

TP-LINK®

User Guide

TL-WR700N

150Mbps Wireless N Mini Pocket Router



Rev: 1.0.0

1910010815

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FCC 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 or more 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.
- 2) This device must accept any interference received, including interference that may cause undesired operation.

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

Note: The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. Such modifications could void the user's authority to operate the equipment.

FCC RF Radiation Exposure Statement:

This equipment complies with FCC RF radiation exposure limits set forth for an uncontrolled environment. This device and its antenna must not be co-located or operating in conjunction with any other antenna or transmitter.

"To comply with FCC RF exposure compliance requirements, this grant is applicable to only Mobile Configurations. The antennas used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter."

CE Mark Warning

CE 1588

This is a class B product. In a domestic environment, this product may cause radio interference, in which case the user may be required to take adequate measures.

Canadian Compliance Statement

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

- (1) This device may not cause interference, and
- (2) This device must accept any interference, including interference that may cause undesired operation of the device.

Cet appareil est conforme aux norms CNR exemptes de licence d'Industrie Canada. Le fonctionnement est soumis aux deux conditions suivantes:

- (1) cet appareil ne doit pas provoquer d'interférences et
- (2) cet appareil doit accepter toute interférence, y compris celles susceptibles de provoquer un fonctionnement non souhaité de l'appareil.

Industry Canada Statement

Complies with the Canadian ICES-003 Class B specifications.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

This device complies with RSS 210 of Industry Canada. This Class B device meets all the requirements of the Canadian interference-causing equipment regulations.

Cet appareil numérique de la Classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

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- 請勿將本產品置放於靠近熱源的地方。除非有正常的通風，否則不可放在密閉位置中。
- 請不要私自打開機殼，不要嘗試自行維修本產品，請由授權的專業人士進行此項工作。



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- Don't disassemble the product, or make repairs yourself. You run the risk of electric shock and voiding the limited warranty. If you need service, please contact us.
- Avoid water and wet locations.

This product can be used in the following countries:

AT	BG	BY	CA	CZ	DE	DK	EE
ES	FI	FR	GB	GR	HU	IE	IT
LT	LV	MT	NL	NO	PL	PT	RO
RU	SE	SK	TR	UA			

DECLARATION OF CONFORMITY

For the following equipment:

Product Description: **150Mbps Wireless N Mini Pocket Router**

Model No.: **TL-WR700N**

Trademark: **TP-LINK**

We declare under our own responsibility that the above products satisfy all the technical regulations applicable to the product within the scope of Council Directives:

Directives 1999/5/EC, Directives 2004/108/EC, Directives 2006/95/EC, Directives 1999/519/EC, Directives 2011/65/EU

The above product is in conformity with the following standards or other normative documents

ETSI EN 300 328 V1.7.1: 2006

ETSI EN 301 489-1 V1.9.2:2011& ETSI EN 301 489-17 V2.2.1:2012

EN 55022:2010

EN 55024:2010

EN 61000-3-2:2006+A1:2009+A2:2009

EN 61000-3-3:2008

EN 60950-1:2006+A11: 2009+A1:2010+A12:2011

EN 62311:2008

The product carries the CE Mark:

CE 1588

Person responsible for marking this declaration:



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Date of issue: 2013

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Package Contents

The following items should be found in your package:

- One TL-WR700N 150Mbps Wireless N Mini Pocket Router
- Quick Installation Guide
- One RJ-45 Ethernet Cable
- One Resource CD for TL-WR700N 150Mbps Wireless N Mini Pocket Router, including:
 - User Guide
 - Other Helpful Information

 **Note:**

Make sure that the package contains the above items. If any of the listed items is damaged or missing, please contact with your distributor.

Chapter 1. Introduction

1.1 Overview of the Router

Small enough to fit in the average pocket, the TL-WR700N 150Mbps Wireless N Mini Pocket Router is uniquely suited to provide robust wireless networking to travelers, students, or anyone else for work or play.

Incredible Speed

TL-WR700N supports the newest 802.11n standards, and provides backward compatibility with older 802.11b/g standards as well. The up-to-150Mbps wireless speed makes it ideal for handling multiple data streams at the same time, which ensures your network stable and smooth.

Multiple Operation Modes

The TL-WR700N 150Mbps Wireless N Mini Pocket Router supports five operation modes. The AP mode enables the wired LAN to connect to the Internet wirelessly. The Router mode enables the TL-WR700N to work as a router for network sharing with high speed. The functions of Repeater mode and AP Bridge mode are similar, for they both make the TL-WR700N able to extend the existing wireless network. In Client mode, TL-WR700N acts as a wireless station to enable the wired host(s) to access AP.

Reliable Security Protections

With multiple protection measures, including SSID broadcast control and wireless LAN 64/128/152-bit WEP encryption, WiFi protected Access (WPA2-PSK, WPA-PSK), as well as advanced Firewall protections, the TL-WR700N 150Mbps Wireless N Mini Pocket Router provides complete data privacy.

Flexible Access Control

The TL-WR700N 150Mbps Wireless N Mini Pocket Router supports Virtual Server and DMZ host for Port Triggering, and then the network administrators can manage and monitor the network in real time with the remote management function.

Since the Router is compatible with virtually all the major operating systems, it is very easy to manage. Quick Setup Wizard is supported and detailed instructions are provided step by step in this user guide. Before installing the Router, please look through this guide to know all the Router's functions.

1.2 Conventions

The Router or TL-WR700N mentioned in this guide stands for TL-WR700N 150Mbps Wireless N Mini Pocket Router without any explanation.

Parameters provided in the pictures are just references for setting up the product, which may differ from the actual situation.

You can set the parameters according to your demand.

1.3 Main Features

- Complies with IEEE 802.11n/g/b
- Wireless speed up to 150Mbps
- Foldable prongs
- Travel size design, ideal for home or travel use
- Compact and portable, powerful wireless signal as well
- Perfectly compatible with almost all the 2.4GHz Wi-Fi devices
- Supports AP, Router, Repeater, Bridge, and Client modes
- Supports WEP, WPA/WPA2, WPA-PSK/WPA2-PSK encryptions

1.4 Panel Layout



Figure 1-1 TL-WR700N sketch

➤ **LED**

Status	Indication
Solid Blue	The device is working properly.
Blinking	The system is booting. Please wait 15 seconds.
	The device is unable to connect to the network.

Table 1-1 The LED Description

 **Note:**

For Repeater/ Bridge/ Client mode, the LED may blink for up to 3 minutes. If the devices blink for more than 3 minutes, please verify that the password is entered correctly. If it still doesn't work, the device may be too far away from your primary router. Try moving it closer, then wait for 3 minutes and check if the LED is solid blue.

- **LAN/WAN:** This LAN/WAN port works as LAN in AP/Repeater/ Bridge/Client mode and as WAN in Router mode. As LAN, it connects the Router to the local PC; as WAN, it enables you connect the DSL/cable Modem, or Ethernet.
- **RESET:** It is used to reset the Router to its factory defaults. With the Router powered on, use a pin to press and hold the **RESET** button (about 5 seconds) until the SYS LED becomes quick-flash from slow-flash. And then release the button and wait the Router to reboot to its factory default settings.
- **Power Plug:** Plug in standard electrical wall socket directly to power the Router.

Chapter 2. Connecting the Router

2.1 System Requirements

- Each PC in the LAN needs a working Ethernet Adapter
- TCP/IP protocol must be installed on each PC
- Web browser, such as Microsoft Internet Explorer 5.0 or later, Mozilla Firefox, Apple Safari
- If the device is configured to AP router mode, you also need Broadband Internet Access Service (DSL/Cable/Ethernet)
- One DSL/Cable Modem that has an RJ45 connector (which is not necessary if the Router is connected directly to the Ethernet.)

2.2 Installation Environment Requirements

- Place the Router in a well-ventilated place far from any heater or heating vent
- Place the Router in a location where it can be connected to the various devices as well as to a power source
- Avoid direct irradiation of any strong light (such as sunlight)
- Keep at least 2 inches (5 cm) of clear space around the Router
- Operating Temperature: 0°C~40°C (32°F~104°F)
- Operating Humidity: 10%~90%RH, Non-condensing

2.3 Connecting the Router

Before installing the Router, please make sure your broadband service provided by your ISP is available. If there is any problem, please contact with your ISP. To connect the Router, please follow the steps below:

1. Power off your PC, Cable/DSL Modem, and the Router.
2. Locate an optimum location for the Router. The best place is usually at the center of your wireless network. The place must accord with the [Installation Environment Requirements](#).
3. Plug the power plug in the electrical wall socket. The Router will start to work automatically.

After finishing the steps above, please choose the operation mode you need and carry out the corresponding steps. There are five operation modes supported by this router: **Router**, **Repeater**, **Bridge**, **Client** and **AP**.

2.3.1 Router Mode

As a wireless router, TL-WR700N enables multi-user to share Internet via DSL/Cable Modem.

On this mode, the only wired port works as WAN, which can be connected to DSL Modem with an Ethernet cable. Computers could connect to the device by only wireless way.

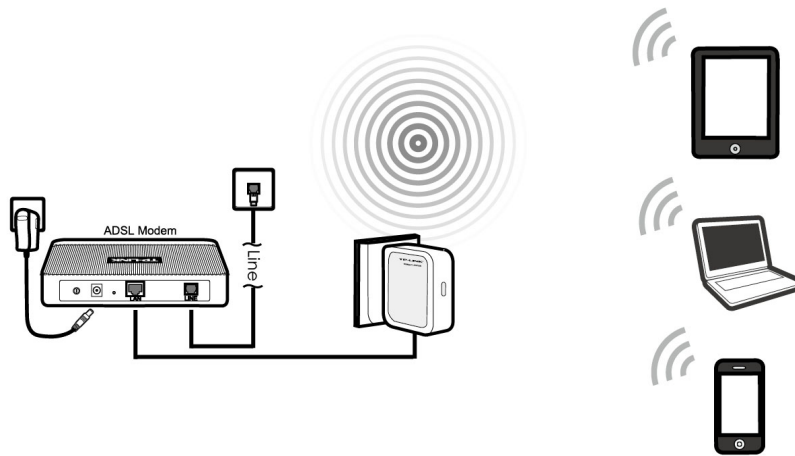


Figure 2-1 Hardware Installation of the TL-WR700N in Router Mode

1. Connect the WAN port of TL-WR700N to the LAN Port on the DSL/Cable Modem.
2. Connect the WAN port on the DSL/Cable Modem to the wired Internet.
3. Plug the power plug of TL-WR700N in electrical wall socket.
4. Power on the DSL/Cable Modem, PC(s) and notebook(s).

Note:

The Device is equipped with a built-in DHCP server and it's enabled by default. For your convenience, please configure your PC or other clients to "Obtain an IP address automatically". If you need any instructions as how to do this, please refer to [Appendix B: "Configuring the PC"](#).

2.3.2 Repeater Mode

TL-WR700N is used to extend the range of wireless signal of the existing AP or wireless router.

On this mode, the only wired port works as LAN. Computer could connect to the device by either wired or wireless way. The SSID of TL-WR700N should be the same as that of the device you repeat.

Note:

The Device is equipped with Smart IP function, which would help to enable its built-in DHCP server when it's required. For your convenience, please configure your PC or other clients to "Obtain an IP address automatically". If you need any instructions as how to do this, please refer to [Appendix B: "Configuring the PC"](#).

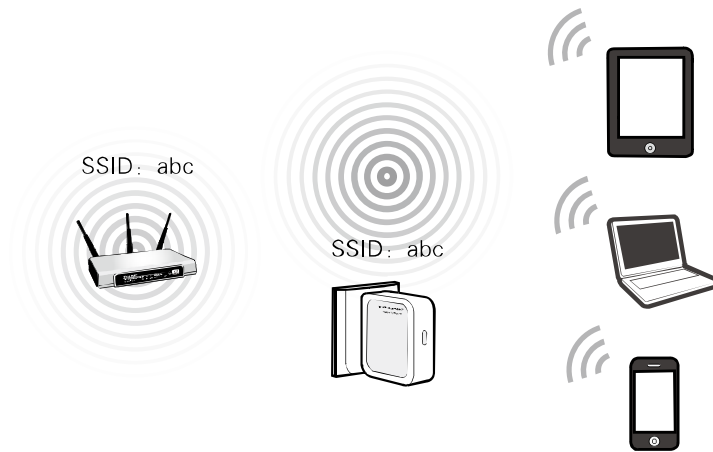


Figure 2-2 Hardware Installation of the TL-WR700N in Repeater Mode

1. Plug the power plug of TL-WR700N in electrical wall socket.
2. Power on the notebook(s).

Note:

It is recommended that you connect a PC/notebook to the LAN port of the Router with an Ethernet cable, and then login the Router from the PC/notebook to set the Router in AP Repeater mode.

2.3.3 Bridge Mode

Similar to the Bridge mode, TL-WR700N in Bridge mode is also used to extend the range of wireless signal of the existing AP or wireless router.

On this mode, the only wired port works as LAN. Computer could connect to the device by either wired or wireless way.

Note:

The Device is equipped with Smart IP function, which would help to enable its built-in DHCP server when it's required. For your convenience, please configure your PC or other clients to "Obtain an IP address automatically". If you need any instructions as how to do this, please refer to [Appendix B: "Configuring the PC"](#).

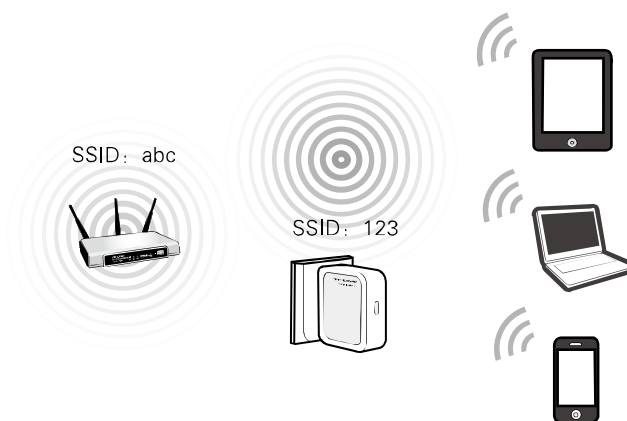


Figure 2-3 Hardware Installation of the TL-WR700N in Bridge Mode

1. Plug the power plug of TL-WR700N in electrical wall socket.
2. Power on the notebook(s).

 **Note:**

It is recommended that you connect a PC/notebook to the LAN port of the Router with an Ethernet cable, and then login the Router from the PC/notebook to set the Router in Bridge mode.

2.3.4 Client Mode

TL-WR700N is used as a wireless network card to connect the wireless network signal or wireless router.

On this mode, the only wired port works as LAN. Computer could connect to the device by either wired or wireless way.

 **Note:**

The Device is equipped with Smart IP function, which would help to enable its built-in DHCP server when it's required. For your convenience, please configure your PC or other clients to "Obtain an IP address automatically". If you need any instructions as how to do this, please refer to [Appendix B: "Configuring the PC"](#).

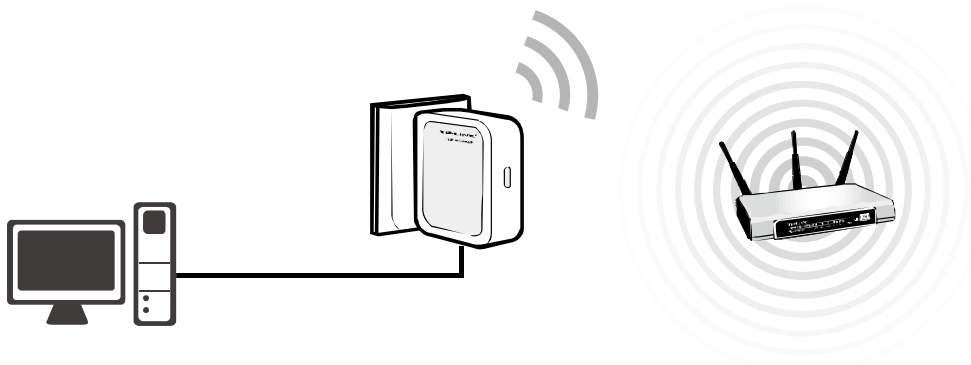


Figure 2-4 Hardware Installation of the TL-WR700N in Client Mode

1. Connect the PC to the LAN/WAN port of TL-WR700N router with an Ethernet cable.
2. Plug the power plug of TL-WR700N in electrical wall socket.
3. Power on the PC(s).

2.3.5 AP Mode

As the supplement of wired LAN, TL-WR700N enables the wired LAN to connect to the Internet wirelessly. Plug the power plug of TL-WR700N in electrical wall socket and connect the Ethernet cable correctly, you can surf the Internet by connecting your PC(s) to the Router wirelessly.

On this mode, the only wired port works as LAN. Computer could connect to the device by either wired or wireless way. The Pre-encryption function is opened by default and the default password is the last unique eight numbers of each Router's MAC address.

Note:

The Device is equipped with Smart IP function, which would help to enable its built-in DHCP server when it's required. For your convenience, please configure your PC or other clients to "Obtain an IP address automatically". If you need any instructions as how to do this, please refer to [Appendix B: "Configuring the PC"](#).

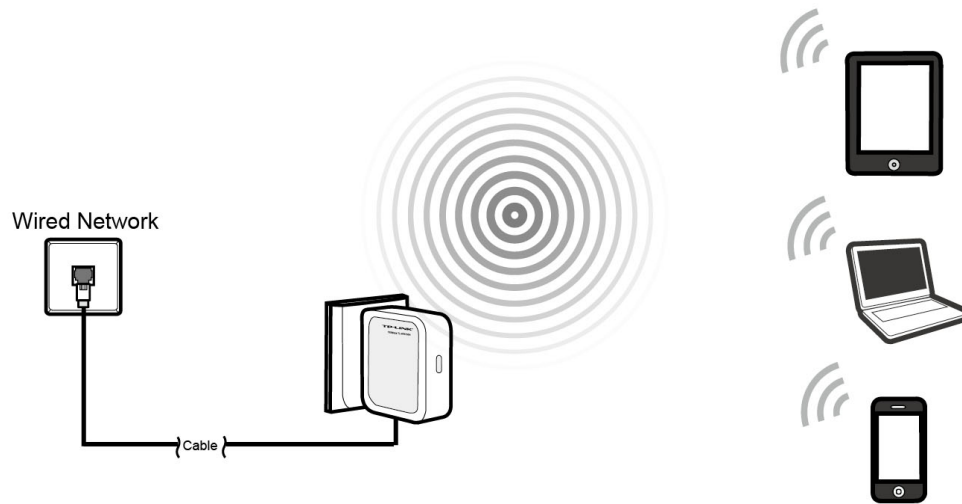


Figure 2-5 Hardware Installation of the TL-WR700N in AP Mode

1. Connect the LAN port of TL-WR700N to the wired network port with an Ethernet cable.
2. Plug the power plug of TL-WR700N in electrical wall socket.
3. Power on the PC(s) and notebook(s).

Chapter 3. Quick Installation Guide

This chapter will show you how to configure the basic functions of your TL-WR700N 150Mbps Wireless N Mini Pocket Router using **Quick Setup Wizard** within minutes.

With a Web-based utility, it is easy to configure and manage the TL-WR700N 150Mbps Wireless N Mini Pocket Router. The Web-based utility can be used on any Windows, Macintosh or UNIX OS with a Web browser, such as Microsoft Internet Explorer, Mozilla Firefox or Apple Safari.

1. To access the configuration utility, open a web-browser and type in the default address **http://tplinklogin.net** in the address field of the browser.

After a moment, a login window will appear, similar to the Figure 3-1. Enter **admin** for the User Name and Password, both in lower case letters. Then click the **OK** button or press the **Enter** key.

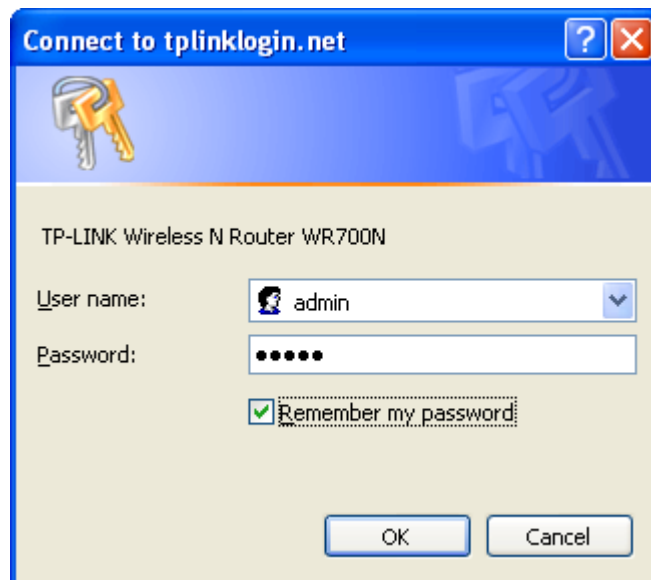


Figure 3-1 Login Windows

Note:

If the above screen does not pop-up, it means that your Web-browser has been set to a proxy. Go to Tools menu>Internet Options>Connections>LAN Settings, in the screen that appears, cancel the Using Proxy checkbox, and click **OK** to finish it.

2. After a successful login, there will appear the Quick Setup page (as shown in Figure 3-2). Select the working mode you need, and then click **Next** to continue.

Quick Setup - Working Mode

Router: Create an instant private wireless network and share Internet to multiple Wi-Fi devices. Suitable for most hotel and home network.

Repeater: Extend your home wireless range by copying the same wireless name and password.

Bridge: Extend your home wireless range like the Repeater Mode but with different wireless name and password.

Client: Become a wireless adapter for any Ethernet-enabled devices, such as Smart TV, Game Console and PC.

AP: Create a wireless network for Wi-Fi devices. The wireless devices are exposed to the wired network.

Figure 3-2 Quick Setup - Working Mode

Note:

The Router supports five working modes for multi-user to access the Internet: Router, Repeater, Bridge, Client and AP. In Router mode, TL-WR700N can access the Internet via DSL/Cable Modem. In Repeater mode, the device will relay data to an associated root AP. In Bridge mode, the device bridges to another AP. In Client mode, the device will act as a wireless station to enable wired host(s) to access AP. In AP mode, it enables the wired LAN to connect to the Internet wirelessly. You can configure your device quickly by the following steps in different modes.

3.1.1 Router Mode

When you choose **Router** on **Working Mode** page in Figure 3-2 , take the following steps:

1. Set the required wireless parameters on the page (as shown in Figure 3-3), and then click **Next**.

Quick Setup - Router Mode

Wireless Settings

Wireless Network Name(SSID):

Security Options:

WPA-PSK/WPA2-PSK

Wireless Password:
(You can enter ASCII characters between 8 and 63 or Hexadecimal characters between 8 and 64.)

Disable Security

Advanced Wireless Settings

Mode:

Channel Width:

Channel:

Figure 3-3

- **Wireless Network Name (SSID)** - Enter a string of up to 32 characters. The same name of SSID (Service Set Identification) must be assigned to all wireless devices in your network. The default SSID is set to be TP-LINK_XXXXXX (XXXXXX indicates the last unique six numbers of each Router's MAC address). But it is recommended strongly that you change your networks name (SSID) to a different value. This value is case-sensitive. For example, *TEST* is NOT the same as *test*.
 - **WPA-PSK/WPA2-PSK** - Select WPA based on pre-shared passphrase.
 - **Wireless Password** - You can enter **ASCII** or **Hexadecimal** characters. The default password is the last unique eight numbers of each Router's MAC address
 - For **ASCII**, the key can be made up of any numbers 0 to 9 and any letters A to Z, the length should be between 8 and 63 characters.
 - For **Hexadecimal**, the key can be made up of any numbers 0 to 9 and letters A to F, the length should be between 8 and 64 characters.Please also note the key is case sensitive, this means that upper and lower case keys will affect the outcome. It would also be a good idea to write down the key and all related wireless security settings.
 - **Disable Security** - The wireless security function can be enabled or disabled. If disabled, the wireless stations will be able to connect the Router without encryption. It is recommended strongly that you choose one of following options to enable security.
 - **Advanced Wireless Settings** - Enable to select mode, channel width and channel.
 - **Mode** - This field determines the wireless mode which the Router works on.
 - **Channel Width** - The bandwidth of the wireless channel.
 - **Channel** - This field determines which operating frequency will be used. It is not necessary to change the wireless channel unless you notice interference problems with another nearby access point. If you select auto, then the AP will select the best channel automatically.
2. Select your Internet connection type on the page (as shown in Figure 3-4), and then click **Next**.

Quick Setup - Router Mode

Select your Internet Connection Type

Dynamic IP - For most cable modem and hotel environment.

PPPoE - For home DSL connection with both username and password provided by your ISP.

Static IP - For connection that ISP provides the IP address.

If you're not sure about the connection type, please choose Dynamic IP.
If you connect the TL-WR700N directly to a cable modem, please power cycle the cable modem.

Back Next

Figure 3-4

The Router supports three popular ways **Dynamic IP**, **PPPoE** and **Static IP** to connect to the Internet. To make sure the connection type your ISP provides, please refer to the ISP. Make sure the cable is securely plugged into the WAN port before detection.

- **Dynamic IP** - Your ISP uses a DHCP service to assign your Router an IP address for connecting to the Internet. When the Router connects to a DHCP server, or the ISP supplies you with DHCP connection, please choose this type. If you select this type of connection, you just need to click **Next** and proceed to Figure 3-7.
- **PPPoE** - For this connection, you will need your account name and password from your ISP. If you have applied ADSL to realize Dial-up service, you should choose this type. Under this condition, you should fill in both the User Name and Password that the ISP supplied, then click **Next** and proceed to Figure 3-7. Please note that these fields are case-sensitive.

The screenshot shows a web interface titled "Quick Setup - Router Mode" with a sub-section "Internet Settings". There are two input fields: "User Name:" and "Password:". Below the fields are two buttons: "Back" and "Next".

Figure 3-5 Quick Setup - PPPoE

- **Static IP** - This type of connection uses a permanent, fixed (static) IP address that your ISP assigned.

In this type, you should fill in the IP address, Subnet Mask, Default Gateway, and DNS IP address manually, which are specified by your ISP. Then click **Next** and proceed to Figure 3-7.

The screenshot shows a web interface titled "Quick Setup - Router Mode" with a sub-section "Internet Settings". There are five input fields: "IP Address:", "Subnet Mask:", "Default Gateway:", "Primary DNS:", and "Secondary DNS:". The "Secondary DNS:" field has "(Optional)" next to it. Below the fields are two buttons: "Back" and "Next".

Figure 3-6 Quick Setup - Static IP

3. The **Finish** page is shown as Figure 3-7. Click the **Reboot** button to make your wireless configuration take effect and finish the **Quick Setup**.

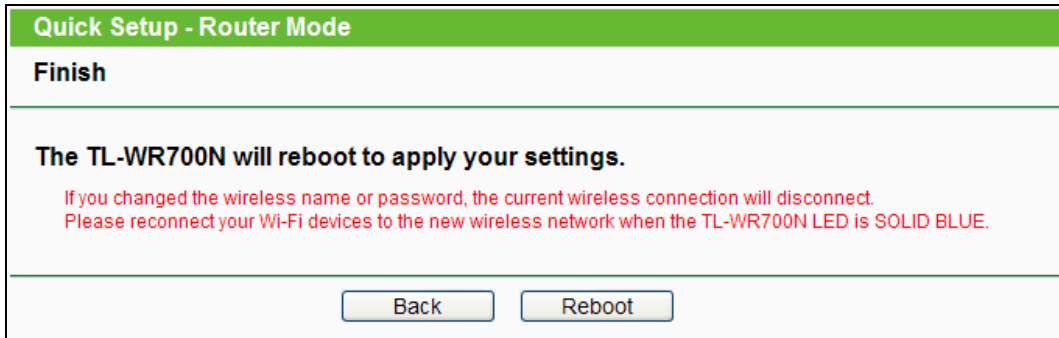


Figure 3-7 Quick Setup – Finish

3.1.2 Repeater Mode

When you choose **Repeater Mode** on **Working Mode** page in Figure 3-2 , take the following steps:

1. Wait a few minutes when the device is detecting the surrounding wireless networks.

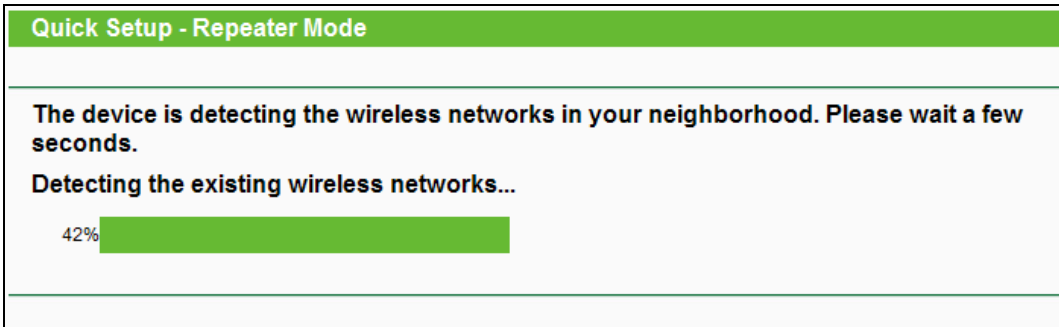


Figure 3-8

2. Choose the wireless network you would like to extend from the list available, and then click **Next**.

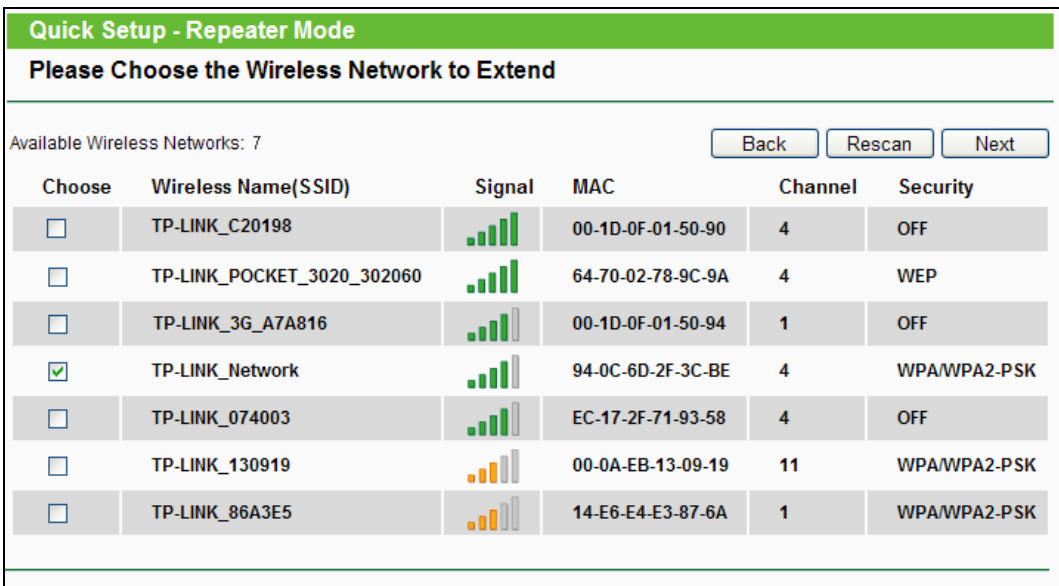


Figure 3-9

- Input the wireless password of the wireless network you've chosen, and then click **Next**.

Figure 3-10

- The **Finish** page is shown as Figure 3-11. Click the **Reboot** button to make your wireless configuration take effect and finish the **Quick Setup**.

Figure 3-11

3.1.3 Bridge Mode

When you choose **Bridge** on **Working Mode** page in Figure 3-2 , take the following steps:

- Wait a few minutes when the device is detecting the surrounding wireless networks.

Figure 3-12

- Choose the wireless network you would like to extend from the list available, and then click **Next**.

Quick Setup - Repeater Mode

Please Choose the Wireless Network to Extend

Available Wireless Networks: 7 Back Rescan Next

Choose	Wireless Name(SSID)	Signal	MAC	Channel	Security
<input type="checkbox"/>	TP-LINK_C20198		00-1D-0F-01-50-90	4	OFF
<input type="checkbox"/>	TP-LINK_POCKET_3020_302060		64-70-02-78-9C-9A	4	WEP
<input type="checkbox"/>	TP-LINK_3G_A7A816		00-1D-0F-01-50-94	1	OFF
<input checked="" type="checkbox"/>	TP-LINK_Network		94-0C-6D-2F-3C-BE	4	WPA/WPA2-PSK
<input type="checkbox"/>	TP-LINK_074003		EC-17-2F-71-93-58	4	OFF
<input type="checkbox"/>	TP-LINK_130919		00-0A-EB-13-09-19	11	WPA/WPA2-PSK
<input type="checkbox"/>	TP-LINK_86A3E5		14-E6-E4-E3-87-6A	1	WPA/WPA2-PSK

Figure 3-13

3. Input the wireless password of the wireless network you've chosen, and then click **Next**.

Quick Setup - Repeater Mode

Input the Wireless Password of the Chosen Network

Root Wireless Network:

MAC of Root Device: (also called BSSID)

Security Options:

Wireless Password:

(The length of password should be between 8 and 64 characters which are case-sensitive.)

Note: please ensure that your wireless password is the same as your root device.

Back Next

Figure 3-14

4. Set the wireless parameters for the network created by TL-WR700N, or you can keep them default, and then click **Next**.

Quick Setup - Bridge Mode

Wireless Network Created by TL-WR700N

Wireless Name:

Security Options:

Wireless Password:

(The length of password should be between 8 and 64 characters which are case-sensitive.)

Back Next

Figure 3-15

- The **Finish** page is shown as Figure 3-16. Click the **Reboot** button to make your wireless configuration take effect and finish the **Quick Setup**.

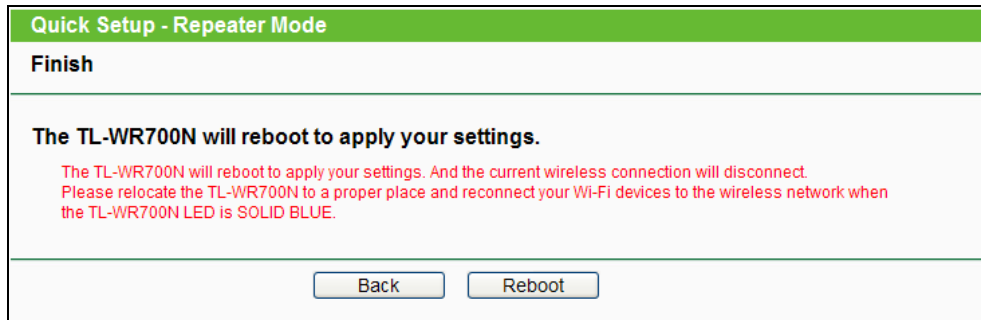


Figure 3-16

3.1.4 Client Mode

When you choose **Client** on **Working Mode** page in Figure 3-2 , take the following steps:

- Wait a few minutes when the device is detecting the surrounding wireless networks.

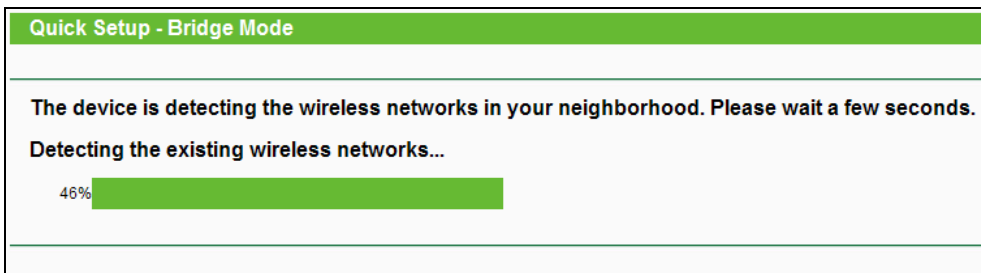


Figure 3-17

- Choose the wireless network you would like to extend from the list available, and then click **Next**.

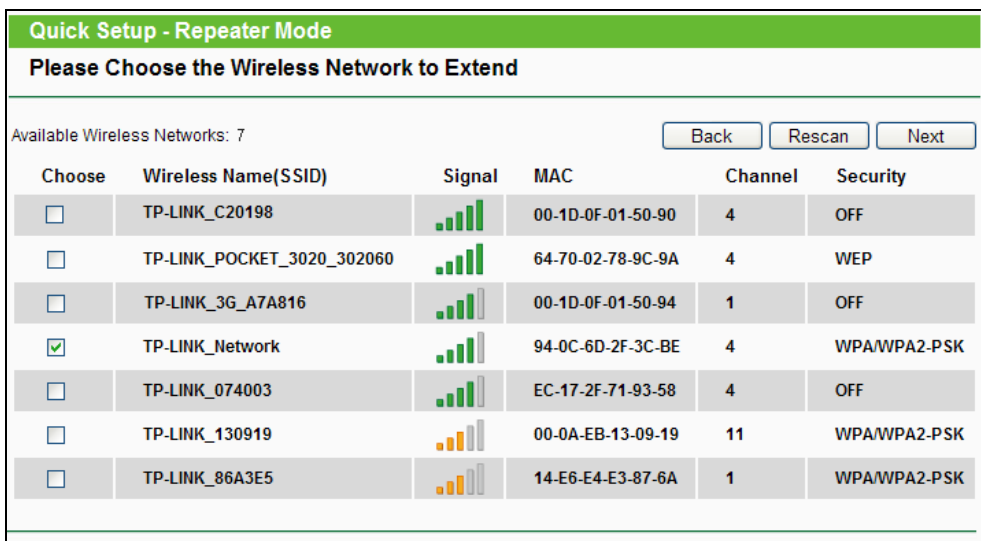


Figure 3-18

- Input the wireless password of the wireless network you've chosen, and then click **Next**.

Quick Setup - Repeater Mode

Input the Wireless Password of the Chosen Network

Root Wireless Network:

MAC of Root Device: (also called BSSID)

Security Options:

Wireless Password:

(The length of password should be between 8 and 64 characters which are case-sensitive.)

Note: please ensure that your wireless password is the same as your root device.

Figure 3-19

- The **Finish** page is shown as Figure 3-20. Click the **Reboot** button to make your wireless configuration take effect and finish the **Quick Setup**.

Quick Setup - Client Mode

Finish

The TL-WR700N will reboot to apply your settings.

The TL-WR700N will reboot to apply your settings. And the current wireless connection will disconnect. Plug the TL-WR700N to the power socket near your Ethernet-enabled devices, such as Smart TV, Game Console and PC and wait until the LED is solid blue. Connect one end of the Ethernet cable to the TL-WR700N and the other end to the Ethernet-enabled device. The device is good to go!

Figure 3-20

3.1.5 AP Mode

When you choose **AP** on **Working Mode** page in Figure 3-2 , take the following steps:

- Set the required wireless parameters on the page (as shown in Figure 3-21), and then click **Next**.

Quick Setup - AP Mode

Wireless Settings

Wireless Network Name(SSID):

Security Options:

WPA-PSK/WPA2-PSK

Disable Security

Wireless Password:

(You can enter ASCII characters between 8 and 63 or Hexadecimal characters between 8 and 64.)

Advanced Wireless Settings

Mode:

Channel Width:

Channel:

Figure 3-21

- **Wireless Network Name (SSID)** - Enter a string of up to 32 characters. The same name of SSID (Service Set Identification) must be assigned to all wireless devices in your network. The default SSID is set to be TP-LINK_XXXXXX (XXXXXX indicates the last unique six numbers of each Router's MAC address). But it is recommended strongly that you change your networks name (SSID) to a different value. This value is case-sensitive. For example, *TEST* is NOT the same as *test*.
 - **WPA-PSK/WPA2-PSK** - Select WPA based on pre-shared passphrase.
 - **Wireless Password** - You can enter **ASCII** or **Hexadecimal** characters. The default password is the last unique eight numbers of each Router's MAC address
For **ASCII**, the key can be made up of any numbers 0 to 9 and any letters A to Z, the length should be between 8 and 63 characters.
For **Hexadecimal**, the key can be made up of any numbers 0 to 9 and letters A to F, the length should be between 8 and 64 characters.
Please also note the key is case sensitive, this means that upper and lower case keys will affect the outcome. It would also be a good idea to write down the key and all related wireless security settings.
 - **Disable Security** - The wireless security function can be enabled or disabled. If disabled, the wireless stations will be able to connect the Router without encryption. It is recommended strongly that you choose one of following options to enable security.
 - **Advanced Wireless Settings** - Enable to select mode, channel width and channel.
 - **Mode** - This field determines the wireless mode which the Router works on.
 - **Channel Width** - The bandwidth of the wireless channel.
 - **Channel** - This field determines which operating frequency will be used. It is not necessary to change the wireless channel unless you notice interference problems with another nearby access point. If you select auto, then the AP will select the best channel automatically.
2. The **Finish** page is shown as Figure 3-22. Click the **Reboot** button to make your wireless configuration take effect and finish the **Quick Setup**.

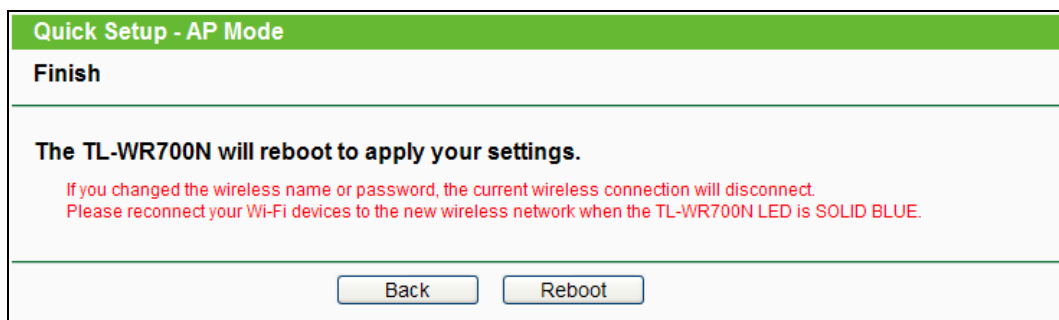


Figure 3-22 Quick Setup – Finish

 **Note:**

The operating distance or range of your wireless connection varies significantly based on the physical placement of the Router. For best results, place your Router.

- Near the center of the area in which your wireless stations will operate.
- In an elevated location such as a high shelf.
- Away from the potential sources of interference, such as PCs, microwaves, and cordless phones.
- Away from large metal surfaces.

Failure to follow these guidelines can result in significant performance degradation or inability to wirelessly connect to the Router.

Chapter 4. Configuration for Router Mode

This chapter will show each Web page's key functions and the configuration way for Router Mode of TL-WR700N.

4.1 Login

After your successful login, you can configure and manage the device. There are main menus on the left of the web-based utility. Submenus will be available after you click one of the main menus. On the right, there are the corresponding explanations and instructions.

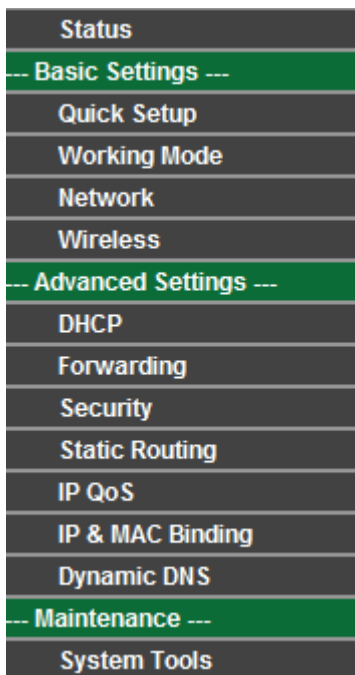


Figure 4-1

The detailed explanations for each Web page's key function are listed below.

4.2 Status

The Status page provides the current status information about the Router on Router Mode. All information is read-only.

Status		
Firmware Version:	4.18.93 Build 130218 Rel.60322n	
Hardware Version:	WR700N 1.0 00000000	
LAN		
MAC Address:	F8-D1-11-5B-51-50	
IP Address:	192.168.0.254	
Subnet Mask:	255.255.255.0	
Wireless		
Wireless Mode:	Router Mode	
Wireless Radio:	Enable	
Name (SSID):	TP-LINK_5B5150	
Channel:	Auto(Current Channel 6)	
Mode:	11bgn mixed	
Channel Width:	Auto	
MAC Address:	F8-D1-11-5B-51-50	
WDS Status:	Disable	
WAN		
MAC Address:	F8-D1-11-5B-51-51	
IP Address:	0.0.0.0	Dynamic IP
Subnet Mask:	0.0.0.0	
Default Gateway:	0.0.0.0	WAN port is unplugged!
DNS Server:	0.0.0.0 , 0.0.0.0	
Traffic Statistics		
	Received	Sent
Bytes:	0	1584
Packets:	0	24
System Up Time:	0 day(s) 00:28:01	
	<input type="button" value="Refresh"/>	

Figure 4-2

- **Firmware Version** - The version information of the Router's firmware.
- **Hardware Version** - The version information of the Router's hardware.
- **LAN** - This field displays the current settings or information for the LAN, you can configure them in the **Network > LAN** page.

- **MAC Address** - The physical address of the Router, as seen from the LAN.
- **IP Address** - The LAN IP address of the Router.
- **Subnet Mask** - The subnet mask associated with LAN IP address.
- **Wireless** - This field displays basic information or status for wireless function, you can configure them in the **Wireless > Wireless Settings** page.
 - **Wireless Mode** - The current wireless working mode in use.
 - **Wireless Radio** - Indicates whether the wireless radio feature of the AP is enabled or disabled.
 - **Name (SSID)** - The SSID of the AP.
 - **Channel** - The current wireless channel in use.
 - **Mode** - The current wireless mode which the Router works on.
 - **Channel Width** - The current wireless channel width in use.
 - **MAC address** - The physical address of the Router, as seen from the WLAN.
 - **WDS Status** - The status of WDS connection.
- **WAN** - This field displays the current settings or information for the WAN, you can configure them in the **Network > WAN** page.
 - **MAC Address** - The physical address of the WAN port, as seen from the Internet.
 - **IP Address** - The current WAN (Internet) IP Address. This field will be blank or 0.0.0.0 if the IP Address is assigned dynamically and there is no connection to the Internet.
 - **Subnet Mask** - The subnet mask associated with the WAN IP Address.
 - **Default Gateway** - The Gateway currently used by the Router is shown here. When you use **Dynamic IP** as the connection Internet type, the **Renew** button will be displayed here. Click the **Renew** Button to obtain new IP parameters dynamically from the ISP. And if you have got an IP address, **Release** button will be displayed here. Click the **Release** button to release the IP address the Router has obtained from the ISP.
 - **DNS Server** - The DNS (Domain Name System) server IP addresses currently used by the Router.
- **Traffic Statistics** - The Router's traffic statistics.
 - **Sent (Bytes)** - Traffic that counted in bytes has been sent out from the WAN port.
 - **Sent (Packets)** - Traffic that counted in packets has been sent out from the WAN port.
 - **Received (Bytes)** - Traffic that counted in bytes has been received out from the WAN port.
 - **Received (Packets)** - Traffic that counted in packets has been received out from the WAN port.

- **System Up Time** - The length of the time since the Router was last powered on or reset.

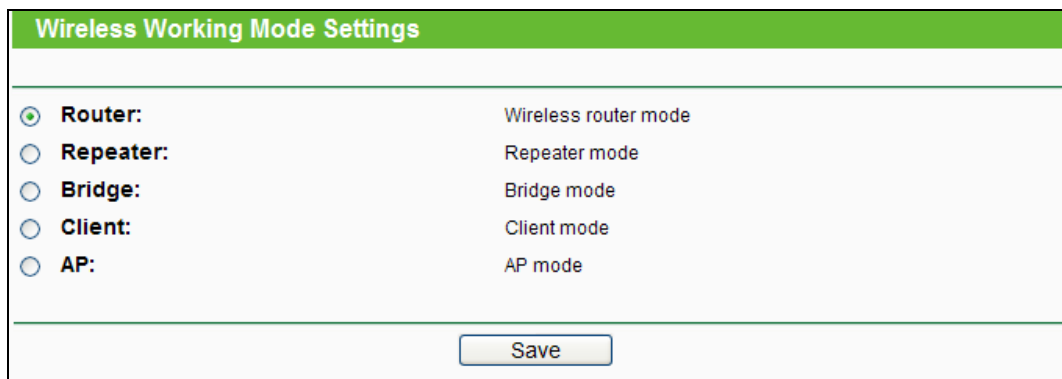
Click the **Refresh** button to get the latest status and settings of the Router.

4.3 Quick Setup

Please refer to [Section 3.2.1](#).

4.4 Working Mode

The Router supports five operation mode types: **Router**, **Repeater**, **Bridge**, **Client** and **AP**. Please select the mode you want. Click **Save** to save your choice, which is shown as Figure 4-3.



Wireless Working Mode Settings	
<input checked="" type="radio"/> Router:	Wireless router mode
<input type="radio"/> Repeater:	Repeater mode
<input type="radio"/> Bridge:	Bridge mode
<input type="radio"/> Client:	Client mode
<input type="radio"/> AP:	AP mode

Figure 4-3 Working Mode

- **Router** - The wireless Router Mode. In this mode, the device enables multi-user to share Internet via DSL/Cable Modem. The only wired port works as WAN.
- **Repeater** - The wireless Repeater Mode. It could extend the range of wireless network.
- **Bridge** - The wireless Bridge Mode. It could communicate with another wireless network.
- **Client** - The Client Mode. The computer connected by Ethernet could get access to an AP by Client mode.
- **AP** - The wireless access point mode.

Click **OK** in the following screen and then the Router will reboot and to work on Client Mode.

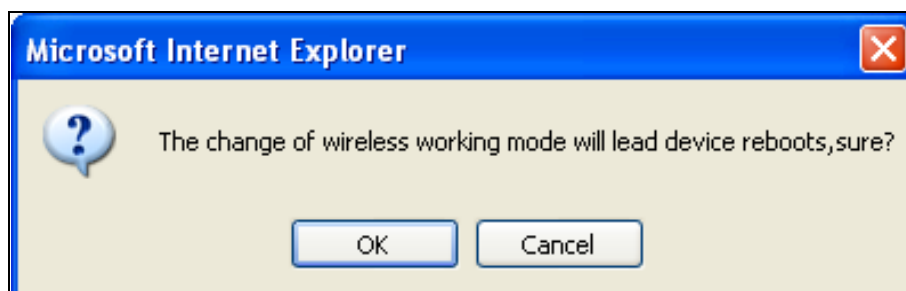


Figure 4-4

4.5 Network

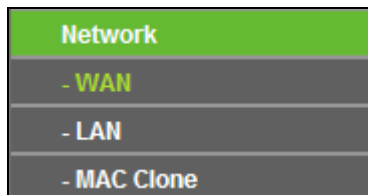


Figure 4-5 the Network menu

There are three submenus under the Network menu (shown in Figure 4-5): **WAN**, **LAN** and **MAC Clone**. Click any of them, and you will be able to configure the corresponding function.

4.5.1 WAN

Choose menu “**Network** → **WAN**”, and then you can configure the IP parameters of the WAN on the screen below.

1. If your ISP provides the DHCP service, please choose **Dynamic IP** type, and the Router will automatically get IP parameters from your ISP. You can see the page as follow (Figure 4-6):

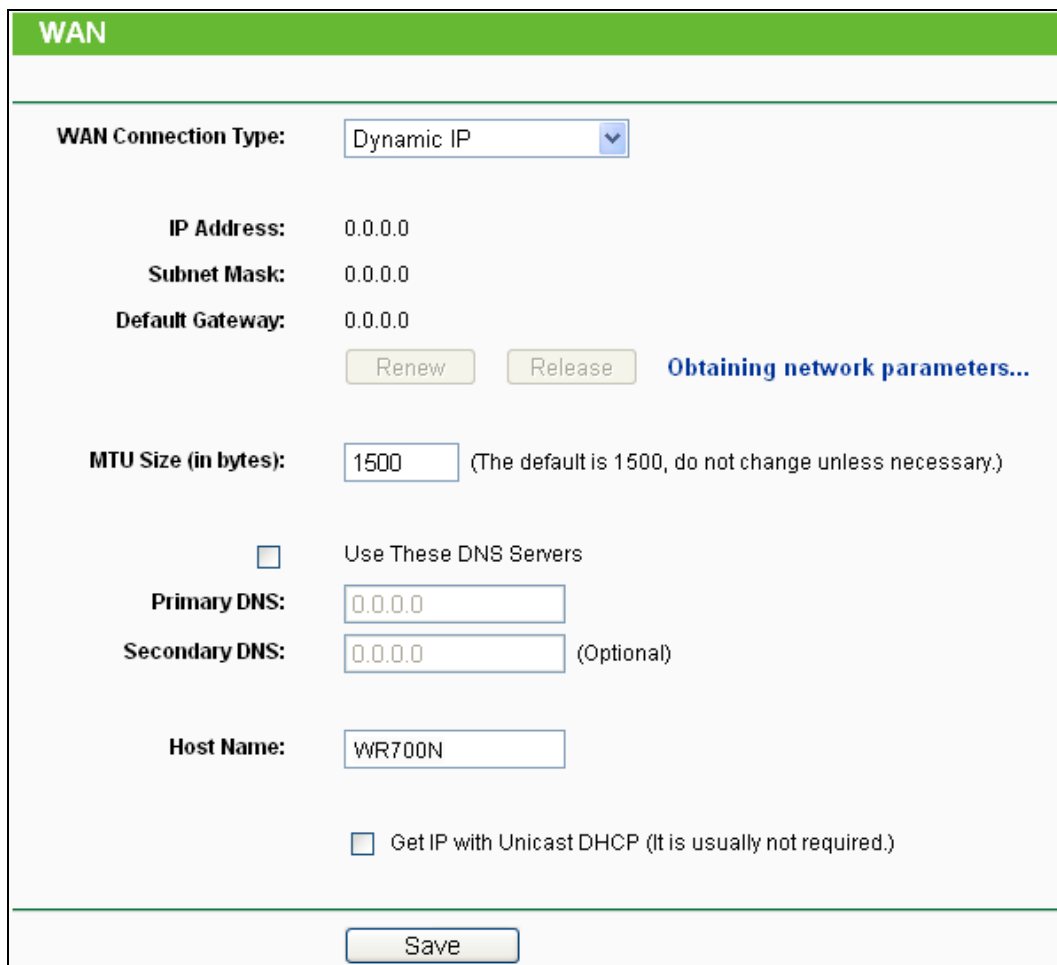
A screenshot of the WAN configuration page. The title is 'WAN' in a green bar. Below it, 'WAN Connection Type:' is set to 'Dynamic IP' in a dropdown menu. The 'IP Address:', 'Subnet Mask:', and 'Default Gateway:' fields are all set to '0.0.0.0'. There are 'Renew' and 'Release' buttons, and a status message 'Obtaining network parameters...'. The 'MTU Size (in bytes):' is set to '1500' with a note '(The default is 1500, do not change unless necessary.)'. There is a checkbox for 'Use These DNS Servers' which is unchecked. Below it, 'Primary DNS:' and 'Secondary DNS:' are both set to '0.0.0.0' with a note '(Optional)'. The 'Host Name:' is set to 'WR700N'. At the bottom, there is a checkbox for 'Get IP with Unicast DHCP (It is usually not required.)' which is unchecked, and a 'Save' button.

Figure 4-6 WAN – Dynamic IP

This page displays the WAN IP parameters assigned dynamically by your ISP, including IP address, Subnet Mask, Default Gateway, etc. Click the **Renew** button to renew the IP parameters from your ISP. Click the **Release** button to release the IP parameters.

- **MTU Size** - The normal **MTU** (Maximum Transmission Unit) value for most Ethernet networks is 1500 Bytes. It is not recommended that you change the default **MTU Size** unless required by your ISP.
- **Use These DNS Servers** - If your ISP gives you one or two DNS addresses, select **Use These DNS Servers** and enter the primary and secondary addresses into the correct fields. Otherwise, the DNS servers will be assigned dynamically from your ISP.

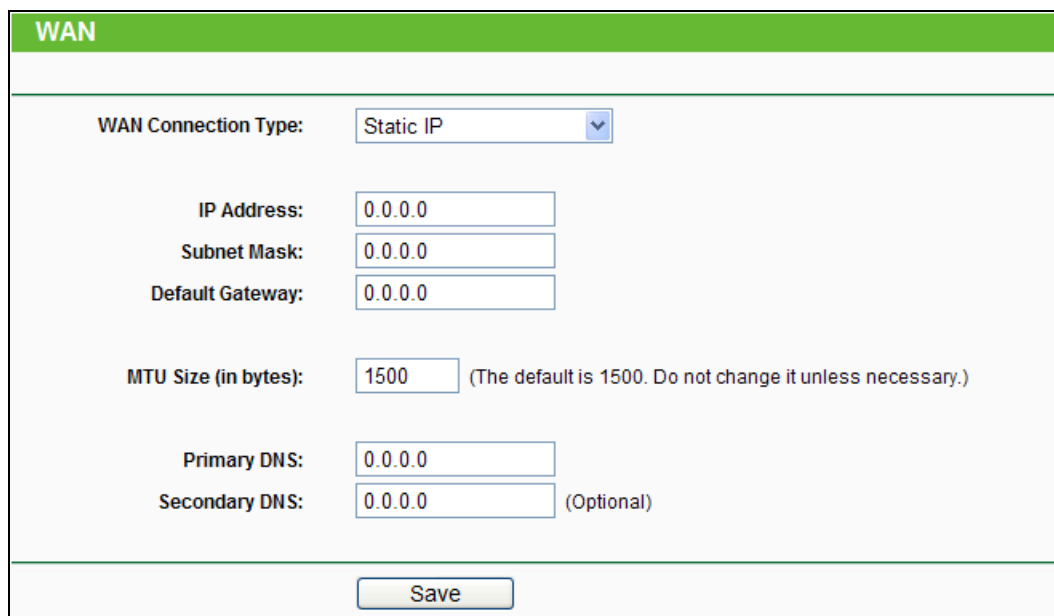
 **Note:**

If you find error when you go to a website after entering the DNS addresses, it is likely that your DNS servers are set up improperly. You should contact your ISP to get DNS server addresses.

- **Host Name** - This option specifies the Host Name of the Router.
- **Get IP with Unicast DHCP** - A few ISPs' DHCP servers do not support the broadcast applications. If you cannot get the IP Address normally, you can choose this option. (It is rarely required.)

Click the **Save** button to save your settings.

2. If your ISP provides a static or fixed IP Address, Subnet Mask, Gateway and DNS setting, select **Static IP**. The Static IP settings page will appear as shown in Figure 4-7.



WAN	
WAN Connection Type:	Static IP
IP Address:	0.0.0.0
Subnet Mask:	0.0.0.0
Default Gateway:	0.0.0.0
MTU Size (in bytes):	1500 (The default is 1500. Do not change it unless necessary.)
Primary DNS:	0.0.0.0
Secondary DNS:	0.0.0.0 (Optional)
Save	

Figure 4-7 WAN - Static IP

- **IP Address** - Enter the IP address in dotted-decimal notation provided by your ISP.
- **Subnet Mask** - Enter the subnet Mask in dotted-decimal notation provided by your ISP, usually is 255.255.255.0.

- **Default Gateway** - Enter the gateway IP address in dotted-decimal notation provided by your ISP.
- **MTU Size** - The normal **MTU** (Maximum Transmission Unit) value for most Ethernet networks is 1500 Bytes. It is not recommended that you change the default **MTU Size** unless required by your ISP.
- **Primary DNS / Secondary DNS** (Optional) - Enter one or two DNS addresses in dotted-decimal notation provided by your ISP.

Click the **Save** button to save your settings.

3. If your ISP provides a PPPoE connection, select **PPPoE/Russia PPPoE** option. Then you should enter the following parameters (Figure 4-8):

The screenshot shows the WAN configuration interface for a PPPoE/Russia PPPoE connection. The page has a green header with the word "WAN". Below the header, the "WAN Connection Type" is set to "PPPoE/Russia PPPoE". Under "PPPoE Connection", there are input fields for "User Name" and "Password". The "Secondary Connection" section has three radio buttons: "Disabled" (selected), "Dynamic IP", and "Static IP". The "Wan Connection Mode" section has four radio buttons: "Connect on Demand" (selected), "Connect Automatically", "Time-based Connecting", and "Connect Manually". The "Connect on Demand" mode includes a "Max Idle Time" field set to "15" minutes. The "Time-based Connecting" mode includes a "Period of Time" field set to "0 : 0 (HH:MM) to 23 : 59 (HH:MM)". At the bottom of the configuration area, there are "Connect", "Disconnect", and "Disconnected" buttons. At the very bottom of the page, there are "Save" and "Advanced" buttons.

Figure 4-8 WAN – PPPoE/Russia PPPoE

- **User Name/Password** - Enter the User Name and Password provided by your ISP. These fields are case-sensitive.
- **Secondary Connection** - It's available only for PPPoE Connection. If your ISP provides an extra Connection type such as Dynamic/Static IP to connect to a local area network, then you can check the radio button of Dynamic/Static IP to activate this secondary connection.
 - **Disabled** - The Secondary Connection is disabled by default, so there is PPPoE connection only. This is recommended.

- **Dynamic IP** - You can check this radio button to use Dynamic IP as the secondary connection to connect to the local area network provided by ISP.
- **Static IP** - You can check this radio button to use Static IP as the secondary connection to connect to the local area network provided by ISP.
- **Connect on Demand** - In this mode, the Internet connection can be terminated automatically after a specified inactivity period (**Max Idle Time**) and be re-established when you attempt to access the Internet again. If you want your Internet connection keeps active all the time, please enter "0" in the **Max Idle Time** field. Otherwise, enter the number of minutes you want to have elapsed before your Internet access disconnects.
- **Connect Automatically** - The connection can be re-established automatically when it was down.
- **Time-based Connecting** - The connection will only be established in the period from the start time to the end time (both are in HH:MM format).

 **Note:**

Only when you have configured the system time on "**System Tools** → **Time**" page, will the **Time-based Connecting** function can take effect.

- **Connect Manually** - You can click the **Connect/Disconnect** button to connect/disconnect immediately. This mode also supports the **Max Idle Time** function as **Connect on Demand** mode. The Internet connection can be disconnected automatically after a specified inactivity period and re-established when you attempt to access the Internet again.

Click the **Connect** button to connect immediately. Click the **Disconnect** button to disconnect immediately.

Caution: Sometimes the connection cannot be terminated although you specify a time to Max Idle Time because some applications are visiting the Internet continually in the background.

If you want to do some advanced configurations, please click the **Advanced** button, and the page shown in Figure 4-9 will then appear:

PPPoE Advanced Settings

MTU Size (in bytes): (The default is 1480, do not change unless necessary.)

Service Name:

AC Name:

Use IP address specified by ISP

ISP Specified IP Address:

Detect Online Interval: Seconds (0 ~ 120 seconds, the default is 0, 0 means not detecting.)

Use the following DNS Servers

Primary DNS:

Secondary DNS: (Optional)

Figure 4-9 PPPoE Advanced Settings

- **MTU Size** - The default MTU size is “1480” bytes, which is usually fine. It is not recommended that you change the default **MTU Size** unless required by your ISP.
- **Service Name/AC Name** - The service name and AC (Access Concentrator) name should not be configured unless you are sure it is necessary for your ISP. In most cases, leaving these fields blank will work.
- **ISP Specified IP Address** - If your ISP does not automatically assign IP addresses to the Router during login, please click “**Use IP address specified by ISP**” check box and enter the IP address provided by your ISP in dotted-decimal notation.
- **Detect Online Interval** - The Router will detect Access Concentrator online at every interval. The default value is “0”. You can input the value between “0” and “120”. The value “0” means no detect.
- **Primary DNS/Secondary DNS** - If your ISP does not automatically assign DNS addresses to the Router during login, please click “**Use the following DNS servers**” check box and enter the IP address in dotted-decimal notation of your ISP’s primary DNS server. If a secondary DNS server address is available, enter it as well.

Click the **Save** button to save your settings.

4. If your ISP provides L2TP connection, please select **L2TP/Russia L2TP** option. Then you should enter the following parameters (Figure 4-10):

The screenshot shows the WAN configuration interface for a TL-WR700N router. The page has a green header with the word "WAN". Below the header, the configuration is organized into several sections:

- WAN Connection Type:** A dropdown menu is set to "L2TP/Russia L2TP".
- User Name:** A text input field contains "username".
- Password:** A text input field contains seven black dots. Below it are "Connect" and "Disconnect" buttons. To the right of the "Disconnect" button, the text "Disconnected!" is displayed in blue.
- Dynamic IP / Static IP:** Two radio buttons are present. "Dynamic IP" is selected (indicated by a green dot), and "Static IP" is unselected (indicated by a grey dot).
- Server IP Address/Name:** A text input field is empty.
- IP Address:** 0.0.0.0
- Subnet Mask:** 0.0.0.0
- Gateway:** 0.0.0.0
- DNS:** 0.0.0.0, 0.0.0.0
- Internet IP Address:** 0.0.0.0
- Internet DNS:** 0.0.0.0, 0.0.0.0
- MTU Size (in bytes):** A text input field contains "1460". To its right is the text "(The default is 1460, do not change unless necessary.)".
- Max Idle Time:** A text input field contains "15". To its right is the text "minutes (0 means remain active at all times.)".
- WAN Connection Mode:** Three radio buttons are present. "Connect on Demand" is selected (indicated by a green dot). "Connect Automatically" and "Connect Manually" are unselected (indicated by grey dots).

At the bottom center of the page, there is a "Save" button.

Figure 4-10 WAN – L2TP/Russia L2TP

- **User Name/Password** - Enter the User Name and Password provided by your ISP. These fields are case-sensitive.
- **Dynamic IP/ Static IP** - Choose either as you are given by your ISP. Click the **Connect** button to connect immediately. Click the **Disconnect** button to disconnect immediately.
- **Connect on Demand** - You can configure the Router to disconnect from your Internet connection after a specified period of inactivity (**Max Idle Time**). If your Internet connection has been terminated due to inactivity, **Connect on Demand** enables the Router to automatically re-establish your connection as soon as you attempt to access the Internet again. If you wish to activate **Connect on Demand**, check the radio button. If you want your Internet connection to remain active at all times, enter 0 in the **Max Idle Time** field. Otherwise, enter the number of minutes you want to have elapsed before your Internet connection terminates.
- **Connect Automatically** - Connect automatically after the Router is disconnected. To use this option, check the radio button.

- **Connect Manually** - You can configure the Router to make it connect or disconnect manually. After a specified period of inactivity (**Max Idle Time**), the Router will disconnect from your Internet connection, and you will not be able to re-establish your connection automatically as soon as you attempt to access the Internet again. To use this option, check the radio button. If you want your Internet connection to remain active at all times, enter "0" in the **Max Idle Time** field. Otherwise, enter the number of minutes that you wish to have the Internet connecting last unless a new link is requested.

Caution: Sometimes the connection cannot be disconnected although you specify a time to **Max Idle Time**, because some applications are visiting the Internet continually in the background.

Click the **Save** button to save your settings.

5. If your ISP provides PPTP connection, please select **PPTP/Russia PPTP** option. And you should enter the following parameters (Figure 4-11):

The screenshot shows the WAN configuration interface for a PPTP/Russia PPTP connection. The interface includes the following elements:

- WAN Connection Type:** A dropdown menu set to "PPTP/Russia PPTP".
- User Name:** A text input field containing "username".
- Password:** A text input field with masked characters (dots).
- Connect/Disconnect:** Two buttons, "Connect" and "Disconnect". The "Disconnect" button is highlighted in yellow, and the text "Disconnected!" is displayed next to it.
- Dynamic IP / Static IP:** Two radio buttons. "Dynamic IP" is selected.
- Server IP Address/Name:** A text input field.
- IP Address:** 0.0.0.0
- Subnet Mask:** 0.0.0.0
- Gateway:** 0.0.0.0
- DNS:** 0.0.0.0, 0.0.0.0
- Internet IP Address:** 0.0.0.0
- Internet DNS:** 0.0.0.0, 0.0.0.0
- MTU Size (in bytes):** 1420 (The default is 1420, do not change unless necessary.)
- Max Idle Time:** 15 minutes (0 means remain active at all times.)
- WAN Connection Mode:** Three radio buttons: "Connect on Demand" (selected), "Connect Automatically", and "Connect Manually".
- Save:** A button at the bottom of the form.

Figure 4-11 WAN – PPTP/Russia PPTP

- **User Name/Password** - Enter the User Name and Password provided by your ISP. These fields are case-sensitive.
- **Dynamic IP/ Static IP** - Choose either as you are given by your ISP and enter the ISP's IP address or the domain name.

If you choose static IP and enter the domain name, you should also enter the DNS assigned by your ISP. And click the **Save** button.

Click the **Connect** button to connect immediately. Click the **Disconnect** button to disconnect immediately.

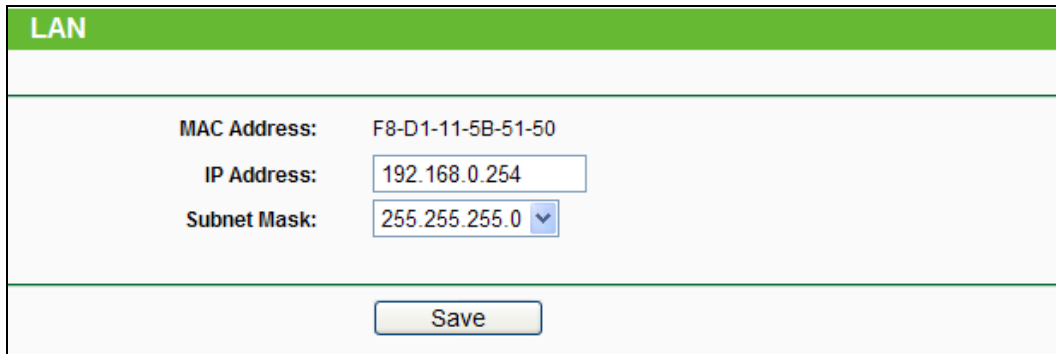
- **Connect on Demand** - You can configure the Router to disconnect from your Internet connection after a specified period of inactivity (**Max Idle Time**). If your Internet connection has been terminated due to inactivity, **Connect on Demand** enables the Router to automatically re-establish your connection as soon as you attempt to access the Internet again. If you wish to activate **Connect on Demand**, check the radio button. If you want your Internet connection to remain active at all times, enter "0" in the **Max Idle Time** field. Otherwise, enter the number of minutes you want to have elapsed before your Internet connection terminates.
- **Connect Automatically** - Connect automatically after the Router is disconnected. To use this option, check the radio button.
- **Connect Manually** - You can configure the Router to make it connect or disconnect manually. After a specified period of inactivity (**Max Idle Time**), the Router will disconnect from your Internet connection, and you will not be able to re-establish your connection automatically as soon as you attempt to access the Internet again. To use this option, click the radio button. If you want your Internet connection to remain active at all times, enter "0" in the **Max Idle Time** field. Otherwise, enter the number in minutes that you wish to have the Internet connecting last unless a new link is requested.

Caution: Sometimes the connection cannot be disconnected although you specify a time to **Max Idle Time** because some applications are visiting the Internet continually in the background.

Click the **Save** button to save your settings.

4.5.2 LAN

Choose menu “**Network** → **LAN**”, and then you can configure the IP parameters of the LAN on the screen as below.



LAN	
MAC Address:	F8-D1-11-5B-51-50
IP Address:	192.168.0.254
Subnet Mask:	255.255.255.0
<input type="button" value="Save"/>	

Figure 4-12 LAN

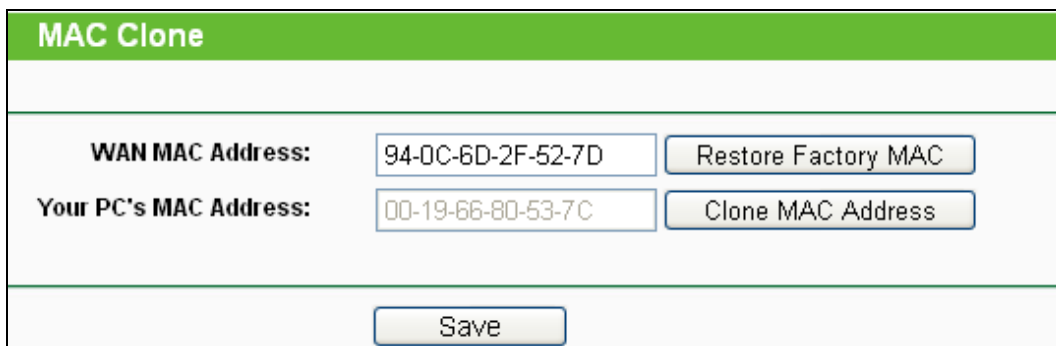
- **MAC Address** - The physical address of the LAN ports, as seen from the LAN. The value can't be changed.
- **IP Address** - Enter the IP address of your Router in dotted-decimal notation (factory default: 192.168.0.254).
- **Subnet Mask** - An address code that determines the size of the network. Normally use 255.255.255.0 as the subnet mask.

 **Note:**

1. If you change the IP Address of LAN, you must use the new IP Address to login to the Router.
2. If the new LAN IP Address you set is not in the same subnet with the previous one, the IP Address pool in the DHCP server will be configured automatically, while the Virtual Server and DMZ Host will not take effect until they are re-configured.

4.5.3 MAC Clone

Choose menu “**Network** → **MAC Clone**”, and then you can configure the WAN MAC address on the screen below, as shown in Figure 4-13:



MAC Clone		
WAN MAC Address:	94-0C-6D-2F-52-7D	<input type="button" value="Restore Factory MAC"/>
Your PC's MAC Address:	00-19-66-80-53-7C	<input type="button" value="Clone MAC Address"/>
<input type="button" value="Save"/>		

Figure 4-13 MAC Address Clone

Some ISPs require that you register the MAC Address of your adapter. Changes are rarely needed here.

- **WAN MAC Address** - This field displays the current MAC address of the WAN port. If your ISP requires you to register the MAC address, please enter the correct MAC address into this field in XX-XX-XX-XX-XX-XX format (X is any hexadecimal digit).
- **Your PC's MAC Address** - This field displays the MAC address of the PC that is managing the Router. If the MAC address is required, you can click the **Clone MAC Address** button and this MAC address will fill in the **WAN MAC Address** field.

Click **Restore Factory MAC** to restore the MAC address of WAN port to the factory default value.

Click the **Save** button to save your settings.

 **Note:**

1. Only the PC on your LAN can use the **MAC Address Clone** function.
2. If you change WAN MAC Address when the WAN connection is PPPoE, it will not take effect until the connection is re-established.

4.6 Wireless

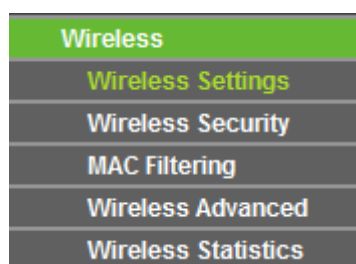


Figure 4-14 Wireless menu

There are five submenus under the Wireless menu (shown in Figure 4-14): **Wireless Settings**, **Wireless Security**, **MAC Filtering**, **Wireless Advanced** and **Wireless Statistics**. Click any of them, and you will be able to configure the corresponding function.

4.6.1 Wireless Settings

Choose menu "**Wireless** → **Wireless Settings**", and then you can configure the basic settings for the wireless network on this page.

Wireless Settings - Router

SSID:

Region:

Warning: Ensure you select a correct country to conform local law. Incorrect settings may cause interference.

Channel:

Mode:

Channel Width:

Enable SSID Broadcast

Enable WDS

Figure 4-15 Wireless Settings - Router

- **SSID** - Enter a string of up to 32 characters. The same name of SSID (Service Set Identification) must be assigned to all wireless devices in your network. The default SSID is set to be TP-LINK_XXXXXX (XXXXXX indicates the last unique six numbers of each Router's MAC address). But it is recommended strongly that you change your networks name (SSID) to a different value. This value is case-sensitive. For example, *TEST* is NOT the same as *test*.
- **Region** - Select your region from the pull-down list. This field specifies the region where the wireless function of the Router can be used. It may be illegal to use the wireless function of the Router in a region other than one of those specified in this field. If your country or region is not listed, please contact your local government agency for assistance.
- **Channel** - This field determines which operating frequency will be used. The default channel is set to **Auto**. It is not necessary to change the wireless channel unless you notice interference problems with another nearby access point.
- **Mode** - Select the desired mode. The default setting is 11bgn mixed.
 - **11b only** - Select if all of your wireless clients are 802.11b.
 - **11g only** - Select if all of your wireless clients are 802.11g.
 - **11n only** - Select only if all of your wireless clients are 802.11n.
 - **11bg mixed** - Select if you are using both 802.11b and 802.11g wireless clients.
 - **11bgn mixed** - Select if you are using a mix of 802.11b, 11g, and 11n wireless clients.

Select the desired wireless mode. When 802.11g mode is selected, only 802.11g wireless stations can connect to the Router. When 802.11n mode is selected, only 802.11n wireless stations can connect to the AP. It is strongly recommended that you set the Mode to

802.11b/g/n, and all of 802.11b, 802.11g, and 802.11n wireless stations can connect to the Router.

- **Channel Width** - Select any channel width from the pull-down list. The default setting is automatic, which can automatically adjust the channel width for your clients.
- **Enable SSID Broadcast** - If you select the **Enable SSID Broadcast** checkbox, the wireless router will broadcast its name (SSID) on the air.
- **Enable WDS** - You can select to enable WDS. With this function, the Router can bridge two or more WLANs. If this checkbox is selected, you will have to set the following parameters as shown below. Make sure the following settings are correct.

Enable WDS
SSID(to be bridged):
BSSID(to be bridged): For example:00-1D-0F-11-22-33

Security Options:
WEP Index:
Authentication Type:
Password:

- **SSID (to be bridged)** - The SSID of the AP your Router is going to connect to as a client. You can also use the search function to select the SSID to join.
- **BSSID (to be bridged)** - The BSSID of the AP your Router is going to connect to as a client. You can also use the search function to select the BSSID to join.
- **Survey** - Click this button, you can survey the AP which runs in the current channel.
- **Security Options** - This option should be chosen according to the AP's security configuration. It is recommended that the security type is the same as your AP's security type.
- **WEP Index** - This option should be chosen if the key type is WEP (ASCII) or WEP (HEX). It indicates the index of the WEP key.
- **Authentication Type** - This option should be chosen if the key type is WEP (ASCII) or WEP (HEX). It indicates the authorization type of the Root AP.
- **Password** - If the AP your Router is going to connect needs password, you need to fill the password in this blank.

Be sure to click the **Save** button to save your settings on this page.

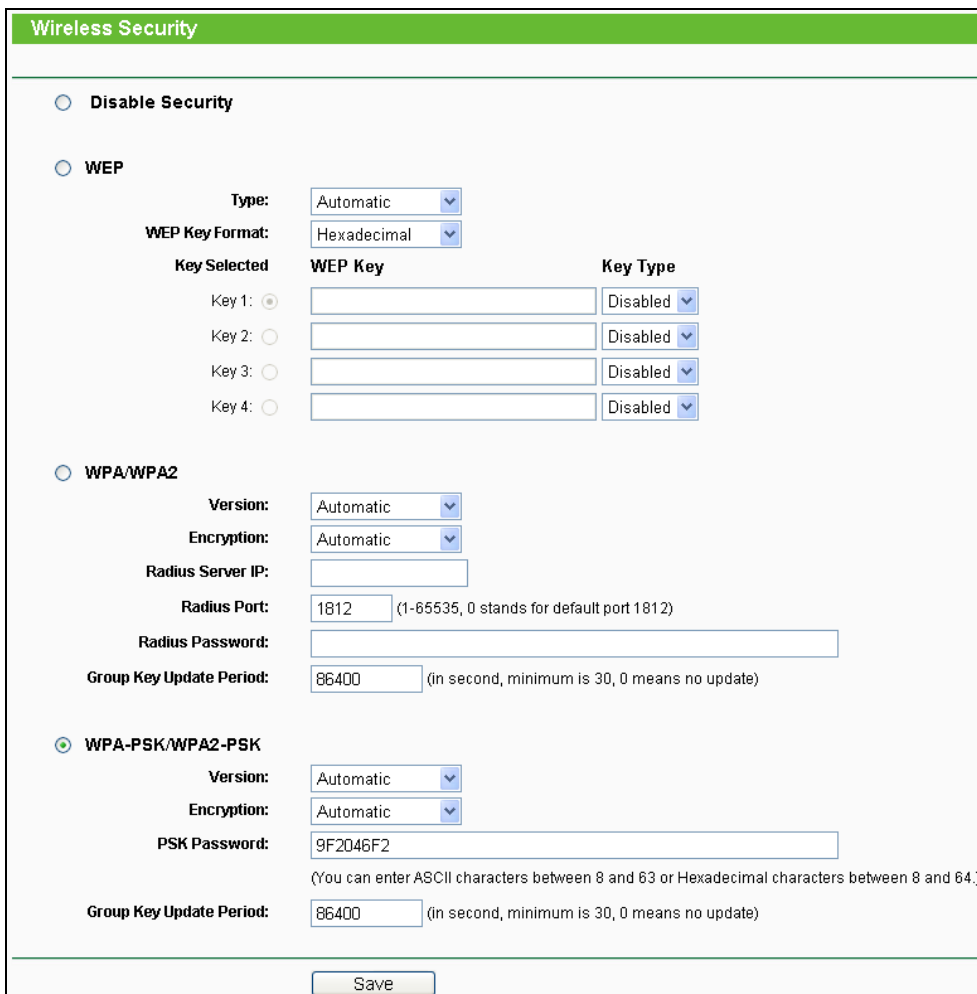
 **Note:**

- The operating distance or range of your wireless connection varies significantly based on the physical placement of the Router. For best results, place your Router.
 - Near the center of the area in which your wireless stations will operate.
 - In an elevated location such as a high shelf.
 - Away from the potential sources of interference, such as PCs, microwaves, and cordless phones.
 - Away from large metal surfaces.
- Failure to follow these guidelines can result in significant performance degradation or inability to wirelessly connect to the Router.

4.6.2 Wireless Security

Choose menu “**Wireless** → **Wireless Security**”, and then you can configure the security settings of your wireless network.

There are three wireless security modes supported by the Router: WEP (Wired Equivalent Privacy), WPA/WPA2 and WPA-PSK/WPA2-PSK.



Wireless Security

Disable Security

WEP

Type:

WEP Key Format:

Key Selected	WEP Key	Key Type
Key 1: <input checked="" type="radio"/>	<input type="text"/>	Disabled <input type="text"/>
Key 2: <input type="radio"/>	<input type="text"/>	Disabled <input type="text"/>
Key 3: <input type="radio"/>	<input type="text"/>	Disabled <input type="text"/>
Key 4: <input type="radio"/>	<input type="text"/>	Disabled <input type="text"/>

WPA/WPA2

Version:

Encryption:

Radius Server IP:

Radius Port: (1-65535, 0 stands for default port 1812)

Radius Password:

Group Key Update Period: (in second, minimum is 30, 0 means no update)

WPA-PSK/WPA2-PSK

Version:

Encryption:

PSK Password:
(You can enter ASCII characters between 8 and 63 or Hexadecimal characters between 8 and 64.)

Group Key Update Period: (in second, minimum is 30, 0 means no update)

Figure 4-16 Wireless Security

- **Disable Security** - The wireless security function can be enabled or disabled. If disabled, the wireless stations will be able to connect the Router without encryption. But it's strongly recommended to choose one of the following modes to enable security.
- **WEP** - It is based on the IEEE 802.11 standard.
 - **Type** - you can choose the type for the WEP security on the pull-down list. The default setting is **Automatic**, which can select **Shared Key** or **Open System** authentication type automatically based on the wireless station's capability and request.
 - **WEP Key Format** - **Hexadecimal** and **ASCII** formats are provided here. **Hexadecimal** format stands for any combination of hexadecimal digits (0-9, a-f, A-F) in the specified length. **ASCII** format stands for any combination of keyboard characters in the specified length.
 - **WEP Key (Password)** - Select which of the four keys will be used and enter the matching WEP key that you create. Make sure these values are identical on all wireless stations in your network.
 - **Key Type** - You can select the WEP key length (64-bit, or 128-bit, or 152-bit.) for encryption. "Disabled" means this WEP key entry is invalid.
 - 64-bit** - You can enter 10 hexadecimal digits (any combination of 0-9, a-f, A-F, zero key is not promoted) or 5 ASCII characters.
 - 128-bit** - You can enter 26 hexadecimal digits (any combination of 0-9, a-f, A-F, zero key is not promoted) or 13 ASCII characters.
 - 152-bit** - You can enter 32 hexadecimal digits (any combination of 0-9, a-f, A-F, zero key is not promoted) or 16 ASCII characters.

 **Note:**

If you do not set the key, the wireless security function is still disabled even if you have selected Shared Key as Authentication Type.

- **WPA /WPA2**
 - **Version** - you can choose the version of the WPA security from the pull-down list. The default setting is **Automatic**, which can select **WPA** (Wi-Fi Protected Access) or **WPA2** (WPA version 2) automatically based on the wireless station's capability and request.
 - **Encryption** - You can select **Automatic**, **TKIP** or **AES**.
 - **Radius Server IP** - Enter the IP address of the Radius server.
 - **Radius Port** - Enter the port that Radius server used.
 - **Radius Password** - Enter the password for the Radius server.
 - **Group Key Update Period** - Specify the group key update interval in seconds. The value should be 30 or above. Enter 0 to disable the update.

- **WPA-PSK/WPA2-PSK**- It's the WPA/WPA2 authentication type based on pre-shared passphrase.
- **Version** - you can choose the version of the WPA-PSK security on the drop-down list. The default setting is **Automatic (Recommended)**, which can select **WPA-PSK** (Pre-shared key of WPA) or **WPA2-PSK** (Pre-shared key of WPA) automatically based on the wireless station's capability and request.
 - **Encryption** - When **WPA-PSK** or **WPA** is set as the Authentication Type, you can select **Automatic (Recommended)**, **TKIP** or **AES** as Encryption.
 - **PSK Password** - You can enter **ASCII** or **Hexadecimal** characters. The default password is the last unique eight numbers of each Router's MAC address
 For **ASCII**, the key can be made up of any numbers 0 to 9 and any letters A to Z, the length should be between 8 and 63 characters.
 For **Hexadecimal**, the key can be made up of any numbers 0 to 9 and letters A to F, the length should be between 8 and 64 characters.
 Please also note the key is case sensitive, this means that upper and lower case keys will affect the outcome. It would also be a good idea to write down the key and all related wireless security settings.
 - **Group Key Update Period** - Specify the group key update interval in seconds. The value should be 30 or above. Enter 0 to disable the update.

Be sure to click the **Save** button to save your settings on this page.

4.6.3 MAC Filtering

Choose menu "**Wireless** → **MAC Filtering**", and then you can control the wireless access by configuring the **Wireless MAC Filtering** function, as shown in Figure 4-17.

Wireless MAC Filtering

Wireless MAC Filtering: **Disabled**

Filtering Rules

Deny the stations specified by any enabled entries in the list to access.

Allow the stations specified by any enabled entries in the list to access.

ID	MAC Address	Status	Description	Modify
1	00-0A-EB-B0-00-0B	Enabled	wireless station A	Modify Delete

Figure 4-17 Wireless MAC Filtering

To filter wireless users by MAC Address, click **Enable**. The default setting is **Disabled**.

- **MAC Address** - The wireless station's MAC address that you want to access.
- **Status** - The status of this entry, either **Enabled** or **Disabled**.
- **Description** - A simple description of the wireless station.

To Add a Wireless MAC Address filtering entry, click the **Add New...** button. The "**Add or Modify Wireless MAC Address Filtering entry**" page will appear, shown in Figure 4-18:

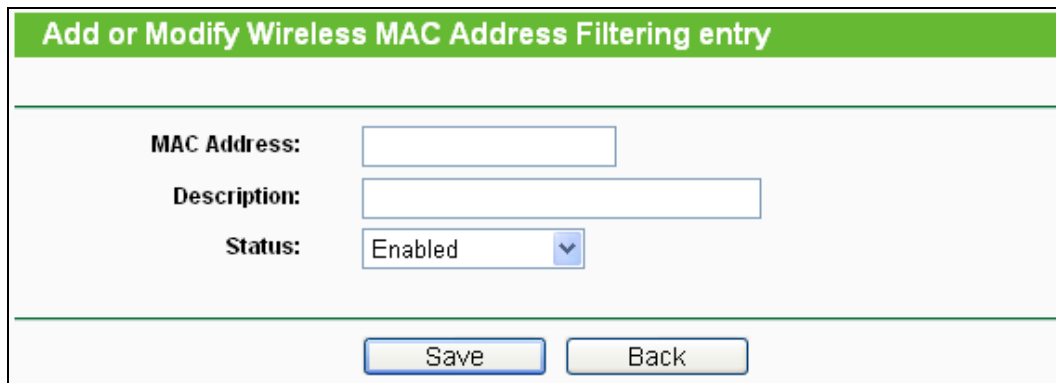


Figure 4-18 Add or Modify Wireless MAC Address Filtering entry

To add or modify a MAC Address Filtering entry, follow these instructions:

1. Enter the appropriate MAC Address into the **MAC Address** field. The format of the MAC Address is XX-XX-XX-XX-XX-XX (X is any hexadecimal digit). For example: 00-0A-EB-B0-00-0B.
2. Give a simple description for the wireless station in the **Description** field. For example: Wireless station A.
3. Select **Enabled** or **Disabled** for this entry on the **Status** pull-down list.
4. Click the **Save** button to save this entry.

To modify or delete an existing entry:

1. Click the **Modify** in the entry you want to modify. If you want to delete the entry, click the **Delete**.
2. Modify the information.
3. Click the **Save** button.

Click the **Enable All** button to make all entries enabled

Click the **Disable All** button to make all entries disabled.

Click the **Delete All** button to delete all entries.

Click the **Next** button to go to the next page.

Click the **Previous** button to return to the previous page.

For example: If you desire that the wireless station A with MAC address 00-0A-EB-B0-00-0B and the wireless station B with MAC address 00-0A-EB-00-07-5F are able to access the Router, but all the other wireless stations cannot access the Router, you can configure the **Wireless MAC Address Filtering** list by following these steps:

1. Click the **Enable** button to enable this function.
2. Select the radio button “Allow the stations specified by any enabled entries in the list to access” for **Filtering Rules**.
3. Delete all or disable all entries if there are any entries already.
4. Click the **Add New...** button.
 - 1) Enter the MAC address 00-0A-EB-B0-00-0B/00-0A-EB-00-07-5F in the **MAC Address** field.
 - 2) Enter wireless station A/B in the **Description** field.
 - 3) Select **Enabled** in the **Status** pull-down list.
 - 4) Click the **Save** button.
 - 5) Click the **Back** button.

The filtering rules that configured should be similar to the following list:

Filtering Rules				
<input type="radio"/> Deny the stations specified by any enabled entries in the list to access.				
<input checked="" type="radio"/> Allow the stations specified by any enabled entries in the list to access.				
ID	MAC Address	Status	Description	Modify
1	00-0A-EB-B0-00-0B	Enabled	wireless station A	Modify Delete
2	00-0A-EB-00-07-5F	Enabled	wireless station B	Modify Delete

4.6.4 Wireless Advanced

Choose menu “**Wireless** → **Wireless Advanced**”, and then you can configure the advanced settings of your wireless network.

Wireless Advanced	
Transmit Power:	High <input type="button" value="v"/>
Beacon Interval :	100 (40-1000)
RTS Threshold:	2346 (1-2346)
Fragmentation Threshold:	2346 (256-2346)
DTIM Interval:	1 (1-255)
	<input checked="" type="checkbox"/> Enable WMM
	<input checked="" type="checkbox"/> Enable Short GI
	<input type="checkbox"/> Enable AP Isolation
<input type="button" value="Save"/>	

Figure 4-19 Wireless Advanced

- **Transmit Power** - Here you can specify the transmit power of Router. You can select High, Middle or Low which you would like. High is the default setting and is recommended.
- **Beacon Interval** - Enter a value between 20-1000 milliseconds for Beacon Interval here. The beacons are the packets sent by the Router to synchronize a wireless network. Beacon Interval value determines the time interval of the beacons. The default value is 100.
- **RTS Threshold** - Here you can specify the RTS (Request to Send) Threshold. If the packet is larger than the specified RTS Threshold size, the Router will send RTS frames to a particular receiving station and negotiate the sending of a data frame. The default value is 2346.
- **Fragmentation Threshold** - This value is the maximum size determining whether packets will be fragmented. Setting the Fragmentation Threshold too low may result in poor network performance because of excessive packets. 2346 is the default setting and is recommended.
- **DTIM Interval** - This value determines the interval of the Delivery Traffic Indication Message (DTIM). A DTIM field is a countdown field informing clients of the next window for listening to broadcast and multicast messages. When the Router has buffered broadcast or multicast messages for associated clients, it sends the next DTIM with a DTIM Interval value. You can specify the value between 1-255 Beacon Intervals. The default value is 1, which indicates the DTIM Interval is the same as Beacon Interval.
- **Enable WMM - WMM** function can guarantee the packets with high-priority messages being transmitted preferentially. It is strongly recommended enabled.
- **Enable Short GI** - This function is recommended for it will increase the data capacity by reducing the guard interval time.
- **Enabled AP Isolation** - This function isolate all connected wireless stations so that wireless stations cannot access each other through WLAN. This function will be disabled if WDS/Bridge is enabled.

 **Note:**

If you are not familiar with the setting items in this page, it's strongly recommended to keep the provided default values; otherwise it may result in lower wireless network performance.

4.6.5 Wireless Statistics

Choose menu “**Wireless** → **Wireless Statistics**”, and then you can see the MAC Address, Current Status, Received Packets and Sent Packets for each connected wireless station.

Wireless Statistics					
Current Connected Wireless Stations numbers:				1	<input type="button" value="Refresh"/>
ID	MAC Address	Current Status	Received Packets	Sent Packets	
1	00-0A-EB-88-34-75	STA-ASSOC	416	2	
<input type="button" value="Previous"/>		<input type="button" value="Next"/>			

Figure 4-20 Wireless Statistics

- **MAC Address** - The connected wireless station's MAC address
- **Current Status** - The connected wireless station's running status, one of **STA-AUTH / STA-ASSOC / STA-JOINED / WPA / WPA-PSK / WPA2 / WPA2-PSK / AP-UP / AP-DOWN / Disconnected**
- **Received Packets** - Packets received by the station
- **Sent Packets** - Packets sent by the station

You cannot change any of the values on this page. To update this page and to show the current connected wireless stations, click on the **Refresh** button.

If the numbers of connected wireless stations go beyond one page, click the **Next** button to go to the next page and click the **Previous** button to return the previous page.

 **Note:**

This page will be refreshed automatically every 5 seconds.

4.7 DHCP

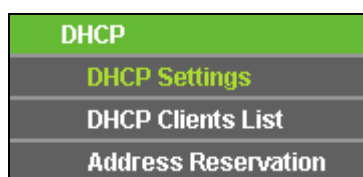


Figure 4-21 The DHCP menu

There are three submenus under the DHCP menu (shown in Figure 4-21), **DHCP Settings**, **DHCP Clients List** and **Address Reservation**. Click any of them, and you will be able to configure the corresponding function.

4.7.1 DHCP Settings

Choose menu "**DHCP** → **DHCP Settings**", and then you can configure the DHCP Server on the page as shown in Figure 4-22. The Router is set up by default as a DHCP (Dynamic Host Configuration Protocol) server, which provides the TCP/IP configuration for all the PC(s) that are connected to the Router on the LAN.

DHCP Settings	
DHCP Server:	<input type="radio"/> Disable <input checked="" type="radio"/> Enable
Start IP Address:	<input type="text" value="192.168.0.100"/>
End IP Address:	<input type="text" value="192.168.0.199"/>
Address Lease Time:	<input type="text" value="120"/> minutes (1~2880 minutes, the default value is 120)
Default Gateway:	<input type="text" value="0.0.0.0"/> (optional)
Default Domain:	<input type="text"/> (optional)
Primary DNS:	<input type="text" value="0.0.0.0"/> (optional)
Secondary DNS:	<input type="text" value="0.0.0.0"/> (optional)
<input type="button" value="Save"/>	

Figure 4-22 DHCP Settings

- **DHCP Server - Enable or Disable** the DHCP server. If you disable the Server, you must have another DHCP server within your network or else you must configure the computer manually.
- **Start IP Address** - Specify an IP address for the DHCP Server to start with when assigning IP addresses. 192.168.0.100 is the default start address.
- **End IP Address** - Specify an IP address for the DHCP Server to end with when assigning IP addresses. 192.168.0.199 is the default end address.
- **Address Lease Time** - The **Address Lease Time** is the amount of time a network user will be allowed connection to the Router with their current dynamic IP Address. Enter the amount of time in minutes and the user will be "leased" this dynamic IP Address. After the time is up, the user will be automatically assigned a new dynamic IP address. The range of the time is 1 ~ 2880 minutes. The default value is 120 minutes.
- **Default Gateway (Optional)** - It is suggested to input the IP address of the LAN port of the Router. The default value is 192.168.0.254.
- **Default Domain (Optional)** - Input the domain name of your network.
- **Primary DNS** - (Optional) Input the DNS IP address provided by your ISP or consult your ISP. Or consult your ISP.
- **Secondary DNS (Optional)** - Input the IP address of another DNS server if your ISP provides two DNS servers.

 **Note:**

To use the DHCP server function of the Router, you must configure all computers on the LAN as "Obtain an IP Address automatically".

4.7.2 DHCP Clients List

Choose menu “**DHCP** → **DHCP Clients List**”, and then you can view the information about the clients attached to the Router in the screen as shown in Figure 4-23.

DHCP Clients List				
ID	Client Name	MAC Address	Assigned IP	Lease Time
1	tp-113ea910272d	40-61-86-CF-20-7A	192.168.0.100	01:43:33

Figure 4-23 DHCP Clients List

- **Client Name** - The name of the DHCP client
- **MAC Address** - The MAC address of the DHCP client
- **Assigned IP** - The IP address that the Router has allocated to the DHCP client
- **Lease Time** - The time of the DHCP client leased. After the dynamic IP address has expired, a new dynamic IP address will be automatically assigned to the user.

You cannot change any of the values on this page. To update this page and to show the current attached devices, click the **Refresh** button.

4.7.3 Address Reservation

Choose menu “**DHCP** → **Address Reservation**”, and then you can view and add a reserved address for clients via the next screen (shown in Figure 4-24). When you specify a reserved IP address for a PC on the LAN, that PC will always receive the same IP address each time when it accesses the DHCP server. Reserved IP addresses should be assigned to the servers that require permanent IP settings.

Address Reservation				
ID	MAC Address	Reserved IP Address	Status	Modify
1	00-0A-EB-13-09-BB	192.168.0.100	Enabled	Modify Delete

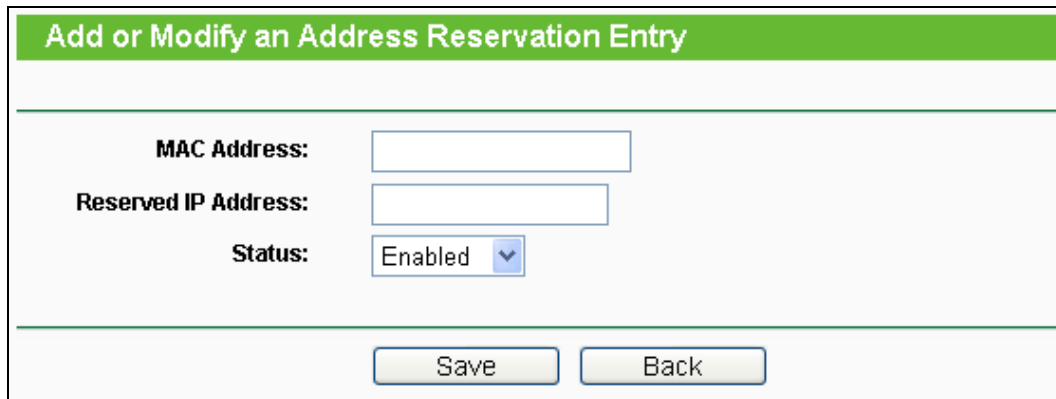
Figure 4-24 Address Reservation

- **MAC Address** - The MAC address of the PC for which you want to reserve an IP address.
- **Reserved IP Address** - The IP address reserved for the PC by the Router.

- **Status** - The status of this entry, either **Enabled** or **Disabled**.

To Reserve an IP address:

1. Click the **Add New...** button. Then will pop-up.
2. Enter the MAC address (in XX-XX-XX-XX-XX-XX format.) and IP address (in dotted-decimal notation) of the computer for which you want to reserve an IP address.
3. Click the **Save** button.



The screenshot shows a web form titled "Add or Modify an Address Reservation Entry". The form contains three input fields: "MAC Address:", "Reserved IP Address:", and "Status:". The "Status" field is a dropdown menu with "Enabled" selected. At the bottom of the form, there are two buttons: "Save" and "Back".

Figure 4-25 Add or Modify an Address Reservation Entry

To modify or delete an existing entry:

1. Click the **Modify** in the entry you want to modify. If you want to delete the entry, click the **Delete**.
2. Modify the information.
3. Click the **Save** button.

Click the **Enable/Disable All** button to make all entries enabled/disabled.

Click the **Delete All** button to delete all entries.

Click the **Next** button to go to the next page and Click the **Previous** button to return the previous page.

4.8 Forwarding

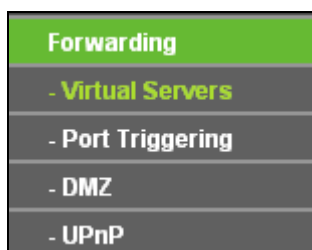


Figure 4-26 The Forwarding menu

There are four submenus under the Forwarding menu (shown in Figure 4-26): **Virtual Servers**, **Port Triggering**, **DMZ** and **UPnP**. Click any of them, and you will be able to configure the corresponding function.

4.8.1 Virtual Servers

Choose menu “**Forwarding** → **Virtual Servers**”, and then you can view and add virtual servers in the screen as shown in Figure 4-27. Virtual servers can be used for setting up public services on your LAN, such as DNS, Email and FTP. A virtual server is defined as a service port, and all requests from the Internet to this service port will be redirected to the computer specified by the server IP. Any PC that was used for a virtual server must have a static or reserved IP Address because its IP Address may be changed when using the DHCP function.

ID	Service Ports	IP Address	Protocol	Status	Modify
1	1720	192.168.0.169	ALL	Enabled	Modify Delete

Buttons: Add New..., Enable All, Disable All, Delete All

Buttons: Previous, Next

Figure 4-27 Virtual Servers

- **Service Port** - The numbers of External Ports. You can type a service port or a range of service ports (in XXX – YYY format, XXX is the start port number, YYY is the end port number).
- **IP Address** - The IP Address of the PC providing the service application.
- **Protocol** - The protocol used for this application, either **TCP**, **UDP**, or **All** (all protocols supported by the Router).
- **Status** - The status of this entry, either **Enabled** or **Disabled**.

To setup a virtual server entry:

1. Click the **Add New...** button, the next screen will pop-up as shown in Figure 4-28.
2. Select the service port you want to use from the **Common Service Port** list. If the **Common Service Port** list does not have the service that you want to use, type the service port number or service port range in the **Service Port** box.
3. Type the IP Address of the computer in the **IP Address** box.
4. Select the protocol used for this application, either **TCP**, **UDP**, or **All**.
5. Select the **Enable** to enable the virtual server.
6. Click the **Save** button.

The screenshot shows a web interface titled "Add or Modify a Virtual Server Entry". The form contains the following fields and controls:

- Service Port:** A text input field with a placeholder "(XX-XX or XX)".
- IP Address:** A text input field.
- Protocol:** A dropdown menu currently set to "ALL".
- Status:** A dropdown menu currently set to "Enabled".
- Common Service Port:** A dropdown menu currently set to "--Select One--".

At the bottom of the form are two buttons: "Save" and "Back".

Figure 4-28 Add or Modify a Virtual Server Entry

Note:

If your computer or server has more than one type of available service, please select another service, and enter the same IP Address for that computer or server.

To modify or delete an existing entry:

1. Click the **Modify** in the entry you want to modify. If you want to delete the entry, click the **Delete**.
2. Modify the information.
3. Click the **Save** button.

Click the **Enable/Disable All** button to make all entries enabled/disabled.

Click the **Delete All** button to delete all entries.

Click the **Next** button to go to the next page and click the **Previous** button to return the previous page.

Note:

If you set the service port of the virtual server as 80, you must set the Web management port on "**Security → Remote Management**" page to be any other value except 80 such as 8080. Otherwise there will be a conflict to disable the virtual server.

4.8.2 Port Triggering

Choose menu "**Forwarding → Port Triggering**", and then you can view and add port triggering in the screen as shown in Figure 4-29. Some applications require multiple connections, like Internet games, video conferencing, Internet calling and so on. These applications cannot work with a pure NAT Router. Port Triggering is used for some of these applications that can work with an NAT Router.

Port Triggering						
ID	Trigger Port	Trigger Protocol	Incoming Ports	Incoming Protocol	Status	Modify
1	554	ALL	6970-6999	ALL	Enabled	Modify Delete

Figure 4-29 Port Triggering

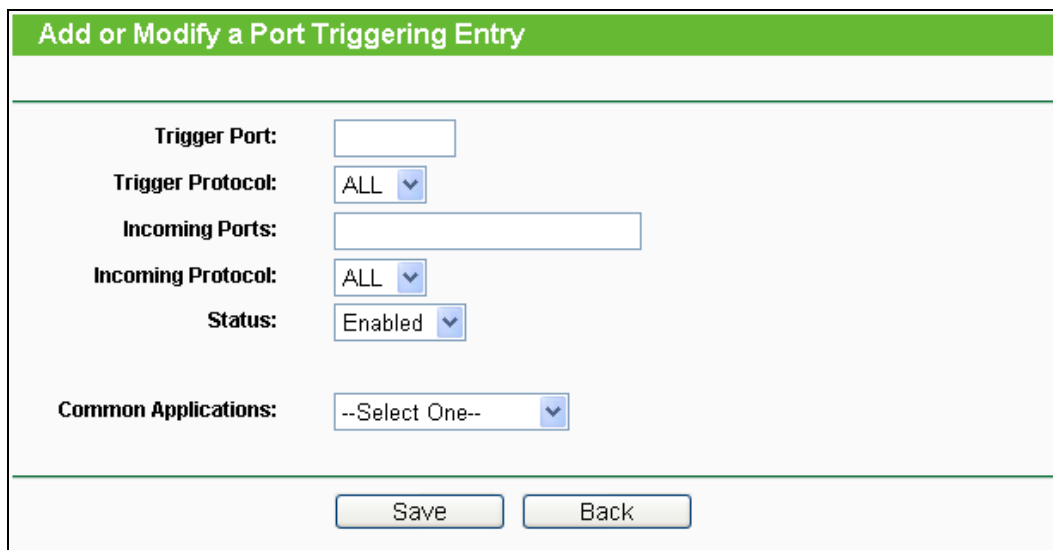
Once the Router is configured, the operation is as follows:

1. A local host makes an outgoing connection using a destination port number defined in the Trigger Port field.
 2. The Router records this connection, opens the incoming port or ports associated with this entry in the Port Triggering table, and associates them with the local host.
 3. When necessary, the external host will be able to connect to the local host using one of the ports defined in the **Incoming Ports** field.
- **Trigger Port** - The port for outgoing traffic. An outgoing connection using this port will trigger this rule.
 - **Trigger Protocol** - The protocol used for Trigger Ports, either **TCP**, **UDP**, or **All** (all protocols supported by the Router).
 - **Incoming Ports Range** - The port or port range used by the remote system when it responds to the outgoing request. A response using one of these ports will be forwarded to the PC that triggered this rule. You can input at most 5 groups of ports (or port sections). Every group of ports must be set apart with ",". For example, 2000-2038, 2050-2051, 2085, 3010-3030.
 - **Incoming Protocol** - The protocol used for Incoming Ports Range, either **TCP** or **UDP**, or **ALL** (all protocols supported by the Router).
 - **Status** - The status of this entry, either **Enabled** or **Disabled**.

To add a new rule, follow the steps below:

1. Click the **Add New...** button, the next screen will pop-up as shown in Figure 4-30.
2. Select a common application from the **Common Applications** drop-down list, then the **Trigger Port** field and the **Incoming Ports** field will be automatically filled. If the **Common Applications** do not have the application you need, enter the **Trigger Port** and the **Incoming Ports** manually.
3. Select the protocol used for Trigger Port from the **Trigger Protocol** drop-down list, either **TCP**, **UDP**, or **All**.
4. Select the protocol used for Incoming Ports from the **Incoming Protocol** drop-down list, either **TCP** or **UDP**, or **All**.

5. Select **Enable** in **Status** field.
6. Click the **Save** button to save the new rule.



Add or Modify a Port Triggering Entry

Trigger Port:

Trigger Protocol: ALL ▾

Incoming Ports:

Incoming Protocol: ALL ▾

Status: Enabled ▾

Common Applications: --Select One-- ▾

Save Back

Figure 4-30 Add or Modify a Port Triggering Entry

To modify or delete an existing entry:

1. Click the **Modify** in the entry you want to modify. If you want to delete the entry, click the **Delete**.
2. Modify the information.
3. Click the **Save** button.

Click the **Enable All** button to make all entries enabled.

Click the **Disable All** button to make all entries disabled.

Click the **Delete All** button to delete all entries.

Note:

1. When the trigger connection is released, the corresponding opening ports will be closed.
2. Each rule is allowed to be used only by one host on LAN synchronously. The trigger connection of other hosts on LAN will be refused.
3. Incoming Port Range cannot overlap each other.

4.8.3 DMZ

Choose menu “**Forwarding** → **DMZ**”, and then you can view and configure DMZ host in the screen as shown in Figure 4-31. The DMZ host feature allows one local host to be exposed to the Internet for a special-purpose service such as Internet gaming or videoconferencing. DMZ host forwards all the ports at the same time. Any PC whose 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.

Figure 4-31 DMZ

To assign a computer or server to be a DMZ server:

1. Check the **Enable** radio button.
2. Enter the IP Address of a local host in the **DMZ Host IP Address** field.
3. Click the **Save** button.

Note:

After you set the DMZ host, the firewall related to the host will not work.

4.8.4 UPnP

Choose menu “**Forwarding** → **UPnP**”, and then you can view the information about **UPnP** (Universal Plug and Play) in the screen as shown in Figure 4-32. The UPnP feature allows the devices, such as Internet computers, to access the local host resources or devices as needed. UPnP devices can be automatically discovered by the UPnP service application on the LAN.

ID	App Description	External Port	Protocol	Internal Port	IP Address	Status
1	BitComet(192.168.0.100:23959)	23959	TCP	23959	192.168.0.100	Enabled
2	BitComet(192.168.0.100:23959)	23959	UDP	23959	192.168.0.100	Enabled

Figure 4-32 UPnP

- **Current UPnP Status** - UPnP can be enabled or disabled by clicking the **Enable** or **Disable** button.
- **Current UPnP Settings List** - This table displays the current UPnP information.
 - **App Description** - The description provided by the application in the UPnP request.
 - **External Port** - The external port the Router opens for the application.

- **Protocol** - The type of protocol the Router opens for the application.
- **Internal Port** - The Internal port the Router opens for local host.
- **IP Address** - The IP address of the UPnP device that is currently accessing the Router.
- **Status** - The status of the port is displayed here. "Enabled" means that the port is still active. Otherwise, the port is inactive.

Click **Refresh** to update the Current UPnP Settings List.

4.9 Security

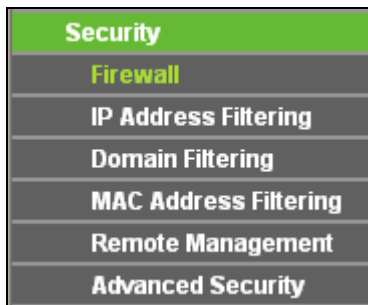


Figure 4-33 The Security menu

There are six submenus under the Security menu as shown in Figure 4-33: **Firewall**, **IP Address Filtering**, **Domain Filtering**, **MAC Address Filtering**, **Remote Management**, and **Advanced Security**. Click any of them, and you will be able to configure the corresponding function.

4.9.1 Firewall

Using the Firewall page, you can turn the general firewall switch on or off. The default setting for the switch is off. If the general firewall switch is off, even if IP Address Filtering, DNS Filtering and MAC Filtering are enabled, their settings are ineffective.

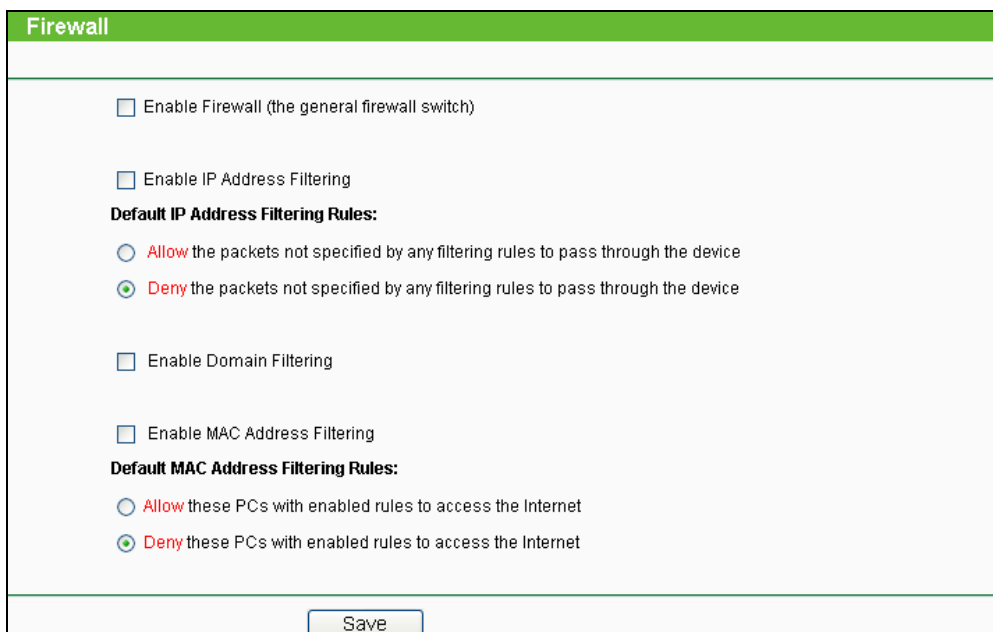
A screenshot of the 'Firewall' configuration page. The page has a green header with the word 'Firewall'. Below the header, there are several settings, each with a checkbox: 'Enable Firewall (the general firewall switch)', 'Enable IP Address Filtering', 'Enable Domain Filtering', and 'Enable MAC Address Filtering'. Under 'Enable IP Address Filtering', there is a section titled 'Default IP Address Filtering Rules:' with two radio button options: 'Allow the packets not specified by any filtering rules to pass through the device' and 'Deny the packets not specified by any filtering rules to pass through the device'. Similarly, under 'Enable MAC Address Filtering', there is a section titled 'Default MAC Address Filtering Rules:' with two radio button options: 'Allow these PCs with enabled rules to access the Internet' and 'Deny these PCs with enabled rules to access the Internet'. At the bottom of the page, there is a 'Save' button.

Figure 4-34 Firewall Settings

- **Enable Firewall** - the general firewall switch is on or off.
- **Enable IP Address Filtering** - set IP Address Filtering is enabled or disabled. There are two default filtering rules of IP Address Filtering, either Allow or Deny passing through the router.
- **Enable Domain Filtering** - set Domain Filtering is enabled or disabled.
- **Enable MAC Filtering** - set MAC Address Filtering is enabled or disabled. You can select the default filtering rules of MAC Address Filtering, either Allow or Deny accessing the router.

4.9.2 IP Address Filtering

The IP address Filtering feature allows you to control Internet Access by specific users on your LAN based on their IP addresses. The IP address filtering is set on this page:

Figure 4-35 IP address Filtering

To disable the IP Address Filtering feature, keep the default setting, **Disabled**. To set up an IP Address Filtering entry, click **Enable Firewall** and **Enable IP Address Filtering** on the Firewall page, and click the **Add New...** button. The page "**Add or Modify an IP Address Filtering entry**" will appear shown in Figure 4-36:

Figure 4-36 Add or Modify an IP Address Filtering Entry

To create or modify an IP Address Filtering entry, please follow these instructions:

1. **Effective Time** - Enter a range of time in HHMM format, which point to the range time for the entry to take effect. For example, 0803 - 1705, the entry will take effect from 08:03 to 17:05.
2. **LAN IP Address** - Enter a LAN IP Address or a range of LAN IP addresses in the field, in dotted-decimal notation format. For example, 192.168.0.20 - 192.168.0.30. Keep the field open, which means all LAN IP Addresses have been put into the field.
3. **LAN Port** - Enter a LAN Port or a range of LAN ports in the field. For example, 1030 - 2000. Keep the field open, which means all LAN ports have been put into the field.
4. **WAN IP Address** - Enter a WAN IP Address or a range of WAN IP Addresses in the field, in dotted-decimal notation format. For example, 61.145.238.6 – 61.145.238.47. Keep the field open, which means all WAN IP Addresses have been put into the field.
5. **WAN Port** - Enter a WAN Port or a range of WAN Ports in the field. For example, 25 – 110. Keep the field open, which means all WAN Ports have been put into the field.
6. **Protocol** - Select which protocol is to be used, either **TCP**, **UDP**, or **All** (all protocols supported by the router).
7. **Action** - Select either **Allow** or **Deny** through the router.
8. **Status** - Select **Enabled** or **Disabled** for this entry on the **Status** pull-down list.
9. Click the **Save** button to save this entry.

To modify or delete an existing entry:

1. Click the **Modify** in the entry you want to modify. If you want to delete the entry, click the **Delete**.
2. Modify the information.
3. Click the **Save** button.

Click the **Enable All** button to make all entries enabled.

Click the **Disable All** button to make all entries disabled.

Click the **Delete All** button to delete all entries.

You can change the entry's order as desired. Fore entries are before hind entries. Enter the ID number in the first box you want to move and another ID number in second box you want to move to, and then click the **Move** button to change the entry's order.

Click the **Next** button to the next page and click the **Previous** button to return to the previous page.

For example: If you desire to block E-mail received and sent by the IP Address 192.168.0.7 on your local network, and to make the PC with IP Address 192.168.0.8 unable to visit the website of IP Address 202.96.134.12, while other PC(s) have no limit you should specify the following IP address filtering list:

ID	Effective time	LAN IP Address	LAN Port	WAN IP Address	WAN Port	Protocol	Action	Status	Modify
1	0000-2400	192.168.0.7-	25-	-	-	ALL	Deny	Enabled	Modify Delete
2	0000-2400	192.168.0.7-	110-	-	-	ALL	Deny	Enabled	Modify Delete
3	0000-2400	192.168.0.8-	-	202.96.134.12-	-	ALL	Deny	Enabled	Modify Delete

4.9.3 Domain Filtering

The Domain Filtering page allows you to control access to certain websites on the Internet by specifying their domains or key words.

The screenshot shows the 'Domain Filtering' page. At the top, there is a green header with the text 'Domain Filtering'. Below this, there is a section for 'Firewall Settings (You can change them on Firewall page)'. It contains two settings: 'Enable Firewall: Disabled' and 'Enable Domain Filtering: Disabled'. Below the settings is a table with columns: ID, Effective time, Domain Name, Status, and Modify. At the bottom of the table, there are buttons: 'Add New...', 'Enable All', 'Disable All', and 'Delete All'. At the very bottom, there are 'Previous' and 'Next' navigation buttons.

Figure 4-37 Domain Filtering

Before adding a Domain Filtering entry, you must ensure that **Enable Firewall** and **Enable Domain Filtering** have been selected on the Firewall page. To Add a Domain filtering entry, click the **Add New...** button. The page "**Add or Modify a Domain Filtering entry**" will appear, shown in Figure 4-38:

The screenshot shows the 'Add or Modify a Domain Filtering Entry' page. It has a green header with the text 'Add or Modify a Domain Filtering Entry'. Below the header, there are three input fields: 'Effective Time' with a range of '0000 - 2400', 'Domain Name' with a text input field, and 'Status' with a pull-down menu showing 'Enabled'. At the bottom, there are 'Save' and 'Back' buttons.

Figure 4-38 Add or Modify a Domain Filtering entry

To add or modify a Domain Filtering entry, follow these instructions:

1. **Effective Time** - Enter a range of time in HHMM format specifying the time for the entry to take effect. For example, if you enter: 0803 - 1705, than the entry will take effect from 08:03 to 17:05.
2. **Domain Name** - Type the domain or key word as desired in the field. A blank in the domain field means all websites on the Internet. For example: www.xxyy.com.cn, .net.
3. **Status** - Select **Enabled** or **Disabled** for this entry on the **Status** pull-down list.
4. Click the **Save** button to save this entry.

To modify or delete an existing entry:

1. Click the **Modify** in the entry you want to modify. If you want to delete the entry, click the **Delete**.

2. Modify the information.
3. Click the **Save** button.

Click the **Enable All** button to make all entries enabled.

Click the **Disable All** button to make all entries disabled.

Click the **Delete All** button to delete all entries

Click the **Next** button to go to the next page and the **Previous** button to return to the previous page.

For example: if you want to block the PC(s) on your LAN to access websites www.xxyy.com.cn, www.aabbcc.com and websites with .net in the end on the Internet while no limit for other websites, you should specify the following Domain filtering list:

ID	Effective time	Domain Name	Status	Modify
1	0000-2400	www.xxyy.com	Enabled	Modify Delete
2	0800-2000	www.aabbcc.com	Enabled	Modify Delete
3	0000-2400	.net	Enabled	Modify Delete

4.9.4 MAC Address Filtering

Like the IP Address Filtering page, the MAC Address Filtering page allows you to control access to the Internet by users on your local network based on their MAC Address.

MAC Address Filtering

Firewall Settings (You can change them on Firewall page)

Enable Firewall: Disabled

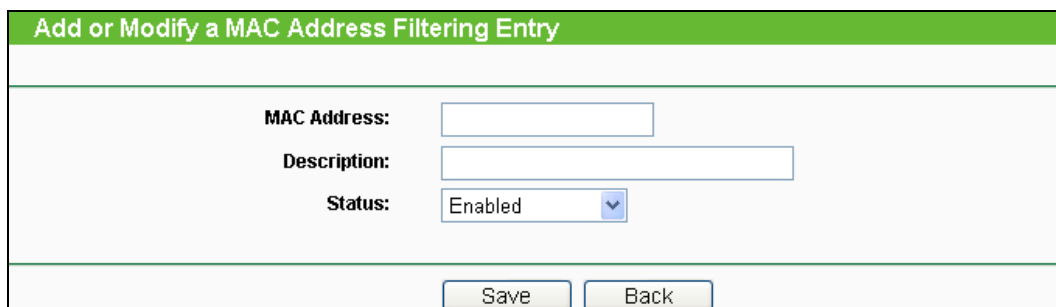
Enable MAC Address Filtering: Disabled

Default Filtering Rules: Deny these PCs with the enabled rules to access the Internet.

ID	MAC Address	Description	Status	Modify
<div style="display: flex; justify-content: space-between; align-items: center;"> Add New... Enable All Disable All Delete All </div>				
<div style="display: flex; justify-content: flex-end; gap: 10px;"> Previous Next </div>				

Figure 4-39 MAC address Filtering

Before setting up MAC Filtering entries, you must ensure that **Enable Firewall** and **Enable MAC Filtering** have been selected on the Firewall page. To Add a MAC Address filtering entry, clicking the **Add New...** button. The page "**Add or Modify a MAC Address Filtering entry**" will appear, shown in Figure 4-40:



Add or Modify a MAC Address Filtering Entry

MAC Address:

Description:

Status:

Figure 4-40 Add or Modify a MAC Address Filtering entry

To add or modify a MAC Address Filtering entry, follow these instructions:

1. Enter the appropriate MAC Address into the **MAC Address** field. The format of the MAC Address is XX-XX-XX-XX-XX-XX (X is any hexadecimal digit). For example: 00-0E-AE-B0-00-0B.
2. Type the description of the PC in the **Description** field. Fox example: John's PC.
3. **Status** - Select **Enabled** or **Disabled** for this entry on the **Status** pull-down list.
4. Click the **Save** button to save this entry.

To add additional entries, repeat steps 1-4.

When finished, click the **Return** button to return to the **MAC Address Filtering** page.

To modify or delete an existing entry:

1. Click the **Modify** in the entry you want to modify. If you want to delete the entry, click the **Delete**.
2. Modify the information.
3. Click the **Save** button.

Click the **Enable All** button to make all entries enabled.

Click the **Disable All** button to make all entries disabled.

Click the **Delete All** button to delete all entries

Click the **Next** button to go to the next page and click the **Previous** button to return to the previous page.

Fox example: If you want to block the PC with MAC addresses 00-0A-EB-00-07-BE and 00-0A-EB-00-07-5F to access the Internet, first, enable the **Firewall** and **MAC Address Filtering** on the **Firewall** page, then, you should specify the Default MAC Address Filtering Rule "**Deny these PC(s) with effective rules to access the Internet**" on the Firewall page and the following MAC address filtering list on this page:

ID	MAC Address	Description	Status	Modify
1	00-0A-EB-00-07-BE	John's computer	Enabled	Modify Delete
2	00-0A-EB-00-07-5F	Alice's computer	Enabled	Modify Delete

4.9.5 Remote Management

You can configure the Remote Management function on this page. This feature allows you to manage your Router from a remote location, via the Internet.

Figure 4-41 Remote Management

- **Web Management Port** - Web browser access normally uses the standard HTTP service port 80. This router's default remote management Web port number is 80. For greater security, you can change the remote management Web interface to a custom port by entering that number in this box provided. Choose a number between 1024 and 65534, but do not use the number of any common service port.
- **Remote Management IP Address** - This is the current address you will use when accessing your router from the Internet. The default IP Address is 0.0.0.0. It means this function is disabled. To enable this function, change the default IP Address to another IP Address as desired.

To access the router, you will type your router's WAN IP Address into your browser's Address (in IE) or Location (in Navigator) box, followed by a colon and the custom port number. For example, if your Router's WAN address is 202.96.12.8 and you use port number 8080, enter in your browser: `http://202.96.12.8:8080`. You will be asked for the router's password. After successfully entering the password, you will be able to access the router's Web-based utility.

Note:

Be sure to change the router's default password to a very secure password.

4.9.6 Advanced Security

Using Advanced Security page, you can protect the router from being attacked by TCP-SYN Flood, UDP Flood and ICMP-Flood from LAN.

Advanced Security

Packets Statistics Interval (5 ~ 60): Seconds

DoS Protection: Disable Enable

Enable ICMP-FLOOD Attack Filtering
 ICMP-FLOOD Packets Threshold (5 ~ 3600): Packets/s

Enable UDP-FLOOD Filtering
 UDP-FLOOD Packets Threshold (5 ~ 3600): Packets/s

Enable TCP-SYN-FLOOD Attack Filtering
 TCP-SYN-FLOOD Packets Threshold (5 ~ 3600): Packets/s

Ignore Ping Packet From WAN Port
 Forbid Ping Packet From LAN Port

Figure 4-42 Advanced Security settings

- **Packets Statistic interval (5 ~ 60)** - The default value is 10. Select a value between 5 and 60 seconds in the pull-down list. The **Packets Statistic interval** value indicates the time section of the packets statistic. The result of the statistic used for analysis by **SYN Flood**, **UDP Flood** and **ICMP-Flood**.
- **DoS protection - Enable or Disable** the DoS protection function. Only when it is enabled, will the flood filters be effective.
- **Enable ICMP-FLOOD Attack Filtering - Enable or Disable** the **ICMP-FLOOD** Attack Filtering.
- **ICMP-FLOOD Packets threshold: (5 ~ 3600)** - The default value is 50. Enter a value between 5 ~ 3600 packets. When the current **ICMP-FLOOD** Packets numbers is beyond the set value, the router will start up the blocking function immediately.
- **Enable UDP-FLOOD Filtering - Enable or Disable** the **UDP-FLOOD** Filtering.
- **UDP-FLOOD Packets threshold: (5 ~ 3600)** - The default value is 50. Enter a value between 5 ~ 3600 packets. When the current **UPD-FLOOD** Packets numbers is beyond the set value, the router will start up the blocking function immediately.
- **Enable TCP-SYN-FLOOD Attack Filtering - Enable or Disable** the **TCP-SYN- FLOOD** Attack Filtering.
- **TCP-SYN-FLOOD Packets threshold: (5 ~ 3600)** - The default value is 50. Enter a value between 5 ~ 3600 packets. When the current **TCP-SYN-FLOOD** Packets numbers is beyond the set value, the router will start up the blocking function immediately.

- **Ignore Ping Packet from WAN Port - Enable or Disable** ignore ping packet from WAN port. The default is disabled. If enabled, the ping packet from the Internet cannot access the router.
- **Forbid Ping Packet from LAN Port - Enable or Disable** forbidding Ping Packet to access the router from the LAN port. The default value is disabled. If enabled, the ping packet from the LAN port cannot access the router. (Defends against some viruses)

Click the **Save** button to save the settings.

Click the **Blocked DoS Host Table** button to display the DoS host table by blocking. The page will appear:

Blocked DoS Host List			
ID	Host IP Address	Host MAC Address	Modify
1	192.168.0.103	00-13-AA-6D-77	Delete

Figure 4-43 Blocked DoS Host Table

This page shows **Host IP Address** and **Host MAC Address** for each host blocked by the router.

- **Host IP Address-** The IP address that blocked by DoS are displayed here.
- **Host MAC Address** - The MAC address that blocked by DoS are displayed here.

To update this page and to show the current blocked host, click on the **Refresh** button.

Click the **Clear All** button to clear all displayed entries. After the table is empty the blocked host will regain the capability to access Internet.

Click the **Return** button to return to the **Advanced Security** page.

4.10 Static Routing

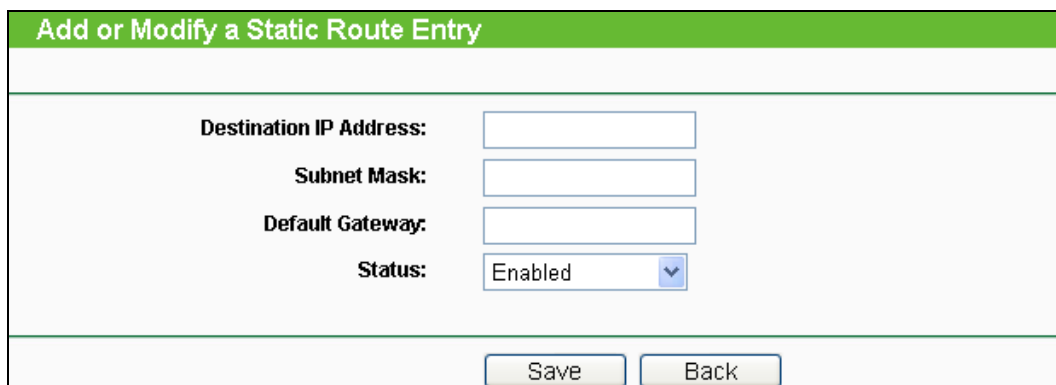
A static route is a pre-determined path that network information must travel to reach a specific host or network. To add or delete a route, work in the area under the Static Routing page.

Static Routing					
ID	Destination IP Address	Subnet Mask	Default Gateway	Status	Modify
1	202.108.37.42	255.255.255.255	202.108.36.1	Enabled	Modify Delete

Figure 4-44 Static Routing

To add static routing entries:

1. Click the **Add New** button.
2. Enter the following data:
 - **Destination IP Address** - The **Destination IP Address** is the address of the network or host that you want to assign to a static route.
 - **Subnet Mask** - The **Subnet Mask** determines which portion of an IP Address is the network portion, and which portion is the host portion.
 - **Gateway** - This is the IP Address of the gateway device that allows for contact between the router and the network or host.
3. Select **Enabled** or **Disabled** for this entry on the **Status** pull-down list.
4. Click the **Save** button to save it.



The screenshot shows a web form titled "Add or Modify a Static Route Entry". The form contains the following fields and controls:

- Destination IP Address:** A text input field.
- Subnet Mask:** A text input field.
- Default Gateway:** A text input field.
- Status:** A pull-down menu with "Enabled" selected.
- Buttons:** "Save" and "Back" buttons at the bottom.

Figure 4-45 Add or Modify a Static Route Entry

To modify or delete an existing entry:

1. Click the **Modify** in the entry you want to modify. If you want to delete the entry, click the **Delete**.
2. Modify the information.
3. Click the **Save** button.

Click the **Enable All** button to make all entries enabled.

Click the **Disable All** button to make all entries disabled.

Click the **Delete All** button to delete all entries

4.11 IP QoS

You can configure the IP QoS function on this page.

IP QoS

Enable IP QoS

Choose BandWidth Type: ADSL

Bandwidth Apply: 2000 Kbps

ID	IP Range	Mode	Bandwidth	Description	Enable	Clear
1	192.168.0. - 192.168.0.	Minimum Bandwidth Guarantee			<input type="checkbox"/>	Clear
2	192.168.0. - 192.168.0.	Minimum Bandwidth Guarantee			<input type="checkbox"/>	Clear
3	192.168.0. - 192.168.0.	Minimum Bandwidth Guarantee			<input type="checkbox"/>	Clear
4	192.168.0. - 192.168.0.	Minimum Bandwidth Guarantee			<input type="checkbox"/>	Clear
5	192.168.0. - 192.168.0.	Minimum Bandwidth Guarantee			<input type="checkbox"/>	Clear
6	192.168.0. - 192.168.0.	Minimum Bandwidth Guarantee			<input type="checkbox"/>	Clear
7	192.168.0. - 192.168.0.	Minimum Bandwidth Guarantee			<input type="checkbox"/>	Clear
8	192.168.0. - 192.168.0.	Minimum Bandwidth Guarantee			<input type="checkbox"/>	Clear

Clear All

Save

Figure 4-46 IP QoS

- **Enable IP QoS** - Enable or disable the function of IP QoS.
- **Choose BandWidth Type** - Select the network connection type from the drop-down list.
- **Bandwidth Apply** - The bandwidth you get. If you are not clear about that, please contact with your ISP for help.
- **IP Range** - IP range of this entry.
- **Mode** - There are two types of mode: Minimum Bandwidth Guarantee and Maximum Bandwidth Limit.
- **Bandwidth** - The bandwidth you supply to this entry.
- **Description** - The description for this entry.

Click **Enable** to enable this entry.

Click the **Clear** button to clear a single entry.

Click the **Clear All** button to clear all entries.

Click the **Save** button to save all configurations.

Note:

1. The conversion relation of bandwidth: 1Mbps = 1000Kbps.
2. Please choose the Network Connection Type and set the bandwidth according to your Network. If you are not clear about that, please contact with your ISP for help.
3. If no IP QoS item is enabled, the Bandwidth Apply won't be effective.

4. IP address range for different entries could not have intersection with each other.
5. After the configurations, click the **Save** button for the change to take effect.

4.12 IP & MAC Binding Setting

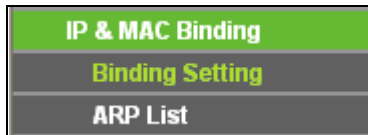


Figure 4-47 the IP & MAC Binding menu

There are two submenus under the IP & MAC Binding menu: **Binding Setting** and **ARP List**. Click any of them, and you will be able to scan or configure the corresponding function. The detailed explanations for each submenu are provided below.

4.12.1 Binding Setting

This page displays the IP & MAC Binding Setting table; you can operate it in accord with your desire.

ID	MAC Address	IP Address	Bind	Modify
1	00-E0-4C-00-07-BE	192.168.0.4	<input checked="" type="checkbox"/>	Modify Delete

Current No. Page

Figure 4-48 IP & MAC Binding Setting

- **MAC Address** - The MAC address of the controlled computer in the LAN.
- **IP Address** - The assigned IP address of the controlled computer in the LAN.
- **Bind** - Whether or not enable the ARP binding.
- **Modify** - Edit or delete item.

When you want to add or modify an IP & MAC Binding entry, you can click the **Add New...** button or **Modify** button, and then you will go to the next page. This page is used for adding or modifying an IP & MAC Binding entry.

Figure 4-49 IP & MAC Binding Setting (Add & Modify)

To add IP & MAC Binding entries:

1. Click the **Add New...** button.
2. Enter the MAC Address and IP Address.
3. Select the Bind checkbox.
4. Click the **Save** button to save it.

To modify or delete an existing entry:

1. Find the desired entry in the table.
2. Click **Modify** or **Delete** as desired on the **Modify** column.

To find an existing entry:

1. Click the **Find** button (shown in Figure 4-48).
2. Enter the MAC Address or IP Address.
3. Enter the **Find** button in the next page (shown in Figure 4-50).

ID	MAC Address:	IP Address:	Bind	Link
1	00-E0-4C-00-07-BE	192.168.0.4	<input checked="" type="checkbox"/>	To page

Figure 4-50 Find IP & MAC Binding Entry

Click the **Enable All** button to make all entries enabled.

Click the **Delete All** button to delete all entries.

4.12.2 ARP List

To manage the computer, you could observe the computers in the LAN by checking the relationship of MAC address and IP address on the ARP list, and you could configure the items on the ARP list also. This page displays the ARP List; it shows all the existing IP & MAC Binding entries.

ARP List				
ID	MAC Address	IP Address	Status	Configure
1	40-61-86-CF-20-7A	192.168.0.101	Unbound	Load Delete

Figure 4-51 ARP List

- **MAC Address** - The MAC address of the controlled computer in the LAN.
 - **IP Address** - The assigned IP address of the controlled computer in the LAN.
 - **Status** - Enabled or Disabled of the MAC address and IP address binding.
 - **Configure** - Load or delete item.
 - **Load** - Load the item to the IP & MAC Binding list.
 - **Delete** - Delete the item.
1. Click the **Bind All** button to bind all the current items, available after enable.
 2. Click the **Load All** button to load all items to the IP & MAC Binding list.
 3. Click the **Refresh** button to refresh all items.

 **Note:**

An item could not be loaded to the IP & MAC Binding list if the IP address of the item has been loaded before. Error warning will prompt as well. Likewise, "Load All" only loads the items without interference to the IP & MAC Binding list.

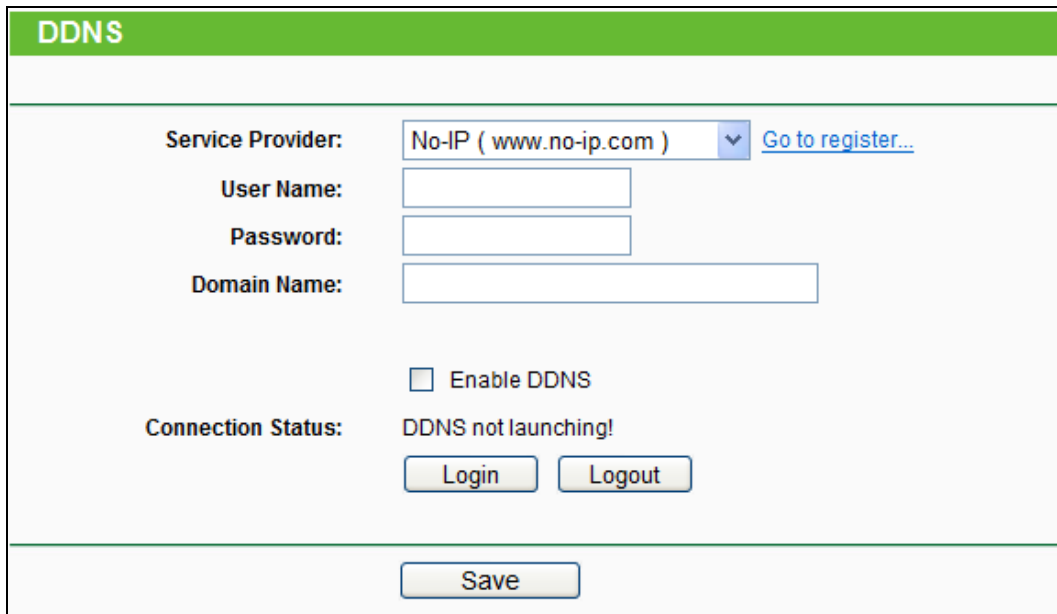
4.13 Dynamic DNS

The Router offers the **DDNS** (Dynamic Domain Name System) feature, which allows the hosting of a website, FTP server, or e-mail server with a fixed domain name (named by yourself) and a dynamic IP address, and then your friends can connect to your server by entering your domain name no matter what your IP address is. Before using this feature, you need to sign up for DDNS

service providers such as www.oray.net, www.comexe.cn, www.dyndns.org, or www.no-ip.com. The Dynamic DNS client service provider will give you a password or key.

4.13.1 No-IP DDNS

If the dynamic DNS **Service Provider** you select is www.no-ip.com, the page will appear as shown in Figure 4-52.



The screenshot shows a web interface for configuring DDNS. At the top is a green bar with the text "DDNS". Below this, the "Service Provider" is set to "No-IP (www.no-ip.com)" in a dropdown menu, with a "Go to register..." link to its right. There are three text input fields for "User Name:", "Password:", and "Domain Name:". Below these is a checkbox labeled "Enable DDNS". The "Connection Status:" section displays "DDNS not launching!" and contains "Login" and "Logout" buttons. At the bottom of the form is a "Save" button.

Figure 4-52 No-IP DDNS Settings

To set up for DDNS, follow these instructions:

1. Type the **User Name** for your DDNS account.
2. Type the **Password** for your DDNS account.
3. Type the **Domain Name** you received from dynamic DNS service provider.
4. Click the **Login** button to log in the DDNS service.

Connection Status - The status of the DDNS service connection is displayed here.

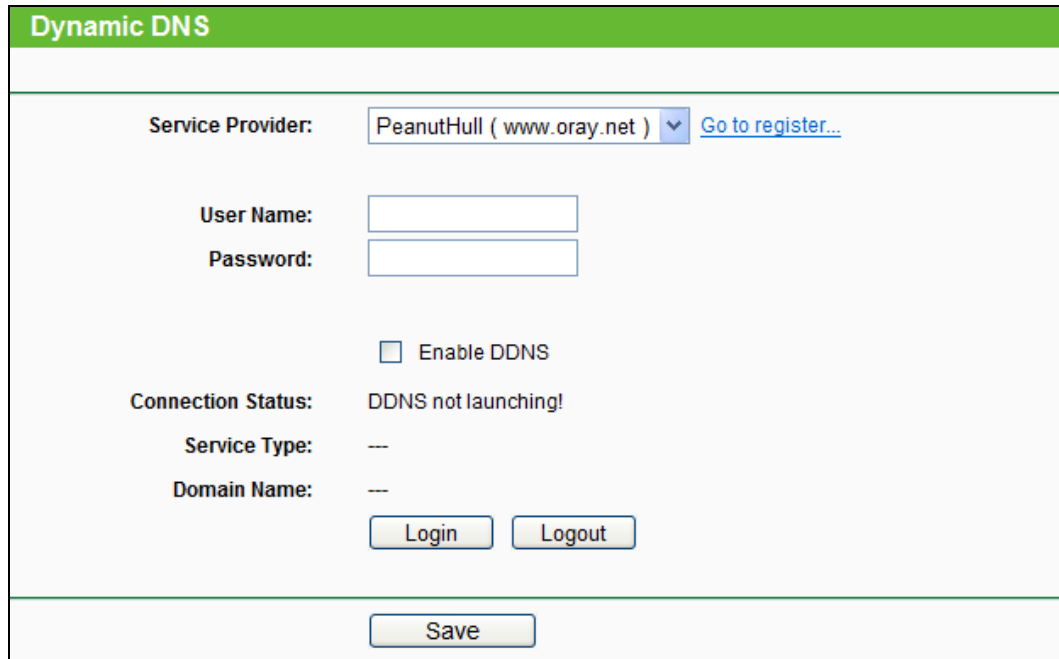
Click **Logout** to log out the DDNS service.

 **Note:**

If you want to login again with another account after a successful login, please click the **Logout** button, then input your new username and password and click the **Login** button.

4.13.2 PeanutHull DDNS

If the dynamic DNS **Service Provider** you select is www.oray.net, the page will appear as shown in Figure 4-53.



Dynamic DNS

Service Provider: PeanutHull (www.oray.net) [Go to register...](#)

User Name:

Password:

Enable DDNS

Connection Status: DDNS not launching!

Service Type: ---

Domain Name: ---

Figure 4-53 PeanutHull DDNS Settings

To set up for DDNS, follow these instructions:

1. Enter the **User Name** for your DDNS account.
2. Enter the **Password** for your DDNS account.
3. Click the **Login** button to login to the DDNS service.

Connection Status - The status of the DDNS service connection is displayed here.

Service Type - The type of service is displayed here.

Domain Name - The domain names are displayed here.

Click the **Logout** button to logout of the DDNS service.

Note:

If you want to login again with another account after a successful login, please click the **Logout** button, then input your new username and password and click the **Login** button.

4.13.3 Comexe DDNS

If the dynamic DNS **Service Provider** you select is www.comexe.cn, the page will appear as shown in Figure 4-54.

Dynamic DNS

Service Provider: Comexe (www.comexe.cn) [Go to register...](#)

Domain Name:

Domain Name:

Domain Name:

Domain Name:

Domain Name:

User Name:

Password:

Enable DDNS

Connection Status: DDNS not launching!

Figure 4-54 Comexe.cn DDNS Settings

To set up for DDNS, follow these instructions:

1. Type the **Domain Name** received from your dynamic DNS service provider.
2. Type the **User Name** for your DDNS account.
3. Type the **Password** for your DDNS account.
4. Click the **Login** button to log in to the DDNS service.

Connection Status -The status of the DDNS service connection is displayed here.

Click **Logout** to log out of the DDNS service.

Note:

If you want to login again with another account after a successful login, please click the **Logout** button, then input your new username and password and click the **Login** button.

4.13.4 DynDNS DDNS

If the dynamic DNS **Service Provider** you select is www.dyndns.org, the page will appear as shown in Figure 4-55.

Dynamic DNS

Service Provider: Dyndns (www.dyndns.org) [Go to register...](#)

User Name:

Password:

Domain Name:

Enable DDNS

Connection Status: DDNS not launching!

Figure 4-55 Dyndns.org DDNS Settings

To set up for DDNS, follow these instructions:

1. Type the **User Name** for your DDNS account.
2. Type the **Password** for your DDNS account.
3. Type the **Domain Name** you received from dynamic DNS service provider here.
4. Click the **Login** button to log in to the DDNS service.

Connection Status -The status of the DDNS service connection is displayed here.

Click **Logout** to logout of the DDNS service.

Note:

If you want to login again with another account after a successful login, please click the **Logout** button, then input your new username and password and click the **Login** button.

4.14 System Tools



Figure 4-56 The System Tools menu

There are nine submenus under the System Tools menu: **Time**, **Diagnostic**, **Firmware**, **Factory Defaults**, **Backup & Restore**, **Reboot**, **Password**, **System Log** and **Statistics**. Click any of them, and you will be able to configure the corresponding function. The detailed explanations for each submenu are provided below.

4.14.1 Time

You can set time manually or get GMT from the Internet for the router on this page:

Time Settings

Time zone: (GMT+08:00) Beijing, Hong Kong, Perth, Singapore

Date: 1 1 2006 (MM/DD/YY)

Time: 8 2 0 (HH/MM/SS)

NTP Server I: 0.0.0.0 (Optional)

NTP Server II: 0.0.0.0 (Optional)

Get GMT

Note: Click the "GET GMT" to update the time from the internet with the pre-defined servers or entering the customized server (IP Address or Domain Name) in the above frames.

Save

Figure 4-57 Time settings

- **Time Zone** - Select your local time zone from this pull-down list.
- **Date** - Enter your local date in MM/DD/YY into the right blanks.
- **Time** - Enter your local time in HH/MM/SS into the right blanks.

To set time manually, follow the steps below:

1. Select your local time zone.
2. Enter the **Date** in Month/Day/Year format.
3. Enter the **Time** in Hour/Minute/Second format.
4. Click **Save**.

For automatic time synchronization:

1. Enter the address of the **NTP Server I** or **NTP Server II**.
2. Click the **Get GMT** button to get GMT time from Internet if you have connected to Internet.

Note:

This setting will be used for some time-based functions such as firewall. You must specify your time zone once you login to the router successfully, if not, the time limited on these functions will not take effect.

- The time will be lost if the router is turned off.
- The router will obtain GMT automatically from Internet if it has already connected to Internet.

4.14.2 Diagnostic

Choose menu “**System Tools** → **Diagnostic**”, you can transact Ping or Traceroute function to check connectivity of your network in the following screen.

The screenshot shows the 'Diagnostic Tools' interface. It features a green header bar with the text 'Diagnostic Tools'. Below the header is a section titled 'Diagnostic Parameters'. This section contains two radio buttons: 'Ping' (which is selected) and 'Traceroute'. There are five input fields: 'IP Address/ Domain Name' (empty), 'Ping Count' (4), 'Ping Packet Size' (64), 'Ping Timeout' (800), and 'Traceroute Max TTL' (20). Each input field has a range of values in parentheses next to it. Below the 'Diagnostic Parameters' section is a 'Diagnostic Results' section, which is a large dashed rectangular box containing the text 'The Router is ready.'. At the bottom of the interface is a 'Start' button.

Figure 4-58 Diagnostic Tools

- **Diagnostic Tool** - Check the radio button to select one diagnostic tool.
 - **Ping** - This diagnostic tool troubleshoots connectivity, reachability, and name resolution to a given host or gateway.
 - **Traceroute** - This diagnostic tool tests the performance of a connection.

 **Note:**

You can use ping/traceroute to test both numeric IP address or domain name. If pinging/tracerouting the IP address is successful, but pinging/tracerouting the domain name is not, you might have a name resolution problem. In this case, ensure that the domain name you are specifying can be resolved by using Domain Name System (DNS) queries.

- **IP Address/Domain Name** - Type the destination IP address (such as 202.108.22.5) or Domain name (such as www.baidu.com).
- **Pings Count** - The number of Ping packets for a Ping connection.

- **Ping Packet Size** - The size of Ping packet.
- **Ping Timeout** - Set the waiting time for the reply of each Ping packet. If there is no reply in the specified time, the connection is overtime.
- **Traceroute Max TTL** - The max number of hops for a Traceroute connection.

Click **Start** to check the connectivity of the Internet.

The **Diagnostic Results** page displays the result of diagnosis.

If the result is similar to the following screen, the connectivity of the Internet is fine.

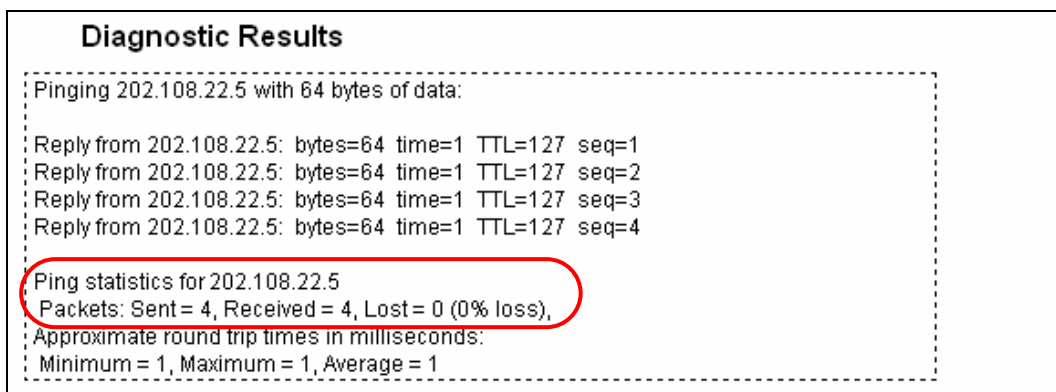


Figure 4-59 Diagnostic Results

Note:

Only one user can use this tool at one time. "Ping Count", "Ping Packet Size" and "Ping Timeout" are Ping Parameters. "Traceroute Max TTL" is Traceroute Parameter.

4.14.3 Firmware

The page allows you to upgrade the latest version firmware to keep your router up-to-date.

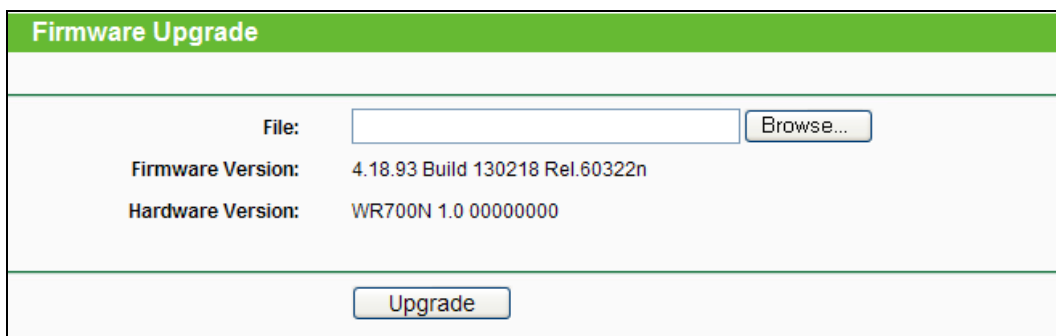


Figure 4-60 Firmware Upgrade

- **Firmware Version** - This displays the current firmware version.
- **Hardware Version** - This displays the current hardware version. The hardware version of the upgrade file must accord with the Router's current hardware version.

To upgrade the Router's firmware, follow these instructions below:

1. Download a more recent firmware upgrade file from the TP-LINK website (<http://www.tp-link.com>).
2. Type the path and file name of the update file into the **File** field, or click the **Browse...** button to locate the update file.
3. Click the **Upgrade** button.

 **Note:**

1. New firmware versions are posted at <http://www.tp-link.com> and can be downloaded for free. There is no need to upgrade the firmware unless the new firmware has a new feature you want to use. However, when experiencing problems caused by the Router rather than the configuration, you can try to upgrade the firmware.
2. When you upgrade the Router's firmware, you may lose its current configurations, so before upgrading the firmware please write down some of your customized settings to avoid losing important settings.
3. Do not turn off the Router or press the Reset button while the firmware is being upgraded, otherwise, the Router may be damaged.
4. The Router will reboot after the upgrading has been finished.

4.14.4 Factory Defaults

This page allows you to restore the factory default settings for the router.

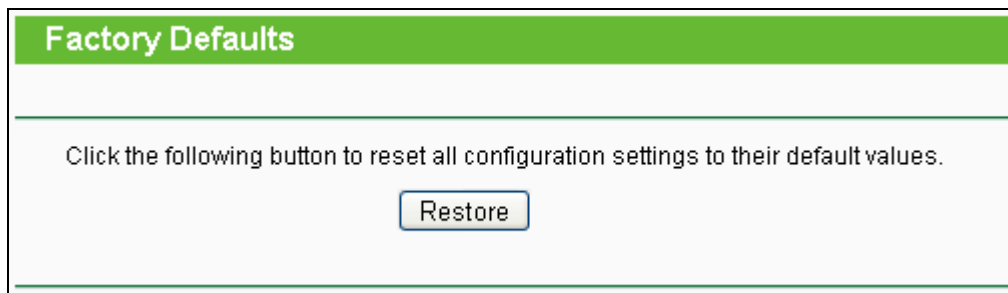


Figure 4-61 Restore Factory Default

Click the **Restore** button to reset all configuration settings to their default values.

- Default User Name - admin.
- Default Password - admin.
- Default IP Address - 192.168.0.254.
- Default Subnet Mask - 255.255.255.0.

 **Note:**

Any settings you have saved will be lost when the default settings are restored.

4.14.5 Backup & Restore

This page allows you to save current configuration of router as backup or restore the configuration file you saved before.

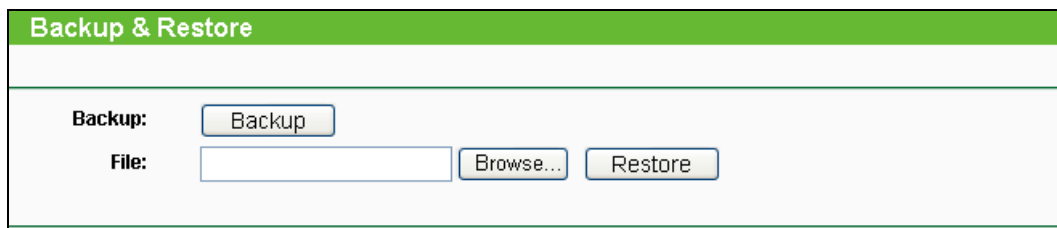


Figure 4-62 Backup & Restore Configuration

- Click the **Backup** button to save all configuration settings as a backup file in your local computer.
- To restore the router's configuration, follow these instructions:
 - Click the **Browse...** button to select the backup file which you want to restore.
 - Click the **Restore** button.

 **Note:**

The current configuration will be covered with the uploading configuration file. The restoration process lasts for 20 seconds and the router will restart automatically. Keep the router on during the restoring process to prevent any damage.

4.14.6 Reboot

This page allows you to reboot the router.

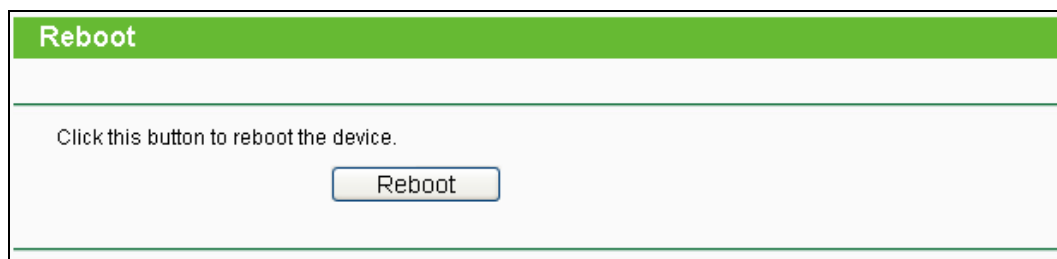


Figure 4-63 Reboot the router

Click the **Reboot** button to reboot the router.

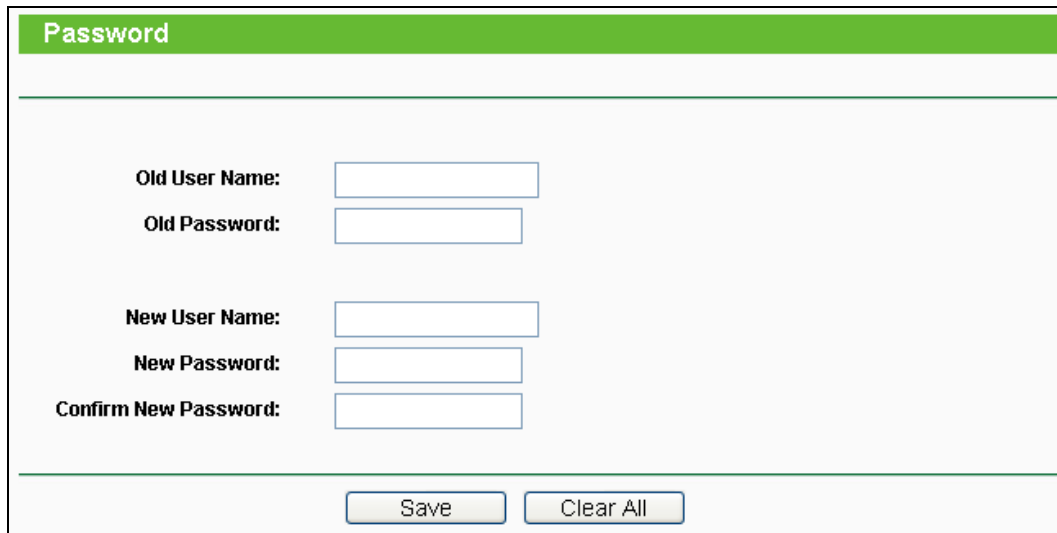
Some settings of the router will take effect only after rebooting, which include:

- Change LAN IP Address. (System will reboot automatically)
- MAC Clone (system will reboot automatically)
- DHCP service function.
- Static address assignment of DHCP server.
- Web Service Port of the router.

- Upgrade the firmware of the router (system will reboot automatically).
- Restore the router's settings to factory default (system will reboot automatically).

4.14.7 Password

This page allows you to change the factory default user name and password of the router.



Old User Name:

Old Password:

New User Name:

New Password:

Confirm New Password:

Save Clear All

Figure 4-64 Password

It is recommended strongly that you change the factory default user name and password of the router. All users who try to access the router's Web-based utility or Quick Setup will be prompted

Note:

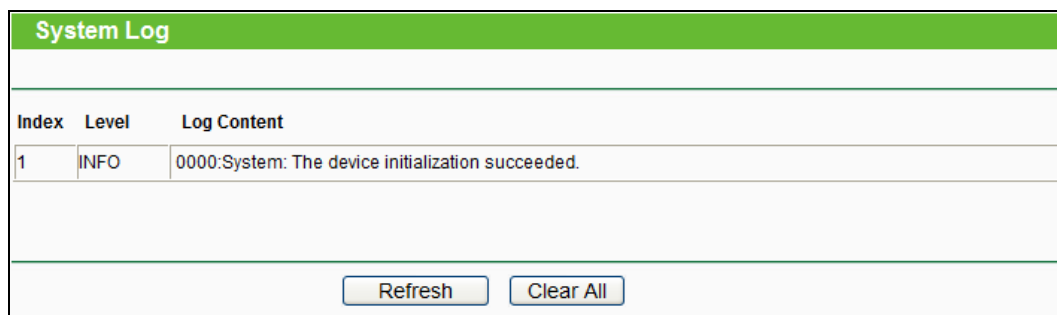
The new user name and password must not exceed 14 characters in length and must not include any spaces. Enter the new Password twice to confirm it.

Click the **Save** button when finished.

Click the **Clear All** button to clear all.

4.14.8 System Log

This page allows you to query the logs of the router.



Index	Level	Log Content
1	INFO	0000:System: The device initialization succeeded.

Refresh Clear All

Figure 4-65 System Log

The router can keep logs of all traffic. You can query the logs to find what happened to the router.

Click the **Refresh** button to refresh the logs.

Click the **Clear All** button to clear all the logs.

4.14.9 Statistics

The Statistics page displays the network traffic of each PC in LAN, including total traffic and traffic of the last **Packets Statistic interval** seconds.

Figure 4-66 Statistics

- **Current Statistics Status** - Enable or Disable. The default value is disabled. To enable, click the **Enable** button. If disabled, the function of DoS protection in Security settings will be ineffective.
- **Packets Statistics Interval** - The default value is 10. Select a value between 5 and 60 seconds in the pull-down list. The Packets Statistic interval indicates the time section of the packets statistic.
- **Sorted Rules** - Here displays sort as desired.

Statistics Table:

IP Address		The IP Address displayed with statistics
Total	Packets	The total amount of packets received and transmitted by the router.
	Bytes	The total amount of bytes received and transmitted by the router.
Current	Packets	The total amount of packets received and transmitted in the last Packets Statistic interval seconds.
	Bytes	The total amount of bytes received and transmitted in the last Packets Statistic interval seconds.
	ICMP Tx	The total amount of the ICMP packets transmitted to WAN in the last Packets Statistic interval seconds.
	UDP Tx	The total amount of the UDP packets transmitted to WAN in the last Packets Statistic interval seconds.

	TCP SYN Tx	The total amount of the TCP SYN packets transmitted to WAN in the last Packets Statistic interval seconds.
--	-------------------	---

Click the **Save** button to save the **Packets Statistic interval** value.

Click the **Auto-refresh** checkbox to refresh automatically.

Click the **Refresh** button to refresh immediately.

Chapter 5. Configuration for Repeater Mode

This chapter will show each Web page's key functions and the configuration way for Repeater Mode of TL-WR700N.

5.1 Login

After your successful login, you can configure and manage the device. There are main menus on the left of the web-based utility. Submenus will be available after you click one of the main menus. On the right, there are the corresponding explanations and instructions.

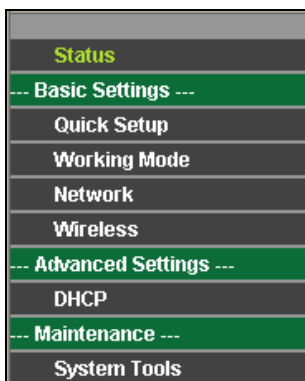


Figure 5-1

The detailed explanations for each Web page's key function are listed below.

5.2 Status

The Status page provides the current status information about the Router on Repeater Mode. All information is read-only.

Status	
Firmware Version:	4.18.93 Build 130218 Rel.60322n
Hardware Version:	WR700N 1.0 00000000
Connection Status to Main Router/AP Wi-Fi Network	
Main Router/AP Wi-Fi Network:	
Connection Status:	Scan...
LAN	
MAC Address:	F8-D1-11-5B-51-50
IP Address:	192.168.1.115
Subnet Mask:	255.255.255.0
Wireless	
Wireless Mode:	Repeater Mode
Name (SSID):	
Channel:	Auto(Survey...)
MAC Address:	F8-D1-11-5B-51-50
System Up Time:	0 day(s) 00:01:37
<input type="button" value="Refresh"/>	

Figure 5-2 Status

- **Firmware Version** - The version information of the Router's firmware.
- **Hardware Version** - The version information of the Router's hardware.
- **Connection Status to Main Router/AP Wi-Fi Network** - This part shows you the current information of the Main Router/AP Wi-Fi network which the device is connecting to.
 - **Main Router/AP Wi-Fi Network** - It shows the name of the wireless network which your device is connecting to.
 - **Connection Status** - It shows whether your device has been connected to a wireless network currently.
- **LAN** - This field displays the current settings or information for the LAN, you can configure them in the **Network > LAN** page.
 - **MAC address** - The physical address of the Router, as seen from the LAN.
 - **IP address** - The LAN IP address of the Router.
 - **Subnet Mask** - The subnet mask associated with LAN IP address.
- **Wireless** - This field displays basic information or status for wireless function, you can configure them in the **Wireless > Wireless Settings** page.

- **Wireless Mode** - The current wireless working mode in use.
 - **Name (SSID)** - The SSID of Root AP.
 - **Channel** - The current wireless channel in use.
 - **MAC address** - The physical address of the Router, as seen from the WLAN.
- **System Up Time** - The length of the time since the Router was last powered on or reset.

Click the **Refresh** button to get the latest status and settings of the Router.

5.3 Quick Setup

Please refer to [Section 3.2.2](#).

5.4 Working Mode

The Router supports five operation mode types: **Router**, **Repeater**, **Bridge**, **Client** and **AP**.

Please select the mode you want. Click **Save** to save your choice, which is shown as Figure 5-3.

Wireless Working Mode Settings	
<input type="radio"/> Router:	Wireless router mode
<input checked="" type="radio"/> Repeater:	Repeater mode
<input type="radio"/> Bridge:	Bridge mode
<input type="radio"/> Client:	Client mode
<input type="radio"/> AP:	AP mode

Figure 5-3 Working Mode

- **Router** - The wireless Router Mode. In this mode, the device enables multi-user to share Internet via DSL/Cable Modem. The only wired port works as WAN.
- **Repeater** - The wireless Repeater Mode. It could extend the range of wireless network.
- **Bridge** - The wireless Bridge Mode. It could communicate with another wireless network.
- **Client** - The Client Mode. The computer connected by Ethernet could get access to an AP by Client mode.
- **AP** - The wireless access point mode.

Click **OK** in the following screen and then the Router will reboot and to work on Client Mode.

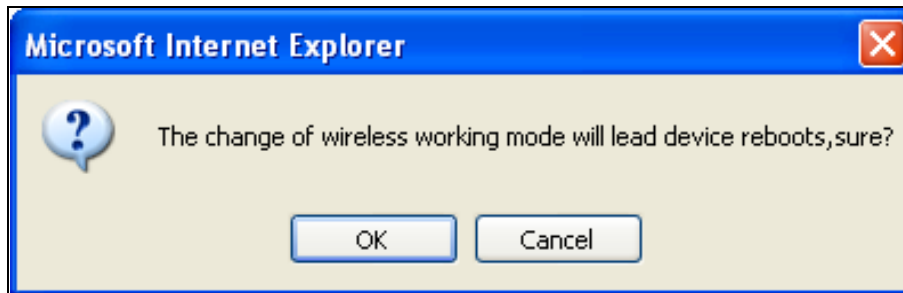


Figure 5-4

5.5 Network



Figure 5-5 the Network menu

There is only one submenu under the Network menu (shown in Figure 5-5): **LAN**.

5.5.1 LAN

Choose menu "**Network** → **LAN**", and then you can configure the IP parameters of the LAN on the screen as below.



Figure 5-6 LAN

- **Address Type** - Choosing **Smart IP** to get IP address from DHCP server, or choosing **Static IP** to configure IP address manually.
- **MAC Address** - The physical address of the LAN ports, as seen from the LAN. The value cannot be changed.
- **IP Address** - Enter the IP address of your Router in dotted-decimal notation. The factory default is 192.168.0.254.
- **Subnet Mask** - An address code that determines the size of the network. Usually it is 255.255.255.0.

Note:

1. If you change the LAN IP address, you must use the new IP address to login to the Router.

2. If you select the type of Smart IP (DHCP) and there is a DHCP server forward, the DHCP server in this device will not start up.
3. If the new LAN IP address you set is not in the same subnet with the previous one, the IP Address pool in the DHCP server will be configured automatically, but the Virtual Server and DMZ Host will not take effect until they are re-configured.

5.6 Wireless



Figure 5-7 Wireless menu

There is one submenu under the Wireless menu (shown in Figure 5-7): **Wireless Settings**. Click it, and you will be able to configure the corresponding function.

5.6.1 Wireless Settings

Choose menu “**Wireless** → **Wireless Settings**”, and then you can configure the basic settings for the wireless network on this page.

 A screenshot of a web configuration page titled 'Wireless Settings - Repeater'. The page has a green header bar with the title. Below the header, there are several configuration fields:

- SSID:** A text input field.
- MAC of AP:** A text input field with a note 'for example:00-1D-0F-11-22-33'.
- Region:** A dropdown menu currently showing 'United States'.
- Warning:** Text stating 'Ensure you select a correct country to conform local law. Incorrect settings may cause interference.'
- Survey:** A button.
- Security Options:** A dropdown menu currently showing 'Disable Security'.
- WEP Key Index:** A dropdown menu currently showing '1'.
- Authentication Type:** A dropdown menu currently showing 'Open System'.
- PassWord:** A text input field.

 At the bottom of the form is a 'Save' button.

Figure 5-8 Wireless Settings - Repeater

- **SSID** - The SSID of AP that you want to access.
- **MAC of AP** - The MAC address of AP that you want to access.
- **Region** - Select your region from the pull-down list. This field specifies the region where the wireless function of the Router can be used. It may be illegal to use the wireless function of

the Router in a region other than one of those specified in this field. If your country or region is not listed, please contact your local government agency for assistance.

- **Survey** - Click this button, you can search the AP which runs in the environment.
- **Security Options** - This option should be chosen according to the security configuration of the AP you want to access. It is recommended that the security type is the same as your AP's security type.
- **WEP Key Index** - This option should be chosen if the key type is WEP (ASCII) or WEP (HEX). It indicates the index of the WEP key.
- **Authentication Type** - This option should be chosen if the key type is WEP (ASCII) or WEP (HEX). It indicates the authentication type of the Root AP.
- **Password** - If the AP your router is going to connect need password, you need to fill the password in this blank.

Be sure to click the **Save** button to save your settings on this page.

 **Note:**

1. The operating distance or range of your wireless connection varies significantly based on the physical placement of the Router. For best results, place your Router.
 - Near the center of the area in which your wireless stations will operate.
 - In an elevated location such as a high shelf.
 - Away from the potential sources of interference, such as PCs, microwaves, and cordless phones.
 - Away from large metal surfaces.
2. Failure to follow these guidelines can result in significant performance degradation or inability to wirelessly connect to the Router.

5.7 DHCP

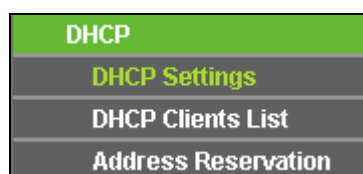


Figure 5-9 The DHCP menu

There are three submenus under the DHCP menu (shown in Figure 6-10): **DHCP Settings**, **DHCP Clients List** and **Address Reservation**. Click any of them, and you will be able to configure the corresponding function.

5.7.1 DHCP Settings

Selecting **DHCP > DHCP Settings** will enable you to set up the Range Extender as a DHCP (Dynamic Host Configuration Protocol) server, which provides the TCP/IP configuration for all the PCs that are connected to the system on the LAN. The DHCP Server can be configured on the page (shown as Figure 5-11), only when you've set the Network LAN type as Static IP in Figure 5-6.

Note:

The DHCP Settings function cannot be configured if you have chosen Smart IP (DHCP) in **Network -> LAN**, in which situation the device will help you configure the DHCP automatically as you need. The DHCP Settings page will appear as Figure 5-10.

DHCP Settings

DHCP Server: Disable Enable

Start IP Address:

End IP Address:

Address Lease Time: minutes (1~2880 minutes, the default value is 120)

Default Gateway: (optional)

Default Domain: (optional)

Primary DNS: (optional)

Secondary DNS: (optional)

Note: The DHCP Settings function cannot be configured if you have chosen Smart IP in Network->LAN (in this situation the device will help you configure the DHCP automatically as you need).

Save

Figure 5-10 DHCP Settings

DHCP Settings

DHCP Server: Disable Enable

Start IP Address:

End IP Address:

Address Lease Time: minutes (1~2880 minutes, the default value is 120)

Default Gateway: (optional)

Default Domain: (optional)

Primary DNS: (optional)

Secondary DNS: (optional)

Save

Figure 5-11 DHCP Settings

- **DHCP Server** - Selecting the radio button before **Disable/Enable** will disable/enable the DHCP server on your Range Extender. The default setting is **Enable**. If you disable the

Server, you must have another DHCP server within your network or else you must manually configure the computer.

- **Start IP Address** - This field specifies the first address in the IP Address pool. 192.168.0.100 is the default start IP address.
- **End IP Address** - This field specifies the last address in the IP Address pool. 192.168.0.199 is the default end IP address.
- **Address Lease Time** - Enter the amount of time for the PC to connect to the Range Extender with its current assigned dynamic IP address. The time is measured in minutes. After the time is up, the PC will be automatically assigned a new dynamic IP address. The range of the time is 1 ~ 2880 minutes. The default value is 120 minutes.
- **Default Gateway (optional)** - Enter the IP address of the gateway for your LAN. The factory default setting is 0.0.0.0.
- **Default Domain (optional)** - Enter the domain name of the your DHCP server. You can leave the field blank.
- **Primary DNS (optional)** - Enter the DNS IP address provided by your ISP. Consult your ISP if you don't know the DNS value. The factory default setting is 0.0.0.0.
- **Secondary DNS (optional)** - Enter the IP address of another DNS server if your ISP provides two DNS servers. The factory default setting is 0.0.0.0.

Click **Save** to save the changes.

 **Note:**

To use the DHCP server function of the device, you should configure all computers in the LAN as "Obtain an IP Address automatically" mode. This function will not take effect until the device reboots.

5.7.2 DHCP Clients List

Choose menu "**DHCP → DHCP Clients List**", and then you can view the information about the clients attached to the Router in the screen as shown in Figure 5-12.

DHCP Clients List				
ID	Client Name	MAC Address	Assigned IP	Lease Time
1	tp-113ea910272d	40-61-86-CF-20-7A	192.168.0.100	01:43:33

Figure 5-12 DHCP Clients List

- **Client Name** - The name of the DHCP client
- **MAC Address** - The MAC address of the DHCP client
- **Assigned IP** - The IP address that the Router has allocated to the DHCP client
- **Lease Time** - The time of the DHCP client leased. After the dynamic IP address has expired, a new dynamic IP address will be automatically assigned to the user.

You cannot change any of the values on this page. To update this page and to show the current attached devices, click the **Refresh** button.

5.7.3 Address Reservation

Choose menu "**DHCP** → **Address Reservation**", and then you can view and add a reserved address for clients via the next screen (shown in Figure 5-13). When you specify a reserved IP address for a PC on the LAN, that PC will always receive the same IP address each time when it accesses the DHCP server. Reserved IP addresses should be assigned to the servers that require permanent IP settings.

Address Reservation				
ID	MAC Address	Reserved IP Address	Status	Modify
1	00-0A-EB-13-09-BB	192.168.0.100	Enabled	Modify Delete

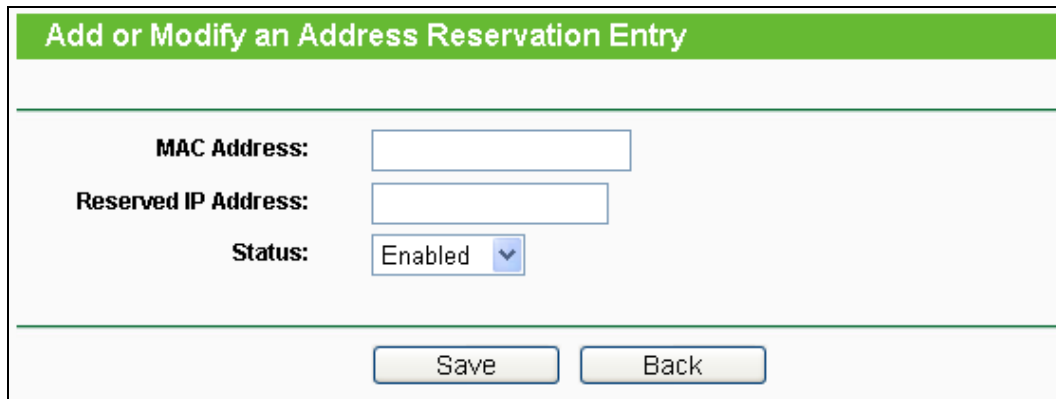
Figure 5-13 Address Reservation

- **MAC Address** - The MAC address of the PC for which you want to reserve an IP address.
- **Reserved IP Address** - The IP address reserved for the PC by the Router.
- **Status** - The status of this entry either **Enabled** or **Disabled**.

To Reserve an IP address:

1. Click the **Add New...** button. Then Figure 8-19 will pop-up.

2. Enter the MAC address (in XX-XX-XX-XX-XX-XX format) and IP address (in dotted-decimal notation) of the computer for which you want to reserve an IP address.
3. Click the **Save** button.



Add or Modify an Address Reservation Entry

MAC Address:

Reserved IP Address:

Status:

Figure 5-14 Add or Modify an Address Reservation Entry

To modify or delete an existing entry:

1. Click the **Modify** in the entry you want to modify. If you want to delete the entry, click the **Delete**.
2. Modify the information.
3. Click the **Save** button.

Click the **Enable/Disable All** button to make all entries enabled/disabled.

Click the **Delete All** button to delete all entries.

Click the **Next** button to go to the next page and Click the **Previous** button to return the previous page.

5.8 System Tools



Figure 5-15 The System Tools menu

Choose menu “**System Tools**”, and then you can see the submenus under the main menu: **Diagnostic**, **Firmware**, **Factory Defaults**, **Backup & Restore**, **Reboot**, **Password**, and **System Log**. Click any of them, and you will be able to configure the corresponding function. The detailed explanations for each submenu are provided below.

5.8.1 Diagnostic

Choose menu “**System Tools** → **Diagnostic**”, and then you can transact Ping or Traceroute function to check connectivity of your network in the following screen.

Diagnostic Tools

Diagnostic Parameters

Diagnostic Tool: Ping Traceroute

IP Address/ Domain Name:

Ping Count: (1-50)

Ping Packet Size: (4-1472 Bytes)

Ping Timeout: (100-2000 Milliseconds)

Traceroute Max TTL: (1-30)

Diagnostic Results

The Router is ready.

Figure 5-16 Diagnostic Tools

- **Diagnostic Tool** - Check the radio button to select one diagnostic tool.
 - **Ping** - This diagnostic tool troubleshoots connectivity, reachability, and name resolution to a given host or gateway.
 - **Traceroute** - This diagnostic tool tests the performance of a connection.

 **Note:**

You can use ping/traceroute to test both numeric IP address or domain name. If pinging/tracerouting the IP address is successful, but pinging/tracerouting the domain name is not, you might have a name resolution problem. In this case, ensure that the domain name you are specifying can be resolved by using Domain Name System (DNS) queries.

- **IP Address/Domain Name** - Type the destination IP address (e.g. 202.108.22.5) or Domain name (e.g. http://www.tp-link.com).
- **Pings Count** - The number of Ping packets for a Ping connection. The default is 4.
- **Ping Packet Size** - The size of Ping packet. The default is 64.

- **Ping Timeout** - Set the waiting time for the reply of each Ping packet. If there is no reply in the specified time, the connection is overtime. The default is 800.
- **Traceroute Max TTL** - The max number of hops for a Traceroute connection. The default is 20.

Click **Start** to check the connectivity of the Internet.

The **Diagnostic Results** page displays the result of diagnosis.

If the result is similar to the following screen, the connectivity of the Internet is fine.

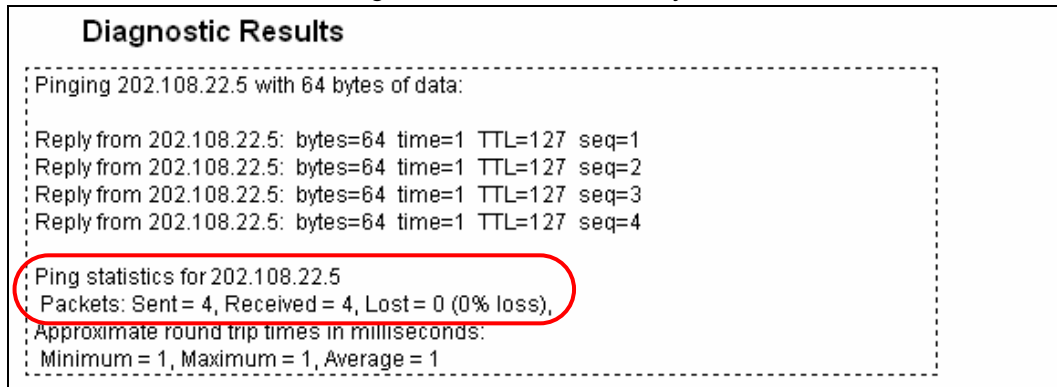


Figure 5-17 Diagnostic Results

Note:

Only one user can use this tool at one time. Options “Number of Pings”, “Ping Size” and “Ping Timeout” are used for **Ping** function. Option “Tracert Hops” are used for **Tracert** function.

5.8.2 Firmware

Choose menu “**System Tools** → **Firmware Upgrade**”, and then you can update the latest version of firmware for the Router on the following screen.

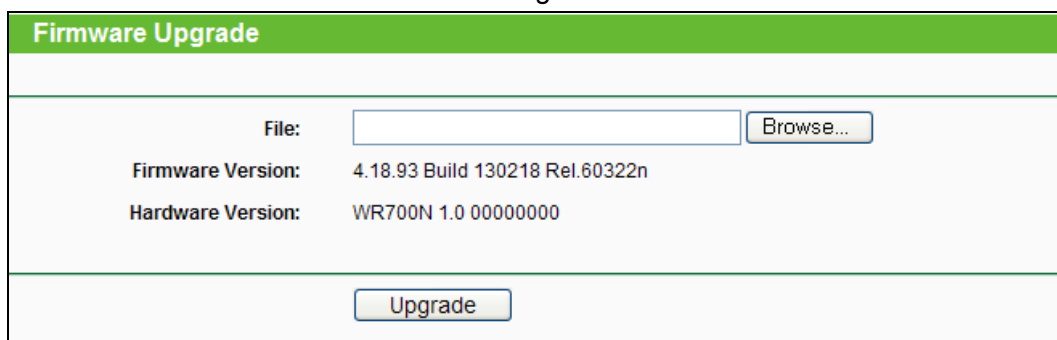


Figure 5-18 Firmware Upgrade

- **Firmware Version** - This displays the current firmware version.
- **Hardware Version** - This displays the current hardware version. The hardware version of the upgrade file must accord with the Router’s current hardware version.

To upgrade the Router's firmware, follow these instructions below:

- Download a more recent firmware upgrade file from the TP-LINK website (<http://www.tp-link.com>).

5. Type the path and file name of the update file into the **File** field, or click the **Browse...** button to locate the update file.
6. Click the **Upgrade** button.

 **Note:**

5. New firmware versions are posted at <http://www.tp-link.com> and can be downloaded for free. There is no need to upgrade the firmware unless the new firmware has a new feature you want to use. However, when experiencing problems caused by the Router rather than the configuration, you can try to upgrade the firmware.
6. When you upgrade the Router's firmware, you may lose its current configurations, so before upgrading the firmware please write down some of your customized settings to avoid losing important settings.
7. Do not turn off the Router or press the Reset button while the firmware is being upgraded, otherwise, the Router may be damaged.
8. The Router will reboot after the upgrading has been finished.

5.8.3 Factory Defaults

Choose menu "**System Tools** → **Factory Defaults**", and you can restore the configurations of the Router to factory defaults on the following screen.

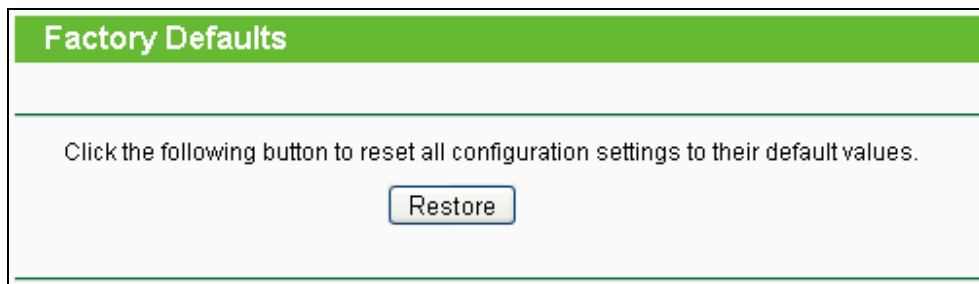


Figure 5-19 Restore Factory Default

Click the **Restore** button to reset all configuration settings to their default values.

- The default **User Name**: admin
- The default **Password**: admin
- The default **IP Address**: 192.168.0.254
- The default **Subnet Mask**: 255.255.255.0

 **Note:**

All changed settings will be lost when defaults are restored.

5.8.4 Backup & Restore

Choose menu “**System Tools** → **Backup & Restore**”, and then you can save the current configuration of the Router as a backup file and restore the configuration via a backup file as shown in Figure 5-20.

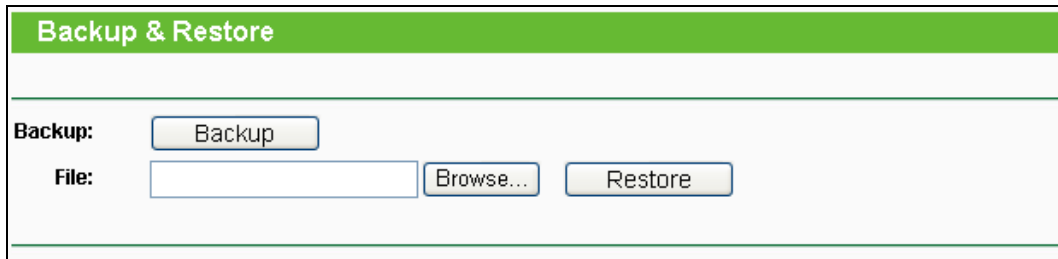


Figure 5-20 Backup & Restore Configuration

- Click the **Backup** button to save all configuration settings as a backup file in your local computer.
- To upgrade the Router's configuration, follow these instructions.
 - Click the **Browse...** button to locate the update file for the Router, or enter the exact path to the Setting file in the text box.
 - Click the **Restore** button.

Note:

The current configuration will be covered by the uploading configuration file. The upgrade process lasts for 20 seconds and the Router will restart automatically. Keep the Router on during the upgrading process to prevent any damage.

5.8.5 Reboot

Choose menu “**System Tools** → **Reboot**”, and then you can click the **Reboot** button to reboot the Router via the next screen.



Figure 5-21 Reboot the Router

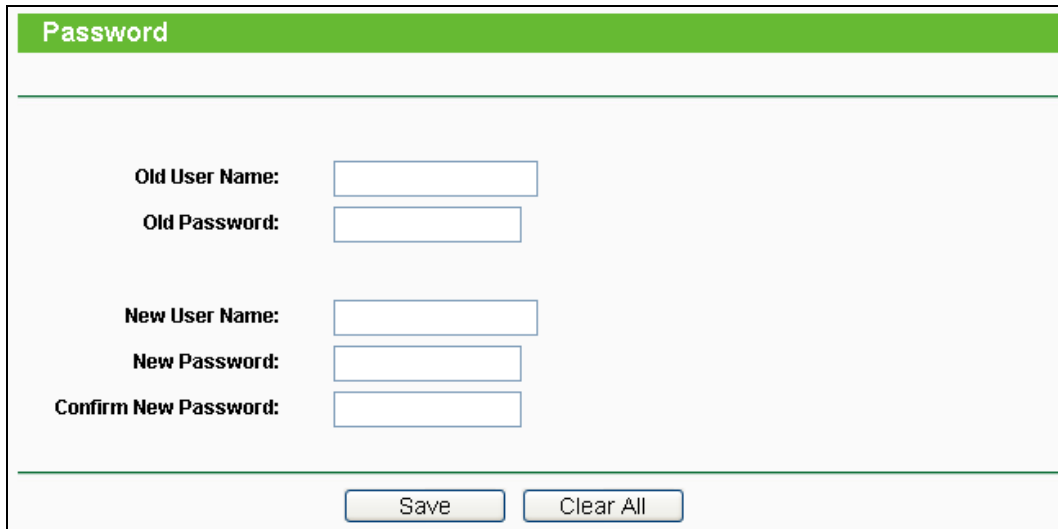
Some settings of the Router will take effect only after rebooting, including:

- Change the LAN IP Address (system will reboot automatically).
- Change the DHCP Settings.

- Change the Wireless configurations.
- Change the Web Management Port.
- Upgrade the firmware of the Router (system will reboot automatically).
- Restore the Router's settings to factory defaults (system will reboot automatically).
- Update the configuration with the file (system will reboot automatically).

5.8.6 Password

Choose menu “**System Tools** → **Password**”, and then you can change the factory default user name and password of the Router in the next screen as shown in Figure 5-22.



The screenshot shows a web interface for changing the router's password. It features a green header bar with the text "Password". Below the header, there are five input fields arranged in two columns. The first column contains "Old User Name:", "Old Password:", "New User Name:", and "Confirm New Password:". The second column contains "Old Password:", "New Password:", and "Confirm New Password:". At the bottom of the form, there are two buttons: "Save" and "Clear All".

Figure 5-22 Password

It is strongly recommended that you should change the factory default user name and password of the Router, because all users who try to access the Router's Web-based utility or Quick Setup will be prompted for the Router's default user name and password.

 **Note:**

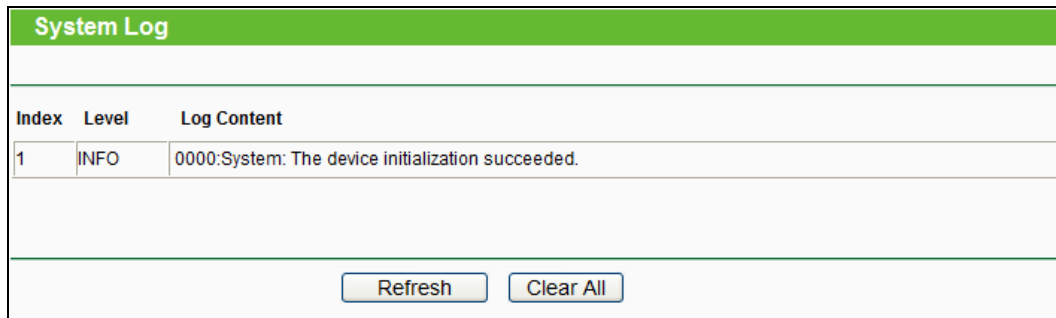
The new user name and password must not exceed 14 characters in length and not include any spaces. Enter the new Password twice to confirm.

Click the **Save** button when finished.

Click the **Clear All** button to clear all.

5.8.7 System Log

Choose menu “**System Tools** → **System Log**”, and then you can view the logs of the Router.



System Log		
Index	Level	Log Content
1	INFO	0000:System: The device initialization succeeded.

Refresh Clear All

Figure 5-23 System Log

- **Refresh** - Refresh the page to show the latest log list.
- **Clear All** - All the logs will be deleted from the Router permanently, not just from the page.

Chapter 6. Configuration for Bridge Mode

This chapter will show each Web page's key functions and the configuration way for Bridge Mode of TL-WR700N.

6.1 Login

After your successful login, you can configure and manage the device. There are main menus on the left of the web-based utility. Submenus will be available after you click one of the main menus. On the right, there are the corresponding explanations and instructions.

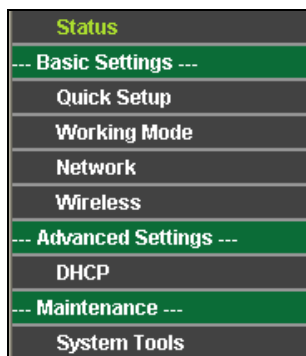


Figure 6-1

The detailed explanations for each Web page's key function are listed below.

6.2 Status

The Status page provides the current status information about the Router on Bridge Mode. All information is read-only.

Status	
Firmware Version:	4.18.93 Build 130218 Rel.60322n
Hardware Version:	WR700N 1.0 00000000
Connection Status to Main Router/AP Wi-Fi Network	
Main Router/AP Wi-Fi Network:	
Connection Status:	Scan...
LAN	
MAC Address:	F8-D1-11-5B-51-50
IP Address:	192.168.1.105
Subnet Mask:	255.255.255.0
Wireless	
Wireless Mode:	Bridge Mode
Wireless Radio:	Enable
Name (SSID):	TP-LINK_5B5150
Channel:	Auto(Survey...)
MAC Address:	F8-D1-11-5B-51-50
System Up Time:	0 day(s) 00:00:28
<input type="button" value="Refresh"/>	

Figure 6-2 Status

- **Firmware Version** - The version information of the Router's firmware.
- **Hardware Version** - The version information of the Router's hardware.
- **Connection Status to Main Router/AP Wi-Fi Network** - This part shows you the current information of the Main Router/AP Wi-Fi network which the device is connecting to.
 - **Main Router/AP Wi-Fi Network** - It shows the name of the wireless network which your device is connecting to.
 - **Connection Status** - It shows whether your device has been connected to a wireless network currently.
- **LAN** - This field displays the current settings or information for the LAN, you can configure them in the **Network > LAN** page.
 - **MAC address** - The physical address of the Router, as seen from the LAN.
 - **IP address** - The LAN IP address of the Router.
 - **Subnet Mask** - The subnet mask associated with LAN IP address.
- **Wireless** - This field displays basic information or status for wireless function, you can configure them in the **Wireless > Wireless Settings** page.

- **Wireless Mode** - The current wireless working mode in use.
 - **Wireless Radio** - Indicates whether the wireless radio feature of the AP is enabled or disabled.
 - **Name (SSID)** - The SSID of the AP.
 - **Channel** - The current wireless channel in use.
 - **MAC Address** - The physical address of the Router, as seen from the WLAN.
- **System Up Time** - The length of the time since the Router was last powered on or reset.

Click the **Refresh** button to get the latest status and settings of the Router.

6.3 Quick Setup

Please refer to [Section 3.2.3](#).

6.4 Working Mode

The Router supports five operation mode types: **Router**, **Repeater**, **Bridge**, **Client** and **AP**. Please select one you want. Click **Save** to save your choice, which is shown as Figure 6-3.

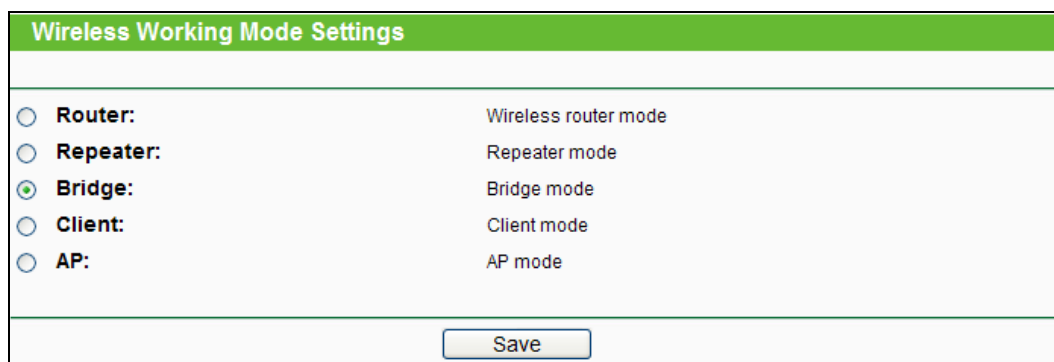


Figure 6-3 Working Mode

- **Router** - The wireless Router Mode. In this mode, the device enables multi-user to share Internet via DSL/Cable Modem. The only wired port works as WAN.
- **Repeater** - The wireless Repeater Mode. It could extend the range of wireless network.
- **Bridge** - The wireless Bridge Mode. It could communicate with another wireless network.
- **Client** - The Client Mode. The computer connected by Ethernet could get access to an AP by Client mode.
- **AP** - The wireless access point mode.

Click **OK** in the following screen and then the Router will reboot and to work on Client Mode.

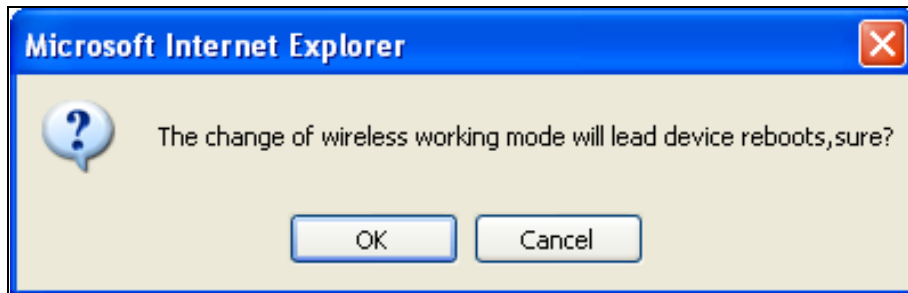


Figure 6-4

6.5 Network



Figure 6-5 the Network menu

There is only one submenu under the Network menu (shown in Figure 6-5): **LAN**.

6.5.1 LAN

Choose menu "**Network** → **LAN**", and then you can configure the IP parameters of the LAN on the screen as below.

Figure 6-6 LAN

- **Address Type** - Choosing **Smart IP** to get IP address from DHCP server, or choosing **Static IP** to configure IP address manually.
- **MAC Address** - The physical address of the LAN ports, as seen from the LAN. The value cannot be changed.
- **IP Address** - Enter the IP address of your Router in dotted-decimal notation. The factory default is 192.168.0.254.
- **Subnet Mask** - An address code that determines the size of the network. Usually it is 255.255.255.0.

Note:

1. If you change the LAN IP address, you must use the new IP address to login to the Router.
2. If you select the type of Smart IP (DHCP) and there is a DHCP server forward, the DHCP

server in this device will not start up.

- If the new LAN IP address you set is not in the same subnet with the previous one, the IP Address pool in the DHCP server will be configured automatically, but the Virtual Server and DMZ Host will not take effect until they are re-configured.

6.6 Wireless



Figure 6-7 Wireless menu

There are two submenus under the Wireless menu (shown in Figure 6-7): **Wireless Settings** and **Wireless Security**. Click either of them, and you will be able to configure the corresponding function.

6.6.1 Wireless Settings

Choose menu “**Wireless** → **Wireless Settings**”, and then you can configure the basic settings for the wireless network on this page.

Figure 6-8 Wireless Settings - Bridge

- **SSID** - Enter a string of up to 32 characters. The same name of SSID (Service Set Identification) must be assigned to all wireless devices in your network. The default SSID is set to be TP-LINK_XXXXXX (XXXXXX indicates the last unique six numbers of each Router's MAC address). But it is recommended strongly that you change your networks

name (SSID) to a different value. This value is case-sensitive. For example, *TEST* is NOT the same as *test*.

- **Region** - Select your region from the pull-down list. This field specifies the region where the wireless function of the Router can be used. It may be illegal to use the wireless function of the Router in a region other than one of those specified in this field. If your country or region is not listed, please contact your local government agency for assistance.
- **Enable SSID Broadcast** - It is default enabled, so that the wireless router will broadcast its name (SSID) on the air.
- **SSID (to be bridged)** - The SSID of the AP your Router is going to connect to as a client. You can also use the search function to select the SSID to join.
- **BSSID (to be bridged)** - The BSSID of the AP your Router is going to connect to as a client. You can also use the search function to select the BSSID to join.
- **Survey** - Click this button, you can survey the AP which runs in the current channel.
- **Security Options** - This option should be chosen according to the AP's security configuration. It is recommended that the security type is the same as your AP's security type.
- **WEP Index** - This option should be chosen if the key type is WEP (ASCII) or WEP (HEX). It indicates the index of the WEP key.
- **Authentication Type** - This option should be chosen if the key type is WEP (ASCII) or WEP (HEX). It indicates the authorization type of the Root AP.
- **Password** - If the AP your Router is going to connect needs password, you need to fill the password in this blank.

Be sure to click the **Save** button to save your settings on this page.

 **Note:**

1. The operating distance or range of your wireless connection varies significantly based on the physical placement of the Router. For best results, place your Router.
 - Near the center of the area in which your wireless stations will operate.
 - In an elevated location such as a high shelf.
 - Away from the potential sources of interference, such as PCs, microwaves, and cordless phones.
 - Away from large metal surfaces.
2. Failure to follow these guidelines can result in significant performance degradation or inability to wirelessly connect to the Router.

6.6.2 Wireless Security

Choose menu “**Wireless** → **Wireless Security**”, and then you can configure the security settings of your wireless network.

There are three wireless security modes supported by the Router: WEP (Wired Equivalent Privacy), WPA/WPA2 and WPA-PSK/WPA2-PSK.

Wireless Security

Disable Security

WEP

Type:

WEP Key Format:

Key Selected	WEP Key	Key Type
Key 1: <input checked="" type="radio"/>	<input type="text"/>	<input type="text" value="Disabled"/>
Key 2: <input type="radio"/>	<input type="text"/>	<input type="text" value="Disabled"/>
Key 3: <input type="radio"/>	<input type="text"/>	<input type="text" value="Disabled"/>
Key 4: <input type="radio"/>	<input type="text"/>	<input type="text" value="Disabled"/>

WPA/WPA2

Version:

Encryption:

Radius Server IP:

Radius Port: (1-65535, 0 stands for default port 1812)

Radius Password:

Group Key Update Period: (in second, minimum is 30, 0 means no update)

WPA-PSK/WPA2-PSK

Version:

Encryption:

PSK Password:

(You can enter ASCII characters between 8 and 63 or Hexadecimal characters between 8 and 64.)

Group Key Update Period: (in second, minimum is 30, 0 means no update)

Figure 6-9 Wireless Security

- **Disable Security** - The wireless security function can be enabled or disabled. If disabled, the wireless stations will be able to connect the Router without encryption. But it's strongly recommended to choose one of the following modes to enable security.
- **WEP** - It is based on the IEEE 802.11 standard.
 - **Type** - you can choose the type for the WEP security on the pull-down list. The default setting is **Automatic**, which can select **Shared Key** or **Open System** authentication type automatically based on the wireless station's capability and request.

- **WEP Key Format - Hexadecimal** and **ASCII** formats are provided here. **Hexadecimal** format stands for any combination of hexadecimal digits (0-9, a-f, A-F) in the specified length. **ASCII** format stands for any combination of keyboard characters in the specified length.
- **WEP Key (Password)** - Select which of the four keys will be used and enter the matching WEP key that you create. Make sure these values are identical on all wireless stations in your network.
- **Key Type** - You can select the WEP key length (64-bit, or 128-bit, or 152-bit.) for encryption. "Disabled" means this WEP key entry is invalid.
 - 64-bit** - You can enter 10 hexadecimal digits (any combination of 0-9, a-f, A-F, zero key is not promoted) or 5 ASCII characters.
 - 128-bit** - You can enter 26 hexadecimal digits (any combination of 0-9, a-f, A-F, zero key is not promoted) or 13 ASCII characters.
 - 152-bit** - You can enter 32 hexadecimal digits (any combination of 0-9, a-f, A-F, zero key is not promoted) or 16 ASCII characters.

 **Note:**

If you do not set the key, the wireless security function is still disabled even if you have selected Shared Key as Authentication Type.

➤ **WPA /WPA2**

- **Version** - you can choose the version of the WPA security from the pull-down list. The default setting is **Automatic**, which can select **WPA** (Wi-Fi Protected Access) or **WPA2** (WPA version 2) automatically based on the wireless station's capability and request.
- **Encryption** - You can select **Automatic**, **TKIP** or **AES**.
- **Radius Server IP** - Enter the IP address of the Radius server.
- **Radius Port** - Enter the port that Radius server used.
- **Radius Password** - Enter the password for the Radius server.
- **Group Key Update Period** - Specify the group key update interval in seconds. The value should be 30 or above. Enter 0 to disable the update.

➤ **WPA-PSK/WPA2-PSK**- It's the WPA/WPA2 authentication type based on pre-shared passphrase.

- **Version** - you can choose the version of the WPA-PSK security on the drop-down list. The default setting is **Automatic (Recommended)**, which can select **WPA-PSK** (Pre-shared key of WPA) or **WPA2-PSK** (Pre-shared key of WPA) automatically based on the wireless station's capability and request.

- **Encryption** - When **WPA-PSK** or **WPA** is set as the Authentication Type, you can select **Automatic (Recommended)**, **TKIP** or **AES** as Encryption.
- **PSK Password** - You can enter **ASCII** or **Hexadecimal** characters. The default password is the last unique eight numbers of each Router's MAC address

For **ASCII**, the key can be made up of any numbers 0 to 9 and any letters A to Z, the length should be between 8 and 63 characters.

For **Hexadecimal**, the key can be made up of any numbers 0 to 9 and letters A to F, the length should be between 8 and 64 characters.

Please also note the key is case sensitive, this means that upper and lower case keys will affect the outcome. It would also be a good idea to write down the key and all related wireless security settings.

- **Group Key Update Period** - Specify the group key update interval in seconds. The value should be 30 or above. Enter 0 to disable the update.

Be sure to click the **Save** button to save your settings on this page.

6.7 DHCP

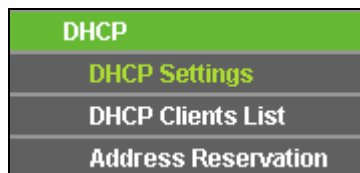


Figure 6-10 The DHCP menu

There are three submenus under the DHCP menu (shown in Figure 6-10): **DHCP Settings**, **DHCP Clients List** and **Address Reservation**. Click any of them, and you will be able to configure the corresponding function.

6.7.1 DHCP Settings

Selecting **DHCP > DHCP Settings** will enable you to set up the Range Extender as a DHCP (Dynamic Host Configuration Protocol) server, which provides the TCP/IP configuration for all the PCs that are connected to the system on the LAN. The DHCP Server can be configured on the page (shown as Figure 6-11), only when you've set the Network LAN type as Static IP in Figure 6-6.

Note:

The DHCP Settings function cannot be configured if you have chosen Smart IP (DHCP) in **Network -> LAN**, in which situation the device will help you configure the DHCP automatically as you need. The DHCP Settings page will appear as Figure 6-10.

DHCP Settings	
DHCP Server:	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
Start IP Address:	<input type="text" value="192.168.1.100"/>
End IP Address:	<input type="text" value="192.168.1.199"/>
Address Lease Time:	<input type="text" value="120"/> minutes (1~2880 minutes, the default value is 120)
Default Gateway:	<input type="text" value="0.0.0.0"/> (optional)
Default Domain:	<input type="text"/> (optional)
Primary DNS:	<input type="text" value="0.0.0.0"/> (optional)
Secondary DNS:	<input type="text" value="0.0.0.0"/> (optional)
<p>Note: The DHCP Settings function cannot be configured if you have chosen Smart IP in Network->LAN (in this situation the device will help you configure the DHCP automatically as you need).</p>	
<input type="button" value="Save"/>	

Figure 6-11 DHCP Settings

DHCP Settings	
DHCP Server:	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
Start IP Address:	<input type="text" value="192.168.1.100"/>
End IP Address:	<input type="text" value="192.168.1.199"/>
Address Lease Time:	<input type="text" value="120"/> minutes (1~2880 minutes, the default value is 120)
Default Gateway:	<input type="text" value="0.0.0.0"/> (optional)
Default Domain:	<input type="text"/> (optional)
Primary DNS:	<input type="text" value="0.0.0.0"/> (optional)
Secondary DNS:	<input type="text" value="0.0.0.0"/> (optional)
<input type="button" value="Save"/>	

Figure 6-12 DHCP Settings

- **DHCP Server** - Selecting the radio button before **Disable/Enable** will disable/enable the DHCP server on your Range Extender. The default setting is **Enable**. If you disable the Server, you must have another DHCP server within your network or else you must manually configure the computer.
- **Start IP Address** - This field specifies the first address in the IP Address pool. 192.168.0.100 is the default start IP address.
- **End IP Address** - This field specifies the last address in the IP Address pool. 192.168.0.199 is the default end IP address.
- **Address Lease Time** - Enter the amount of time for the PC to connect to the Range Extender with its current assigned dynamic IP address. The time is measured in minutes. After the time

is up, the PC will be automatically assigned a new dynamic IP address. The range of the time is 1 ~ 2880 minutes. The default value is 120 minutes.

- **Default Gateway (optional)** - Enter the IP address of the gateway for your LAN. The factory default setting is 0.0.0.0.
- **Default Domain (optional)** - Enter the domain name of the your DHCP server. You can leave the field blank.
- **Primary DNS (optional)** - Enter the DNS IP address provided by your ISP. Consult your ISP if you don't know the DNS value. The factory default setting is 0.0.0.0.
- **Secondary DNS (optional)** - Enter the IP address of another DNS server if your ISP provides two DNS servers. The factory default setting is 0.0.0.0.

Click **Save** to save the changes.

 **Note:**

To use the DHCP server function of the device, you should configure all computers in the LAN as "Obtain an IP Address automatically" mode. This function will not take effect until the device reboots.

6.7.2 DHCP Clients List

Choose menu "DHCP → DHCP Clients List", and then you can view the information about the clients attached to the Router in the screen as shown in Figure 6-13.

DHCP Clients List				
ID	Client Name	MAC Address	Assigned IP	Lease Time
1	tp-113ea910272d	40-61-86-CF-20-7A	192.168.0.100	01:43:33

Figure 6-13 DHCP Clients List

- **Client Name** - The name of the DHCP client
- **MAC Address** - The MAC address of the DHCP client
- **Assigned IP** - The IP address that the Router has allocated to the DHCP client
- **Lease Time** - The time of the DHCP client leased. After the dynamic IP address has expired, a new dynamic IP address will be automatically assigned to the user.

You cannot change any of the values on this page. To update this page and to show the current attached devices, click the **Refresh** button.

6.7.3 Address Reservation

Choose menu “**DHCP** → **Address Reservation**”, and then you can view and add a reserved address for clients via the next screen (shown in Figure 6-14). When you specify a reserved IP address for a PC on the LAN, that PC will always receive the same IP address each time when it accesses the DHCP server. Reserved IP addresses should be assigned to the servers that require permanent IP settings.

Address Reservation				
ID	MAC Address	Reserved IP Address	Status	Modify
1	00-0A-EB-13-09-BB	192.168.0.100	Enabled	Modify Delete

Figure 6-14 Address Reservation

- **MAC Address** - The MAC address of the PC for which you want to reserve an IP address.
- **Reserved IP Address** - The IP address reserved for the PC by the Router.
- **Status** - The status of this entry either **Enabled** or **Disabled**.

To Reserve an IP address:

1. Click the **Add New...** button. Then Figure 6-15 will pop-up.
2. Enter the MAC address (in XX-XX-XX-XX-XX-XX format) and IP address (in dotted-decimal notation) of the computer for which you want to reserve an IP address.
3. Click the **Save** button.

Add or Modify an Address Reservation Entry	
MAC Address:	<input type="text"/>
Reserved IP Address:	<input type="text"/>
Status:	Enabled <input type="button" value="v"/>

Figure 6-15 Add or Modify an Address Reservation Entry

To modify or delete an existing entry:

1. Click the **Modify** in the entry you want to modify. If you want to delete the entry, click the **Delete**.
2. Modify the information.

3. Click the **Save** button.

Click the **Enable/Disable All** button to make all entries enabled/disabled.

Click the **Delete All** button to delete all entries.

Click the **Next** button to go to the next page and Click the **Previous** button to return the previous page.

6.8 System Tools



Figure 6-16 The System Tools menu

Choose menu "**System Tools**", and then you can see the submenus under the main menu: **Diagnostic**, **Firmware**, **Factory Defaults**, **Backup & Restore**, **Reboot**, **Password**, and **System Log**. Click any of them, and you will be able to configure the corresponding function. The detailed explanations for each submenu are provided below.

6.8.1 Diagnostic

Choose menu "**System Tools** → **Diagnostic**", and then you can transact Ping or Traceroute function to check connectivity of your network in the following screen.

Diagnostic Tools

Diagnostic Parameters

Diagnostic Tool: Ping Traceroute

IP Address/ Domain Name:

Ping Count: (1-50)

Ping Packet Size: (4-1472 Bytes)

Ping Timeout: (100-2000 Milliseconds)

Traceroute Max TTL: (1-30)

Diagnostic Results

The Router is ready.

Figure 6-17 Diagnostic Tools

- **Diagnostic Tool** - Check the radio button to select one diagnostic tool.
 - **Ping** - This diagnostic tool troubleshoots connectivity, reachability, and name resolution to a given host or gateway.
 - **Traceroute** - This diagnostic tool tests the performance of a connection.

 **Note:**

You can use ping/traceroute to test both numeric IP address or domain name. If pinging/tracerouting the IP address is successful, but pinging/tracerouting the domain name is not, you might have a name resolution problem. In this case, ensure that the domain name you are specifying can be resolved by using Domain Name System (DNS) queries.

- **IP Address/Domain Name** - Type the destination IP address (e.g. 202.108.22.5) or Domain name (e.g.http://www.tp-link.com).
- **Pings Count** - The number of Ping packets for a Ping connection. The default is 4.
- **Ping Packet Size** - The size of Ping packet. The default is 64.
- **Ping Timeout** - Set the waiting time for the reply of each Ping packet. If there is no reply in the specified time, the connection is overtime. The default is 800.

- **Traceroute Max TTL** - The max number of hops for a Traceroute connection. The default is 20.

Click **Start** to check the connectivity of the Internet.

The **Diagnostic Results** page displays the result of diagnosis.

If the result is similar to the following screen, the connectivity of the Internet is fine.

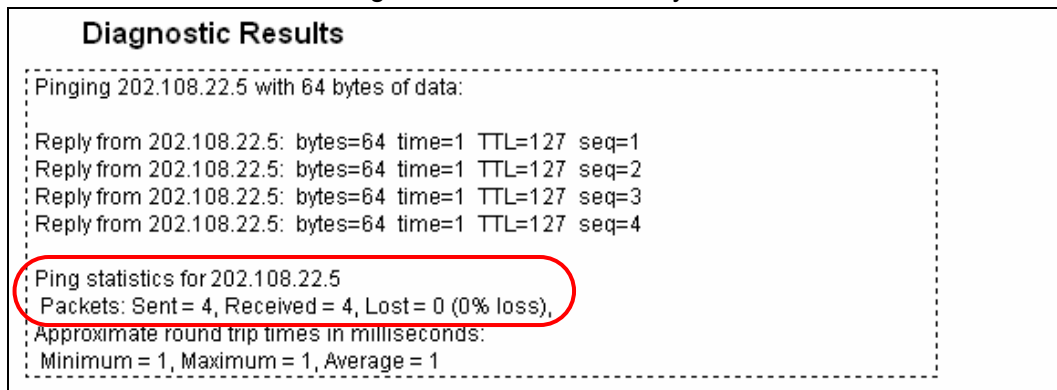


Figure 6-18 Diagnostic Results

Note:

Only one user can use this tool at one time. Options “Number of Pings”, “Ping Size” and “Ping Timeout” are used for **Ping** function. Option “Tracert Hops” are used for **Tracert** function.

6.8.2 Firmware

Choose menu “**System Tools** → **Firmware Upgrade**”, and then you can update the latest version of firmware for the Router on the following screen.

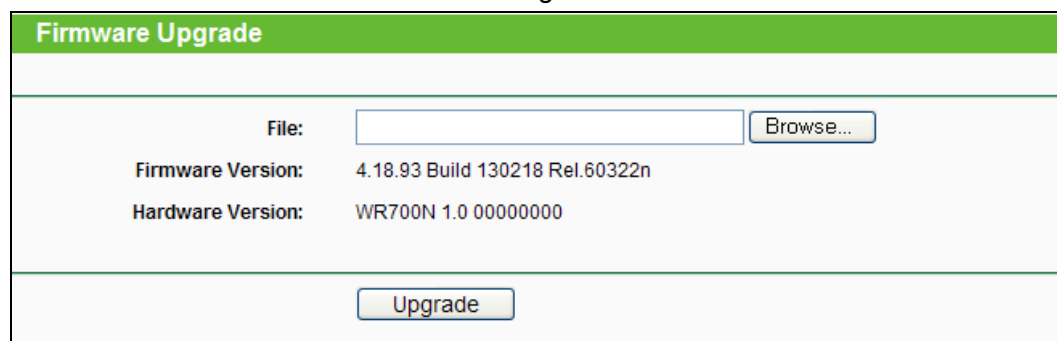


Figure 6-19 Firmware Upgrade

- **Firmware Version** - This displays the current firmware version.
- **Hardware Version** - This displays the current hardware version. The hardware version of the upgrade file must accord with the Router’s current hardware version.

To upgrade the Router’s firmware, follow these instructions below:

1. Download a more recent firmware upgrade file from the TP-LINK website (<http://www.tp-link.com>).
2. Type the path and file name of the update file into the **File** field, or click the **Browse...** button to locate the update file.

3. Click the **Upgrade** button.

 **Note:**

1. New firmware versions are posted at <http://www.tp-link.com> and can be downloaded for free. There is no need to upgrade the firmware unless the new firmware has a new feature you want to use. However, when experiencing problems caused by the Router rather than the configuration, you can try to upgrade the firmware.
2. When you upgrade the Router's firmware, you may lose its current configurations, so before upgrading the firmware please write down some of your customized settings to avoid losing important settings.
3. Do not turn off the Router or press the Reset button while the firmware is being upgraded, otherwise, the Router may be damaged.
4. The Router will reboot after the upgrading has been finished.

6.8.3 Factory Defaults

Choose menu “**System Tools** → **Factory Defaults**”, and you can restore the configurations of the Router to factory defaults on the following screen.



Figure 6-20 Restore Factory Default

Click the **Restore** button to reset all configuration settings to their default values.

- The default **User Name**: admin
- The default **Password**: admin
- The default **IP Address**: 192.168.0.254
- The default **Subnet Mask**: 255.255.255.0

 **Note:**

All changed settings will be lost when defaults are restored.

6.8.4 Backup & Restore

Choose menu “**System Tools** → **Backup & Restore**”, and then you can save the current configuration of the Router as a backup file and restore the configuration via a backup file as shown in Figure 6-21.

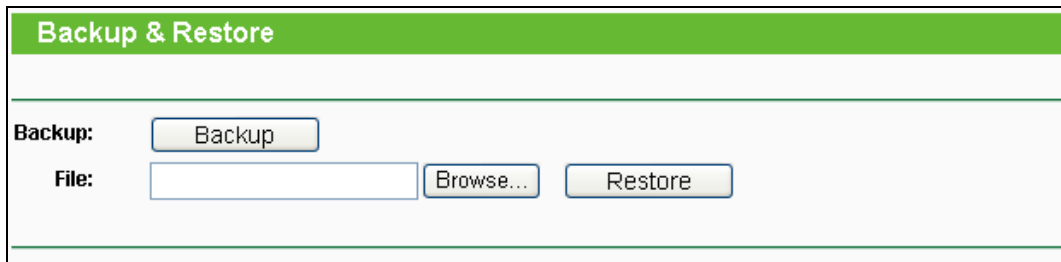


Figure 6-21 Backup & Restore Configuration

- Click the **Backup** button to save all configuration settings as a backup file in your local computer.
- To upgrade the Router's configuration, follow these instructions.
 - Click the **Browse...** button to locate the update file for the Router, or enter the exact path to the Setting file in the text box.
 - Click the **Restore** button.

 **Note:**

The current configuration will be covered by the uploading configuration file. The upgrade process lasts for 20 seconds and the Router will restart automatically. Keep the Router on during the upgrading process to prevent any damage.

6.8.5 Reboot

Choose menu “**System Tools** → **Reboot**”, and then you can click the **Reboot** button to reboot the Router via the next screen.

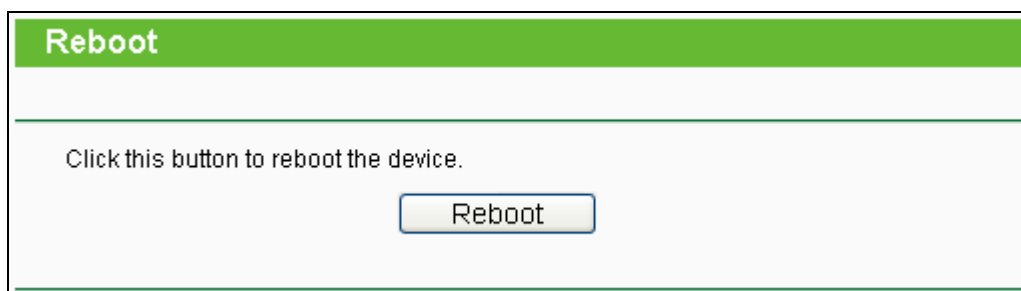


Figure 6-22 Reboot the Router

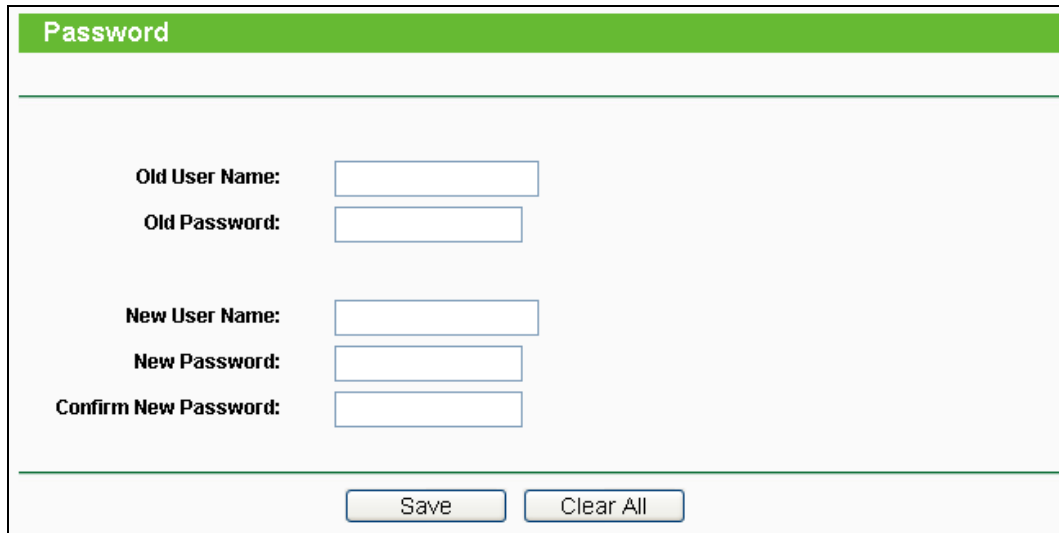
Some settings of the Router will take effect only after rebooting, which include:

- Change the LAN IP Address (system will reboot automatically).
- Change the DHCP Settings.
- Change the Wireless configurations.
- Change the Web Management Port.
- Upgrade the firmware of the Router (system will reboot automatically).

- Restore the Router's settings to factory defaults (system will reboot automatically).
- Update the configuration with the file (system will reboot automatically).

6.8.6 Password

Choose menu “**System Tools** → **Password**”, and then you can change the factory default user name and password of the Router in the next screen as shown in Figure 6-23.



Old User Name:

Old Password:

New User Name:

New Password:

Confirm New Password:

Figure 6-23 Password

It is strongly recommended that you should change the factory default user name and password of the Router, because all users who try to access the Router's Web-based utility or Quick Setup will be prompted for the Router's default user name and password.

Note:

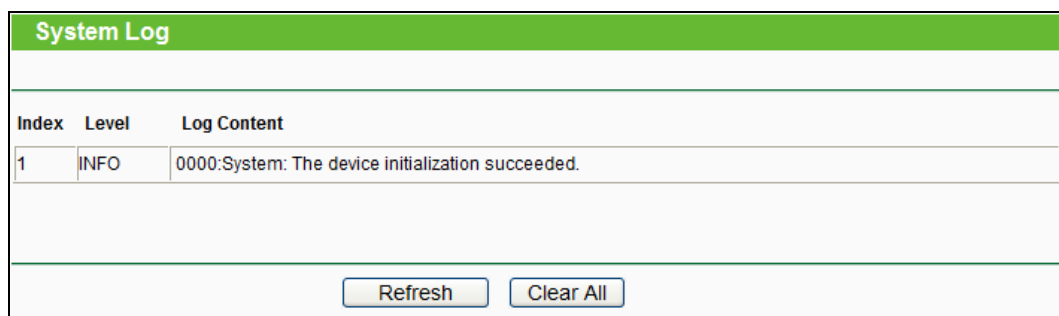
The new user name and password must not exceed 14 characters in length and not include any spaces. Enter the new Password twice to confirm.

Click the **Save** button when finished.

Click the **Clear All** button to clear all.

6.8.7 System Log

Choose menu “**System Tools** → **System Log**”, and then you can view the logs of the Router.



Index	Level	Log Content
1	INFO	0000:System: The device initialization succeeded.

Figure 6-24 System Log

- **Refresh** - Refresh the page to show the latest log list.
- **Clear All** - All the logs will be deleted from the Router permanently, not just from the page.

Chapter 7. Configuration for Client Mode

This chapter will show each Web page's key functions and the configuration way for Client Mode of TL-WR700N.

7.1 Login

After your successful login, you can configure and manage the device. There are main menus on the left of the web-based utility. Submenus will be available after you click one of the main menus. On the right, there are the corresponding explanations and instructions.

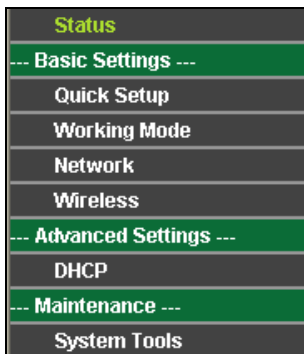


Figure 7-1

The detailed explanations for each Web page's key function are listed below.

7.2 Status

The Status page provides the current status information about the Router on Client Mode. All information is read-only.

Status	
Firmware Version:	4.18.93 Build 130218 Rel.60322n
Hardware Version:	WR700N 1.0 00000000
Connection Status to Main Router/AP Wi-Fi Network	
Main Router/AP Wi-Fi Network:	TP-LINK_Network
Connection Status:	Run
LAN	
MAC Address:	F8-D1-11-5B-51-50
IP Address:	192.168.1.115
Subnet Mask:	255.255.255.0
Wireless	
Wireless Mode:	Client Mode
Channel:	Auto(Current Channel 4)
MAC Address:	F8-D1-11-5B-51-50
System Up Time:	0 day(s) 00:14:41 <input type="button" value="Refresh"/>

Figure 7-2 Status

- **Firmware Version** - The version information of the Router's firmware.
- **Hardware Version** - The version information of the Router's hardware.
- **Connection Status to Main Router/AP Wi-Fi Network** - This part shows you the current information of the Main Router/AP Wi-Fi network which the device is connecting to.
 - **Main Router/AP Wi-Fi Network** - It shows the name of the wireless network which your device is connecting to.
 - **Connection Status** - It shows whether your device has been connected to a wireless network currently.
- **LAN** - This field displays the current settings or information for the LAN, you can configure them in the **Network > LAN** page.
 - **MAC address** - The physical address of the Router, as seen from the LAN.
 - **IP address** - The LAN IP address of the Router.
 - **Subnet Mask** - The subnet mask associated with LAN IP address.
- **Wireless** - This field displays basic information or status for wireless function, you can configure them in the **Wireless > Wireless Settings** page.
 - **Wireless Mode** - The current wireless working mode in use.

- **Channel** - The current wireless channel in use.
 - **MAC Address** - The physical address of the Router, as seen from the WLAN.
- **System Up Time** - The length of the time since the Router was last powered on or reset.

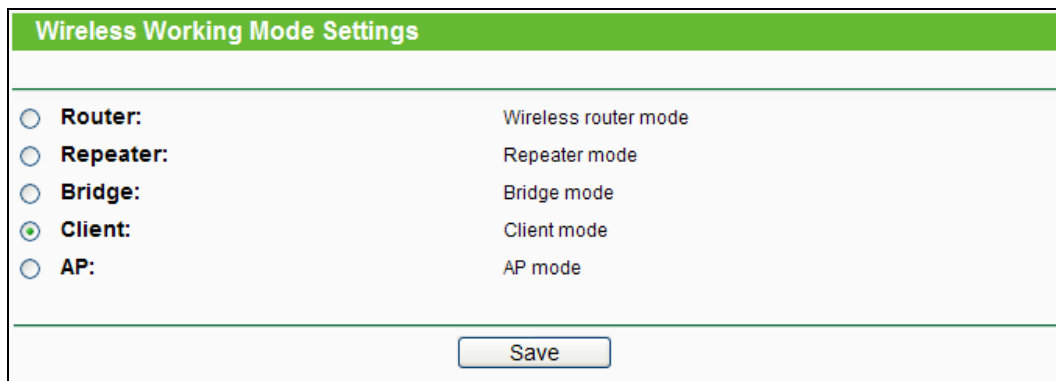
Click the **Refresh** button to get the latest status and settings of the Router.

7.3 Quick Setup

Please refer to [Section 3.2.4](#).

7.4 Working Mode

The Router supports five operation mode types: **Router**, **Repeater**, **Bridge**, **Client** and **AP**. Please select the mode you want. Click **Save** to save your choice, which is shown as Figure 7-3.



Wireless Working Mode Settings	
<input type="radio"/> Router:	Wireless router mode
<input type="radio"/> Repeater:	Repeater mode
<input type="radio"/> Bridge:	Bridge mode
<input checked="" type="radio"/> Client:	Client mode
<input type="radio"/> AP:	AP mode

Figure 7-3 Working Mode

- **Router** - The wireless Router Mode. In this mode, the device enables multi-user to share Internet via DSL/Cable Modem. The only wired port works as WAN.
- **Repeater** - The wireless Repeater Mode. It could extend the range of wireless network.
- **Bridge** - The wireless Bridge Mode. It could communicate with another wireless network.
- **Client** - The Client Mode. The computer connected by Ethernet could get access to an AP by Client mode.
- **AP** - The wireless access point mode.

Click **OK** in the following screen and then the Router will reboot and to work on Client Mode.

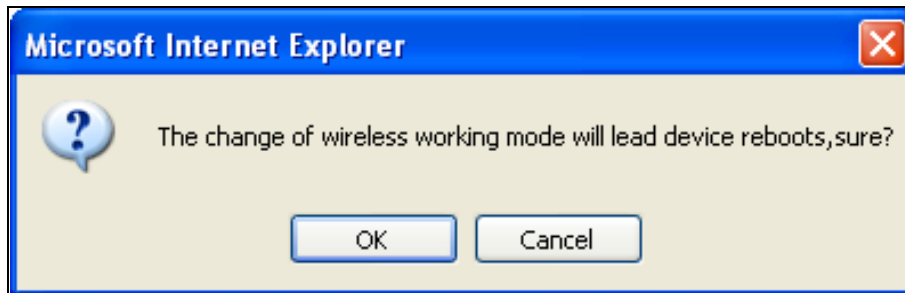


Figure 7-4

7.5 Network



Figure 7-5 the Network menu

There is only one submenu under the Network menu (shown in Figure 7-5): **LAN**.

7.5.1 LAN

Choose menu "**Network** → **LAN**", and then you can configure the IP parameters of the LAN on the screen as below.

A screenshot of the LAN configuration page. The page has a green header with the text "LAN". Below the header, there are four configuration fields: "Address Type" with a dropdown menu set to "Smart IP", "MAC Address" with the value "F8-D1-11-5B-51-50", "IP Address" with a text input field containing "192.168.1.115", and "Subnet Mask" with a dropdown menu set to "255.255.255.0". At the bottom of the form is a "Save" button.

Figure 7-6 LAN

- **Address Type** - Choosing **Smart IP** to get IP address from DHCP server, or choosing **Static IP** to configure IP address manually.
- **MAC Address** - The physical address of the LAN ports, as seen from the LAN. The value cannot be changed.
- **IP Address** - Enter the IP address of your Router in dotted-decimal notation. The factory default is 192.168.0.254.
- **Subnet Mask** - An address code that determines the size of the network. Usually it is 255.255.255.0.

 **Note:**

1. If you change the LAN IP address, you must use the new IP address to login to the Router.
2. If you select the type of Smart IP (DHCP) and there is a DHCP server forward, the DHCP

server in this device will not start up.

3. If the new LAN IP address you set is not in the same subnet with the previous one, the IP Address pool in the DHCP server will be configured automatically, but the Virtual Server and DMZ Host will not take effect until they are re-configured.

7.6 Wireless

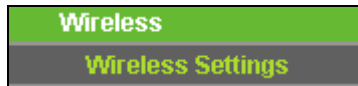


Figure 7-7 Wireless menu

There is one submenu under the Wireless menu (shown in Figure 7-7): **Wireless Settings**. Click any of them, and you will be able to configure the corresponding function.

7.6.1 Wireless Settings

Choose menu “**Wireless** → **Wireless Settings**”, and then you can configure the basic settings for the wireless network on this page.

 A screenshot of the 'Wireless Settings - Client' configuration page. The page has a green header. The main content area contains several fields:

- SSID: Text input field containing 'TP-LINK_Network'.
- MAC of AP: Text input field containing '94-0C-6D-2F-3C-BE'. To its right is an example: 'Example:00-1D-0F-11-22-33'.
- Region: Dropdown menu showing 'United States'.
- Warning: Text block: 'Ensure you select a correct country to conform local law. Incorrect settings may cause interference.'
- Survey: Button.
- (Please choose Main AP's type of encryption, and input the wireless password)
- Security Options: Dropdown menu showing 'WPA-PSK/WPA2-PSK'.
- WEP Key Index: Dropdown menu showing '1'.
- Authentication Type: Dropdown menu showing 'Open System'.
- PassWord: Text input field containing '751953852'.

 At the bottom of the form is a 'Save' button.

Figure 7-8 Wireless Settings - Client

- **SSID** - Enter a string of up to 32 characters. The same name of SSID (Service Set Identification) must be assigned to all wireless devices in your network. The default SSID is set to be TP-LINK_XXXXXX (XXXXXX indicates the last unique six numbers of each Router's MAC address). But it is recommended strongly that you change your networks name (SSID) to a different value. This value is case-sensitive. For example, *TEST* is NOT the same as *test*.
- **MAC of AP** - The MAC address of AP that you want to access.

- **Region** - Select your region from the pull-down list. This field specifies the region where the wireless function of the Router can be used. It may be illegal to use the wireless function of the Router in a region other than one of those specified in this field. If your country or region is not listed, please contact your local government agency for assistance.
- **Survey** - Click this button, you can survey the AP which runs in the current channel.
- **Security Options** - This option should be chosen according to the AP's security configuration. It is recommended that the security type is the same as your AP's security option.
- **WEP Key Index** - This option should be chosen if the key type is WEP (ASCII) or WEP (HEX). It indicates the index of the WEP key.
- **Authentication Type** - This option should be chosen if the key type is WEP (ASCII) or WEP (HEX). It indicates the authorization type of the Root AP.
- **PassWord** - If the AP your Router is going to connect needs password, you need to fill the password in this blank.

Be sure to click the **Save** button to save your settings on this page.

7.7 DHCP

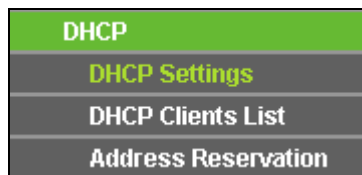


Figure 7-9 The DHCP menu

There are three submenus under the DHCP menu (shown in Figure 7-9), **DHCP Settings**, **DHCP Clients List** and **Address Reservation**. Click any of them, and you will be able to configure the corresponding function.

7.7.1 DHCP Settings

Selecting **DHCP > DHCP Settings** will enable you to set up the Range Extender as a DHCP (Dynamic Host Configuration Protocol) server, which provides the TCP/IP configuration for all the PCs that are connected to the system on the LAN. The DHCP Server can be configured on the page (shown as Figure 7-11), only when you've set the Network LAN type as Static IP in Figure 7-6.

Note:

The DHCP Settings function cannot be configured if you have chosen Smart IP (DHCP) in **Network -> LAN**, in which situation the device will help you configure the DHCP automatically as you need. The DHCP Settings page will appear as Figure 7-10.

DHCP Settings	
DHCP Server:	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
Start IP Address:	<input type="text" value="192.168.1.100"/>
End IP Address:	<input type="text" value="192.168.1.199"/>
Address Lease Time:	<input type="text" value="120"/> minutes (1~2880 minutes, the default value is 120)
Default Gateway:	<input type="text" value="0.0.0.0"/> (optional)
Default Domain:	<input type="text"/> (optional)
Primary DNS:	<input type="text" value="0.0.0.0"/> (optional)
Secondary DNS:	<input type="text" value="0.0.0.0"/> (optional)
<p>Note: The DHCP Settings function cannot be configured if you have chosen Smart IP in Network->LAN (in this situation the device will help you configure the DHCP automatically as you need).</p>	
<input type="button" value="Save"/>	

Figure 7-10 DHCP Settings

DHCP Settings	
DHCP Server:	<input checked="" type="radio"/> Disable <input type="radio"/> Enable
Start IP Address:	<input type="text" value="192.168.1.100"/>
End IP Address:	<input type="text" value="192.168.1.199"/>
Address Lease Time:	<input type="text" value="120"/> minutes (1~2880 minutes, the default value is 120)
Default Gateway:	<input type="text" value="0.0.0.0"/> (optional)
Default Domain:	<input type="text"/> (optional)
Primary DNS:	<input type="text" value="0.0.0.0"/> (optional)
Secondary DNS:	<input type="text" value="0.0.0.0"/> (optional)
<input type="button" value="Save"/>	

Figure 7-11 DHCP Settings

- **DHCP Server** - Selecting the radio button before **Disable/Enable** will disable/enable the DHCP server on your Range Extender. The default setting is **Enable**. If you disable the Server, you must have another DHCP server within your network or else you must manually configure the computer.
- **Start IP Address** - This field specifies the first address in the IP Address pool. 192.168.0.100 is the default start IP address.
- **End IP Address** - This field specifies the last address in the IP Address pool. 192.168.0.199 is the default end IP address.
- **Address Lease Time** - Enter the amount of time for the PC to connect to the Range Extender with its current assigned dynamic IP address. The time is measured in minutes. After the time

is up, the PC will be automatically assigned a new dynamic IP address. The range of the time is 1 ~ 2880 minutes. The default value is 120 minutes.

- **Default Gateway (optional)** - Enter the IP address of the gateway for your LAN. The factory default setting is 0.0.0.0.
- **Default Domain (optional)** - Enter the domain name of the your DHCP server. You can leave the field blank.
- **Primary DNS (optional)** - Enter the DNS IP address provided by your ISP. Consult your ISP if you don't know the DNS value. The factory default setting is 0.0.0.0.
- **Secondary DNS (optional)** - Enter the IP address of another DNS server if your ISP provides two DNS servers. The factory default setting is 0.0.0.0.

Click **Save** to save the changes.

 **Note:**

To use the DHCP server function of the device, you should configure all computers in the LAN as "Obtain an IP Address automatically" mode. This function will not take effect until the device reboots.

7.7.2 DHCP Clients List

Choose menu "DHCP → DHCP Clients List", and then you can view the information about the clients attached to the Router in the screen as shown in Figure 7-12.

DHCP Clients List				
ID	Client Name	MAC Address	Assigned IP	Lease Time
1	tp-113ea910272d	40-61-86-CF-20-7A	192.168.0.100	01:43:33

Figure 7-12 DHCP Clients List

- **Client Name** - The name of the DHCP client
- **MAC Address** - The MAC address of the DHCP client
- **Assigned IP** - The IP address that the Router has allocated to the DHCP client
- **Lease Time** - The time of the DHCP client leased. After the dynamic IP address has expired, a new dynamic IP address will be automatically assigned to the user.

You cannot change any of the values on this page. To update this page and to show the current attached devices, click the **Refresh** button.

7.7.3 Address Reservation

Choose menu “**DHCP** → **Address Reservation**”, and then you can view and add a reserved address for clients via the next screen (shown in Figure 7-13). When you specify a reserved IP address for a PC on the LAN, that PC will always receive the same IP address each time when it accesses the DHCP server. Reserved IP addresses should be assigned to the servers that require permanent IP settings.

Address Reservation				
ID	MAC Address	Reserved IP Address	Status	Modify
1	00-0A-EB-13-09-BB	192.168.0.100	Enabled	Modify Delete

Figure 7-13 Address Reservation

- **MAC Address** - The MAC address of the PC for which you want to reserve an IP address.
- **Reserved IP Address** - The IP address reserved for the PC by the Router.
- **Status** - The status of this entry either **Enabled** or **Disabled**.

To Reserve an IP address:

1. Click the **Add New...** button. Then Figure 7-14 will pop-up.
2. Enter the MAC address (in XX-XX-XX-XX-XX-XX format.) and IP address (in dotted-decimal notation) of the computer for which you want to reserve an IP address.
3. Click the **Save** button.

Add or Modify an Address Reservation Entry	
MAC Address:	<input type="text"/>
Reserved IP Address:	<input type="text"/>
Status:	Enabled <input type="button" value="v"/>

Figure 7-14 Add or Modify an Address Reservation Entry

To modify or delete an existing entry:

1. Click the **Modify** in the entry you want to modify. If you want to delete the entry, click the **Delete**.
2. Modify the information.

3. Click the **Save** button.

Click the **Enable/Disable All** button to make all entries enabled/disabled

Click the **Delete All** button to delete all entries.

Click the **Next** button to go to the next page and Click the **Previous** button to return the previous page.

7.8 System Tools



Figure 7-15 The System Tools menu

Choose menu "**System Tools**", and then you can see the submenus under the main menu: **Diagnostic**, **Firmware**, **Factory Defaults**, **Backup & Restore**, **Reboot**, **Password**, and **System Log**. Click any of them, and you will be able to configure the corresponding function. The detailed explanations for each submenu are provided below.

7.8.1 Diagnostic

Choose menu "**System Tools** → **Diagnostic**", and then you can transact Ping or Traceroute function to check connectivity of your network in the following screen.

Diagnostic Tools

Diagnostic Parameters

Diagnostic Tool: Ping Traceroute

IP Address/ Domain Name:

Ping Count: (1-50)

Ping Packet Size: (4-1472 Bytes)

Ping Timeout: (100-2000 Milliseconds)

Traceroute Max TTL: (1-30)

Diagnostic Results

The Router is ready.

Figure 7-16 Diagnostic Tools

- **Diagnostic Tool** - Check the radio button to select one diagnostic tool.
 - **Ping** - This diagnostic tool troubleshoots connectivity, reachability, and name resolution to a given host or gateway.
 - **Traceroute** - This diagnostic tool tests the performance of a connection.

 **Note:**

You can use ping/traceroute to test both numeric IP address or domain name. If pinging/tracerouting the IP address is successful, but pinging/tracerouting the domain name is not, you might have a name resolution problem. In this case, ensure that the domain name you are specifying can be resolved by using Domain Name System (DNS) queries.

- **IP Address/Domain Name** - Type the destination IP address (e.g. 202.108.22.5) or Domain name (e.g.http://www.tp-link.com).
- **Pings Count** - The number of Ping packets for a Ping connection. The default is 4.
- **Ping Packet Size** - The size of Ping packet. The default is 64.
- **Ping Timeout** - Set the waiting time for the reply of each Ping packet. If there is no reply in the specified time, the connection is overtime. The default is 800.

- **Traceroute Max TTL** - The max number of hops for a Traceroute connection. The default is 20.

Click **Start** to check the connectivity of the Internet.

The **Diagnostic Results** page displays the result of diagnosis.

If the result is similar to the following screen, the connectivity of the Internet is fine.

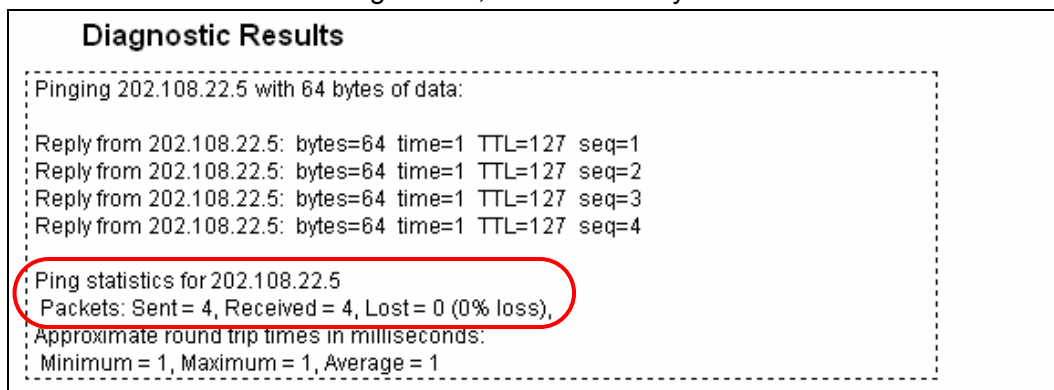


Figure 7-17 Diagnostic Results

Note:

Only one user can use this tool at one time. Options “Number of Pings”, “Ping Size” and “Ping Timeout” are used for **Ping** function. Option “Tracert Hops” are used for **Tracert** function.

7.8.2 Firmware

Choose menu “**System Tools** → **Firmware Upgrade**”, and then you can update the latest version of firmware for the Router on the following screen.

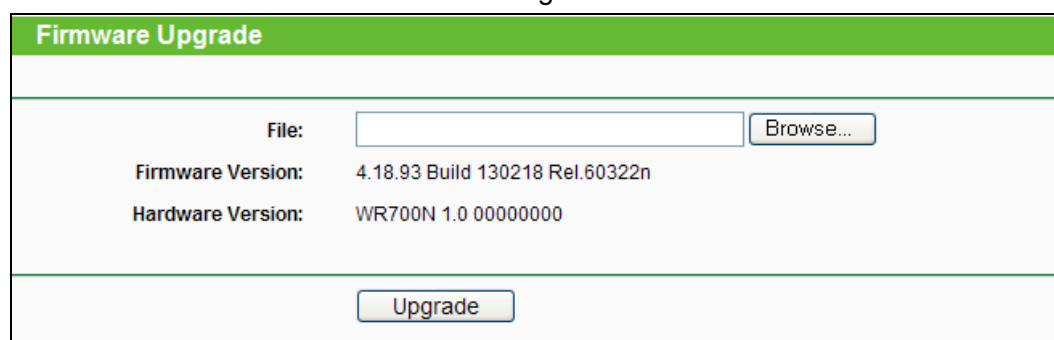


Figure 7-18 Firmware Upgrade

- **Firmware Version** - This displays the current firmware version.
- **Hardware Version** - This displays the current hardware version. The hardware version of the upgrade file must accord with the Router’s current hardware version.

To upgrade the Router’s firmware, follow these instructions below:

1. Download a more recent firmware upgrade file from the TP-LINK website (<http://www.tp-link.com>).
2. Type the path and file name of the update file into the **File** field, or click the **Browse...** button to locate the update file.

3. Click the **Upgrade** button.

 **Note:**

1. New firmware versions are posted at <http://www.tp-link.com> and can be downloaded for free. There is no need to upgrade the firmware unless the new firmware has a new feature you want to use. However, when experiencing problems caused by the Router rather than the configuration, you can try to upgrade the firmware.
2. When you upgrade the Router's firmware, you may lose its current configurations, so before upgrading the firmware please write down some of your customized settings to avoid losing important settings.
3. Do not turn off the Router or press the Reset button while the firmware is being upgraded, otherwise, the Router may be damaged.
4. The Router will reboot after the upgrading has been finished.

7.8.3 Factory Defaults

Choose menu “**System Tools** → **Factory Defaults**”, and you can restore the configurations of the Router to factory defaults on the following screen.



Figure 7-19 Restore Factory Default

Click the **Restore** button to reset all configuration settings to their default values.

- The default **User Name**: admin
- The default **Password**: admin
- The default **IP Address**: 192.168.0.254
- The default **Subnet Mask**: 255.255.255.0

 **Note:**

All changed settings will be lost when defaults are restored.

7.8.4 Backup & Restore

Choose menu “**System Tools** → **Backup & Restore**”, and then you can save the current configuration of the Router as a backup file and restore the configuration via a backup file as shown in Figure 7-20.



Figure 7-20 Backup & Restore Configuration

- Click the **Backup** button to save all configuration settings as a backup file in your local computer.
- To upgrade the Router's configuration, follow these instructions.
 - Click the **Browse...** button to locate the update file for the Router, or enter the exact path to the Setting file in the text box.
 - Click the **Restore** button.

 **Note:**

The current configuration will be covered by the uploading configuration file. The upgrade process lasts for 20 seconds and the Router will restart automatically. Keep the Router on during the upgrading process to prevent any damage.

7.8.5 Reboot

Choose menu “**System Tools** → **Reboot**”, and then you can click the **Reboot** button to reboot the Router via the next screen.



Figure 7-21 Reboot the Router

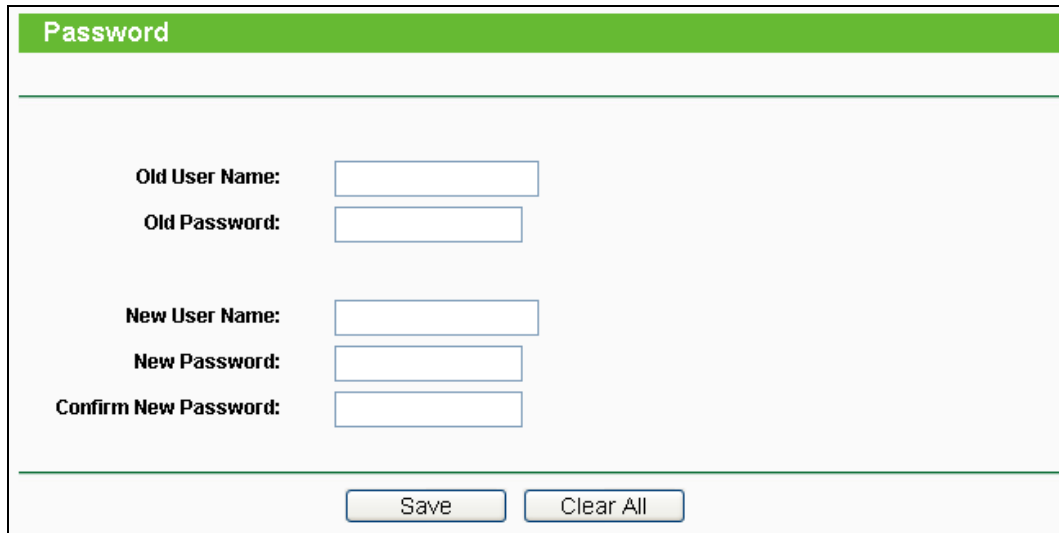
Some settings of the Router will take effect only after rebooting, which include:

- Change the LAN IP Address (system will reboot automatically).
- Change the DHCP Settings.
- Change the Wireless configurations.
- Change the Web Management Port.
- Upgrade the firmware of the Router (system will reboot automatically).

- Restore the Router's settings to factory defaults (system will reboot automatically).
- Update the configuration with the file (system will reboot automatically).

7.8.6 Password

Choose menu “**System Tools** → **Password**”, and then you can change the factory default user name and password of the Router in the next screen as shown in Figure 7-22.



Old User Name:

Old Password:

New User Name:

New Password:

Confirm New Password:

Figure 7-22 Password

It is strongly recommended that you should change the factory default user name and password of the Router, because all users who try to access the Router's Web-based utility or Quick Setup will be prompted for the Router's default user name and password.

Note:

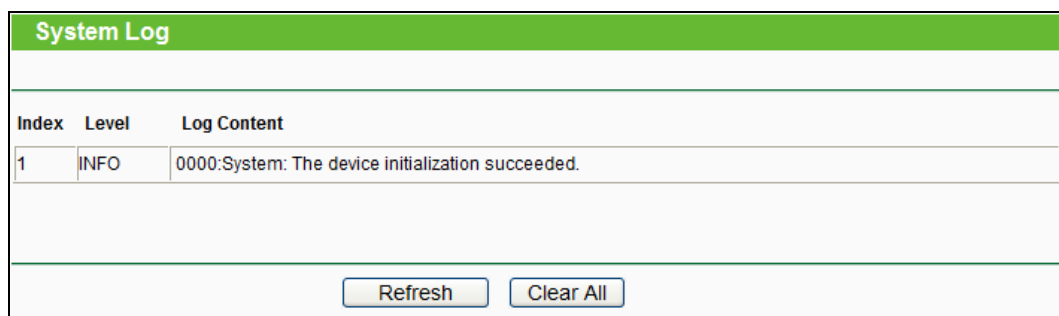
The new user name and password must not exceed 14 characters in length and not include any spaces. Enter the new Password twice to confirm.

Click the **Save** button when finished.

Click the **Clear All** button to clear all.

7.8.7 System Log

Choose menu “**System Tools** → **System Log**”, and then you can view the logs of the Router.



Index	Level	Log Content
1	INFO	0000:System: The device initialization succeeded.

Figure 7-23 System Log

- **Refresh** - Refresh the page to show the latest log list.
- **Clear All** - All the logs will be deleted from the Router permanently, not just from the page.

Chapter 8. Configuration for AP Mode

This chapter will show each Web page's key functions and the configuration way for AP Mode of TL-WR700N.

8.1 Login

After your successful login, you can configure and manage the device. There are main menus on the left of the web-based utility. Submenus will be available after you click one of the main menus. On the right, there are the corresponding explanations and instructions.

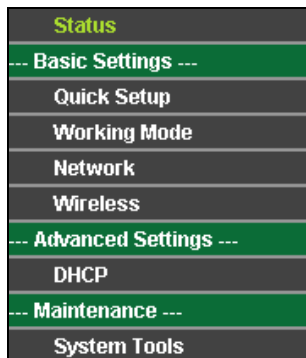


Figure 8-1

The detailed explanations for each Web page's key function are listed below.

8.2 Status

The Status page provides the current status information about the Router on AP Mode. All information is read-only.

Status	
Firmware Version:	4.18.93 Build 130218 Rel.60322n
Hardware Version:	WR700N 1.0 00000000
LAN	
MAC Address:	F8-D1-11-5B-51-50
IP Address:	192.168.1.101
Subnet Mask:	255.255.255.0
Wireless	
Wireless Mode:	AP Mode
Wireless Radio:	Enable
Name (SSID):	TP-LINK_Network_EXT
Channel:	9
Mode:	11bgn mixed
Channel Width:	Auto
MAC Address:	F8-D1-11-5B-51-50
WDS Status:	Disable
System Up Time:	0 day(s) 00:00:56
	<input type="button" value="Refresh"/>

Figure 8-2 Status

- **Firmware Version** - The version information of the Router's firmware.
- **Hardware Version** - The version information of the Router's hardware.
- **LAN** - This field displays the current settings or information for the LAN, you can configure them in the **Network > LAN** page.
 - **MAC address** - The physical address of the Router, as seen from the LAN.
 - **IP address** - The LAN IP address of the Router.
 - **Subnet Mask** - The subnet mask associated with LAN IP address.
- **Wireless** - This field displays basic information or status for wireless function, you can configure them in the **Wireless > Wireless Settings** page.
 - **Wireless Mode** - The current wireless working mode in use.
 - **Wireless Radio** - Indicates whether the wireless radio feature of the AP is enabled or disabled.
 - **Name (SSID)** - The SSID of the AP.
 - **Channel** - The current wireless channel in use.
 - **Mode** - The current wireless mode which the Router works on.

- **Channel Width** - The current wireless channel width in use.
 - **MAC address** - The physical address of the Router, as seen from the WLAN.
 - **WDS Status** - The status of WDS connection.
- **System Up Time** - The length of the time since the Router was last powered on or reset.

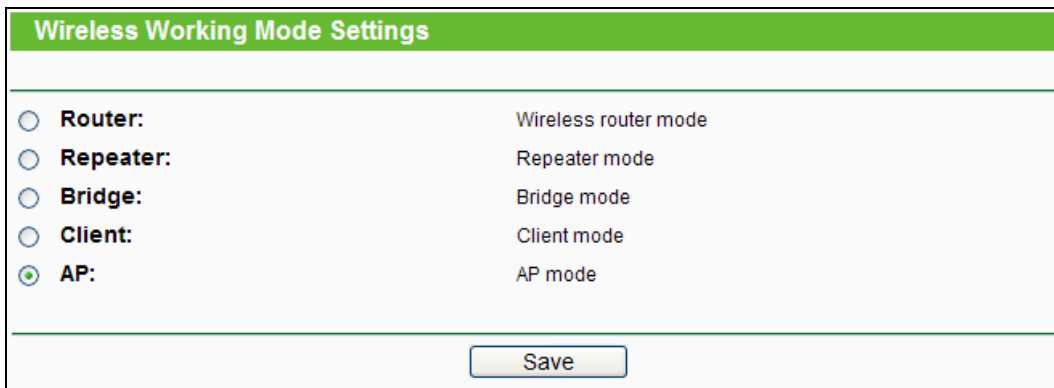
Click the **Refresh** button to get the latest status and settings of the Router.

8.3 Quick Setup

Please refer to [Section 3.2.5](#).

8.4 Working Mode

The Router supports five operation mode types: **Router**, **Repeater**, **Bridge**, **Client** and **AP**. Please select one you want. Click **Save** to save your choice, which is shown as Figure 8-3.



Wireless Working Mode Settings	
<input type="radio"/> Router:	Wireless router mode
<input type="radio"/> Repeater:	Repeater mode
<input type="radio"/> Bridge:	Bridge mode
<input type="radio"/> Client:	Client mode
<input checked="" type="radio"/> AP:	AP mode

Figure 8-3 Working Mode

- **Router** - The wireless Router Mode. In this mode, the device enables multi-user to share Internet via DSL/Cable Modem. The only wired port works as WAN.
- **Repeater** - The wireless Repeater Mode. It could extend the range of wireless network.
- **Bridge** - The wireless Bridge Mode. It could communicate with another wireless network.
- **Client** - The Client Mode. The computer connected by Ethernet could get access to an AP by Client mode.
- **AP** - The wireless access point mode.

Click **OK** in the following screen and then the Router will reboot and to work on Client Mode.

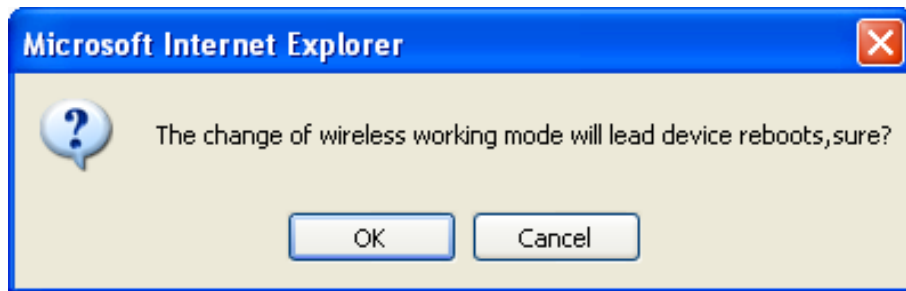


Figure 8-4

8.5 Network



Figure 8-5 the Network menu

There is only one submenu under the Network menu (shown in Figure 8-5): **LAN**.

8.5.1 LAN

Choose menu "**Network** → **LAN**", and then you can configure the IP parameters of the LAN on the screen as below.

Figure 8-6 LAN

- **Address Type** - Choosing **Smart IP** to get IP address from DHCP server, or choosing **Static IP** to configure IP address manually.
- **MAC Address** - The physical address of the LAN ports, as seen from the LAN. The value cannot be changed.
- **IP Address** - Enter the IP address of your Router in dotted-decimal notation. The factory default is 192.168.0.254.
- **Subnet Mask** - An address code that determines the size of the network. Usually it is 255.255.255.0.

Note:

1. If you change the LAN IP address, you must use the new IP address to login to the Router.
2. If you select the type of Smart IP (DHCP) and there is a DHCP server forward, the DHCP

server in this device will not start up.

3. If the new LAN IP address you set is not in the same subnet with the previous one, the IP Address pool in the DHCP server will be configured automatically, but the Virtual Server and DMZ Host will not take effect until they are re-configured.

8.6 Wireless

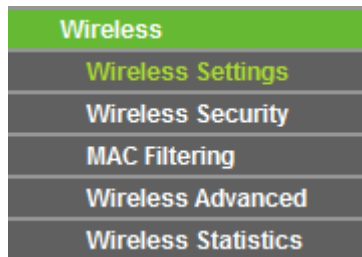


Figure 8-7 Wireless menu

There are five submenus under the Wireless menu (shown in Figure 8-7): **Wireless Settings**, **Wireless Security**, **MAC Filtering**, **Wireless Advanced** and **Wireless Statistics**. Click any of them, and you will be able to configure the corresponding function.

8.6.1 Wireless Settings

Choose menu “**Wireless** → **Wireless Settings**”, and then you can configure the basic settings for the wireless network on this page.

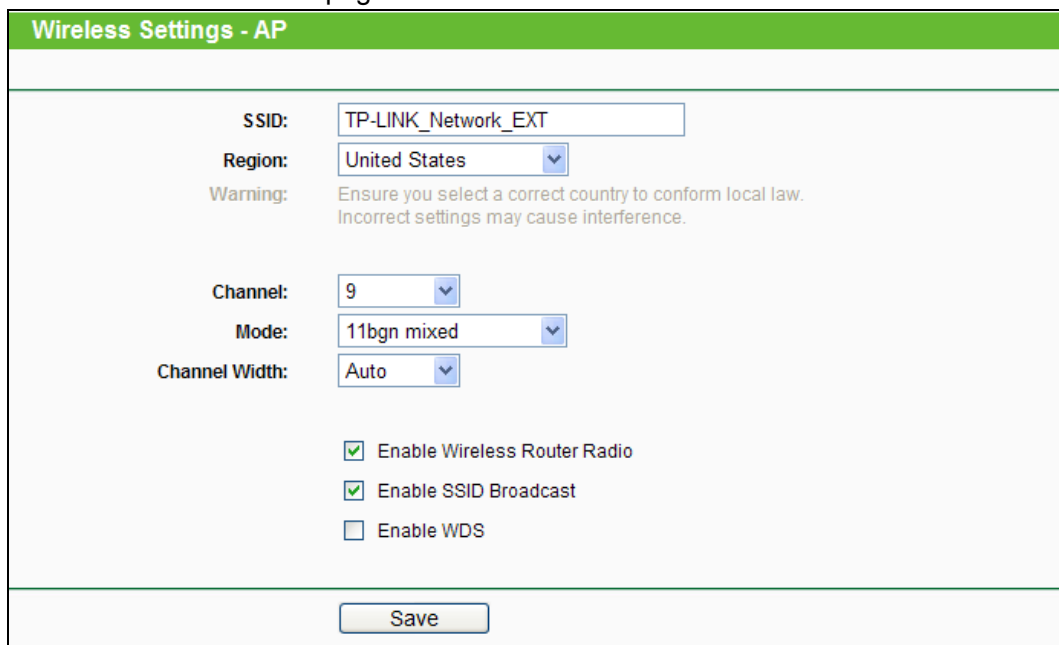
A screenshot of the 'Wireless Settings - AP' configuration page. The page has a green header. Below the header, there are several configuration fields: 'SSID' with a text input field containing 'TP-LINK_Network_EXT'; 'Region' with a dropdown menu set to 'United States'; a 'Warning' message: 'Ensure you select a correct country to conform local law. Incorrect settings may cause interference.'; 'Channel' with a dropdown menu set to '9'; 'Mode' with a dropdown menu set to '11bgn mixed'; and 'Channel Width' with a dropdown menu set to 'Auto'. Below these fields are three checkboxes: 'Enable Wireless Router Radio' (checked), 'Enable SSID Broadcast' (checked), and 'Enable WDS' (unchecked). At the bottom of the page is a 'Save' button.

Figure 8-8 Wireless Settings - AP

- **SSID** - Enter a string of up to 32 characters. The same name of SSID (Service Set Identification) must be assigned to all wireless devices in your network. The default SSID is set to be TP-LINK_XXXXXX (XXXXXX indicates the last unique six numbers of each Router's MAC address). But it is recommended strongly that you change your network's

name (SSID) to a different value. This value is case-sensitive. For example, *TEST* is NOT the same as *test*.

- **Region** - Select your region from the pull-down list. This field specifies the region where the wireless function of the Router can be used. It may be illegal to use the wireless function of the Router in a region other than one of those specified in this field. If your country or region is not listed, please contact your local government agency for assistance.
- **Channel** - This field determines which operating frequency will be used. The default channel is set to **Auto**. It is not necessary to change the wireless channel unless you notice interference problems with another nearby access point.
- **Mode** - Select the desired mode. The default setting is 11bgn mixed.
 - **11b only** - Select if all of your wireless clients are 802.11b.
 - **11g only** - Select if all of your wireless clients are 802.11g.
 - **11n only** - Select only if all of your wireless clients are 802.11n.
 - **11bg mixed** - Select if you are using both 802.11b and 802.11g wireless clients.
 - **11bgn mixed** - Select if you are using a mix of 802.11b, 11g, and 11n wireless clients.

Select the desired wireless mode. When 802.11g mode is selected, only 802.11g wireless stations can connect to the Router. When 802.11n mode is selected, only 802.11n wireless stations can connect to the AP. It is strongly recommended that you set the Mode to **802.11b/g/n**, and all of 802.11b, 802.11g, and 802.11n wireless stations can connect to the Router.

- **Channel Width** - Select any channel width from the pull-down list. The default setting is automatic, which can automatically adjust the channel width for your clients.
- **Enable Wireless Router Radio** - The wireless radio of the Router can be enabled or disabled to allow wireless stations access. If enabled, the wireless stations will be able to access the Router. Otherwise, wireless stations will not be able to access the Router.
- **Enable SSID Broadcast** - If you select the **Enable SSID Broadcast** checkbox, the wireless router will broadcast its name (SSID) on the air.
- **Enable WDS** - You can select to enable WDS. With this function, the Router can bridge two or more WLANs. If this checkbox is selected, you will have to set the following parameters as shown below. Make sure the following settings are correct.

	<input checked="" type="checkbox"/> Enable WDS
SSID(to be bridged):	<input type="text"/>
BSSID(to be bridged):	<input type="text"/> For example:00-1D-0F-11-22-33
	<input type="button" value="Survey"/>
Security Options:	Disable Security <input type="button" value="v"/>
WEP Index:	1 <input type="button" value="v"/>
Authentication Type:	Open System <input type="button" value="v"/>
Password:	<input type="text"/>
<input type="button" value="Save"/>	

- **SSID (to be bridged)** - The SSID of the AP your Router is going to connect to as a client. You can also use the search function to select the SSID to join.
- **BSSID (to be bridged)** - The BSSID of the AP your Router is going to connect to as a client. You can also use the search function to select the BSSID to join.
- **Survey** - Click this button, you can survey the AP which runs in the current channel.
- **Security Options** - This option should be chosen according to the AP's security configuration. It is recommended that the security type is the same as your AP's security type.
- **WEP Index** - This option should be chosen if the key type is WEP (ASCII) or WEP (HEX). It indicates the index of the WEP key.
- **Authentication Type** - This option should be chosen if the key type is WEP (ASCII) or WEP (HEX). It indicates the authorization type of the Root AP.
- **Password** - If the AP your Router is going to connect needs password, you need to fill the password in this blank.

Be sure to click the **Save** button to save your settings on this page.

 **Note:**

1. The operating distance or range of your wireless connection varies significantly based on the physical placement of the Router. For best results, place your Router.
 - Near the center of the area in which your wireless stations will operate.
 - In an elevated location such as a high shelf.
 - Away from the potential sources of interference, such as PCs, microwaves, and cordless phones.
 - Away from large metal surfaces.

2. Failure to follow these guidelines can result in significant performance degradation or inability to wirelessly connect to the Router.

8.6.2 Wireless Security

Choose menu “**Wireless** → **Wireless Security**”, and then you can configure the security settings of your wireless network.

There are three wireless security modes supported by the Router: WEP (Wired Equivalent Privacy), WPA/WPA2 and WPA-PSK/WPA2-PSK.

Wireless Security

Disable Security

WEP

Type: Automatic

WEP Key Format: Hexadecimal

Key Selected	WEP Key	Key Type
Key 1: <input checked="" type="radio"/>		Disabled
Key 2: <input type="radio"/>		Disabled
Key 3: <input type="radio"/>		Disabled
Key 4: <input type="radio"/>		Disabled

WPA/WPA2

Version: Automatic

Encryption: Automatic

Radius Server IP:

Radius Port: 1812 (1-65535, 0 stands for default port 1812)

Radius Password:

Group Key Update Period: 86400 (in second, minimum is 30, 0 means no update)

WPA-PSK/WPA2-PSK

Version: Automatic

Encryption: Automatic

PSK Password: 9F2046F2
(You can enter ASCII characters between 8 and 63 or Hexadecimal characters between 8 and 64.)

Group Key Update Period: 86400 (in second, minimum is 30, 0 means no update)

Save

Figure 8-9 Wireless Security

- **Disable Security** - The wireless security function can be enabled or disabled. If disabled, the wireless stations will be able to connect the Router without encryption. But it's strongly recommended to choose one of the following modes to enable security.
- **WEP** - It is based on the IEEE 802.11 standard.

- **Type** - you can choose the type for the WEP security on the pull-down list. The default setting is **Automatic**, which can select **Shared Key** or **Open System** authentication type automatically based on the wireless station's capability and request.
- **WEP Key Format** - **Hexadecimal** and **ASCII** formats are provided here. **Hexadecimal** format stands for any combination of hexadecimal digits (0-9, a-f, A-F) in the specified length. **ASCII** format stands for any combination of keyboard characters in the specified length.
- **WEP Key (Password)** - Select which of the four keys will be used and enter the matching WEP key that you create. Make sure these values are identical on all wireless stations in your network.
- **Key Type** - You can select the WEP key length (64-bit, or 128-bit, or 152-bit.) for encryption. "Disabled" means this WEP key entry is invalid.
 - 64-bit** - You can enter 10 hexadecimal digits (any combination of 0-9, a-f, A-F, zero key is not promoted) or 5 ASCII characters.
 - 128-bit** - You can enter 26 hexadecimal digits (any combination of 0-9, a-f, A-F, zero key is not promoted) or 13 ASCII characters.
 - 152-bit** - You can enter 32 hexadecimal digits (any combination of 0-9, a-f, A-F, zero key is not promoted) or 16 ASCII characters.

 **Note:**

If you do not set the key, the wireless security function is still disabled even if you have selected Shared Key as Authentication Type.

➤ **WPA /WPA2**

- **Version** - you can choose the version of the WPA security from the pull-down list. The default setting is **Automatic**, which can select **WPA** (Wi-Fi Protected Access) or **WPA2** (WPA version 2) automatically based on the wireless station's capability and request.
- **Encryption** - You can select **Automatic**, **TKIP** or **AES**.
- **Radius Server IP** - Enter the IP address of the Radius server.
- **Radius Port** - Enter the port that Radius server used.
- **Radius Password** - Enter the password for the Radius server.
- **Group Key Update Period** - Specify the group key update interval in seconds. The value should be 30 or above. Enter 0 to disable the update.

➤ **WPA-PSK/WPA2-PSK**- It's the WPA/WPA2 authentication type based on pre-shared passphrase.

- **Version** - you can choose the version of the WPA-PSK security on the drop-down list. The default setting is **Automatic (Recommended)**, which can select **WPA-PSK** (Pre-shared

key of WPA) or **WPA2-PSK** (Pre-shared key of WPA) automatically based on the wireless station's capability and request.

- **Encryption** - When **WPA-PSK** or **WPA** is set as the Authentication Type, you can select **Automatic (Recommended)**, **TKIP** or **AES** as Encryption.
- **PSK Password** - You can enter **ASCII** or **Hexadecimal** characters. The default password is the last unique eight numbers of each Router's MAC address.

For **ASCII**, the key can be made up of any numbers 0 to 9 and any letters A to Z, the length should be between 8 and 63 characters.

For **Hexadecimal**, the key can be made up of any numbers 0 to 9 and letters A to F, the length should be between 8 and 64 characters.

Please also note the key is case sensitive, this means that upper and lower case keys will affect the outcome. It would also be a good idea to write down the key and all related wireless security settings.

- **Group Key Update Period** - Specify the group key update interval in seconds. The value should be 30 or above. Enter 0 to disable the update.

Be sure to click the **Save** button to save your settings on this page.

8.6.3 MAC Filtering

Choose menu "**Wireless** → **MAC Filtering**", and then you can control the wireless access by configuring the **Wireless MAC Filtering** function, as shown in Figure 8-10.

Wireless MAC Filtering

Wireless MAC Filtering: **Disabled**

Filtering Rules

Deny the stations specified by any enabled entries in the list to access.

Allow the stations specified by any enabled entries in the list to access.

ID	MAC Address	Status	Description	Modify
1	00-0A-EB-B0-00-0B	Enabled	wireless station A	Modify Delete

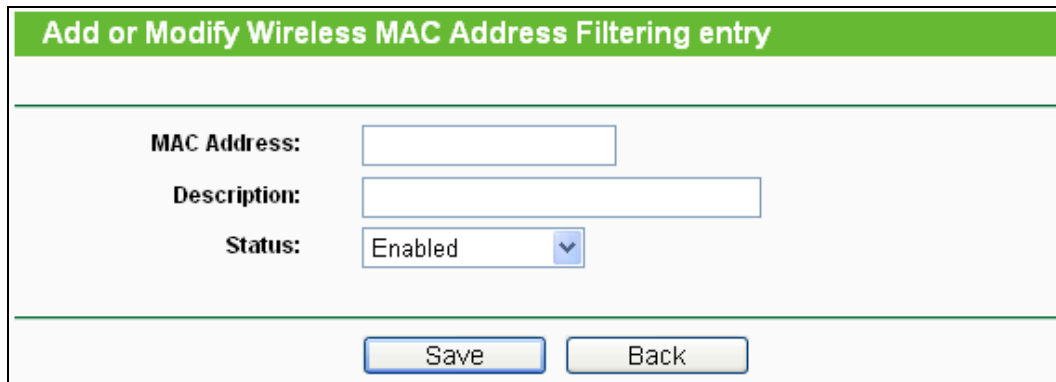
Figure 8-10 Wireless MAC Filtering

To filter wireless users by MAC Address, click **Enable**. The default setting is **Disabled**.

- **MAC Address** - The wireless station's MAC address that you want to access.
- **Status** - The status of this entry, either **Enabled** or **Disabled**.

➤ **Description** - A simple description of the wireless station.

To Add a Wireless MAC Address filtering entry, click the **Add New...** button. The "**Add or Modify Wireless MAC Address Filtering entry**" page will appear, shown in Figure 8-11:



The screenshot shows a web form titled "Add or Modify Wireless MAC Address Filtering entry". The form contains three input fields: "MAC Address:" (a text box), "Description:" (a text box), and "Status:" (a pull-down menu with "Enabled" selected). At the bottom of the form, there are two buttons: "Save" and "Back".

Figure 8-11 Add or Modify Wireless MAC Address Filtering entry

To add or modify a MAC Address Filtering entry, follow these instructions:

1. Enter the appropriate MAC Address into the **MAC Address** field. The format of the MAC Address is XX-XX-XX-XX-XX-XX (X is any hexadecimal digit). For example: 00-0A-EB-B0-00-0B.
2. Give a simple description for the wireless station in the **Description** field. For example: Wireless station A.
3. Select **Enabled** or **Disabled** for this entry on the **Status** pull-down list.
4. Click the **Save** button to save this entry.

To modify or delete an existing entry:

1. Click the **Modify** in the entry you want to modify. If you want to delete the entry, click the **Delete**.
2. Modify the information.
3. Click the **Save** button.

Click the **Enable All** button to make all entries enabled

Click the **Disable All** button to make all entries disabled.

Click the **Delete All** button to delete all entries.

Click the **Next** button to go to the next page.

Click the **Previous** button to return to the previous page.

For example: If you desire that the wireless station A with MAC address 00-0A-EB-B0-00-0B and the wireless station B with MAC address 00-0A-EB-00-07-5F are able to access the Router, but all the other wireless stations cannot access the Router, you can configure the **Wireless MAC Address Filtering** list by following these steps:

1. Click the **Enable** button to enable this function.
2. Select the radio button “Allow the stations specified by any enabled entries in the list to access” for **Filtering Rules**.
3. Delete all or disable all entries if there are any entries already.
4. Click the **Add New...** button.
 - Enter the MAC address 00-0A-EB-B0-00-0B/00-0A-EB-00-07-5F in the **MAC Address** field.
 - Enter wireless station A/B in the **Description** field.
 - Select **Enabled** in the **Status** pull-down list.
 - Click the **Save** button.
 - Click the **Back** button.

The filtering rules that configured should be similar to the following list:

Filtering Rules				
<input type="radio"/> Deny the stations specified by any enabled entries in the list to access.				
<input checked="" type="radio"/> Allow the stations specified by any enabled entries in the list to access.				
ID	MAC Address	Status	Description	Modify
1	00-0A-EB-B0-00-0B	Enabled	wireless station A	Modify Delete
2	00-0A-EB-00-07-5F	Enabled	wireless station B	Modify Delete

8.6.4 Wireless Advanced

Choose menu “**Wireless** → **Wireless Advanced**”, and then you can configure the advanced settings of your wireless network.

Wireless Advanced	
Transmit Power:	High <input type="button" value="v"/>
Beacon Interval :	<input type="text" value="100"/> (40-1000)
RTS Threshold:	<input type="text" value="2346"/> (1-2346)
Fragmentation Threshold:	<input type="text" value="2346"/> (256-2346)
DTIM Interval:	<input type="text" value="1"/> (1-255)
	<input checked="" type="checkbox"/> Enable WMM
	<input checked="" type="checkbox"/> Enable Short GI
	<input type="checkbox"/> Enable AP Isolation
<input type="button" value="Save"/>	

Figure 8-12 Wireless Advanced

- **Transmit Power** - Here you can specify the transmit power of Router. You can select High, Middle or Low which you would like. High is the default setting and is recommended.

- **Beacon Interval** - Enter a value between 20-1000 milliseconds for Beacon Interval here. The beacons are the packets sent by the Router to synchronize a wireless network. Beacon Interval value determines the time interval of the beacons. The default value is 100.
- **RTS Threshold** - Here you can specify the RTS (Request to Send) Threshold. If the packet is larger than the specified RTS Threshold size, the Router will send RTS frames to a particular receiving station and negotiate the sending of a data frame. The default value is 2346.
- **Fragmentation Threshold** - This value is the maximum size determining whether packets will be fragmented. Setting the Fragmentation Threshold too low may result in poor network performance because of excessive packets. 2346 is the default setting and is recommended.
- **DTIM Interval** - This value determines the interval of the Delivery Traffic Indication Message (DTIM). A DTIM field is a countdown field informing clients of the next window for listening to broadcast and multicast messages. When the Router has buffered broadcast or multicast messages for associated clients, it sends the next DTIM with a DTIM Interval value. You can specify the value between 1-255 Beacon Intervals. The default value is 1, which indicates the DTIM Interval is the same as Beacon Interval.
- **Enable WMM - WMM** function can guarantee the packets with high-priority messages being transmitted preferentially. It is strongly recommended enabled.
- **Enable Short GI** - This function is recommended for it will increase the data capacity by reducing the guard interval time.
- **Enabled AP Isolation** - This function isolate all connected wireless stations so that wireless stations cannot access each other through WLAN. This function will be disabled if WDS/Bridge is enabled.

 **Note:**

If you are not familiar with the setting items in this page, it's strongly recommended to keep the provided default values; otherwise it may result in lower wireless network performance.

8.6.5 Wireless Statistics

Choose menu "**Wireless** → **Wireless Statistics**", and then you can see the MAC Address, Current Status, Received Packets and Sent Packets for each connected wireless station.

Wireless Statistics					
Current Connected Wireless Stations numbers:				1	<input type="button" value="Refresh"/>
ID	MAC Address	Current Status	Received Packets	Sent Packets	
1	00-0A-EB-88-34-75	STA-ASSOC	416	2	
<input type="button" value="Previous"/>		<input type="button" value="Next"/>			

Figure 8-13 Wireless Statistics

- **MAC Address** - The connected wireless station's MAC address
- **Current Status** - The connected wireless station's running status, one of **STA-AUTH / STA-ASSOC / STA-JOINED / WPA / WPA-PSK / WPA2 / WPA2-PSK / AP-UP / AP-DOWN / Disconnected**
- **Received Packets** - Packets received by the station
- **Sent Packets** - Packets sent by the station

You cannot change any of the values on this page. To update this page and to show the current connected wireless stations, click on the **Refresh** button.

If the numbers of connected wireless stations go beyond one page, click the **Next** button to go to the next page and click the **Previous** button to return the previous page.

 **Note:**

This page will be refreshed automatically every 5 seconds.

8.7 DHCP

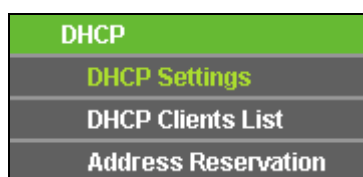


Figure 8-14 The DHCP menu

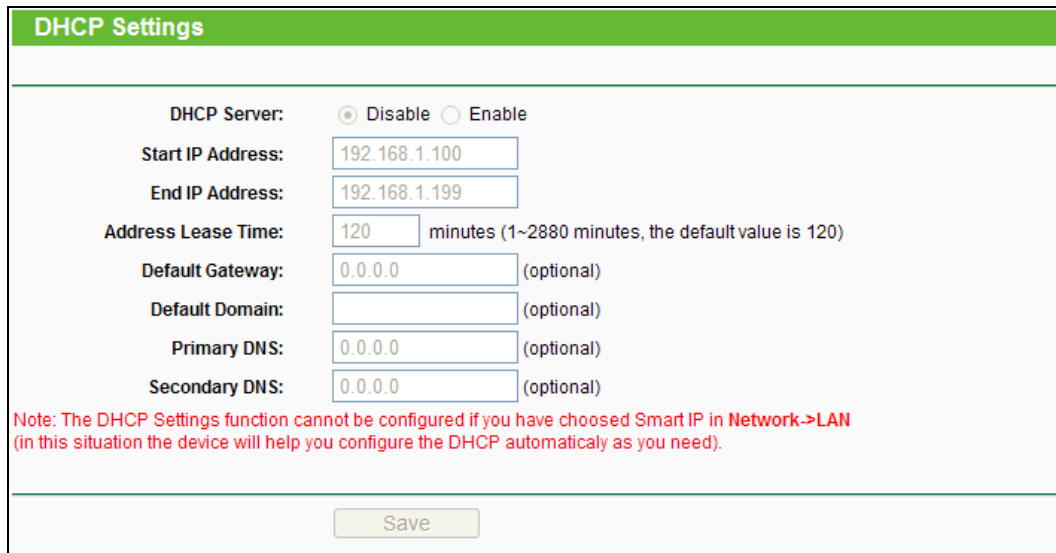
There are three submenus under the DHCP menu (shown in Figure 8-14): **DHCP Settings**, **DHCP Clients List** and **Address Reservation**. Click any of them, and you will be able to configure the corresponding function.

8.7.1 DHCP Settings

Selecting **DHCP** → **DHCP Settings** will enable you to set up the Range Extender as a DHCP (Dynamic Host Configuration Protocol) server, which provides the TCP/IP configuration for all the PCs that are connected to the system on the LAN. The DHCP Server can be configured on the page (shown as Figure 8-15), only when you've set the Network LAN type as Static IP in Figure 8-6.

 **Note:**

The DHCP Settings function cannot be configured if you have chosen Smart IP (DHCP) in **Network -> LAN**, in which situation the device will help you configure the DHCP automatically as you need. The DHCP Settings page will appear as Figure 8-15.



DHCP Settings

DHCP Server: Disable Enable

Start IP Address:

End IP Address:

Address Lease Time: minutes (1~2880 minutes, the default value is 120)

Default Gateway: (optional)

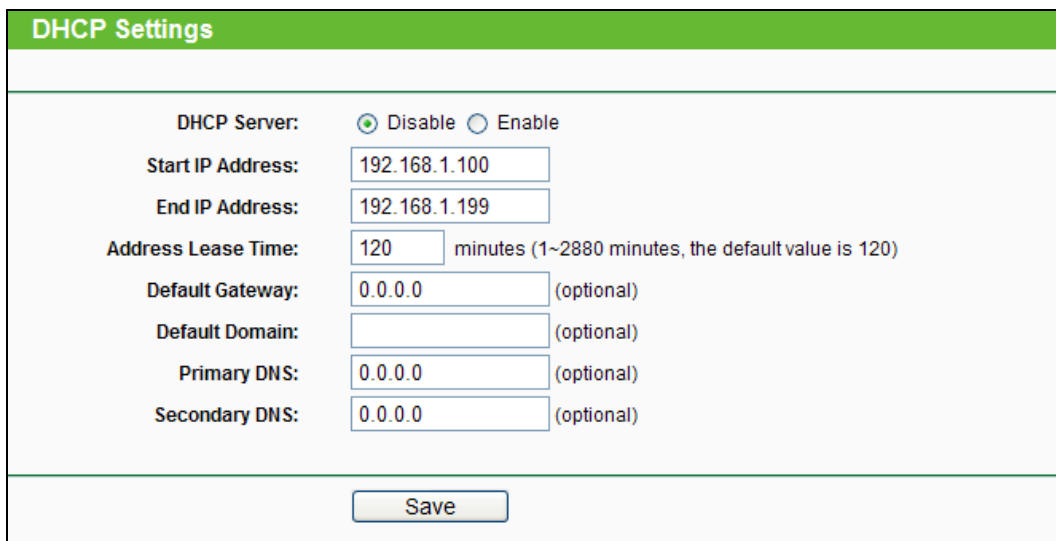
Default Domain: (optional)

Primary DNS: (optional)

Secondary DNS: (optional)

Note: The DHCP Settings function cannot be configured if you have chosen Smart IP in Network->LAN (in this situation the device will help you configure the DHCP automatically as you need).

Figure 8-15 DHCP Settings



DHCP Settings

DHCP Server: Disable Enable

Start IP Address:

End IP Address:

Address Lease Time: minutes (1~2880 minutes, the default value is 120)

Default Gateway: (optional)

Default Domain: (optional)

Primary DNS: (optional)

Secondary DNS: (optional)

Figure 8-16 DHCP Settings

- **DHCP Server** - Selecting the radio button before **Disable/Enable** will disable/enable the DHCP server on your Range Extender. The default setting is **Enable**. If you disable the Server, you must have another DHCP server within your network or else you must manually configure the computer.
- **Start IP Address** - This field specifies the first address in the IP Address pool. 192.168.0.100 is the default start IP address.

- **End IP Address** - This field specifies the last address in the IP Address pool. 192.168.0.199 is the default end IP address.
- **Address Lease Time** - Enter the amount of time for the PC to connect to the Range Extender with its current assigned dynamic IP address. The time is measured in minutes. After the time is up, the PC will be automatically assigned a new dynamic IP address. The range of the time is 1 ~ 2880 minutes. The default value is 120 minutes.
- **Default Gateway (optional)** - Enter the IP address of the gateway for your LAN. The factory default setting is 0.0.0.0.
- **Default Domain (optional)** - Enter the domain name of the your DHCP server. You can leave the field blank.
- **Primary DNS (optional)** - Enter the DNS IP address provided by your ISP. Consult your ISP if you don't know the DNS value. The factory default setting is 0.0.0.0.
- **Secondary DNS (optional)** - Enter the IP address of another DNS server if your ISP provides two DNS servers. The factory default setting is 0.0.0.0.

Click **Save** to save the changes.

 **Note:**

To use the DHCP server function of the device, you should configure all computers in the LAN as "Obtain an IP Address automatically" mode. This function will not take effect until the device reboots.

8.7.2 DHCP Clients List

Choose menu "DHCP → DHCP Clients List", and then you can view the information about the clients attached to the Router in the screen as shown in Figure 8-17.

DHCP Clients List				
ID	Client Name	MAC Address	Assigned IP	Lease Time
1	tp-113ea910272d	40-61-86-CF-20-7A	192.168.0.100	01:43:33

Figure 8-17 DHCP Clients List

- **Client Name** - The name of the DHCP client
- **MAC Address** - The MAC address of the DHCP client
- **Assigned IP** - The IP address that the Router has allocated to the DHCP client

- **Lease Time** - The time of the DHCP client leased. After the dynamic IP address has expired, a new dynamic IP address will be automatically assigned to the user.

You cannot change any of the values on this page. To update this page and to show the current attached devices, click the **Refresh** button.

8.7.3 Address Reservation

Choose menu “**DHCP** → **Address Reservation**”, and then you can view and add a reserved address for clients via the next screen (shown in Figure 8-18). When you specify a reserved IP address for a PC on the LAN, that PC will always receive the same IP address each time when it accesses the DHCP server. Reserved IP addresses should be assigned to the servers that require permanent IP settings.

ID	MAC Address	Reserved IP Address	Status	Modify
1	00-0A-EB-13-09-BB	192.168.0.100	Enabled	Modify Delete

Buttons: Add New..., Enable All, Disable All, Delete All

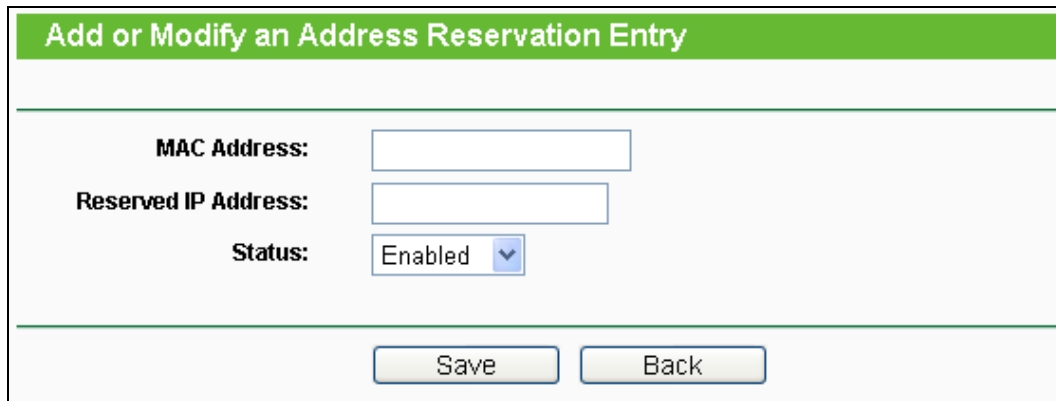
Navigation: Previous, Next

Figure 8-18 Address Reservation

- **MAC Address** - The MAC address of the PC for which you want to reserve an IP address.
- **Reserved IP Address** - The IP address reserved for the PC by the Router.
- **Status** - The status of this entry either **Enabled** or **Disabled**.

To Reserve an IP address:

1. Click the **Add New...** button. Then Figure 8-19 will pop-up.
2. Enter the MAC address (in XX-XX-XX-XX-XX-XX format.) and IP address (in dotted-decimal notation) of the computer for which you want to reserve an IP address.
3. Click the **Save** button.



Add or Modify an Address Reservation Entry

MAC Address:

Reserved IP Address:

Status:

Figure 8-19 Add or Modify an Address Reservation Entry

To modify or delete an existing entry:

1. Click the **Modify** in the entry you want to modify. If you want to delete the entry, click the **Delete**.
2. Modify the information.
3. Click the **Save** button.

Click the **Enable/Disable All** button to make all entries enabled/disabled

Click the **Delete All** button to delete all entries.

Click the **Next** button to go to the next page and Click the **Previous** button to return the previous page.

8.8 System Tools



Figure 8-20 The System Tools menu

Choose menu "**System Tools**", and then you can see the submenus under the main menu: **Diagnostic**, **Firmware**, **Factory Defaults**, **Backup & Restore**, **Reboot**, **Password**, and **System Log**. Click any of them, and you will be able to configure the corresponding function. The detailed explanations for each submenu are provided below.

8.8.1 Diagnostic

Choose menu "**System Tools** → **Diagnostic**", and then you can transact Ping or Traceroute function to check connectivity of your network in the following screen.

Diagnostic Tools

Diagnostic Parameters

Diagnostic Tool: Ping Traceroute

IP Address/ Domain Name:

Ping Count: (1-50)

Ping Packet Size: (4-1472 Bytes)

Ping Timeout: (100-2000 Milliseconds)

Traceroute Max TTL: (1-30)

Diagnostic Results

The Router is ready.

Figure 8-21 Diagnostic Tools

- **Diagnostic Tool** - Check the radio button to select one diagnostic tool.
 - **Ping** - This diagnostic tool troubleshoots connectivity, reachability, and name resolution to a given host or gateway.
 - **Traceroute** - This diagnostic tool tests the performance of a connection.

 **Note:**

You can use ping/traceroute to test both numeric IP address or domain name. If pinging/tracerouting the IP address is successful, but pinging/tracerouting the domain name is not, you might have a name resolution problem. In this case, ensure that the domain name you are specifying can be resolved by using Domain Name System (DNS) queries.

- **IP Address/Domain Name** - Type the destination IP address (e.g. 202.108.22.5) or Domain name (e.g. http://www.tp-link.com).
- **Pings Count** - The number of Ping packets for a Ping connection. The default is 4.
- **Ping Packet Size** - The size of Ping packet. The default is 64.
- **Ping Timeout** - Set the waiting time for the reply of each Ping packet. If there is no reply in the specified time, the connection is overtime. The default is 800.

- **Traceroute Max TTL** - The max number of hops for a Traceroute connection. The default is 20.

Click **Start** to check the connectivity of the Internet.

The **Diagnostic Results** page displays the result of diagnosis.

If the result is similar to the following screen, the connectivity of the Internet is fine.

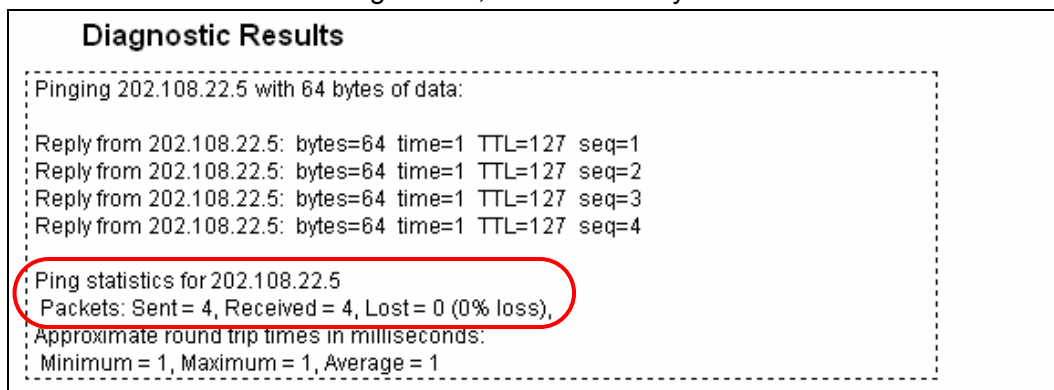


Figure 8-22 Diagnostic Results

Note:

Only one user can use this tool at one time. Options “Number of Pings”, “Ping Size” and “Ping Timeout” are used for **Ping** function. Option “Tracert Hops” are used for **Tracert** function.

8.8.2 Firmware

Choose menu “**System Tools** → **Firmware Upgrade**”, and then you can update the latest version of firmware for the Router on the following screen.

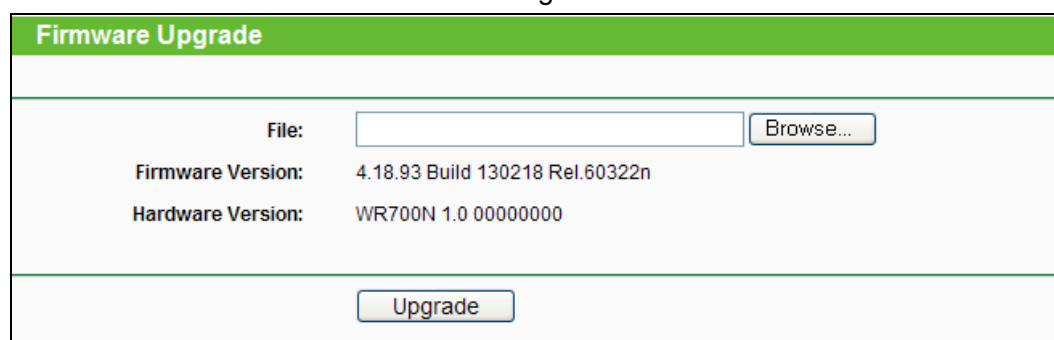


Figure 8-23 Firmware Upgrade

- **Firmware Version** - This displays the current firmware version.
- **Hardware Version** - This displays the current hardware version. The hardware version of the upgrade file must accord with the Router’s current hardware version.

To upgrade the Router’s firmware, follow these instructions below:

1. Download a more recent firmware upgrade file from the TP-LINK website (<http://www.tp-link.com>).
2. Type the path and file name of the update file into the **File** field, or click the **Browse...** button to locate the update file.

3. Click the **Upgrade** button.

 **Note:**

1. New firmware versions are posted at <http://www.tp-link.com> and can be downloaded for free. There is no need to upgrade the firmware unless the new firmware has a new feature you want to use. However, when experiencing problems caused by the Router rather than the configuration, you can try to upgrade the firmware.
2. When you upgrade the Router's firmware, you may lose its current configurations, so before upgrading the firmware please write down some of your customized settings to avoid losing important settings.
3. Do not turn off the Router or press the Reset button while the firmware is being upgraded, otherwise, the Router may be damaged.
4. The Router will reboot after the upgrading has been finished.

8.8.3 Factory Defaults

Choose menu “**System Tools** → **Factory Defaults**”, and you can restore the configurations of the Router to factory defaults on the following screen.

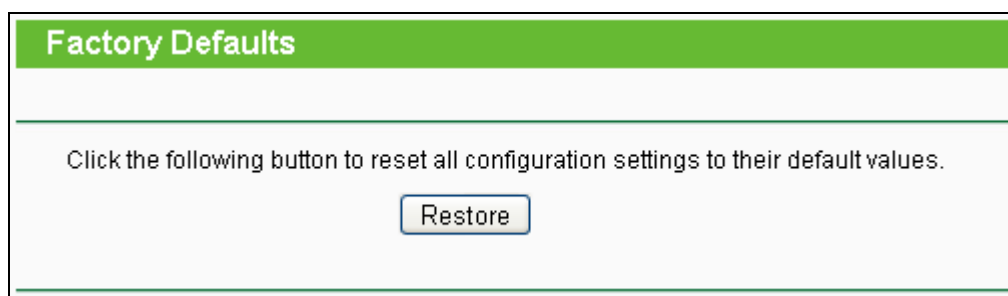


Figure 8-24 Restore Factory Default

Click the **Restore** button to reset all configuration settings to their default values.

- The default **User Name**: admin
- The default **Password**: admin
- The default **IP Address**: 192.168.0.254
- The default **Subnet Mask**: 255.255.255.0

 **Note:**

All changed settings will be lost when defaults are restored.

8.8.4 Backup & Restore

Choose menu “**System Tools** → **Backup & Restore**”, and then you can save the current configuration of the Router as a backup file and restore the configuration via a backup file as shown in Figure 8-25.



Figure 8-25 Backup & Restore Configuration

- Click the **Backup** button to save all configuration settings as a backup file in your local computer.
- To upgrade the Router's configuration, follow these instructions.
 - Click the **Browse...** button to locate the update file for the Router, or enter the exact path to the Setting file in the text box.
 - Click the **Restore** button.

 **Note:**

The current configuration will be covered by the uploading configuration file. The upgrade process lasts for 20 seconds and the Router will restart automatically. Keep the Router on during the upgrading process to prevent any damage.

8.8.5 Reboot

Choose menu “**System Tools** → **Reboot**”, and then you can click the **Reboot** button to reboot the Router via the next screen.

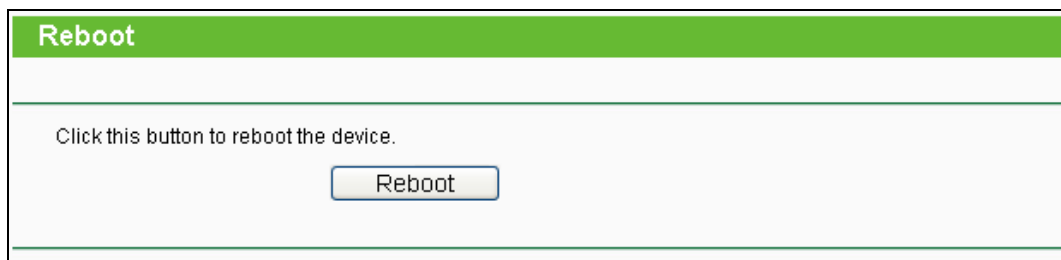


Figure 8-26 Reboot the Router

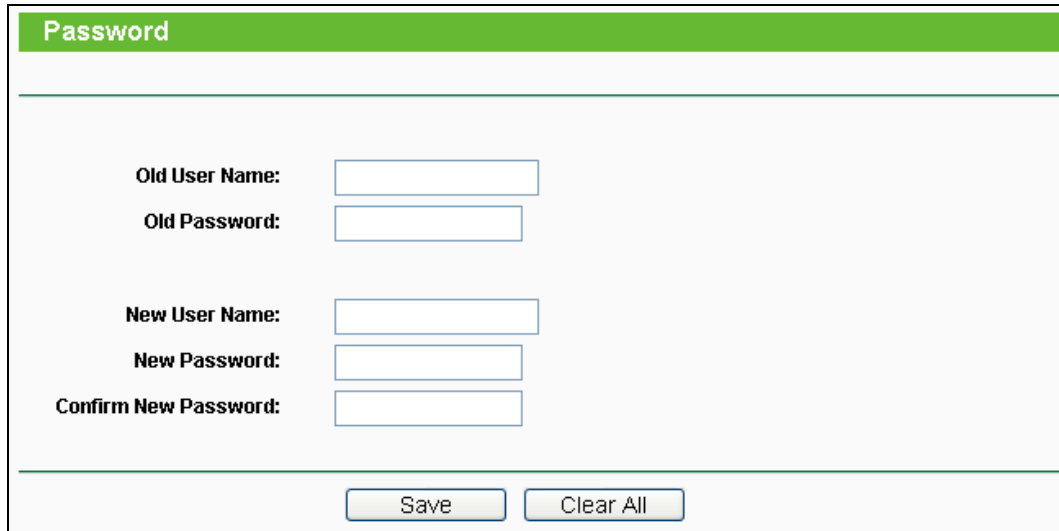
Some settings of the Router will take effect only after rebooting, which include:

- Change the LAN IP Address (system will reboot automatically).
- Change the DHCP Settings.
- Change the Wireless configurations.
- Change the Web Management Port.
- Upgrade the firmware of the Router (system will reboot automatically).
- Restore the Router's settings to factory defaults (system will reboot automatically).

- Update the configuration with the file (system will reboot automatically).

8.8.6 Password

Choose menu “**System Tools** → **Password**”, and then you can change the factory default user name and password of the Router in the next screen as shown in Figure 8-27.



Old User Name:

Old Password:

New User Name:

New Password:

Confirm New Password:

Save Clear All

Figure 8-27 Password

It is strongly recommended that you should change the factory default user name and password of the Router, because all users who try to access the Router's Web-based utility or Quick Setup will be prompted for the Router's default user name and password.

Note:

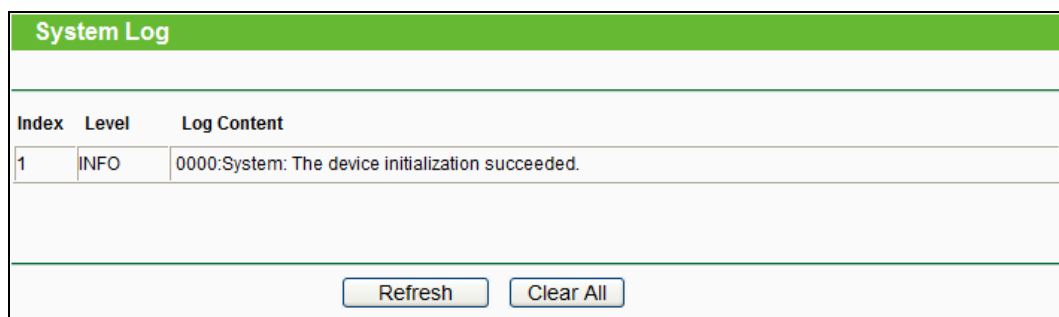
The new user name and password must not exceed 14 characters in length and not include any spaces. Enter the new Password twice to confirm.

Click the **Save** button when finished.

Click the **Clear All** button to clear all.

8.8.7 System Log

Choose menu “**System Tools** → **System Log**”, and then you can view the logs of the Router.



Index	Level	Log Content
1	INFO	0000:System: The device initialization succeeded.

Refresh Clear All

Figure 8-28 System Log

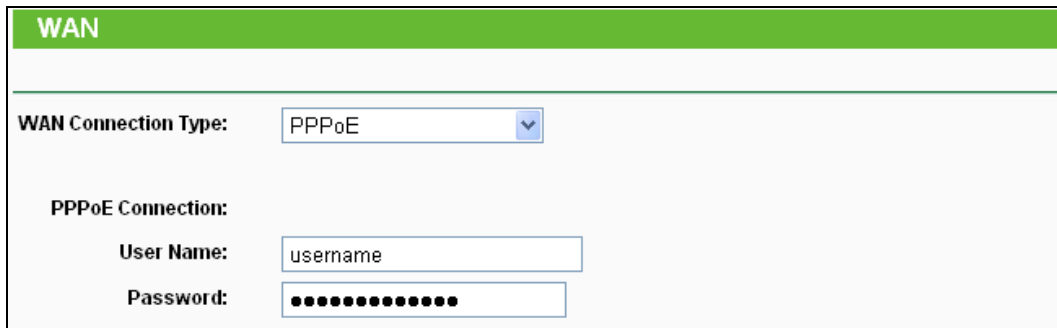
- **Refresh** - Refresh the page to show the latest log list.

- **Clear All** - All the logs will be deleted from the Router permanently, not just from the page.

Appendix A: FAQ

1. How do I configure the Router to access the Internet by ADSL users?

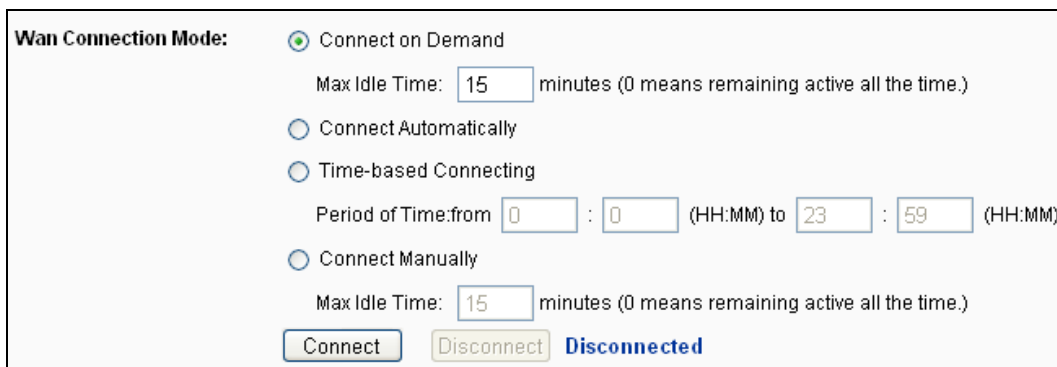
- 1) First, configure the ADSL Modem configured in RFC1483 bridge model.
- 2) Connect the Ethernet cable from your ADSL Modem to the WAN port on the Router. The telephone cord plugs into the Line port of the ADSL Modem.
- 3) Log in to the Router, click the **"Network"** menu on the left of your browser, and click **"WAN"** submenu. On the **WAN** page, select "PPPoE/Russia PPPoE" for WAN Connection Type. Type user name in the "User Name" field and password in the "Password" field and the "Confirm Password" field, and finish it by clicking **Connect**.



The screenshot shows the WAN configuration interface. At the top, there is a green header with the text "WAN". Below this, the "WAN Connection Type" is set to "PPPoE" in a dropdown menu. Underneath, the "PPPoE Connection" section contains two input fields: "User Name" with the text "username" and "Password" with a masked password represented by ten black dots.

Figure A-1 PPPoE Connection Type

- 4) If your ADSL lease is in "pay-according-time" mode, select "Connect on Demand" or "Connect Manually" for Internet connection mode. Type an appropriate number for "Max Idle Time" to avoid wasting paid time. Otherwise, you can select "Auto-connecting" for Internet connection mode.



The screenshot shows the "Wan Connection Mode" configuration page. It features four radio button options: "Connect on Demand" (selected), "Connect Automatically", "Time-based Connecting", and "Connect Manually". Below the "Connect on Demand" option, there is a "Max Idle Time" field set to "15" minutes, with a note "(0 means remaining active all the time.)". The "Time-based Connecting" option has a "Period of Time" field set to "from 0 : 0 (HH:MM) to 23 : 59 (HH:MM)". At the bottom, there are "Connect" and "Disconnect" buttons, and the status "Disconnected" is displayed.

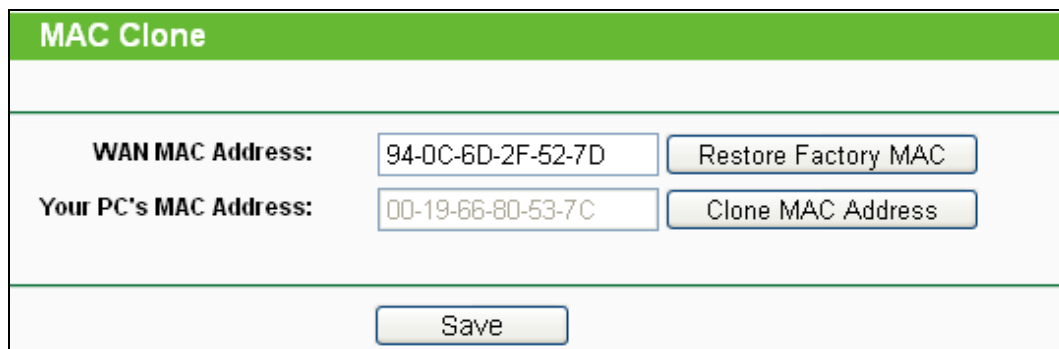
Figure A-2 PPPoE Connection Mode

Note:

1. Sometimes the connection cannot be disconnected although you specify a time to Max Idle Time, since some applications is visiting the Internet continually in the background.
2. If you are a Cable user, please configure the Router following the above steps.

2. How do I configure the Router to access the Internet by Ethernet users?

- 1) Log in to the Router, click the **"Network"** menu on the left of your browser, and click **"WAN"** submenu. On the **WAN** page, select "Dynamic IP" for "WAN Connection Type", finish by clicking **Save**.
- 2) Some ISPs require that you register the MAC Address of your adapter, which is connected to your cable/DSL Modem during installation. If your ISP requires MAC register, log in to the Router and click the **"Network"** menu link on the left of your browser, and then click **"MAC Clone"** submenu link. On the **"MAC Clone"** page, if your PC's MAC address is proper MAC address, click the **Clone MAC Address** button and your PC's MAC address will fill in the "WAN MAC Address" field. Or else, type the MAC Address into the "WAN MAC Address" field. The format for the MAC Address is XX-XX-XX-XX-XX-XX. Then click the **Save** button. It will take effect after rebooting.



The screenshot shows the 'MAC Clone' configuration page. It has a green header with the text 'MAC Clone'. Below the header, there are two rows of input fields and buttons. The first row has 'WAN MAC Address:' followed by a text box containing '94-0C-6D-2F-52-7D' and a button labeled 'Restore Factory MAC'. The second row has 'Your PC's MAC Address:' followed by a text box containing '00-19-66-80-53-7C' and a button labeled 'Clone MAC Address'. At the bottom center of the page is a 'Save' button.

Figure A-3 MAC Clone

3. I want to use NetMeeting, what do I need to do?

- 1) If you start NetMeeting as a sponsor, you don't need to do anything with the Router.
- 2) If you start as a response, you need to configure Virtual Server or DMZ Host and make sure the H323 ALG is enabled.
- 3) How to configure Virtual Server: Log in to the Router, click the **"Forwarding"** menu on the left of your browser, and click **"Virtual Servers"** submenu. On the **"Virtual Servers"** page, click **Add New....** Then on the **"Add or Modify a Virtual Server Entry"** page, enter "1720" for the "Service Port" blank, and your IP address for the "IP Address" blank, taking 192.168.0.169 for an example, remember to **Enable** and **Save**.

Virtual Servers					
ID	Service Ports	IP Address	Protocol	Status	Modify
1	1720	192.168.0.169	ALL	Enabled	Modify Delete

Figure A-4 Virtual Servers

Add or Modify a Virtual Server Entry	
Service Port:	<input type="text"/> (XX-XX or XX)
IP Address:	<input type="text"/>
Protocol:	ALL <input type="button" value="v"/>
Status:	Enabled <input type="button" value="v"/>
Common Service Port:	--Select One-- <input type="button" value="v"/>
<input type="button" value="Save"/> <input type="button" value="Back"/>	

Figure A-5 Add or Modify a Virtual server Entry

 **Note:**

Your opposite side should call your WAN IP, which is displayed on the "Status" page.

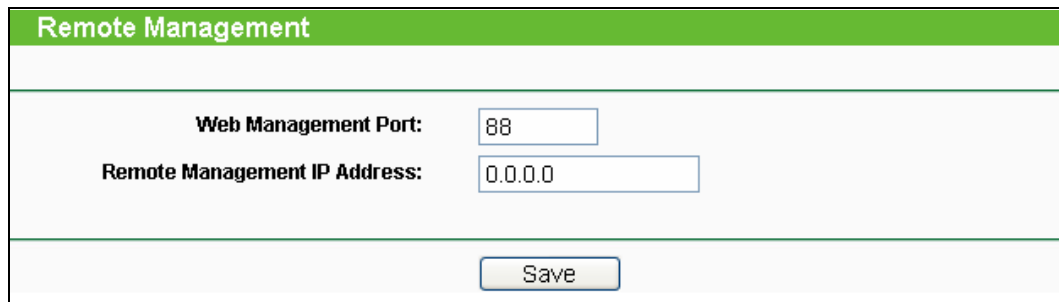
- How to enable DMZ Host: Log in to the Router, click the "**Forwarding**" menu on the left of your browser, and click "**DMZ**" submenu. On the "DMZ" page, click **Enable** radio button and type your IP address into the "DMZ Host IP Address" field, using 192.168.0.169 as an example, remember to click the **Save** button.

DMZ	
Current DMZ Status:	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
DMZ Host IP Address:	<input type="text" value="192.168.0.100"/>
<input type="button" value="Save"/>	

Figure A-6 DMZ

4. I want to build a WEB Server on the LAN, what should I do?

- 1) Because the WEB Server port 80 will interfere with the WEB management port 80 on the Router, you must change the WEB management port number to avoid interference.
- 2) To change the WEB management port number: Log in to the Router, click the “**Security**” menu on the left of your browser, and click “**Remote Management**” submenu. On the “**Remote Management**” page, type a port number except 80, such as 88, into the “Web Management Port” field. Click **Save** and reboot the Router.



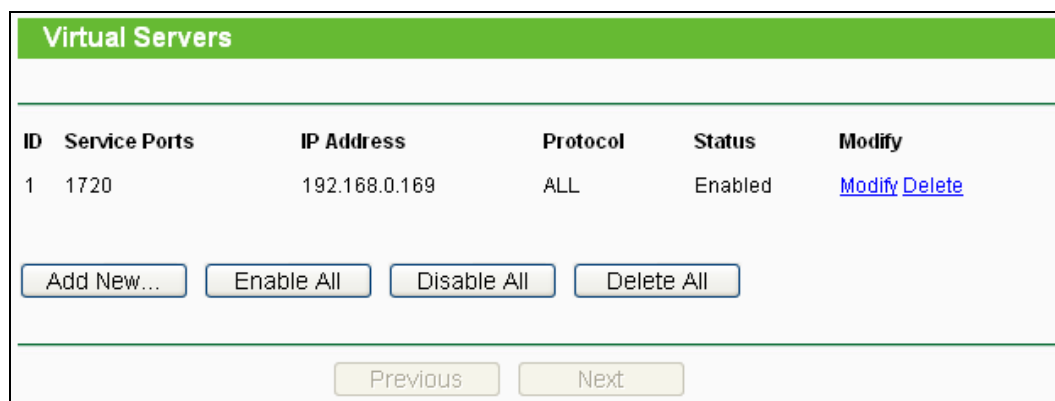
Remote Management	
Web Management Port:	<input type="text" value="88"/>
Remote Management IP Address:	<input type="text" value="0.0.0.0"/>
<input type="button" value="Save"/>	

Figure A-7 Remote Management

Note:

If the above configuration takes effect, configure to the Router by typing 192.168.0.188 (the Router’s LAN IP address: Web Management Port) in the address field of the Web browser.

- 3) Log in to the Router, click the “**Forwarding**” menu on the left of your browser, and click the “**Virtual Servers**” submenu. On the “**Virtual Servers**” page, click **Add New...**, then on the “**Add or Modify a Virtual Server**” page, enter “80” into the blank next to the “**Service Port**”, and your IP address next to the “**IP Address**”, assuming 192.168.0.188 for an example, remember to **Enable** and **Save**.



Virtual Servers					
ID	Service Ports	IP Address	Protocol	Status	Modify
1	1720	192.168.0.169	ALL	Enabled	Modify Delete

Figure A-8 Virtual Servers

The screenshot shows a web interface titled "Add or Modify a Virtual Server Entry". The interface is enclosed in a light green border. At the top, there is a green header bar with the title. Below the header, the form contains the following fields:

- Service Port:** A text input field with a placeholder "(XX-XX or XX)".
- IP Address:** A text input field.
- Protocol:** A dropdown menu with "ALL" selected.
- Status:** A dropdown menu with "Enabled" selected.
- Common Service Port:** A dropdown menu with "--Select One--" selected.

At the bottom of the form, there are two buttons: "Save" and "Back".

Figure A-9 Add or Modify a Virtual server Entry

5. The wireless stations cannot connect to the Router.

- 1) Make sure the "**Enable Wireless Router Radio**" is checked.
- 2) Make sure that the wireless stations' SSID accord with the Router's SSID.
- 3) Make sure the wireless stations have right KEY for encryption when the Router is encrypted.
- 4) If the wireless connection is ready, but you can't access the Router, check the IP Address of your wireless stations.

Appendix B: Configuring the PC

In this section, we'll introduce how to install and configure the TCP/IP correctly in Windows XP. First make sure your Ethernet Adapter is working, refer to the adapter's manual if necessary.

1. Configure TCP/IP component

- 1) On the Windows taskbar, click the **Start** button, and then click **Control Panel**.
- 2) Click the **Network and Internet Connections** icon, and then click on the **Network Connections** tab in the appearing window.
- 3) Right click the icon that showed below, select Properties on the prompt page.

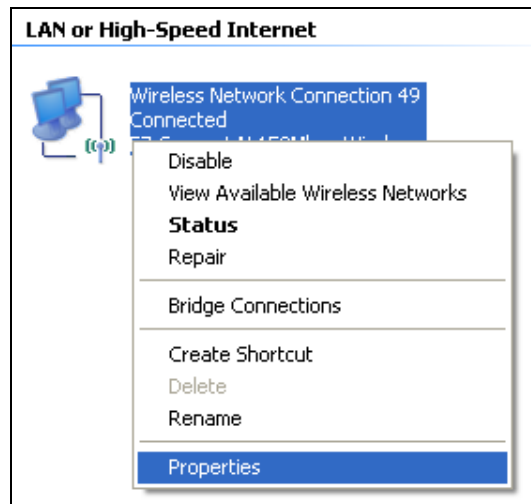


Figure B-1

- 4) In the prompt page that showed below, double click on the **Internet Protocol (TCP/IP)**.

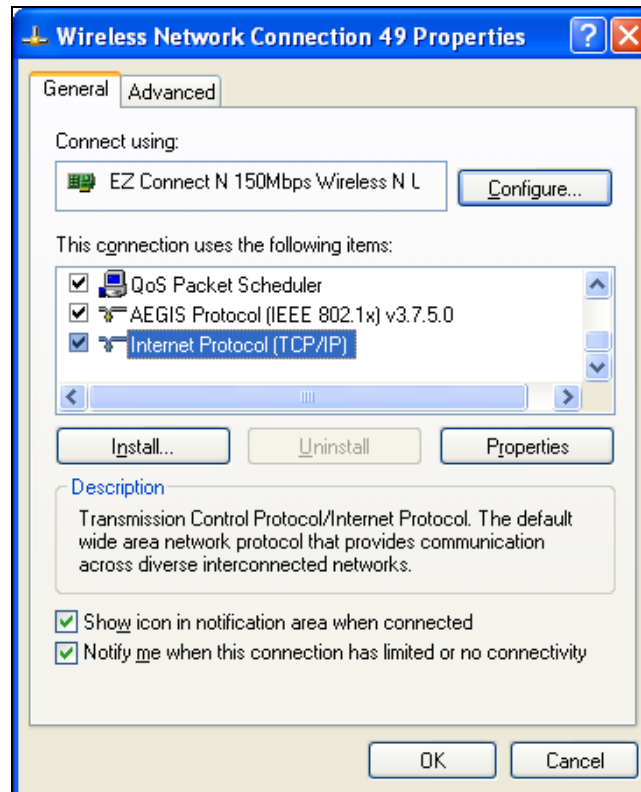


Figure B-2

- 5) Select **Obtain an IP address automatically**, Choose **Obtain DNS server automatically**, as shown in the Figure below:

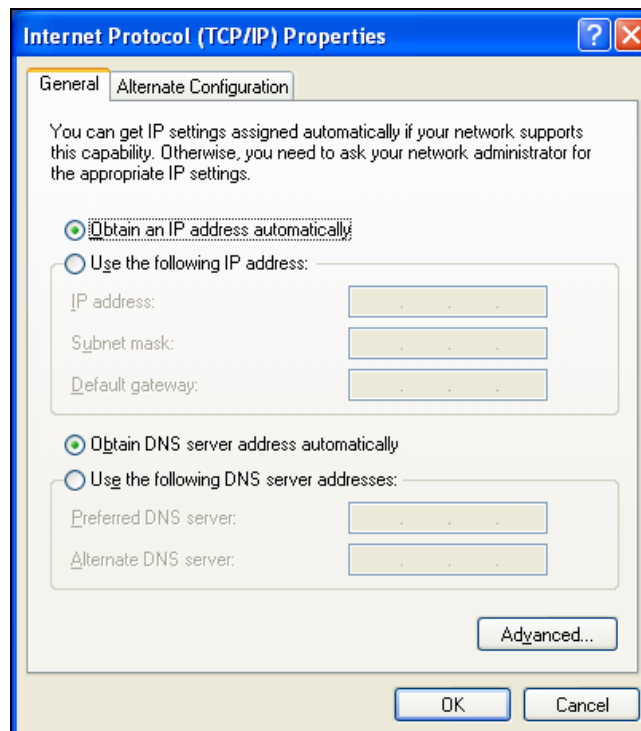


Figure B-3

Appendix C: Specifications

General	
Standards	IEEE 802.11n, 802.11b, 802.11g
Protocols	TCP/IP, PPPoE, DHCP, ICMP, NAT, SNTP
Port	One 10/100Mbps LAN/WAN port
Cabling Type	10BASE-T: UTP category 3, 4, 5 cable (maximum 100m) EIA/TIA-568 100Ω STP (maximum 100m)
	100BASE-TX: UTP category 5, 5e cable (maximum 100m) EIA/TIA-568 100Ω STP (maximum 100m)
LED	SYS
Dimensions (L×W×H)	81mm×71mm×28mm
Safety & Emissions	FCC, CE
Wireless	
Frequency Band	2.4~2.4835GHz
Radio Data Rate	11n: up to 150Mbps (Automatic) 11g: 54/48/36/24/18/12/9/6M (Automatic) 11b: 11/5.5/2/1M (Automatic)
Frequency Expansion	DSSS(Direct Sequence Spread Spectrum)
Modulation	DBPSK, DQPSK, CCK, 16-QAM, 64-QAM, BPSK, QPSK
Security	64/128/152-bit WEP, WPA/WPA2, WPA2-PSK/WPA-PSK
Sensitivity @PER	135M: -70dBm@10% PER 65M: -73dBm@10% PER 54M: -76dBm@10% PER 6M: -92dBm@10% PER
Mode	AP Mode, Router Mode, Repeater Mode, Bridge Mode, Client Mode
Environmental and Physical	
Temperature	Operating : 0°C~40°C (32°F~104°F)
	Storage: -40°C~70°C(-40°F~158°F)
Humidity	Operating: 10% - 90% RH, Non-condensing
	Storage: 5% - 90% RH, Non-condensing

Appendix D: Glossary

- **802.11n** - 802.11n builds upon previous 802.11 standards by adding MIMO (multiple-input multiple-output). MIMO uses multiple transmitter and receiver antennas to allow for increased data throughput via spatial multiplexing and increased range by exploiting the spatial diversity, perhaps through coding schemes like Alamouti coding. The Enhanced Wireless Consortium (EWC) [3] was formed to help accelerate the IEEE 802.11n development process and promote a technology specification for interoperability of next-generation wireless local area networking (WLAN) products.
- **802.11b** - The 802.11b standard specifies a wireless networking at 11 Mbps using direct-sequence spread-spectrum (DSSS) technology and operating in the unlicensed radio spectrum at 2.4GHz, and WEP encryption for security. 802.11b networks are also referred to as Wi-Fi networks.
- **802.11g** - specification for wireless networking at 54 Mbps using direct-sequence spread-spectrum (DSSS) technology, using OFDM modulation and operating in the unlicensed radio spectrum at 2.4GHz, and backward compatibility with IEEE 802.11b devices, and WEP encryption for security.
- **DDNS (Dynamic Domain Name System)** - The capability of assigning a fixed host and domain name to a dynamic Internet IP Address.
- **DHCP (Dynamic Host Configuration Protocol)** - A protocol that automatically configure the TCP/IP parameters for the all the PC(s) that are connected to a DHCP server.
- **DMZ (Demilitarized Zone)** - A Demilitarized Zone allows one local host to be exposed to the Internet for a special-purpose service such as Internet gaming or videoconferencing.
- **DNS (Domain Name System)** – An Internet Service that translates the names of websites into IP addresses.
- **Domain Name** - A descriptive name for an address or group of addresses on the Internet.
- **DSL (Digital Subscriber Line)** - A technology that allows data to be sent or received over existing traditional phone lines.
- **ISP (Internet Service Provider)** - A company that provides access to the Internet.
- **MTU (Maximum Transmission Unit)** - The size in bytes of the largest packet that can be transmitted.
- **NAT (Network Address Translation)** - NAT technology translates IP addresses of a local area network to a different IP address for the Internet.

- **PPPoE (Point to Point Protocol over Ethernet)** - PPPoE is a protocol for connecting remote hosts to the Internet over an always-on connection by simulating a dial-up connection.
- **SSID - A Service Set Identification** is a thirty-two character (maximum) alphanumeric key identifying a wireless local area network. For the wireless devices in a network to communicate with each other, all devices must be configured with the same SSID. This is typically the configuration parameter for a wireless PC card. It corresponds to the ESSID in the wireless Access Point and to the wireless network name.
- **WEP (Wired Equivalent Privacy)** - A data privacy mechanism based on a 64-bit or 128-bit or 152-bit shared key algorithm, as described in the IEEE 802.11 standard.
- **Wi-Fi** - A trade name for the 802.11b wireless networking standard, given by the Wireless Ethernet Compatibility Alliance (WECA, see <http://www.wi-fi.net>), an industry standards group promoting interoperability among 802.11b devices.
- **WLAN (Wireless Local Area Network)** - A group of computers and associated devices communicate with each other wirelessly, which network serving users are limited in a local area.