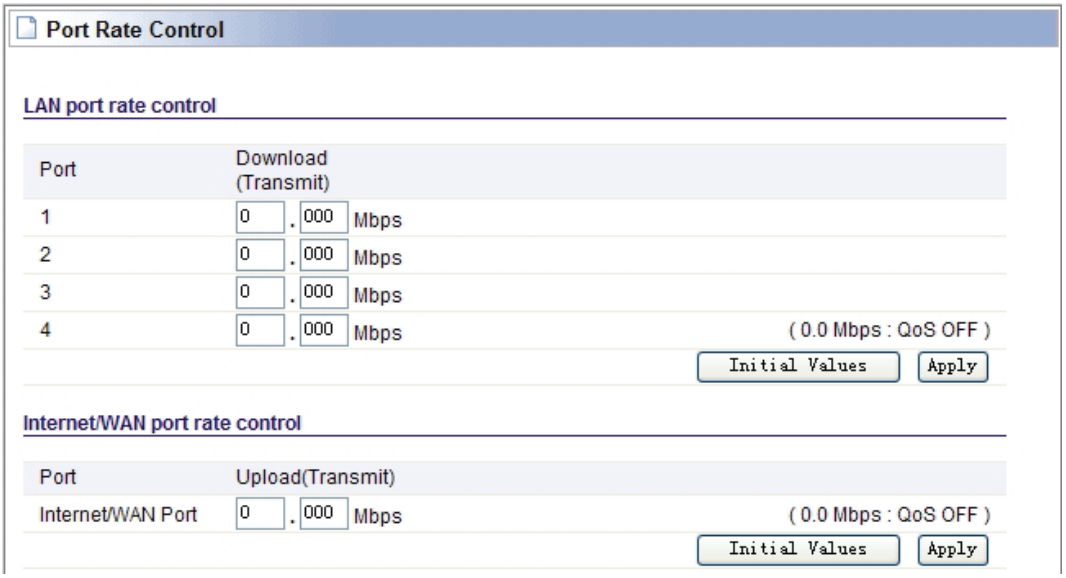
Wired Port Link Setup

Port	Mode	Speed	Duplex	
WAN	Auto	100Mbps	FULL	Apply
1	Auto	100Mbps	FULL	Apply
2	Auto	100Mbps	FULL	Apply
3	Auto	100Mbps	FULL	Apply
4	Auto mode only			

Wired Port Statistics

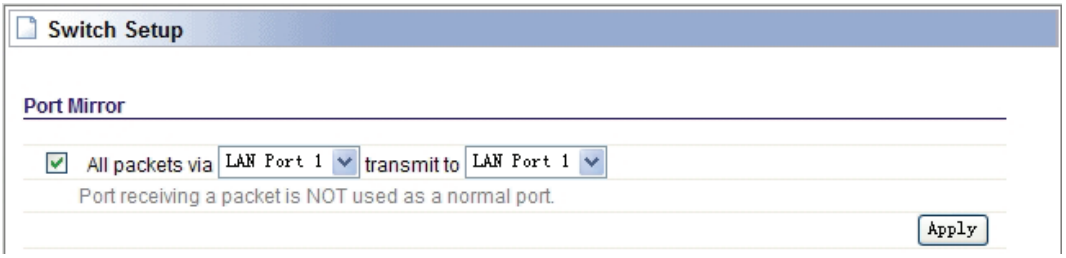
Port	WAN	1	2	3	4
Rx-Packets	0	0	45230	0	0
Rx-Bytes	0	0	3754160	0	0
Rx-Broadcast	0	0	460	0	0
Rx-Multicast	0	0	0	0	0
Rx-Error(CRC)	0	0	0	0	0
Rx-Error(Drop)	0	0	0	0	0
Tx-Packets	0	0	89852	0	0
Tx-Bytes	0	0	108860141	0	0

4.6.5 Port Rate Control



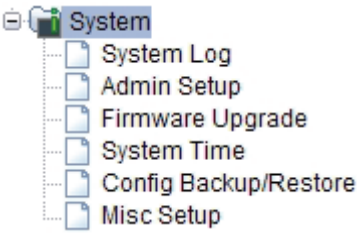
4.6.6 Switch Setup

You can send a copy of network packets seen on one LAN port to a network monitoring connection on another LAN port. At the same time, the send port can not transmit data. This is commonly used for network appliances that require monitoring of network traffic, such as an intrusion-detection system.



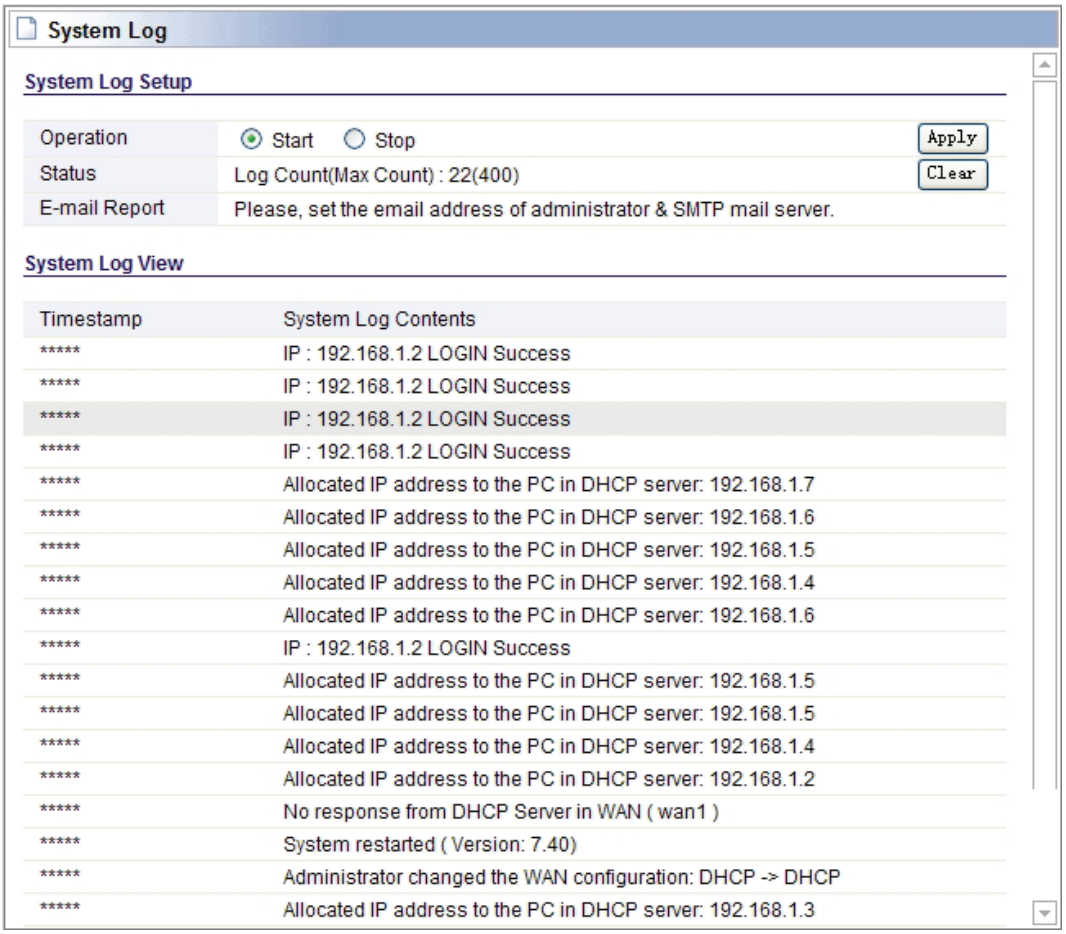
4.7 System

Click "System" menu, you will see:



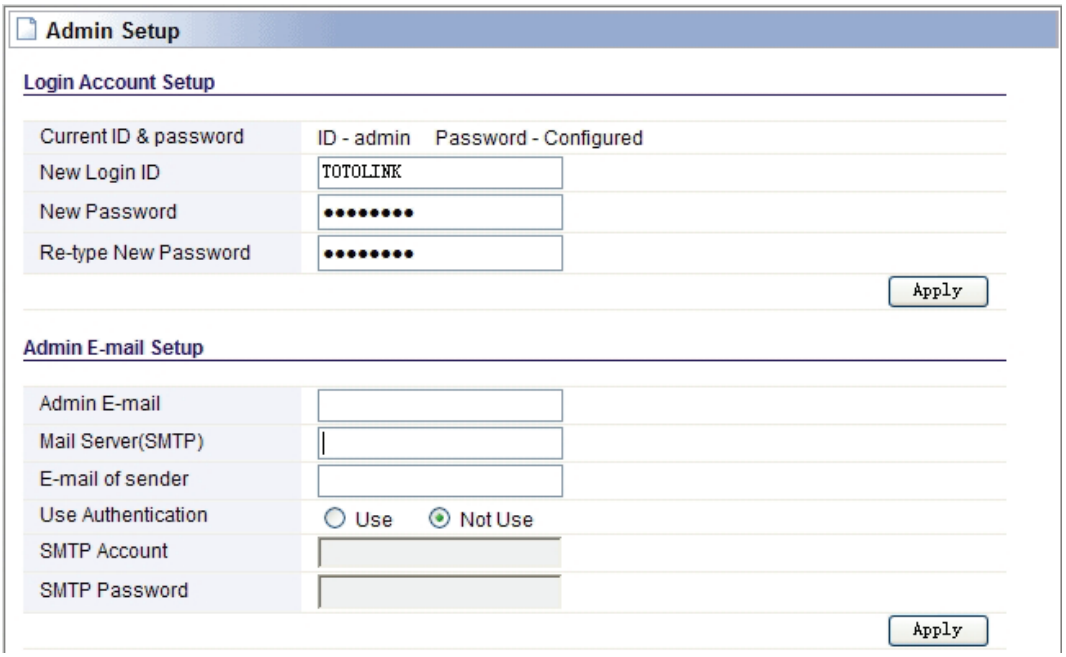
4.7.1 System Log

System Log shows the working status of the wireless router, the user can check the running status information at here.



4.7.2 Admin Setup

Here you can change login account name and password, and administrator email information.

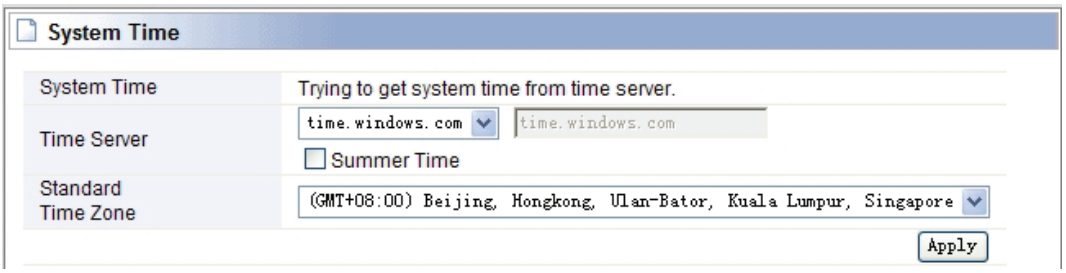


Firstly please input your old ID and password, and then input your expected new ones. If you input your old ID and password correctly, then click **"Apply"** to change it.

Admin E-Mail Setup: If you want to receive IP routing log, set up Email address and SMTP server to receive it.

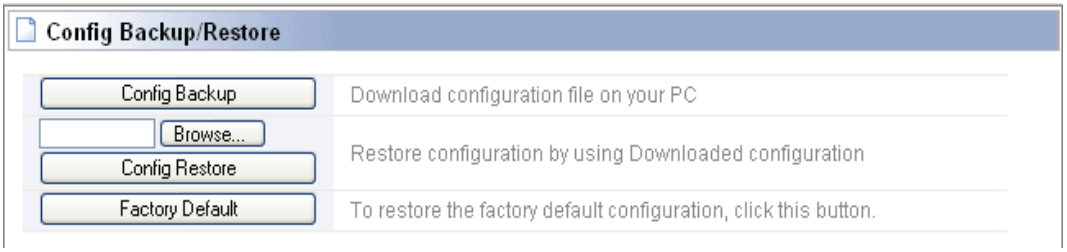
4.7.3 System Time

You can set the time server and time zone for your wireless router system time.



4.7.4 Config Backup/Restore

This webpage allows you to save current settings to a file or reload the settings from the file which was saved previously. Besides, you could reset the current configuration to factory default.



4.7.5 Misc Setup

Misc setup provides Hostname, Auto Saving, Auto Redirection, Login page setup, UPNP setup and Restart System functions.