PLANET
Networking & Communication

User's Manual

Internet Broadband Router

XRT-401F

www.PLANET.com.tw

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FCC Compliance Statement

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the instructions provided with the equipment, may cause interference to radio and TV communication. The equipment has been tested and found to comply with the limits for a Class A computing device in accordance with the specifications in Subpart B of Part 15 of FCC rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If you suspect this equipment is causing interference, turn your Ethernet Switch on and off while your radio or TV is showing interference, if the interference disappears when you turn your Ethernet Switch off and reappears when you turn it back on, there is interference being caused by the Ethernet Switch. You can try to correct the interference by one or more of the following measures:

1. Reorient the receiving radio or TV antenna where this may be done safely.
2. To the extent possible, relocate the radio, TV or other receiver away from the Switch.
3. Plug the Ethernet Switch into a different power outlet so that the Switch and the receiver are on different branch circuits.

If necessary, you should consult the place of purchase or an experienced radio/television technician for additional suggestions.

Energy Saving Note of the Device

This power required device does not support Stand by mode operation.

For energy saving, please remove the DC-plug to disconnect the device from the power circuit.

Without remove the DC-plug, the device will still consuming power from the power circuit. In the view of Saving the Energy and reduce the unnecessary power consuming, it is strongly suggested to switch off or remove the DC-plug for the device if this device is not intended to be active.

CE mark Warning

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

WEEE

To avoid the potential effects on the environment and human health as a result of the presence of hazardous substances in electrical and electronic equipment, end users of electrical and electronic equipment should understand the meaning of the crossed-out wheeled bin symbol. Do not dispose of WEEE as unsorted municipal waste and have to collect such WEEE separately.

Trademarks

Revision

User's Manual for PLANET Internet Broadband Router:

Model: XRT-401F

Rev: 1.1 (Aug. 2011)

Part No.: EM-XRT401Fv1 (2080-B40110-000)

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Chapter 1 Introduction

With the growth of the Internet activities, high-speed Internet access, on-line gaming and Triple-Play Internet application are often can be seen in our daliy life. To respond this trends of Internet activities, the PLANET XRT-401F Broadband Router is an ideal solution to provide the high speed Internet access, easy-to-use, and worry-free for surfing on the internet.

With easy integration and full compatibility of existing network infrastructures, the PLANET XRT-401F comprises a 4-Port 10/100Mbps switch to allow the users quickly and easily transmiting the data through the single high-speed Internet connection.

The XRT-401F provides QoS and IGMP features to make the network services smooth. Traffic priority can be assigned by the router to guarantee some important and specific transmissions, especially for real-time streaming multimedia applications such as the on-line gaming, VoIP, and IPTV to keep the bandwidth usage smoothly.

Via the user-friendly management interface, users can setup and configure the router very easily, just follow the wizard to guide you the setup procedure step by step. Furthermore, the Router not only provides basic router functions such as DHCP server, Virtual Server, DMZ, and UPnP, but also provides full security functions including Firewall and NAT / NAPT (Network Address/Port Translation) features, to protect your network from internet intruders and attacks.

1.1 Features

- **Internet Access Features**
  - ***Shared Internet Access:*** All users on the LAN can access the Internet through the XRT-401F using only a single external IP Address. The local (invalid) IP Addresses are hidden from external sources. This process is called NAT (Network Address Translation).
  - ***Multiple WAN Connection:*** On the Internet (WAN port) connection, the XRT-401F supports Dynamic IP Address (IP Address is allocated on connection), Fixed IP Address, PPPoE, PPTP and L2TP.
  - ***Bridge and Router Application:*** The XRT-401F supports two application modes. Currently, it comes pre-configured with Router mode. Note that, Router mode and Bridge mode cannot be used simultaneously.

- **Advanced Internet Functions**
  - ***Quick Setup:*** Built-In configuration wizard helps users to complete network installation in a very short time via standard Internet browsers such as Microsoft Internet Explorer, Netscape Communicator…etc.
  - ***QoS:*** Quality of service can classify the network packet based on the port base and DSCP; it can provide the best effect for real-time streaming multimedia applications such as the on-line gaming, VoIP, and IPTV.
  - ***Virtual Servers:*** This feature allows Internet users to access Internet servers on your LAN. The required setup is quick and easy.

- ***Universal Plug and Play (UPnP):*** UPnP allows automatic discovery and configuration of the Broadband Router. UPnP is supported by Windows ME, XP, or later.
- ***User Friendly Interface:*** The XRT-401F can be managed and controlled through Web UI.
- ***DMZ Support:*** The XRT-401F can translate public IP addresses to private IP address to allow unlimited 2-Way communication with the servers or individual users on the Internet. It provides the most flexibility to run programs smoothly for programs that might be restricted in NAT environment.
- ***Client / URL / MAC Filtering:*** The Filtering function can block the unallowable LAN users accessing to Internet. Or you can use the keyword based URL Filter to block access to undesirable Web sites by LAN users.
- ***RIP1/2 Routing:*** It supports RIPv1/2 routing protocol for routing capability.
- ***VPN Pass through Support:*** PCs with VPN (Virtual Private Networking) software are transparently supported - no configuration is required.

- **LAN Features**
  - ***4-Port Switch:*** The XRT-401F incorporates a 4-port 10/100Base-TX switching hub, making it easy to create or extend your LAN.
  - ***DHCP Server Support:*** **D**ynamic **H**ost **C**onfiguration **P**rotocol provides a dynamic IP address to PCs and other devices upon request. The XRT-401F can act as a DHCP Server for devices on your local LAN.

1.2 Minimum Requirements

- One External xDSL (ADSL) or Cable modem with an Ethernet port (RJ-45)
- Network Interface Card (NIC) for each Personal Computer (PC)
- PCs with a Web-Browser (Internet Explorer 7.0 or higher, or Firefox 3.6 or higher)

1.3 Product Specification

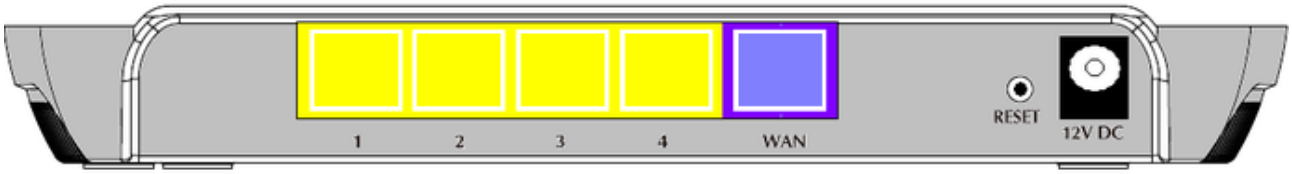
FUNCTIONAL SPECIFICATIONS

Product		Internet Broadband Router
Model		XRT-401F
Hardware		
Standard		IEEE 802.3, IEEE 802.3u 10/100Base-TX standard
Ports	**WAN**	1 x 10/100Base-TX, Auto-Negotiation, Auto MDI/MDI-X
	LAN	4 x 10/100Base-TX, Auto-Negotiation, Auto MDI/MDI-X
LED Indicators		PWR, WAN, LAN1-4
Button		1 x RESET button
Software		
Protocol and Features		Router and Bridge mode Static Routing and RIPv1/2 DMZ and Virtual Server QoS IGMP v1/v2 VLAN SNTP DHCP Server / Client UPnP and DDNS
VPN		IPSec / PPTP / L2TP VPN Pass-Through
Security		Built-in NAT Firewall Client / URL / MAC Filtering Password protection for system management
Management		Web-based configuration Quick Setup Wizard Local and Remote Log
Environment Specification		
Dimension (W x D x H)		176 x 104 x 29 mm
Power		12V DC, 0.5A
Temperature / Humidity		Operating: 0~50 degree C, 5%~ 90% (non-condensing), Storage: -10~70 degree C, 0~95% (non-condensing)

Top Panel LED definition

LED		Description
PWR	ON	When the router is powered on, and in ready state.
	OFF	When the router is powered off.
WAN	Flashing	Data is being transmitted or received via the corresponding WAN port.
	ON	The port is up.
LAN1-4	Flashing	Data is being transmitted or received via the corresponding LAN port.
	ON	The port is up.

Rear Panel Port and Button Definition

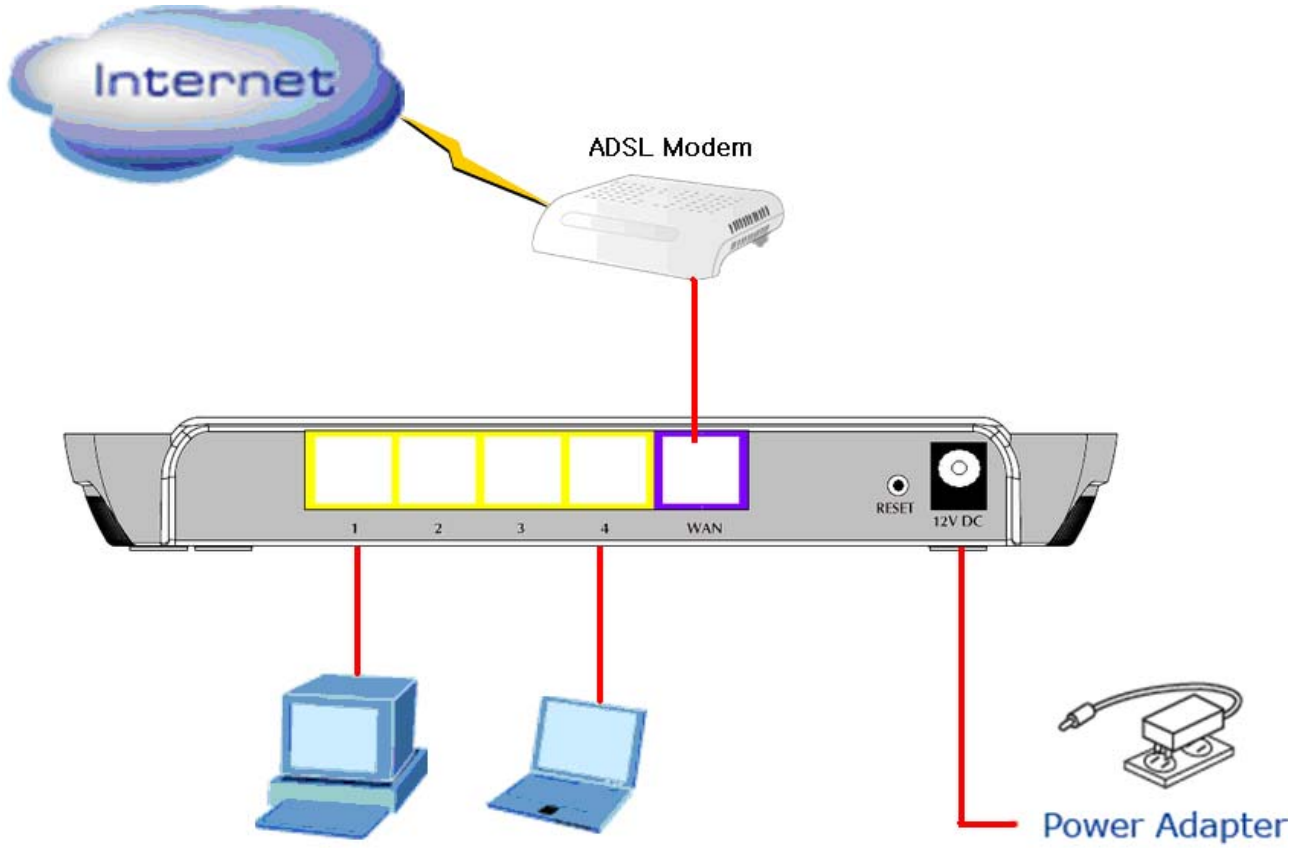


Port	Description
LAN (1-4)	Connect your LAN's PCs, printer servers, hubs and switches etc.
WAN	Connect your xDSL or Cable modem and is linked to the Internet.
RESET	One push and release, the Router will reboot At power on status, press more than 10 seconds and release for reset to factory default setting.
12V DC	DC Power in.

1.4 Getting Started

This is a step-by-step instruction on how to start using the router and get connected to the Internet.

1) Setup your network as shown in the setup diagram below.



2) Then, you need to setup your LAN PC clients so that it can obtain an IP address automatically. By default the XRT-401F's DHCP server is enabled so that you can obtain an IP address automatically.

✍ **Note**	Please make sure that the XRT-401F's DHCP server is the only DHCP server available on your LAN. If there is another DHCP on your network, then you'll need to switch one of the DHCP servers off.

Step1➔ Configure your PC to obtain an IP address automatically

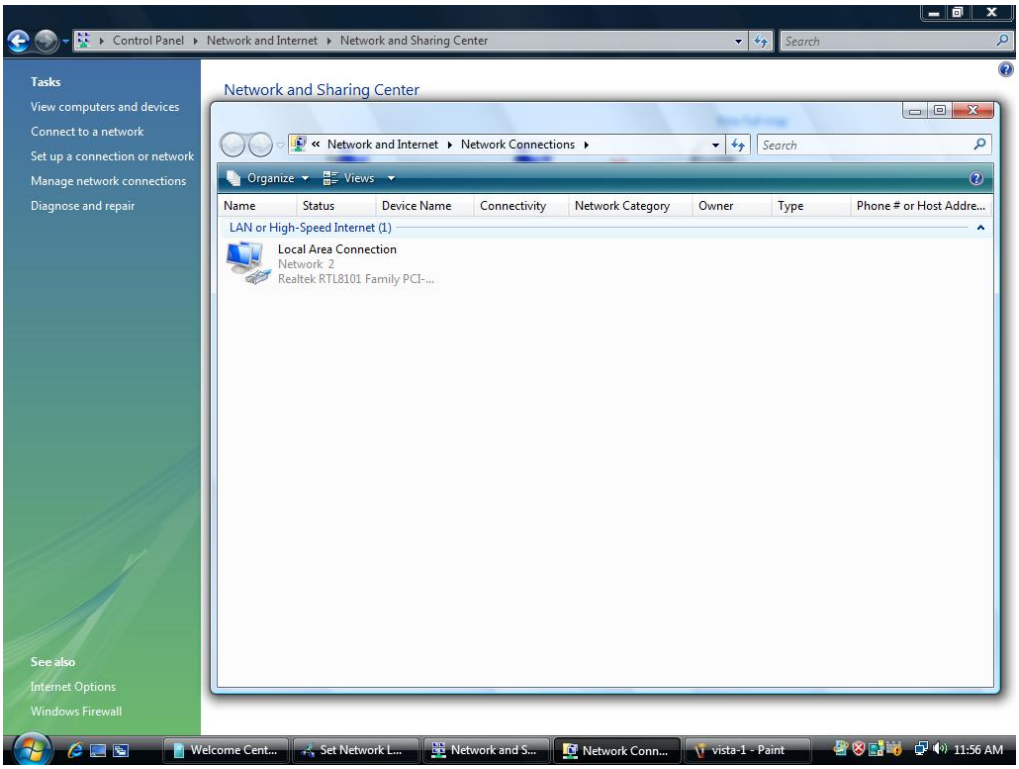
This section will show you how to configure your PC's so that it can obtain an IP address automatically for either Windows 98/Me, 2000 or later operating systems. For other operating systems (Macintosh, Sun, etc.), please follow the manufacturer's instructions.

The following is a step-by-step illustration on how to configure your PC to obtain an IP address automatically for **a) Windows Vista, b)Windows XP, c) Windows 2000**

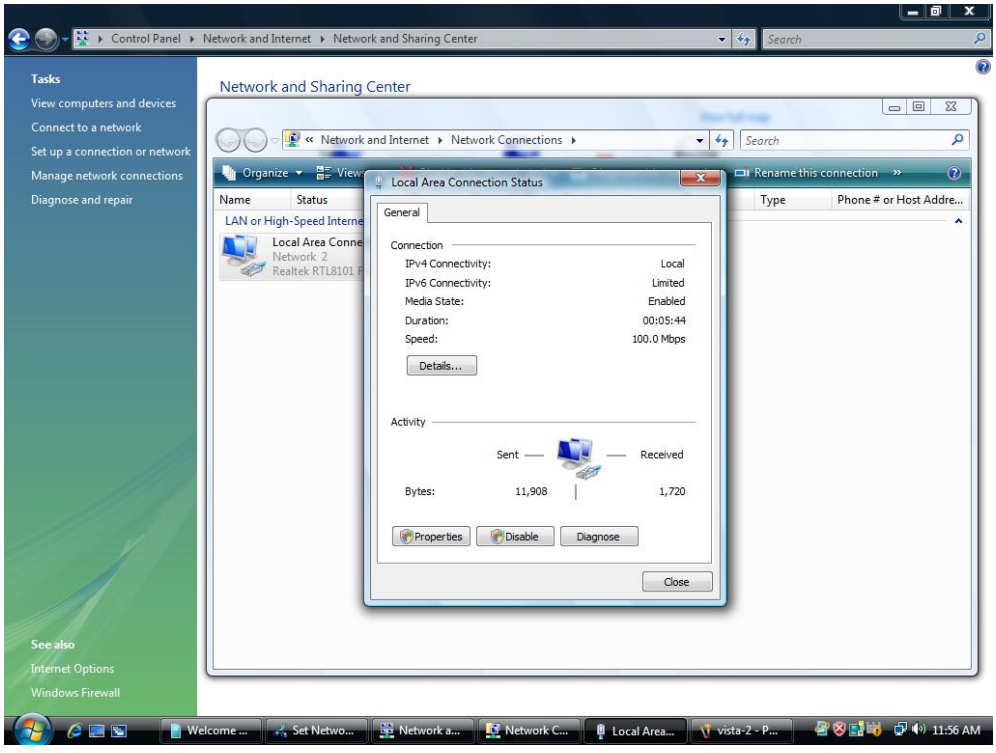
a) Configuring PC in Windows Vista

1. Go to **Start / Control Panel / Network and Internet / Network and Sharing Center**. Double-click on **Network Connections.**

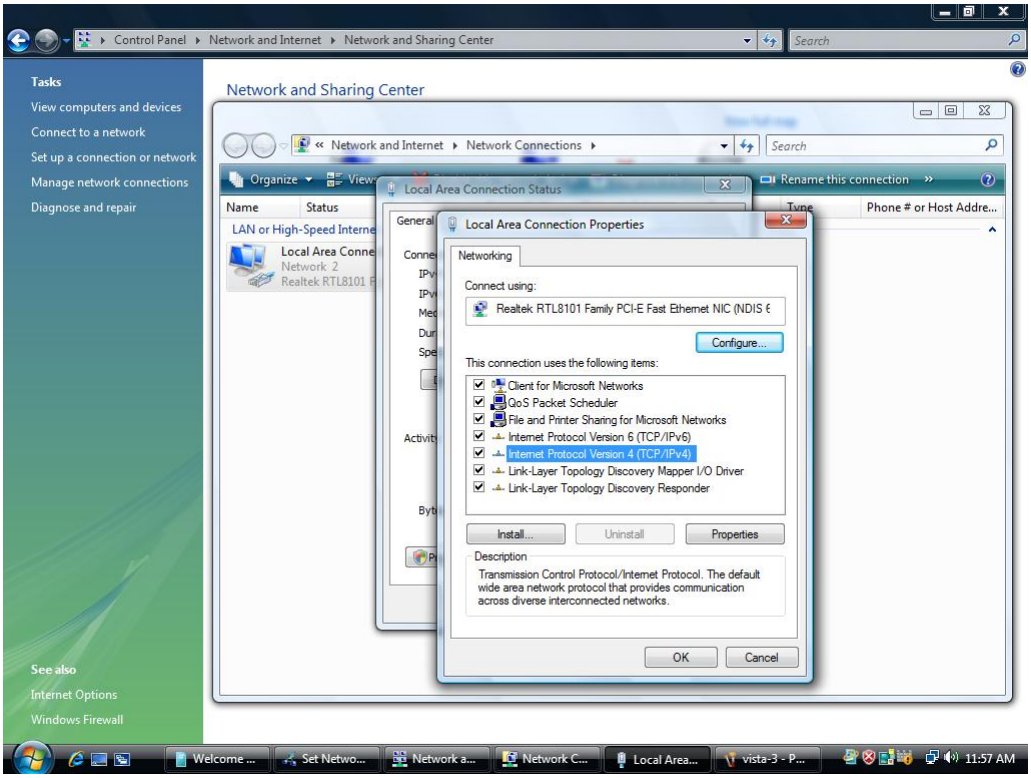
2. Double-click **Local Area Connection**.



3. In the **Local Area Connection Status** window, click **Properties**.

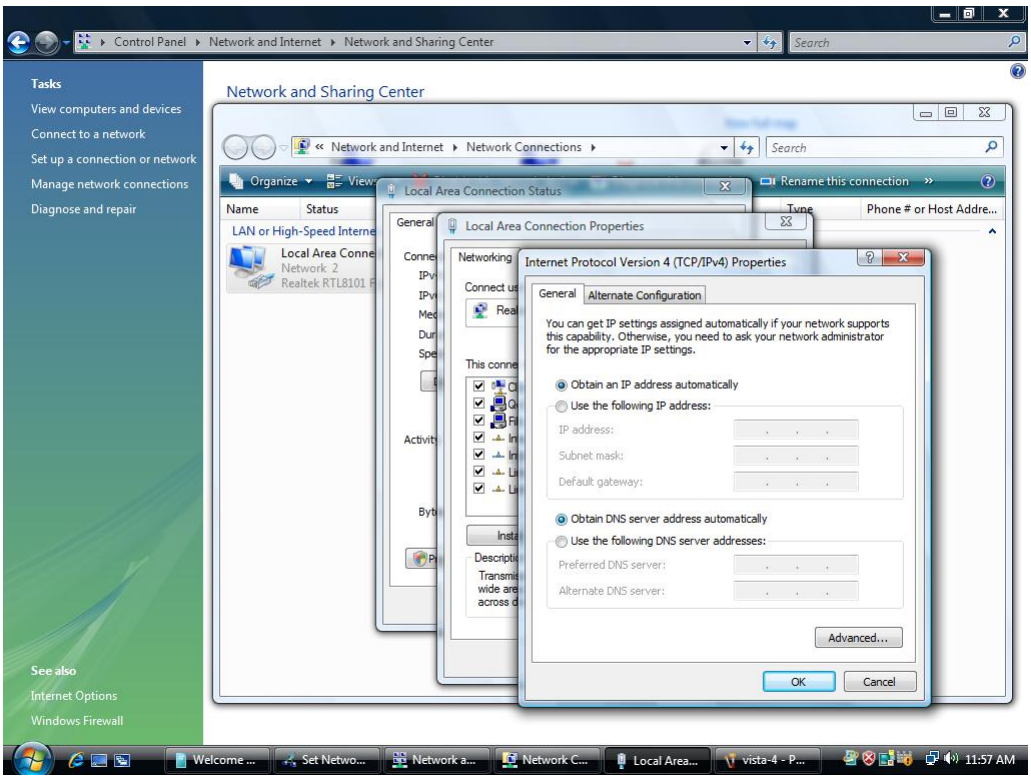


4. Select **Internet Protocol Version 4 (TCP/IPv4)** and click **Properties**.



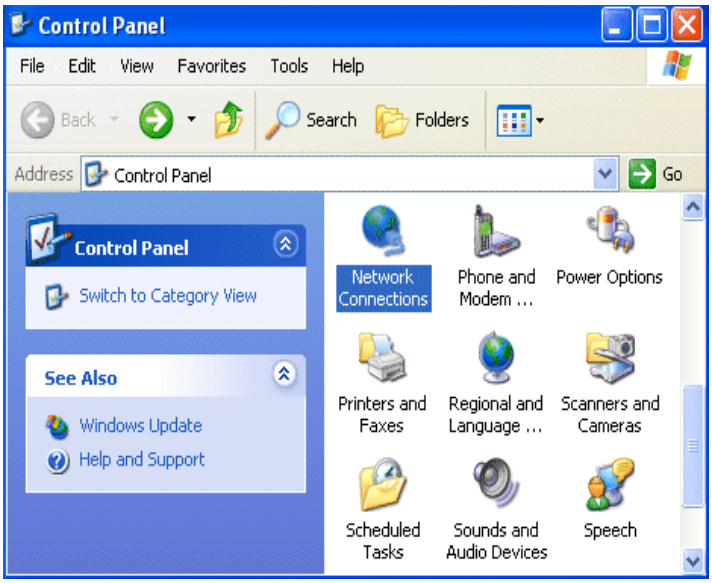
5. Select the **Obtain an IP address automatically** and the **Obtain DNS server address automatically** radio buttons.

6. Click **OK** to finish the configuration.

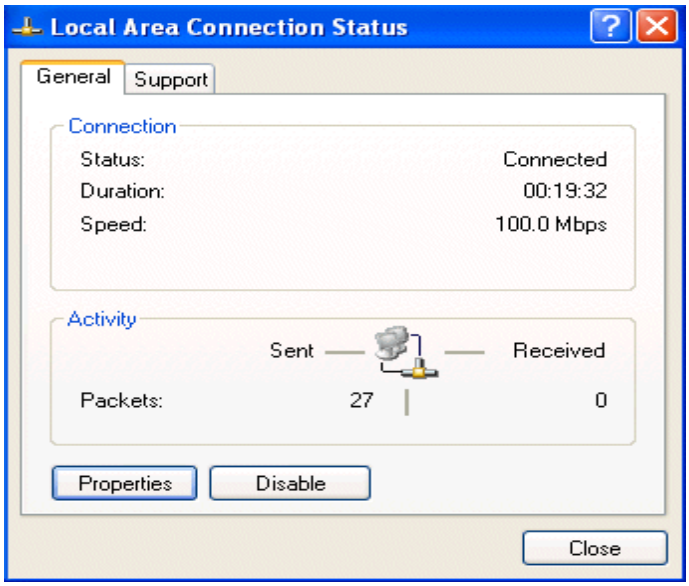


b) Configuring PC in Windows XP

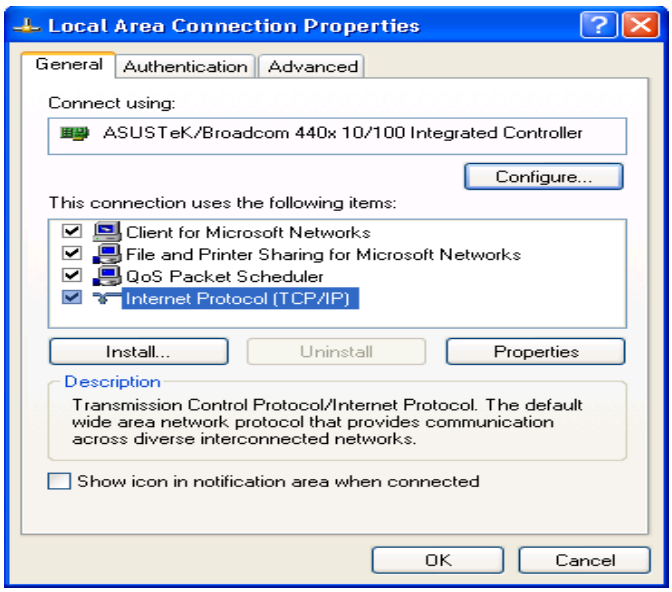
1. Go to **Start / Control Panel (in Classic View)**. In the Control Panel, double-click on **Network Connections**
2. Double-click **Local Area Connection**.



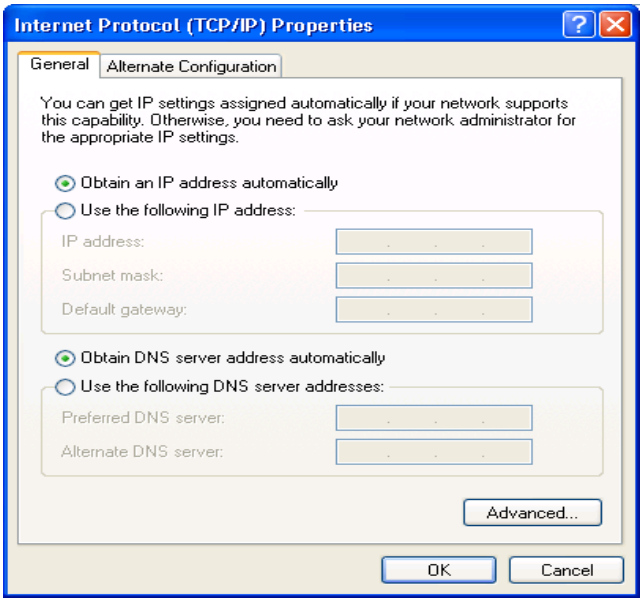
3. In the **Local Area Connection Status** window, click **Properties**.



4. Select **Internet Protocol (TCP/IP)** and click **Properties**.

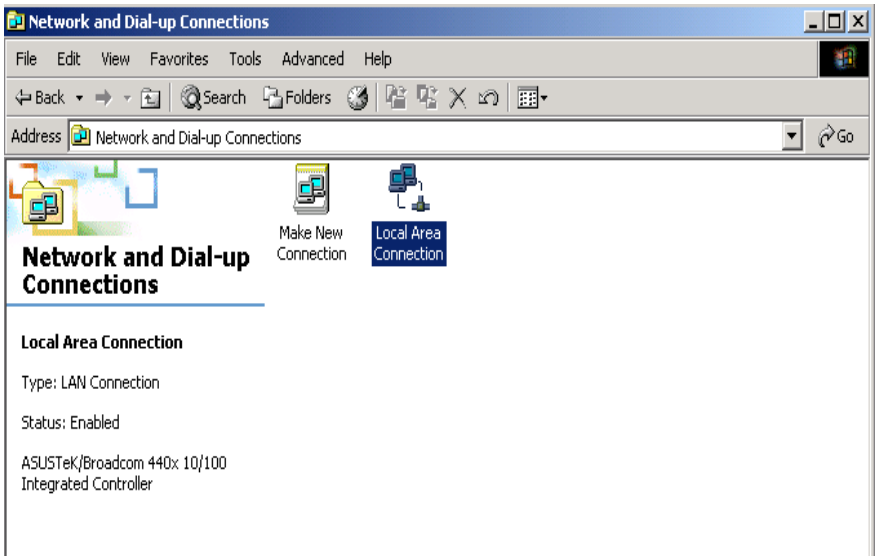


5. Select the **Obtain an IP address automatically** and the **Obtain DNS server address automatically** radio buttons.
6. Click **OK** to finish the configuration.

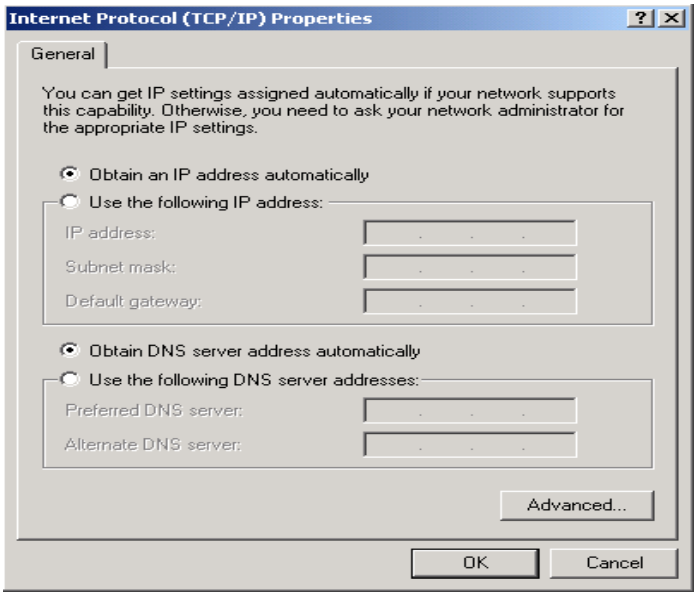


c) Configuring PC in Windows 2000

1. Go to **Start / Settings / Control Panel**. In the Control Panel, double-click on **Network and Dial-up Connections**.
2. Double-click **Local Area Connection**.



3. In the **Local Area Connection Status** window click **Properties**.
4. Select **Internet Protocol (TCP/IP)** and click **Properties**.
5. Select the **Obtain an IP address automatically** and the **Obtain DNS server address automatically** radio buttons.
6. Click **OK** to finish the configuration.



Step2➔ Configuring with Web Browser

Once your PC has obtained an IP address from your router, enter the default IP address **"http: //192.168.0.1"** (XRT-401F's LAN IP address) into your PC's web browser and press <enter>

Save this address in your Favorites for future reference.

At the User name prompt, type **"admin"**.

And the Password prompt, type **"admin"**. You can change these later if you wish.

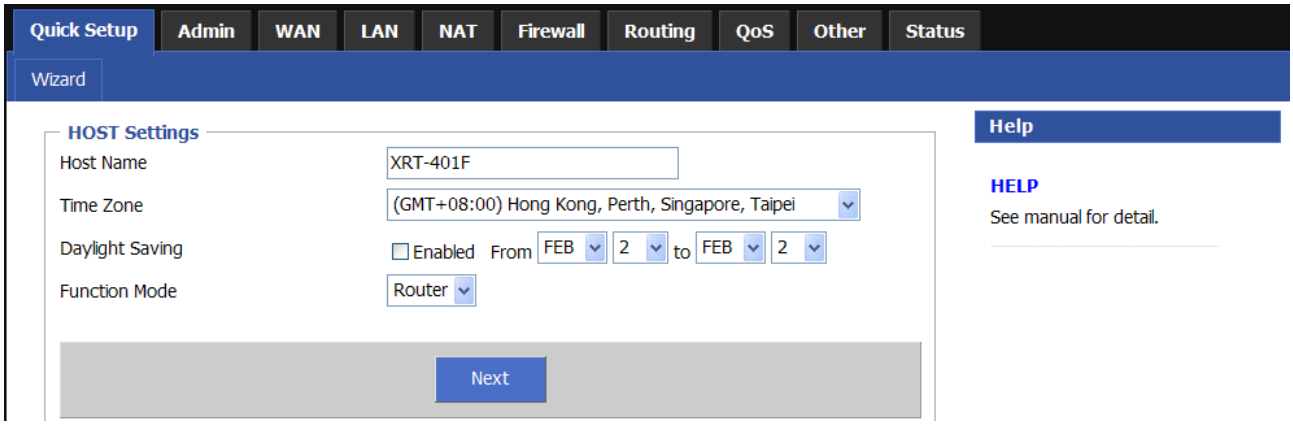
Click **"OK"**.

Chapter 2 Quick Setup

The Wizard section is designed to get you using XRT-401F as quick as possible. In the Wizard, you are required to fill in only the information necessary to access the Internet. Once you click on the **Wizard** in the web page, you should see the screen below.

Step 1) Host Settings

The Host Settings allows your router to set up Host name and Domain name, it also can set up its Time Zone and Daylight Saving Time, these will affect functions such as Log entries and Firewall settings.



Parameter	Description
Host Name	This is optional. You can specify a Host name for XRT401F.
Time Zone	Select the time zone of the country where you currently are. The router will set its time based on your selection.
Daylight Savings	The XRT-401F can also take Daylight savings into account. If you wish to use this function, you must select the enable box to enable your daylight saving configuration.
Function Mode	By default, XRT-401F is set as Router mode. If set to Bridge mode will turn the Router into 5-port Ethernt Switch where WAN port comes to Port # 5.

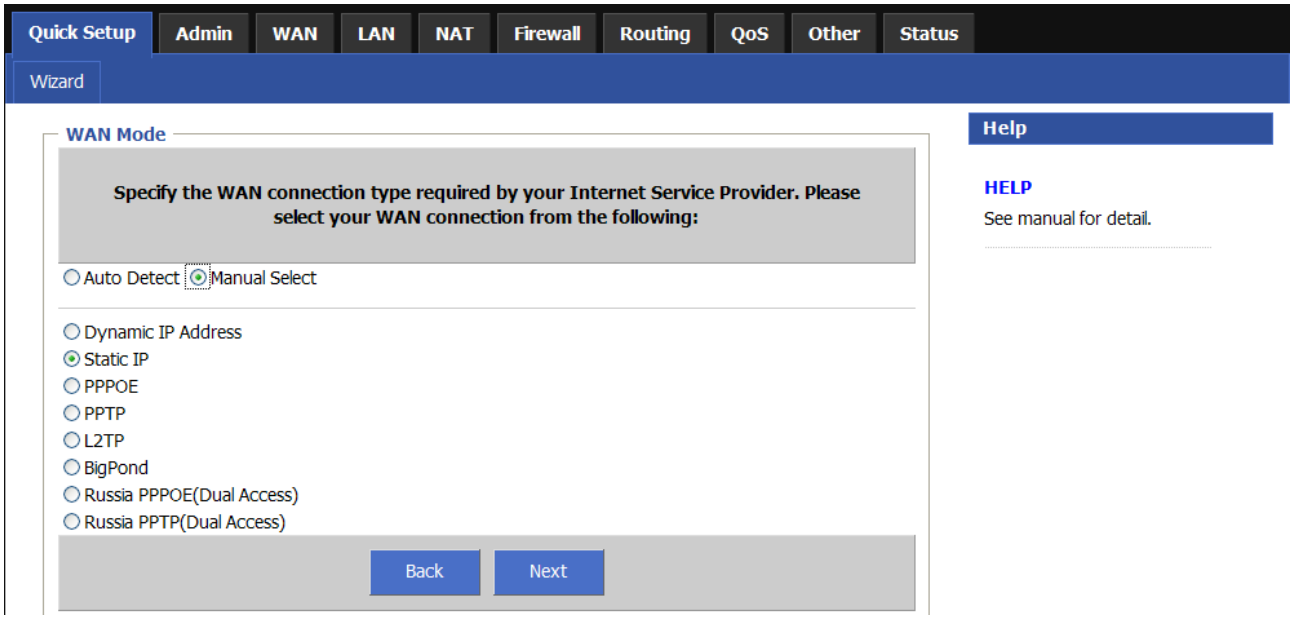
Note	In this setup wizard, we set it as Router mode

Click on **NEXT** to proceed to the next page (step 2) WAN Settings.

Step 2) WAN Settings

In this section you have to select one of these types of connections that you will be using to connect your XRT-401F's WAN port to your ISP (see screen below).

Note	Different ISP's require different methods of connecting to the Internet, please check with your ISP as to the type of connection it requires.



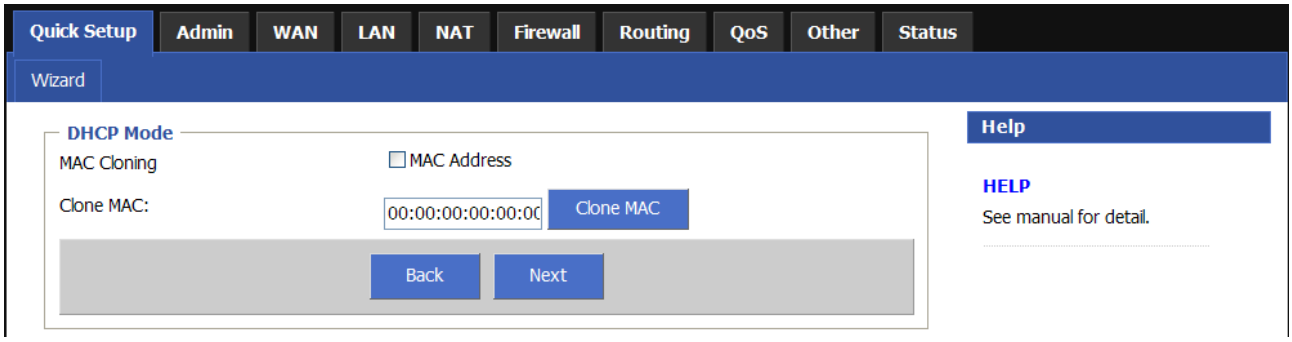
Parameter	Description
Dynamic IP	Your ISP will automatically give you an IP address.
Static IP	Your ISP has given you an IP address already
PPPoE	Your ISP requires you to use a Point-to-Point Protocol over Ethernet (PPPoE) connection.
PPTP	Your ISP requires you to use a Point-to-Point Tunneling Protocol (PPTP) connection.
L2TP	Layer 2 Tunneling Protocol is a common connection method used in xDSL connections.
Dual Acces	This mode only active for Russia ISP that support dual layer Access to the Internet.

Click on one of the WAN types and then proceed to the manual's relevant sub-section (**2.1**, **2.2**, **2.3**, **2.4 or 2.5**). Click on **Back** to return to the previous screen.

2.1 Dynamic IP

Choose Dynamic IP if your ISP will automatically give you an IP address. Some ISP's may also require that you fill in additional information such as MAC address (see screen below).

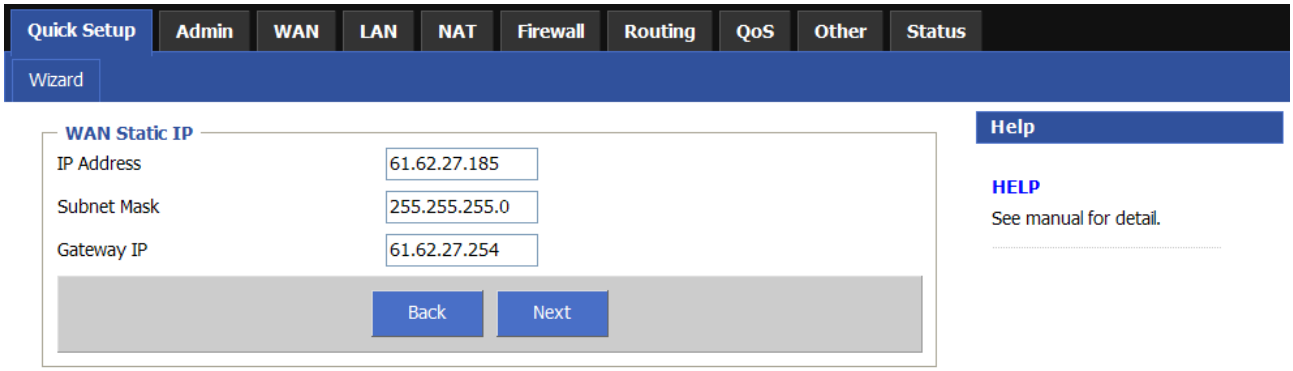
Note	The MAC address section is *optional* and you can skip this section if your ISP does not require these settings for you to connect to the Internet.



Parameter	Description
MAC Cloning	If you want to clone your PC's MAC address to XRT-401F, you must enable it first.
MAC Address	Your ISP may require a particular MAC address in order for you to connect to the Internet. This MAC address is the PC's MAC address that your ISP had originally connected your Internet connection to. Type in this MAC address in this section or use the **Clone MAC Address** button to replace the WAN MAC address with the MAC address of that PC (you have to be using that PC for the Clone MAC Address button to work).

2.2 Static IP

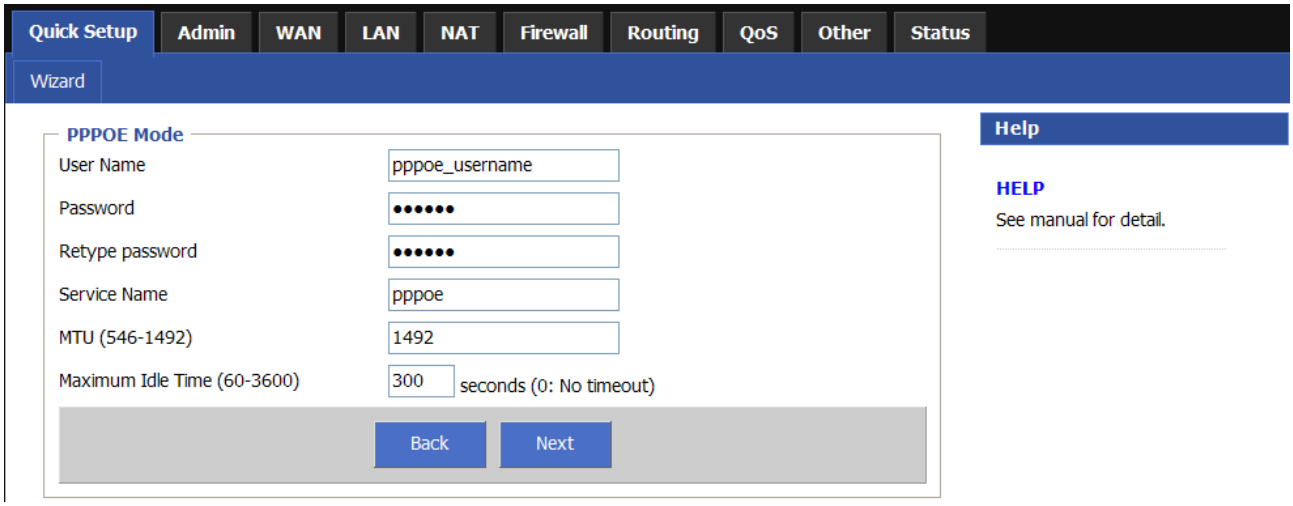
Select Static IP if your ISP has given you a specific IP address to use. Your ISP should provide all the information required in this section.



Parameter	Description
IP address assigned by your ISP	This is the IP address that your ISP has given you.
Subnet Mask	Enter the Subnet Mask provided by your ISP. (e.g. 255.255.255.0)
ISP Gateway Address	This is the ISP's IP address gateway.

2.3 PPPoE

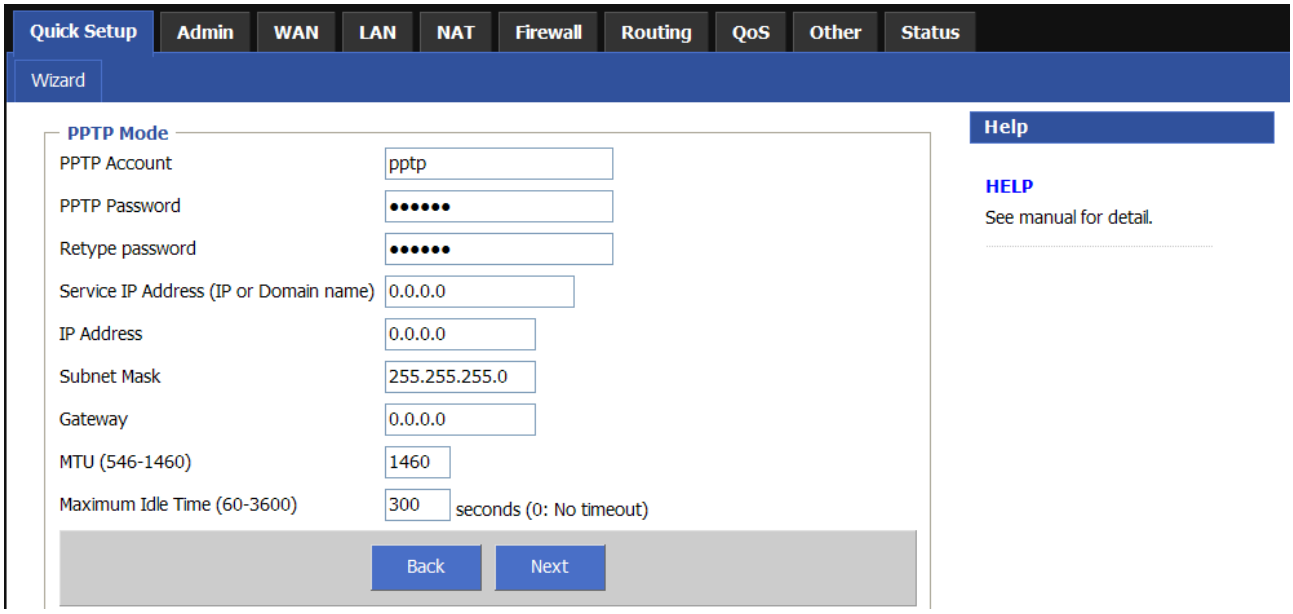
Select PPPoE if your ISP requires the PPPoE protocol to connect you to the Internet. Your ISP should provide all the information required in this section.



Parameter	Description
User Name	Enter the User Name provided by your ISP for the PPPoE connection.
Password	Enter the Password provided by your ISP for the PPPoE connection.
Retype Password	Re-enter the Password for confirmation.
Service Name	This is optional. Enter the Service name should your ISP requires it, otherwise leave it blank.
MTU	This is optional. You can specify the maximum size of your transmission packet to the Internet. Leave it as it is if you do not wish to set a maximum packet size. (The default settings is 1492)
Maximum Idle Time	You can specify an idle time threshold (seconds) for the WAN port. This means if no packets have been sent (no one using the Internet) during this specified period, the router will automatically disconnect the connection with your ISP. (The default settings is 300 seconds)

2.4 PPTP

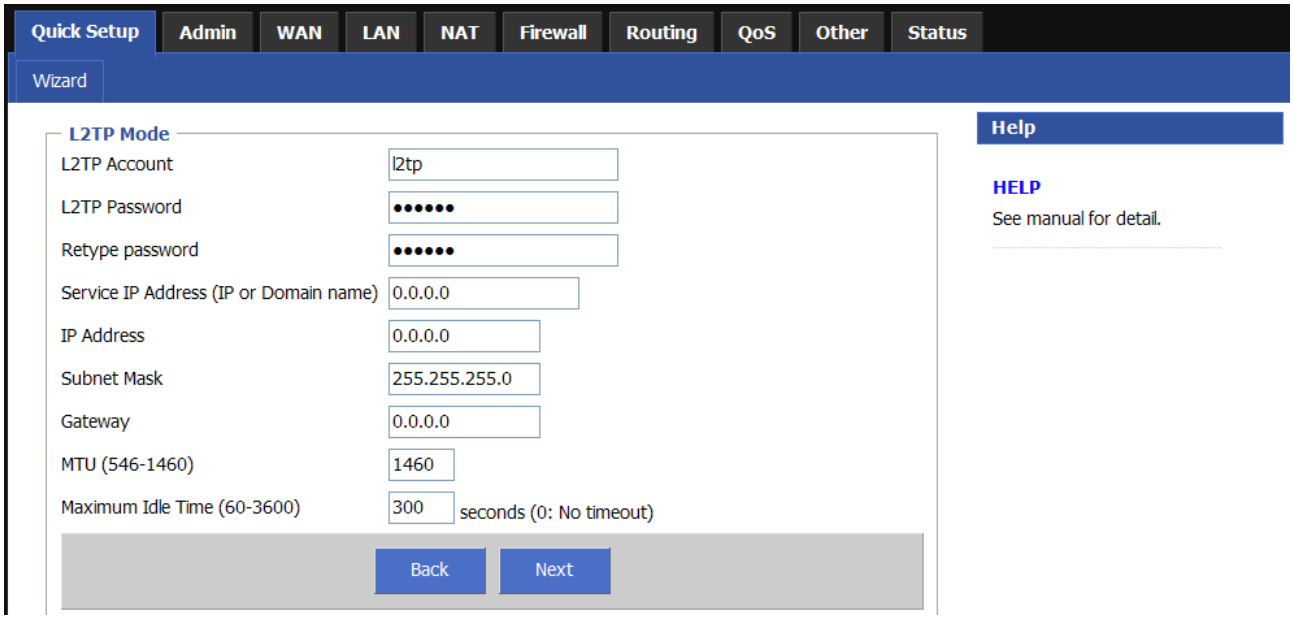
Select PPTP if your ISP requires the PPTP protocol to connect you to the Internet. Your ISP should provide all the information required in this section.



Parameter	Description
PPTP Account	Enter the PPTP Account provided by your ISP for the PPTP connection.
PPTP Password	Enter the Password provided by your ISP for the PPTP connection.
Retype Password	Re-enter the Password for confirmation.
Service IP Address	Specify PPTP Server IP address that you want to connect to.
My IP Address	This is the IP address that your ISP has given you to establish a PPTP connection.
My Subnet Mask	Enter the Subnet Mask provided by your ISP. (e.g. 255.255.255.0)
Gateway Address	This is the ISP's IP address gateway.
MTU	This is optional. You can specify the maximum size of your transmission packet to the Internet. Leave it as it is if you do not wish to set a maximum packet size. (The default setting is 1460)
Maximum Idle Time	You can specify an idle time threshold (seconds) for the WAN port. This means if no packets have been sent (no one using the Internet) during this specified period, the router will automatically disconnect the connection with your ISP. (The default settings is 300 seconds)

2.5 L2TP

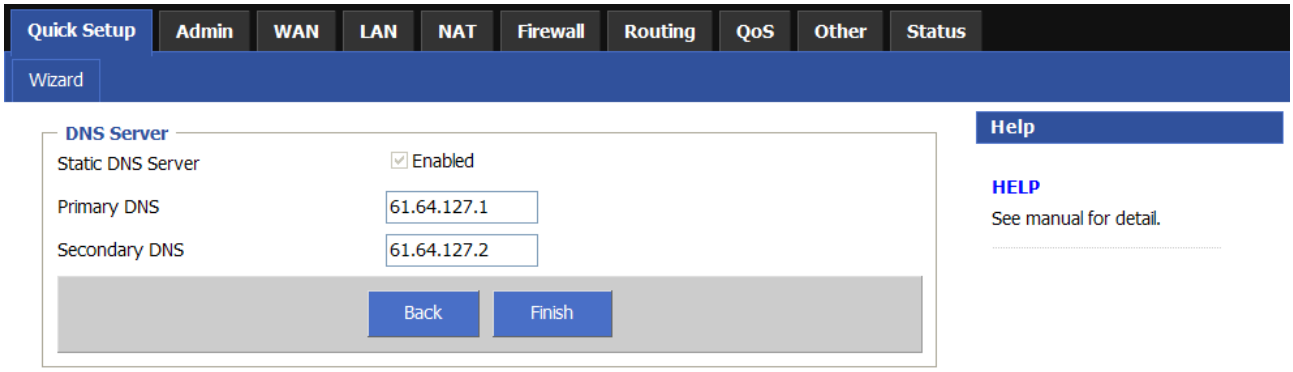
Select L2TP if your ISP requires the L2TP protocol to connect you to the Internet. Your ISP should provide all the information required in this section.



Parameter	Description
L2TP Account	Enter the L2TP Account provided by your ISP for the PPTP connection.
L2TP Password	Enter the Password provided by your ISP for the L2TP connection.
Retype Password	Re-enter the Password for confirmation.
Service IP Address	Specify L2TP Server IP address that you want to connect to.
My IP Address	This is the IP address that your ISP has given you to establish a L2TP connection.
My Subnet Mask	Enter the Subnet Mask provided by your ISP. (e.g. 255.255.255.0)
Gateway Address	This is the ISP's IP address gateway.
MTU	This is optional. You can specify the maximum size of your transmission packet to the Internet. Leave it as it is if you do not wish to set a maximum packet size. (Default setting is 1460)
Maximum Idle Time	You can specify an idle time threshold (seconds) for the WAN port. This means if no packets have been sent (no one using the Internet) during this specified period, the router will automatically disconnect the connection with your ISP. (The default settings is 300 seconds)

Step 3) DNS

A Domain Name System (DNS) server is like an index of IP addresses and Web addresses. If you type a Web address into your browser, such as www.router.com, a DNS server will find that name in its index and the matching IP address. Most ISPs provide a DNS server for speed and convenience. If your Service Provider connects you to the Internet with dynamic IP settings, it is likely that the DNS server IP address is provided automatically. However, if there is a DNS server that you would rather use, you need to specify the IP address of that DNS server here.



Parameter	Description
Static DNS Server	Select “Enabled” to allow configuring DNS manually.
Primary DNS Address	This is the ISP’s DNS server IP address that they gave you; or you can specify your own preferred DNS server IP address
Secondary DNS Address	This is optional. You can enter another DNS server’s IP address as a backup. The secondary DNS will be used if the above DNS fail.

Click on <**Finish**> when you have finished the configuration above.
Now! You have completed the connection configuration. You can start using the router now.

Chapter 3 Advance Features

If you have already configured the Wizard, you do NOT need to configure anything for you to start using the Internet.

Advance features that allow you to configure the router to meet your network's needs such as: Firewall setup, Port Mapping, DMZ, Virtual Servers, QoS, and VLAN option.

Below is a general description of what advance functions are available for this broadband router.

Parameter	Description
3.1 Admin	This section allows you to set XRT-401F's system settings, password and Remote Management Administrator, it also allows you to check system status and log, and provide you the configuration tools.
3.2 WAN	This section allows you to select the connection method in order to establish a connection with your ISP (same as the Wizard section)
3.3 LAN	You can specify the LAN segment's IP address, subnet Mask, enable/disable DHCP and select an IP range for your LAN, you also can check DHCP client list in here.
3.4 NAT	You can configure the Virtual Server, Special Applications, Port Mapping, ALG and DMZ functions in this section. This allows you to specify what user/packet can pass your router's NAT.
3.5 Firewall	The Firewall section allows you to configure Firewall, Client Filtering, URL Filtering and MAC Control.
3.6 Routing	You can configure Static Routing in this section, and check the concurrent Routing Table.
3.7 QoS	You can assign the bandwidth for specific LAN / WAN port. Each LAN Port will follow the bandwidth you assigned.
3.8 Other	You can configure UPnP and DDNS service in this section.
3.9 Status	You can check system information in here, including system status and concurrent hardware information.

Select one of the above advance features selections and proceed to the manual's relevant subsection.

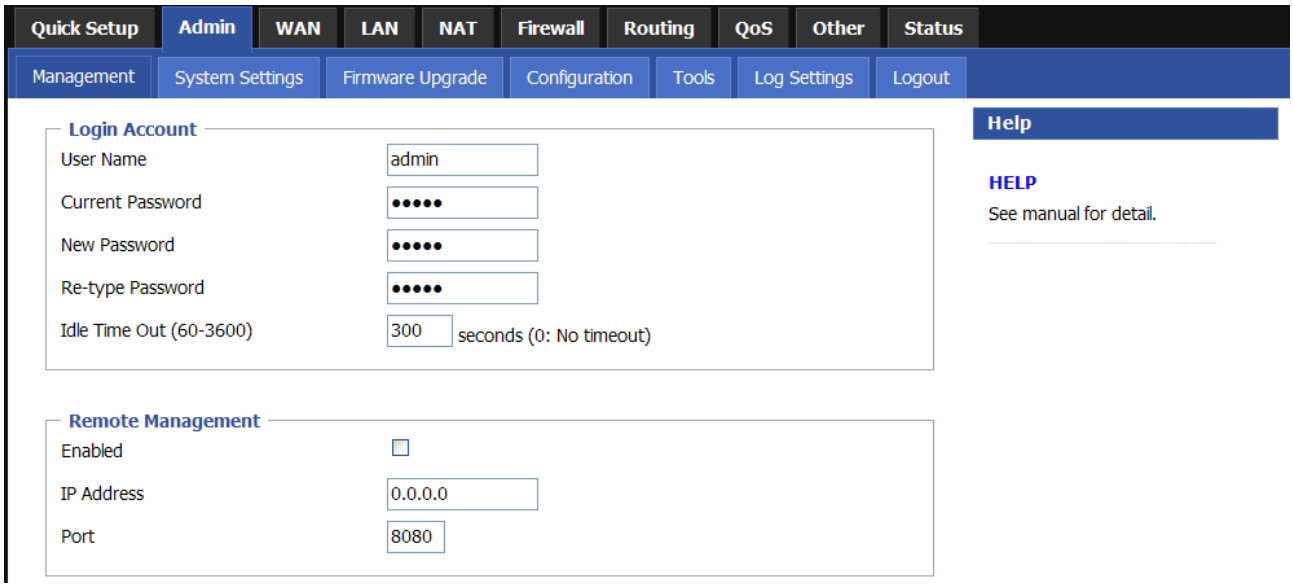
3.1 Admin

This section allows you to set XRT-401F's system settings, password and Remote Management Administrator, it also allows you to check system status and log, and provide you the configuration tools.

Parameter	Description
3.1.1 System Status	You can check system information in here, including system status and concurrent hardware information.
3.1.2 System Settings	This section Includes Host Name, Domain Name, Time Zone, Daylight Saving and NAT enable/disable.
3.1.3 Administrator Settings	Allows you to set user name, password and the idle time out, you can specify a Host IP address that can perform remote management functions.
3.1.4 Firmware Upgrade	This section allows you to upgrade the router's firmware and display the concurrent firmware version.
3.1.5 Configuration Tools	This section allows you to backup or restore the router's configuration. It also allows you to restart router or reset it to factory default setting.
3.1.6 System Log	This section shows the current system and security log of XRT-401F, you also can specify a syslog server to save the log remotely.

3.1.1 Management

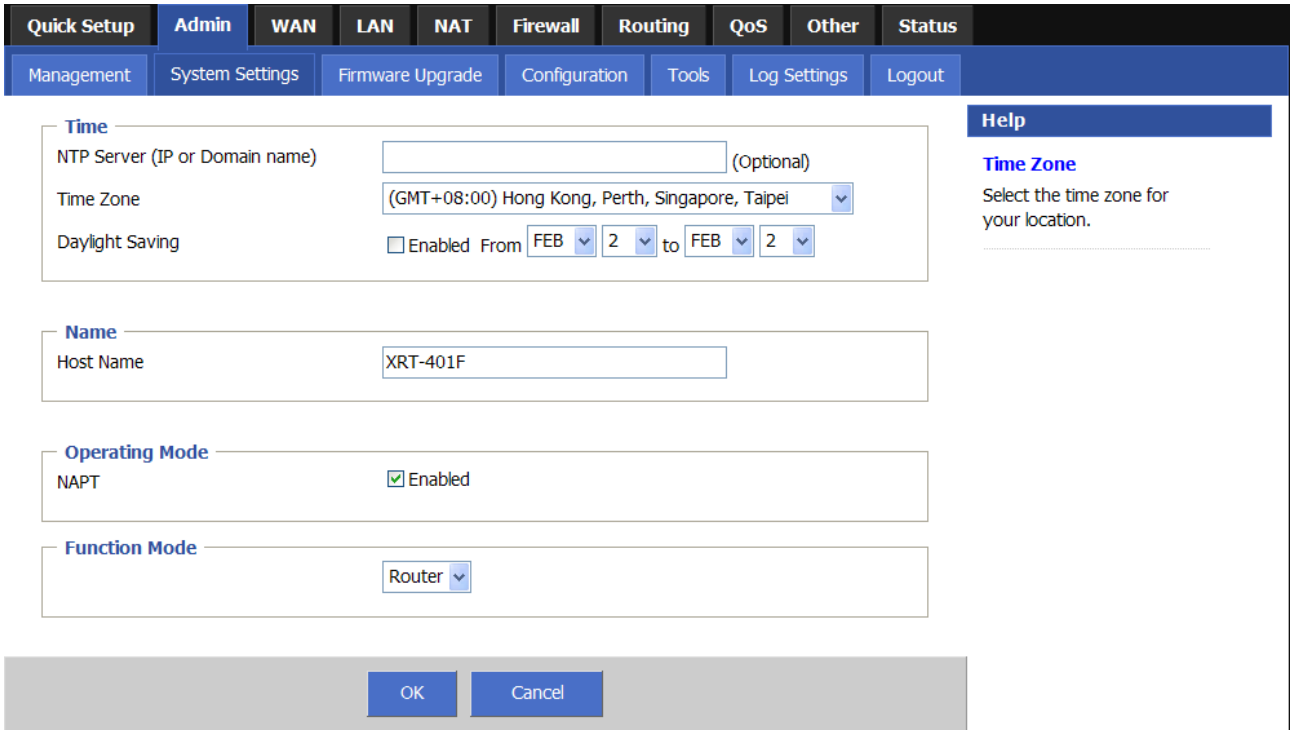
The Management Settings function allows you to design user name, password and the idle time, it also can allow you to configure Remote Management function.



Parameter	Description
Password Settings	
User Name	To specify a login name, the default is admin.
Current assword	Enter the current password for verification. Max. length is 12 characters.
New Password	Type a new password in order to access the web-based management website.
Re-type Password	Re-type the password for confirmation.
Remote Management	
Enable	To enable Remote Management function.
IP Address	This is the IP address of the host in the Internet that will have management / configuration access to XRT-401F from a remote site. If the IP Address is **0.0.0.0,** this means anyone can access the router's web console from a remote location
Port	The port number of remote management web interface. For example, port 8080 means, from the Internet, you are required to use the URL: http://XRT401's_WAN_IP:**8080**/ to have the access / remote mangement to this Router.

3.1.2 System Settings

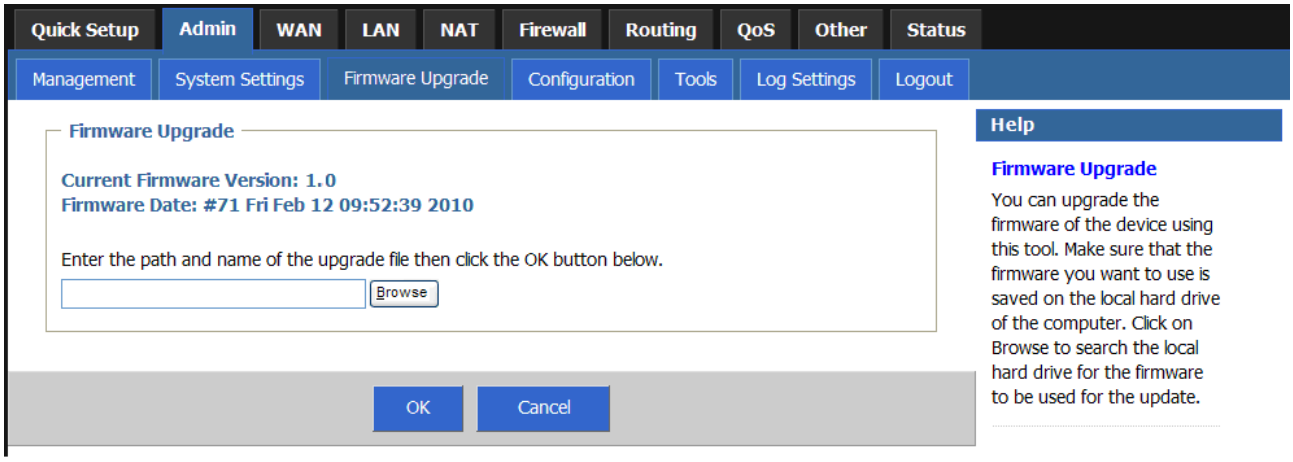
The system screen allows you to specify a time zone, Host Name, Function mode, and enable or disable NAT function of XRT-401F.



Parameter	Description
Host Name	Optional. You can specify a Host name for XRT-401F.
Set Time Zone	Select the time zone of the country where you are currently are. The router will set its time based on your selection.
Daylight Saving	The XRT-401F can also take Daylight savings into account. If you wish to use this function, you must select the enable box to enable your daylight saving configuration.
Host Name	Optional. You can specify a Host name for XRT-401F.
NAPT	Select to enable or disable NAT / NAPT function.
Function Mode	The XRT-401F supports two mode for your application, select the Router mode to act as a Router / Gateway which provides the firewall function to protect your private network. To select the Bridge mode, the XRT-401F will act as a pure 5-Port Ethernet Switch. The default mode is Router.

3.1.3 Firmware Upgrade

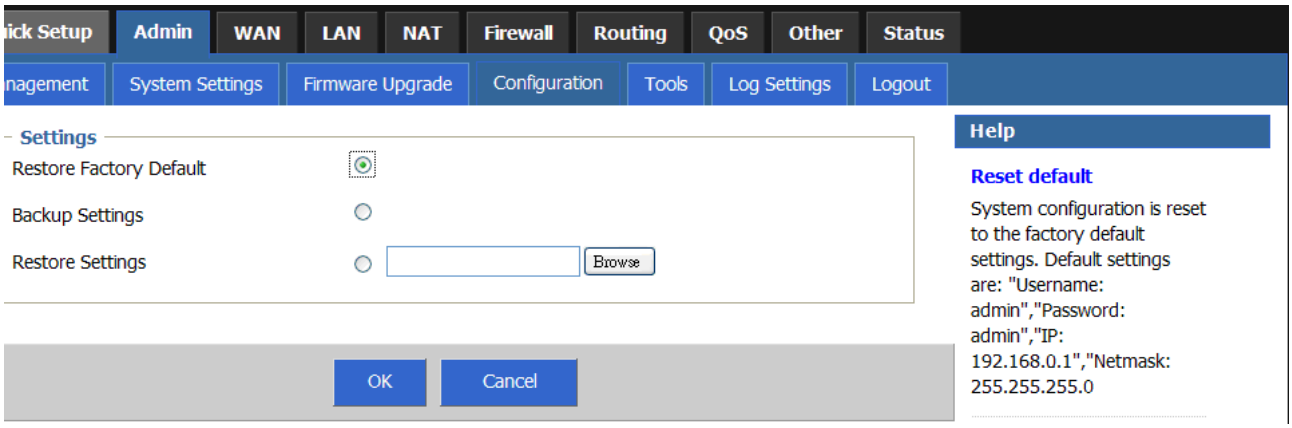
This page allows you to upgrade the router's firmware.

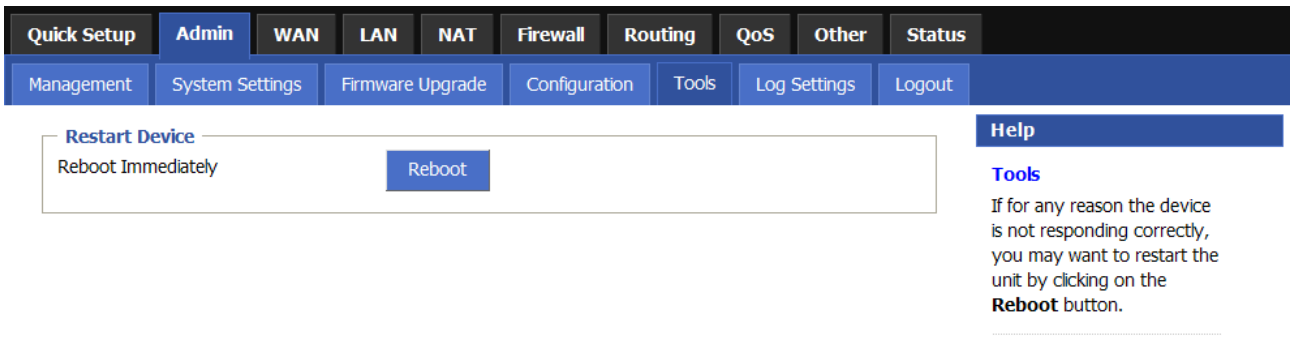


Parameter	Description
Firmware Upgrade	This tool allows you to upgrade XRT-401F's system firmware. To upgrade the firmware of your Broadband router, you need to download the firmware file to your local hard disk, and enter that file name and path in the appropriate field on this page. You can also use the **Browse** button to find the firmware file on your PC.

3.1.4 Configuration and Tool

The Configuration Tools screen allows you to save (**Backup**) the router's current configuration setting. Saving the configuration settings provides an added protection and convenience, if the problems occur with the router and you have to reset to factory default. When you save the configuration setting (**Backup**) you can re-load the saved configuration into the router through the **Restore** selection. If extreme problems occur, you can use the **Restore to Factory Defaults** selection, this will set all configurations to its original default settings (e.g. when you first purchased the router). You also can **Restart** the router's system if any problems exist.

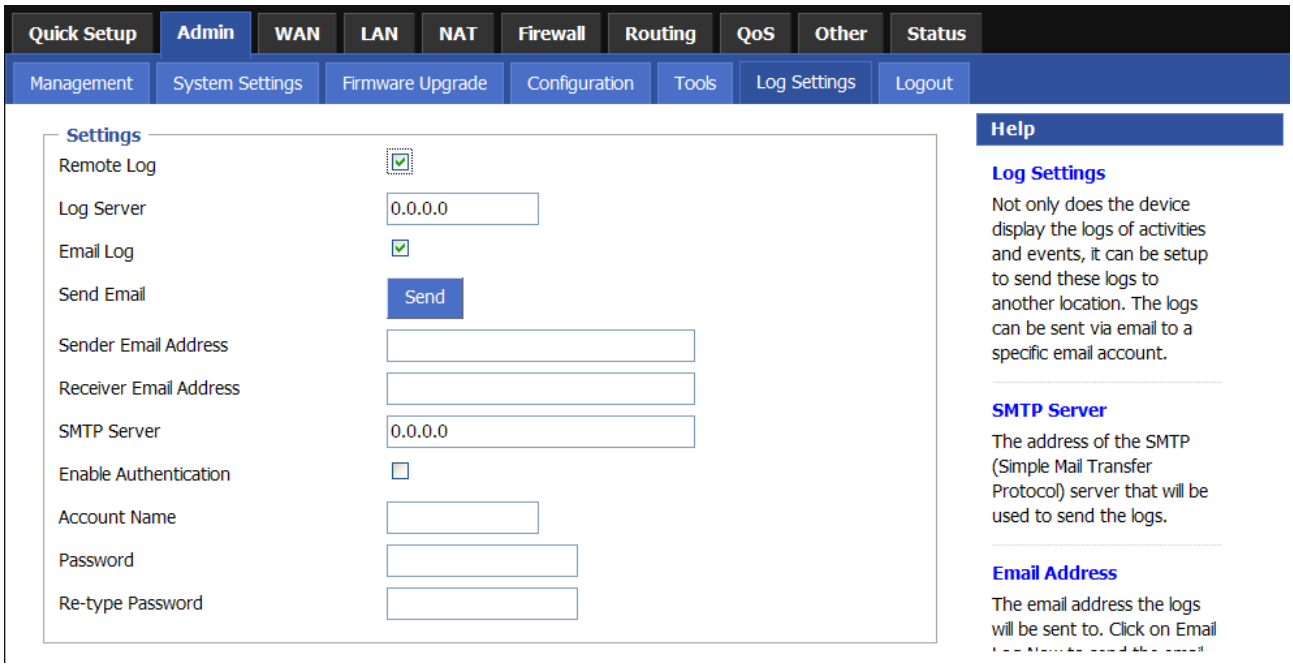




Parameter	Description
Restore Factory Default	If extreme problems occur, you can use the **Restore Factory Default** selection, this will set all configurations to its original default settings (e.g. when you first purchased the Router).
Backup Settings	**Backup** the configuration settings provide an added protection and convenience, if the problems occur with the router and you have to reset to factory default.
Restore Settings	When you save the configuration setting (Backup) you can reload the saved configuration into the router through the **Restore Settings** selection.
Reboot	In the event that the system stops responding correctly or in some way stops functioning, you can perform a reset. **Your settings will not be changed**.

3.1.5 Log Setting

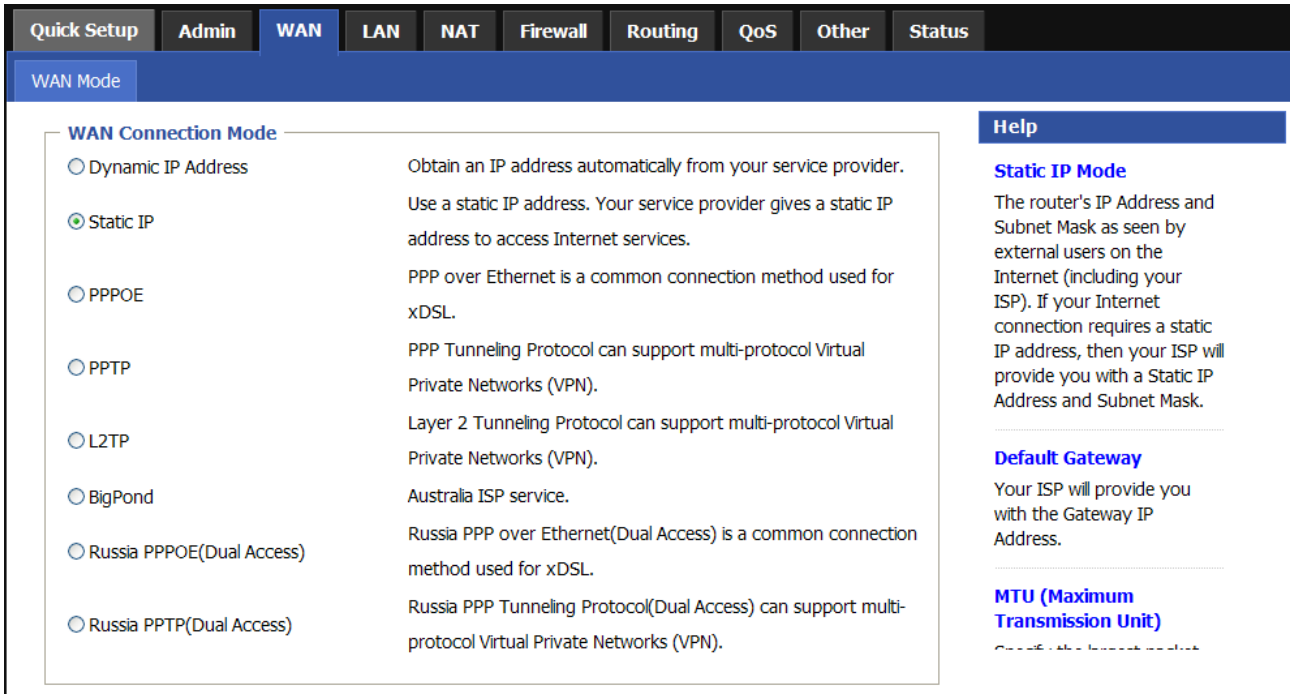
The Logs record various types of activity on XRT-401F. This data is useful for troubleshooting,but enabling all logs will generate a large amount of data and adversely affect performance. Since only a limited amount of log data can be stored in XRT-401F, log data can also be e-mailed to your PC or sent to a Syslog Server.



Parameter	Description
Remote Log	Select <Enabled> to allow saving the log to Syslog Server.
Log Server	Enter the IP address of your Syslog Server.
Email Log	Select <Enabled> to allow mailing the log to specific user. By default, it is Disabled.
Send Email to	Enter the mail address that your want to mail log to.
SMTP Server	Enter the address or IP address of the SMTP (Simple Mail Transport Protocol) Server you use for outgoing E-mail.

3.2 WAN

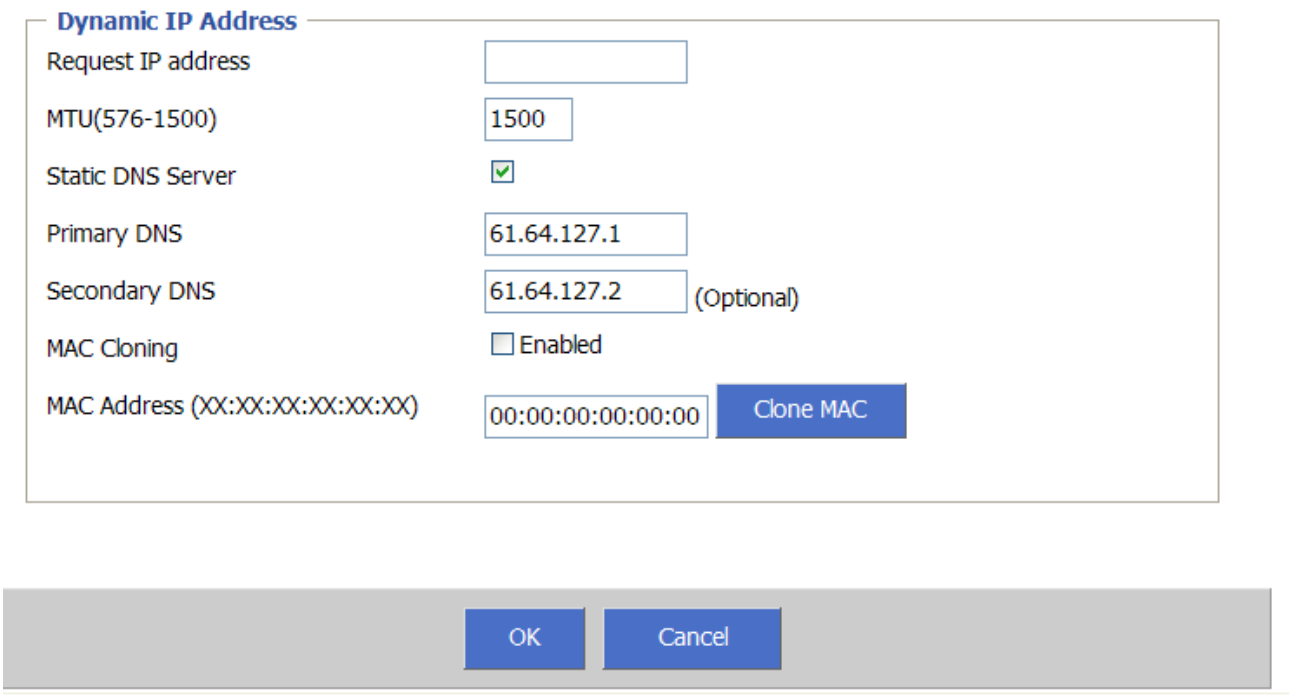
Use the WAN Settings screen if you have already configured the Wizard section and you would like to change your Internet connection type. The WAN Settings screen allows you to specify the type of WAN port connect you want to establish with your ISP. The WAN settings offer the following selections for the router's WAN port, **Dynamic IP**, **Static IP Address, PPPoE**, **PPTP,** and **L2TP.**



Parameter	Description
3.2.1 Dynamic IP	Your ISP will automatically give you an IP address
3.2.2 Static IP	Your ISP has given you an IP address already
3.2.3 PPPoE	Your ISP requires PPPoE connection
3.2.4 PPTP	Your ISP requires you to use a Point-to-Point Tunneling Protocol (PPTP) connection.
3.2.5 L2TP	Your ISP requires L2TP connection.

3.2.1 Dynamic IP

Choose the Dynamic IP selection if your ISP will automatically give you an IP address. Some ISP's may also require that you fill in additional information such as MAC address (see chapter 2 "**Dynamic IP**" for more detail).

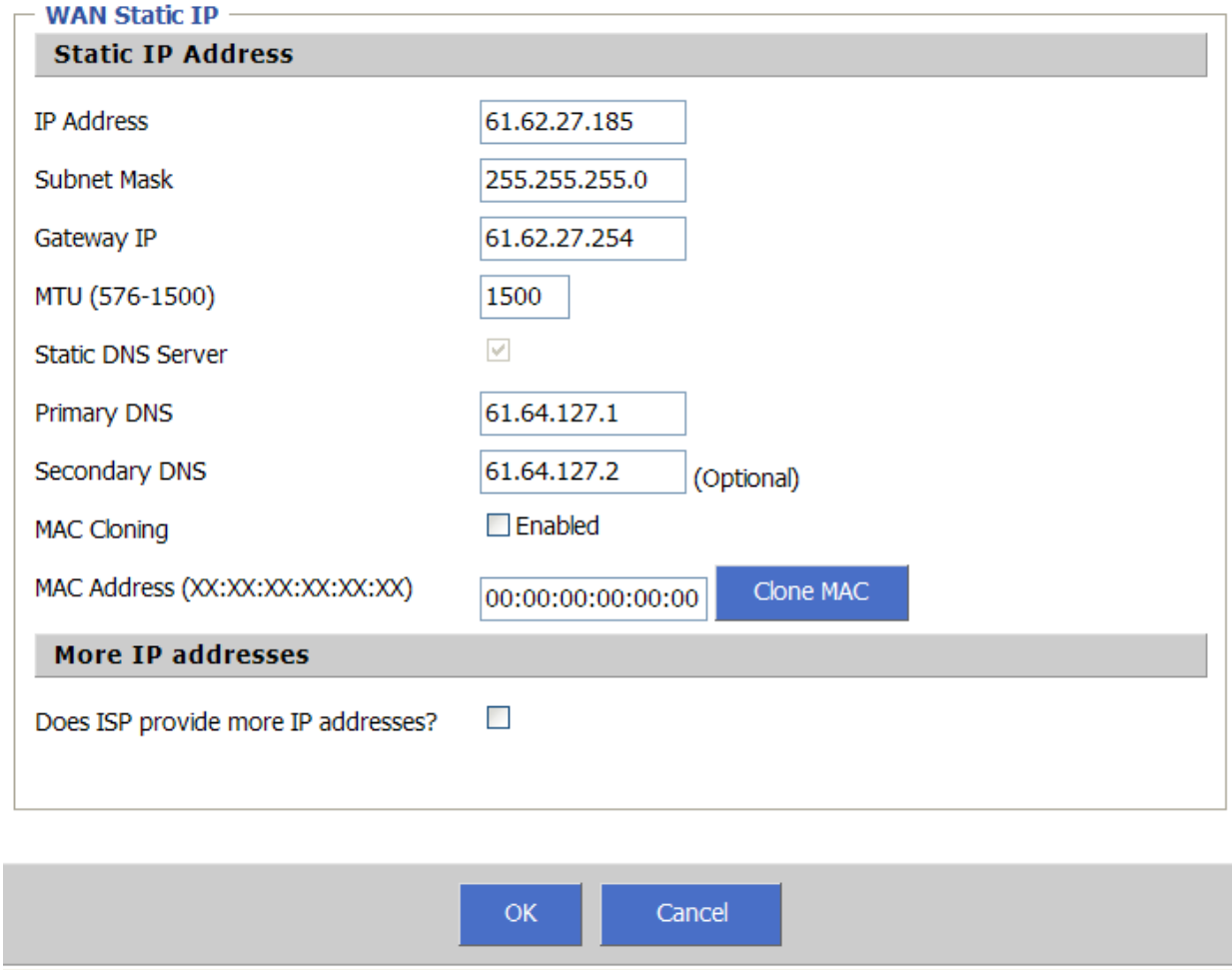


Parameter	Description
MTU	This is optional. You can specify the maximum size of your transmission packet to the Internet. Leave it as it is if you do not wish to set a maximum packet size. (The default settings is 1500)
Static DNS Server	Select "Enabled" to allow configuring DNS manually.
Primary DNS Address	This is the ISP's DNS server IP address that they gave you; or you can specify your own preferred DNS server IP address
Secondary DNS Address	This is optional. You can enter another DNS server's IP address as a backup. The secondary DNS will be used if the above DNS fail.
MAC Cloning	If you want to clone your PC's MAC address to XRT-401F, you must enable it first.
MAC Address	Your ISP may require a particular MAC address in order for you to connect to the Internet. This MAC address is the PC's MAC

	address that your ISP had originally connected your Internet connection to. Type in this MAC address in this section or use the **Clone MAC Address** button to replace the WAN MAC address with the MAC address of that PC (you have to be using that PC for the Clone MAC Address button to work).

3.2.2 Static IP

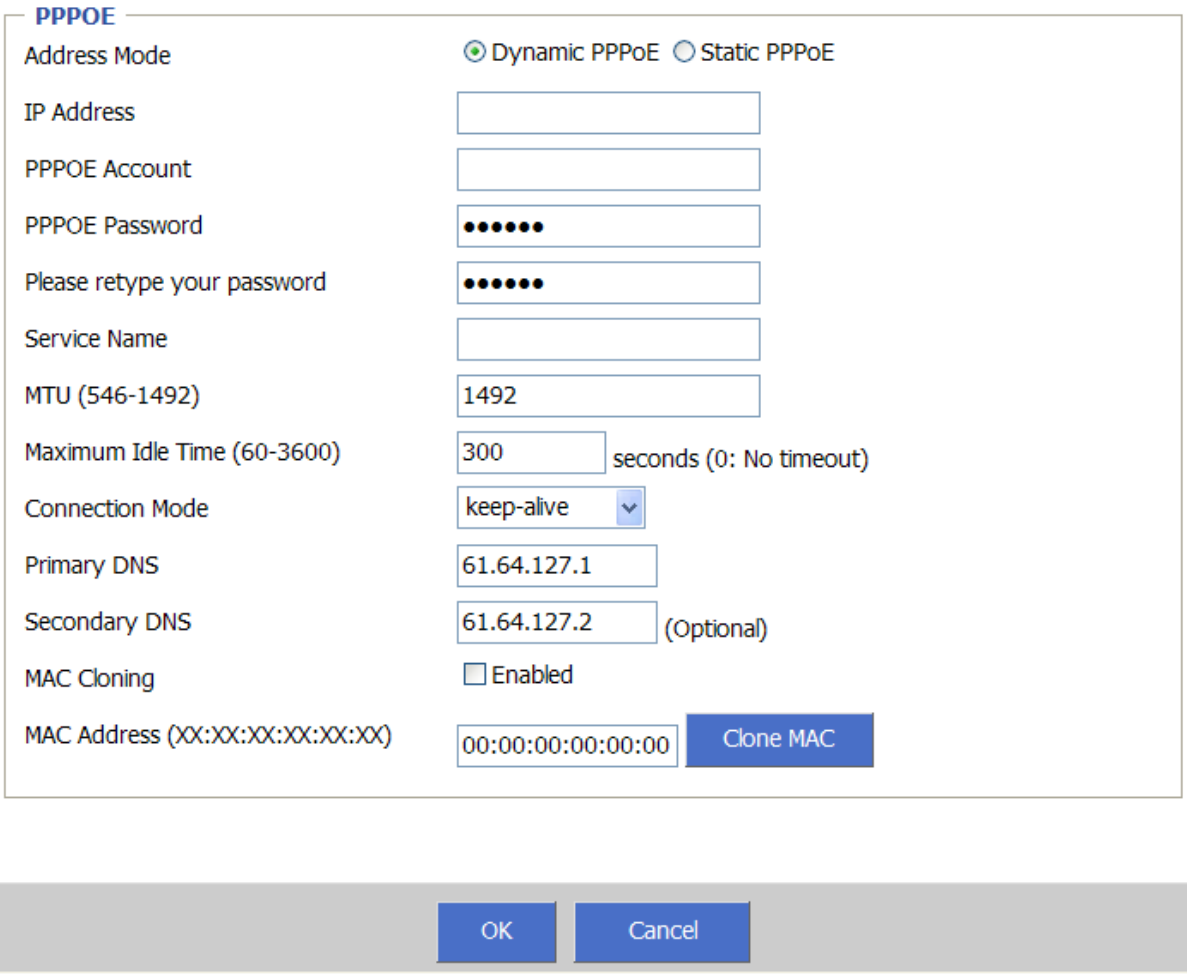
Select Static IP address if your ISP has given you one or more IP address for you to use. Your ISP should provide all the information required in this section. (See chapter 2 "**Static IP**" for more detail)



Parameters	Description
Static IP	Your ISP has given you an IP address already, and you must type in the related IP address such as **IP Address, Subnet Mask** and **Gateway.**
Does ISP provide more IP addresses?	Select <Yes> if your ISP provide more than one IP address.
More IP address	Type the other IP address that ISP provide to you, This IP address will be useful in DMZ function. Max IP address allowed is 6 separated IP address.

3.2.3 PPPoE (PPP over Ethernet)

Select PPPoE if your ISP requires the PPPoE protocol to connect you to the Internet. Your ISP should provide all the information required in this section. (See chapter 2 “PPPoE” for more detail)

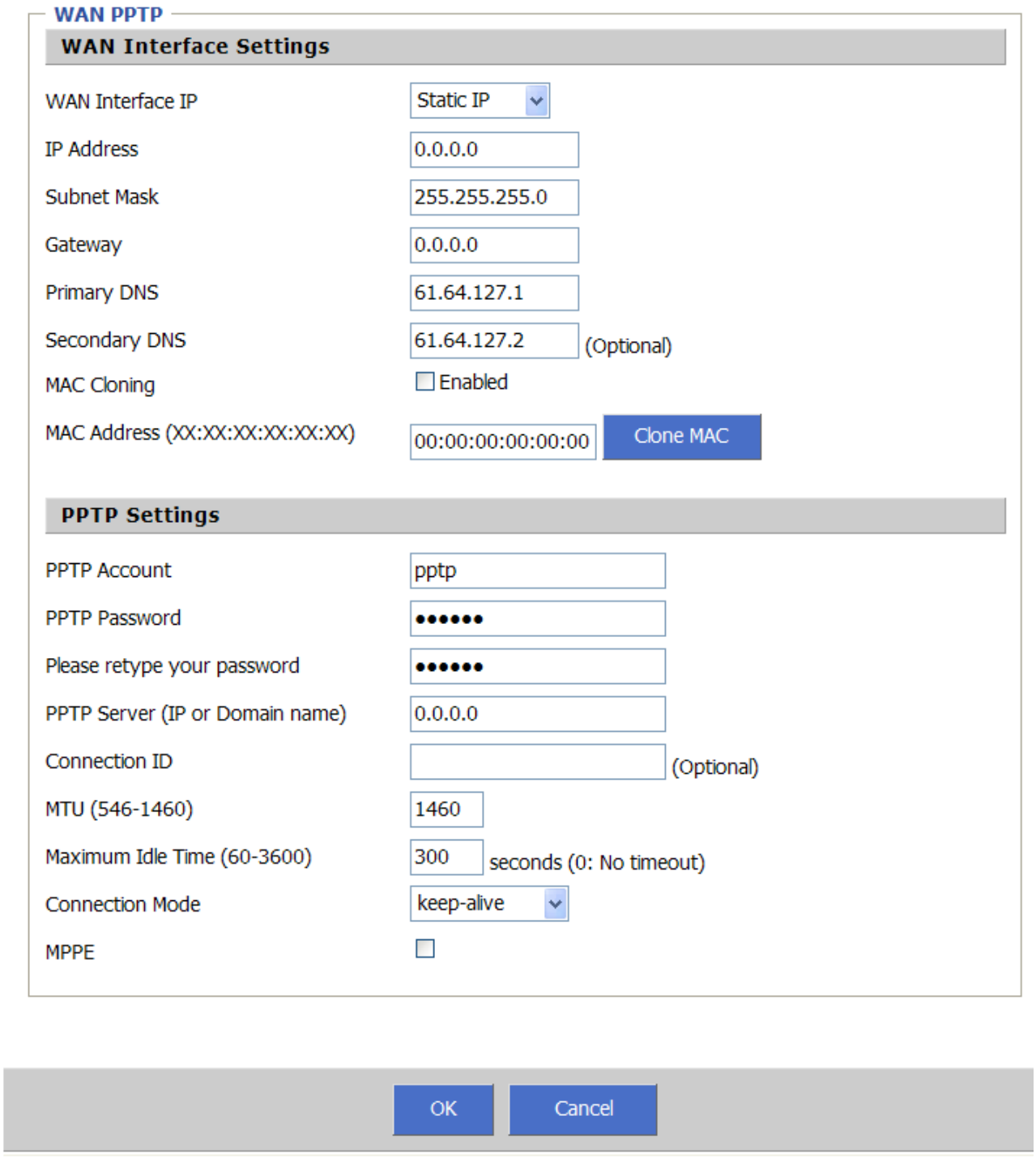


Parameter	Description
PPPoE	Your ISP requires PPPoE connection, and you must type in the User Name, Password that your ISP provide.
MTU	This is optional. You can specify the maximum size of your transmission packet to the Internet. Leave it as it is if you do not wish to set a maximum packet size. (The default settings is 1492)
Connection Mode	Select the desired option: **Keep-alive (maintain connection)** The connection will never be disconnected by this device. If disconnected by your ISP, the connection will be re-established immediately. (However, this does not ensure that your Internet IP address will remain unchanged.) **Auto-Connect** An Internet connection is automatically made when required,

	and disconnected when idle for the time period specified by the "Maximum Idle Time (60~3600)". **Manual-on** You must manually establish and terminate the connection.
Static DNS Server	Select “Enabled” to allow configuring DNS manually.
Primary DNS Address	This is the ISP’s DNS server IP address that they gave you; or you can specify your own preferred DNS server IP address
Secondary DNS Address	This is optional. You can enter another DNS server’s IP address as a backup. The secondary DNS will be used if the above DNS fail.
MAC Cloning	If you want to clone your PC’s MAC address to XRT-401F, you must enable it first.
MAC Address	Your ISP may require a particular MAC address in order for you to connect to the Internet. This MAC address is the PC’s MAC address that your ISP had originally connected your Internet connection to. Type in this MAC address in this section or use the **Clone MAC Address** button to replace the WAN MAC address with the MAC address of that PC (you have to be using that PC for the Clone MAC Address button to work).

3.2.4 PPTP

Select PPTP if your ISP requires the PPTP protocol to connect you to the Internet. Your ISP should provide all the information required in this section.

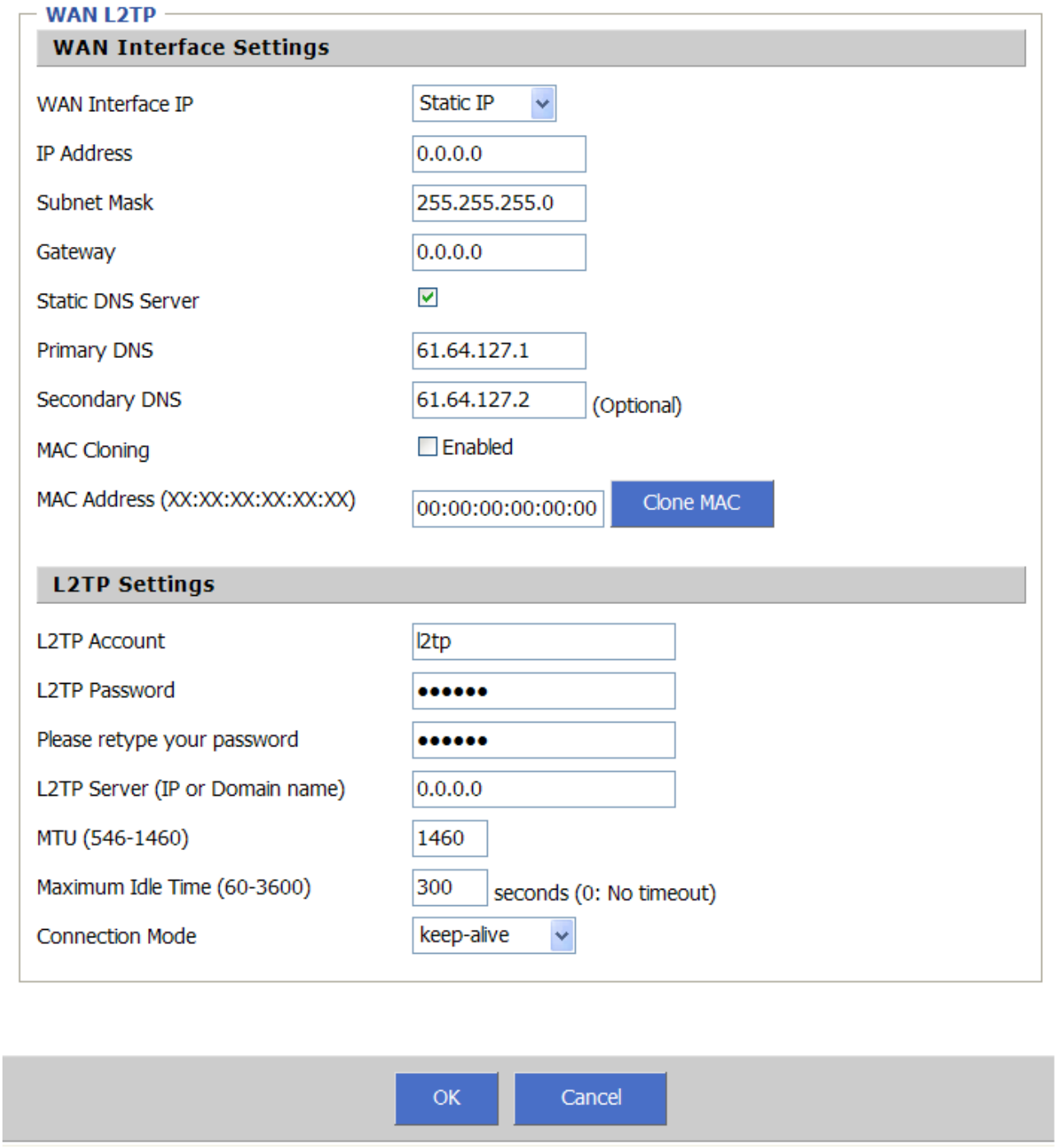


Parameter	Description
WAN Interface Settings	To configure WAN Interface IP
Dynamic IP	The ISP requires you to obtain an IP address by DHCP before connecting to the PPTP server. **Clone MAC Address** Select <Enabled> to allow replacing the WAN MAC address with a specific MAC address. **MAC Address** Your ISP may require a particular MAC address in order for you to connect to the Internet. This MAC address is the PC's MAC address that your ISP had originally connected your Internet connection to. Type in this MAC address in this section or use the "**Clone MAC Address"** button to replace the WAN MAC address with the MAC address of that PC.
Static IP	The ISP gives you a static IP to be used to connect to the PPTP server. You must type in the related IP address such as **IP Address, Subnet Mask** and **Gateway.**
PPTP Settings	
PPTP Account	Enter the PPTP Account provided by your ISP for the PPTP connection.
PPTP Password	Enter the Password provided by your ISP for the PPTP connection.
Retype Password	Re-enter the Password for confirmation.
PPTP Server	If your LAN has a PPTP gateway, then enter that PPTP gateway IP address or domain name here. If you do not have a PPTP gateway then enter the ISP's Gateway IP address above or domain name.
Connection ID	This is the ID given by ISP. This is optional.
MTU	This is optional. You can specify the maximum size of your transmission packet to the Internet. Leave it as it is if you do not wish to set a maximum packet size. (The default settings is 1460)
Maximum Idle Time	You can specify an idle time threshold (seconds) for the WAN port. This means if no packets have been sent (no one using the Internet) during this specified period, the router will automatically disconnect the connection with your ISP.
Connection Mode	Select the desired option: **Keep-alive (maintain connection)**

	The connection will never be disconnected by this device. If disconnected by your ISP, the connection will be reestablished immediately. (However, this does not ensure that your Internet IP address will remain unchanged.) **Auto-Connect** An Internet connection is automatically made when required, and disconnected when idle for the time period specified by the "Maximum Idle Time (60~3600)". **Manual-on** You must manually establish and terminate the connection.
MPPE	Select <Enabled> to enable “Microsoft Point to Point Encryption” ability.

3.2.5 L2TP

Select L2TP if your ISP requires the L2TP protocol to connect you to the Internet. Your ISP should provide all the information required in this section.

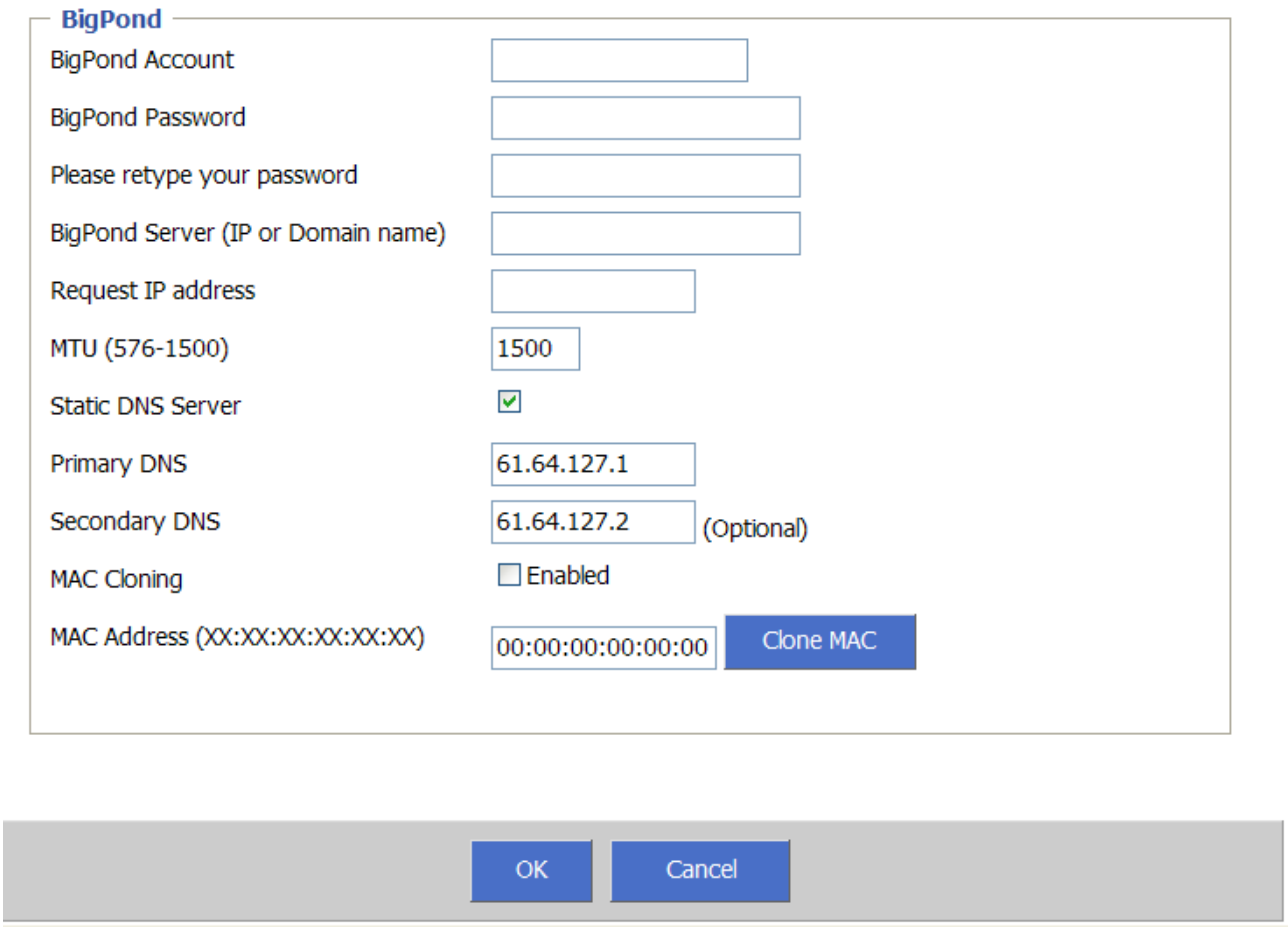


Parameter	Description
WAN Interface Settings	To configure WAN Interface IP
Dynamic IP	The ISP requires you to obtain an IP address by DHCP before connecting to the L2TP server.
	MAC Cloning Select <Enabled> to allow replacing the WAN MAC address with

	a specific MAC address. **MAC Address** Your ISP may require a particular MAC address in order for you to connect to the Internet. This MAC address is the PC's MAC address that your ISP had originally connected your Internet connection to. Type in this MAC address in this section or use the "**Clone MAC Address"** button to replace the WAN MAC address with the MAC address of that PC.
Static IP	The ISP gives you a static IP to be used to connect to the PPTP server. You must type in the related IP address such as **IP Address, Subnet Mask** and **Gateway.**
L2TP Settings	
L2TP Account	Enter the L2TP Account provided by your ISP for the L2TP connection.
L2TP Password	Enter the Password provided by your ISP for the L2TP connection.
Retype Password	Re-enter the Password for confirmation.
L2TP Server	gateway IP address or domain name here. If you do not have a L2TP gateway then enter the ISP's Gateway IP address above or domain name.
MTU	This is optional. You can specify the maximum size of your transmission packet to the Internet. Leave it as it is if you do not wish to set a maximum packet size. (The default settings is 1460)
Maximum Idle Time	You can specify an idle time threshold (seconds) for the WAN port. This means if no packets have been sent (no one using the Internet) during this specified period, the router will automatically disconnect the connection with your ISP.
Connection Mode	Select the desired option: **Keep-alive (maintain connection)** The connection will never be disconnected by this device. If disconnected by your ISP, the connection will be reestablished immediately. (However, this does not ensure that your Internet IP address will remain unchanged.) **Auto-Connect** An Internet connection is automatically made when required, and disconnected when idle for the time period specified by the "Maximum Idle Time (60~3600)". **Manual-on** You must manually establish and terminate the connection.

3.2.6 BigPond (Australia)

Select BigPond if your ISP requires the BigPond protocol to connect you to the Internet. Your ISP should provide all the information required in this section.

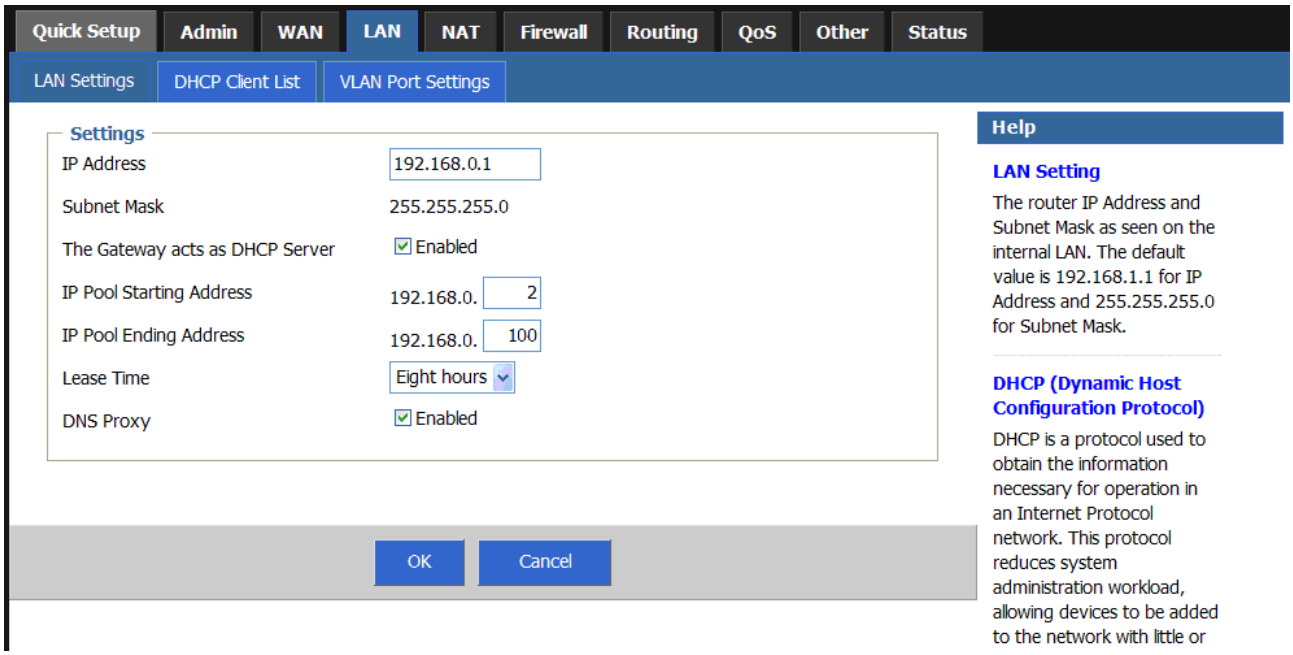


Parameter	Description
BigPond Account	Enter the L2TP Account provided by your ISP for the BigPond connection.
BigPond Password	Enter the Password provided by your ISP for the BigPond connection.
Retype Password	Re-enter the Password for confirmation.
BigPond Server	gateway IP address or domain name here. If you do not have a BigPond gateway then enter the ISP's Gateway IP address above or domain name.
MTU	This is optional. You can specify the maximum size of your transmission packet to the Internet. Leave it as it is if you do not wish to set a maximum packet size. (The default settings is 1500)

3.3 LAN

The LAN Port screen below allows you to specify a private IP address for your router's LAN ports as well as a subnet mask for your LAN segment.

3.3.1 LAN Settings

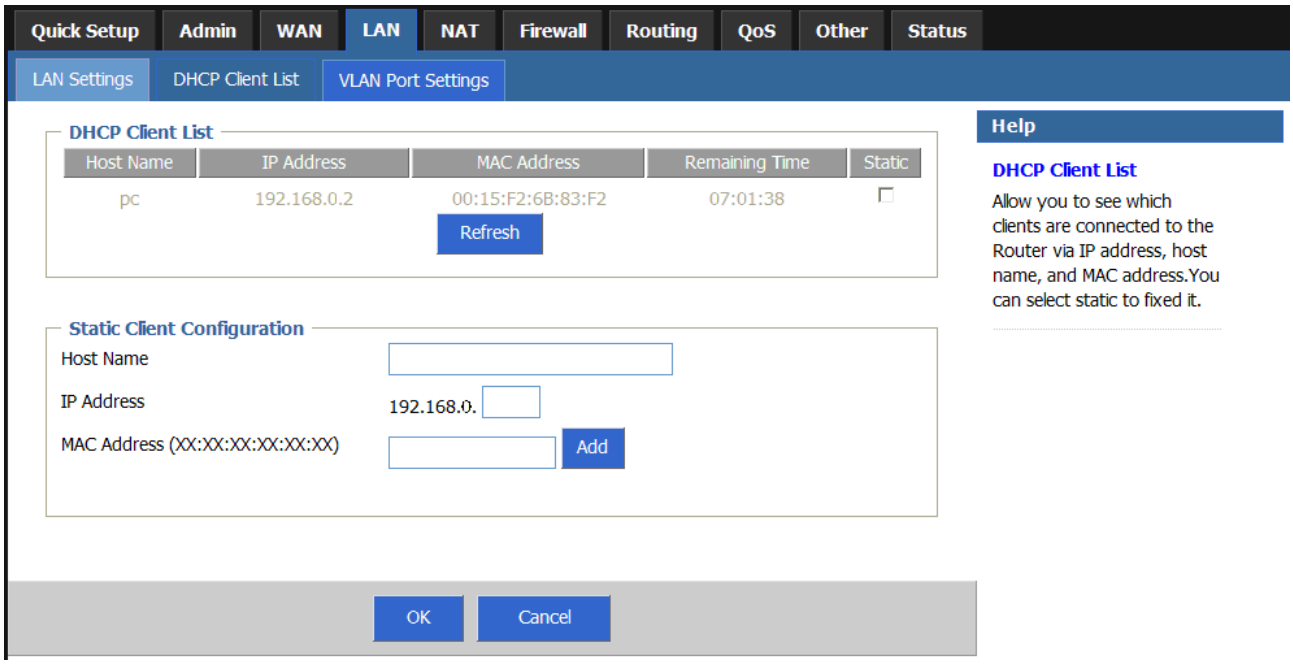


Parameter	Default	Description
IP address	192.168.0.1	This is the router's LAN port IP address (Your LAN clients default gateway IP address)
IP Subnet Mask	255.255.255.0	Specify a Subnet Mask for your LAN segment
DHCP Server	Enabled	You can enable or disable the DHCP server. By enabling the DHCP server the router will automatically give your LAN clients an IP address. If the DHCP is not enabled then you'll have to manually set your LAN client's IP addresses; make sure the LAN Client is in the same subnet as this broadband router if you want the router to be your LAN client's default gateway.
IP Pool Starting/Ending Address	The IP range is from **192.168.0.2** to **192.168.0.100**.	You can select a particular IP address range for your DHCP server to issue IP addresses to your LAN Clients.
Lease Time	Eight Hours	The DHCP when enabled will temporarily give your LAN clients an IP address. In the Lease Time setting you can specify the time period that the DHCP lends an IP address to your LAN

		clients. The DHCP will change your LAN client's IP address when this time threshold period is reached
DNS Proxy	**Enable**	Select <Enabled> that all DNS requests to a specific Domain Name will be routed to the XRT-401F's IP address. If you want to use the DNS Proxy function of the device, the end user's main DNS server IP address should be the same IP Address as the device.

3.3.2 DHCP Client List

You can check your current status of the DHCP client here, it also allow you to add the client IP address with specific MAC address manually.

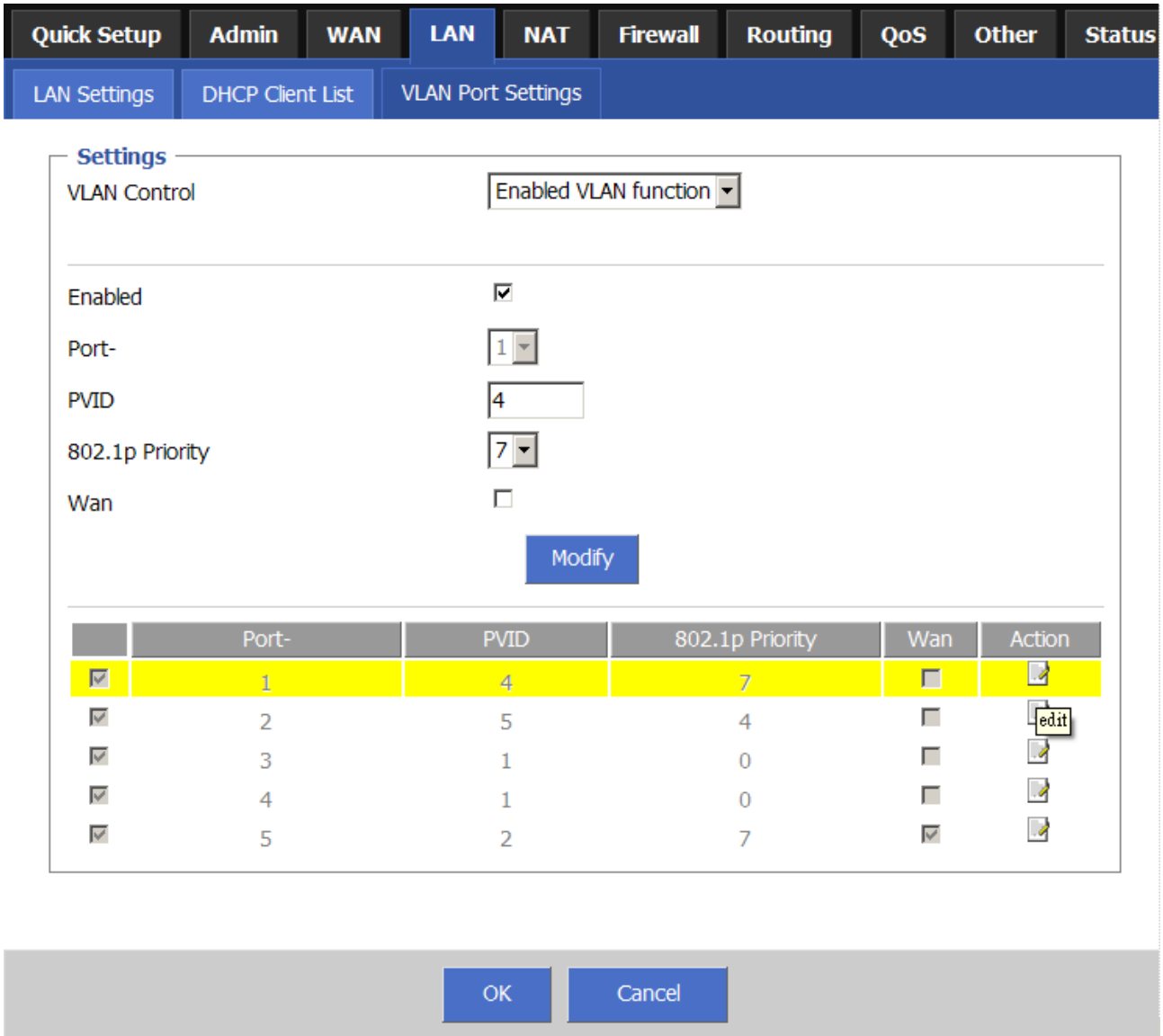


Parameter	Description
DHCP Clinet List	
Host Name	The DHCP client list allows you to see which clients are connected to the Router via IP address, host name, remaing time and MAC address.You can select static to fixed it
IP Address	
MAC Address	
Remainging Time	
Staic	You can specify the current client to be a staic client.
Static Client	
Host Name	This is optional, you can specify a host name for your static client.
IP Address	Fill in the IP address which you wish to be a static client.
MAC Address	Fill in the MAC address which you wish to be a static client.

3.3.3 VLAN Settings

By default, the VLAN setting is disabled, however, you can turn it on for purpose, or setup the port based priority base on the VLN setting here.

The default setting is that, All the ports, say port 1 to port 4 is bound to WAN interface.
And WAN interface is bound to port 5 of the Router (where now, it is physically with printing **WAN**)
So, all the network traffic that is goint go Internet, all with going out through the WAN port. Unless VLAN is enabled yet the port's VLAN is being disabled.
And once turn it on, you can base on PVID to separate the LAN. For example as the figure below, port 1 is connected with IP Phone, port 2 is connected with Video device, and port 3, port 4 is normal data ports. You can just change the PVID of port #1 to 4, port #2 to 5. Then, port #1, #2, are being separated from port 3 and port 4.
At the same time, you can also set the priority for port #1 to **7**, port #2 to **4**, and then for port # 3, por # 4 to **0**, then, the Router will schedule the network packets base on the prirority for packet out from that dedicated LAN port.

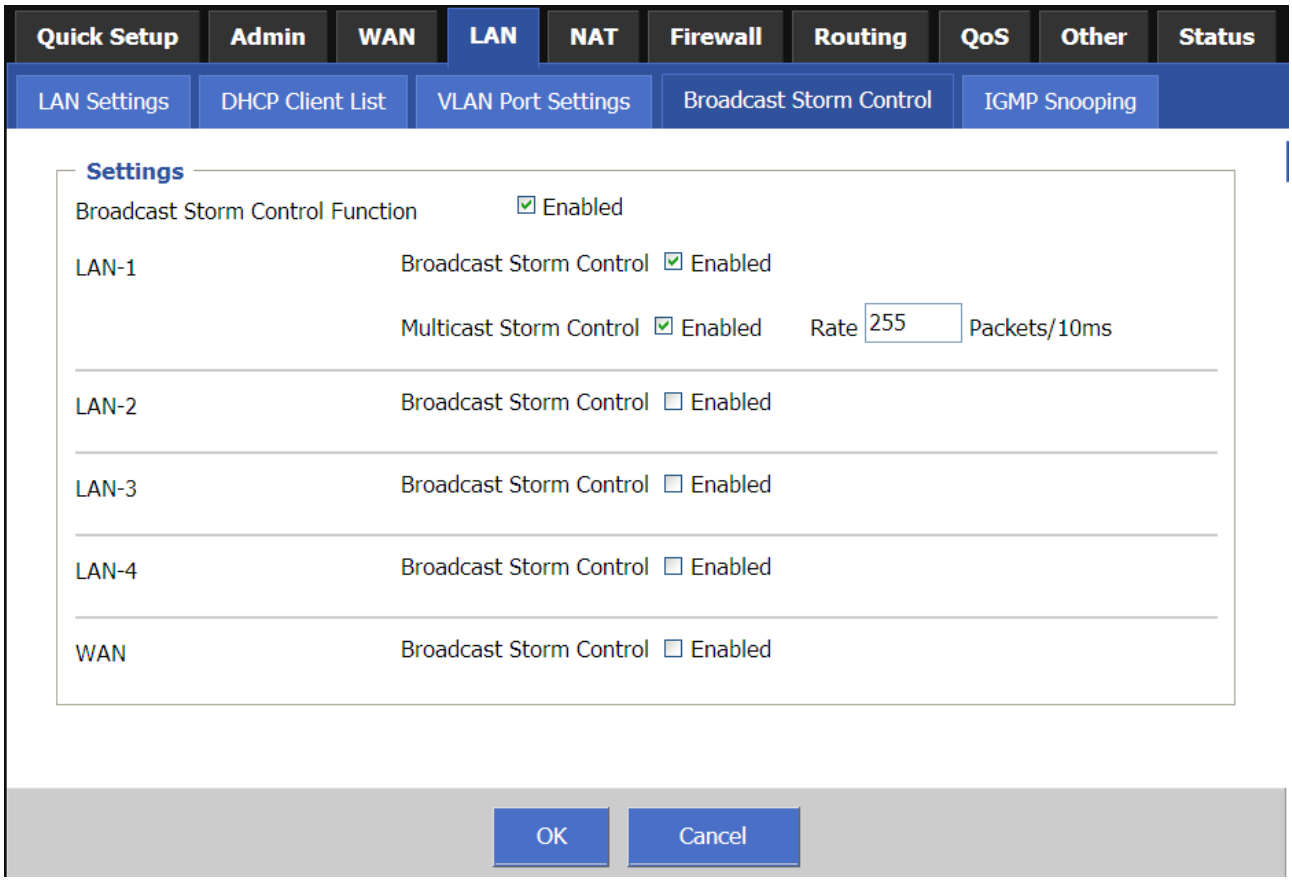


Parameter	Default	Description
VLAN Enable	Disable	Enable will turn on the port based VLAN. [After enabled, the options will show up.]
Port VLAN Enable	Enabled	The port join to the WAN VLAN group. To disable will make the port isolated from the WAN.
PVID	1	The VLAN ID of the selected port. 1 for LAN 1 -4 2 for WAN at port 5
Priority	4	The priority of the selected port.
WAN	Disabled	By default, the check box only enabled for port #5.

✍ **Note**	1. Different VLAN will have different PVID. Those ports with the same PVID will still see each other. 2. WAN should use different VID to LAN VID. 3. Due to the Router is a single port WAN Router, ONLY **ONE** WAN check box is allowed. By default, it is set on port 5. 4. This Router support port based VLAN at Router mode, yet at **Bridge mode** there are two different VLAN types, port based and 802.1q tagged VLAN for choice

3.3.4 Broadcast Storm Control

A broadcast storm means that the network is overwhelmedwith constant broadcast or multicast traffic. Broadcaststorms can eventually lead to a complete loss of network connectivity as the packets proliferate.This page can set the broadcast and the multicast storm control parameter,you can limit the broadcast and multicast per second through this port,the default value is 255.Tick the **Enabled** blank to adjust those parameter.



3.3.5 IGMP

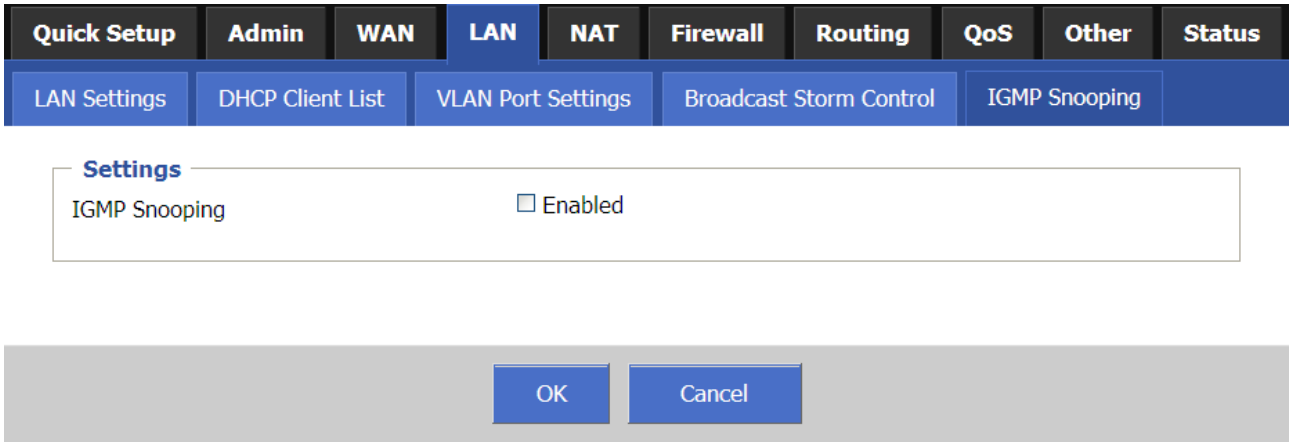
The Internet Group Management Protocol (IGMP) is a communications protocol used to manage the membership of Internet Protocol multicast groups. IGMP is used by IP hosts and adjacent multicast routers to establish multicast group memberships.

IGMP Snooping is the process of listening to IGMP traffic, its feature that allows the switch to "listen in" on the IGMP conversation between hosts and routers by processing the layer 3 packets IGMP packets sent in a multicast network.

When IGMP snooping is enabled in a switch it analyses all the IGMP packets between hosts connected to the switch and multicast routers in the network. When a switch hears an IGMP report from a host for a given multicast group, the switch adds the host's port number to the multicast table list for that group. And, when the switch hears an IGMP leave, it removes the host's port from the multicast table list.

IGMP snooping can very effectively reduce multicast traffic from streaming and other bandwidth intensive IP applications. While a switch that does not understand multicast will

broadcast the multicast traffic to all the ports in a collision domain (a LAN), a switch using IGMP snooping will only forward multicast traffic to the hosts interested in that traffic. This reduction of multicast traffic reduces the packet processing at the switch (at the cost of needing additional memory to handle the multicast tables) and also reduces the workload at the end hosts since their network cards (or operating system) will not have to receive and filter all the multicast traffic generated in the network.



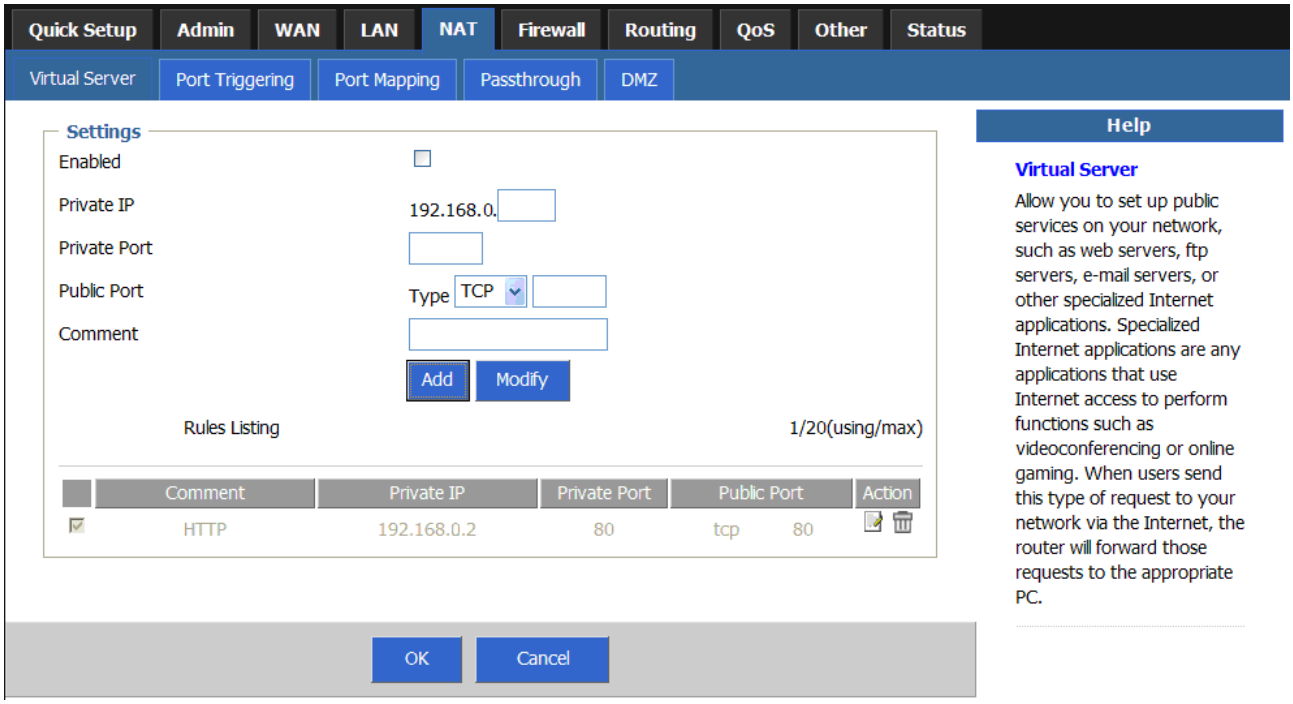
3.4 NAT

Network Address Translation (NAT) allows multiple users at your local site to access the Internet through a single Public IP Address or multiple Public IP Addresses. NAT provides Firewall protection from hacker attacks and has the flexibility to allow you to map Private IP Addresses to Public IP Addresses for key services such as Websites and FTP. To meet various field applications, XRT-401F NAT function can be disabled to as a regular router. If NAT is disabled, all LAN side workstations must have valid IP addresses for Internet access. If the router is usedfor routing application, not for Internet access, then the NAT function can be disabled.

Parameter	Description
3.4.1 Virtual Server	You can have different services (e.g. email, FTP, Web etc.) going to different service servers/clients in your LAN. The Virtual Server allows you to re-direct a particular service port number (from the Internet/WAN Port) to a particular LAN IP address and its service port number.
3.4.2 Port Triggering	Some applications require multiple connections, such as Internet games, video conferencing, Internet telephony and others. In this section you can configure the router to support these types of applications.
3.4.3 Port Mpping	You can have different services (e.g. email, FTP, Web etc.) going to different service servers/clients in your LAN. The Port Forwarding allows you to re-direct a particular range of service port numbers (from the Internet/WAN Ports) to a particular LAN IP address.
3.4.4 Passthrough	You can select special applications that need “Passthrough” to support here.
3.4.5 DMZ	The DMZ function allows you to re-direct all packets going to your WAN port IP address to a particular IP address in your LAN.

3.4.1 Virtual Server

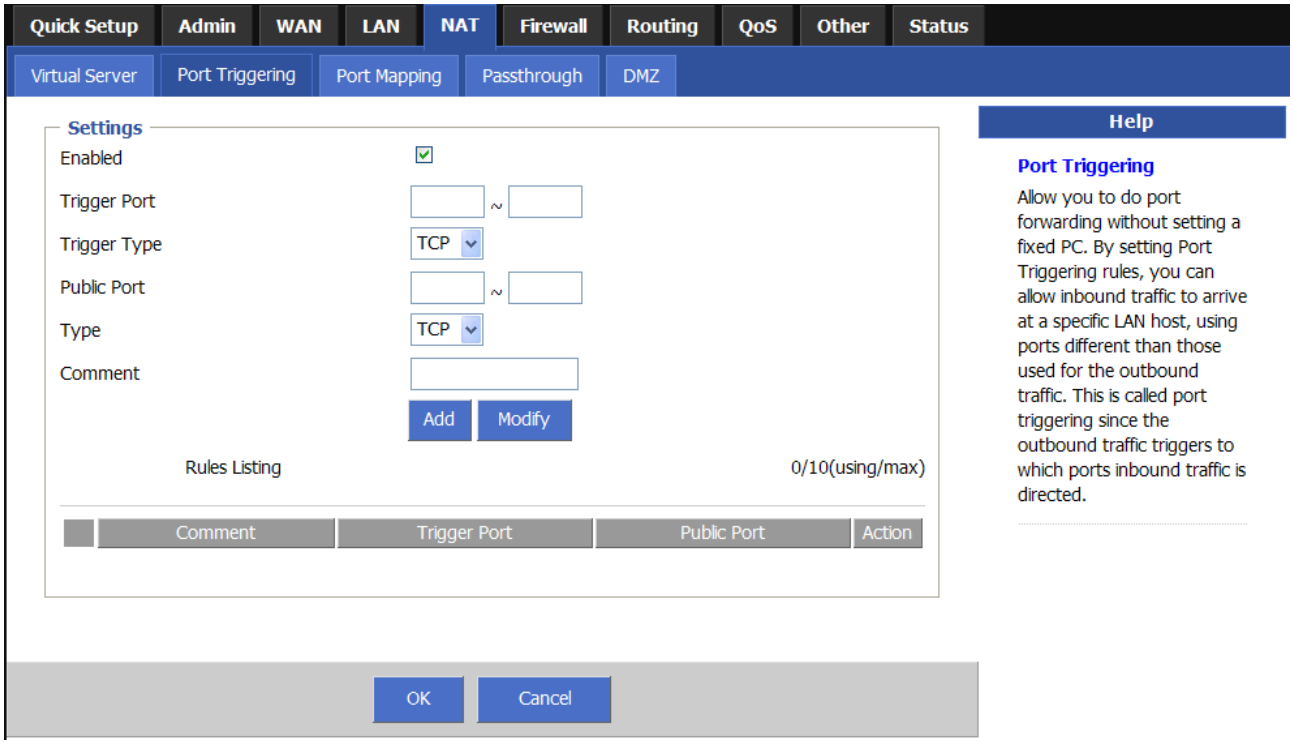
Use the Virtual Server function when you want different servers/clients in your LAN to handle different service/Internet application type (e.g. Email, FTP, Web server etc.) from the Internet.Computers use numbers called port numbers to recognize a particular service/Internet application type. The Virtual Server allows you to re-direct a particular service port number (from the Internet/WAN Port) to a particular LAN private IP address and its service port number.



Parameter	Description
Enable	To enable the rule of Virtual Server.
Private IP	This is the LAN client/host IP address that the Public Port number packet will be sent to. **Note:** You need to give your LAN PC clients a fixed/static IP address for Virtual Server to work properly.
Private Port	This is the port number (of the above Private IP host) that the below Public Port number will be changed to when the packet enters your LAN (to the LAN Server/Client IP)
Type	Select the port number protocol type (TCP, UDP or both). If you are unsure, then leave it to the default both protocols.
Public Port	Enter the service (service/Internet application) port number from the Internet that will be re-directed to the above Private IP address host in your LAN
Comment	The description of this setting.

3.4.2 Port Triggering

Some applications require multiple connections, such as Internet games, video conferencing, Internet telephony and others. In this section you can configure the router to support multiple connections for these types of applications.



Parameter	Description
Enable	To enable the rule of Port Triggering.
Trigger Port	This is the out going (Outbound) range of port numbers for this particular application
Trigger Type	Select whether the outbound port protocol is “TCP”, “UDP” or both.
Public Port	Enter the In-coming (Inbound) port or port range for this type of application (e.g. 2300-2400, 47624) **Note**: Individual port numbers are separated by a comma (e.g. 47624, 5775, 6541 etc.). To input a port range use a “dash” to separate the two port number range (e.g. 2300-2400)
Public Type	Select the Inbound port protocol type: “TCP”, “UDP” or both
Comment	The description of this setting.

Example: Special Applications

If you need to run applications that require multiple connections, then specify the port (outbound) normally associated with that application in the "Trigger Port" field. Then select the protocol type (TCP or UDP) and enter the public ports associated with the trigger port to open them up for inbound traffic.

Example:

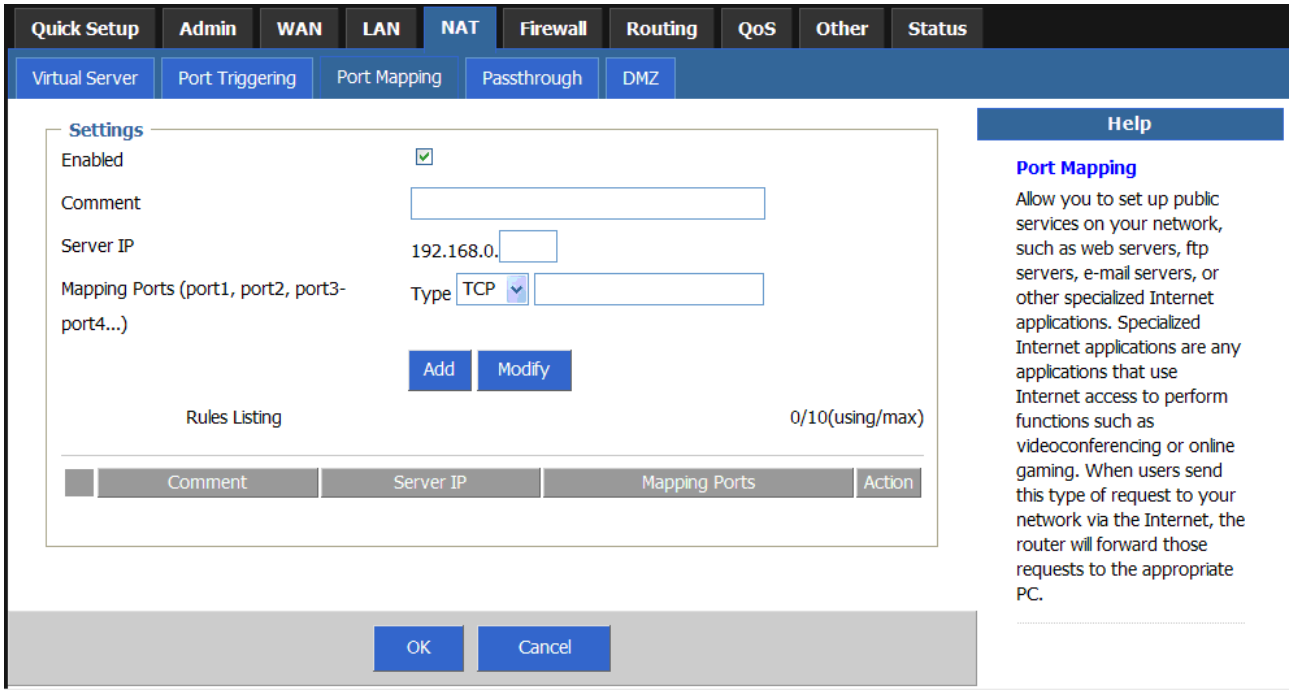
ID	Trigger Port	Trigger Type	Public Port	Public Type	Comment
1	28800	UDP	2300-2400,47624	TCP	MSN Game Zone
2	6112	UDP	6112	UDP	Battle.net

In the example above, when a user trigger's port 28800 (outbound) for MSN Game Zone then the router will allow incoming packets for ports 2300-2400 and 47624 to be directed to that user.

Note	Only one LAN client can use a particular special application at a time.

3.4.3 Port Mapping

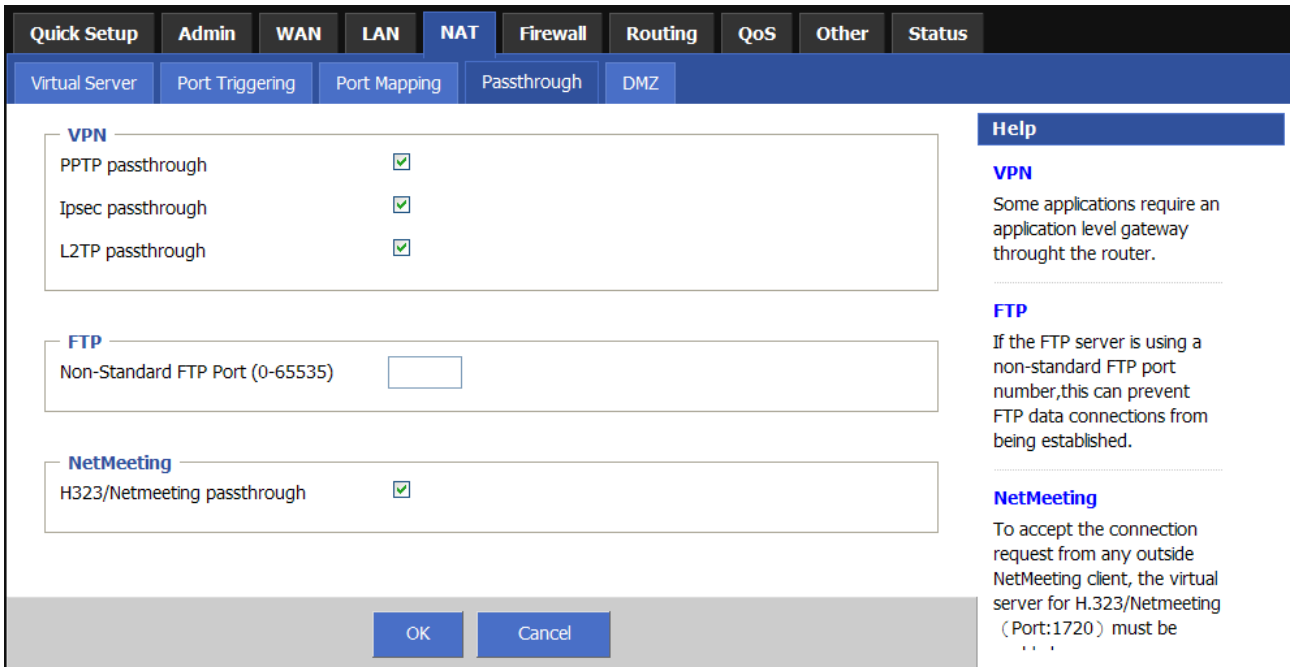
The Port Mapping allows you to re-direct a particular range of service port numbers (from the Internet/WAN Ports) to a particular LAN IP address. It helps you to host some servers behind the router NAT firewall.



Parameter	Description
Enable	To enable the rule of Port Mapping
Comment	The description of this setting.
Server IP	This is the private IP of the server behind the NAT firewall. **Note:** You need to give your LAN PC clients a fixed/static IP address for Port Forwarding to work properly.
Type	This is the protocol type to be forwarded. You can choose to forward “TCP” or “UDP” packets only or select “both” to forward both “TCP” and “UDP” packets.
Mapping Ports	The range of ports to be forward to the private IP.

3.4.4 Passthrough

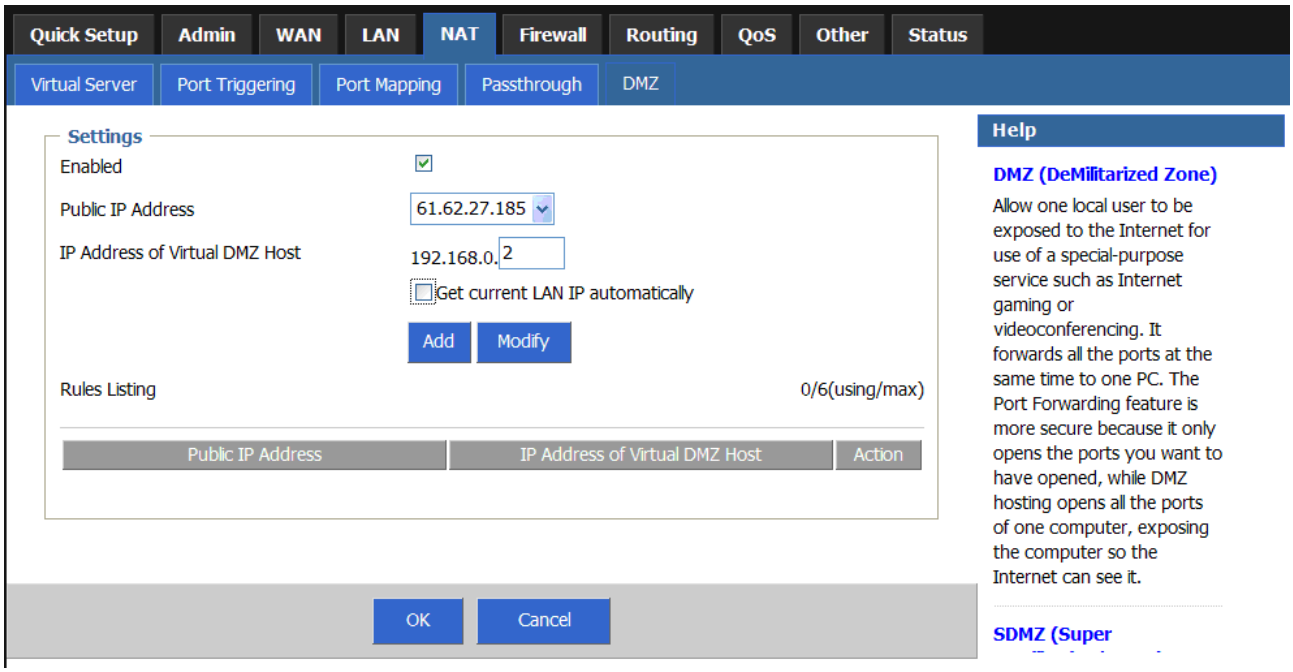
You can select applications such as PPTP/IPSex/L2TP VPN, FTP and H323 Netmetting that need “Passthrough” to support. It can let these applications correctly pass though the NAT Router.



Parameter	Description
Enable	You can select to enable “Passthrough” of an application and then the router will let that application correctly pass though the NAT gateway.

3.4.5 DMZ

If you have a local client PC that cannot run an Internet application (e.g. Games) properly from behind the NAT firewall, then you can open the client up to unrestricted two-way Internet access by defining a DMZ Host. The DMZ function allows you to re-direct all packets going to your WAN port IP address to a particular IP address in your LAN. The difference between the virtual server and the DMZ function is that the virtual server re-directs a particular service/Internet application (e.g. FTP, websites) to a particular LAN client/server, whereas DMZ re-directs all packets (regardless of services) going to your WAN IP address to a particular LAN client/server.



Parameter	Description
Enable	Enable/disable DMZ
Public IP Address	The IP address of the WAN port or any other Public IP addresses given to you by your ISP
IP Address of Virtual DMZ	Input the IP address of a particular host in your LAN that will receive all the packets originally going to the WAN port/Public IP address above.
Action	Press <Add> to add DMZ rule.

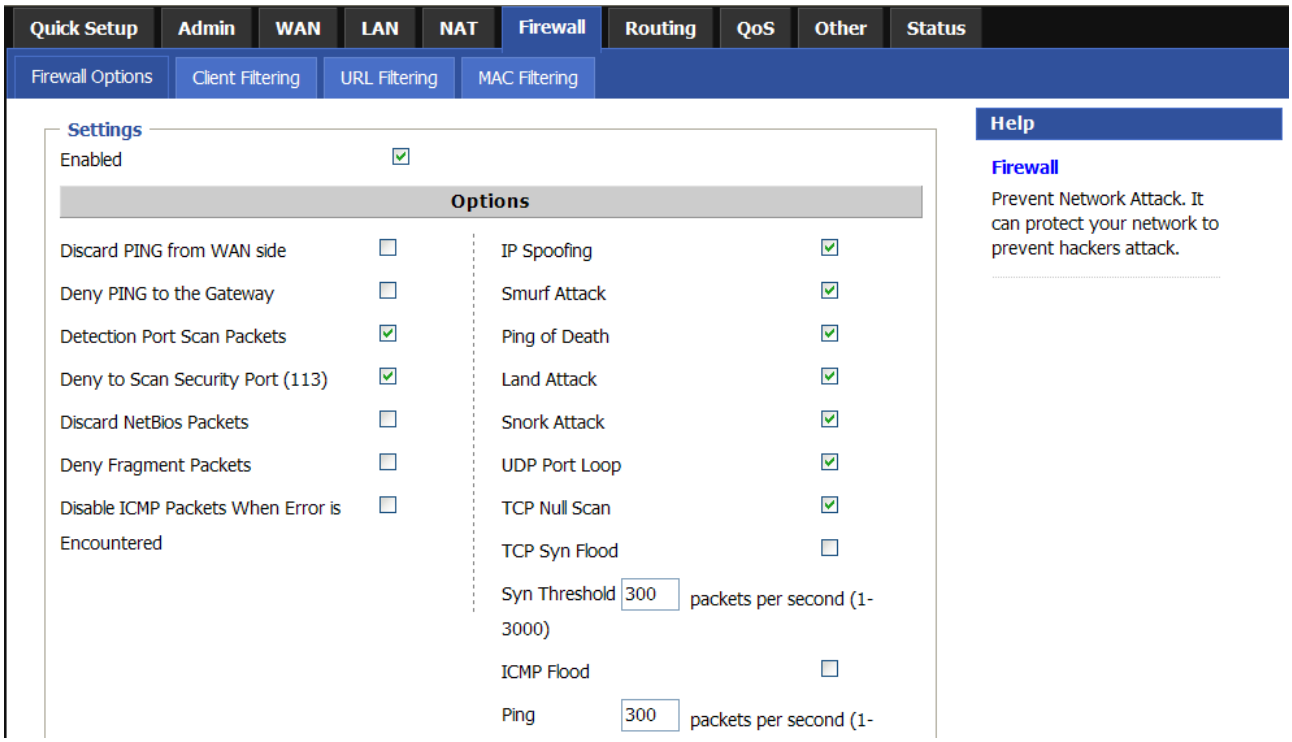
3.5 Firewall

XRT-401F provides extensive firewall protection by restricting connection parameters, thus limiting the risk of hacker attack, and defending against a wide array of common Internet attacks.

Parameter	Description
3.5.1 Firewall Options	XRT-401F's firewall can block common hacker attacks and can log the attack activities.
3.5.2 Client Filtering	Client Filtering allows you to specify which hosts users can or cannot access to certain Internet applications by IP address.
3.5.3 URL Filtering	URL Filtering allow you to specify which URLs can not be accessed by users.
3.5.4 MAC Filtering	MAC Filtering allows you to specify which hosts users can or cannot access to Internet by MAC address.

3.5.1 Firewall Options

XRT-401F's firewall can block common hacker attacks, including Denial of Service, Ping of Death, Port Scan and Sync Flood. If Internet attacks occur the router can log the events.

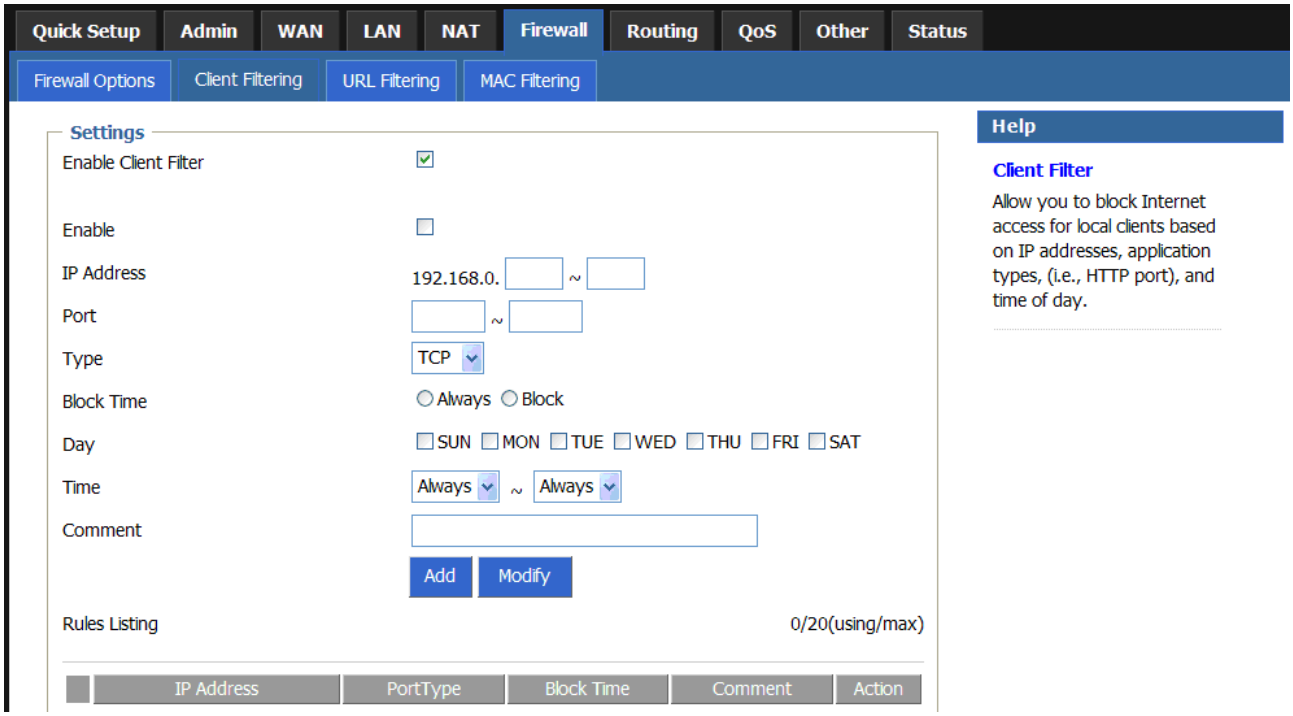


Firewall Options	
Parameter	**Description**
Enable	Select it to enable Firewall Options function.
Discard Ping From WAN	The router's WAN port will not respond to any Ping requests
Deny to Ping the Gateway	The router's LAN port will not respond to any Ping requests
Drop Port Scan Packets	Protection the router from Port Scan.
Allow to Scan Security Port (113)	Select to allow Identification Protocol (Port 113) to be scanned.
Discard NetBIOS Packets	Select to not allow NetBIOS protocol to pass through router
Deny Fragment Packets	Select to deny Fragment Packets passing through.
Send ICMP packets when error	Select to allow sending ICMP error packets to the node who send out the wrong packets..
IP Spoofing	Protection the router from IP Spoofing attack.
Smurf Attack	Protection the router from Smurf Attack attack.
Ping of Death	Protection the router from Ping of Death attack.
Land Attack	Protection the router from Land Attack attack.
Snork Attack	Protection the router from Snork Attack attack.
UDP Port Loop	Protection the router from UDP Port Loop attack.

TCP Sync Flood	Protection the router from Sync Flood attack.
ICMP Flood	Protection the router from ICMP Flood Packet attack.

3.5.2 Client Filtering

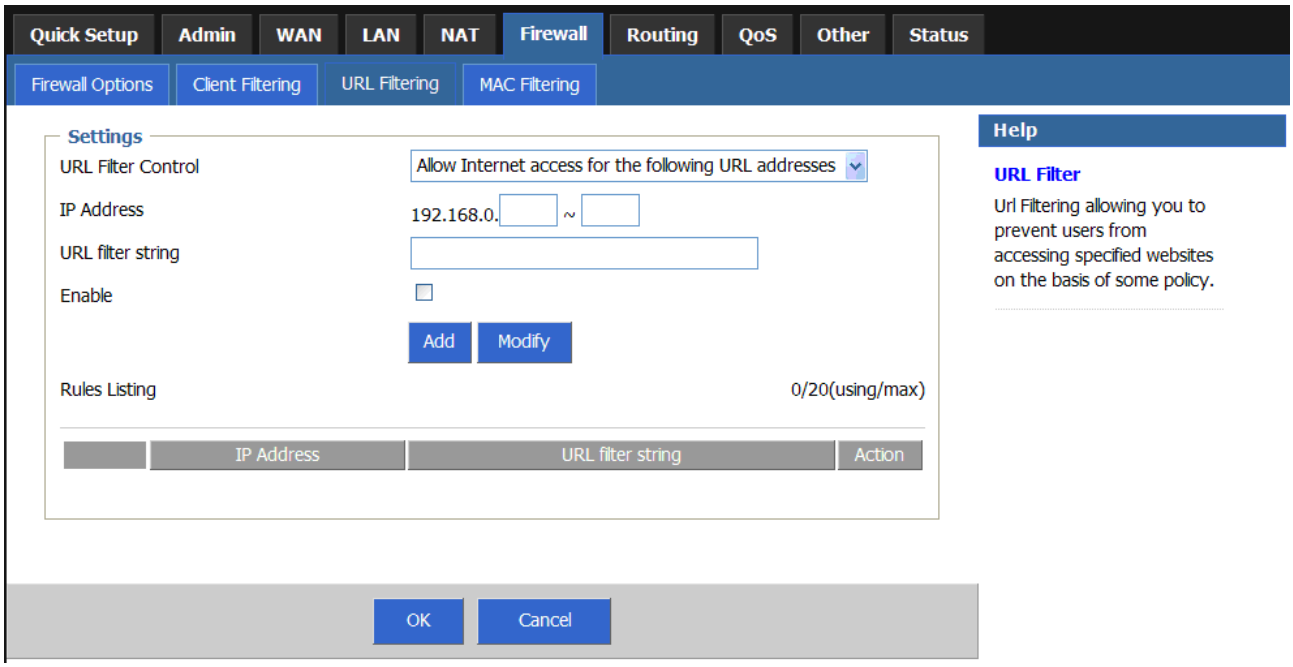
You can filter Internet access for local clients based on IP addresses, application types, (i.e.,HTTP port), and time of day.



Parameter	Description
Enable Client Filter	Select to enable “Client Filtering” function.
IP	Enter the IP address range that you wish to apply this rule.
Port	You can assign the specific port ranges. The router will block clients from accessing Internet services that use these ports.
Type	This allows you to select UDP, TCP or both protocols that you want to block.
Block Time	Select <Always> router will block the access forever. Select <Block> router will block the access according to the time schedule.
Day	Select a certain days in the week to block the access.
Time	Select a certain time in a day that you want to block.
Comment	The description of this setting.
Enable	To enable the rule of Client Filtering

3.5.3 URL Filtering

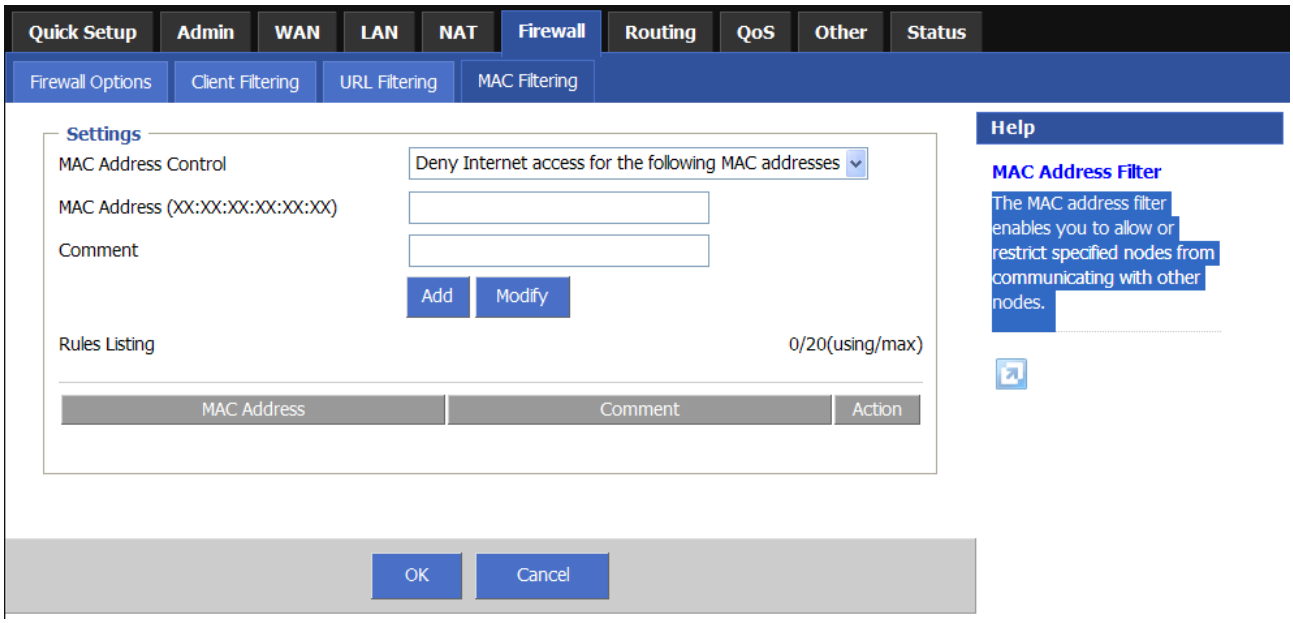
You can deny or allow the access for some Web sites from particular PCs by entering a full URL address or just keyword of the Web site.



Parameter	Description
URL Filter Control	**Enable/disable** URL Blocking **Deny** Internet access for the following URL address **Allow** Internet access for the following URL address
IP	Enter the IP address range that you wish to apply this rule.
URL filter string	You can enter the full URL address or the keyword of the web site you want to block.
Enable	To enable the rule of URL Filtering.

3.5.4 MAC Filtering

You can filter Internet access for local clients based on MAC Address. The MAC address filter enables you to allow or restrict specified nodes from communicating with other nodes.



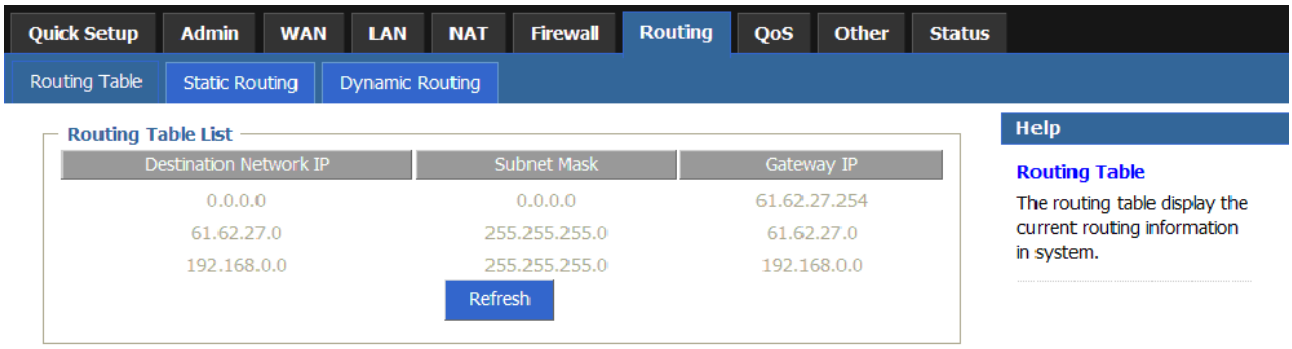
Parameters	Description
MAC Address Control	Check "**Enabled**" to enable MAC Filtering. Select **Deny** or **Allow** the Intert access for the following MAC address connects to Internet.
Configure MAC Address	Fill in or "MAC Address" and "Comment" of the PC, or select the MAC Address from "Action", and then click "Add".

3.6 Routing

This section allows you to configure XRT-401F's static route and check the current routing table. The routing is only for internal routing using, so you do not need to disable NAT function, and there are two ways to manage the device's routing information, it includes **RIP** and **Static**.

3.6.1 Routing Table

The routing table display the current routing information in system.

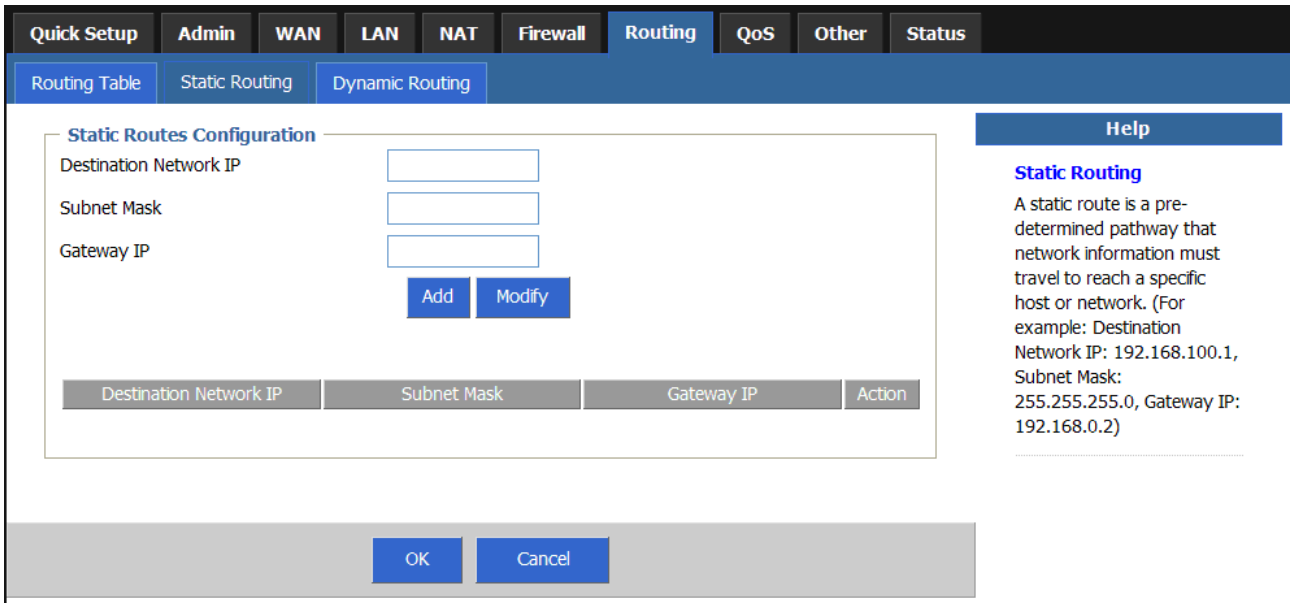


Parameter	Description
Destination LAN IP	The IP address where packets will go to.
Subnet Mask	The subnet mask of the destination IP address.
Gateway	The gateway that the packets will pass by during transmission.

3.6.2 Static Routing

This page is used to configure the routing information. Here you can add / delete IP routes.

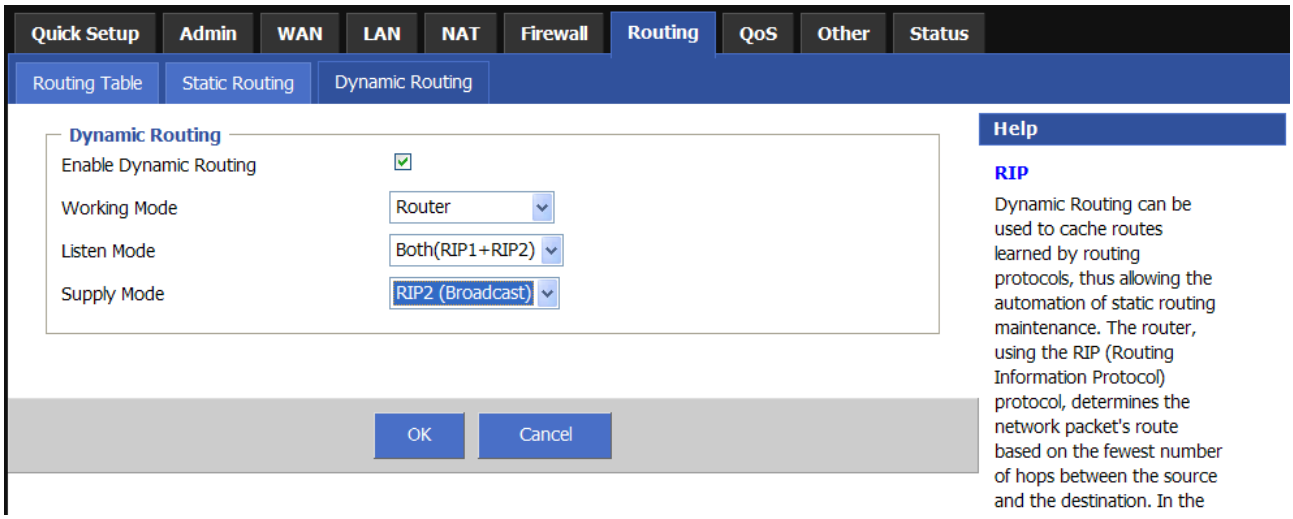
A static route is a pre-determined pathway that network information must travel to reach a specific host or network. (For example: Destination Network IP: 192.168.100.1, Subnet Mask: 255.255.255.0, Gateway IP: 192.168.0.2)



Parameter	Description
Destination LAN IP, Subnet Mask	Specify the destination LAN IP where the packets will be routing to packets will be routing to.
Gateway	Specify the other gateway IP that will route the packets to the destination.
Add	Click **"Add"** to add this routing information.

3.6.3 Dynamic Routing

Dynamic Routing can be used to cache routes learned by routing protocols, thus allowing the automation of static routing maintenance. The router, using the RIP (Routing Information Protocol) protocol, determines the network packet's route based on the fewest number of hops between the source and the destination. In this case, you could automatically adjust to physical changes in the network layout.



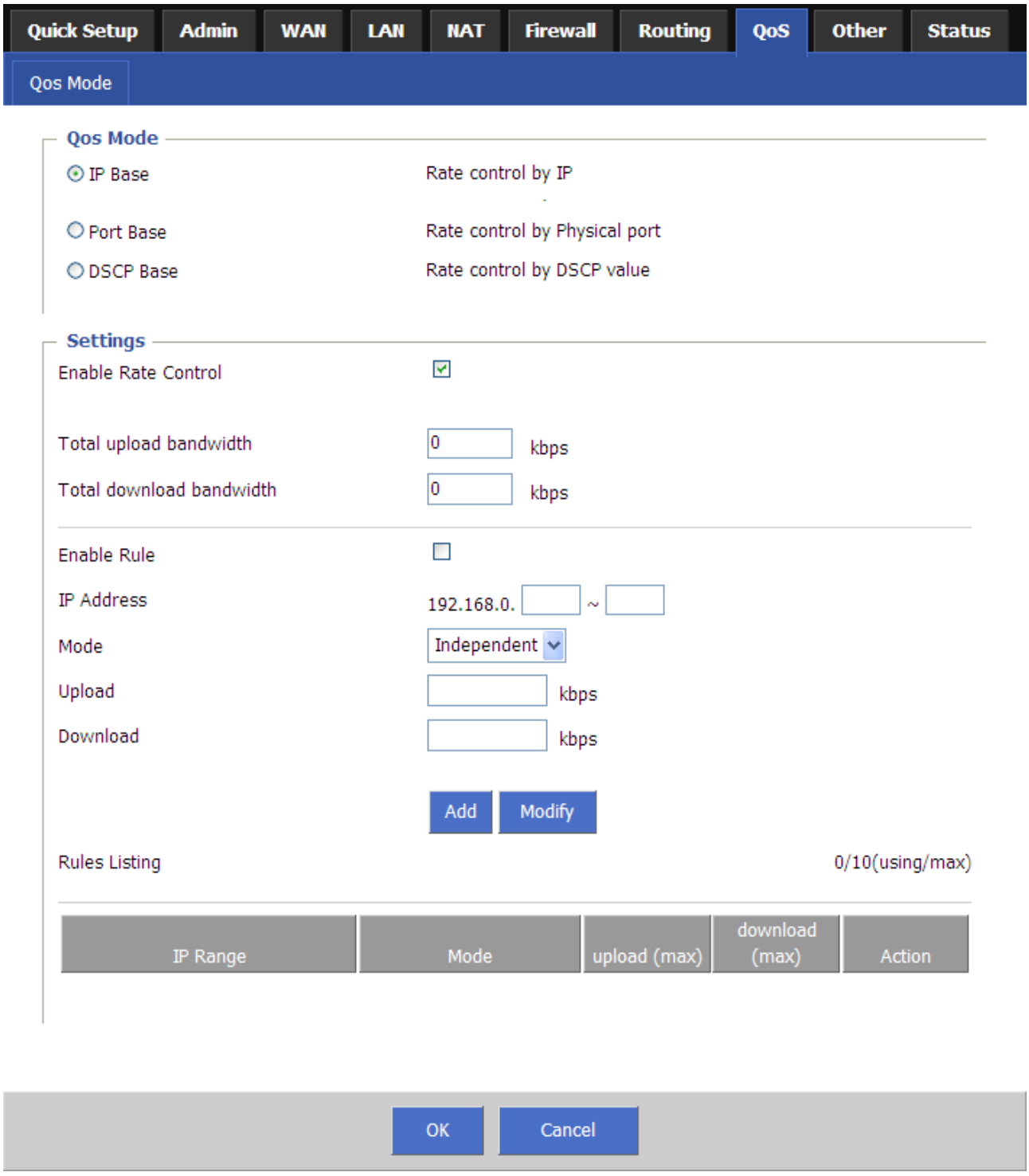
Parameter	Description
Working Mome	Specify your XRT-401F work as Router or Gateway.
Listen Mode	Select the **RIP version**, and to start or stop RIP based on the Global RIP mode selected.
Supply Mode	This parameter determines if the XRT-401F includes the router to this remote node in its RIP broadcasts or RIP Multicast. Select the Mode you want to use.

3.7 QoS

By configuring the QoS, you can assign the bandwidth for specific LAN / WAN port. Each LAN Port will follow the bandwidth you assigned. The QoS can smooth your network usage for Triple-Play applications such as the VoIP, IPTV and Internet.

3.7.1 IP based

When select this mode,it means the QoS rule by IP,you can set the total bandwidth or specified the bandwidth with the IP range or single IP address.Tick the **Enable Rate Control** and set those parameter.

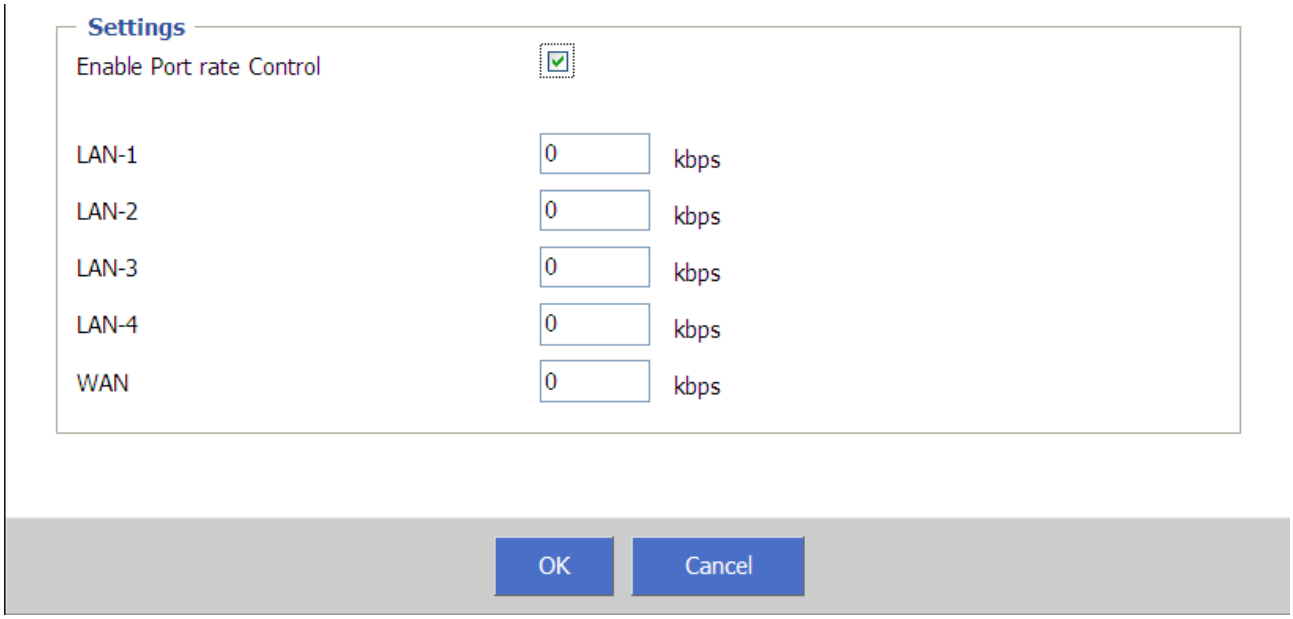


Parameter	Description
Total upload bandwidth	Specify the total upload bandwidth.
Total download bandwidth	Specify the total download bandwidth.
IP Address	You can set the IP range or the single IP address.
Mode	Select the **Independent** or the **Share** mode. **Independent mode:**Means the above IP address have the idependent bandwidth with the below rule. **Share mode**:Means the above IP address share the bandwidth with the below rule.
Upload	Set the upload bandwidth.
Download	Set the download bandwidth.
Rules Listing	You can check the rule status you just set on this item

3.7.2 Port based

When enabled, you can key in the max / gurantee transmit bandwidth in Kbps, for example, if the WAN **upload** bandwidth is 2Mbps, then, key in 2048, and if the LAN 1 is a PC that want to limit the **PC receiving rate** below 1Mbps, then, key in 1024. That is, key in a number that nuber will be the maximum bandwidth that the Router will give to the connected devices. And keep it in 0 for un-limits at the transmit rate.

.



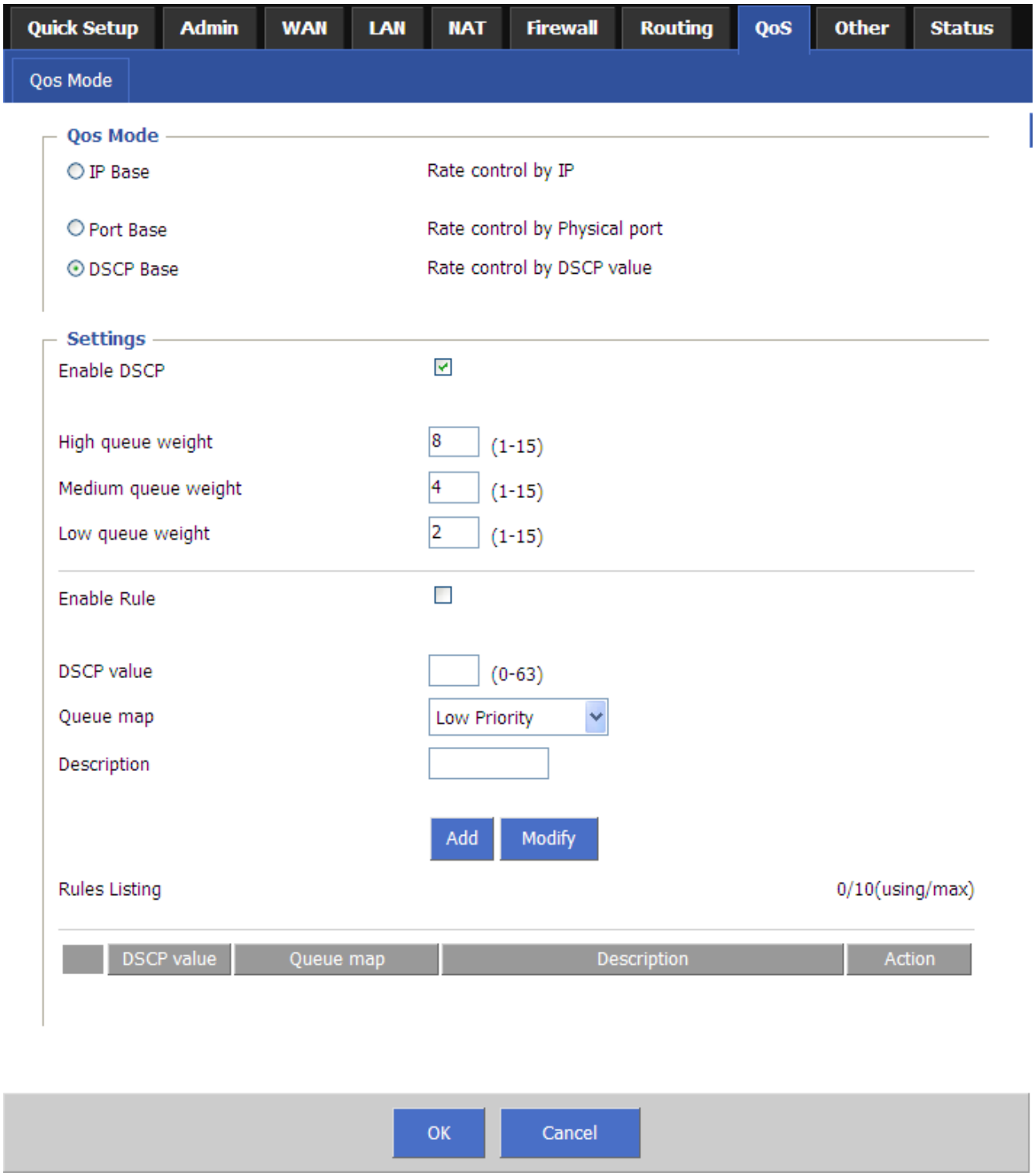
Note	This option can cowork with VLAN priority (refer to section 3.3.3) options to have a optimal network packet transmission.

3.7.3 DSCP

The XRT-401F also support DSCP (Differentiated Services Code Point) that can help to recognize and provide the QoS features to the network packts.

When turned on, the Rotuer will look up the DS (Differentiated Services) field for packt priority.

It will help to forward the packest that contain the priority information accordingly. The DSCP value can be from 0 (lowest priority) to 63 (highest priority). The Router can base on the priority to put the packest into three Weighted Queue, where each queue can have its buffer level from 1 to 15.



Below is a reference table for the values. And also the reference about IP precedence level

DSCP Name	DS Field Value		IP Precedence
	Binary	Decimal	
CS0	000 000	0	0
CS1	001 000	8	1
AF11	001 010	10	1
AF12	001 100	12	1
AF13	001 110	14	1
CS2	010 000	16	2
AF21	010 010	18	2
AF22	010 100	20	2
AF23	010 110	22	2
CS3	011 000	24	3
AF31	011 010	26	3
AF32	011 100	28	3
AF33	011 110	30	3
CS4	100 000	32	4
AF41	100 010	34	4
AF42	100 100	36	4
AF43	100 110	38	4
CS5	101 000	40	5
EF	101 110	46	5
CS6	110 000	48	6
CS7	111 000	56	7

IP Procedence Level:

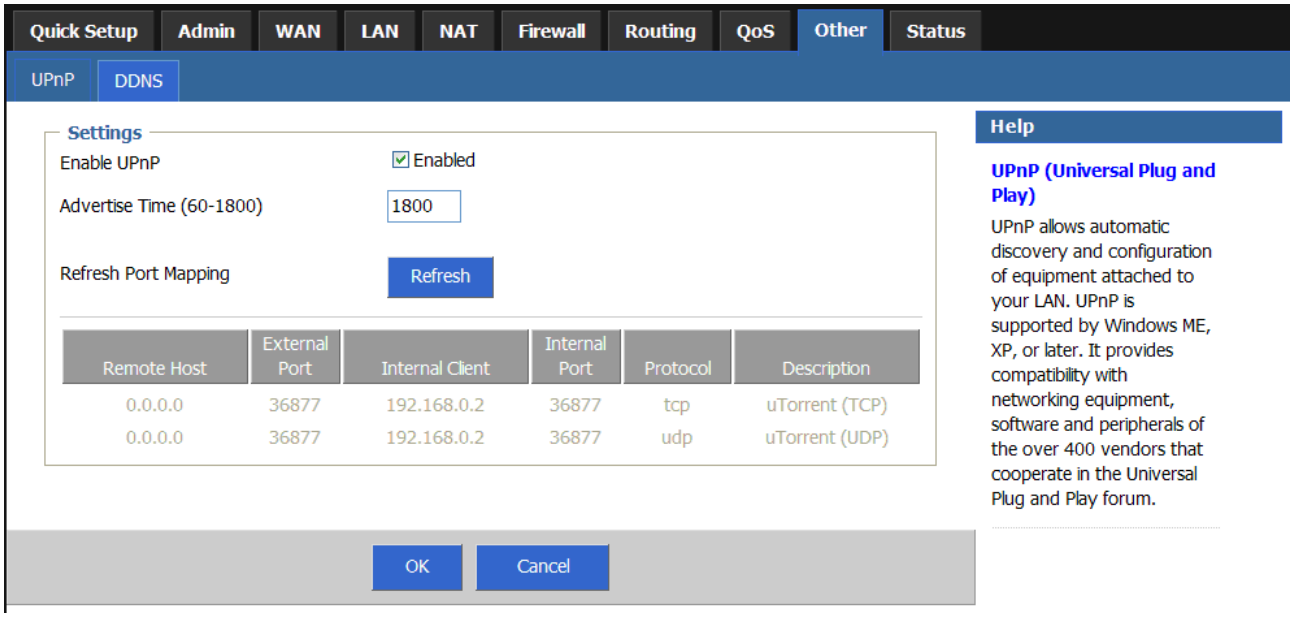
Priority Level	Traffic Type
0 (lowest)	Best Effort
1	Background
2	Standard (Spare)
3	Excellent Load (Business Critical)
4	Controlled Load (Streaming Multimedia)
5	Voice and Video (Interactive Media and Voice)
6	Layer 3 Network Control Reserved Traffic
7 (highest)	Layer 2 Network Control Reserved Traffic

3.8 Other

3.8.1 UPnP

With **UPnP (Universal Plug and Play)**, all PCs in you Intranet will discover this router automatically. So you do not have to do any configuration for your PC and can access the Internet through this router easily.

UPnP allows automatic discovery and configuration of equipment attached to your LAN. UPnP is supported by Windows ME, XP, or later. It provides compatibility with networking equipment, software and peripherals of the over 400 vendors that cooperate in the Universal Plug and Play forum.



Parameter	Description
Enable UPnP	After you enable the UPnP feature, all client systems that support UPnP, like Windows XP can discover this router automatically and access the Internet through this router without any configuration.
Advertise Time (60 ~ 1800)	When UPnP service is working, router will broadcast a message to LAN that the specific port number has been used in a period of time. The maximum timing is up to **1800** seconds.

UPnP Table

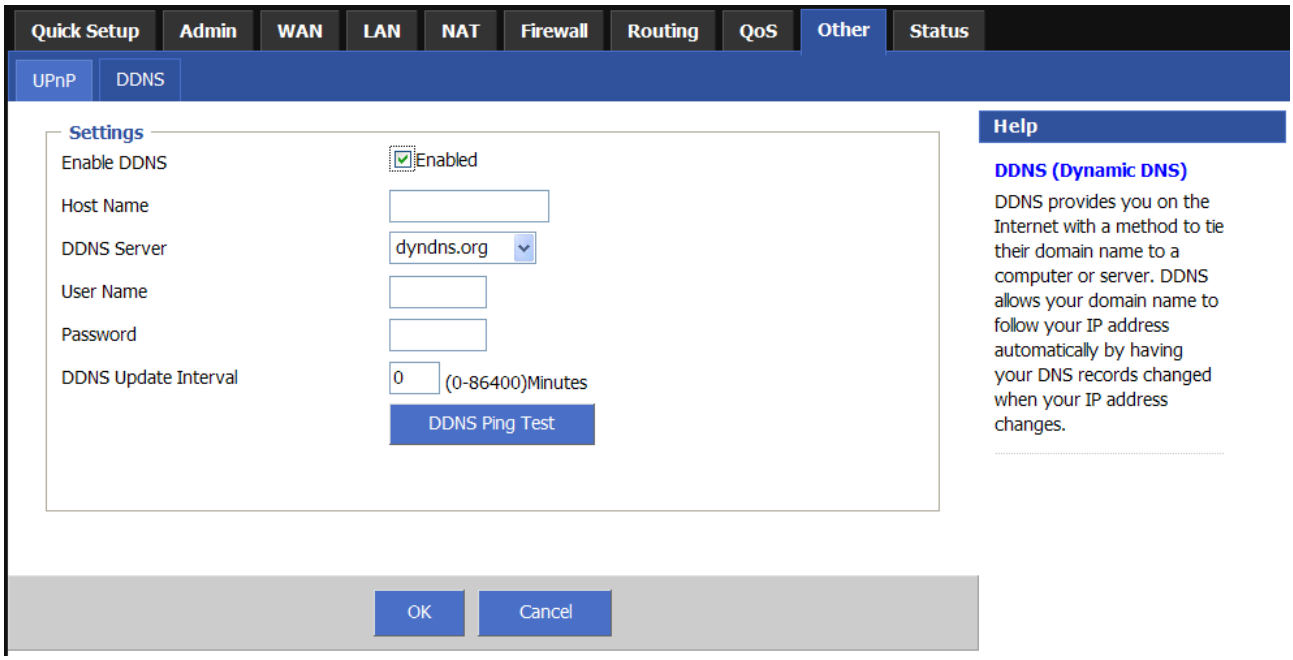
The table display the current UPnP Port Mapping information in system.

Parameter	Description
Remote Host	It shows the IP address of the remote Host.
External Port	It shows the external port number

Internal Port, Internal Client	It shows the internal port number and clinet.
Protocol	It shows the protocol.
Description	It describes this setting.

3.8.2 DDNS

DDNS (Dynamic DNS) allows you to map the static domain name to a dynamic IP address. You must get an account, password and your static domain name from the DDNS service providers. DDNS provides you on the Internet with a method to tie their domain name to a computer or server. DDNS allows your domain name to follow your IP address automatically by having your DNS records changed when your IP address changes.

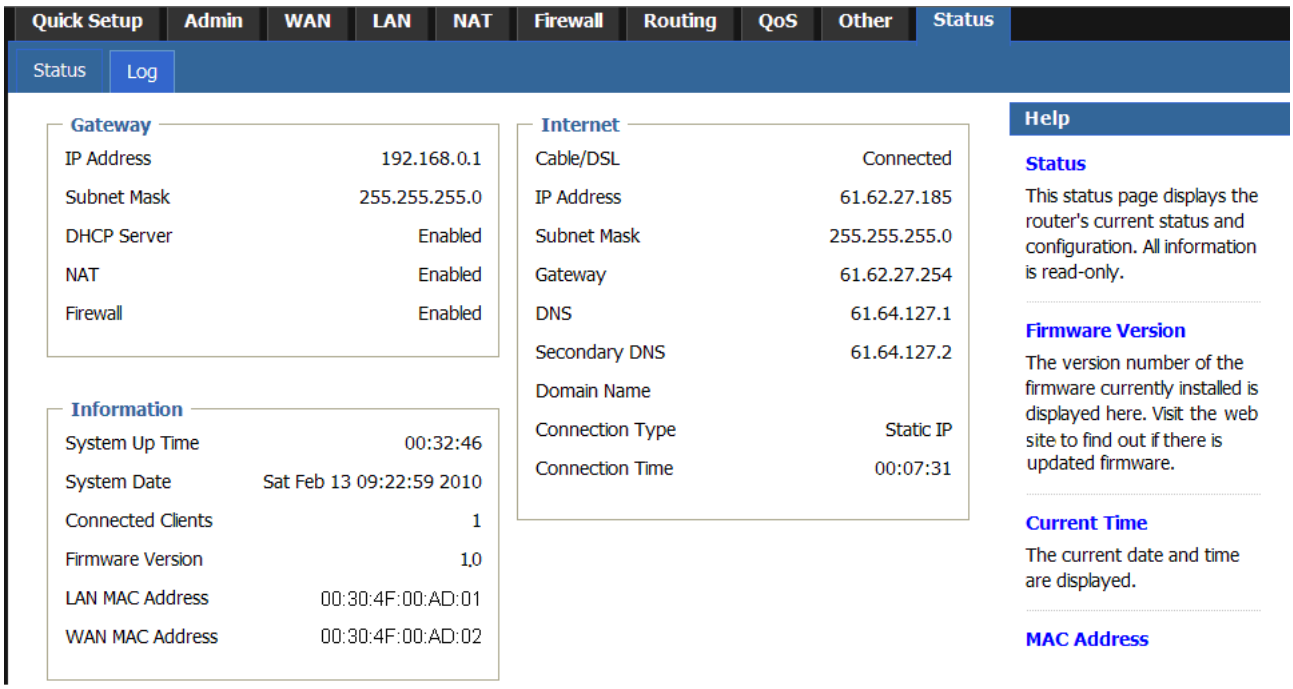


Parameters	Description
Enable / Disable	Enable/Disable the DDNS function of this router
Host Name	Your static domain name that use DDNS.
DDNS Server	Select a DDNS service provider.
User Name	The account that your DDNS service provider assigned to you.
Password	The password you set for the DDNS service account above.
DDNS Retry Time	To set up the time schedule to refresh DDNS setting.

3.9 Status

3.9.1 System Status

The section allows you to check XRT-401F system status and concurrent hardware information.

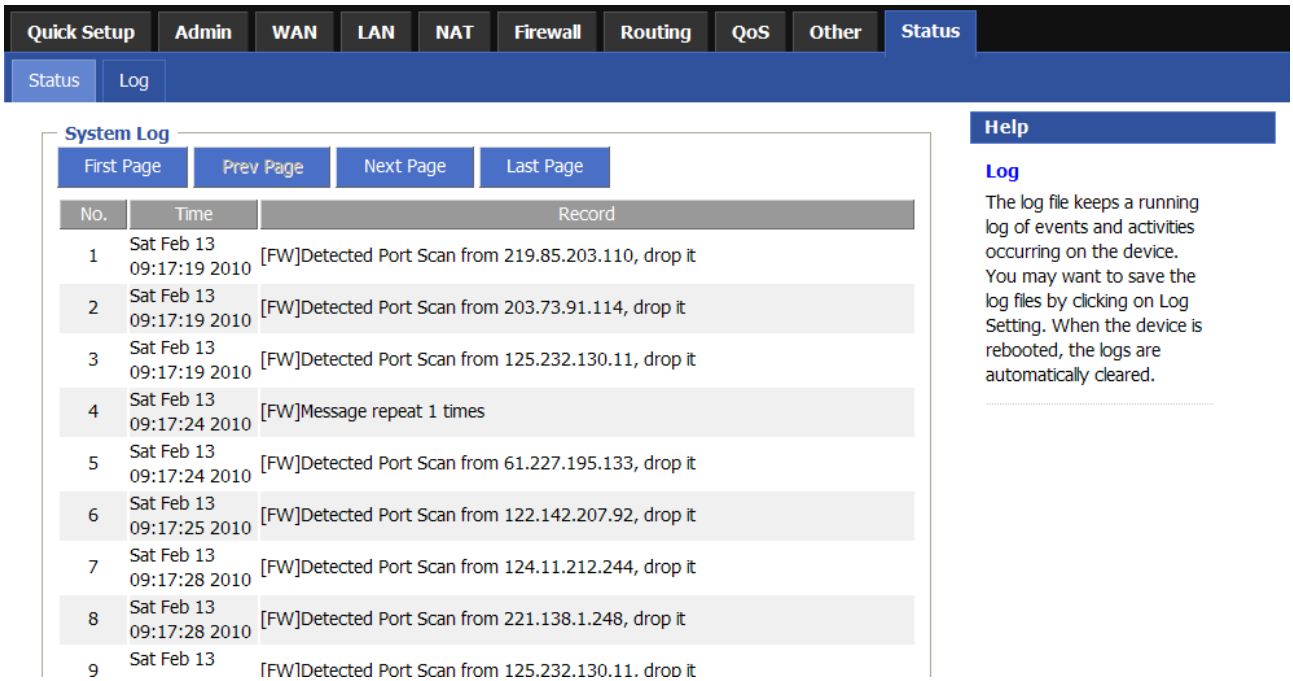


Parameter	Description
INTERNET	This item shows XRT-401F's current device settings, including the current **WAN IP Address,Subnet Mask, Gateway, DNS and Connection Type**.
GATEWAY	This item displays XRT-401F's current device settings, including **IP Address, Subnet Mask, DHCP Server, NAT and Firewall Status**.
INFORMATION	This item displays XRT-401F hardware device Settings, including **Connected Clients, Runtime Code Version and MAC Address**.

3.9.2 System Log

The Logs record various types of activity on XRT-401F. This data is useful for troubleshooting,but enabling all logs will generate a large amount of data and adversely affect performance. Since only a limited amount of log data can be stored in XRT-401F, log data can also be e-mailed to your PC or sent to a Syslog Server.

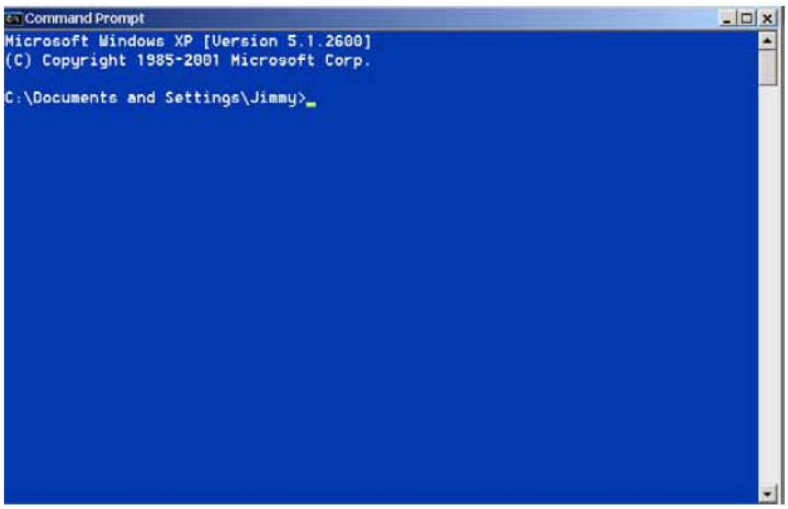
The Log displays events occurring within the router by time and date, and also view the description of the event. The user can use the **First Page**, **Prev Page**, **Next Page** and **Last Page** buttons to change the log page listed in the window. The user can click **Setting** to configure your log settings, click **Clear** to clear the log events and click **download** to download the log file on your local PC.



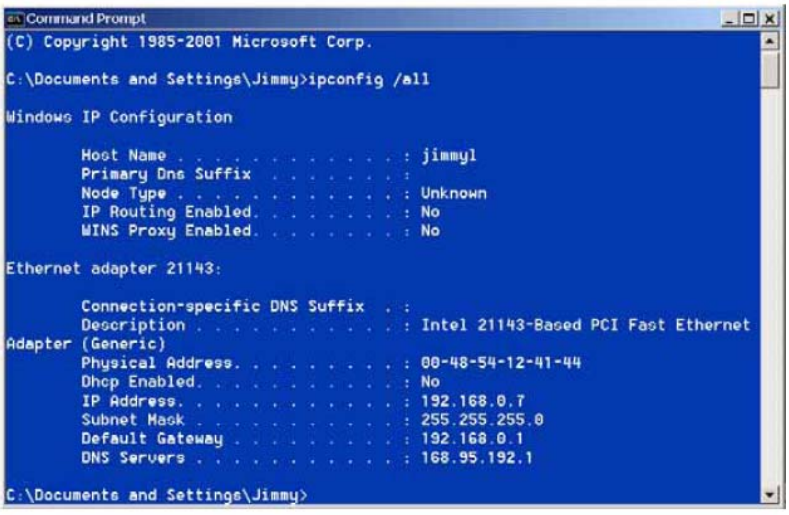
Appendix A

How to Manually find your PC's IP and MAC address

1) In Window's open the Command Prompt program



2) Type **ipconfig /all** and <enter>



- Your PC's IP address is the one entitled **IP address** (192.168.0.7)
- The router's IP address is the one entitled **Default Gateway** (192.168.0.1)
- Your PC's MAC Address is the one entitled **Physical Address** (00-48-54-12-41-44)

Appendix B

About Bridge Mode

This Router supports Bridge mode and the difference between **Bridge mode** and **Router mode** is as following table.

Features \ Mode	Bridge	Router	Remark
Physical Ports	WAN port comes to port 5 of the Router	WAN port	
IP Subnet Operating	**One IP Subnet** The Router won't route any more	**Two IP Subnets** The Router route toward the two IP Subnets	
Router Features	**Not support**	**WAN** **NAT** **Firewall** **Routing**	
LAN Features	Port Based VLAN 802.1q-based VLAN	DHCP Serve Port Based VLAN	
Management Feature	Only LAN local management	LAN local management WAN remote mangemetn	

Glossary

Default Gateway (Router): Every non-router IP device needs to configure a default gateway's IP address. When the device sends out an IP packet, if the destination is not on the same network, the device has to send the packet to its default gateway, which will then send it out towards the destination.

DHCP: Dynamic Host Configuration Protocol. This protocol automatically gives every computer on your home network an IP address.

DNS Server IP Address: DNS stands for Domain Name System, which allows Internet servers to have a domain name (such as www.Broadbandrouter.com) and one or more IP addresses (such as 192.34.45.8). A DNS server keeps a database of Internet servers and their respective domain names and IP addresses, so that when a domain name is requested (as in typing "www.planet.com.tw" into your Internet browser), the user is sent to the proper IP address. The DNS server IP address used by the computers on your home network is the location of the DNS server your ISP has assigned to you.

DSL Modem: DSL stands for Digital Subscriber Line. A DSL modem uses your existing phone lines to transmit data at high speeds.

Ethernet: A standard for computer networks. Ethernet networks are connected by special cables and hubs, and move data around at up to 10/100 million bits per second (Mbps).

Idle Timeout: Idle Timeout is designed so that after there is no traffic to the Internet for a preconfigured amount of time, the connection will automatically be disconnected.

IP Address and Network (Subnet) Mask: IP stands for Internet Protocol. An IP address consists of a series of four numbers separated by periods, that identifies a single, unique Internet computer host in an IP network. Example: 192.168.0.1. It consists of 2 portions: the IP network address, and the host identifier.
The IP address is a 32-bit binary pattern, which can be represented as four cascaded decimal numbers separated by " aaa.aaa.aaa.aaa", where each "aaa" can be anything from 000 to 255, or as four cascaded binary numbers separated by "bbbbbbbb.bbbbbbbb.bbbbbbbb.bbbbbbbb", where each "b" can either be 0 or 1.
A network mask is also a 32-bit binary pattern, and consists of consecutive leading 1's followed by consecutive trailing 0's, such as 11111111.11111111.11111111.00000000. Therefore sometimes a network mask can also be described simply as "x" number of leading 1's. When both are represented side by side in their binary forms, all bits in the IP address that correspond to 1's in the network mask become part of the IP network address, and the remaining bits correspond to the host ID.

For example, if the IP address for a device is, in its binary form,11011001.10110000. 10010000.00000111, and if its network mask is, 11111111.11111111.11110000.00000000
It means the device's network address is 11011001.10110000.10010000.00000000, and its host ID is, 00000000.00000000.00000000.00000111. This is a convenient and efficient method for routers to route IP packets to their destination.

ISP Gateway Address: (see ISP for definition). The ISP Gateway Address is an IP address forthe Internet router located at the ISP's office.

ISP: Internet Service Provider. An ISP is a business that provides connectivity to the Internet for individuals and other businesses or organizations.

LAN: Local Area Network. A LAN is a group of computers and devices connected together in a relatively small area (such as a house or an office). Your home network is considered a LAN.

MAC Address: MAC stands for Media Access Control. A MAC address is the hardware address of a device connected to a network. The MAC address is a unique identifier for a device with an Ethernet interface. It is comprised of two parts: 3 bytes of data that corresponds to the Manufacturer ID (unique for each manufacturer), plus 3 bytes that are often used as the product's serial number.

NAT: Network Address Translation. This process allows all of the computers on your home network to use one IP address. Using XRT-401F's NAT capability, you can access the Internet from any computer on your home network without having to purchase more IP addresses from your ISP.

Port: Network Clients (LAN PC) uses port numbers to distinguish one network application/protocol over another. Below is a list of common applications and protocol/port numbers:

Application	Protocol	Port Number
Telnet	TCP	23
FTP	TCP	21
SMTP	TCP	25
POP3	TCP	110
H.323	TCP	1720
SNMP	UCP	161
SNMP Trap	UDP	162
HTTP	TCP	80
PPTP	TCP	1723
PC Anywhere	TCP	5631
PC Anywhere	UDP	5632

PPPoE: Point-to-Point Protocol over Ethernet. Point-to-Point Protocol is a secure data transmission method originally created for dial-up connections; PPPoE is for Ethernet connections. PPPoE relies on two widely accepted standards, Ethernet and the Point-to-Point Protocol. It is a communications protocol for transmitting information over Ethernet between different manufacturers

Protocol: A protocol is a set of rules for interaction agreed upon between multiple parties so that when they interface with each other based on such a protocol, the interpretation of their behavior is well defined and can be made objectively, without confusion or misunderstanding.

Router: A router is an intelligent network device that forwards packets between different networks based on network layer address information such as IP addresses.

Subnet Mask: A subnet mask, which may be a part of the TCP/IP information provided by your ISP, is a set of four numbers (e.g. 255.255.255.0) configured like an IP address. It is used to create IP address numbers used only within a particular network (as opposed to valid IP address numbers recognized by the Internet, which must be assigned by InterNIC).

TCP/IP, UDP: Transmission Control Protocol/Internet Protocol (TCP/IP) and Unreliable Datagram Protocol (UDP). TCP/IP is the standard protocol for data transmission over the Internet. Both TCP and UDP are transport layer protocol. TCP performs proper error detection and error recovery, and thus is reliable. UDP on the other hand is not reliable. They both run on top of the IP (Internet Protocol), a network layer protocol.

WAN: Wide Area Network. A network that connects computers located in geographically separate areas (e.g. different buildings, cities, countries). The Internet is a wide area network.

Web-based management Graphical User Interface (GUI): Many devices support a graphicaluser interface that is based on the web browser. This means the user can use the familiar Netscape or Microsoft Internet Explorer to Control/configure or monitor the device being managed.
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