

User Manual

TOTOLINK Dual Band Wireless-N Router



www.totolink.net

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1. ABOUT THIS GUIDE

Thank you very much for purchasing the Wireless N Dual Band Router. This guide will introduce the features of this device and tell you how to connect, use and configure the Router to connect with Internet. Please follow the instructions in this guide to avoid affecting the Router's performance by improper operation.

1.1 Overview of the User's Guide

Introduction. Describes the wireless router, the features and appearance.

Hardware Installation. Describes the hardware installation and how to setup PC.

Connecting to Internet. Tells how you can access Internet quickly using the router.

Advanced Settings. Lists all technical functions including Wireless, Network, NAT/Routing, Firewall, Utility, Traffic and System.

2. INTRODUCTION

2.1 Overview

The dual band concurrent wireless router allows users to access Internet by DHCP/PPPoE/Static IP and can deliver totally up to 600Mbps wireless data rate. Since it provides Wireless Multibridge, WDS and VPN Server settings, this router can be also used as Repeater, VPN Server and Wireless AP. So it is a high performance and cost-effective solution for home and small offices.

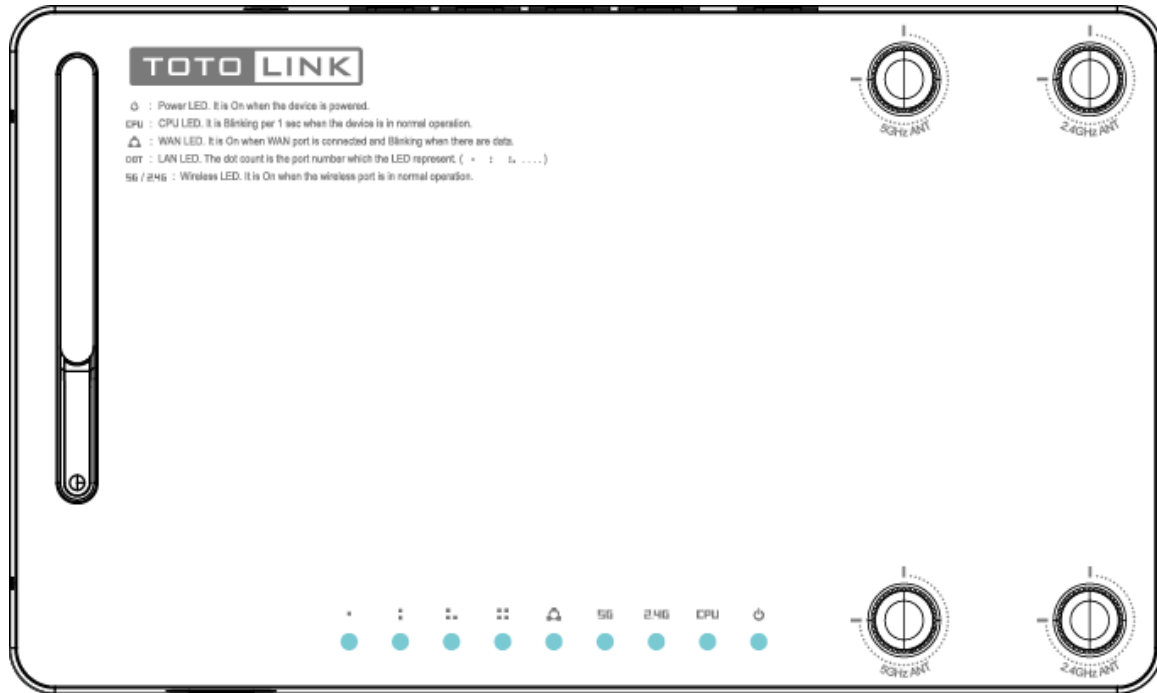
2.2 Features

- Complies with IEEE 802.11n/g/b/a standards.
- Advanced MIMO technology enhances the throughput and wireless coverage.
- Supports PPPoE, DHCP and Static IP broadband functions.
- Provides 64/128-bit WEP, WPA, WPA2 and WPA/WPA2 (TKIP+AES) security.
- Connects to secure network easily and fast using WPS.
- Multi-SSID allows user to create multiple LANs according to their needs.
- The IP, MAC and URL filtering makes access and time control more flexibly.
- Repeater function expands the wireless coverage and allows more terminals to access Internet.
- The VPN server can not only protect the privacy of your information, but also simplify network management.
- Supports QoS port bandwidth control.

2.3 Panel Layout

2.3.1 Front Panel

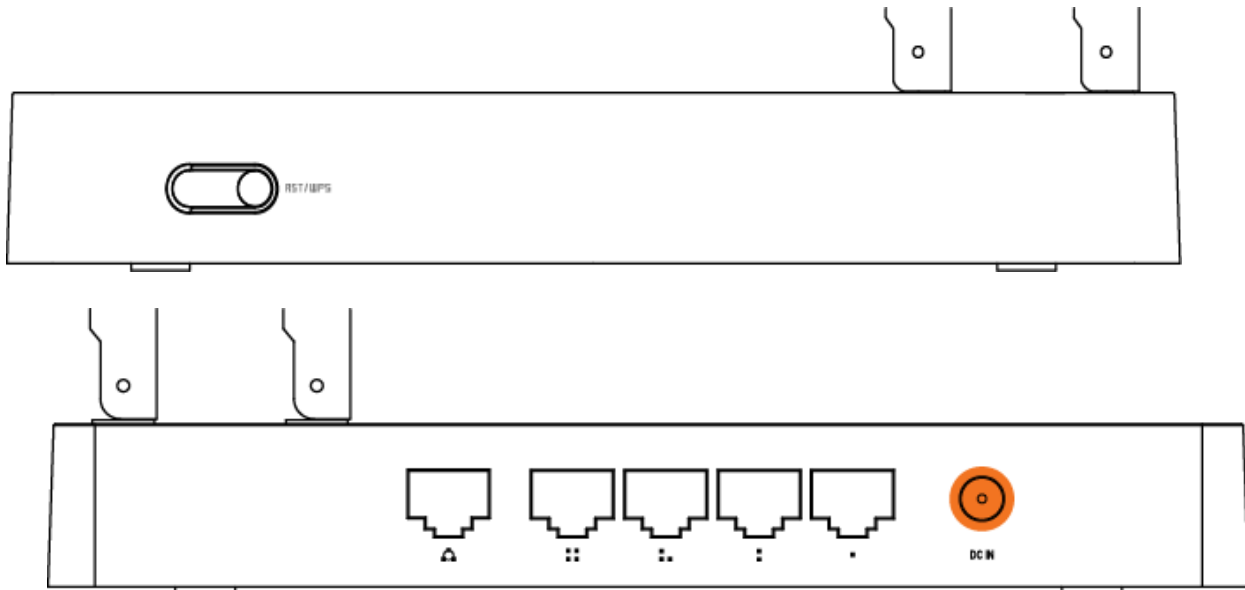
The front panel of this wireless router consists of 9 LEDs, which is designed to indicate connection status.



POWER	This indicator lights blue while the router receiving power, otherwise it is off.
CPU	This indicator keeps blinking blue after the router powered on.
2.4G	This indicator lights blue when the router's 2.4G wireless enabled.
5G	This indicator lights blue when the router's 5G wireless enabled.
WAN	When the WAN port is connected successfully the indicator lights blue.
	While transmitting or receiving data through the WAN port the indicator blinks blue.
1/2/3/4 LAN	When one of the LAN ports has a successful connection, the corresponding indicator lights blue.
	While transmitting or receiving data through the LAN port the indicator blinks blue.

2.3.2 Rear Panel

The figure below shows the rear panel of the router.



DC IN	The power socket is used to connect the power adapter.
RST/WPS	RST: With the router powered on, press and hold the button for more than 5 seconds. The router will reboot to factory default settings.
	WPS: If you have client devices you can press this button to quickly establish a secured connection between router and client devices.
WAN	This port is used to connect the DSL/cable Modem or Ethernet.
1/2/3/4 LAN	This port connects to local PC.

Note: Press and hold RST/WPS button for less than 5 seconds, the router will enable WPS function. Press and hold WPS/RST button for more than 5 seconds, the router will enable RESET function

3. **HARDWARE INSTALLATION**

3.1 Hardware Installation

For those PCs you wish to access Internet by this router, each of them must be properly connected with the router through UTP Cables.

1. Connect your PC's LAN port to one of the router's LAN port using UTP cable.
2. Connect existing Internet cable (such as ADSL or Modem) to router's WAN port using another UTP cable.
3. Plug the Power Adapter into the router and then into an outlet.
4. Turn on your computer.
5. Check and confirm that the Power LED and LAN LED on the router are **ON**.

3.2 Check the Installation

The control LEDs of the WLAN Router are clearly visible and the status of the network link can be seen instantly:

1. With the power source on, the Power, LAN and WAN LEDs of the WLAN Router will keep lighting blue for a few seconds, the CPU keeps flashing blue.
2. About 5 seconds later, only Power, Enabled wireless (2.4G/5G) and the connected LAN LEDs keep lighting, CPU keeps flashing. Other LED is off.

3.3 Set up the Computer

The default IP address of the Router is 192.168.1.1, the default Subnet Mask is 255.255.255.0. Both of these parameters can be changed as you want. In this guide, we will use the default values for description.

Connect the local PC to the LAN port on the Router. There are then two ways to configure the IP address for your PC.

◆ **Configure the IP address manually**

Configure the network parameters. The IP address is 192.168.1.xxx ("xxx" range from 2 to 254). The Subnet Mask is 255.255.255.0 and Gateway is 192.168.1.1 (Router's default IP address).

◆ **Obtain an IP address automatically**

Set up the TCP/IP Protocol in **Obtain an IP address automatically** mode on your PC.

Now, you can run the Ping command in the **command prompt** to verify the network connection between your PC and the Router. Open a command prompt, and type in **ping 192.168.1.1**, then press **Enter**.

```
C:\Documents and Settings\Administrator>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

Reply from 192.168.1.1: bytes=32 time<1ms TTL=64
Reply from 192.168.1.1: bytes=32 time<1ms TTL=64
Reply from 192.168.1.1: bytes=32 time<1ms TTL=64
Reply from 192.168.1.1: bytes=32 time<1ms TTL=64

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 4, Lost = 0 (0% loss),
    Approximate round trip times in milli-seconds:
        Minimum = 0ms, Maximum = 0ms, Average = 0ms

C:\Documents and Settings\Administrator>_
```

If the result displayed is similar to that shown in above figure, it means that the connection between your PC and the Router has been established.

```
C:\Documents and Settings\Administrator>ping 192.168.1.1

Pinging 192.168.1.1 with 32 bytes of data:

Request timed out.
Request timed out.
Request timed out.
Request timed out.

Ping statistics for 192.168.1.1:
    Packets: Sent = 4, Received = 0, Lost = 4 (100% loss),

C:\Documents and Settings\Administrator>_
```

If the result displayed is similar to that shown in the above figure, it means that your PC has not connected to the Router successfully. Please check it following below steps:

1. Is the connection between your PC and the Router correct?

If correct, the LAN port on the Router and LED on your PC's adapter should be lit.

2. Is the TCP/IP configuration for your PC correct?

Since the Router's IP address is 192.168.1.1, your PC's IP address must be within the range of 192.168.1.2 ~ 192.168.1.254, the Gateway must be 192.168.1.1.

4. CONNECTING TO INTERNET

This chapter introduces how to configure the basic functions of your Dual Band Wireless Router so that you can surf Internet.

4.1 Login Web Interface

With a Web-based utility, for example Google Chrome, this Router is easy to configure and manage.

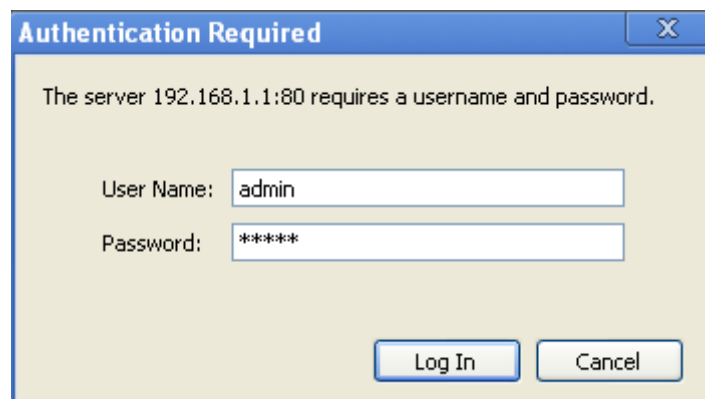
Connect to the Router by typing 192.168.1.1 in the address field of Web Browser. Then press **Enter** key.



It will show up the following page:



Click **Setup Tool** icon to access the Web Interface of the Router. Then below window will pop up that requires you to enter valid User Name and Password.



Enter **admin** for User Name and Password, both in lower case letters. Then click **Log In** button or press **Enter** key.

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

Now, you have got into the Router's configuration interface. First, you will see the current status of Router:

The screenshot shows the TOTO LINK router configuration interface. The top header includes the TOTO LINK logo, the tagline "The Smartest Network Device", and "Refresh" and "Save" buttons. On the left is a "Config Explorer" sidebar with a tree view containing "Basic Setup" (with sub-items: Status Summary, Internet Setup, Wireless Setup(2.4GHz), Wireless Setup(5GHz), Firmware Upgrade) and "Advanced Setup". The main content area is titled "Status Summary" and contains several sections:

- Internet Status**

Internet(WAN) Port Status	WAN port is disconnected		
Internet Connection Type	Static IP	WAN IP	10.1.1.10
Internet connection time	0 Hour 32 Min 28 Sec		
- LAN Configuration**

LAN IP	192.168.1.1
DHCP Server Status	Running
DHCP IP Pool	192.168.1.2 - 192.168.1.254
- Wireless Status(2.4GHz)**

Wireless Mode	Running - AP Mode - No Encryption
SSID(Network Name)	TOTOLINK
Wireless Multibridge	Stopped
- Wireless Status(5GHz)**

Wireless Mode	Running - AP Mode - No Encryption
SSID(Network Name)	TOTOLINK 5G
Wireless Multibridge	Stopped
- Miscellaneous**

Firmware Version	8.46
Remote Mgmt Information	Remote Management is not configured. You can set up this at [Mgmt Access List] page
System run time	0 Hour 32 Min 45 Sec

On the left, it is the guide bar:

This image is a close-up of the "Config Explorer" sidebar from the router interface. It shows a tree structure with the following items:

- Basic Setup
 - Status Summary
 - Internet Setup
 - Wireless Setup(2.4GHz)
 - Wireless Setup(5GHz)
 - Firmware Upgrade
- Advanced Setup
 - Network
 - Wireless(2.4GHz)
 - Wireless(5GHz)
 - NAT/Router
 - Firewall
 - Utility
 - Traffic
 - System

4.2 Changing Password

Now, we recommend that you change the password to protect the security of your Router. Please go to **Advanced Setup—System—Admin Setup** change the password required to log into your Router.

Admin Setup

Login Account Setup

Current ID & password	ID - admin	Password - Configured
New Login ID		
New Password		
Re-type New Password		

Apply

Admin E-mail Setup

Admin E-mail	
Mail Server(SMTP)	
E-mail of sender	
Use Authentication	☐ Use ☒ Not Use
SMTP Account	
SMTP Password	

Apply

New Login ID: type in the name that you use to login the web interface of the router or change a new one.

New Password: new password is used for administrator authentication.

Re-type New Password: new password should be re-entered to verify its accuracy.

Note: password length is 8 characters maximum, characters after the 8th position will be truncated.

Admin Email Setup we will discuss later.

4.3 Internet Setup

Click **Basic Setup--Internet Setup**, this page is used to configure the parameters for Internet Network. WAN access modes include DHCP, PPPoE and Static IP.

Internet Setup

☐ DHCP User (FTTH, Optic LAN, Cable Modem, VDSL, LAN, IP ADSL)
 ☐ PPPoE User(ADSL)
 ☒ Static IP User

WAN IP	10	.	1	.	1	.	10
Subnet Mask	255	.	255	.	255	.	0
Default Gateway	10	.	1	.	1	.	1
Primary DNS	12	.	12	.	13	.	14
Secondary DNS		.		.		.	
☐ MTU	1500						
☐ MAC Address Clone	- - - - - Search MAC address						

Apply

4.3.1 DHCP User

For DHCP User, your computer will get dynamic IP address from your ISP (Internet Service Provider) automatically. No need to do any settings here.

Internet Setup

☒ DHCP User (FTTH, Optic LAN, Cable Modem, VDSL, LAN, IP ADSL)
 ☐ PPPoE User(ADSL)
 ☐ Static IP User

☐ MAC Address Clone	- - - - - Search MAC address						
☐ Restart DHCP client if the physical WAN link is reconnected.							
☐ MTU	1500						
☐ Set DNS server manually							
Primary DNS		.		.		.	
Secondary DNS		.		.		.	

Apply

4.3.2 PPPoE User (ADSL)

If you use ADSL virtual dial-up to connect Internet, please choose this option. Your ISP must have provided the User ID and Password.

Internet Setup

☐ DHCP User (FTTH, Optic LAN, Cable Modem, VDSL, LAN, IP ADSL)
☒ PPPoE User(ADSL)
☐ Static IP User

User ID

Password

☐ MAC Address Clone

-

-

-

-

Search MAC address

☐ MTU

1454

☒ LCP option

Interval

30

Sec
Count

10

☐ Set DNS server manually

Primary DNS

Secondary DNS

Apply

PPPoE Scheduler

☐ Start
☒ Stop

Apply

System Time

Failed to get system time from time server.

Add ON Schedule

:

:

-

Add

Start Time

End Time

Status

Del

PPPoE ON always

User ID: a specific valid ADSL user name provided by your ISP.

Password: the corresponding valid password provided by your ISP.

PPPoE Scheduler: when you use PPPoE connection type, you can enable the schedule to set up the time when PPPoE will be on.

Knowledge Extension: Point-to-Point Protocol over Ethernet (PPPoE) is a virtual private and secure connection between two systems that enables encapsulated data transport. It relies on two widely accepted standards: PPP and Ethernet. It connects users through an Ethernet to the Internet with a common broadband medium, such as wireless device or cable modem. All the users over the Ethernet can share a common connection.

4.3.3 Static IP

If your ISP provides a static IP to access Internet, please finish the below parameter settings.

Internet Setup

☐ DHCP User (FTTH, Optic LAN, Cable Modem, VDSL, LAN, IP ADSL)
☐ PPPoE User(ADSL)
☒ **Static IP User**

WAN IP	10	.	1	.	1	.	10
Subnet Mask	255	.	255	.	255	.	0
Default Gateway	10	.	1	.	1	.	1
Primary DNS	12	.	12	.	13	.	14
Secondary DNS		.		.		.	

☐ MTU 1500
☐ MAC Address Clone

Search MAC address

Apply

WAN IP: the IP address provided by your ISP.

Subnet Mask: This is used to define the device IP classification for the chosen IP address range. 255.255.255.0 is a typical net mask value for Class C networks. Generally it is provided by your ISP.

Default Gateway: This is the IP address of the host router that resides on the external network and provides the point of connection to the next hop towards the Internet. This can be a DSL modem, Cable modem, or a WISP gateway router. The router will direct all the packets to the gateway if the destination host is not within the local network.

Primary DNS: Domain Name System. Every Internet host must have a unique IP address, also they may have a human-friendly, easy to remember name such as www.yahoo.com. The DNS server converts the user-friendly name into its equivalent IP address. This is provided by your ISP.

After you finish the blank that required, you could click **Apply** to make all the settings work.

4.4 Wireless Setup (2.4GHz)

This page is used to configure basic wireless parameters and encryption methods.

2.4GHz Wireless Setup

Operation: ☒ Start ☐ Stop

SSID: TOTOLINK Mode: B,G,N

Region: Europe

Channel: 11 [2.462 GHz, Upper] Channel Search

SSID Broadcast: ☒ ON ☐ OFF

Authentication: Automatic

Encryption: ☒ Disable ☐ WEP64 ☐ WEP128 ☐ TKIP ☐ AES ☐ TKIP/AES

Apply

Operation: choose Start to enable your 2.4G wireless network to access Internet wirelessly.

SSID: This is your wireless network name. If you want to access Internet wirelessly, search for this SSID and connect to it. You can define it as you like.

Mode: Generally, it is B, G, N selected. Keep the default value.

Region: Area where you are using the wireless router.

Channel: Choose the best wireless channel by clicking **Channel Search**. By default, it is the best channel.

SSID Broadcast: This option is used to hide your SSID.

Authentication: You can choose one encryption method for your wireless network.

Authentication	Automatic
Encryption	Automatic

Automatic

Open System

Shared Key

WPA2PSK

WPA2PSK

WPA2PSK/WPA2PSK

4.4.1 Shared Key (WEP)

WEP (Wired Equivalent Privacy) is based on the IEEE 802.11 standard and uses the RC4 encryption algorithm. Enabling WEP allows you to increase security by encryption data being transferred over your wireless network. WEP is the oldest security algorithm, and there are few applications that can decrypt the WEP key in less than 10 minutes.

Authentication	Shared Key	
Encryption	☐ Disable ☐ WEP64 ☒ WEP128 ☐ TKIP ☐ AES ☐ TKIP/AES	
Encryption key	Key Input Method	☒ ASCII ☐ Hex-Decimal
	Basic KEY	☒ 1 ☐ 2 ☐ 3 ☐ 4
	1:	
	2:	
	3:	
	4:	
	Fill the values of Key (Key length = 13)	
	Apply	

4.4.2 WPA-PSK/WPA2-PSK (Recommended)

Wi-Fi Protected Access (WPA) is the most dominating security mechanism in industry. It is separated into two categories: WPA-personal or called WPA Pre-Share Key (WPA/PSK), and WPA-Enterprise or called WPA/802.1x. WPA2 means Wi-Fi Protected Access 2, it is the current most secure method of wireless security and required for 802.11n performance. Please set one Encryption key (password) for your wireless network to prevent being occupied by others.

Authentication	WPA2PSK/WPA2PSK
Encryption	☐ Disable ☐ WEP64 ☐ WEP128 ☐ TKIP ☒ AES ☐ TKIP/AES
Encryption key	
	Apply

4.5 Wireless Setup (5GHz)

This setting is similar to 2.4GHz, but the Mode and Channel are different. You can just keep the default settings.

5GHz Wireless Setup	
Operation	☒ Start ☐ Stop
SSID	TOTOLINK 5G Mode: 5GHz-11N ▼
Region	Europe ▼
Channel	Auto(161 [5.805 GHz,Upper]) Channel Search
SSID Broadcast	☒ ON ☐ OFF
Authentication	Automatic ▼
Encryption	☒ Disable ☐ WEP64 ☐ WEP128 ☐ TKIP ☐ AES ☐ TKIP/AES
Apply	

4.6 Firmware Upgrade

Click **Firmware Upgrade**, you will see firmware upgrade webpage as below.

Firmware Upgrade	
Firmware Version	8.46
Build Date	Wed Jan 16 18:14:53 KST 2013
To upgrade manually 1. Download a firmware at [TOTOLINK Homepage]. 2. Click [Browse] and choose a downloaded firmware 3. Click [Upgrade] button.	
Choose File No file chosen Upgrade	
Note. • Internet will be unavailable for upgrading firmware. • Power down for updating firmware can be the cause of system halt.	

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

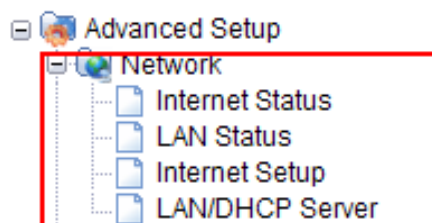
After finishing the settings above, you'd better restart your computer and the Router to connect to Internet successfully. Then you can enjoy the high-speed and high-stability Internet through this Router.

5. ADVANCED SETUP

The Advanced Setup includes Network, Wireless, NAT/Routing, Firewall, Utility, Traffic and System. Most of these settings are only for more technically advanced users who have sufficient knowledge about wireless LAN. Also they should not be changed unless you know what effect the changes will have on your Wireless Router.

5.1 Network

Click the plus sign beside **Network** menu to show up all Network parameters you could set up.



5.1.1 Internet Status

This page shows the WAN Status of this Router

Internet Status	
Connection Status	WAN port is disconnected
Connection Type	Static IP
WAN IP	10.1.1.10
Subnet Mask	255.255.255.0
Default Gateway	10.1.1.1
Primary DNS	12.12.13.14
Secondary DNS	
MAC Address	78-44-76-96-34-A1

5.1.2 LAN Status

This page shows you LAN Status of your Router.

LAN Status

LAN Configuration

LAN IP	192.168.1.1
Subnet Mask	255.255.255.0
MAC Address	78-44-76-96-34-A0
DHCP IP Pool	192.168.1.2 ~ 192.168.1.254
# of allocated IP	4

Allocated IP list

	IP	MAC Address	IP info.
1	192.168.1.5(SN-201203131531)	50-E5-49-BB-44-96	Wired : Dynamic

5.1.3 Internet Setup

We have discussed this setting on **Internet Setup**. You can also reconfigure the parameters on this page.

The screenshot shows the 'Internet Setup' window. At the top, there are three radio buttons: 'DHCP User (FTTH, Optic LAN, Cable Modem, VDSL, LAN, IP ADSL)' (selected), 'PPPoE User(ADSL)', and 'Static IP User'. Below these are several checkboxes: 'MAC Address Clone' (unchecked), 'Allow private IP.' (checked), 'Restart DHCP client if the physical WAN link is reconnected.' (unchecked), and 'MTU' (unchecked, with a value of 1500). There are also fields for 'Primary DNS' and 'Secondary DNS'. An 'Apply' button is at the bottom right.

5.1.4 LAN/DHCP Server

Click **LAN/DHCP Server**, you will enter the page that allows you configure the LAN port and DHCP Server.

The screenshot shows the 'LAN/DHCP Server' window. It has two main sections: 'LAN IP Setup' and 'DHCP Server Setup'. The 'LAN IP Setup' section includes fields for 'LAN IP' (192.168.1.1) and 'Subnet Mask' (255.255.255.0). Below these are checkboxes for 'LAN Gateway' and 'LAN DNS'. The 'DHCP Server Setup' section includes a 'DHCP Server' status (Start/Stop), a 'DNS Suffix' field, a 'DHCP IP Pool' (192.168.1.2 ~ 192.168.1.254), and a 'Lease Time' (7200 Sec). There are also checkboxes for 'DHCP server protection' and 'Enable internet access only for PCs allocated by DHCP Server'. At the bottom, there is a 'DHCP Static Lease Setup' section with checkboxes for 'Block MAC address on the list with wrong IP address' and 'Block MAC address not on the list'. An 'Apply' button is at the bottom right.

IP Address: This is the IP address to be represented by the LAN (including WLAN)

interface that is connected to the internal network. This IP will be used for the routing of the internal network (it will be the Gateway IP for all the devices connected on the internal network).

Subnet Mask: This is used to define the device IP classification for the chosen IP address range. 255.255.255.0 is a typical netmask value for Class C networks which support IP address range from 192.0.0.x to 223.255.255.x. Class C network netmask uses 24 bits to identify the network and 8 bits to identify the host.

Note: If the IP address changed, you can log into the WEB configuration interface only using the new IP address.

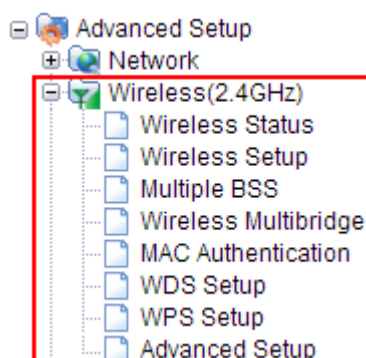
DHCP Server: you can choose to start or stop DHCP.

DHCP IP Pool: it is the IP range that the DHCP server will assign to every PC connected with the router.

Lease Time: the IP addresses given out by the DHCP server will only be valid for the duration specified by the lease time. Increasing the time ensure client operation without interrupt, but could introduce potential conflicts. Lowering the lease time will avoid potential address conflicts, but might cause more slight interruptions to the client while it will acquire new IP addresses from the DHCP server. The time is expressed in seconds.

5.2 Wireless (2.4GHz)

Next, you can set up the Wireless parameters. Click the plus sign beside **Wireless (2.4G)** menu to open up all wireless parameters, see below figure:



5.2.1 Wireless Status

This page shows you the current wireless status of the router.

2.4GHz Wireless Status			
Wireless Configuration			
Status	AP Mode - Running		
SSID(Network Name)	TOTOLINK		
Mode	B,G,N		
Region	Europe		
Channel	Channel 11 (2.462 GHz,Upper,40 MHz)		
SSID broadcasting	Running		
Authentication	Automatic		
Encryption	Disable		
MAC Authentication	Accept All		
Wireless MAC Address	78-44-76-96-34-A4		
Wireless Station Status			
MAC Address	Wireless Network	Receive sensitivity	Association Time

5.2.2 Wireless Setup

Click **Wireless Setup**, you will be able to configure the basic wireless function. We have discussed this setting on **Wireless Setup (2.4GHz)**.

2.4GHz Wireless Setup	
Operation	☒ Start ☐ Stop
SSID	TOTOLINK Mode B,G,N
Region	Europe
Channel	11 [2.462 GHz,Upper] Channel Search
SSID Broadcast	☒ ON ☐ OFF
Authentication	Automatic
Encryption	☒ Disable ☐ WEP64 ☐ WEP128 ☐ TKIP ☐ AES ☐ TKIP/AES
Apply	

5.2.3 Multiple BSS

This page is used to create multiple SSID for different LANs.

2.4GHz Multiple BSS	
SSID	
Access Policy	☒ Allow all ☐ Only for Internet ☐ Only for LAN
SSID Broadcast	☒ ON ☐ OFF
WMM	☒ ON ☐ OFF
Authentication	Automatic
Encryption	☒ Disable ☐ WEP64 ☐ WEP128 ☐ TKIP ☐ AES ☐ TKIP/AES
Max number of wireless network is 3	
Add Cancel	
Wireless network information	
Run Del	
	TOTOLINK Basic Wireless Network (Automatic - Disable - WMM) Allow all
Running	

SSID: define the SSID by yourself.

Access Policy: setup the access policy as you want.

SSID Broadcast: choose to hide or broadcast your SSID.

WMM: it is an abbreviation of Wi-Fi Multimedia. It defines the priority levels for four access categories derived from 802.1d (prioritization tabs). The categories are designed with specific types of traffic, voice, video, best effort and low priority data.

Encryption: you can choose the encryption method for WMM. Please refer to **Wireless Setup (2.4G)**.

5.2.4 Wireless Multibridge

This page is used to setup the bridge and repeater functions.

2.4GHz Wireless Multibridge	
Operation	☐ Start ☒ Stop
Wireless Mode	☐ Use Wireless WAN ☒ Use Wireless Bridge
Bridge(Station) MAC Address	78:44:76:00:00:14
Wireless Status	Stopped
SSID	Search AP
Authentication	Open System
Encryption	☒ Disable ☐ WEP64 ☐ WEP128 ☐ TKIP ☐ AES
Apply	

Wireless Bridge: In this mode, the router is used as an AP to get other router's signal.

Wireless WAN: The same function as **Wireless Bridge**, but the only setting difference is that Wireless WAN need not to stop the DHCP Server.

SSID: Click **Search AP**; choose the SSID of your Primary Router.

Authentication: Please refer to **Wireless Setup (2.4G)**.

Note: Both these two repeater methods can help you to expand the wireless coverage and allow more terminals to access Internet. But since Wireless WAN need not stop DHCP Server, all PCs' IP Addresses are assigned by the Secondary Router itself. So this method allows more PCs to access Internet than Wireless Bridge. In Wireless Bridge mode, the PCs' permissions to access Internet are decided by Primary Router which can make users to manage the LAN more easily.

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

2.4GHz MAC Authentication

Select wireless network
Nowsonic Stage Router

☒ Accept All
☐ Accept MAC address registered
☐ Reject MAC address registered

Apply

Del
Registered MAC address list

Add
MAC address List in wireless

☐ - - - - -
Description

☐ B8-55-10-00-00-B2
☐ 5C-0A-5B-74-DF-AB
☐ 00-0E-E8-12-34-57
☐ 78-F5-FD-64-56-58
☐ 00-0C-43-30-70-01
☐ B0-EE-45-DE-6C-B5
☐ 14-5A-05-59-FF-96
☐ B8-C7-5D-8E-17-54
☐ 1C-B0-94-EC-B3-38
☐ C0-CB-38-98-6E-FA
☐ 00-21-6A-5A-88-04
☐ 64-E5-99-F2-69-A2

The maximum number of registered MAC Addresses is 128.

5.2.6 WDS Setup

WDS means Wireless Distribution System. It is a protocol for connecting two access points wirelessly. Usually, it can be used for the following application:

1. Provide bridge traffic between two LANs though the air.
2. Extend the coverage range of a WLAN.

To meet the above requirement, you must set these APs in the same channel and set MAC address of other APs which you want to communicate with in the table and then enable the WDS.

2.4GHz WDS Setup

AP's BSSID
Description

- - - - -

Search AP

Max number of AP is 4.
Add

AP's BSSID
Description
Del

5.2.7 WPS Setup

WPS (Wi-Fi Protected Setup) provides easy procedure to make network connection between wireless station and wireless access point with the encryption of WPA and WPA2.

It is enabled by default.

2.4GHz WPS Setup

WPS Setup

WPS Activation	☐ ON ☒ OFF
WPS Config	☒ Use predefined config ☐ Use auto-generated SSID & Key
WPS Status	Configured by current setting

Connect WPS

☒ PBC Button ☐ Pin Connect LAN Card PIN

5.2.8 Advanced Setup

Advanced Setup is for advanced parameter settings. For common users, please just keep the default configuration.

2.4GHz Advanced Setup

The following functions are settings for wireless expert.

Channel Bandwidth	☒ 20/40 MHz ☐ 20 MHz ☐ Coexistence 20/40MHz Channel bonding option according to 802.11n Draft.
Tx Power	100 % (1 ~ 100) The wireless coverage is adjusted by increasing or decreasing the Tx Power. The range of value is 1 ~ 100. The higher power means the longer wireless coverage
Tx Burst	☒ Start ☐ Stop Tx Burst may increase the performance. But, in the environment of many simultaneous wireless connections, Disabling this feature can be better solution.
WMM	☒ ON ☐ OFF
Preamble Length	☒ Long Preamble ☐ Short Preamble Short Preamble may increase the performance slightly. But for compatibility with old 802.11 lan card, use Long Preamble.
RTS Threshold	2347 bytes The frames which have more length than RTS threshold are transmitted using RTS/CTS method The less RTS threshold make wireless communication be more stable, but have less maximum throughput. The valid range is 1 ~ 2347.
Fragmentation Threshold	2346 bytes The frames which have more length than fragmentation threshold are transmitted after fragmented with setting value The less Fragmentation Threshold may make wireless communication more stable, but have less maximum throughput. The valid range is 256 ~ 2346.
Beacon Period	100 ms Normally use 100ms The range should be from 50ms to 1024ms.

Channel Bandwidth: this is the spectral width of the radio channel. Supported wireless channel spectrum widths:

20MHz is the standard channel spectrum width.

40MHz is the channel spectrum with the width of 40MHz (selected by default).

TX Power: please refer to the description on the page.

TX Burst: Please just keep the default.

WMM: It is an abbreviation of Wi-Fi Multimedia. It defines the priority levels for four access

categories derived from 802.1d (prioritization tabs). The categories are designed with specific types of traffic, voice, video, best effort and low priority data. Choose ON/OFF to enable/disable this function.

Preamble Length: this option is to define the length of the sync field in an 802.11 packet. Most modern wireless network uses short preamble with 56 bit sync field instead of long preamble with 128 bit sync field. However, some original 11b wireless network devices only support long preamble.

RTS Threshold: determines the packet size of a transmission and, through the use of an access point, helps control traffic flow. The range is 0-2347 bytes. The default value is 2347, which means that RTS is disabled.

RTS/CTS (Request to Send / Clear to send) are the mechanism used by the 802.11 wireless networking protocols to reduce frame collisions introduced by the hidden terminal problem. RTS/CTS packet size threshold is 0-2347 bytes. If the packet size the node wants to transmit is larger than the threshold, the RTS/CTS handshake gets triggered. If the packet size is equal to or less than threshold the data frame gets sent immediately.

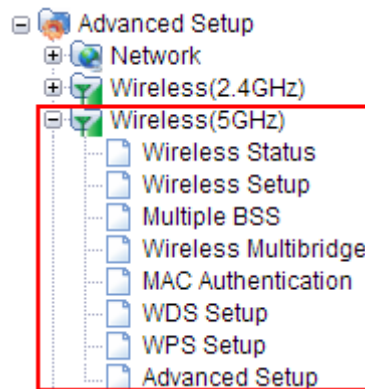
System uses Request to Send/Clear to send frames for the handshake that provide collision reduction for an access point with hidden stations. The stations are sending a RTS frame first while data is sent only after a handshake with an AP is completed. Stations respond with the CTS frame to the RTS, which provide clear media for the requesting station to send the data. CTS collision control management has a time interval defined during which all the other stations hold off the transmission and wait until the requesting station will finish transmission.

Fragment Threshold: specifies the maximum size for a packet before data is fragmented into multiple packets. The range is 256-2346 bytes. Setting the Fragment Threshold too low may result in poor network performance. The use of fragment can increase the reliability of frame transmissions. Because of sending smaller frames, collisions are much less likely to occur. However, lower values of the Fragment Threshold will result in lower throughput as well. Minor or no modifications of the Fragmentation Threshold value is recommended while default setting of 2346 is optimum in most of the wireless network use cases.

Beacon Period: By default, it is set to 100ms. Higher Beacon interval will improve the device's wireless performance and is also power-saving for client side. If this value set lower than 100ms, it will speed up the wireless client connection.

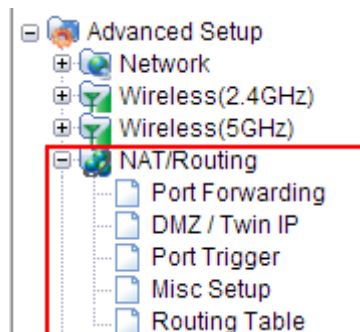
5.3 Wireless (5GHz)

Wireless (5GHz) is provided to enable users to establish 5G wireless channel connection, which can provide high performance for HD video streaming and online gaming. All the parameter settings please refer to **Wireless (2.4GHz)**.



5.4 NAT/Routing

Click the plus sign beside **NAT/Routing** menu to open up all the parameters contained, see below:



5.4.1 Port Forwarding

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

Port Forwarding

Rule Type

User Defined

Rule Name

LAN IP

192.168.1.

☐ Set connected PC's IP address(192.168.1.11)

Protocol

TCP

External Port

~

Internal Port

~

Max number of rule is 60.

Add

Cancel

The lower number, the higher priority.

To modify a rule, click the name of rule.

Run

Rule Name	Forwarding IP	Proto	External Port	Internal Port	Del

Del

LAN IP: You can set the IP Address that you defined the rule for.

Protocol: Choose which particular protocol type should be forwarding. Here you can choose UDP/TCP.

External Port: Set the WAN range.

Internal Port: Set the LAN range.

5.4.2 DMZ / Twin IP

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

DMZ / Twin IP

☐ OFF

☒ DMZ (All connections from internet will be forwarded to DMZ PC)

☐ Twin IP (The TwinIP PC will have a public IP address.)

LAN IP: 192 . 168 . 1 . [dropdown]

☐ Set connected PC's IP address(192.168.1.11)

Apply

5.4.3 Port Trigger

You can achieve some special purposes by this setting.

Port Trigger

Rule Name: [text input]

Port Trigger: Protocol: TCP, Port Range: [input] ~ [input]

Port Forward: Protocol: TCP, Port Range: [input]

Max number of rule is 10.

Add

Rule Name	Trigger Condition	Forward Condition

Del

5.4.4 Misc Setup

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

Misc Setup

FTP Private Port: Port [input], [checkbox] [checkbox] [checkbox] [checkbox] [checkbox]

Multicast Forward(IGMP): ☐ Start ☒ Stop, To receive/send a Multicast data

NAT On/Off Setup: ☒ Start ☐ Stop, If NAT is stopped, this router will act as just pure router.

PPPoE Relay: ☐ Start ☒ Stop, Enable PPPoE Relay for LAN interface

Add, Del, Apply, Apply & Restart

5.4.5 Routing Table

You can add or delete the static routing rules here.

Routing Table

Type	Target	Mask	Gateway
Net	. . .		. . .

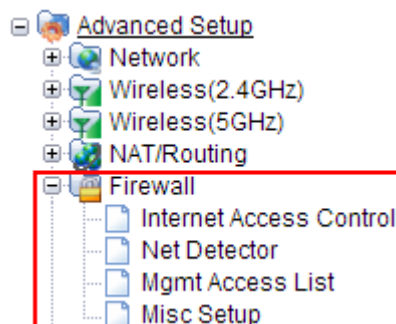
Max number of routing table is 20

Add

Type	Target	Mask	Gateway	Del
				☐

5.5 Firewall

Click the plus sign beside **Firewall** menu to show up all the parameters contained, see below:



5.5.1 Internet Access Control

Internet Access Control provides multiple security protection. It can achieve MAC/Port/IP filtering, Internet access time control and other functions that enable user to control Internet access.

Internet Access Control

Input Type	Basic Setup	Rule Name	
Source IP Address	☐ 192. .168. .1 ~ 192. .168. .1 ☐ ALL IP		
Source MAC Address	☐ - - - - - Search MAC address		
Accept/Drop	Drop	Priority	0
☐ Rule Scheduling			
Max number of setting is 200.			
Add Cancel			
The lower number, the higher priority. To modify a rule, click the name of rule.			
Run ☐	Rule Name	Schedule	Filtering Rule
			Accept/Drop
			Del ☐

5.5.2 Net Detector

Net Detector provides some basic virus protection function that allows user to have a safer network communication.



The Net Detector interface is divided into two main sections: 'Net Detector Setup' and 'Net Detector Log'.

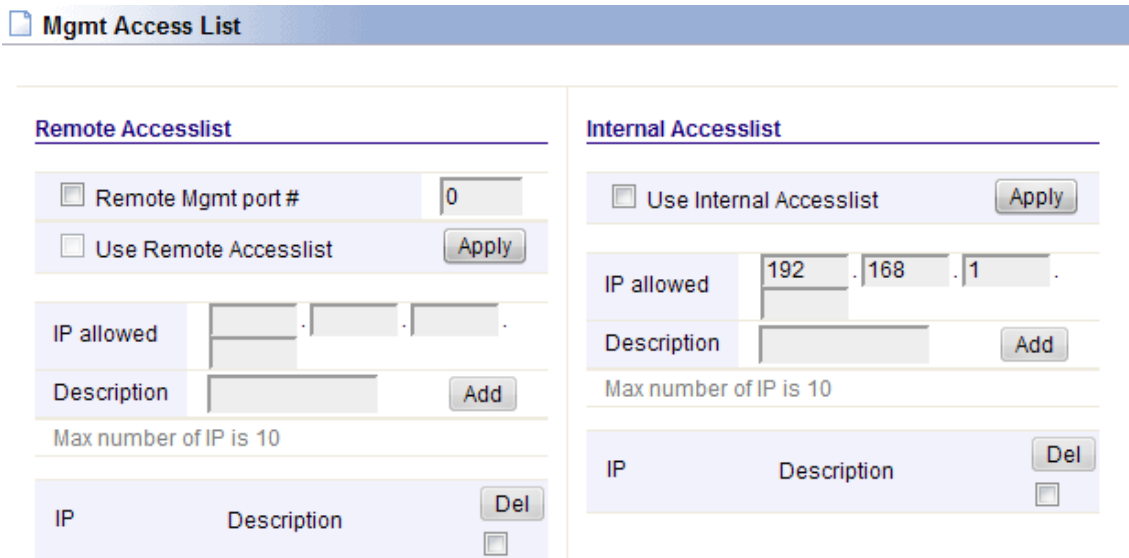
Net Detector Setup

- Operation:** Radio buttons for 'Start' and 'Stop'. 'Stop' is selected.
- Detection Port:** Radio buttons for 'Well-known Worm Virus Ports' and 'All Ports'. 'Well-known Worm Virus Ports' is selected.
- Detection Level:** A dropdown menu set to 'Mid' and a text input field set to '0'. The unit is 'connections/sec'.
- Burst Drop:** A dropdown menu set to 'No' and a checkbox for 'Only drop worm virus port'.
- E-mail Policy:** A text field with the placeholder 'Please, set the email address of administrator & SMTP mail server.' and an 'Apply' button.

Net Detector Log

- A 'Send E-Mail immediately' button.
- A 'Clear All Events' button.
- A table with columns: 'Detection Time', 'IP', 'Protocol', 'Frequency', and 'Comment'. The 'Comment' column has a note '[Red:User Warning OFF]'.

5.5.3 Mgmt Access List



The Mgmt Access List interface is divided into two main sections: 'Remote Accesslist' and 'Internal Accesslist'.

Remote Accesslist

- Checkboxes for 'Remote Mgmt port #' (set to 0) and 'Use Remote Accesslist' with an 'Apply' button.
- Fields for 'IP allowed' and 'Description' with an 'Add' button.
- A note: 'Max number of IP is 10'.
- A table with columns: 'IP', 'Description', and 'Del'.

Internal Accesslist

- Checkbox for 'Use Internal Accesslist' with an 'Apply' button.
- Fields for 'IP allowed' (set to 192.168.1) and 'Description' with an 'Add' button.
- A note: 'Max number of IP is 10'.
- A table with columns: 'IP', 'Description', and 'Del'.

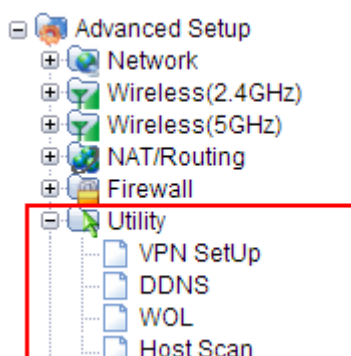
5.5.4 Misc Setup

Misc Setup: Generally maintain the default.

Misc Setup	
SYN Flood	☒ Start ☐ Stop The SYN flood is a form of denial-of-service attack in which an attacker sends a succession of SYN requests to a target's system.
Smurf	☒ Start ☐ Stop The smurf attack, named after its exploit program, is a denial-of-service attack that uses spoofed broadcast ping messages to flood a target system.
IP source routing	☒ Start ☐ Stop The source routing allows a sender of a packet to specify the route the packet takes through the network, so if cracker can generate a source routing packet then cracker can deceive a target host as a trusted host.
IP Spoofing	☒ Start ☐ Stop The IP address spoofing is the creation of IP packets with a forged (spoofed) source IP address with the purpose to conceal the identity of the sender or impersonating another computing system.
ARP Virus Protection	☐ Start ☒ Stop Send 10 ARP packets per 1 second to Wired Network ARP Virus Protection prevents from ARP snoofing attack
Blocking ICMP(ping) from internet	☐ Start ☒ Stop
Blocking ICMP(ping) from LAN to internet	☐ Start ☒ Stop

5.6 Utility

Click the plus sign beside **Utility** menu to open up all the parameters contained, please see below:



5.6.1 VPN Setup

The wireless router provides PPTP protocol VPN connection, and it supports 5 VPN users at most. Please enter the account information to connect the VPN server.

VPN SetUp

VPN(PPTP) Setup

Mode

☐ Start
☒ Stop

Encryption(MPPE)

☒ MPPE encryption
☐ No encryption

Apply

VPN(PPTP) Account

VPN Account

VPN Password

Assigned IP

192

.

168

.

1

.

Maximum number of VPN User is 5.

Add

VPN Account	Assigned IP	Status	Disconnect	Del

VPN (PPTP) Setup

Mode: Start

Encryption (MPPE): MPPE encryption

Click **Apply** (this is very important, if you don't click **Apply**, the settings below will not work).

VPN (PPTP) Account

VPN Account: This is set by you.

VPN Password: set by you

Assigned IP: This should be in the same network with your LAN IP.

Click **Add**. You can create at most 5 VPN accounts by this router. After setup, you need to provide the VPN Account, Password and your WAN IP address to anyone that needs them. The VPN Client should follow right steps to make a successful VPN connection.

5.6.2 DDNS

DDNS (Dynamic Domain Name Server) is to achieve a fixed domain name to dynamic IP resolution. For dynamic IP address users, if there is any Internet access to their IP address, they need to show a fixed domain name to them. So their IP address will be sent to the DDNS service provider from the dynamic analysis server (3322, dyndns.org) and to update the DNS database. Then DDNS will bind the dynamic IP address to a fixed domain name. When other users on the Internet want to access this domain name, the dynamic DNS server will return the correct IP address. In this way, most users do not need to use fixed IP and can also name the fixed network system.

DDNS

DDNS Service Provider

DynDns - www.dyndns.org

Host Name

User ID

Password

Add

Host Name	DDNS Status	Refresh	Update	Del

In order to set up DDNS, please follow the below steps:

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

5.6.3 WOL

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

WOL

MAC Address

☐ Set connected PC's MAC address

- - - - -

Search MAC address

PC Name

Max number of setting is 100.

Add

MAC Address	PC Name	Wake Up	Del
-------------	---------	---------	-----

5.6.4 Host Scan

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

Host Scan

☒ Ping Test

ICMP

IP . . .

Count : times

Time Out : Sec

Data Size : bytes

☐ TCP PORT SCAN

IP . . .

Port Range: ~

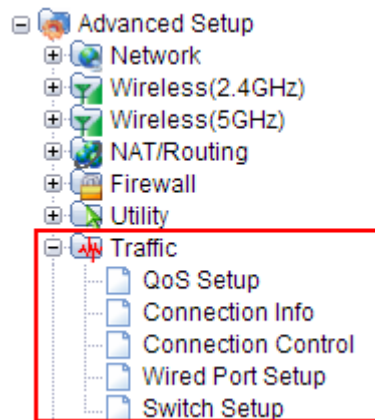
Start

Stop

Clear log

5.7 Traffic

Click the plus sign beside the Traffic menu to show up all the parameters contained, see below:



5.7.1 QoS Setup

This page is used to control the wireless speed of connected PC.

QoS Setup

QoS Basic Setup

Operation

☐ Start
 ☒ Stop

Internet Type

User Defined

Download

0

Kbps

Upload

0

Kbps

Apply

Not allow to use a radix point. ex) 2.5Mbps -> 2500Kbps

QoS Rule Setup

☒ User defined Rule
 ☐ Predefined Rule

Mode

Max. Limit

Download

0

Kbps

Upload

0

Kbps

IP

☒ 192 . 168 . 1 . ~ 192 . 168 . 1 .
 ☐ Twin IP

Protocol

External Port

~

Apply

Max number of rule is 31.

☒ Max. Limit
 ☐ Min. Guarantee

IP

Condition

Mode

Download

Upload

Del

Operation: You can choose to Start or Stop this function on your Router.

Internet Type: Any Internet type you want to control bandwidth.

Download/Upload: Set the bandwidth range of the Router.

QoS Rule Setup

Mode: You could select minimum bandwidth or maximum bandwidth.

IP: You should type in the IP addresses range of PC in LAN.

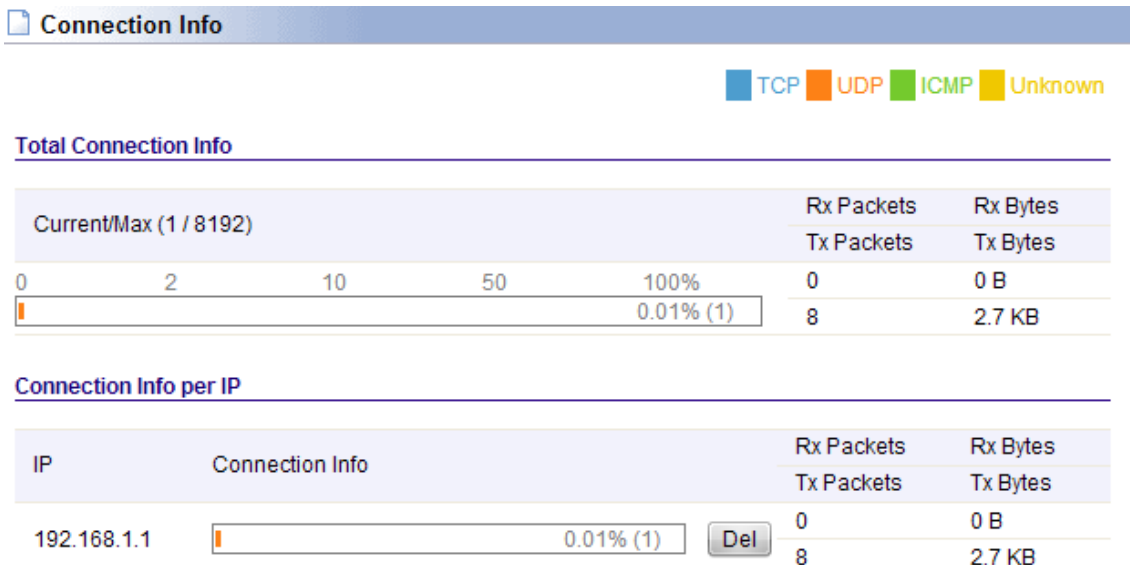
Protocol: Any Protocol you want to control bandwidth.

External Port: You need to enter the range of external ports that you want to control bandwidth.

31

5.7.2 Connection Info

This page indicates the present connection information of the Wireless Router using graphics and data including data package sending and receiving status of each PC in connection.



5.7.3 Connection Control

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

Connection Control

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

* Warning.

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

Control Connection Timeout

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

5.7.4 Wired Port Setup

This page shows the connection status of the PC connected with your router by cables.

 **Wired Port Setup**

Wired Port Link Status

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

Wired Port Link Setup

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

5.7.5 Switch Setup

This page is used to specify the LAN port data transmission.

 **Switch Setup**

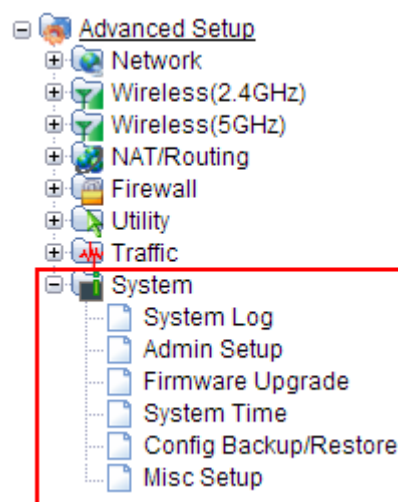
Port Mirror

☒ All packets via LAN Port 1 transmit to LAN Port 1

Port receiving a packet is NOT used as a normal port.

5.8 System

Click the plus sign beside the System menu to open up all the parameters contained, please see below:



5.8.1 System Log

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

 **System Log**

System Log Setup

Operation	☒ Start ☐ Stop	Apply
Status	Log Count(Max Count) : 76(400)	Clear
E-mail Report	Please, set the email address of administrator & SMTP mail server.	

System Log View

Timestamp	System Log Contents
*****	Allocated IP address to the PC in DHCP server: 192.168.1.3
*****	IP : 192.168.1.2 LOGIN Success
*****	No response from DHCP Server in WAN (wan1)
*****	Allocated IP address to the PC in DHCP server: 192.168.1.2
*****	System restarted (Version: 7.80)
2000/01/01 03:26:14	No response from DHCP Server in WAN (wan1)
2000/01/01 03:26:06	Administrator changed the WAN configuration: DHCP -> DHCP
2000/01/01 03:24:15	IP : 192.168.1.16 LOGIN Success
2000/01/01 03:24:08	IP : 192.168.1.16 LOGIN Success
2000/01/01 03:24:01	All configurations are saved
2000/01/01 03:20:29	No response from DHCP Server in WAN (wan1)
2000/01/01 03:20:24	All configurations are saved
2000/01/01 03:20:19	Administrator changed the WAN configuration: Static -> DHCP
2000/01/01 03:14:26	IP : 192.168.1.16 LOGIN Success
2000/01/01 03:03:08	Allocated IP address to the PC in DHCP server: 192.168.1.16
*****	System restarted (Version: 7.80)
*****	IP : 192.168.1.4 LOGIN Success
*****	Allocated IP address to the PC in DHCP server: 192.168.1.4

5.8.2 Admin Setup

We have discussed Account Setup before; here we focus on **Admin E-mail Setup**.

Admin Setup

Login Account Setup

Current ID & password	ID - admin Password - Configured
New Login ID	
New Password	
Re-type New Password	

Admin E-mail Setup

Admin E-mail	
Mail Server(SMTP)	
E-mail of sender	
Use Authentication	☐ Use ☒ Not Use
SMTP Account	
SMTP Password	

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

5.8.3 Firmware Upgrade

This page allows you to upgrade the Access Point firmware to new version. Please note: DO NOT power off the device during the upload because it may crash the system.

Firmware Upgrade	
Firmware Version	8.46
Build Date	Wed Jan 16 18:14:53 KST 2013

To upgrade manually
1. Download a firmware at [TOTOLINK Homepage].
2. Click [Browse] and choose a downloaded firmware
3. Click [Upgrade] button.

No file chosen

Note.

- Internet will be unavailable for upgrading firmware.
- Power down for updating firmware can be the cause of system halt.

5.8.4 System Time

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

System Time	
System Time	Trying to get system time from time server.
Time Server	time.windows.com time.windows.com
	☐ Summer Time
Standard Time Zone	(GMT+08:00) Beijing, Hongkong, TaiWan, Ulan-Bator, Kuala Lumpur, Singapore v
Apply	

5.8.5 Config Backup/Restore

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

Config Backup/Restore	
Config Backup	Download configuration file on your PC
Choose File No file chosen Config Restore	Restore configuration by using Downloaded configuration
Factory Default	To restore the factory default configuration, click this button.

5.8.6 Misc Setup

Misc Setup provides Host name, Auto Saving, Auto Redirection, Login page setup, UPNP setup and Restart System functions.

Misc Setup	
Hostname	Apply
Auto Saving	☒ Start ☐ Stop Apply
Auto Redirection	☐ Start ☒ Stop Redirect web connection to the router's setup page, when internet is disconnected Apply
Login Page Setup	☒ The login page would be displayed ☐ The login page would not be displayed Apply
How to run Setup Window	☐ Use Popup ☒ Use current window Apply
UPNP Setup	☒ Start ☐ Stop UPNP Port Forwarding List Apply
LED Mode	☒ Basic ☐ Always Off ☐ From 22 to 9 , turn off the LED. Apply
Restart System	Apply