

Tenda[®]

User Guide

www.tendacn.com



Concurrent Dual Band Wireless N600 Gigabit Router

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Table of Contents

COPYRIGHT STATEMENT	2
CHAPTER 1 PRODUCT OVERVIEW	4
1.1 WHAT IT DOES	4
1.2 FEATURES.....	4
1.3 PACKAGE CONTENTS	5
CHAPTER 2 HARDWARE	6
2.1 PANEL OVERVIEW.....	6
2.2 MINIMUM SYSTEM REQUIREMENTS	7
2.3 HARDWARE INSTALLATION.....	7
CHAPTER 3 LOGIN TO WEB UTILITY	9
CHAPTER 4 CONFIGURATIONS	11
4.1 DEVICE INFO	11
4.2 NETWORK	13
4.3 SECURITY SETTINGS.....	23
4.4 ADVANCED SETTINGS.....	32
4.5 WIRELESS SETTINGS	39
4.6 USB APPLICATIONS.....	50
4.7 IPTV SETTINGS.....	59
4.8 TOOLS	60
A PPENDIX 1 CONFIG TCP/IP SETTINGS ON PC	66

Chapter 1 Product Overview

1.1 What it does

The Tenda N60 **Concurrent Dual Band Wireless N600** Gigabit Router accommodates users looking for extreme wireless performance. Delivering up to 300+300Mbps wireless speed, it uses dual band technology to deliver 2.4GHz and 5GHz wireless signals simultaneously, allowing you to check email and browse the Internet using the 2.4GHz while streaming High-Definition movies and other bandwidth-intensive applications on the 5GHz band. Also, it reduces the possibility of interference from appliances and cordless phones that use the 2.4GHz band.

1.2 Features

- ✧ 2.4GHz : IEEE802.11n, IEEE802.11g , IEEE 802.11b ; 5GHz : IEEE 802.11n , IEEE 802.11a ; IEEE802.3 , IEEE802.3u ;
- ✧ Deliver 2.4GHz and 5GHz wireless signals simultaneously
- ✧ 1 Gigabit WAN port for Internet connection
- ✧ 3 Gigabit LAN ports for LAN connection
- ✧ 1 IPTV port
- ✧ Up to 300+300Mbps wireless rate
- ✧ Combines the function of a wireless AP, router, switch and firewall
- ✧ Provides Internet connection types: Dynamic/ static IP,L2TP,PPTP , PPPOE/ PPPOE dual access
- ✧ Supports IPTV service
- ✧ 1 USB port for storage or printer sharing
- ✧ Built-in firewall supports domain name/MAC address filter
- ✧ WEP, WPA-PSK, WPA2-PSK and WPA&WPA2-PSK secure your wireless network against unauthorized access
- ✧ Supports guest network
- ✧ WPS one-touch encryption
- ✧ Hidden/invisible SSID;
- ✧ MAC-based access control
- ✧ WMM streams your video and audio
- ✧ Bandwidth control
- ✧ SNTP, WDS, UPnP, DDNS and DMZ
- ✧ Syslog records router's usage status

1.3 Package Contents

Please unpack the box and check the following items:

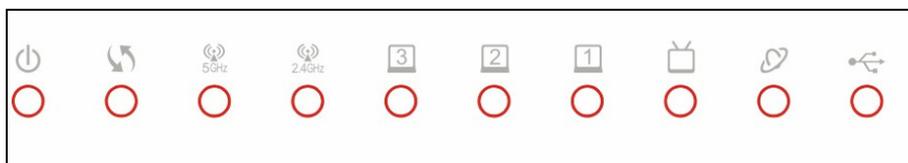
- ✧ N60 Concurrent Dual Band Wireless N600 Gigabit Router
- ✧ Power Adapter
- ✧ Quick Installation Guide
- ✧ CD-ROM
- ✧ 1-meter Ethernet cable

If any of the above items are incorrect, missing, or damaged, please contact your Tenda reseller for immediate replacement.

Chapter 2 Hardware

2.1 Panel Overview

Front Panel



 **Power LED:** A solid light indicates a proper connection to the power supply while a blinking light indicates system is functioning correctly.

 **WPS LED:** A blinking light indicates router is performing WPS authentication on a client device.

 **5G LED:** A solid light indicates wireless is active while a blinking light indicates router is transmitting data wirelessly over 5GHz.

 **2.4G LED:** A solid light indicates wireless is active while a blinking light indicates router is transmitting data wirelessly over 2.4 GHz.

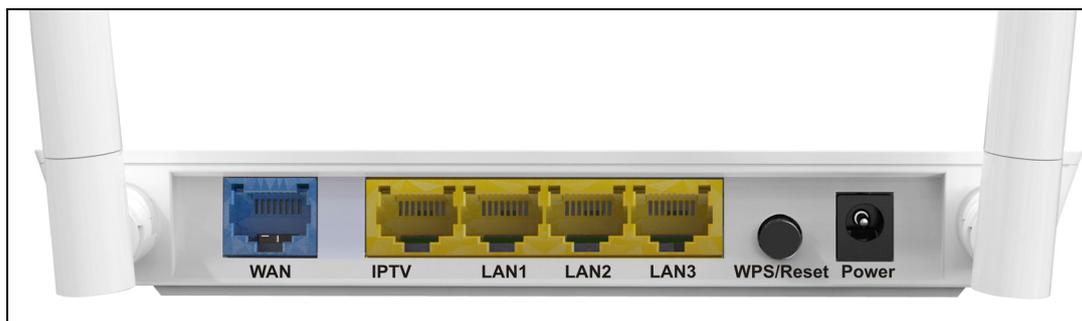
 **LAN/1/2/3 LED:** A solid light indicates corresponding LAN port is correctly connected while a blinking light indicates such port is transmitting data.

 **IPTV LED:** A solid light indicates corresponding IPTV port is correctly connected while a blinking light indicates it is transmitting data.

 **WAN LED:** A solid light indicates the WAN port is correctly connected while a blinking light indicates it is transmitting data.

 **USB LED:** A solid light indicates the USB port is correctly connected.

Back Panel



WAN: Internet port (RJ-45) for connection to an Internet-enabled xDSL Modem/Cable Modem or existing Ethernet.

IPTV : IPTV port for connection to a network set-top box. However such port can function as a LAN port if IPTV STB port is not enabled.

LAN/1/2/3: 3 LAN ports (RJ-45) for connection to PC's NIC or uplink to a hub, switch or wireless AP.

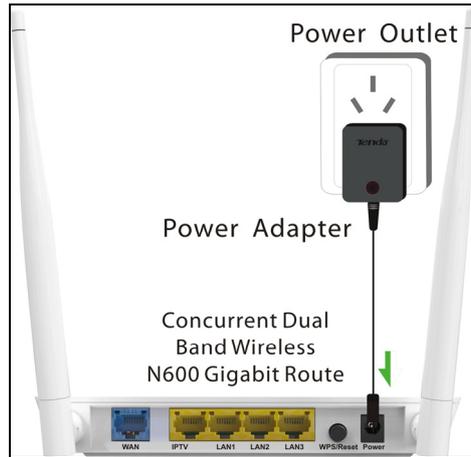
WPS/Reset: WPS button/Reset button: Pressing it for about 1 second enables WPS encryption with a blinking WPS LED while Pressing it for about 7 seconds restores the device to factory defaults.

2.2 Minimum System Requirements

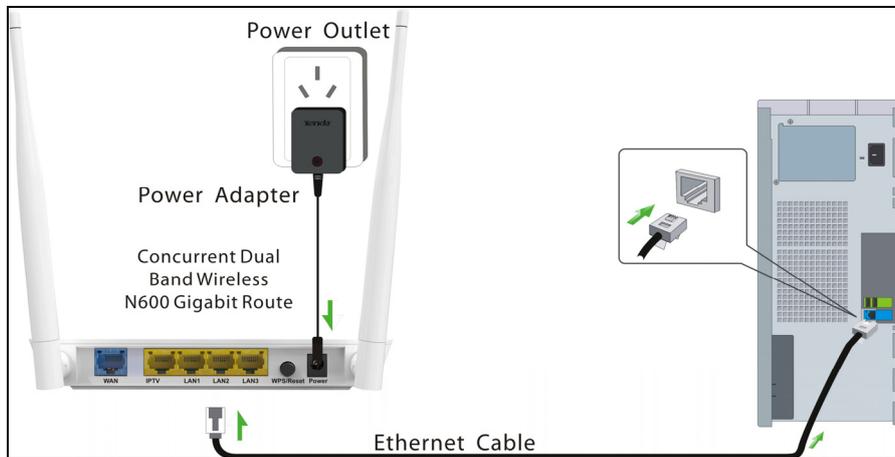
- ✧ Installed Network Adapter
- ✧ Internet Explorer 5.0 or higher
- ✧ Broadband Internet Service (through xDSL/Cable Modem/Ethernet)

2.3 Hardware Installation

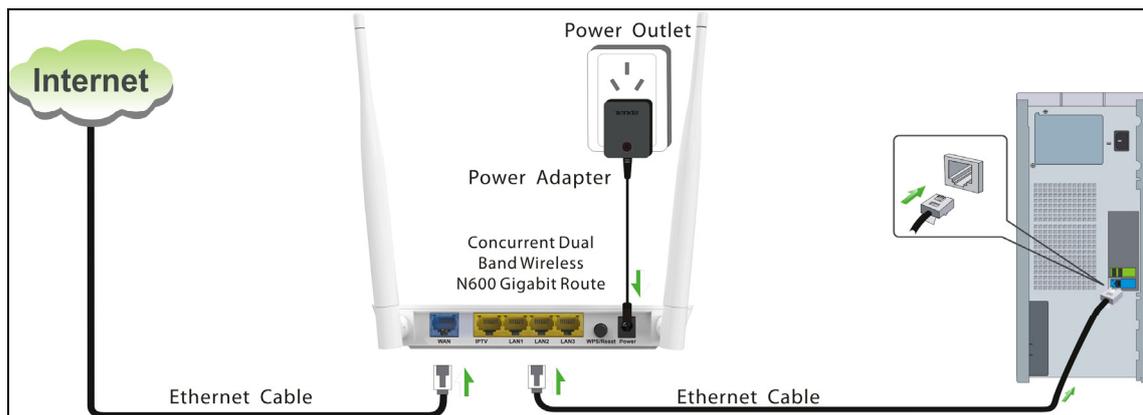
1. Connect one end of the included power adapter to the router and then plug the other end into a wall outlet nearby. (Using a power adapter with a different voltage rating than the one included with the router will cause damage to the product.)



2. Connect one of the LAN ports on the Router to the NIC port on your PC using an Ethernet cable.



3. Connect the Ethernet cable from Internet side to the WAN port on the Router.

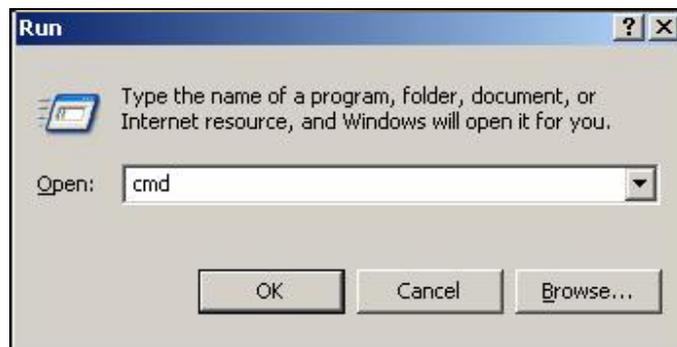


Chapter 3 Login to Web Utility

The device's default IP is 192.168.0.1. You can change it to accommodate your own needs. Here in this manual, we use the default IP.

Connect you PC to the router and config your PC's TCP/IP settings following instructions in appendix 1 hereto. And then do as follows to run a Ping command to test connectivity between your PC and the router.

- ✧ 1. Select "Start"—"Run" and enter "cmd". Then press "Enter".



- ✧ Enter "ping 192.168.0.1" and press "Enter". If you see the following screen, it means the router is reachable on your PC. If you don't get the following screen, verify router's power supply, Ethernet cable connections and your PC's TCP/IP settings.

```
F:\windows\system32\cmd.exe
Microsoft Windows XP [Version 5.1.2600]
(C) Copyright 1985-2001 Microsoft Corp.

F:\Documents and Settings\Administrator>ping 192.168.0.1

Pinging 192.168.0.1 with 32 bytes of data:

Reply from 192.168.0.1: bytes=32 time<1ms TTL=64

Ping statistics for 192.168.0.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

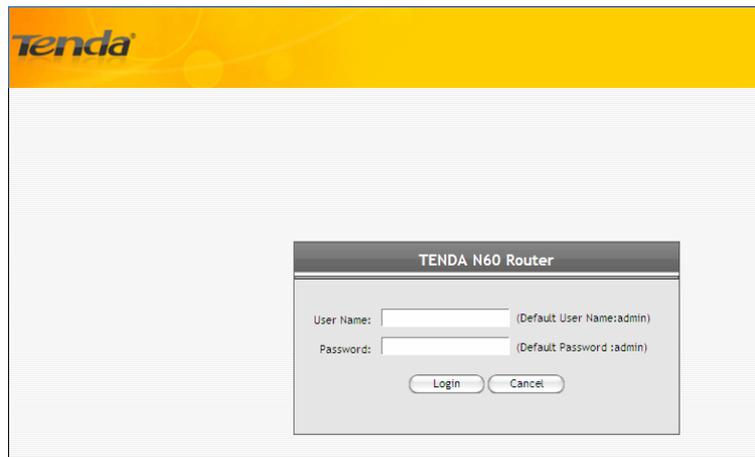
F:\Documents and Settings\Administrator>
```

Login to web utility

Launch a web browser on your PC and enter <http://192.168.0.1> as below. Then press "Enter".



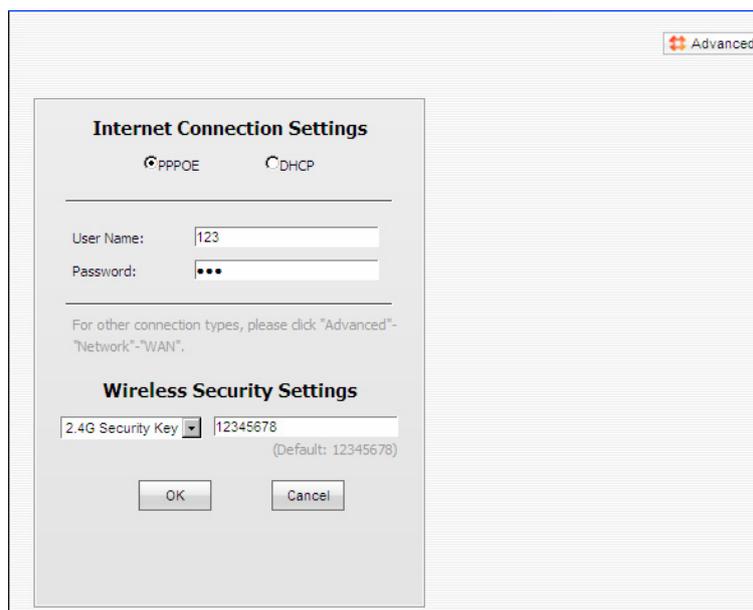
Enter user name and password in corresponding fields on window below (Default user name and password are respectively set to admin).

A screenshot of the Tenda N60 Router login page. The page has a yellow header with the Tenda logo. Below the header is a central login form titled "TENDA N60 Router". The form contains two input fields: "User Name:" with a text box and "(Default User Name:admin)" to its right, and "Password:" with a text box and "(Default Password :admin)" to its right. Below the input fields are two buttons: "Login" and "Cancel".

Note:

For security purpose, please change the default user name and password after you logged in to web utility.

You will see the following interface if you entered a correct user name and a correct password.

A screenshot of the "Internet Connection Settings" dialog box. The dialog box has a title bar with "Advanced" on the right. It contains two radio buttons: "PPPOE" (selected) and "DHCP". Below the radio buttons are two input fields: "User Name:" with the value "123" and "Password:" with three dots. Below the input fields is a note: "For other connection types, please click 'Advanced'-'Network'-'WAN'". Below the note are two sections: "Wireless Security Settings" with a "2.4G Security Key" dropdown menu and a text box containing "12345678" (with "(Default: 12345678)" below it). At the bottom are "OK" and "Cancel" buttons.

Chapter 4 Configurations

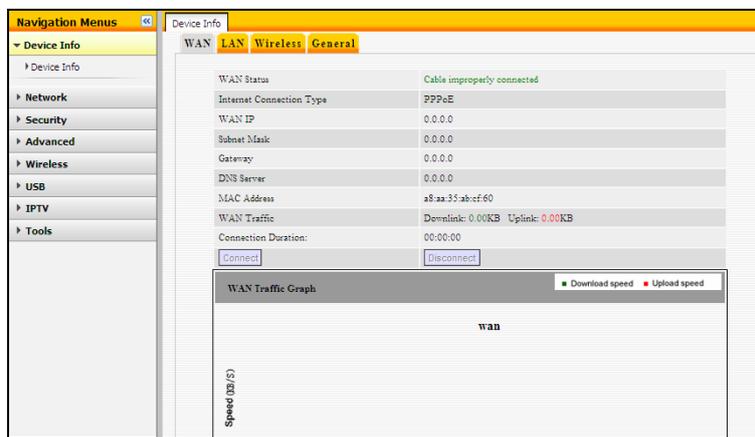
This chapter delivers a detailed presentation of router's functionalities and features under 8 main menus below, allowing you to manage the router with ease.



During operation, if you are not clear about a certain feature, you can simply click the "Help" button to read all related helpful info.

4.1 Device Info

WAN



This section allows you to view the router's WAN info listed below:

WAN Status: Displays WAN connection status: Disconnected, Connecting or Connected.

Disconnected: Indicates that the Ethernet cable from your ISP side is / is not correctly connected to the WAN port on the router or the router is not logically connected to your ISP.

Connecting: Indicates that the WAN port is correctly connected and is requesting an IP address from your ISP.

Connected: Indicates that the router has been connected to your ISP.

- ✧ **Internet Connection Type:** Displays current Internet connection type.
- ✧ **WAN IP:** Displays WAN IP address.
- ✧ **Subnet Mask:** Displays WAN subnet mask.
- ✧ **Gateway:** Displays WAN gateway address.
- ✧ **DNS Server:** Displays WAN DNS address.
- ✧ **WAN MAC Address:** Displays router's WAN MAC address.
- ✧ **WAN Traffic:** Displays bandwidth currently used by router in KB/s.
- ✧ **Connection Duration:** Displays time duration indicating how long the router has been connected to ISP.
- ✧ **WAN Traffic Graph:** Displays a graphic presentation of the traffic flow.

LAN

This section allows you to view the router's LAN info listed below:

The screenshot shows the router's web interface with the 'Device Info' section selected. The 'LAN' tab is active, displaying the following configuration details:

Parameter	Value
IP Address	192.168.0.1
Subnet Mask	255.255.255.0
LAN MAC Address	a8:aa:35:ab:cf:60
DHCP Server	Enabled
NAT Entries/NAT	61/ 8192

- ✧ **IP Address:** Displays LAN IP address.
- ✧ **Subnet Mask:** Displays LAN subnet mask.
- ✧ **LAN MAC Address:** Displays router's LAN MAC address.
- ✧ **DHCP Server:** Displays whether DHCP server is enabled or not.
- ✧ **NAT Entries/NAT:** Displays number of used NAT entries and MAX NAT entries.

Wireless

This section allows you to view the wireless info listed below:

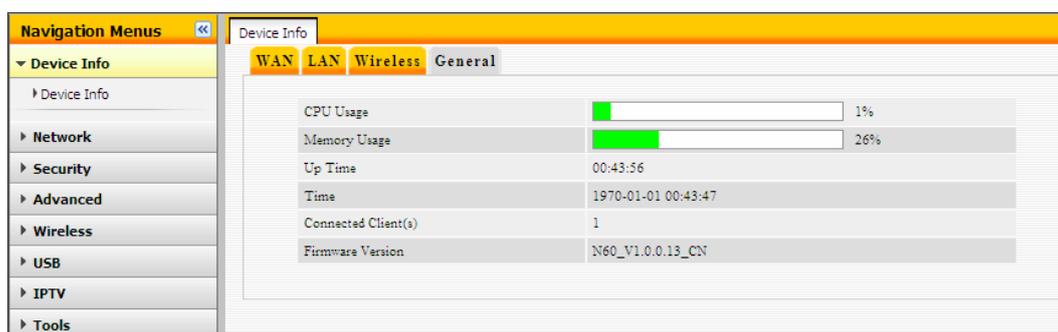
The screenshot shows the router's web interface with the 'Device Info' section selected. The 'Wireless' tab is active, displaying the following configuration details:

2.4GHz wireless status	
Wireless Radio	Enabled
Wireless MAC address	A8:AA:35:AB:CF:60
SSID	Tenda_ABCF60
802.11 Mode	11b/g mixed mode
Country	CN
Channel	Auto
Security Mode	Open
5GHz wireless status	
Wireless Radio	Enabled
Wireless MAC address	A8:AA:35:AB:CF:64
SSID	Tenda_5_ABCF64
802.11 Mode	11a/n mode
Country	CN
Channel	Auto
Security Mode	WPA - PSK

- ✧ **Wireless Radio:** Displays whether wireless is enabled or not.
- ✧ **Wireless MAC address:** Displays MAC address of the router's wireless interface.
- ✧ **SSID:** Displays current SSID.
- ✧ **802.11 Mode:** Displays currently active network mode.
- ✧ **Country:** Displays current country.
- ✧ **Channel:** Displays current channel.
- ✧ **Security Mode:** Displays current security Mode.

System Info

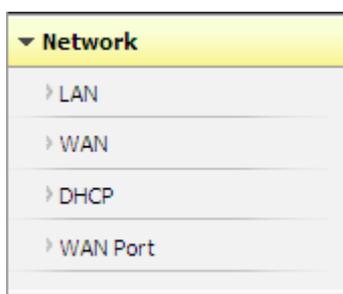
This section displays CPU/memory usage, uptime, system time, number of connected client(s) and system version info.



- ✧ **CPU Usage:** Displays current CPU usage status.
- ✧ **Memory Usage:** Displays current memory usage status.
- ✧ **Up Time:** Displays uptime.
- ✧ **Time:** Displays device's time synchronized with Internet or manually set by user.
- ✧ **Connected Client(s):** Displays the number of connected computers.
- ✧ **Firmware Version:** Displays router's firmware version.

4.2 Network

"Network" includes the following four submenus. Clicking any of them enters corresponding interface for configuration. Below explains, in details, each such feature.



4.2.1 LAN Settings

LAN Settings

IP Address: 192.168.0.1 For Example:192.168.1.1

Subnet Mask: 255.255.255.0 For Example:255.255.255.0

Save Restore Help

- ✧ **IP Address:** Router's LAN IP. The default is 192.168.0.1. You can change it according to your need.
- ✧ **Subnet Mask:** Router's LAN subnet mask.

Note:

1. If you change the device's LAN IP address, you must enter the new one in your browser to get back to the web-based configuration utility. And LAN PCs' gateway must be set to this new IP for successful Internet connection.
2. WAN IP, whether obtained automatically or specified manually, should NOT be on the same IP net segment as the LAN IP, otherwise, the router will not work properly. In case of emergency, press the hardware "Reset" button.

4.2.2 WAN Settings

The screen below displays WAN connection status and interface info.

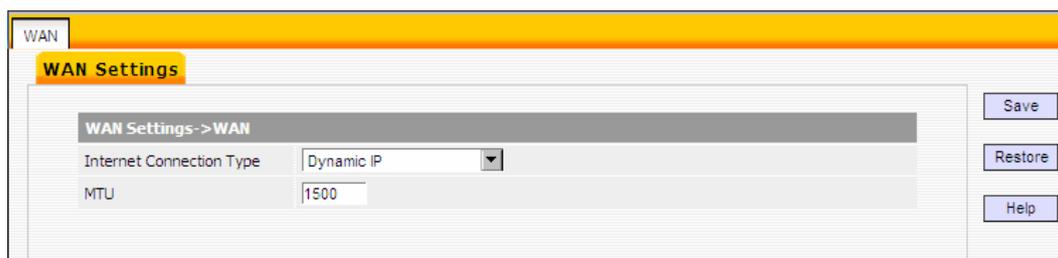
WAN Settings

Interface	Connection Status	Info	Edit
WAN	Ethernet cable NOT correctly connected	Static IP (IP:172.16.101.42/ 255.255.0.0) Gateway:172.16.100.100	Config

Help

Click the "Config" button to enter WAN configuration interface. The router supports six Internet connection types, include Dynamic IP, Static IP, L2TP, PPTP, PPPoE, and PPPoE dual access.

- 1) **Dynamic IP (DHCP):** Select this option to let router obtain IP settings automatically from your ISP, if your ISP does not give you any IP information or account information. You don't need to configure any settings for this connection.



The screenshot shows the WAN Settings page with the Internet Connection Type set to Dynamic IP and MTU set to 1500. The page includes Save, Restore, and Help buttons.

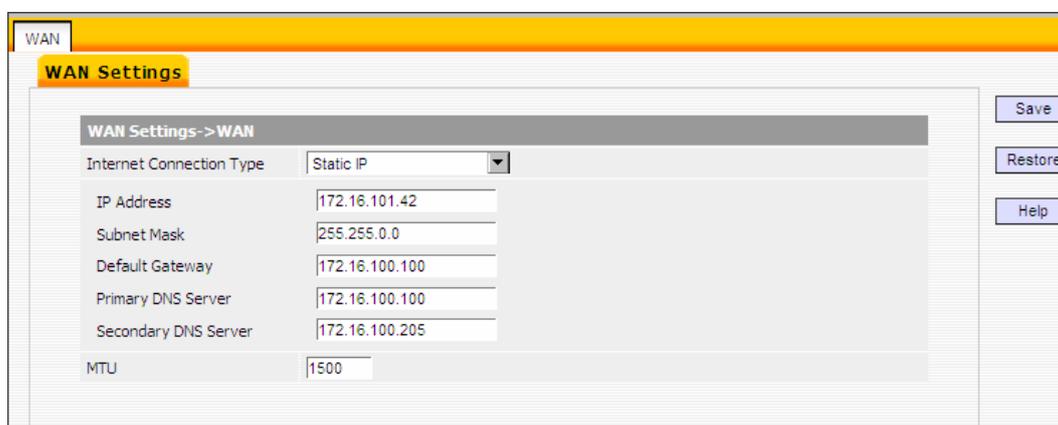
WAN Settings->WAN	
Internet Connection Type	Dynamic IP
MTU	1500

- **Internet connection Type:** Displays a list of available Internet connection types.
- **MTU:** Maximum Transmission Unit. The default value is 1500.

Note:

DO NOT change the factory default MTU value unless necessary as an improper MTU value may degrade your network performance or even lead to network malfunction.

2) **Static IP:** If your ISP offers you static IP Internet connection type, select "Static IP" from corresponding drop-down menu and then enter IP address, subnet mask, Primary DNS and secondary DNS information provided by your ISP in corresponding fields.



The screenshot shows the WAN Settings page with the Internet Connection Type set to Static IP. The IP Address is 172.16.101.42, Subnet Mask is 255.255.0.0, Default Gateway is 172.16.100.100, Primary DNS Server is 172.16.100.100, and Secondary DNS Server is 172.16.100.205. The MTU is 1500. The page includes Save, Restore, and Help buttons.

WAN Settings->WAN	
Internet Connection Type	Static IP
IP Address	172.16.101.42
Subnet Mask	255.255.0.0
Default Gateway	172.16.100.100
Primary DNS Server	172.16.100.100
Secondary DNS Server	172.16.100.205
MTU	1500

- ✧ **Internet connection Type:** Displays a list of available Internet connection types.
- ✧ **IP Address:** Enter the WAN IP address provided by your ISP. Inquire your ISP if you are not clear.
- ✧ **Subnet Mask:** Enter WAN Subnet Mask provided by your ISP.
- ✧ **Default Gateway:** Enter the WAN Gateway address provided by your ISP.
- ✧ **Primary DNS Server:** Enter the necessary DNS address provided by your ISP.
- ✧ **Secondary DNS Server:** Enter the other DNS address if your ISP provides you with 2 such addresses, and it is optional.

✧ **MTU:** Maximum Transmission Unit. The default value is 1500.

Note:

DO NOT change the factory default MTU value unless necessary as an improper MTU value may degrade your network performance or even lead to network malfunction.

3) **PPPoE:** Select PPPoE, if your ISP is using a PPPoE connection and provide you with PPPoE user name and password info.



WAN Settings->WAN	
Internet Connection Type	PPPOE
User Name	123
Password	123
MPPE	<input type="checkbox"/>
MTU	1492

✧ **Internet connection Type:** Displays a list of available Internet connection types.

✧ **User Name:** Enter the User Name provided by your ISP.

✧ **Password:** Enter the password provided by your ISP.

✧ **MTU:** Maximum Transmission Unit. The default value is 1492.

Note:

DO NOT change the factory default MTU value unless necessary as an improper MTU value may degrade your network performance or even lead to network malfunction.

4) **PPTP:** Allows you to connect your router to a VPN server.

For example: A corporate branch and headquarter can use this connection type to implement mutual and secure access to each other's resources.

The screenshot shows the WAN Settings page with the following fields and values:

Field	Value
Internet Connection Type	PPTP
PPTP Server IP	pptp_server
User Name	pptp_user
Password
Address Mode	Static
IP Address	
Subnet Mask	
Default Gateway	
DNS Server	
Secondary DNS Server	
MPPE	<input type="checkbox"/>
MTU	1480

- ✧ **Internet connection Type:** Displays a list of available Internet connection types.
- ✧ **PPTP Server IP:** Enter the IP address of a PPTP server.
- ✧ **Username/Password:** Enter Username/Password defined by the PPTP server.
- ✧ **Address mode:** Select “Dynamic” if you don’t get any IP info from the PPTP server side, otherwise select “Static”.
- ✧ **IP Address:** Enter the IP address provided by your ISP. Inquire your local ISP if you are not clear.
- ✧ **Subnet mask:** Enter the subnet mask provided by your ISP.
- ✧ **Default Gateway:** Enter the gateway provided by your ISP. Inquire your local ISP if you are not clear.
- ✧ **DNS Server:** Enter the necessary DNS address provided by your ISP.
- ✧ **Secondary DNS Server:** Enter the other DNS address if your ISP provides you with 2 such addresses, and it is optional.
- ✧ **MTU:** Maximum Transmission Unit. The default value is 1450.

5)**L2TP:** Allows you to connect your router to a L2TP server.

For example: A corporate branch and headquarter can use this connection type to implement mutual and secure access to each other’s resources.

The screenshot shows the WAN Settings page with the following fields and values:

Field	Value
Internet Connection Type	L2TP
L2TP Server IP Address	l2tp_server (IP Address or domain name)
User Name	l2tp_user
Password	*****
Address Mode	Static
IP Address	
Subnet Mask	
Default Gateway	
DNS Server	
Secondary DNS Server	
MTU	1458

- ✧ **Internet connection Type:** Displays a list of available Internet connection types.
- ✧ **L2TP Server IP Address:** Enter the IP address of a L2TP server.
- ✧ **Username/Password:** Enter Username/Password specified by the L2TP server.
- ✧ **Address Mode:** Select "Dynamic" if you don't get any IP info from the L2TP server, otherwise select "Static".
- ✧ **IP address:** Enter the IP address provided by your ISP. Inquire your local ISP if you are not clear.
- ✧ **Subnet mask:** Enter the subnet mask provided by your ISP.
- ✧ **Default Gateway:** Enter the gateway provided by your ISP. Inquire your local ISP if you are not clear.
- ✧ **DNS Server:** Enter the necessary DNS address provided by your ISP.
- ✧ **Secondary DNS Server:** Enter the other DNS address if your ISP provides you with 2 such addresses, and it is optional.
- ✧ **MTU:** Maximum Transmission Unit. The default value is 1450.

6) PPPOE Dual Access

- ✧ **Internet connection Type:** Displays a list of available Internet connection types.
- ✧ **Username:** Enter the PPPOE account provided by your ISP.
- ✧ **Password:** Enter the PPPOE password provided by your ISP.
- ✧ **Address mode:** Select "Dynamic" if you don't get any IP info from your ISP, otherwise select "Static".
- ✧ **IP address:** The IP address provided by your ISP. Inquire your local ISP if you are not clear.
- ✧ **Subnet mask:** The subnet mask provided by your ISP.
- ✧ **Default Gateway:** The gateway address provided by your ISP. Inquire your local ISP if you are not clear.
- ✧ **MTU:** Maximum Transmission Unit. The default value is 1492.

4.2.3 DHCP Settings

"DHCP" includes 3 submenus: DHCP Server, Client List and Static Assignment. Clicking any of them enters corresponding interface for configuration. Below explains, in details, each such feature.

The Dynamic Host Configuration Protocol (DHCP) is an automatic configuration protocol used on IP networks. If you enable the built-in DHCP server on the device, it will automatically configure the TCP/IP settings for all your LAN computers (including IP address, subnet mask, gateway and DNS etc), eliminating the need for manual intervention. Just be sure to set such PCs to DHCP clients by selecting "Obtain an IP Address Automatically" on each such PC. When you turn these PCs on, they will automatically load the proper TCP/IP settings provided by the device DHCP server.

- ✧ **DHCP Server-Enable:** Check or uncheck the box to enable or disable the device's DHCP server feature.
- ✧ **Start IP Address:** Enter the starting IP address for the DHCP server's IP assignment.
- ✧ **End IP Address:** Enter the ending IP address for the DHCP server's IP assignment.
- ✧ **Lease Time:** The length of time for the IP address lease. Configuring a proper lease time improves the efficiency for the DHCP server to reclaim disused IP addresses.
- ✧ **Primary DNS Server:** Enter a DNS server address assigned to DHCP clients.
- ✧ **Secondary DNS Server:** Enter the other DNS address assigned to DHCP clients (optional).

To benefit from the DHCP server feature, you must set all LAN PCs to DHCP clients by selecting the "Obtain an IP Address Automatically" radio buttons thereon.

DHCP Client List

This section displays a DHCP dynamic client list, which includes host name, IP address, MAC address and lease time info.

Host name	IP Address	MAC Address	Lease Time
Christina-T	192.168.0.136	00:e0:4c:69:9b:12	6Day 23:59:51

- ✧ **IP Address:** Displays IP address(s) that client(s) obtained from the DHCP server.
- ✧ **MAC Address:** Displays MAC address of a given host.
- ✧ **Host name:** Displays name of a given host (DHCP client).
- ✧ **Lease Time:** Remaining time for a corresponding IP address lease.

Static Assignment

If you would like some devices on your network to always have fixed IP addresses, you can use this feature and manually add a static DHCP assignment entry for each such device.

For example: To have a PC at the MAC address of 00:15:58:c0:d4:3f always receive the same IP address of 192.168.0.150, simply enter the IP and MAC addresses in corresponding fields and click "Add" and then the "Save" button as shown below.

Static Assignment

IP Address:

MAC Address: : : : : :

ID	IP Address	MAC Address	Action
1	192.168.0.150	00:15:58:C0:D4:3F	<input type="button" value="Edit"/> <input type="button" value="Delete"/>

- ✧ **IP Address:** Enter the IP address for static DHCP assignment.
- ✧ **MAC Address:** Enter the MAC address of a computer to always receive the same IP address (the IP you just entered above).
- ✧ **Add:** Click to add the current IP-MAC static assignment entry to the list.
- ✧ **Edit:** Click to change a given static assignment entry.
- ✧ **Delete:** Click to remove an existing entry.

4.2.4 WAN Port

"WAN Port" includes 2 submenus: MAC Clone, and Speed/Duplex. Clicking either tab enters corresponding interface for configuration. Below explains, in details, each such feature.

WAN Port

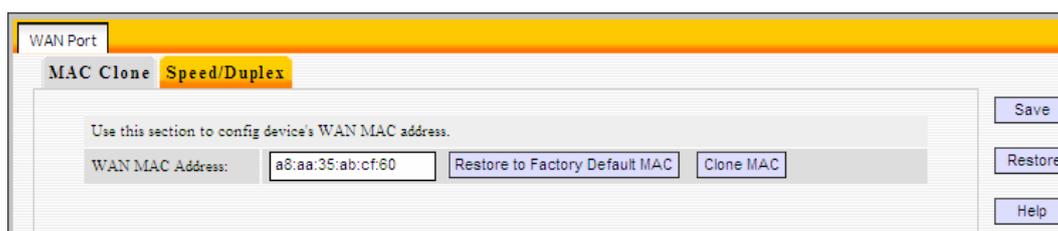
MAC Clone Speed/Duplex

Use this section to config device's WAN MAC address.

WAN MAC Address:

MAC Clone

This section allows you to set router's WAN MAC address. You can either manually enter a MAC or copy your PC's MAC to the router.



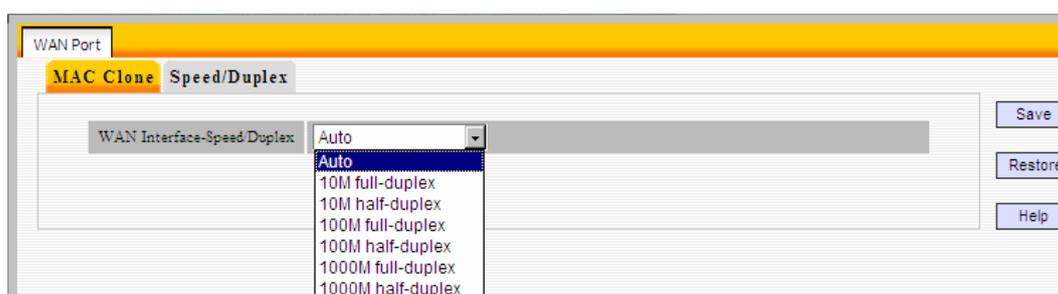
- ✧ **WAN MAC Address:** Displays router's current WAN MAC address, you can manually change it.
- ✧ **Restore to Factory Default MAC:** Click it to restore router's WAN MAC to factory default value.
- ✧ **Clone MAC:** Click to copy your PC's MAC to router's WAN MAC Address field.

NOTE:

1. Normally you don't need to change the default WAN MAC value. However, some ISP may bind client PC's MAC address for Internet connection authentication. In this case, simply enter such MAC in the WAN MAC Address field or click the "Clone MAC" button. Note that the WAN MAC address in running status interface will be updated accordingly.
2. Do remember to reboot the router to activate the new WAN MAC. DO NOT use the "Clone MAC" feature if your ISP does not bind your PC's MAC.

Speed/Duplex

This section allows you to config the router's WAN port speed/duplex settings.



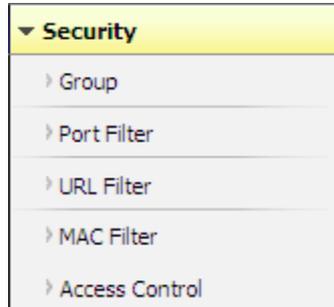
You can select a WAN port speed/duplex mode that best suit your network environment from the drop-down list, which includes auto, 10M half-duplex, 10M full-duplex, 100M half-duplex, 100M full-duplex, 1000M half-duplex and 1000M full-duplex.

Note:

The WAN port speed/duplex mode must match that of its link partner to achieve successful communication; otherwise, the WAN port may not function properly. So, if you are not sure about the link partner's speed/duplex mode, please select "Auto".

4.3 Security Settings

“Security Settings” includes the following 5 submenus. Clicking any of them enters corresponding interface for configuration. Below explains, in details, each such feature.

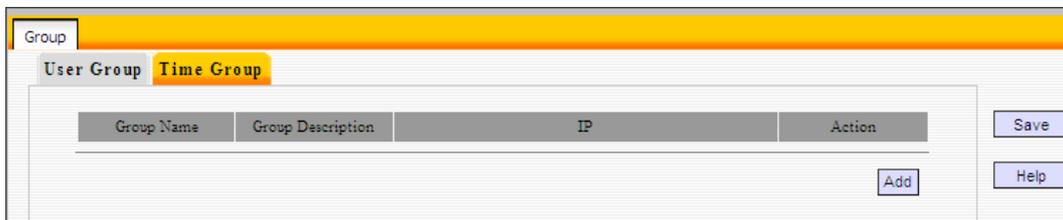


4.3.1 Group Settings

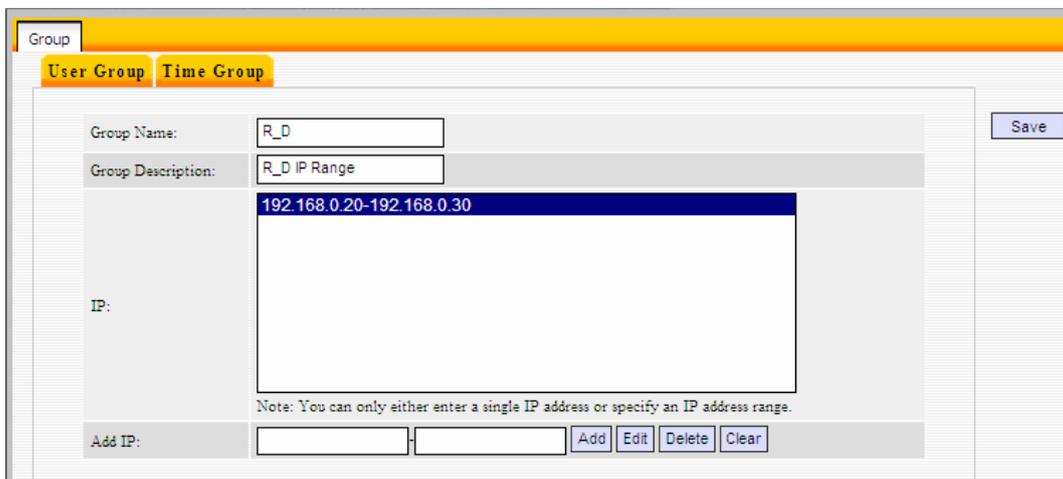
“Group Settings” includes 2 submenus: Group Settings, User Group and Time Group. Clicking either tab enters corresponding interface for configuration. Below explains, in details, each such feature.

User Group

To create a user group, you need to specify a group name/description and an IP address/range. The user group feature works together with other related features.

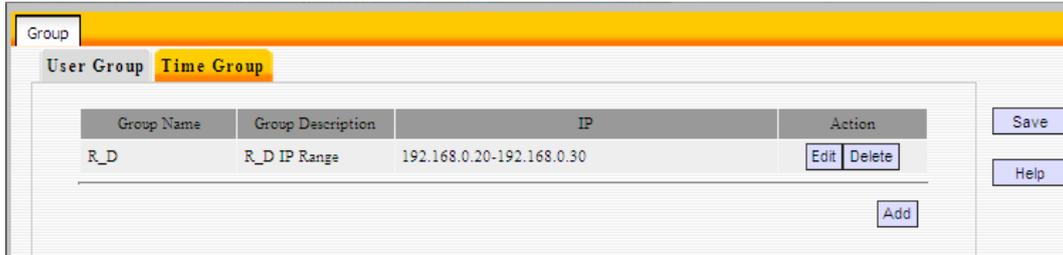


For example: If you want to add a user group for a R&D department within an IP of 192.168.0.20-192.168.0.30, first click the “Add” button and then follow steps below:



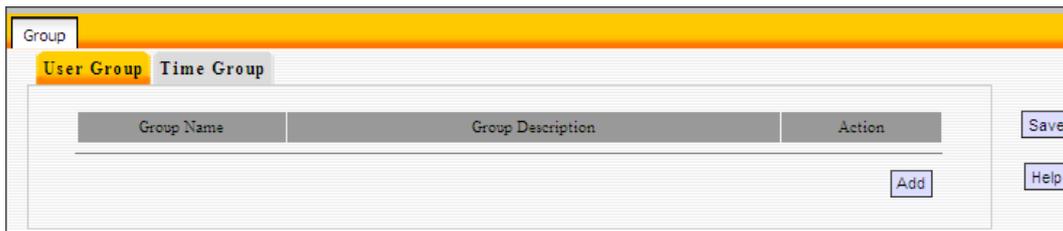
1. Enter R_D in group name field.
2. Enter R_D IP Range in group description field.
3. Enter "192.168.0.20" and "192.168.0.30" in IP fields.
4. Click "Add" and then the "Save" button; you will find

such entry in User Group list below:

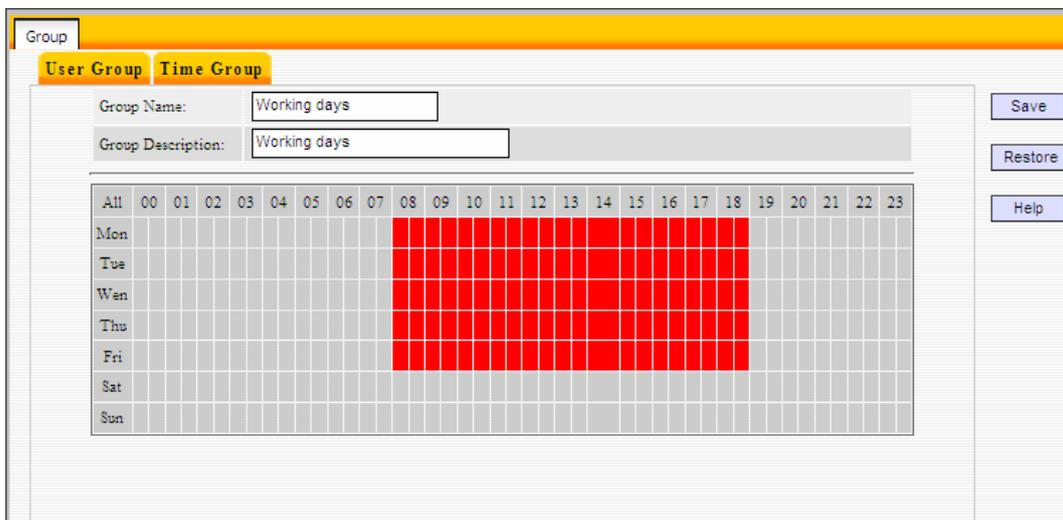


Time Group

To create a time group, you need to specify a group name/description and a time / time range.



For example: If you want to set a period of time from 8 : 00 to 18 : 00 on working days from Monday to Friday to a time group, first click the "Add" button and then follow steps below:

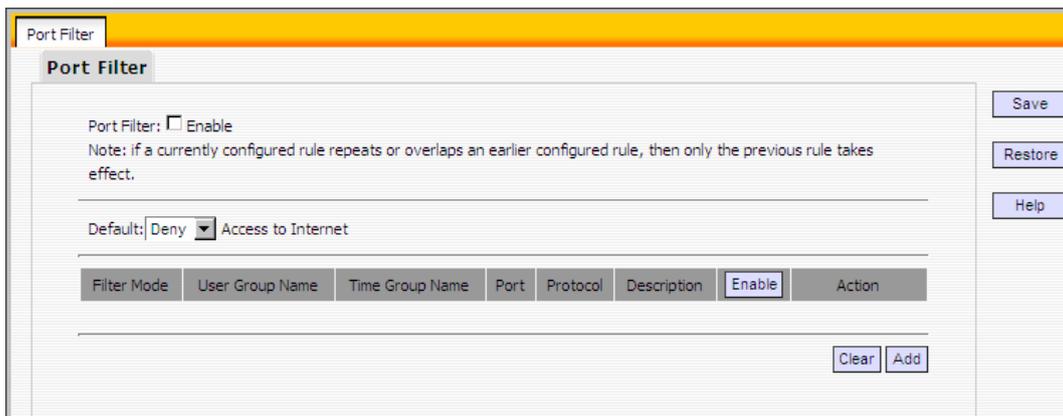


1. Enter "Working days" in group name field.
2. Enter "working days" in group description field.
3. Select the time and days.
4. Click "Save" and you will find such entry in Time Group list below:

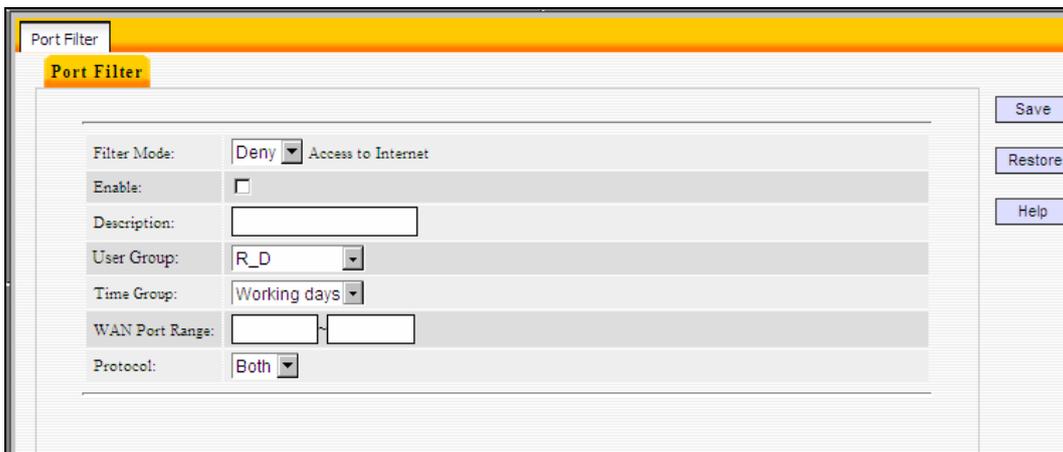


4.3.2 Port Filter

To better manage PCs in LAN, you can allow or disallow such PCs to access certain ports on Internet using the Port Filter functionality.



Click "Add" to enter page below:



✧ **Filter Mode:** Select Deny or Allow according to your own needs.

Deny Access to Internet: Disallow specified packets to pass through the router; other packets are processed according to default rule.

Allow Access to Internet: Allow specified packets to pass through the router; other packets are processed according to default rule.

- ✧ **Enable:** Check to enable current filter entry.
- ✧ **Description:** Enter a meaningful name to yourself for a new filter rule.
- ✧ **User Group:** Select an added user group from the drop-down list.
- ✧ **Time Group:** Select an added time group from the drop-down list.
- ✧ **WAN Port Range:** Enter port IDs. You can specify a range of ports or a single port. Allowed port ID ranges from 1 to 65535.
- ✧ **Protocol:** Select a protocol or protocols for the traffic ("Both" includes TCP and UDP).

For Example: If you want to disallow PCs within IP addresses ranging from 192.168.0.20 to 192.168.0.30("R&D" user group) to access web sites from 8:00 to 18:00 on working days – from Monday to Friday ("Working days" time group), do as follows:

1. Select "Deny" from the filter mode drop-down list.
2. Check the "Enable" box.
3. Enter "Forbid websites" in description field.
4. Select "R&D" from the user group drop-down list.
5. Select "Working days" from time group drop-down list.
6. Enter "80" in both boxes of "WAN Port Range".
7. Select "Both" from "Protocol" drop-down list.

Filter Mode:	Deny	Access to Internet
Enable:	<input checked="" type="checkbox"/>	
Description:	Forbid websites	
IP Group:	R_D	
Time Group:	Working days	
WAN Port Range:	80	80
Protocol:	Both	

8. Click "Save" and you will find such entry in the List below.

Port Filter

Port Filter: Enable
 Note: if a currently configured rule repeats or overlaps an earlier configured rule, then only the previous rule takes effect.

Default: Deny Access to Internet

Filter Mode	User Group Name	Time Group Name	Port	Protocol	Description	Enable	Action
Disable	R_D	Working days	80-80	Both	Forbid websites	<input checked="" type="checkbox"/>	Edit Delete

Clear Add

Save Restore Help

9. Select "Allow" from the "Default" drop-down list and check "Enable" Port Filter feature.

Port Filter

Port Filter: Enable
 Note: if a currently configured rule repeats or overlaps an earlier configured rule, then only the previous rule takes effect.

Default: Allow Access to Internet

Filter Mode	User Group Name	Time Group Name	Port	Protocol	Description	Enable	Action
Disable	R_D	Working days	80-80	Both	Forbid websites	<input checked="" type="checkbox"/>	Edit Delete

Clear Add

Save Restore Help

4.3.3 URL Filter

To better control LAN PCs, you can use the URL filter functionality to allow or disallow such PC to access certain websites within a specified time range.

URL Filter

URL Filter: Enable
 Note: If a currently configured rule repeats or overlaps an earlier configured rule, then only the previous rule takes effect.

Default: Deny Access to Internet

Filter Mode	User Group Name	Time Group Name	URL String	Description	Enable	Action
-------------	-----------------	-----------------	------------	-------------	--------	--------

Delete All Add

Save Restore Help

Click "Add" to display page below:

URL Filter

URL Filter

Filter Mode: Deny Access to Internet

Enable:

Description:

IP Group: R_D

Time Group: Working days

URL String:
(A comma should be put between different domain names. Up to 16 entries allowed!)

Save

Restore

Help

Filter Mode: Select Deny or Allow according to your own needs.

Deny Access to Internet: Disallow specified packets to pass through the router; other packets are processed according to default rule.

- **Allow Access to Internet:** Allow specified packets to pass through the router; other packets are processed according to default rule.
- **User Group:** Select an added user group from drop-down list.
- **Time Group:** Select an added time group from drop-down list.
- **Description:** Enter a meaningful name to yourself for a new filter rule.
- **URL character string:** Enter domain name string to be filtered.

For Example: If you want to disallow PCs within IP addresses ranging from 192.168.0.20 to 192.168.0.30 ("R_D" user group) to access only web sites containing "yahoo" from 8:00 to 18:00 on working days – from Monday to Friday ("Working days" time group), without restricting other PCs, do as follows:

1. Select "Deny" from the filter mode drop-down list.
2. Check the "Enable" box.
3. Enter "Disallow yahoo" in description field.
4. Select "R_D" from the user group drop-down list.
5. Select "Working days" from time group drop-down list.
6. Enter "yahoo" in URL String field.

URL Filter

URL Filter

Filter Mode: Deny Access to Internet

Enable:

Description: Forbid yahoo

IP Group: R_D

Time Group: Working days

URL String: yahoo
(A comma should be put between different domain names. Up to 16 entries allowed!)

Save
Restore
Help

7. Click “Save” to display page below:

URL Filter

URL Filter

URL Filter: Enable
Note: If a currently configured rule repeats or overlaps an earlier configured rule, then only the previous rule takes effect.

Default: Deny Access to Internet

Filter Mode	User Group Name	Time Group Name	URL String	Description	Enable	Action
Deny	R_D	Working days	yahoo	Forbid yahoo	<input checked="" type="checkbox"/>	<input type="button" value="Edit"/> <input type="button" value="Delete"/>

Delete All

Save
Restore
Help

8. Select “Allow” from the “Default” drop-down list and check the “Enable” URL Filter feature.

URL Filter

URL Filter

URL Filter: Enable
Note: If a currently configured rule repeats or overlaps an earlier configured rule, then only the previous rule takes effect.

Default: Allow Access to Internet

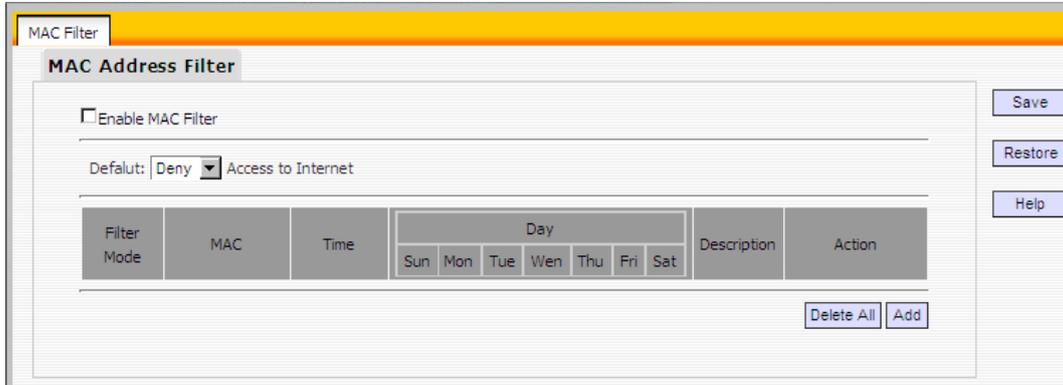
Filter Mode	User Group Name	Time Group Name	URL String	Description	Enable	Action
Deny	R_D	Working days	yahoo	Forbid yahoo	<input checked="" type="checkbox"/>	<input type="button" value="Edit"/> <input type="button" value="Delete"/>

Delete All

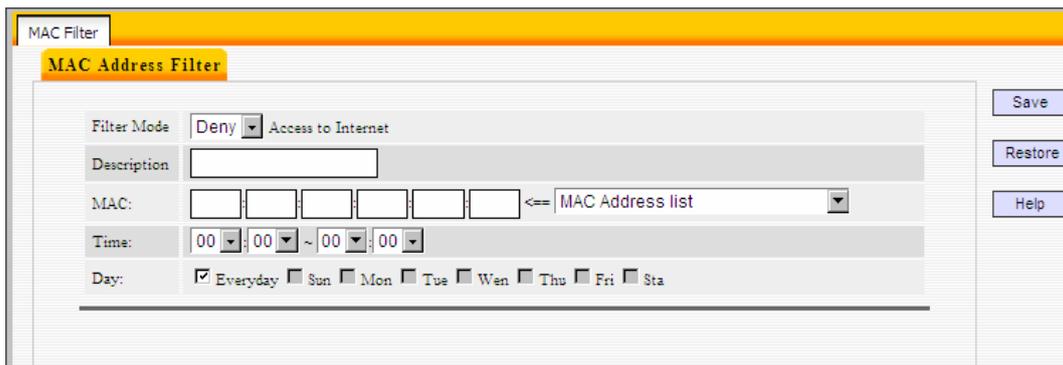
Save
Restore
Help

4.3.4 MAC Address Filter

To better manage PCs in LAN, you can use the MAC Address Filter function to allow/disallow such PCs to access to Internet.



Click "Add" to display page below:



- ✧ **Filter Mode:** Select Deny or Allow according to your own needs.
- ✧ **Deny Access to Internet:** Disallow specified packets to pass through the router; other packets are processed according to default rule.
- ✧ **Allow Access to Internet:** Allow specified packets to pass through the router; other packets are processed according to default rule.
- ✧ **Description:** Briefly describe a new filter rule
- ✧ **MAC:** Enter the computer's MAC address that you want to filter out in the MAC address field or select one from the MAC address list.
- ✧ **Time:** Select a time range for the new MAC address filter rule to take effect. The default is 00:00-00:00, which means 24 hours.
- ✧ **Day:** select a day or several days for the new MAC address filter rule to take effect.

For Example: To only prevent a PC at the MAC address of 00:B0:0C:77:88:00 from accessing Internet from 8:00 to 18: 00 everyday, without restricting other PCs, config same settings on the screenshot below on your device:

MAC Filter

MAC Address Filter

Filter Mode: Deny Access to Internet

Description: [Empty]

MAC: 00:80:0C:77:88:00 <== MAC Address list

Time: 08:00 ~ 18:00

Day: Everyday Sun Mon Tue Wed Thu Fri Sat

Save Restore Help

Click "Save" to display the following page. Select "Allow" from the "Default" drop-down list and check the "Enable MAC Filter" feature as below.

MAC Filter

MAC Address Filter

Enable MAC Filter

Default: Allow Access to Internet

Filter Mode	MAC	Time	Day							Description	Action
			Sun	Mon	Tue	Wed	Thu	Fri	Sat		
Deny	00:80:0C:77:88:00	08:00-18:00	✓	✓	✓	✓	✓	✓	✓		Modify Delete

Delete All Add

Save Restore Help

4.3.5 WAN Access Control

The WAN Access Control feature allows users to configure your router from Internet via a web browser.

Access Control

WAN Access Control

Enable:

IP Address: [Empty]

Port: 8080

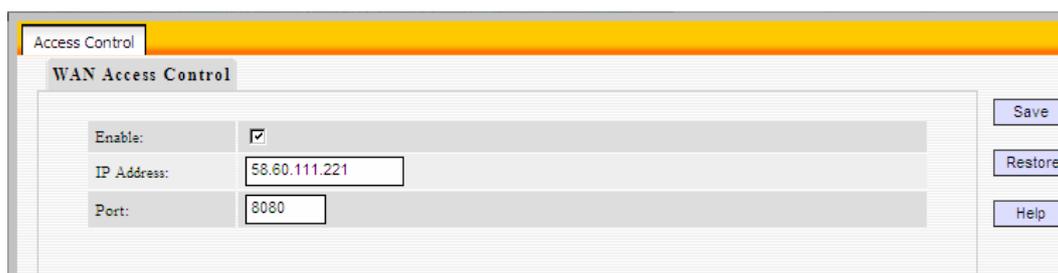
Save Restore Help

- ✧ **Enable:** Check or uncheck to enable or disable the WAN Access Control feature.
- ✧ **Port:** Enter a port ID for remote web-based management. The default is 8080.
- ✧ **IP Address:** Enter the IP address of a PC on Internet authorized to access and manage your router's web-based utility remotely.

Note:

If you enter 0.0.0.0 in the IP address box, then all PCs on Internet can access your router's Web-based utility to view or change your settings remotely once you enable the feature.

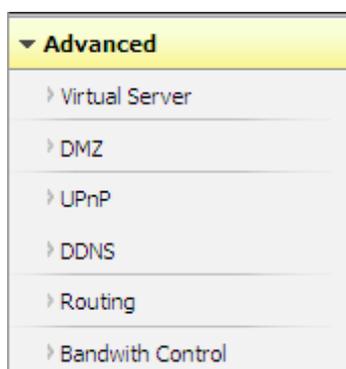
For example: If you want to allow only a PC at the IP address of 58.60.111.221 to access your router's web-based utility from Internet via port: 8080, you need to configure same settings as shown on the interface below on your router. And what this IP user needs to do is to simply launch a browser and enter `http://58.251.88.90:8080` (provided that your router's WAN IP address is 58.251.88.90).



Access Control	
WAN Access Control	
Enable:	<input checked="" type="checkbox"/>
IP Address:	<input type="text" value="58.60.111.221"/>
Port:	<input type="text" value="8080"/>
<input type="button" value="Save"/>	
<input type="button" value="Restore"/>	
<input type="button" value="Help"/>	

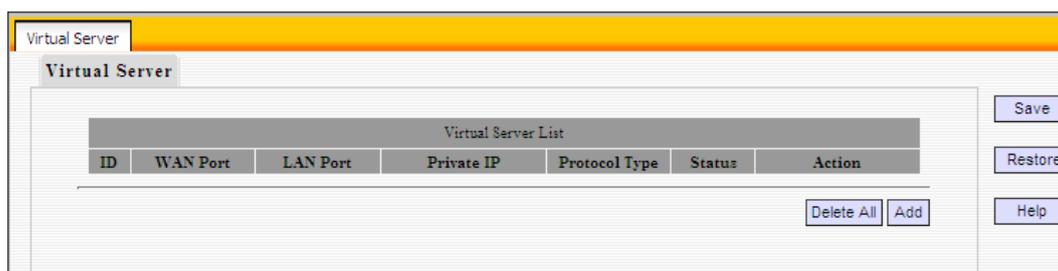
4.4 Advanced Settings

"Advanced Settings" includes the following 6 submenus. Clicking any of them enters corresponding interface for configuration. Below explains, in details, each such feature.

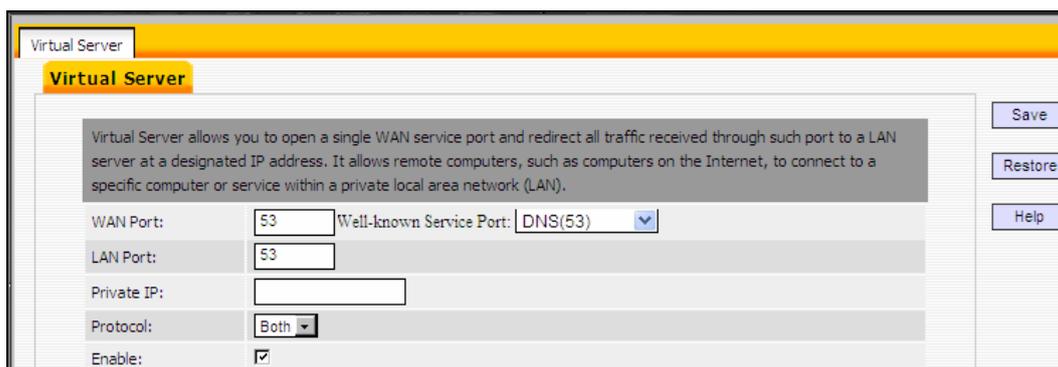


4.4.1 Virtual Server

The Virtual Server feature grants Internet users access to services on your LAN. It is useful for hosting online services such as FTP, Web, or game servers. For each Virtual Server, you define a WAN port on your router for redirection to an internal LAN IP Address and LAN port.



Click "Add" to display below page.



- ✧ **WAN Port:** Enter the WAN service port.
- ✧ **Well-Known Service Ports:** The "Well-Known Service Port" lists commonly used protocol ports such as DNS(53, FTP(21), GOPHER(70), HTTP(80), NNTP(1190), POP3(110), PPTP(1723) , SMTP(25), SOCK(1080), TELNET(23). In case that you don't find the port ID you need, add it manually.
- ✧ **LAN Port:** Enter LAN service port.
- ✧ **LAN IP:** The IP address of a computer used as a server in LAN.
- ✧ **Protocol:** Includes TCP, UDP and Both. Select "Both" if you are not sure about which protocol to use.
- ✧ **Enable:** Check the "Enable" option to activate corresponding entry.

For example: If you create a web server using port 80 on a LAN PC at the IP address of 192.168.0.10, and you want WAN users to access such server via <http://x.x.x.x:4000> (x.x.x.x represents router's WAN IP address), then do as follows:

1. Enter "4000" in WAN Port field, 80 in LAN port field and 192.168.0.10 in Private IP field,
2. Select "Both" from protocol drop-down list.
3. Check the "Enable" box.
4. Click "Save" to save such settings.

Note:

Setting WAN port hereon to the same value as that on WAN access control section will deactivate the virtual server feature.

4.4.2 DMZ Settings

In some cases, we need to set a computer to be completely exposed to extranet for implementation of a bidirectional communication. To do so, we set it as a DMZ host.

- ✧ **DMZ Host IP Address:** Enter the IP address of a LAN computer which you want to set to a DMZ host.
- ✧ **Enable:** Check/uncheck to enable/disable the DMZ host.

NOTE:

1. If you set a PC to a DMZ host, it will be completely exposed to extranet and gains no more protection from the device firewall.
2. A WAN user accesses the DMZ host through a corresponding WAN IP address.

4.4.3 UPnP Settings

UPnP (Universal Plug and Play) requires Windows ME/Windows XP or later or application softwares that support such UPnP feature.

- ✧ **ID:** Entry ID.
- ✧ **Remote Host:** Description of a remote host that receives/sends responses.
- ✧ **WAN Port:** Port on router side.
- ✧ **LAN Host:** Description of an internal host that receives/sends responses.
- ✧ **LAN Port:** Port on host side.
- ✧ **Protocol:** Indicates whether to perform TCP or UDP port forwarding.
- ✧ **Description:** Software info of a mapped port.

4.4.4 DDNS Settings

Dynamic DNS or DDNS is a term used for the updating in real time of Internet Domain Name System (DNS) name servers. We use a numeric IP address allocated by Internet Service Provider (ISP) to connect to Internet; the address may either be stable ("static"), or may change from one session on the Internet to the next ("dynamic"). However, a numeric address is inconvenient to remember; an address which changes unpredictably makes connection impossible. The DDNS provider allocates a static hostname to the user; whenever the user is allocated a new IP address this is communicated to the DDNS provider by software running on a computer or network device at that address; the provider distributes the association between the hostname and the address to the Internet's DNS servers so that they may resolve DNS queries. Thus, uninterrupted access to devices and services whose numeric IP address may change is maintained.

- ✧ **Enable DDNS:** Check the box to Enable or Disable the DDNS feature.
- ✧ **DDNS Service Provider:** Select your DDNS service provider from the drop-down menu (DynDNS or Noip).
- ✧ **Username:** Enter the DDNS username registered on DDNS server.
- ✧ **Password:** Enter the DDNS password registered on DDNS server.
- ✧ **Domain Name:** Enter the DDNS domain name distributed by your DDNS service provider.
- ✧ **Connection Status:** Displays current status connection with the DDNS server.

4.4.5 Routing

This section talks about Routing Table and Static Routing features.

Routing Table

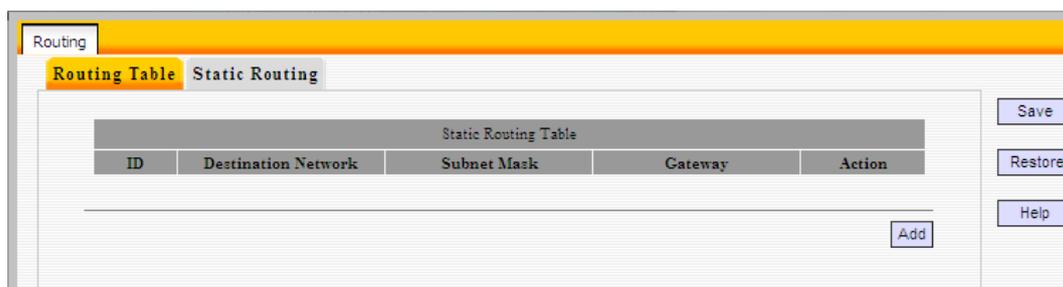
This page displays the router's core routing table which lists destination IP, subnet mask, gateway, hop count and interface.



Destination Network	Subnet Mask	Gateway	metric	Interface
192.168.2.0	255.255.255.0	0.0.0.0	0	br1
192.168.0.0	255.255.255.0	0.0.0.0	0	br0
127.0.0.0	255.0.0.0	0.0.0.0	0	lo

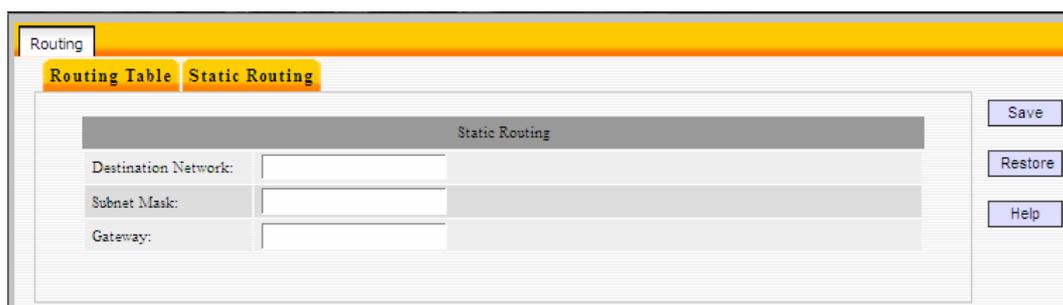
Static Routing

You can use this section to set up router's static routing feature.



Static Routing Table				
ID	Destination Network	Subnet Mask	Gateway	Action

Click "Add" to add static routing entries.



Static Routing	
Destination Network:	<input type="text"/>
Subnet Mask:	<input type="text"/>
Gateway:	<input type="text"/>

- ✧ **Destination Network:** Enter a destination IP address.
- ✧ **Subnet Mask:** Enter a Subnet Mask that corresponds to the destination IP address you entered.
- ✧ **Gateway:** Next-hop IP address.

4.4.6 Bandwidth Control

To better manage bandwidth allocation and optimize network performance, use the Custom Bandwidth Allocation feature.

The screenshot shows the 'Bandwidth Control' page with the 'Bandwidth Settings' section. There are two radio button options: 'Disable Bandwidth Allocation' (which is selected) and 'Custom Bandwidth Allocation'. To the right of the settings are three buttons: 'Save', 'Restore', and 'Help'.

- ✧ **Custom Bandwidth Allocation:** Select this option to customize a bandwidth allocation policy that best fits your network. You can set specific limits on uplink and downlink bandwidth of PCs within a specified IP range.

The screenshot shows the 'Bandwidth Control' page with the 'Bandwidth Settings' section. The 'Custom Bandwidth Allocation' option is selected. Below the options is a table with columns: 'IP Range', 'Upstream', 'Downstream', 'Description', 'Enable', and 'Action'. The 'Enable' button in the table is highlighted. To the right of the settings are three buttons: 'Save', 'Restore', and 'Help'. At the bottom right of the table area are 'Clear' and 'Add' buttons.

Click "Add" to display the page below:

The screenshot shows the 'Bandwidth Control' page with the 'Bandwidth Settings' section. The 'Custom Bandwidth Allocation' option is selected. The 'Add' button in the table area is highlighted. The 'Enable' checkbox is checked, with a note: '(If disabled, settings below will only be saved instead of being activated.)'. The 'IP Range' field contains two empty input boxes. The 'Upstream Bandwidth Limit' and 'Downstream Bandwidth limit' fields each have an input box followed by 'KByte(Total)'. The 'P2P Download Control' checkbox is unchecked, with a note: 'Regulates P2P download rate to ensure each user a guaranteed share of bandwidth.' The 'Allocation Mode' section has two radio button options: 'Each member of the IP range shall utilize the allocated bandwidth individually.' (selected) and 'All members of the IP range shall share the allocated bandwidth collectively.' The 'Allocation Policy' section has two radio button options: 'Utilize only allocated bandwidth' and 'Utilize more bandwidth if available' (selected). The 'Description' field is empty. To the right of the settings are three buttons: 'Save', 'Restore', and 'Help'.

- ✧ **Enable:** Check/uncheck to enable/disable current bandwidth entry.
- ✧ **IP Range:** Enter a single IP or an IP range.
- ✧ **Upstream Bandwidth Limit:** Max total upload bandwidth for a specified PC or a range of PCs.
- ✧ **Downstream Bandwidth Limit:** Max total download bandwidth for a specified PC or a range of PCs.
- ✧ **P2P Download Control:** Regulates P2P download rate to ensure each user a guaranteed share of bandwidth.
- ✧ **Allocation Mode:** Select either "Individual (Each member of the IP range shall utilize the allocated bandwidth individually)" or "Collective (All members of the IP range shall share the allocated bandwidth collectively)"
- ✧ **Allocation Policy:** Select either "Utilize only the allocated bandwidth" or "Utilize more bandwidth if available".
- ✧ **Description:** Brief description of current entry.

Note:

1. Please note the bandwidth unit.
2. If you enable the P2P Download Control feature, it will limit P2P download rate (smaller than the specified value) to ensure other applications such as web browsing a reserved and guaranteed share of bandwidth.
3. If you select "Utilize more bandwidth if available", router will dynamically adjust uplink/downlink bandwidth allocation to ensure defined and additional bandwidth if available or only defined bandwidth.

For example:

If you want each PC within the IP range of 192.168.0.100-192.168.0.120 to have up to 2M uplink and 2M downlink bandwidth, and want to control P2P download bandwidth, then config same settings as shown on the screen below on your router:

Bandwidth Control	
Bandwidth Settings	
Enable	<input checked="" type="checkbox"/> (If disabled, settings below will only be saved instead of being activated.)
IP Range	<input type="text" value="192.168.0.100"/> <input type="text" value="192.168.0.120"/>
Upstream Bandwidth Limit	<input type="text" value="256"/> KByte(Total)
Downstream Bandwidth limit	<input type="text" value="256"/> KByte(Total)
P2P Download Control	<input checked="" type="checkbox"/> Regulates P2P download rate to ensure each user a guaranteed share of bandwidth.
Allocation Mode	<input checked="" type="radio"/> Each member of the IP range shall utilize the allocated bandwidth individually. <input type="radio"/> All members of the IP range shall share the allocated bandwidth collectively.
Allocation Policy	<input checked="" type="radio"/> Utilize only allocated bandwidth <input type="radio"/> Utilize more bandwidth if available
Description	<input type="text"/>

4.5 Wireless Settings

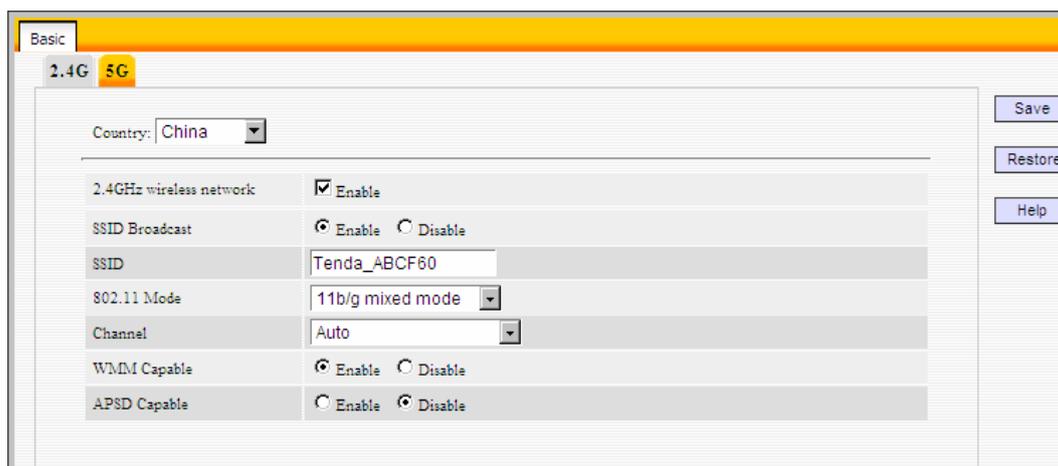
Wireless Settings includes 8 submenus as shown in the screenshot below. Clicking any tab enters corresponding interface for configuration.



4.5.1 Basic Settings

This section allows you to manage your wireless network (2.4G or 5G). You can config country code, wireless network name (SSID), network mode and channel settings, etc the way you want.

Basic Settings-- **2.4G**

A screenshot of the 'Basic' settings page for the 2.4GHz wireless network. The page has a yellow header with 'Basic' and '2.4G' tabs. The '2.4G' tab is selected. The settings are as follows: Country: China (dropdown); 2.4GHz wireless network: checked (Enable); SSID Broadcast: radio button selected (Enable); SSID: Tenda_ABCF60 (text input); 802.11 Mode: 11b/g mixed mode (dropdown); Channel: Auto (dropdown); WMM Capable: radio button selected (Enable); APSD Capable: radio button selected (Disable). On the right side, there are three buttons: Save, Restore, and Help.

- ✧ **Country:** Select your country code from the drop-down list. There are 12 options available.
- ✧ **2.4GHz Wireless Network:** Check/uncheck to enable/disable the 2.4GHz wireless feature. If disabled, all 2.4GHz-based features will be disabled accordingly.

- ✧ **SSID Broadcast:** Select "Enable"/"Disable" to make your wireless network visible/ invisible to any wireless clients within coverage when they perform a scan they perform a scan to see what's available. When disabled, such wireless clients will have to first know this SSID and manually enter it on their devices if they want to connect to the SSID. By default, it is enabled.
- ✧ **SSID :** A SSID (Service Set Identifier) is the unique name of a wireless network.
- ✧ **802.11 Mode:** Select a right mode according to your wireless client. The default mode is 11b/g/n mixed.
- ✧ **Channel:** For an optimal wireless performance, you may select the least interferential channel. It is advisable that you select an unused channel or "Auto" to let device detect and select the best possible channel for your wireless network to operate on from the drop-down list.
- ✧ **Channel Bandwidth:** Select a proper channel bandwidth to enhance wireless performance. When there are 11b/g and 11n wireless clients, please select the 802.11n mode of 20/40M frequency band; when there are only non-11n wireless clients, select 20M frequency band mode; when the wireless network mode is 11n mode, please select 20/40 frequency band to boost its throughput.
- ✧ **Extension Channel:** Working network frequency range for 11n mode.
- ✧ **WMM-Capable:** Enabling this option may boost transmission capacity of wireless multimedia data (such as online video play).
- ✧ **ASPD Capable:** Select to enable/disable the auto power saving mode.

Basic Settings-- 5G

The screenshot shows the 'Basic' settings page for the 5G band. At the top, there are tabs for '2.4G' and '5G', with '5G' selected. Below the tabs, there is a 'Country' dropdown menu set to 'China'. On the right side, there are three buttons: 'Save', 'Restore', and 'Help'. The main configuration area contains the following settings:

5GHz wireless network	<input checked="" type="checkbox"/> Enable
SSID Broadcast	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
SSID	Tenda_5_ABCF64
802.11 Mode	11a/n mixed mode
Channel	Auto
WMM Capable	<input checked="" type="radio"/> Enable <input type="radio"/> Disable
APSD Capable	<input type="radio"/> Enable <input checked="" type="radio"/> Disable

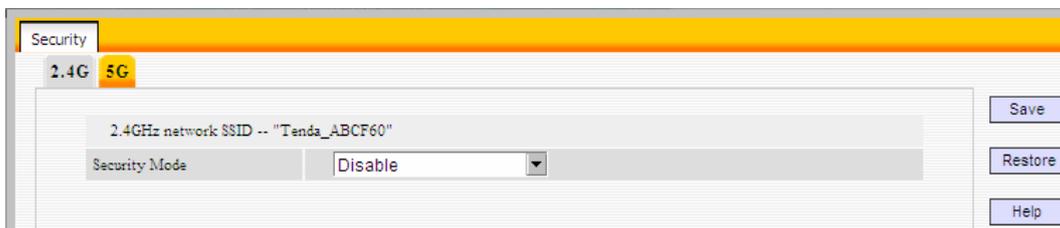
- ✧ **Country:** Select your country code from the drop-down list. There are 12 options available.
- ✧ **5GHz Wireless Network:** Check/uncheck to enable/disable the 5GHz wireless feature. If disabled, all 5GHz-based features will be disabled accordingly.

- ✧ **SSID Broadcast:** Select “Disable” to hide your SSID. When disabled, no wireless clients will be able to see your wireless network when they perform a scan to see what’s available. If they want to connect to your router, they will have to first know this SSID and then manually enter it on their devices. By default, this option is enabled.
- ✧ **SSID:** A SSID (Service Set Identifier) is the unique name of a wireless network (changeable).
- ✧ **802.11 Mode:** Select a right mode according to your wireless client. The default mode is 11a/n.
- ✧ **Channel:** The Channel can be changed to fit the channel setting for an existing wireless network or to customize the wireless network. From the drop-down list , you can select a most effective channel. You can also select “Auto Select” to let system detect and choose one that best fits your network.
- ✧ **WMM-Capable:** Enabling this option may boost transmission capacity of wireless multimedia data (such as online video play).
- ✧ **ASPD Capable:** Select to enable/disable the auto power saving mode.

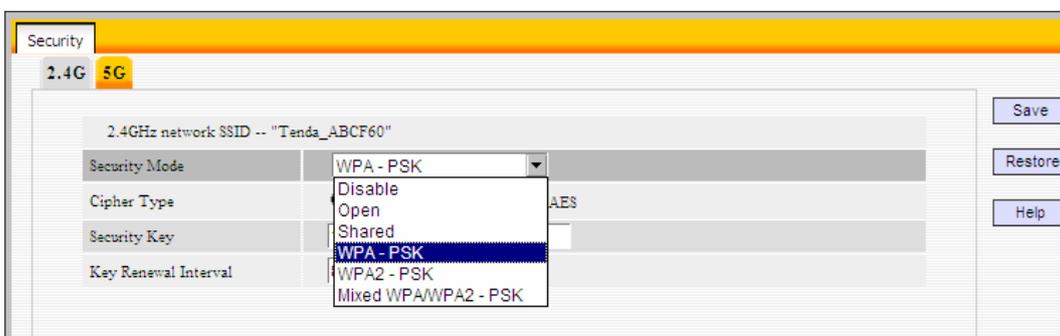
4.5.2 Wireless Security

This section allows you to encrypt both 2.4GHz wireless and 5GHz wireless networks to block unauthorized accesses and malicious packet sniffing.

To config wireless security settings for 2.4GHz network, enter page below:



Available options for security mode include “Open”, “Shared”, “WPA-PSK”, “WPA2-PSK”, “Mixed WPA/WPA2-PSK”. See below for details.



1. OPEN/SHARED

WEP is intended to provide data confidentiality comparable to that of a traditional wired network. Two methods of authentication can be used with WEP: Open System authentication and Shared Key authentication.

The screenshot shows the 'Security' configuration page for the 2.4GHz band. The 'Security Mode' is set to 'Open'. The 'Default key' is 'key 1'. There are four 'WEP key' fields, each with a text input and a dropdown menu set to 'ASCII'. The '2.4GHz network SSID' is 'Tenda_ABCF60'. Buttons for 'Save', 'Restore', and 'Help' are on the right.

2.4GHz network SSID -- "Tenda_ABCF60"		Save
Security Mode	Open	Restore
Default key	key 1	Help
WEP key1	ASCII	ASCII
WEP key2	ASCII	ASCII
WEP key3	ASCII	ASCII
WEP key4	ASCII	ASCII

- ✧ **Security Mode:** Select a proper security mode from the drop-down menu.
- ✧ **Default Key:** Select one key from the 4 preset keys to encrypt wireless data on the network.

2. WPA-PSK

The WPA protocol implements the majority of the IEEE 802.11i standard. It enhances data encryption through the Temporal Key Integrity Protocol (TKIP) which is a 128-bit per-packet key, meaning that it dynamically generates a new key for each packet. WPA also includes a message integrity check feature to prevent data packets from being hampered with. Only authorized network users can access the wireless network.

The screenshot shows the 'Security' configuration page for the 2.4GHz band. The 'Security Mode' is set to 'WPA - PSK'. The 'Cipher Type' has radio buttons for 'AES', 'TKIP', and 'TKIP&AES', with 'AES' selected. The 'Security Key' is '12345678'. The 'Key Renewal Interval' is '86400' seconds. The '2.4GHz network SSID' is 'Tenda_ABCF60'. Buttons for 'Save', 'Restore', and 'Help' are on the right.

2.4GHz network SSID -- "Tenda_ABCF60"		Save
Security Mode	WPA - PSK	Restore
Cipher Type	<input checked="" type="radio"/> AES <input type="radio"/> TKIP <input type="radio"/> TKIP&AES	Help
Security Key	12345678	
Key Renewal Interval	86400 Seconds	

- ✧ **Cipher Type:** Select either AES (advanced encryption standard) or TKIP (temporary key integrity protocol) type.
- ✧ **Security Key:** Enter a security key, which must be between 8-63 ASCII characters.
- ✧ **Key Renewal Interval:** Enter a valid time period for the key.

3. WPA2-PSK

The later WPA2 protocol features compliance with the full IEEE 802.11i standard and uses Advanced Encryption Standard (AES) in addition to TKIP encryption protocol to guarantee better security than that provided by WEP or WPA.

Security	
2.4G 5G	
2.4GHz network SSID -- "Tenda_ABCF60"	
Security Mode	WPA2 - PSK
Cipher Type	<input checked="" type="radio"/> AES <input type="radio"/> TKIP <input type="radio"/> TKIP&AES
Security Key	12345678
Key Renewal Interval	86400 Seconds
<input type="button" value="Save"/> <input type="button" value="Restore"/> <input type="button" value="Help"/>	

- ✧ **Cipher Type:** Select one cipher type from AES (advanced encryption standard), TKIP (temporary key integrity protocol) or TKIP&AES.
- ✧ **Security Key:** Enter a security key, which must be between 8-63 ASCII characters.
- ✧ **Key Renewal Interval:** Enter a valid time period for the key.

4.5.3 WPS Settings

Wi-Fi Protected Setup makes it easy for home users who know little of wireless security to establish a secure wireless home network, as well as to add new devices to an existing network without entering long passphrases or configuring complicated settings. Simply enter a PIN code or press the software PBC button or hardware WPS button (if any) and a secure wireless connection is established.

WPS	
2.4G 5G	
2.4GHz wireless network	
2.4GHz SSID	Tenda_ABCF60
Enable WPS	<input type="radio"/> Disable <input checked="" type="radio"/> Enable
WPS Mode	<input checked="" type="radio"/> PBC <input type="radio"/> PIN <input type="text"/>
<input type="button" value="Save"/> <input type="button" value="Restore"/> <input type="button" value="Help"/> <input type="button" value="Reset OOB"/>	

- ✧ **Enable WPS:** Select to enable/disable the WPS encryption.
- ✧ **WPS Mode:** Select PBC (Push-Button Configuration) or PIN.
- ✧ **Reset OOB:** When clicked, the WPS LED turns off; WPS function will be disabled automatically; WPS server on the Router enters idle mode and will not respond to client's WPS connection request.

Operation Instructions

PBC: If you find the WPS LED blinking for 2 minutes after you press the hardware WPS button on the device, it means that PBC encryption method is successfully enabled. And an authentication will be performed between your router and the WPS/PBC-enabled wireless client device during this time; if it succeeds, the wireless client device connects to your device, and the WPS LED turns off. Repeat steps mentioned above if you want to connect more wireless client devices to the device.

PIN: To use this option, you must know the PIN code from the wireless client and enter it in corresponding field on your device while using the same PIN code on client side for such connection.

Note: The WPS encryption can be implemented only between your Router and another WPS-capable device.

4.5.4 WDS Settings

WDS (Wireless Distribution System) feature can be used to extend your existing 2.4G or 5G wireless network coverage. Here we present you how to config such feature in 2.4GHz, which also apply to 5GHz.



Select Repeater Mode to display below page:

- ✧ **AP MAC Address:** Enter the MAC address of a wireless link partner or populate this field using the Open Scan option.
- ✧ **WDS Mode:** Select Disable or Repeater Mode.

For example: If you want to implement the WDS feature on 2 N60 routers labeled N60-1 and N60-2 respectively, then first select "Repeater Mode" and follow steps below:

WDS

2.4G 5G

WDS Mode: Repeater Mode

AP MAC address:

AP MAC address:

Buttons: Save, Restore, Help, Open scan

1. If you already know N60-2's MAC address, then you can manually enter it on N60-1 and click "Save".

2. Or you can use the Open Scan option.

1) Click the "Open Scan" button to search and select N60-2's SSID, confirm on the appearing dialogue box and then click "Save". N60-2's MAC address will be added automatically.

WDS

2.4G 5G

WDS Mode: Repeater Mode

AP MAC address:

AP MAC address:

Buttons: Save, Restore, Help, Close scan

Select	SSID	MAC address	Channel	Security	Signal strength
<input type="radio"/>	ChinaNet-KgHK	E0:30:05:0B:31:63	6	wep/wpa	70
<input checked="" type="radio"/>	Tenda_7A2200	C8:3A:35:7A:22:00	7	none	67
<input type="radio"/>	PTCL	00:90:4C:88:22:22	7	none	65
<input type="radio"/>	HOWNICE	40:16:9F:3D:69:E6	6	wep/wpa	77
<input type="radio"/>	Tenda_2A2C0A	C8:3A:35:2A:2C:0A	8	wep/wpa	85
<input type="radio"/>	Tenda_464290	C8:3A:35:46:42:90	12	none	57
<input type="radio"/>	Tenda_075318	C8:3A:35:07:53:18	10	none	52
<input type="radio"/>	Tenda_222222	00:90:4C:22:22:22	11	none	72

2) Save your settings.

WDS
2.4G 5G

WDS Mode:

AP MAC address:

AP MAC address:

Select	SSID	MAC address	Channel	Security	Signal strength
<input type="radio"/>	ChinaNet-KgHK	E0:30:05:0B:31:63	6	wep/wpa	70
<input checked="" type="radio"/>	Tenda_7A2200	C8:3A:35:7A:22:00	7	none	67
<input type="radio"/>	PTCL	00:90:4C:88:22:22	7	none	65
<input type="radio"/>	HOWNICE	40:16:9F:3D:69:E6	6	wep/wpa	77
<input type="radio"/>	Tenda_2A2C0A	C8:3A:35:2A:2C:0A	8	wep/wpa	85
<input type="radio"/>	Tenda_464290	C8:3A:35:46:42:90	12	none	57
<input type="radio"/>	Tenda_075318	C8:3A:35:07:53:18	10	none	52
<input type="radio"/>	Tenda_222222	00:90:4C:22:22:22	11	none	72

3. Repeat steps 1-2 on N60-2. After the 2 devices have added each other's MAC address the WDS feature can be implemented.

Note:

1. WDS feature can only be implemented between 2 wireless devices that both support the WDS feature. Plus, SSID, channel, security settings and security key must be the same on both such devices.

2. To encrypt your wireless network, see sections 4.5.2-4.5.3. Do remember to reboot the device after you saved your wireless security settings, otherwise the WDS feature may not function.

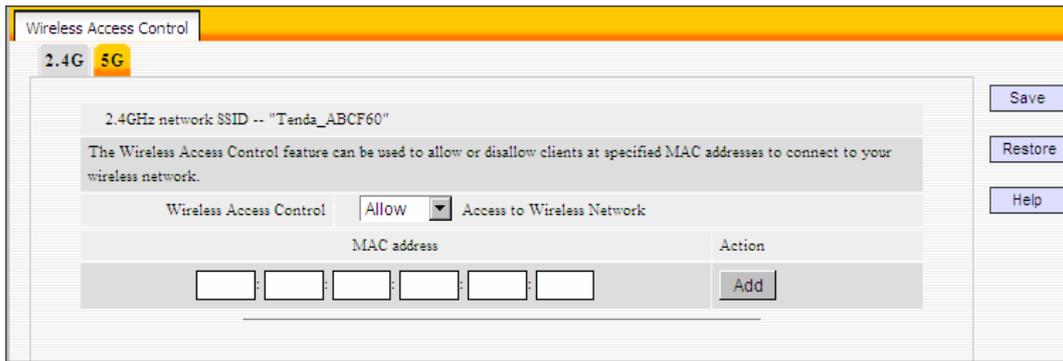
4.5.5 Guest Network

The Guest Network feature allows guests to access Internet and other users on the guest network while disallowing them to access device web manager, users on primary network and clients behind the LAN ports. You can find it available in both 2.4G and 5G network. Here we present you how to config such feature in 2.4GHz, which also apply to 5GHz.

- ✧ **Guest Network:** Check/uncheck to enable/disable the guest network feature.
- ✧ **SSID Broadcast:** Select "Disable" to hide your SSID. When disabled, no wireless clients will be able to see your wireless network when they perform a scan to see what's available. If they want to connect to your router, they will have to first know this SSID and then manually enter it on their devices. By default, it is enabled.
- ✧ **AP Isolation:** If enabled, clients connecting to the guest network will be mutually inaccessible.
- ✧ **SSID:** A SSID (Service Set Identifier) is the unique name of a wireless network.
- ✧ **Security Mode:** Determine whether to require authentication on wireless clients. Select a proper mode from the drop-down menu.

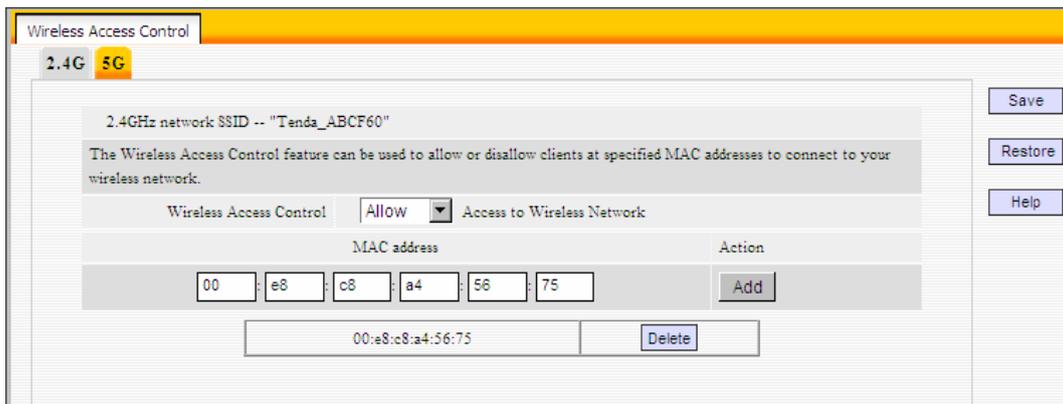
4.5.6 Wireless Access Control

The MAC-based Wireless Access Control feature can be used to allow or disallow clients to connect to your 2.4G or 5G wireless network. Here we present you how to config such feature in 2.4GHz, which also apply to 5GHz.



- ✧ **MAC Address Filter:** Selecting “Disable” means to deactivate the MAC address filter feature. “Allow” means to only allow PCs at specified MAC addresses to connect to your wireless network while “Deny” means to only block PCs at specified MAC addresses from connecting to your wireless network.
- ✧ **MAC Address:** Enter the MAC addresses of a wireless client.
- ✧ **Add:** Click it to add a new MAC to the MAC address list.
- ✧ **Delete:** Click it to remove an existing entry.

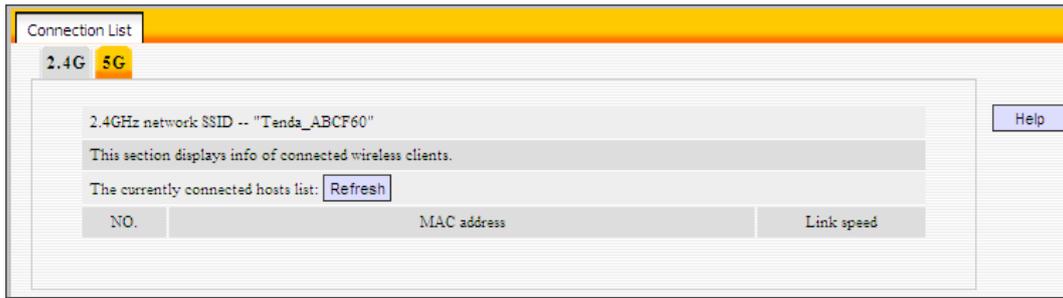
To allow only a PC at the MAC address of 00:e8:c8:a4:56:75 to connect to your wireless network, do as follows:



- Step1. Select “Allow” from MAC Address Filter drop-down menu.
- Step2. Enter 00:e8:c8:a4:56:75 in the MAC address box and click “Add”.
- Step3. Click the “OK” button to save your settings and you can add more MAC addresses, if you like, simply repeating the above steps.

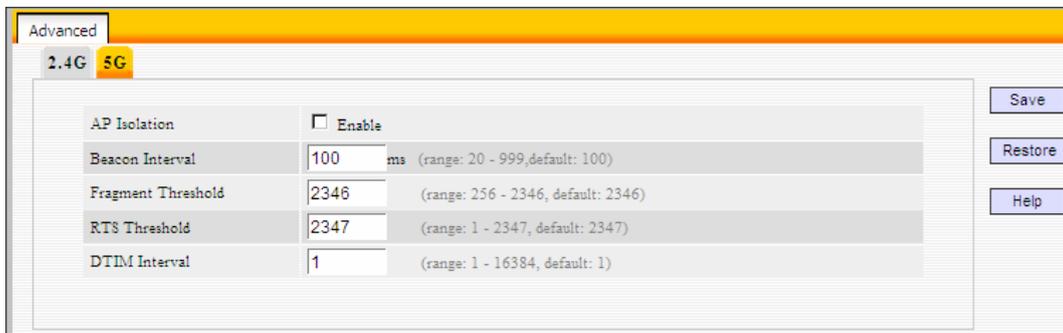
4.5.7 Connection Status

This interface displays the information of currently connected 2.4G and 5G wireless clients (if any).



4.5.8 Wireless –Advance Settings

This section allows you to config advanced settings, including Beacon interval, Fragment threshold, RTS threshold and DTIM interval, etc, for both 2.4G and 5G wireless networks.



- ✧ **AP Isolation:** Isolates clients connecting to the private SSID.
- ✧ **Beacon Interval:** A time interval between any 2 consecutive Beacon packets sent by device. Do NOT change the default value of 100 unless necessary.
- ✧ **Fragment Threshold:** Enter a Fragment Threshold (256-2346). Any wireless packet exceeding such set value will be divided into several fragments. DO NOT change the default value of 2346 unless necessary.
- ✧ **RTS Threshold:** If a packet exceeds such set value, RTS/CTS scheme will be used to reduce collisions. Set it to a smaller value provided that there are distant clients and interference. For normal SOHO, it is recommended to keep the default value unchanged; otherwise, device performance may be degraded.
- ✧ **DTIM Interval:** A time interval between any two consecutive broadcast and multicast packet messages sent by the device to clients. When such packets arrive at device's buffer, the device will send DTIM (delivery traffic indication message) and DTIM interval to wake clients up for receiving these packets.

4.6 USB Applications

The router provides a USB interface, which can be connected to a printer or USB storage device for file sharing.

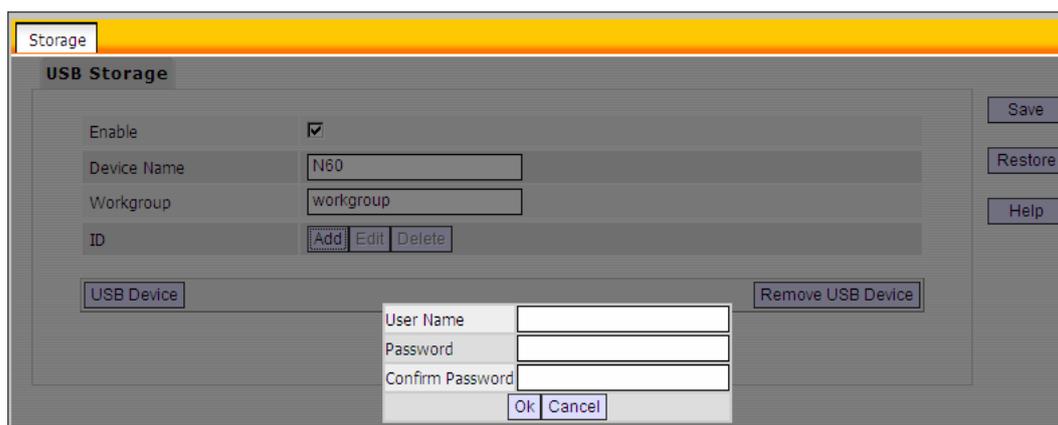
4.6.1 USB Storage



- ✧ **Enable:** Check/uncheck to enable/disable file sharing feature.
- ✧ **Device Name:** Define a meaningful name to you for the device.
- ✧ **Work Group:** Define a work group name for the device.
- ✧ **Add:** Click to add an account. Up to 5 accounts can be added.
- ✧ **Edit:** Click to edit an existing account.
- ✧ **Delete:** Click to delete an existing account.

Operation Instructions:

1. Create an account.
 - 1). Click "Add" to display a dialogue box below:



- 2) Enter a user name and a password, which will be used by clients when accessing the USB storage device for sharing files thereon.
- 3) Re-type to confirm password and then click the "OK" button.

Storage

USB Storage

Enable

Device Name

Workgroup

ID

1	ab
---	----

2. Set Access Right

First select an account and click Disk. And then select a proper access right from below for each entry.

R/W:Read and Write right.

R: Read right.

N: No right.

At last click "Save" to apply your settings.

Storage

USB Storage

Enable

Device Name

Workgroup

ID

1	ab
---	----

Disk_sda1

TD documents	R/W <input checked="" type="radio"/>	R <input type="radio"/>	N <input type="radio"/>
P200-en-cn	R/W <input checked="" type="radio"/>	R <input type="radio"/>	N <input type="radio"/>
P200windows7	R/W <input checked="" type="radio"/>	R <input type="radio"/>	N <input type="radio"/>

3. Access shared file

To access resources on such storage device, double click "My Computer" on your PC and enter [\\192.168.0.1](http://192.168.0.1).

4.6.2 Printing Service

The USB printer service allows you to connect a USB printer to the device and thus all clients on your network can print anything they want on their PCs. The device can identify a printer automatically as long as it is successfully connected.



✧ **Enable Printer:** Check/uncheck to enable/disable USB printer service.

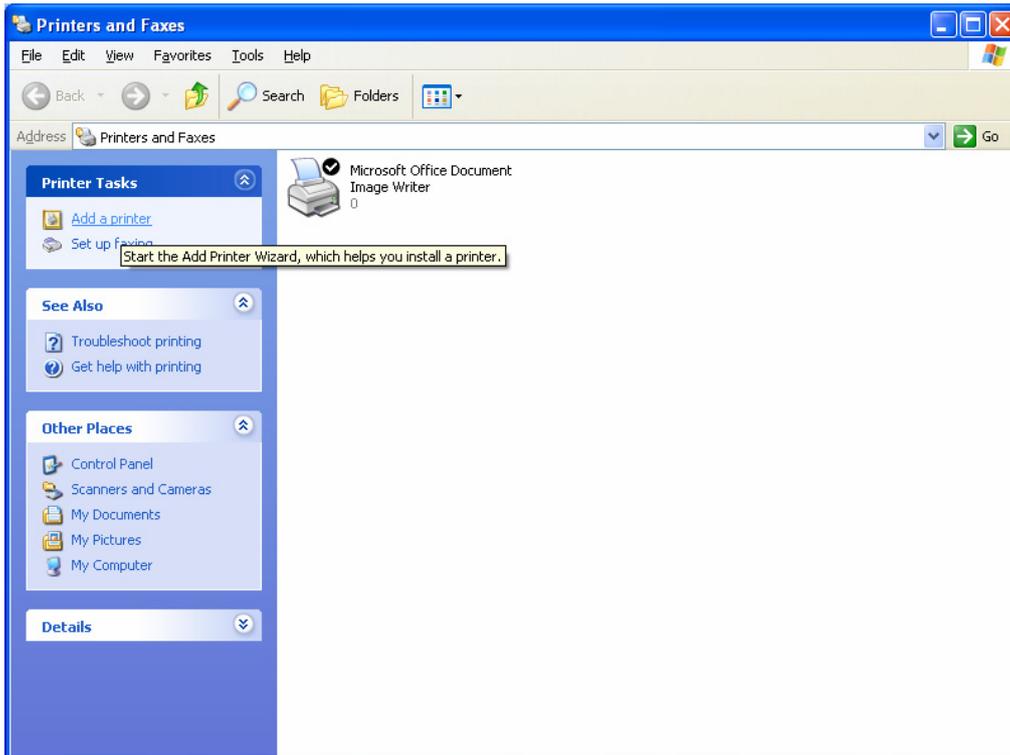
Operation Instructions

1. Correctly connect your USB printer to the USB port on the device.
2. Enable printer service.

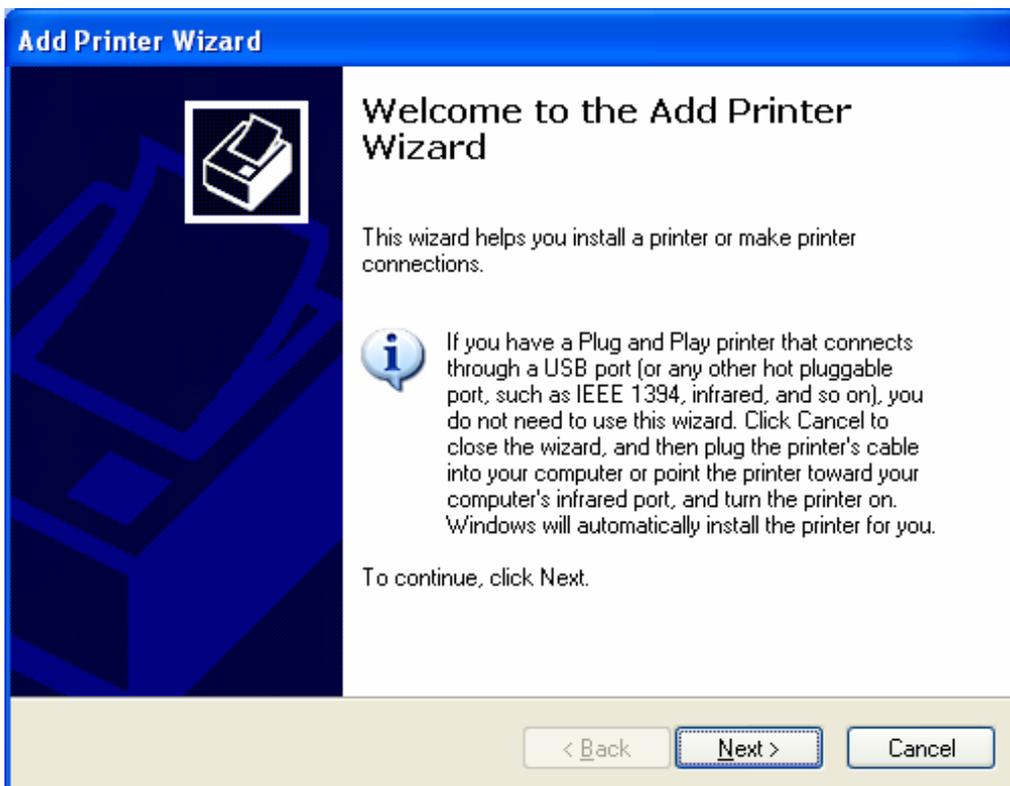


3. On your PC (connected to the device), click "Start"—"Settings"—"Printers and Faxes" and select "Add a printer" on appearing window.

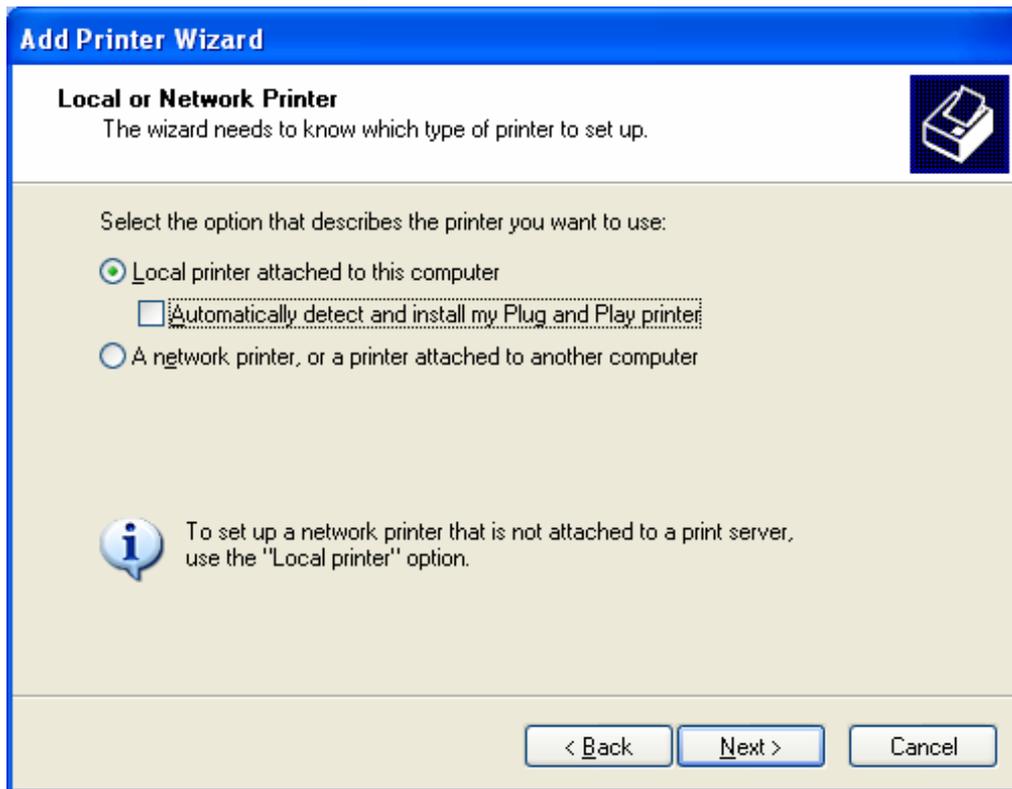




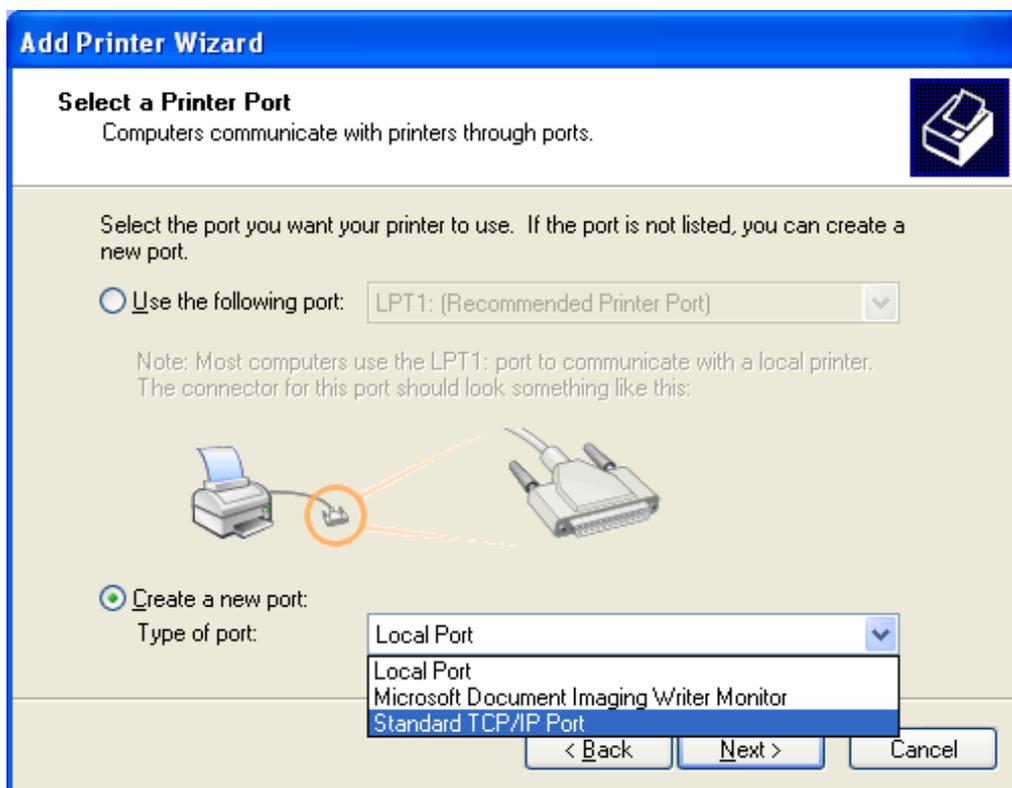
4. Click "Next".



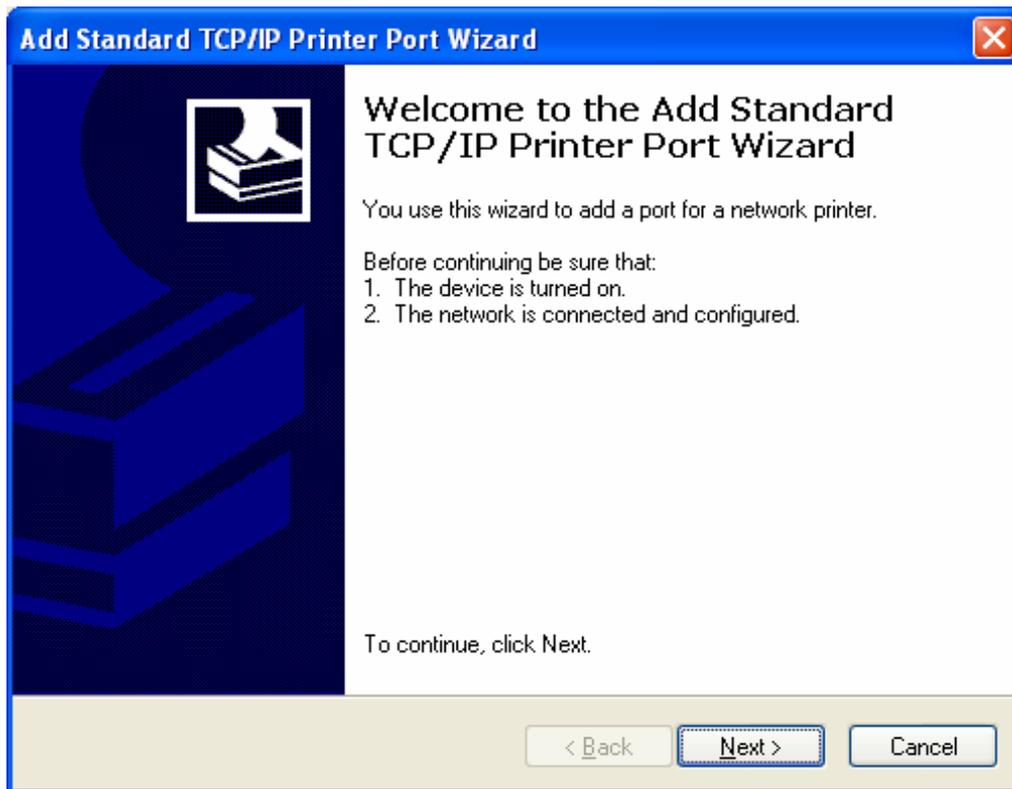
5. Select "Local printer attached to this computer" and click "Next".



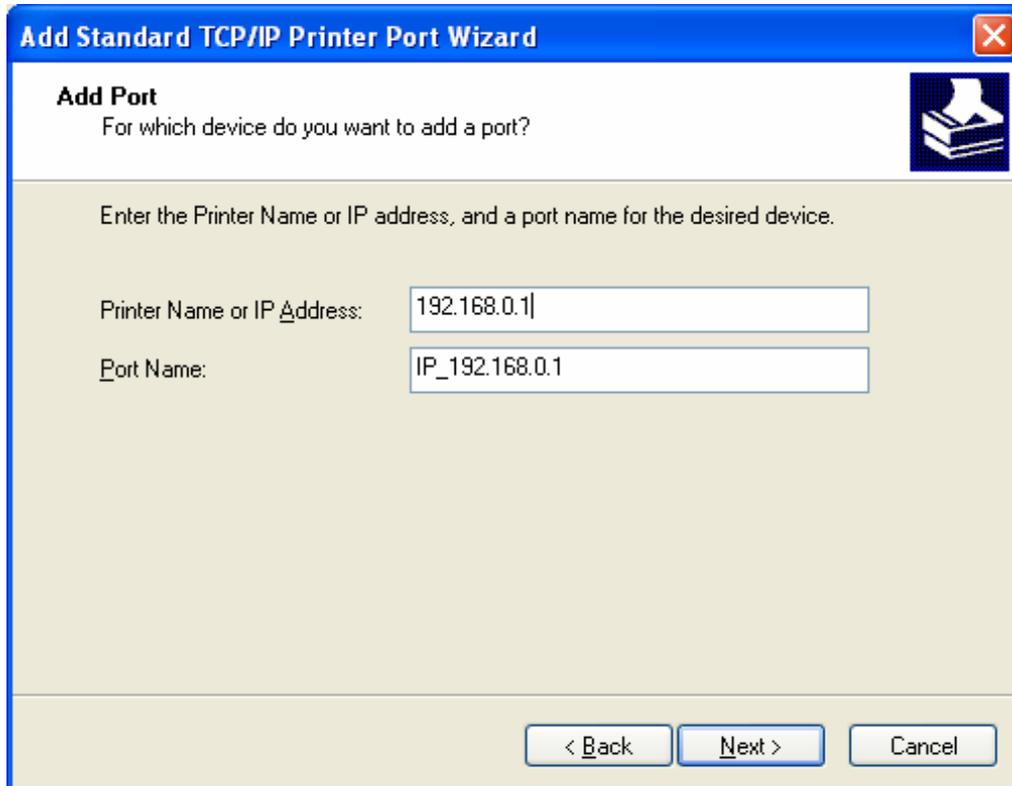
6. Select "Create a new port"; Type of port: "Standard TCP/IP Port" and click "Next".



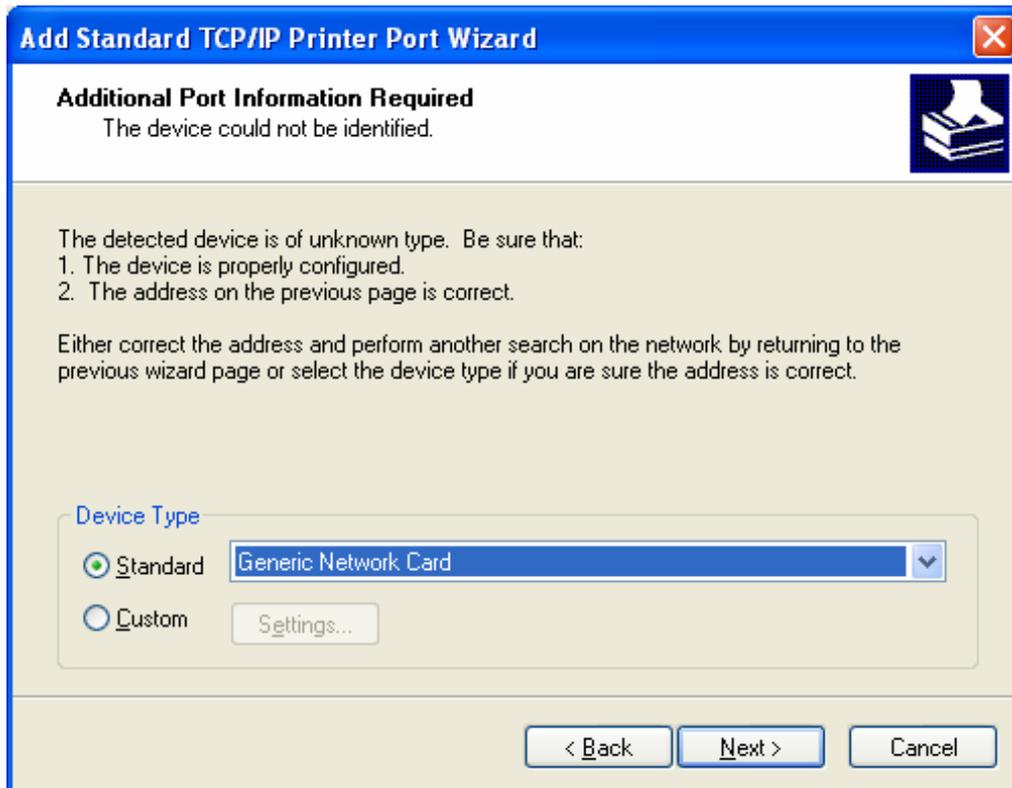
7. Click "Next".



8. Enter device's LAN IP address and click "Next".



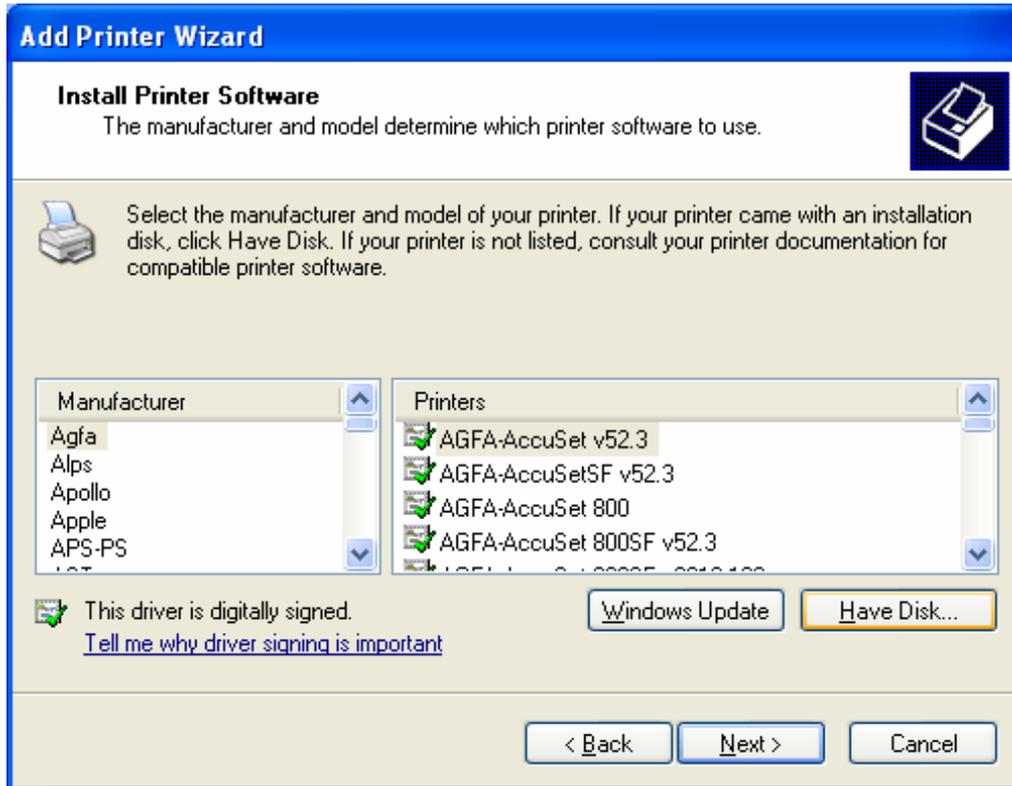
9. Click "Standard" under Device Type and select "Generic Network Card", then click "Next".



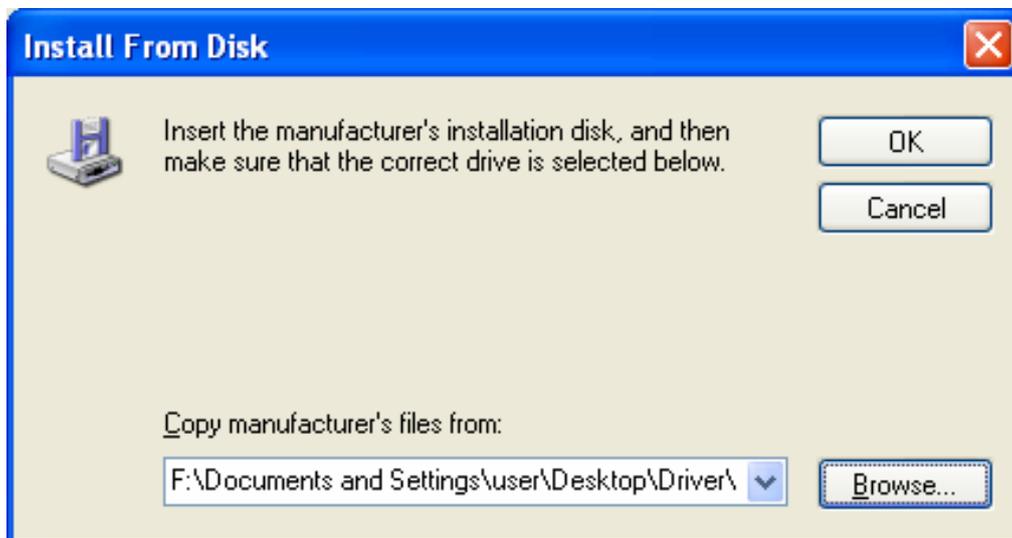
10. Click "Finish".



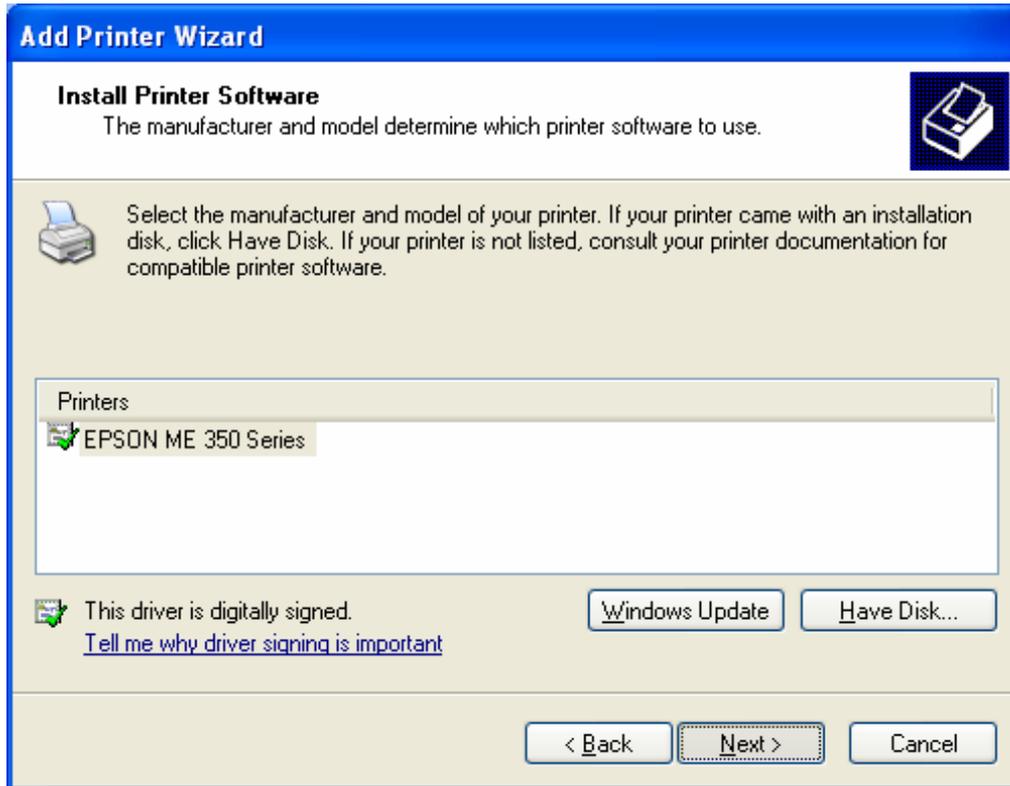
11. Select "Have Disk".



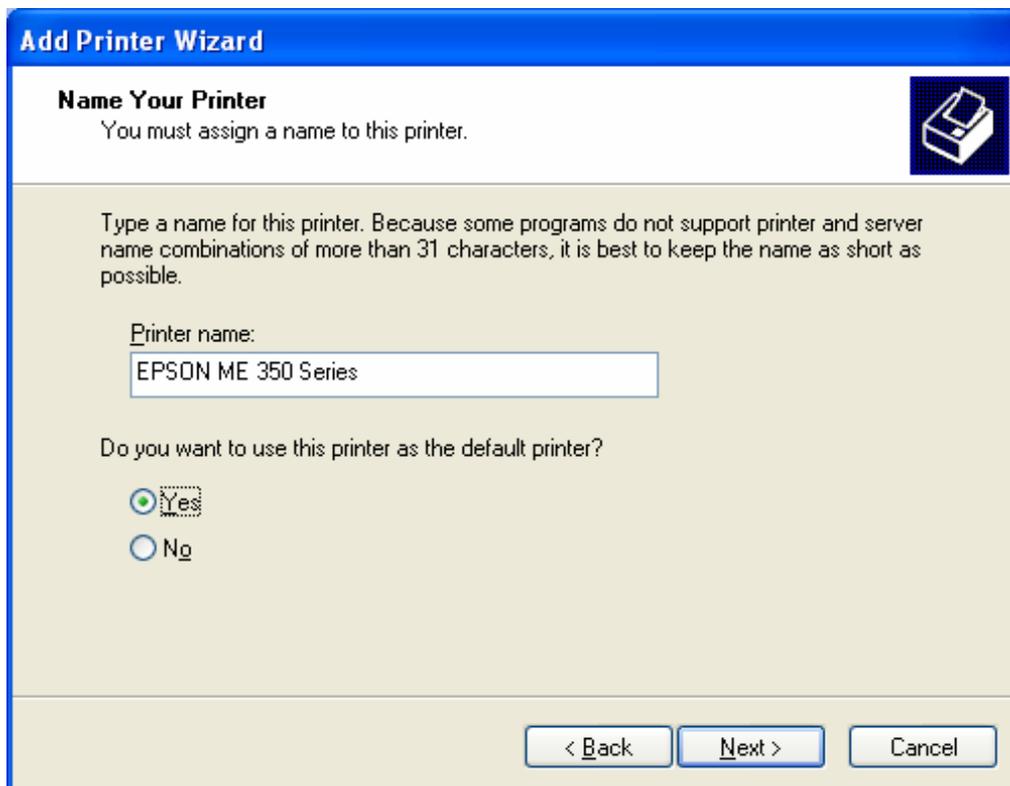
12. Click "Browse", select corresponding drive file and click "Open". At last click "OK".



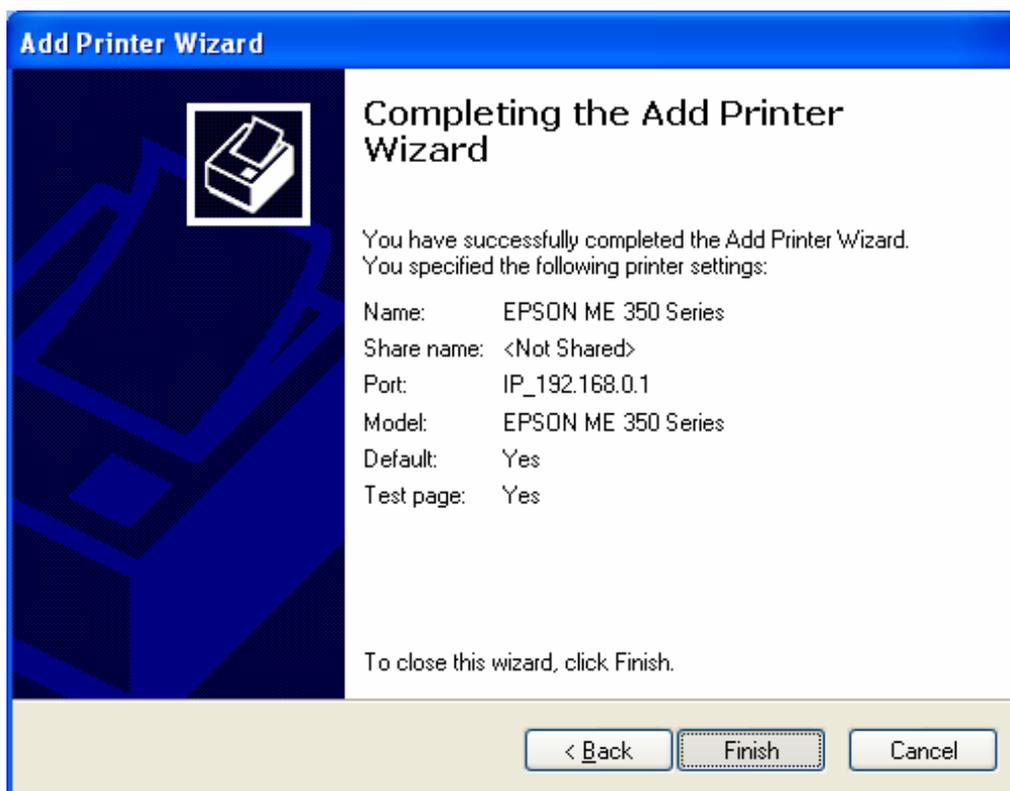
13. Click "Next".



14. Define a name for the printer and click "Next".

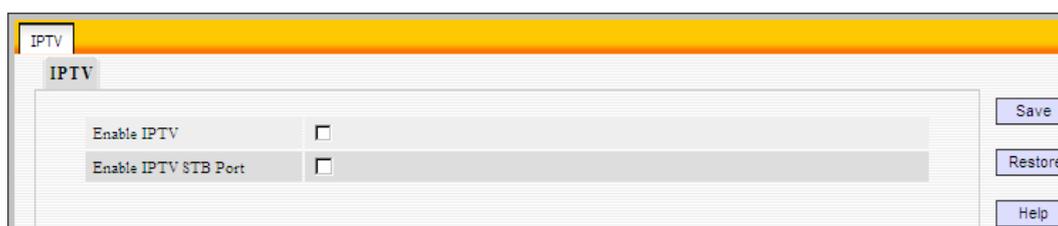


15. Click "Finish".



4.7 IPTV Settings

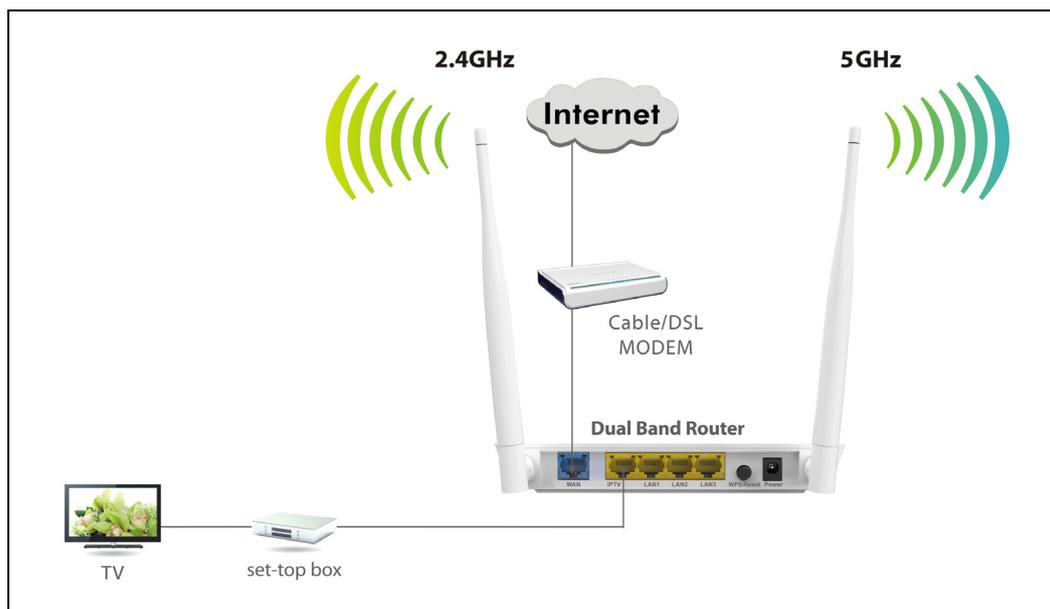
The IPTV feature makes it possible to enjoy online videos on your TV set via a set-top box while surfing Internet.



Enable IPTV: Check/uncheck to enable/disable the IPTV feature.

Enable IPTV STB Port: Check/uncheck to enable/disable the IPTV-specific port.

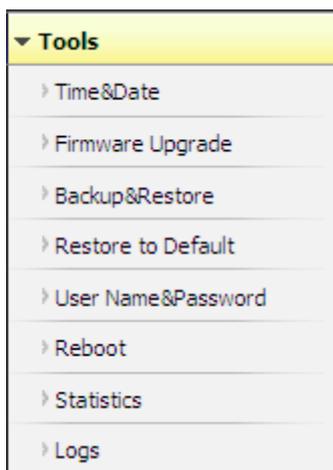
See below for the topology:

**Note:**

1. If you enabled both options mentioned above, then note below:
 - (a). Set IPTV connection type to DHCP/dynamic IP or static IP (IMPORTANT: Note that the IP address should be on the same IP net segment as router's WAN IP.) if the set-top box is connected to any LAN port from 1-3.
 - (b). Select the dial mode provided by your ISP if the set-top box is connected to the IPTV-specific port.
2. After the IPTV port is set for IPTV purpose, PC that connects to such port will not be able to obtain an IP address or access Internet. So think twice before you start. Plus, LAN ports 1-3 can only be used to connect PCs instead of an IPTV set-top box.
3. The IPTV feature does not support wireless access.

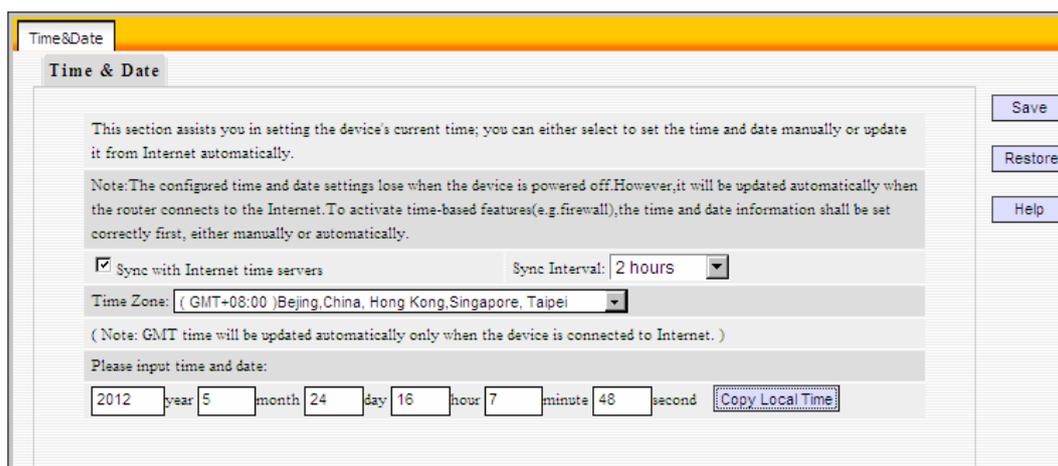
4.8 Tools

System tools include the following 8 submenus. Clicking any of them enters corresponding interface for configuration. Below explains, in details, each such feature.



4.8.1 Time Settings

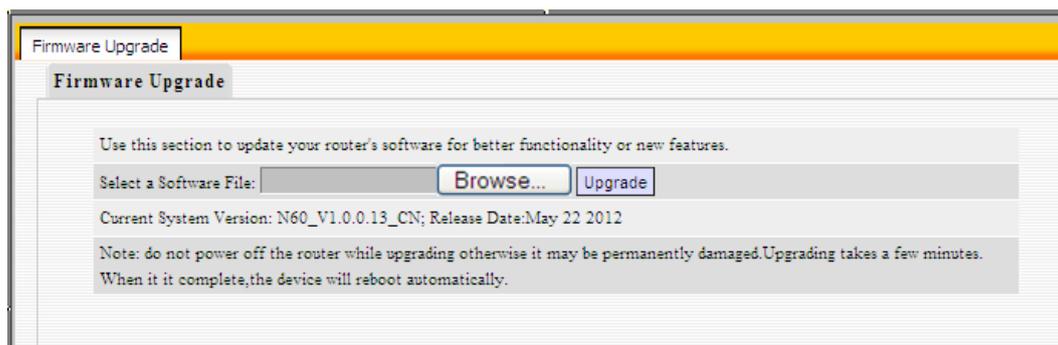
This section assists you in setting the device's system time; you can either select to set the time and date manually or automatically obtain the GMT time from Internet.



- ✧ **Sync with Internet time servers:** Time and date will be updated automatically from Internet.
- ✧ **Sync Interval:** Determines a time length when device periodically updates its time and date info from Internet. The default is 2 hours.
- ✧ **Time Zone:** Select your current time zone.
- ✧ **Copy Local Time:** Click it to copy your PC's time to the device.

4.8.2 Firmware Upgrade

Firmware upgrade is released periodically to improve the functionality of your device and also to add new features. If you run into a problem with a specific feature of the device, log on to our website www.tendacn.com to download the latest firmware to update your device.



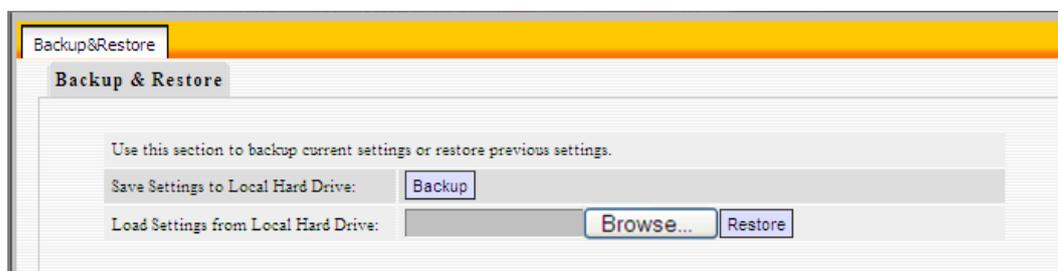
To update firmware, do as follows:

- ✧ 1. Click "Browse" to locate the firmware and "Upgrade" to update.
- ✧ 2. Router will reboot automatically when upgrade completes.

NOTE: Do not disconnect the device from your management PC (the PC you use to configure the device) or power off it during the upgrade process; otherwise, it may be permanently damaged. The device will restart automatically when the upgrade process, which takes several minutes, completes.

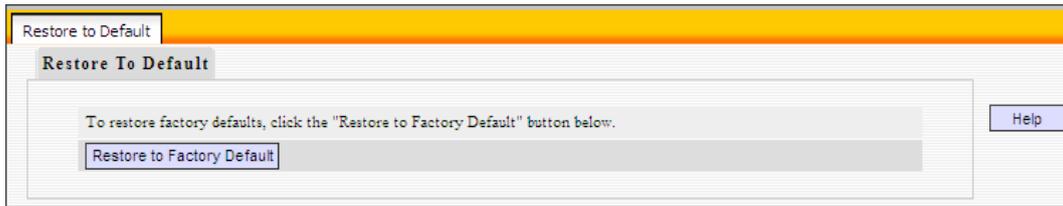
4.8.3 Backup/Restore Settings

This section allows you to backup current settings or to restore the previous settings configured on the device.



- ✧ **Backup Settings:** Once you have configured the device the way you want it, you can save these settings to a configuration file on your local hard drive that can later be imported to your device in case that the device is restored to factory default settings. To do this, click the "Backup" button and specify a directory to save settings on your local hardware.
- ✧ **Restore Settings:** Click the "Browse" button to locate and select a configuration file that is saved previously to your local hard drive. And then click the "Restore" button to reset your device to previous settings.

4.8.4 Restore to Factory Default Settings



To restore all settings to the device's factory default values, click the "Restore to Factory Default" button:

Factory Default Settings:

- ✧ **User Name:** admin
- ✧ **Password:** admin
- ✧ **IP Address:** 192.168.0.1
- ✧ **Subnet Mask:** 255.255.255.0

Note: To activate your settings, you need to reboot the device after you reset it.

4.8.5 Change Password/User Name

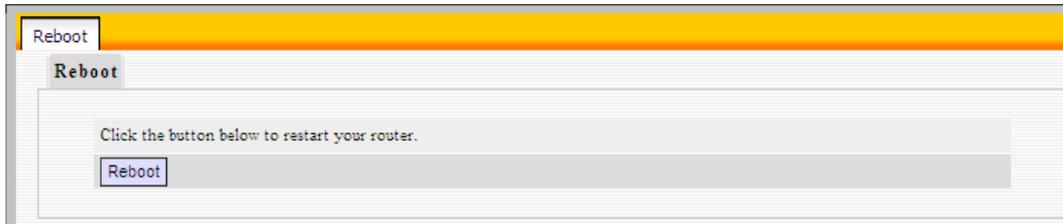
This section allows you to change login password and user name for accessing device's Web-based interface.

- **Old Password/User Name:** Enter the old password/user name.
- **New Password/User Name:** Enter a new password/user name.
- **Confirm New Password:** Re-enter the new password for confirmation.
- **Save:** Click it to save new settings.

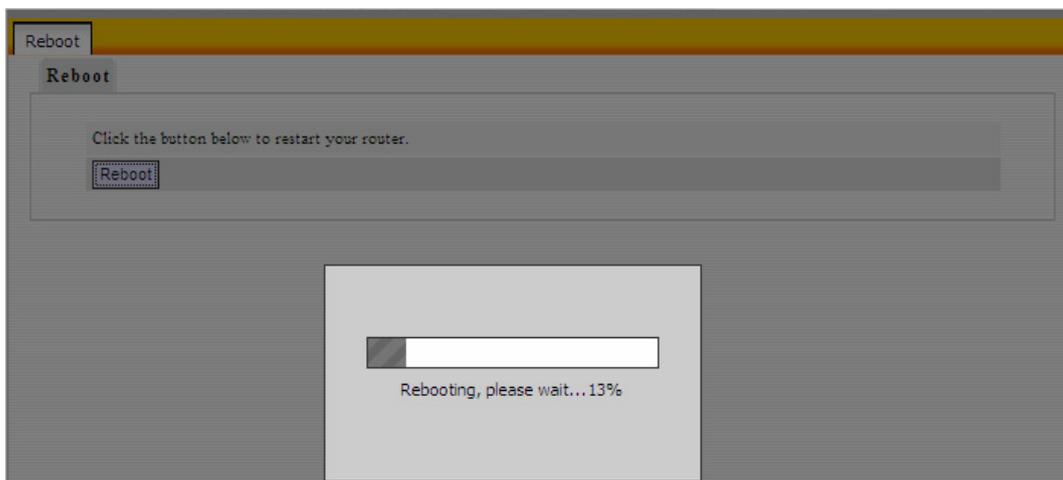
NOTE: For the sake of security, it is highly recommended that you change default login password and user name.

4.8.6 Reboot

This section allows you to reboot the device.

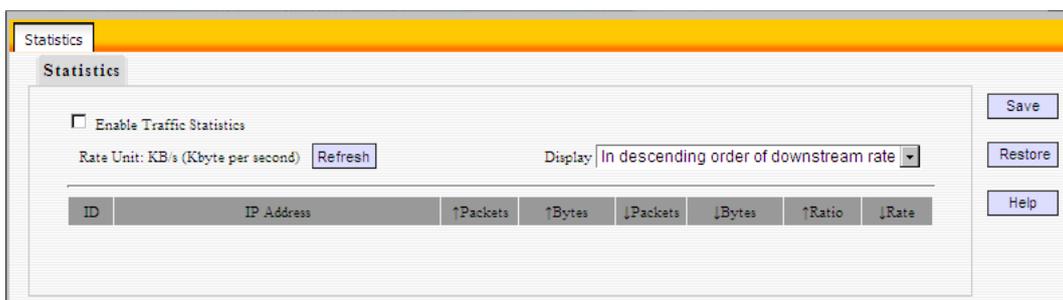


To restart your device, click the “Reboot” button.



4.8.7 Statistics

Statistics displays current traffic of PCs on your LAN.



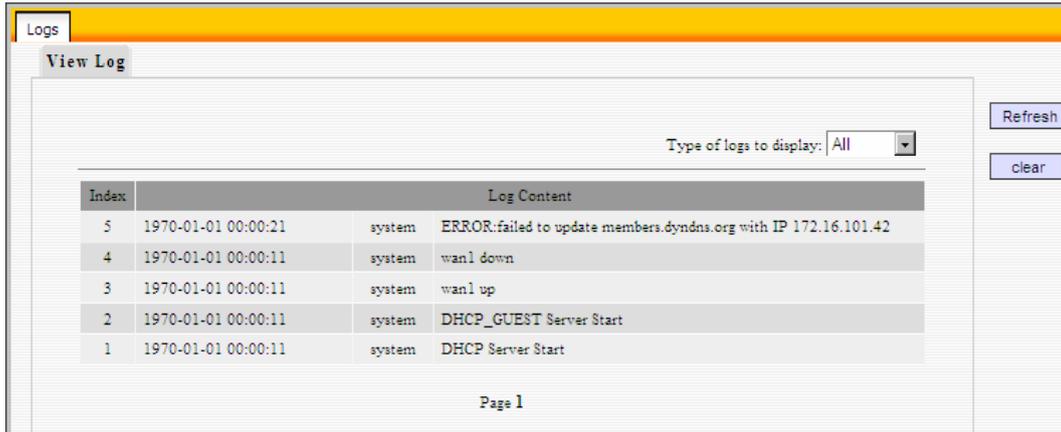
- ✧ **Enable Traffic Statistics:** Check/uncheck the box to enable/disable the Traffic Statistics feature.
- ✧ **Refresh:** Click to update statistic data.
- ✧ **Clear:** Click to remove statistic data.

Note: Enabling the Traffic Statistics feature may degrade router's packet processing capacity. So, do not enable it unless necessary.

4.8.8 Syslog

The Syslog option allows you to view all events that occur upon system startup and check whether there is attack present in your network.

The logs are classified into 3 types: "All", "System" and "WAN".



The screenshot shows the 'Logs' section of the router's web interface. It features a 'View Log' tab, a dropdown menu for 'Type of logs to display' set to 'All', and 'Refresh' and 'Clear' buttons. A table displays the following log entries:

Index	Log Content
5	1970-01-01 00:00:21 system ERROR:failed to update members.dyndns.org with IP 172.16.101.42
4	1970-01-01 00:00:11 system wan1 down
3	1970-01-01 00:00:11 system wan1 up
2	1970-01-01 00:00:11 system DHCP_GUEST Server Start
1	1970-01-01 00:00:11 system DHCP Server Start

Page 1

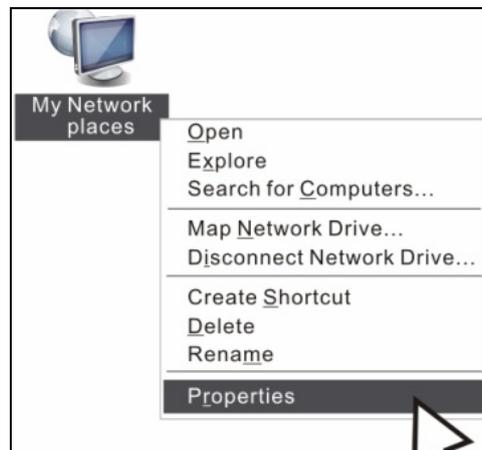
Appendix 1 Config TCP/IP Settings on PC

This section presents you how to config your PC's TCP/IP settings (in Windows XP and Windows 7). Before you start, make sure your PC has an installed NIC. If not, please install one first.

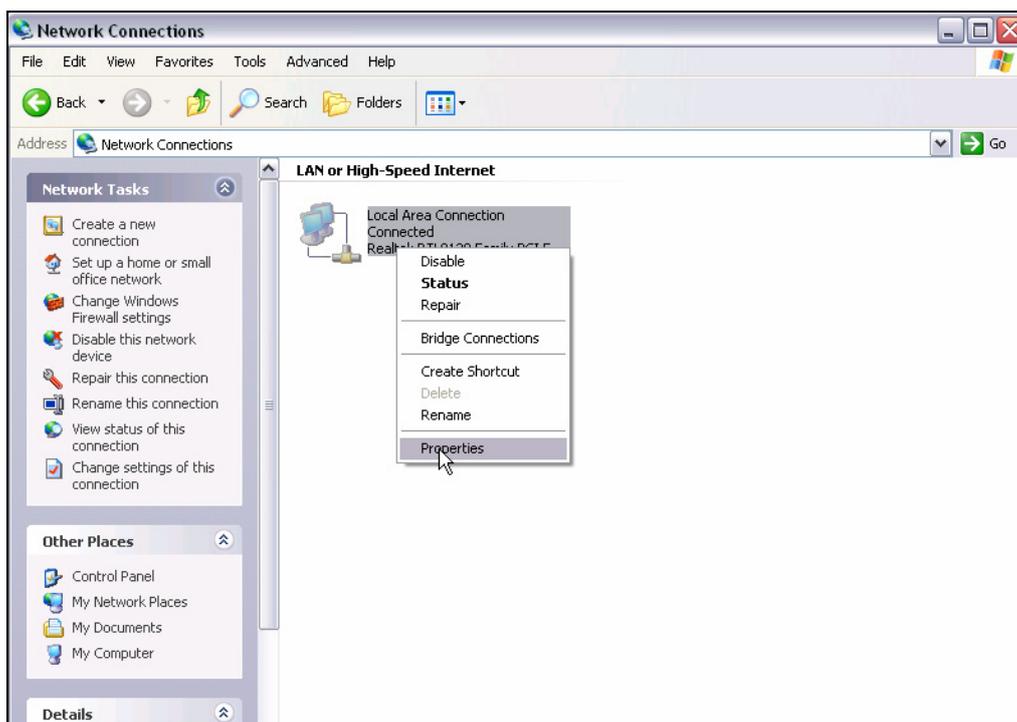
Windows XP

If you are using Windows XP operating system, do as follows:

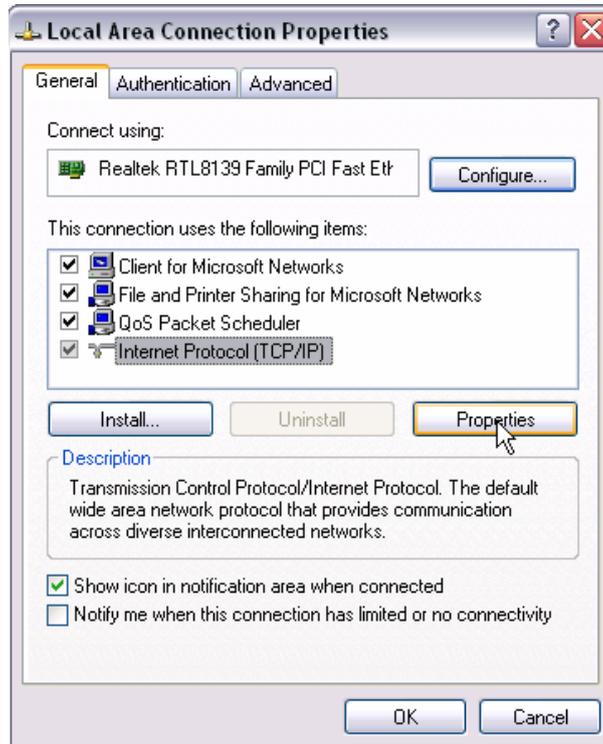
1. Right click "My Network Places" and select "Properties".



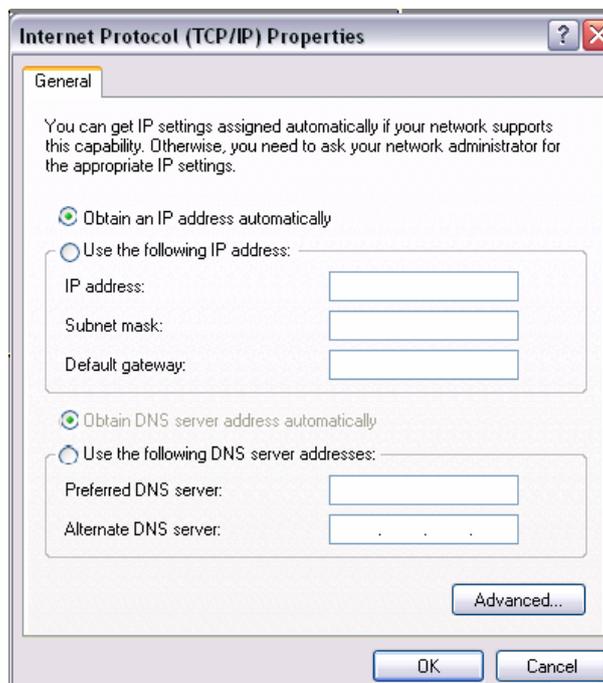
2. Right click "Local Area Connection" and select "Properties"



3. Select "Internet Protocol (TCP/IP)" on the appearing window and click "Properties" button.



4. Select "Use the following IP address" or "Obtain an IP address automatically".
 - a. To "Obtain an IP address automatically" simply click the corresponding button.



b. "Use the following IP address"

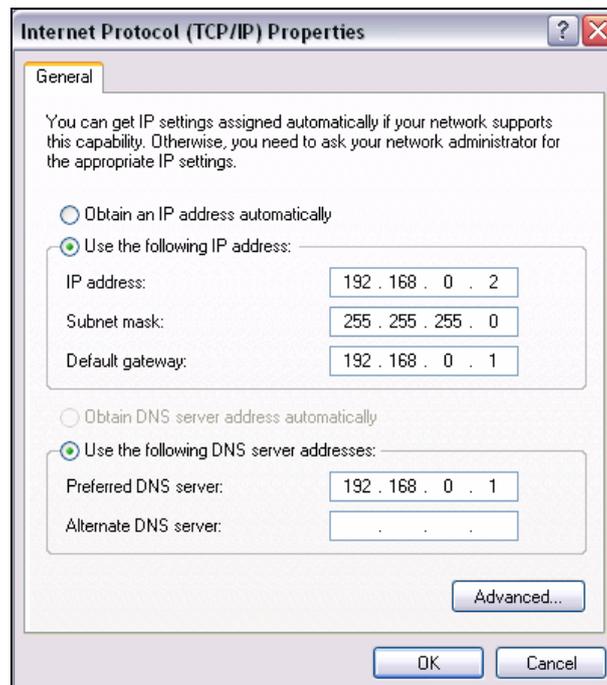
IP address: Enter 192.168.0.xxx (xxx can be any value from 2~254).

Subnet mask: Enter 255.255.255.0.

Default gateway: Enter 192.168.0.1.

Preferred DNS server: Enter 192.168.0.1 in case that you don't know the local DNS server address (Or contact your ISP for help).

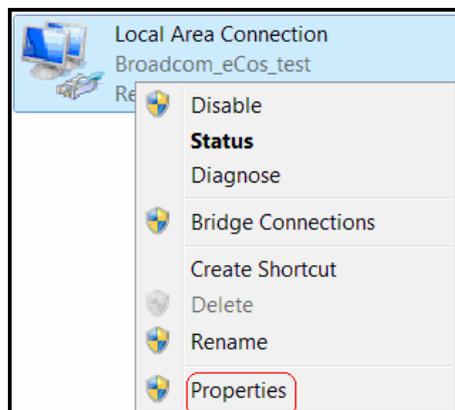
At last, click OK to save your settings.



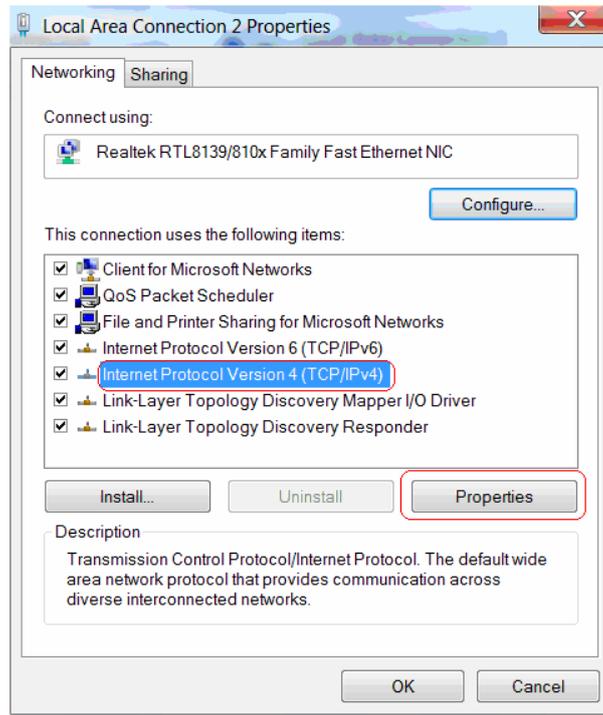
Windows7

If you are using Windows 7 operating system, do as follows:

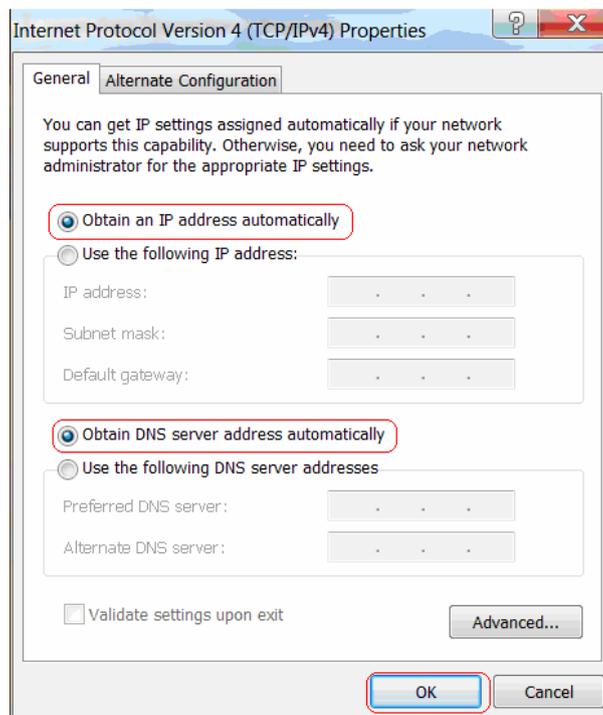
1. Right click "Network" on your desktop and select "Properties".
2. Click "Change adapter settings".
3. Right click "Local Area Connection" and select "Properties".



3. Select "Internet Protocol (TCP/IP)" on the appearing window and click the "Properties" button.



5. Select "Use the following IP address" or "Obtain an IP address automatically".
 - a. To "Obtain an IP address automatically" simply click the corresponding button.



b. "Use the following IP address"

IP address: Enter 192.168.0.xxx (xxx can be any value from 2~254).

Subnet mask: Enter 255.255.255.0.

Default gateway: Enter 192.168.0.1.

Preferred DNS server: Enter 192.168.0.1 in case that you don't know the local DNS server address (Or contact your ISP for help).

At last, click OK to save your settings.

General

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

Obtain an IP address automatically

Use the following IP address:

IP address: 192 . 168 . 0 . 2

Subnet mask: 255 . 255 . 255 . 0

Default gateway: 192 . 168 . 0 . 1

Obtain DNS server address automatically

Use the following DNS server addresses:

Preferred DNS server: 192 . 168 . 0 . 1

Alternate DNS server: . . .

Validate settings upon exit

Advanced...

OK Cancel

FCC Statement

Operations in the 5.15-5.25GHz band are restricted to indoor usage only.

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
- Consult the dealer or an experienced radio/TV technician for help.

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

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

Radiation Exposure Statement

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

NOTE: (1)The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment.(2) To avoid unnecessary radiation interference, it is recommended to use a shielded RJ45 cable

**CE Mark Warning**

Operations in the 5.15-5.25GHz band are restricted to indoor usage only. 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

NOTE: (1) The manufacturer is not responsible for any radio or TV interference caused by unauthorized modifications to this equipment. (2) To avoid unnecessary radiation interference, it is recommended to use a shielded RJ45 cable

"The product can be used without restrictions in the following countries: all EU member states except France and Norway.

The product can be used with limitations in the following countries: France (for indoor use only) and Norway (20 km in the center of Ny-Llesund)."

Safety Instructions

1.Operation temperature range:0-40°C

2.For applicable power supplies see user manual

Adapter information:

Model:TEA09X-09100 or TEA12X-12150 (X=A or E or U or D)

Input: 100-240V,50/60Hz,0.3A

3. USB output : 5Vdc , 0.5A