Internet Broadband Router

XRT-401E

User's Manual

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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:
- Reorient the receiving radio or TV antenna where this may be done safely.
- To the extent possible, relocate the radio, TV or other receiver away from the Switch.
- 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.

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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.

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Revision

User's Manual for PLANET Internet Broadband Router:
Model: XRT-401E
Rev: 1.0 (Jan. 2005)
Part No.: 2080-B40060-000

TABLE OF CONTENTS

Chapter 1 Introduction

Congratulations on purchasing PLANET XRT-401E. This Broadband Router is a cost-effective IP Sharing Router that enables multiple users to share the Internet through an ADSL or cable modem. Simply configure your Internet connection settings in XRT-401E and plug your PC to the LAN port and you're ready to share files and access the Internet. As your network grows, you can connect another hub or switch to the router's LAN ports, allowing you to easily expand your network. XRT-401E provides a total solution for the Small Business (SMB) and the Small Office/Home Office (SOHO) markets, giving you an instant network today, and the flexibility to handle tomorrow's expansion and speed.

1.1 Features

- Allow multiple users to share a single Internet line
- Supports up to 253 users
- Internet Access via Cable or xDSL modem
- Access Private LAN Servers from the Public Network
- Equipped with four LAN ports (10/100M) and one WAN port (10/100M)
- Support DHCP (Server/Client) for easy setup
- Support advance features such as: Special Applications, Port Mapping, DMZ, Virtual Servers, ALG, and Firewall options.
- Allow you to monitor the router's status such as: System Status and System Log.
- Easy to use Web-based GUI for configuration and management purposes
- Remote Management allows configuration and upgrades from a remote site (over the Internet)

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 4.0 or higher, or Netscape Navigator 4.7 or higher)

1.3 Package Contents

- One XRT-401E unit
- One Quick Installation Guide
- One User Manual CD
- One Power Adapter

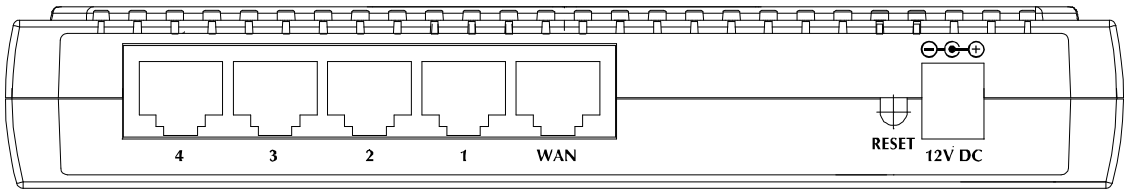
Note

The WAN "idle timeout" auto-disconnect function may not work due to abnormal activities of some network application software; computer virus or hacker attacks from the Internet. For example, some software sends network packets to the Internet in the background, even when you are not using the Internet. So please turn off your computer when you are not using it. This function also may not work with some ISP. So please make sure this function can work properly when you use this function in the first time, especially when your ISP charge you by time used.

1.4 Get to know XRT-401E

Back Panel

The diagram below shows XRT-401E's back panel. The router's back panel is divided into three sections, **LAN (1, 2, 3, 4)**, **WAN** and **Reset**:



1) Local Area Network (LAN)

XRT-401E's 4 LAN ports are where you connect your LAN's PCs, printer servers, hubs and switches etc.

2) Wide Area Network (WAN)

The WAN port is the segment connected to your xDSL or Cable modem and is linked to the Internet.

3) Reset

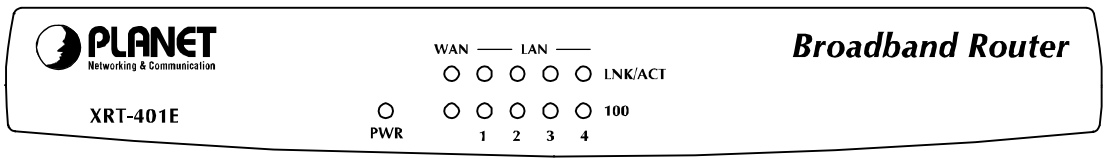
The Reset button allows you to do one of two things.

1) If problems occur with your router, press the router's reset button with a pencil tip (for less than 3 seconds) and the router will re-boot itself, keeping your original configurations.

2) If problems persist or you experience extreme problems or you forgot your password, press the reset button for longer than 3 seconds and the router will reset itself to the factory default settings (**warning**: your original configurations will be replaced with the factory default settings)

Front Panel

On XRT-401E's front panel there are LED lights that inform you of machine current status. Below is an explanation of each LED and its description.



LED		Light Status	Description
PWR		ON	Router's power supply is on
WAN	100	ON	WAN port 100Mbps is connected
		Off	WAN port 10Mbps is connected
WAN	LNK/ACT	ON	WAN is connected
		OFF	No WAN connection
		Flashing	WAN port has Activity (ACT), data being sent

LAN (Port 1-4)	100	ON	LAN port 100Mbps is connected
		OFF	LAN port 10Mbps is connected
LAN (Port 1-4)	LNK/ACT	ON	LAN is connected
		OFF	No LAN connection
		Flashing	LAN port has Activity (ACT), data being sent

1.5 Setup Diagram

Figure 1.2 below shows a typical setup for a Local Area Network (LAN).

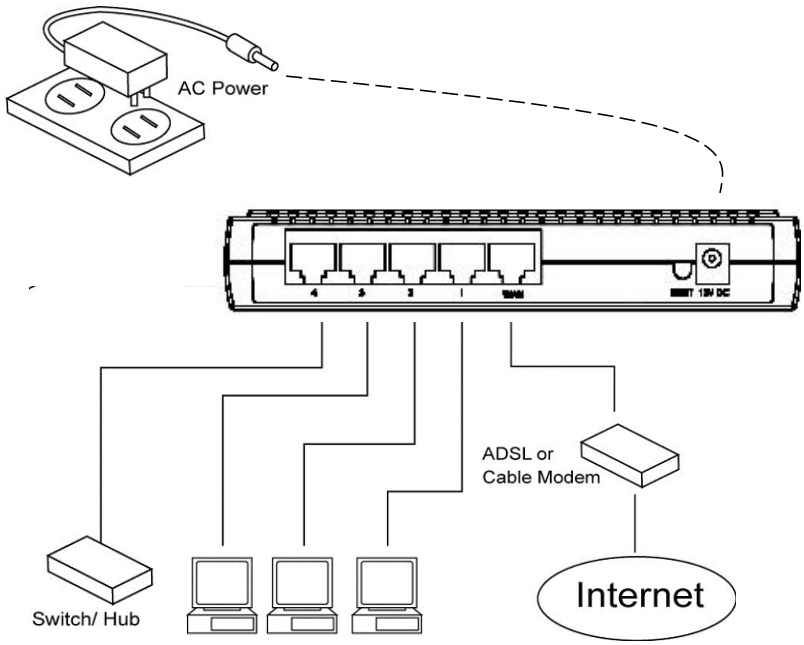


Figure 1.2

1.6 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 above (fig 1.2).

2) You then need to set your LAN PC clients so that it can obtain an IP address automatically. All LAN clients require an IP address. Just like an address, it allows LAN clients to find one another.

Configure your PC to obtain an IP address automatically
By default XRT-401E's DHCP is on, this means that you can obtain an IP address automatically once you've configured 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 95/98/Me, 2000 or NT operating systems. For other operating systems (Macintosh, Sun, etc.), 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 2a) **Windows 95/98/Me**, 2b) **Windows XP**, 2c) **Windows 2000** and 2d) **Windows NT**.

2a) Windows 95/98/Me

1: Click the *Start* button and select *Settings*, then click *Control Panel*. The *Control Panel* window will appear.

2: Double-click *Network* icon. The *Network* window will appear.

3: Check your list of Network Components. If TCP/IP is not installed, click the *Add* button to install it now. If TCP/IP is installed, go to **step 6**.

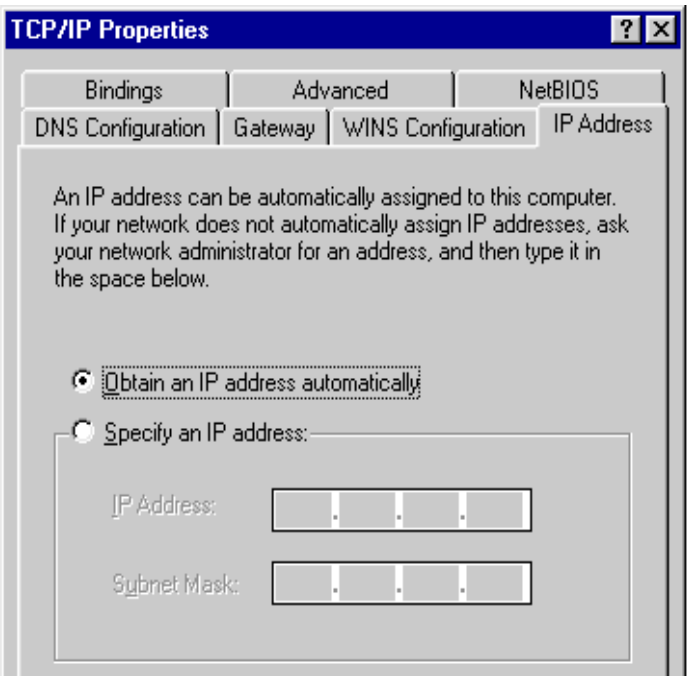
4: In the *Network Component Type* dialog box, select *Protocol* and click *Add* button.

5: In the *Select Network Protocol* dialog box, select *Microsoft* and *TCP/IP* and then click the *OK* button to start installing the TCP/IP protocol. You may need your Windows CD to complete the installation.

6: After installing TCP/IP, go back to the *Network* dialog box. Select *TCP/IP* from the list of *Network Components* and then click the *Properties* button.

7: Check each of the tabs and verify the following settings:

- **Bindings**: Check *Client for Microsoft Networks* and *File and printer sharing for Microsoft Networks*.
- **Gateway**: All fields are blank.
- **DNS Configuration**: Select *Disable DNS.*
- **WINS Configuration**: Select *Disable WINS Resolution.*
- **IP Address**: Select *Obtain IP address automatically*.



8: Reboot the PC. Your PC will now obtain an IP address automatically from your Broadband Router's DHCP server.

Note: Please make sure that XRT-401E's DHCP server is the only DHCP server available on your LAN.

Once you've configured your PC to obtain an IP address automatically, please proceed to Step 3

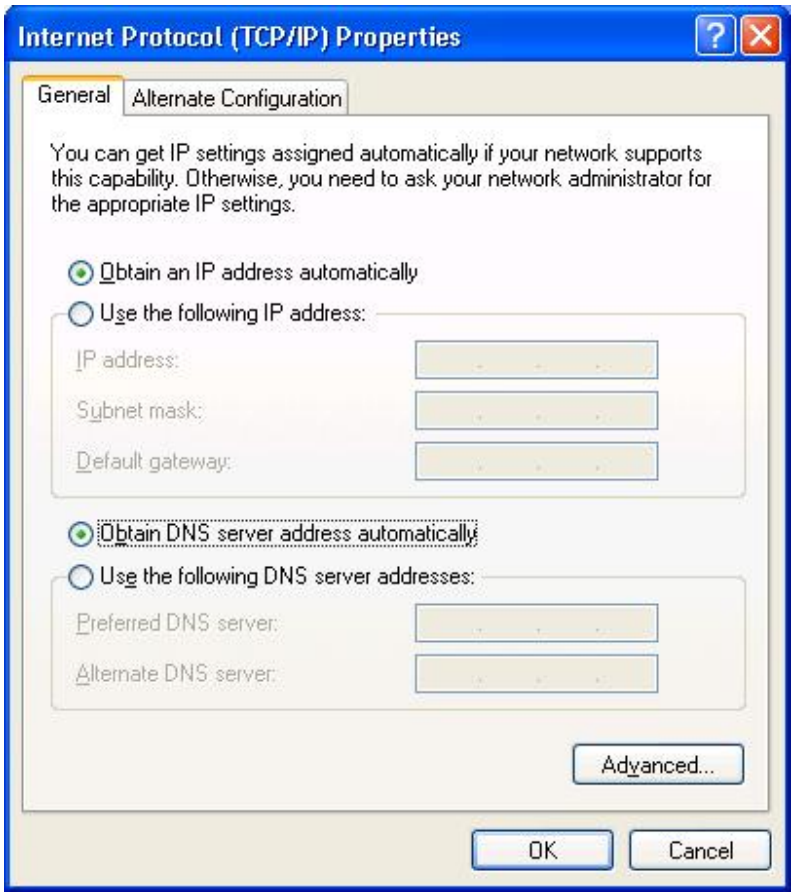
2b) Windows XP

1: Click the *Start* button and select *Settings*, then click *Network Connections.* The *Network Connections* window will appear.

2: Double-click *Local Area Connection* icon. The *Local Area Connection* window will appear.

3: Check your list of Network Components. You should see *Internet Protocol [TCP/IP]* on your list. Select it and click the *Properties* button.

4: In the Internet Protocol (TCP/IP) Properties window, select *Obtain an IP address automatically* and *Obtain DNS server address automatically* as shown on the following screen.



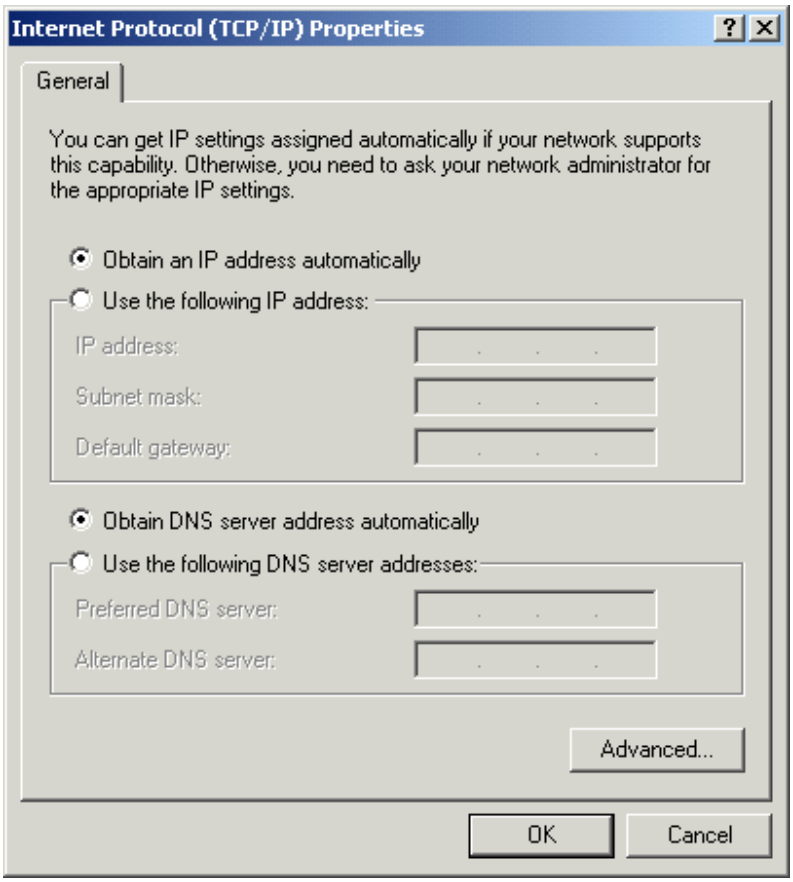
5: Click *OK* to confirm the setting. Your PC will now obtain an IP address automatically from your Broadband Router's DHCP server.

Note: Please make sure that XRT-401E's DHCP server is the only DHCP server available on your LAN.

Once you've configured your PC to obtain an IP address automatically, please proceed to Step 3.

2c) Windows 2000

1: Click the *Start* button and select *Settings*, then click *Control Panel*. The *Control Panel* window will appear.
2: Double-click *Network and Dial-up Connections* icon. In the *Network and Dial-up Connection* window, double-click *Local Area Connection* icon. The *Local Area Connection* window will appear.
3: In the *Local Area Connection* window, click the *Properties* button.
4: Check your list of Network Components. You should see *Internet Protocol [TCP/IP]* on your list. Select it and click the *Properties* button.
5: In the Internet Protocol (TCP/IP) Properties window, select *Obtain an IP address automatically* and *Obtain DNS server address automatically* as shown on the following screen.



6: Click *OK* to confirm the setting. Your PC will now obtain an IP address automatically from your Broadband Router's DHCP server.

Note: Please make sure that XRT-401E's DHCP server is the only DHCP server available on your LAN.

Once you've configured your PC to obtain an IP automatically, please proceed to Step 3.

2d) Windows NT

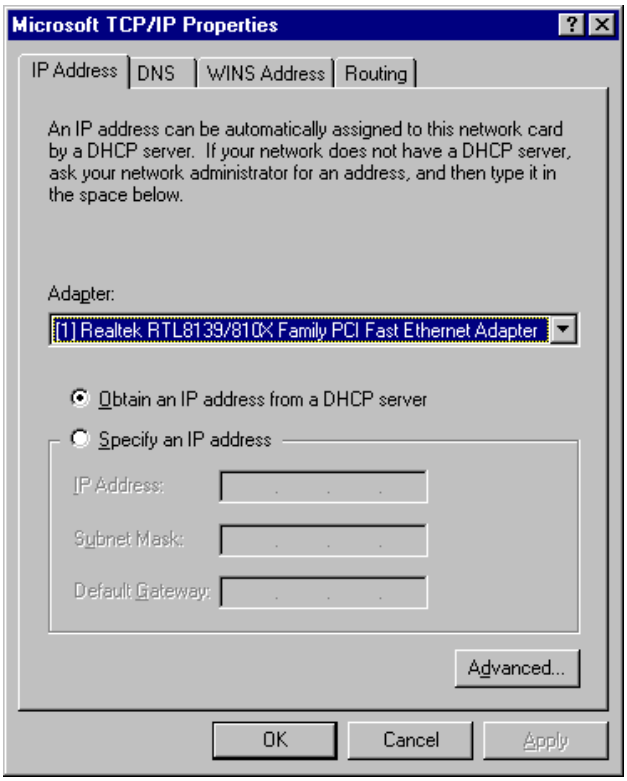
1: Click the *Start* button and select *Settings*, then click *Control Panel*. The *Control Panel* window will appear.

2: Double-click *Network* icon. The *Network* window will appear. Select the *Protocol* tab from the *Network* window.

3: Check if the *TCP/IP Protocol* is on your list of *Network Protocols*. If TCP/IP is not installed, click the *Add* button to install it now. If TCP/IP is installed, go to **step 5**.

4: In the *Select Network Protocol* window, select the *TCP/IP Protocol* and click the *Ok* button to start installing the TCP/IP protocol. You may need your Windows CD to complete the installation.

5: After you install TCP/IP, go back to the *Network* window. Select *TCP/IP* from the list of *Network Protocols* and then click the *Properties* button.



6: Check each of the tabs and verify the following settings:

- **IP Address:** Select *Obtain an IP address from a DHCP server*.
- **DNS:** Let all fields are blank.
- **WINS:** Let all fields are blank.
- **Routing:** Let all fields are blank.

7: Click *OK* to confirm the setting. Your PC will now obtain an IP address automatically from your Broadband Router's DHCP server.

Note: Please make sure that XRT-401E's DHCP server is the only DHCP server available on your LAN.

Once you've configured your PC to obtain an IP address automatically, please proceed to Step 3.

3) Once you have configured your PCs to obtain an IP address automatically, the router's DHCP server will automatically give your LAN clients an IP address. By default XRT-401E's DHCP server is enabled so that you can obtain an IP address automatically. To see if you have obtained an IP address, see Appendix A.

Note: Please make sure that XRT-401E'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. (To disable XRT-401E's DHCP server see chapter 3 LAN Port)

4) Once your PC has obtained an IP address from your router, enter the default IP address **192.168.0.1** (broadband router's IP address) into your PC's web browser and press <enter>

5) The login screen below will appear. Enter the “User Name” and “Password” and then click <OK> to login.

Note: By default the user name is “***admin***” and the password is “***admin***”. For security reasons it is recommended that you change the password as soon as possible (in General setup/system/password, see chapter 3)

6) Click on **Wizard** (see chapter 2) to start configuring settings required by your ISP so that you can start accessing the Internet. The other sections do not need to be configured unless you wish to implement/monitor more advance features/information.

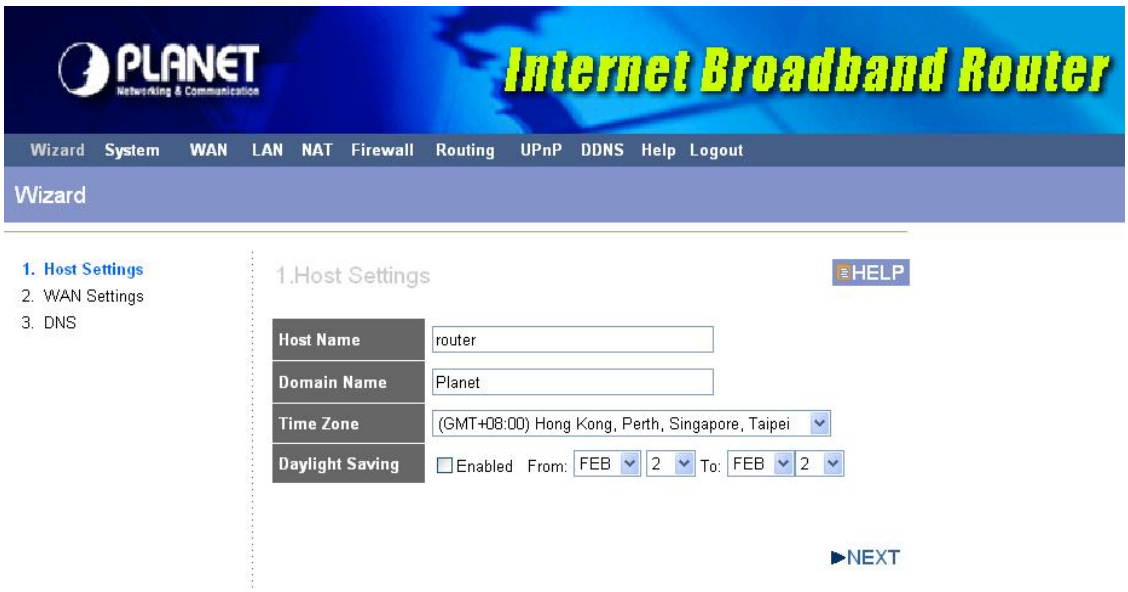
Select the section you wish to configure and proceed to the corresponding chapter. Use the selections on the web management’s top page to navigate around the web-based management User Interface.

Chapter 2 Wizard

The Wizard section is designed to get you using XRT-401E 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.



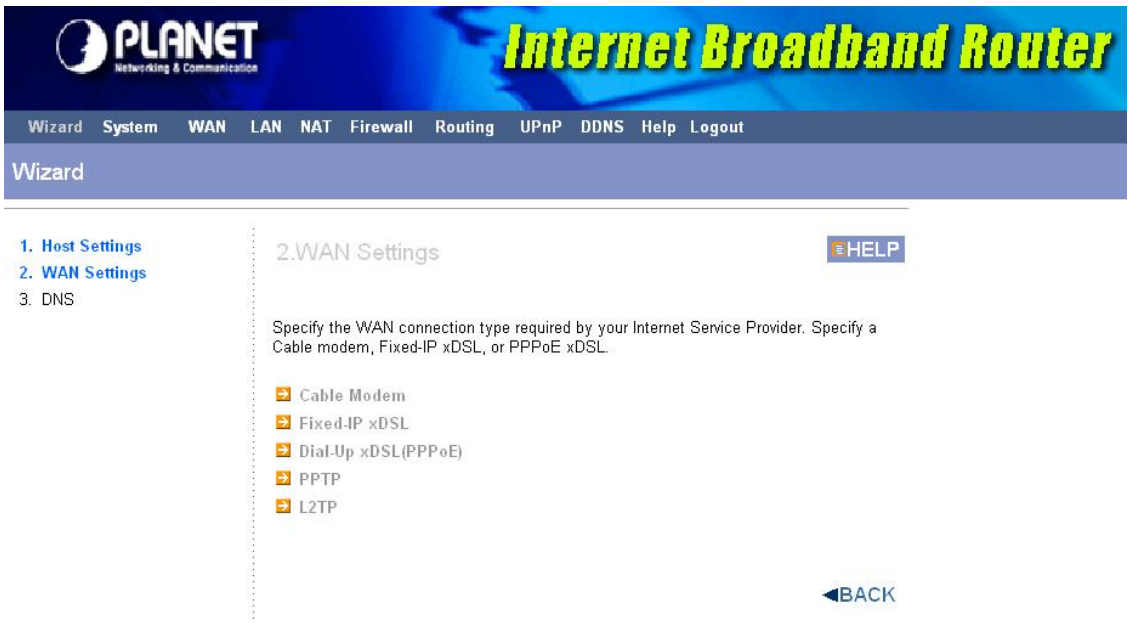
Parameter	Description
Host Name	Optional. You can specify a Host name for XRT-401E.
Domain Name	Optional. You can specify a Domain name to annotate your LAN area.
Time Zone	Select the time zone of the country you are currently in. The router will set its time based on your selection.
Daylight Savings	The XRT-E 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.

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-E Router'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.



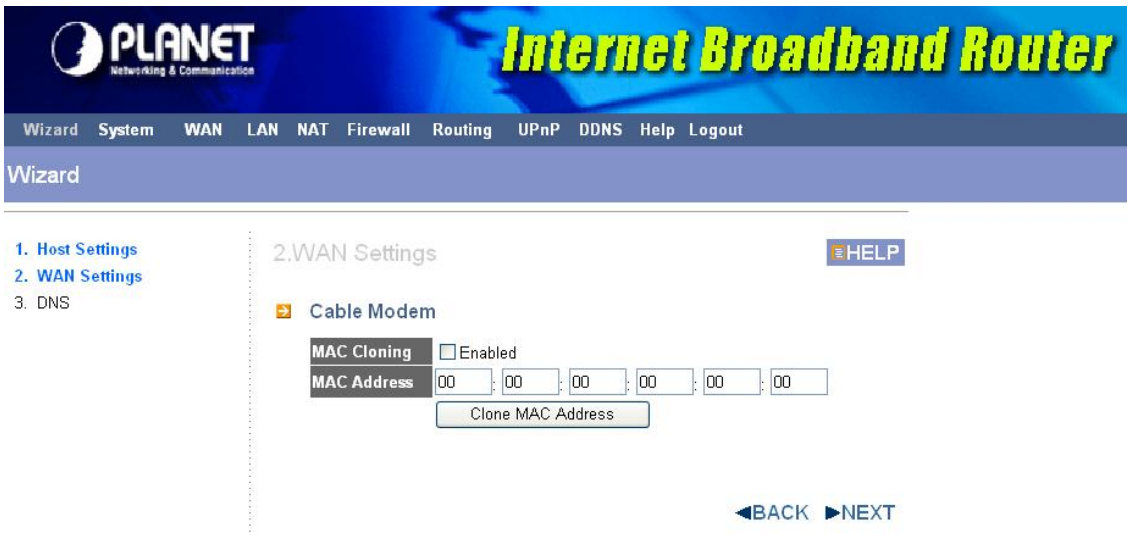
Menu	Description
2.1 Cable Modem	Your ISP will automatically give you an IP address
2.2 Fixed-IP xDSL	Your ISP has given you an IP address already
2.3 Dial-Up xDSL (PPPoE)	Your ISP requires you to use a Point-to-Point Protocol over Ethernet (PPPoE) connection.
2.4 PPTP	Your ISP requires you to use a Point-to-Point Tunneling Protocol (PPTP) connection.
2.5 L2TP	Layer 2 Tunneling Protocol is a common connection method used in xDSL connections.

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 Cable Modem

Choose Cable Modem 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).

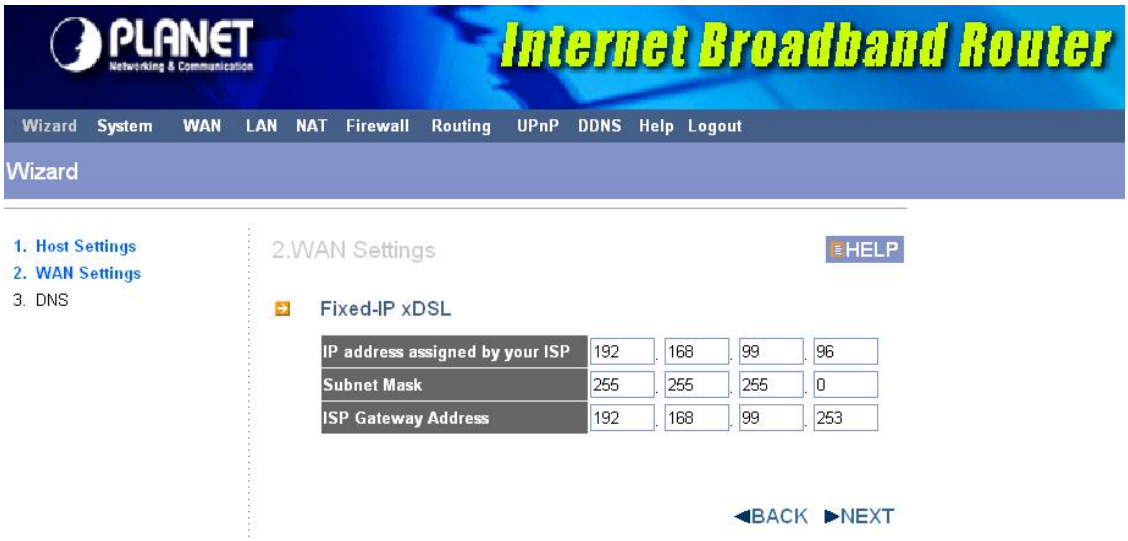
Note: The MAC address section is *optional* and you can skip this section if your ISP does not require these settings for you to connect to the Internet.



Parameter	Description
MAC Cloning	If you want to clone your PC's MAC address to XRT-401E, 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 Fixed-IP xDSL

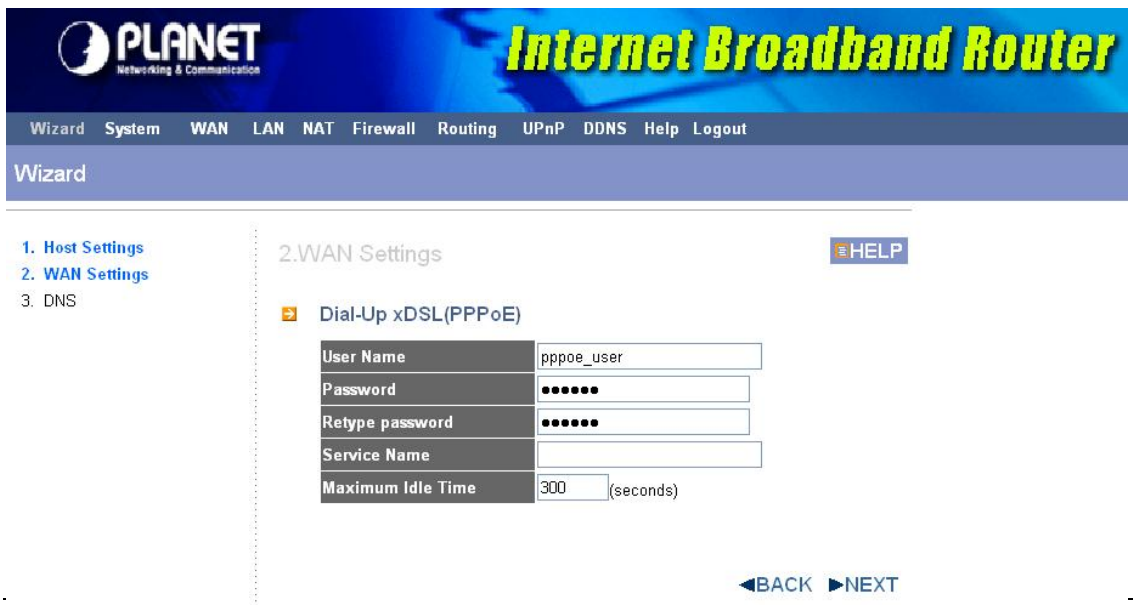
Select Fixed-IP xDSL if your ISP has given you a specific IP address to use. Your ISP should provide all the information required in this section.



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 Dial-Up xDSL (PPPoE)

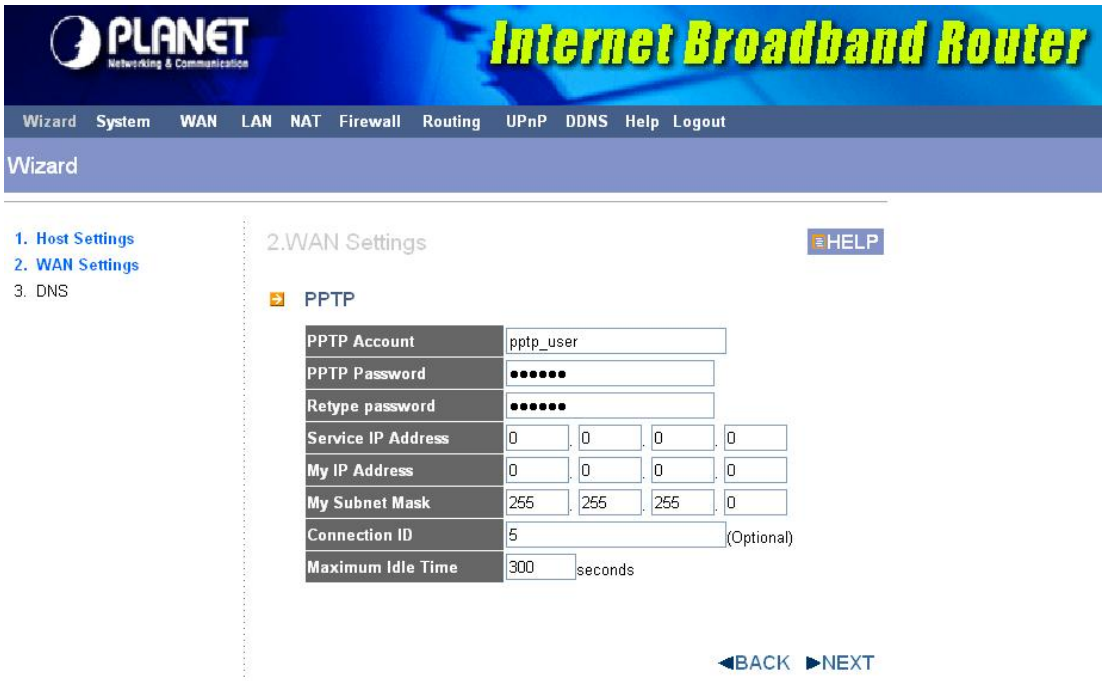
Select Dial-Up xDSL (PPPoE) if your ISP requires the PPPoE protocol to connect you to the Internet. Your ISP should provide all the information required in this section.



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.
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.

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.

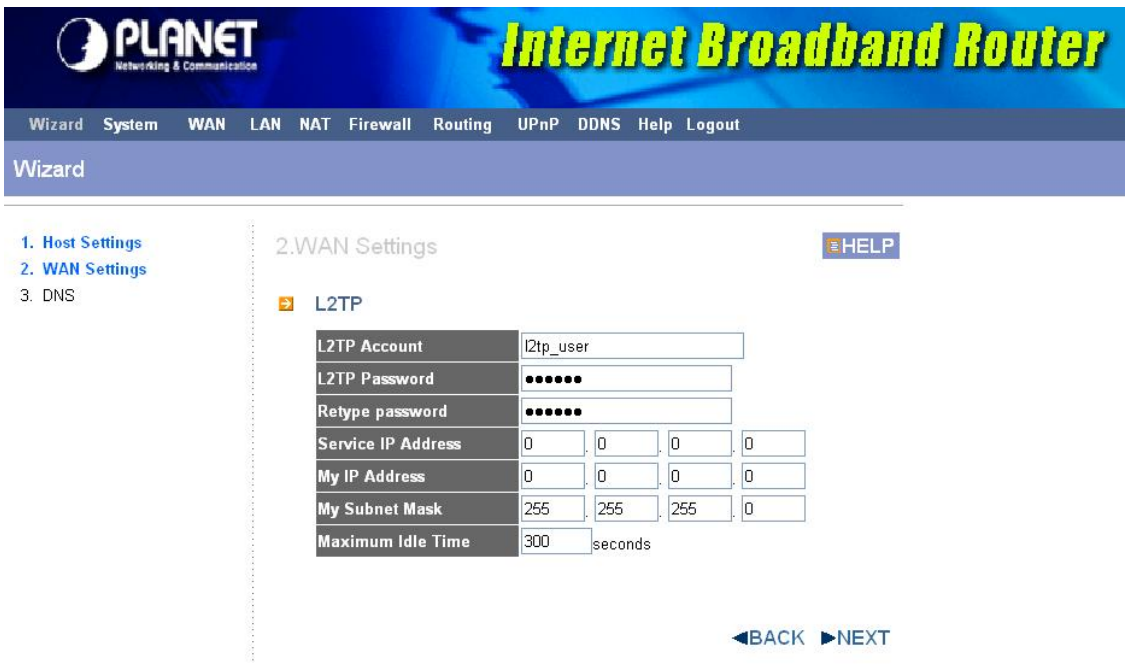


Parameter	Description
PPTP Account	Enter the PPTP Account provided by your ISP for the PPTP connection.

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)
Connection ID	This is the ID given by ISP. This is optional.
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.

2.5 L2TP

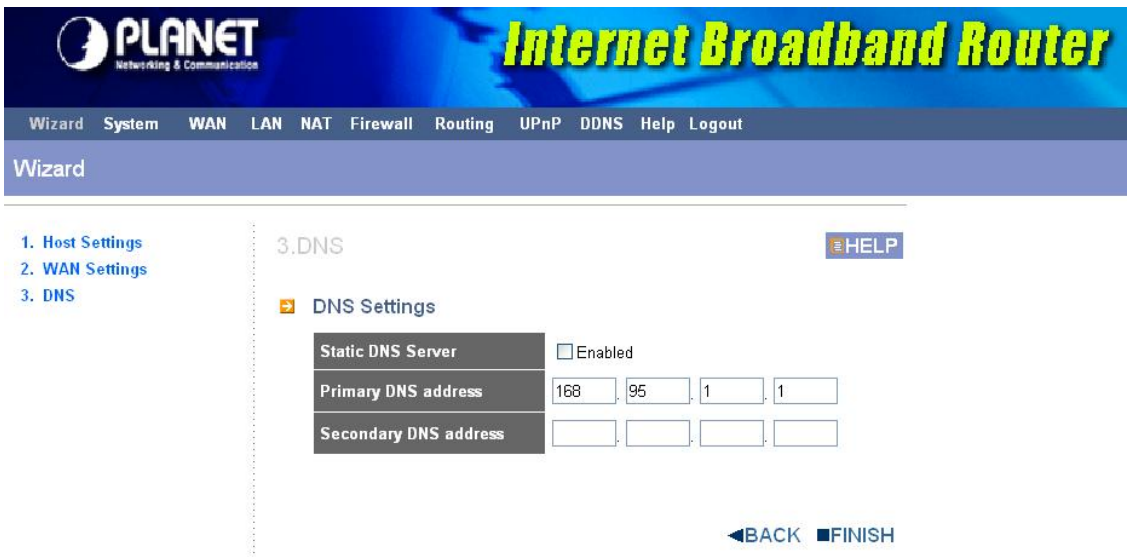
Select L2TP if your ISP requires the L2TP protocol to connect you to the Internet. Your ISP should provide all the information required in this section.



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)
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.

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 <**Finish>** when you have finished the configuration above. **Congratulations**! 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: Special Applications, Port Mapping, DMZ, Virtual Servers, ALG, and Firewall option.

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

Menu	Description
3.1 System	This section allows you to set XRT-401E'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 UPnP	The UPnP section allows you to enable and configure UPnP function.
3.8 DDNS	You can configure DDNS service in this section.

Select one of the above advance features selections and proceed to the manual's relevant sub-section

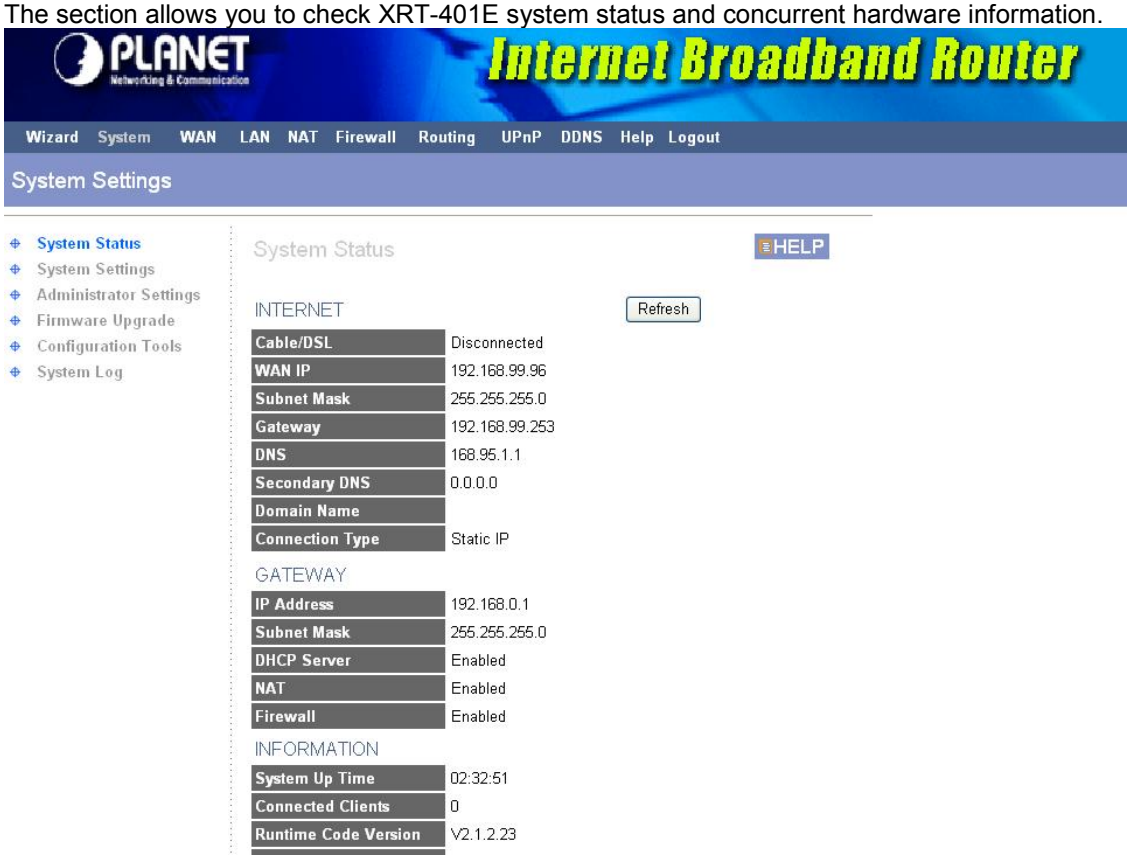
3.1 System

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

Parameters	Description
System Settings	
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-401E, you also can specify a syslog server to save the log remotely.

3.1.1 System Status

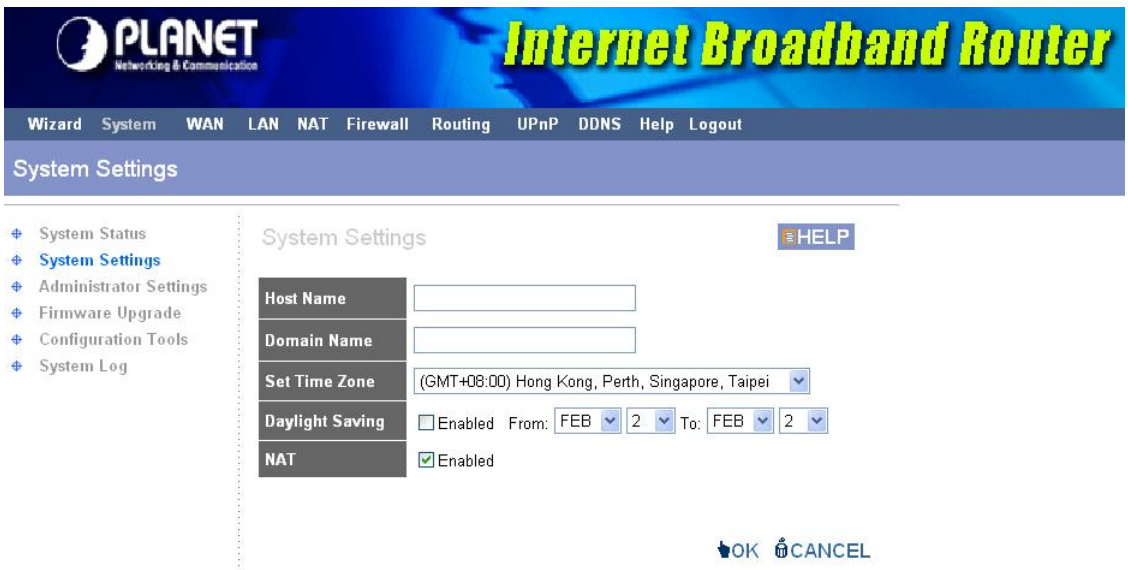
The section allows you to check XRT-401E system status and concurrent hardware information.



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

3.1.2 System Settings

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

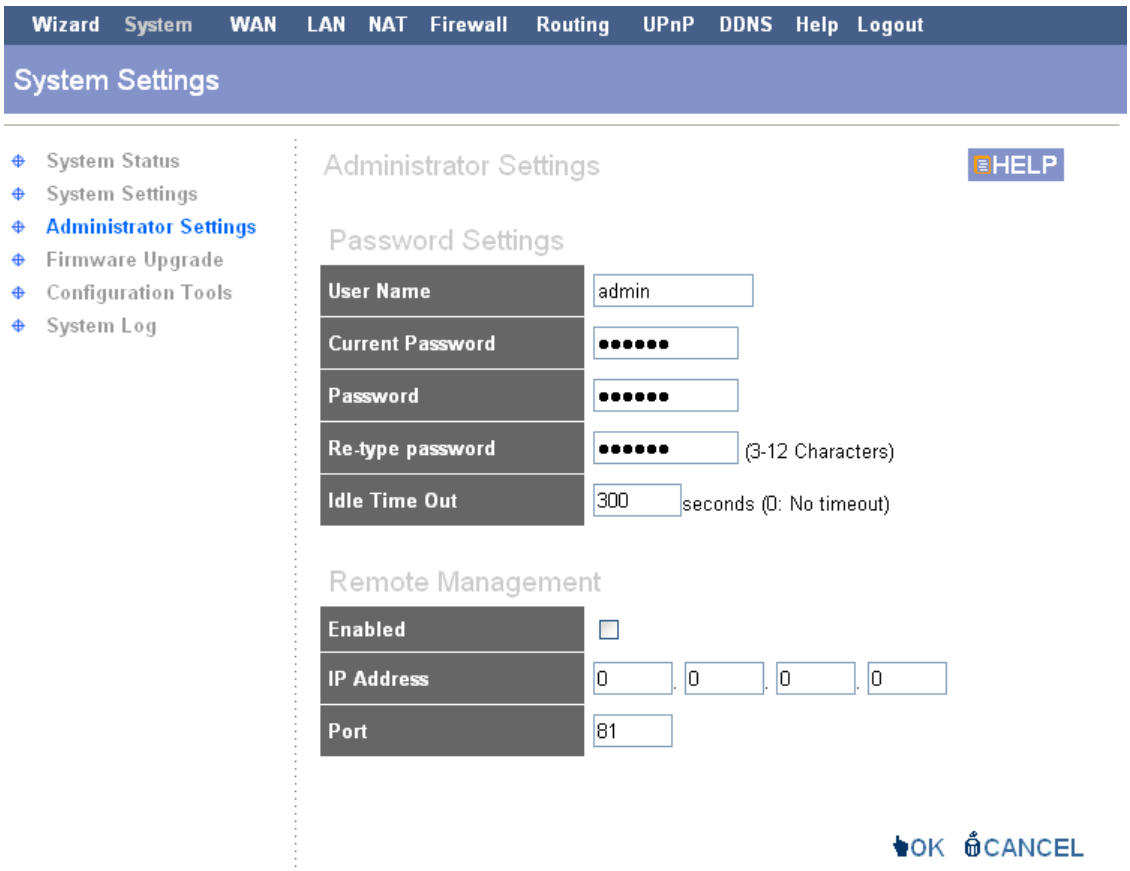


Parameters	Description
Host Name	Optional. You can specify a Host name for XRT-401E.
Domain Name	Optional. You can specify a Domain name to annotate your LAN area.
Set Time Zone	Select the time zone of the country you are currently in. The router will set its time based on your selection.

Daylight Saving	The XRT-401E 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.
NAT	Select to enable or disable NAT function.

3.1.3 Administrator Settings

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



Parameters	Description
Password Settings	
User Name	To specify a login name, the default is admin.
Current Password	Enter the current password for verification.
Password	Type a new password in order to access the web-based management website.
Re-type Password	Re-type the password for confirmation.

Idle Time Out	If the inactive time exceeds the setting, XRT-401E will logout automatically. 0 means No timeout.

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-401E 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.

3.1.4 Firmware Upgrade

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

Parameters	Description
Firmware Upgrade	This tool allows you to upgrade XRT-401E'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.

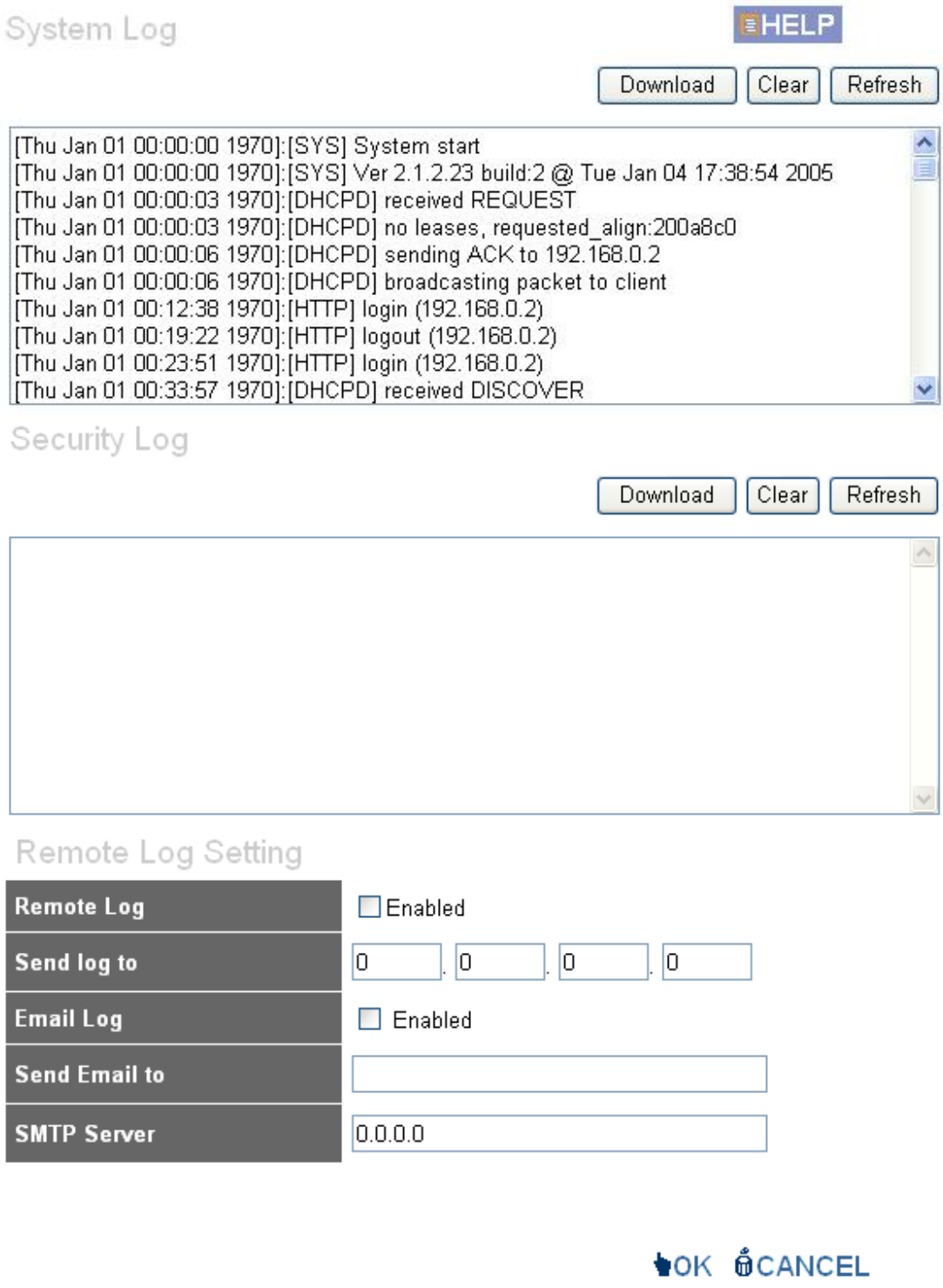
3.1.5 Configuration Tool

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.

Parameters	Description
Restart System	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**.
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 re-load the saved configuration into the router through the **Restore Settings** selection.

3.1.6 System Log

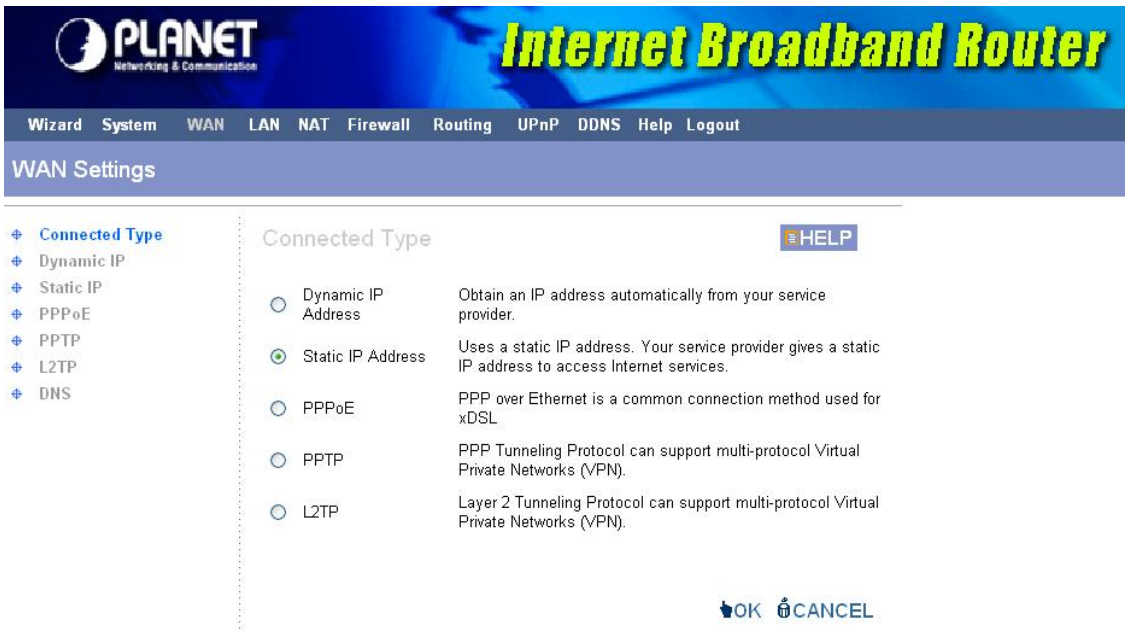
The Logs record various types of activity on XRT-401E. This data is useful for troubleshooting, but enabling all logs will generate a large amount of data and adversely affect performance. Since only a limited amount of log data can be stored in XRT-401E, log data can also be E-mailed to your PC or sent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



Parameters	Description
System Log	The Log records the router operating of activity on XRT-401E.
Security Log	The Log shows the current security log of XRT-401E. At the top of the content, the security log can be saved.
Remote Log Setting	
Remote Log	Select <Enabled> to allow saving the log to Syslog Server.
Send Log to	Enter the IP address of your Syslog Server.
Email Log	Select <Enabled> to allow mailing the log to specific user.
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, L2TP and DNS.**

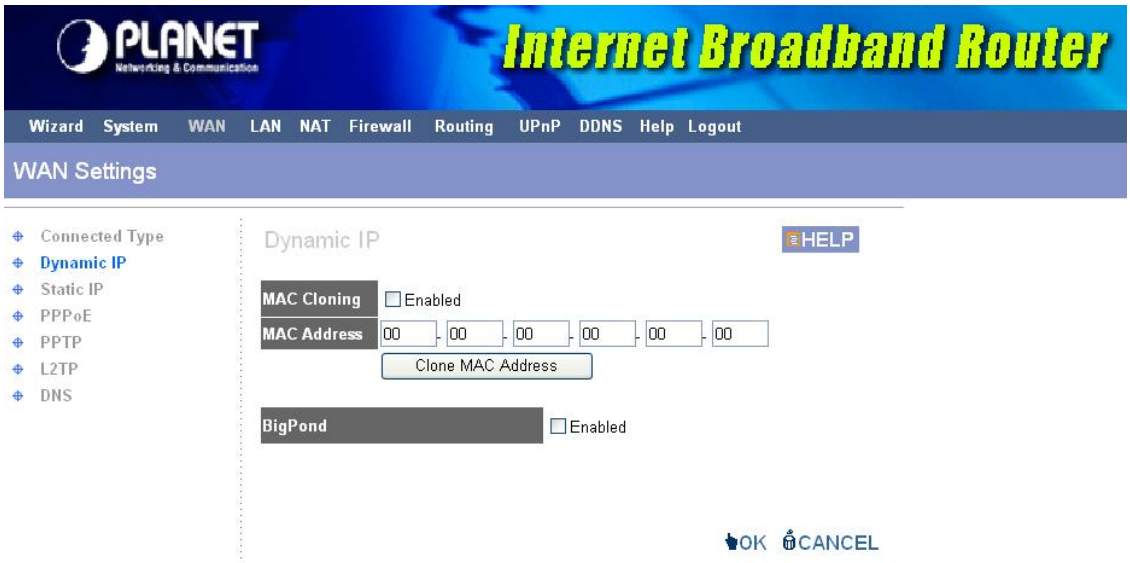


Parameters	Description
3.2.1 Dynamic IP	Your ISP will automatically give you an IP address
3.2.2 Static IP address	Your ISP has given you an IP address already

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

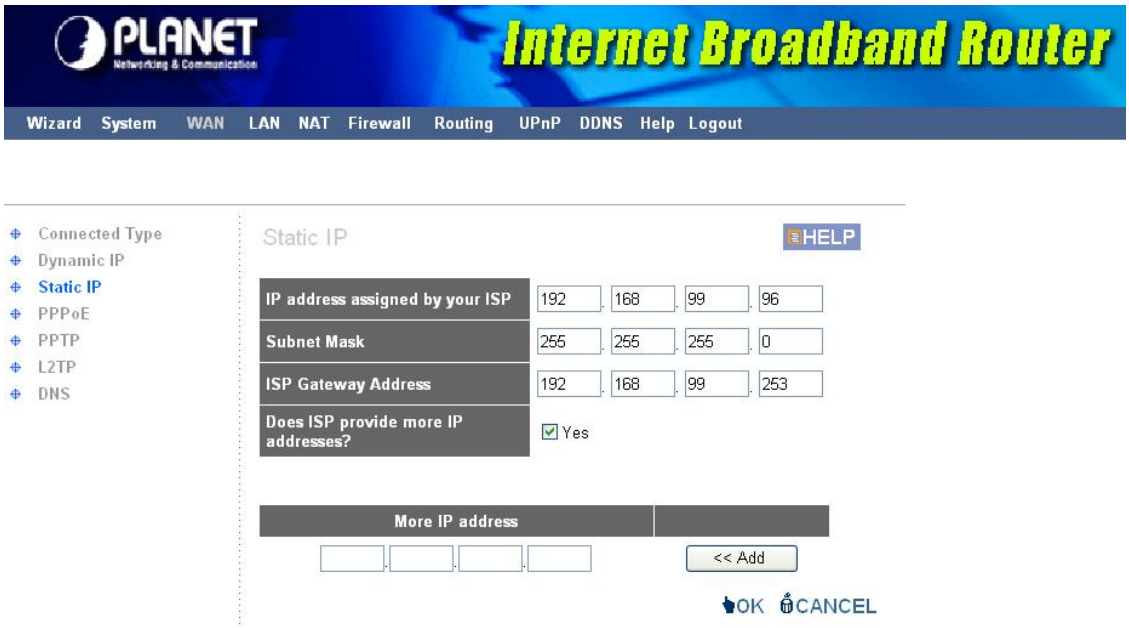
Choose the Dynamic IP selection if your ISP will automatically give you an IP address. Some ISP's may also require that you fill in additional information such as MAC address (see chapter 2 "Cable Modem" for more detail). Select Big Pond if your ISP requires the Big Pond protocol to connect you to the Internet.



Parameters	Description
BigPond	Select <Enabled> if your ISP requires the Big Pond protocol to connect you to the Internet.

3.2.2 Static IP Address

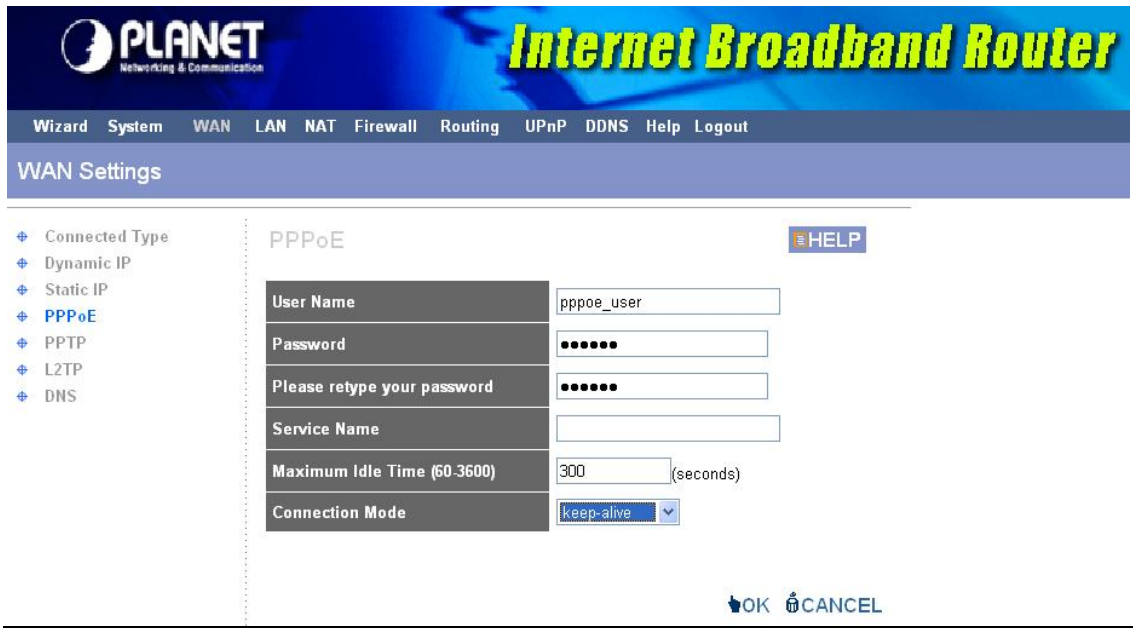
Select Static IP address if your ISP has given you one or more IP address for you to use. Your ISP should provide all the information required in this section. (See chapter 2 "Fixed IP" for more detail)



Parameters	Description
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.

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)

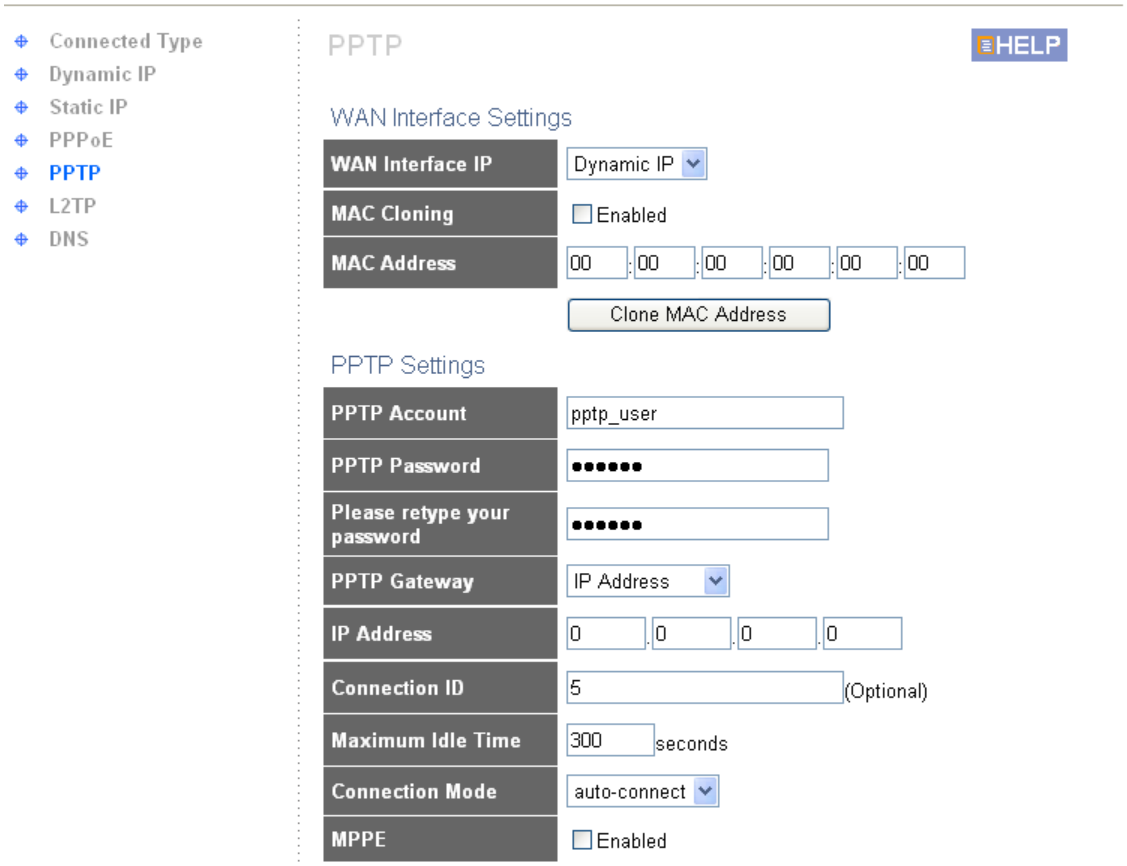


Parameters	Description

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.

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 **Dynamic IP**	To configure WAN Interface IP The ISP requires you to obtain an IP address by DHCP before connecting to the PPTP 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.**
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 Gateway	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.
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 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.
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 **Dynamic IP**	To configure WAN Interface 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**

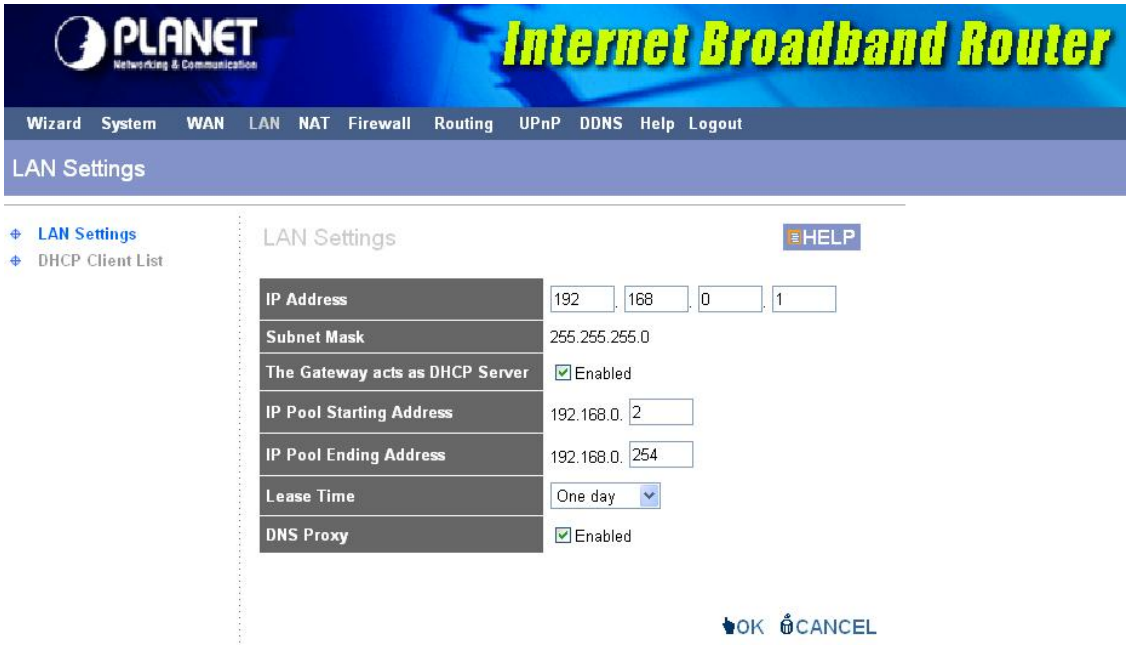
	Your ISP may require a particular MAC address in order for you to connect to the Internet. This MAC address is the PC's MAC address that your ISP had originally connected your Internet connection to. Type in this MAC address in this section or use the "**Clone MAC Address"** button to replace the WAN 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 Gateway	If your LAN has a L2TP gateway, then enter that L2TP 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.
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 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.

3.2.6 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. (See chapter 2 "DNS" for more detail)

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.



Parameters	Default	Description
LAN Settings		
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		You can select a particular IP address range for your DHCP server to issue IP addresses to your LAN Clients. **Note:** By default the IP range is from: Start IP **192.168.0.2** to End IP **192.168.0.254**.

Lease Time	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	Select <Enabled> that all DNS requests to a specific Domain Name will be routed to the XRT-401E'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.
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.

3.4 NAT

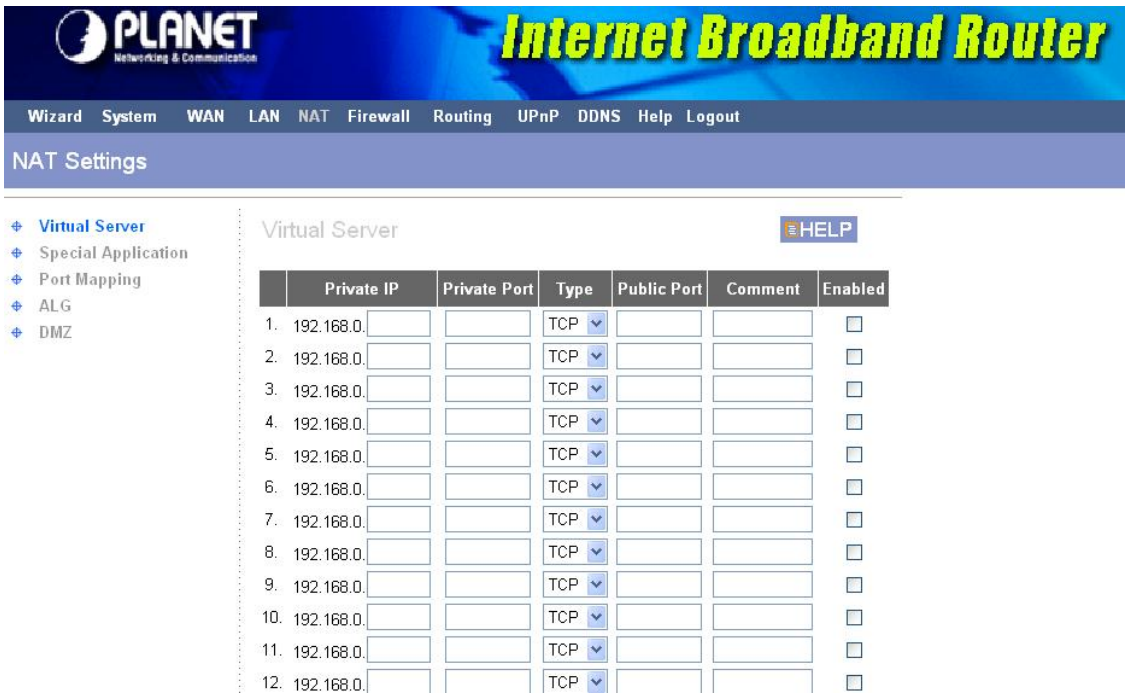
Network Address Translation (NAT) allows multiple users at your local site to access the Internet through a single Public IP Address or multiple Public IP Addresses. NAT provides Firewall protection from hacker attacks and has the flexibility to allow you to map Private IP Addresses to Public IP Addresses for key services such as Websites and FTP. To meet various field applications, XRT-401E 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 used for 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 Special Applications	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 Forwarding	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 ALG Setting	You can select special applications that need "Application Layer Gateway" 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.

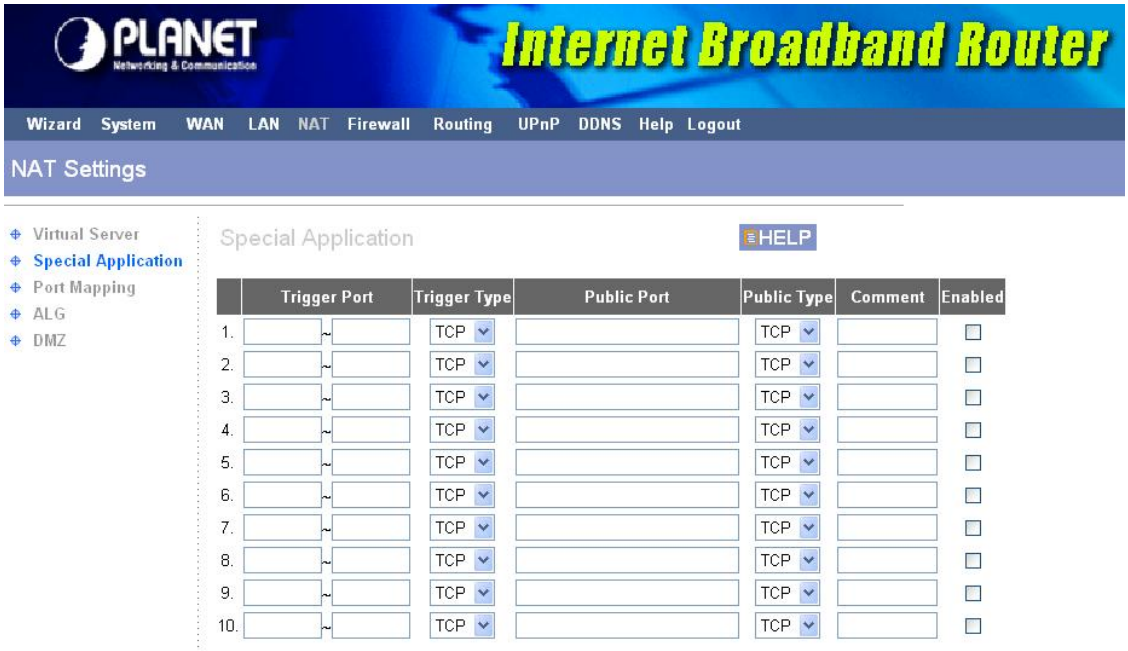


Parameters	Description
Private IP	This is the LAN client/host IP address that the Public Port number packet will be sent to. **Note:** You need to give your LAN PC clients a fixed/static IP address for Virtual Server to work properly.
Private Port	This is the port number (of the above Private IP host) 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.
Enable	To enable the rule of Virtual Server.

3.4.2 Special Applications

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.



Parameters	Description
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.
Enable	To enable the rule of the Special Application function.

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.

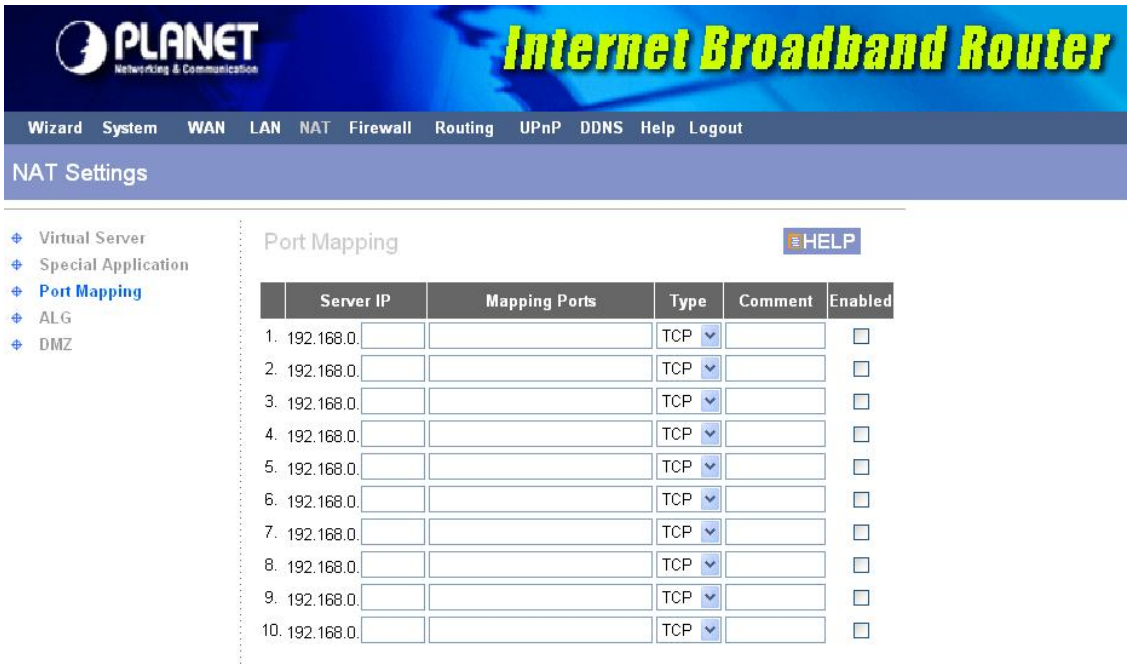
Example:

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 Forwarding

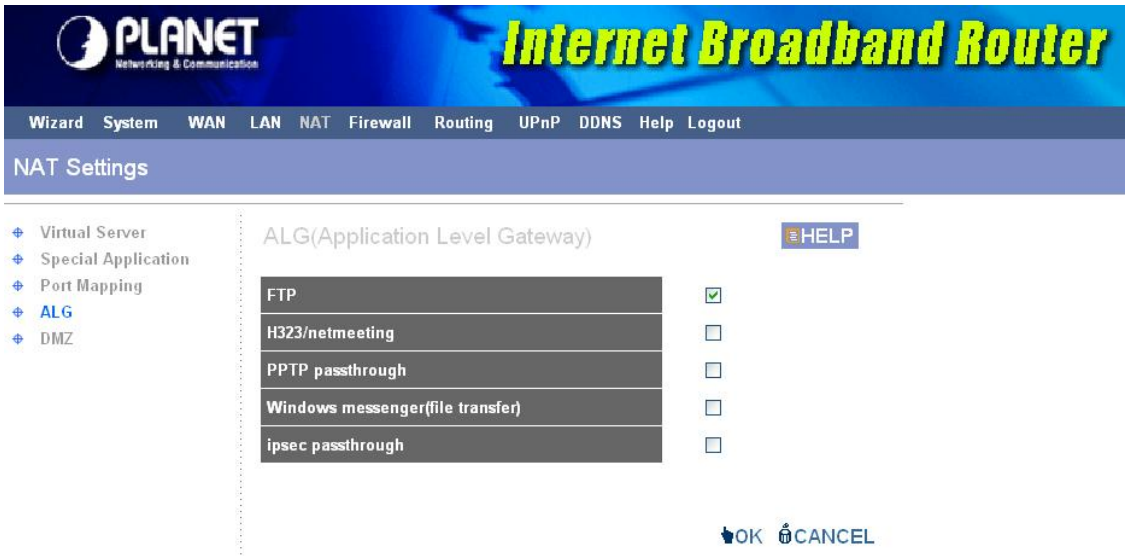
The Port Forwarding allows you to re-direct a particular range of service port numbers (from the Internet/WAN Ports) to a particular LAN IP address. It helps you to host some servers behind the router NAT firewall.



Parameter	Description
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.
Mapping Ports	The range of ports to be forward to the private IP.
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.
Comment	The description of this setting.
Enable	To enable the rule of Port Forwarding

3.4.4 ALG Settings

You can select applications that need “Application Layer Gateway” to support.



Parameters	Default	Description
Enable		You can select to enable “Application Layer Gateway” 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.

Parameters	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-401E 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.

Parameters	Description
2.5.1 Firewall Options	XRT-401E's firewall can block common hacker attacks and can log the attack activities.
2.5.2 Client Filtering	Client Filtering allows you to specify which hosts users can or cannot access to certain Internet applications by IP address.

2.5.3 URL Filtering	URL Filtering allow you to specify which URLs can not be accessed by users.
2.5.4 MAC Control	MAC Control allows you to specify which hosts users can or cannot access to Internet by MAC address.

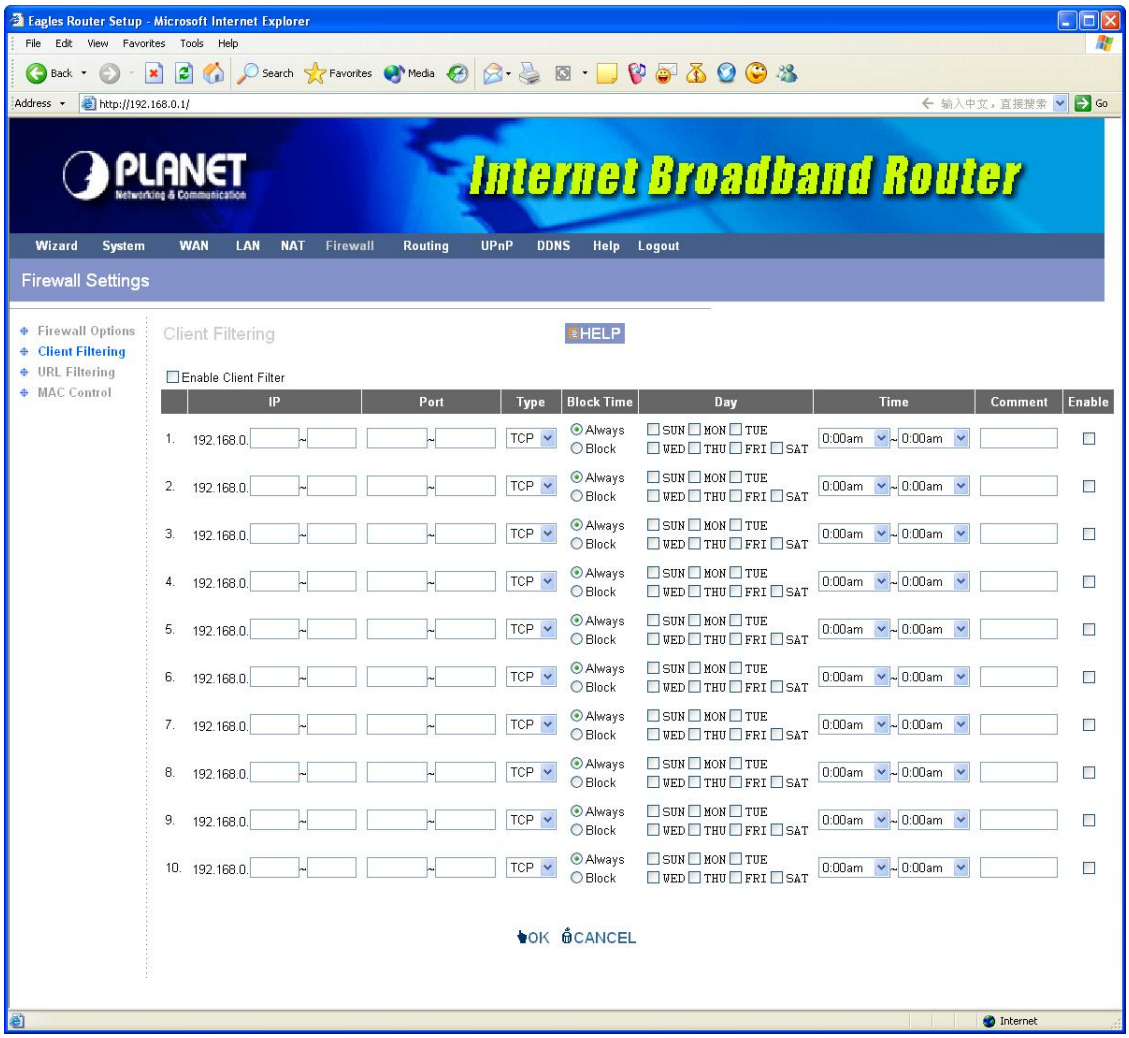
3.5.1 Firewall Options

XRT-401E'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.

Parameters	Description
Firewall Options	
Enable Hacker Attack Protect	Select it to enable Firewall Options function.
Discard Ping From WAN	The router's WAN port will not respond to any Ping requests
Unallow 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.
Accept Fragment Packets	Select to allow 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..
Advanced settings	
Hacker Attack Patterns	
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.
Sync Flood	Protection the router from Sync Flood attack.
Short Packet	Protection the router from Short 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.

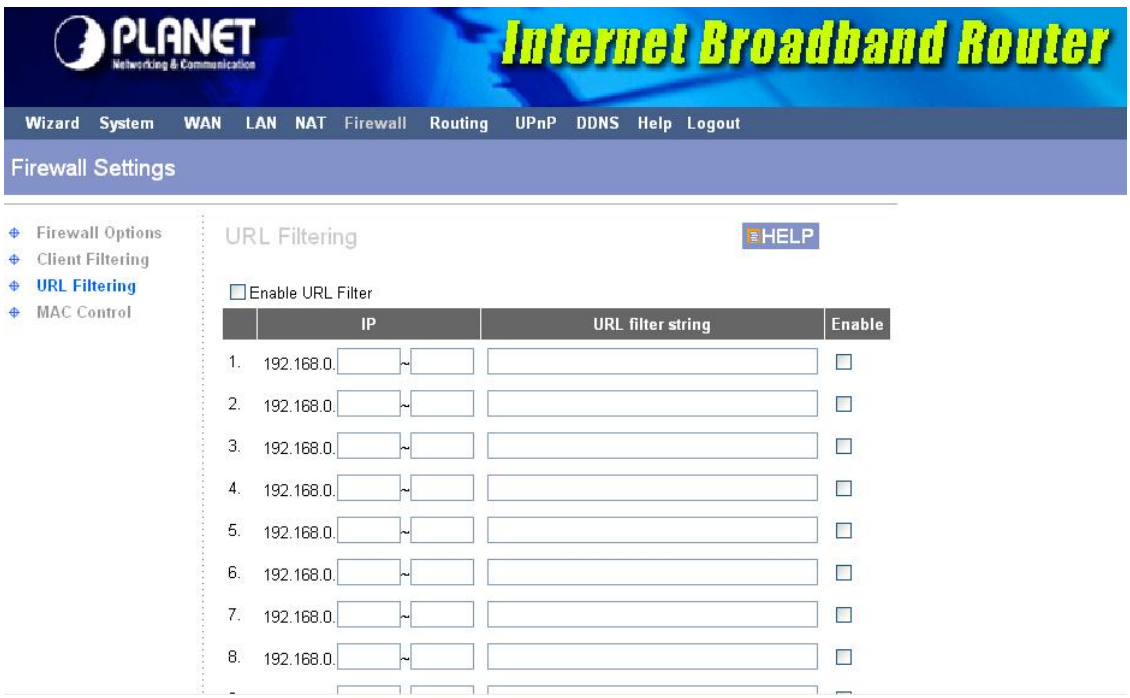


Parameters	Description
Enable Client Filter	Select to enable “Client Filtering” function.
IP	Enter the IP address range that you wish to apply this rule.
Port	You can assign the specific port ranges. The router will block clients from accessing Internet services that use these ports.
Type	This allows 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

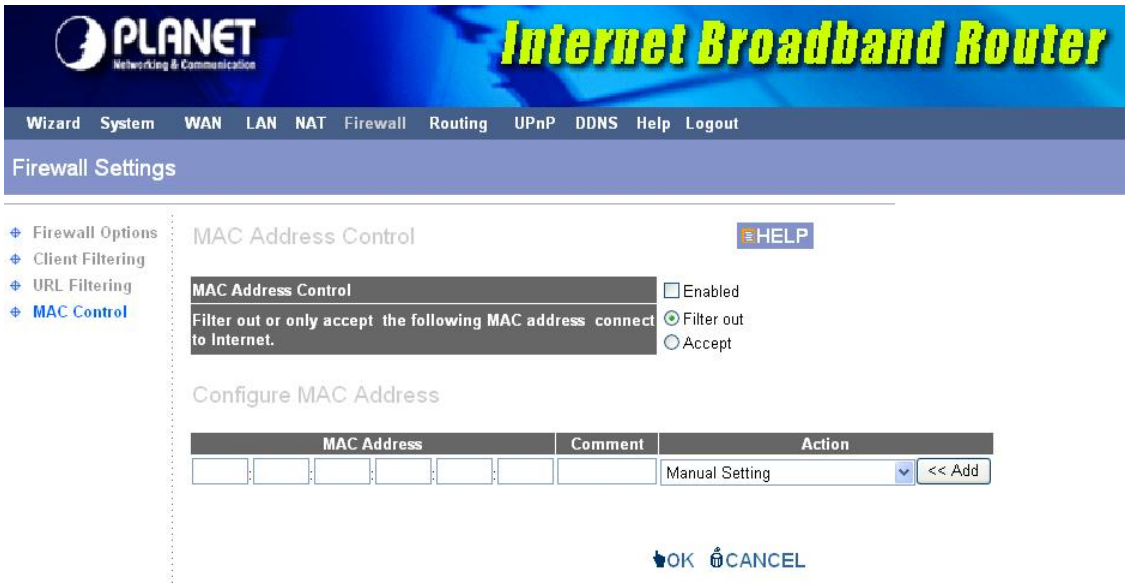
You can block access to some Web sites from particular PCs by entering a full URL address or just keyword of the Web site.



Parameters	Description
Enable URL Blocking	Enable/disable URL Blocking
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 Control

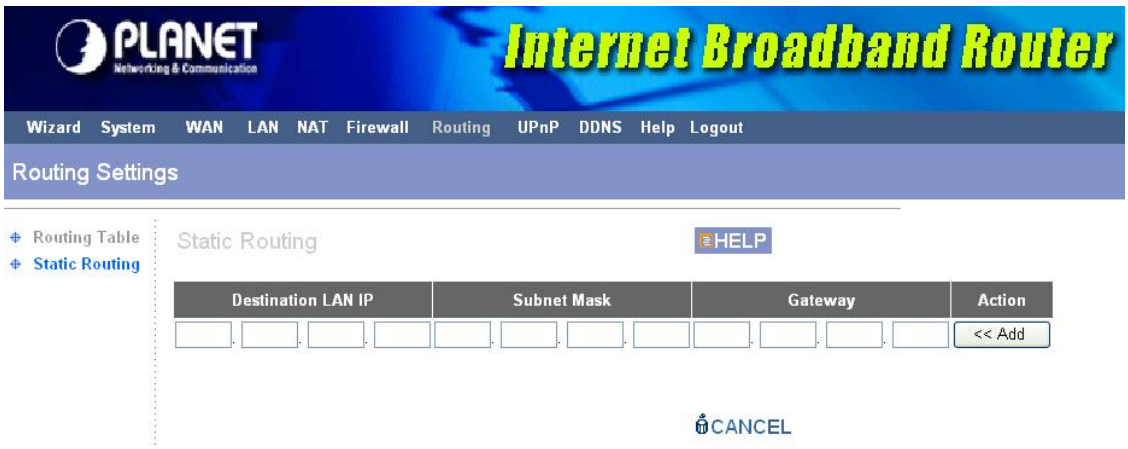
You can filter Internet access for local clients based on MAC Address.



Parameters	Description
MAC Address Control	
MAC Address Control	Check “Enabled” to enable MAC Filtering. Select **Filter out** or only **accept** the following MAC address connects to Internet.
Configure MAC Address	
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

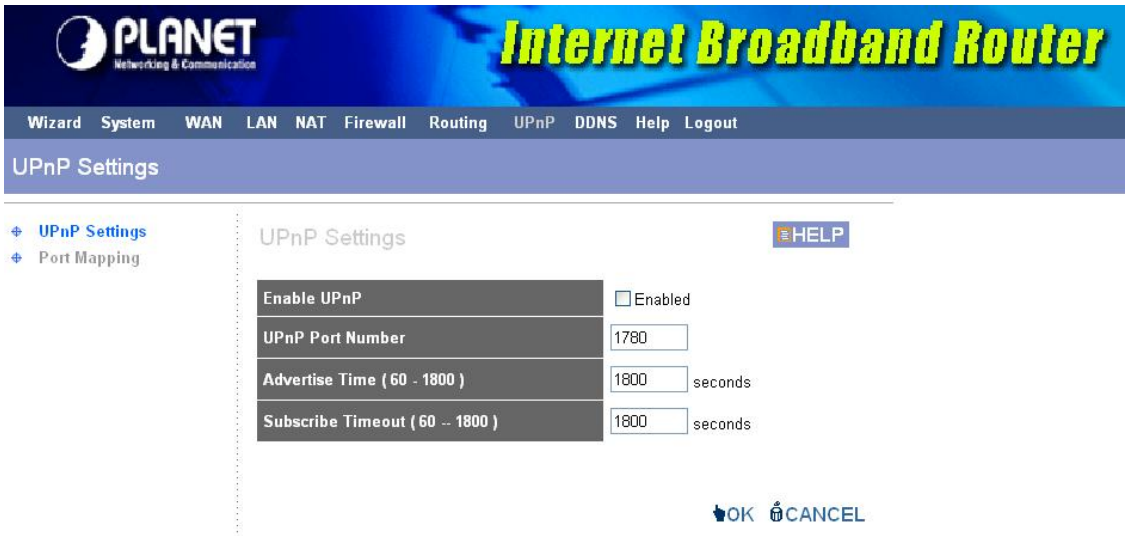
This section allows you to set XRT-401E’s static route and check the current routing table. The routing is only for internal routing using, so you do not need to disable NAT function.



Parameters	Description
Destination LAN IP, Subnet Mask	Specify the destination LAN IP where the packets will be routing to.
Gateway	Specify the other gateway IP that will route the packets to the destination.

3.7 UPnP

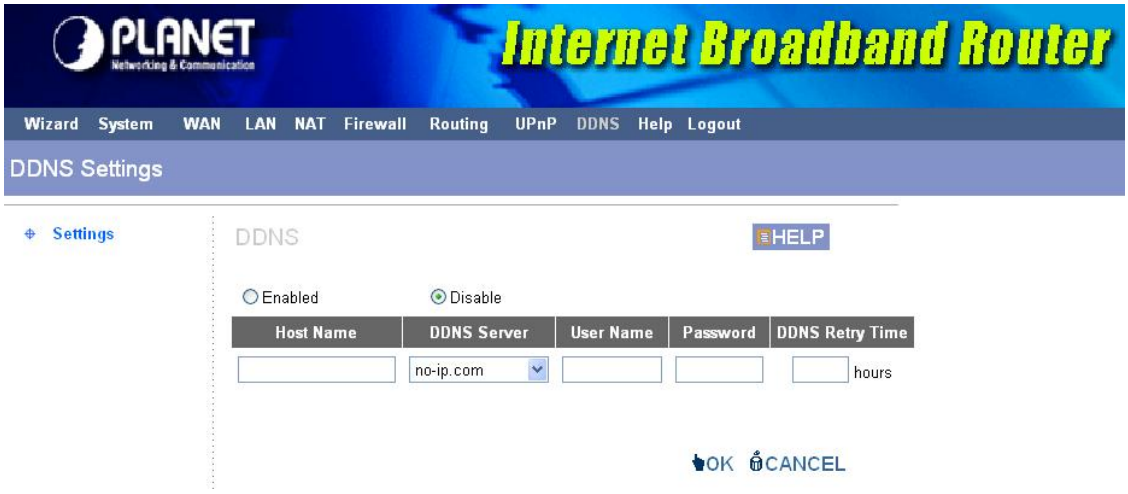
With UPnP, all PCs in you Intranet will discover this router automatically. So you do not have to do any configuration for your PC and can access the Internet through this router easily.



Parameters	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.
UPnP Port Number	Specify the port number for UPnP service using.
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.
Subscribe Timeout (60 ~ 1800)	When client stops responding UPnP service for a period of time, router will break down the UPnP connection automatically and UPnP service will be in standby mode. The maximum time is up to 1800 seconds.

3.8 DDNS

DDNS 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.

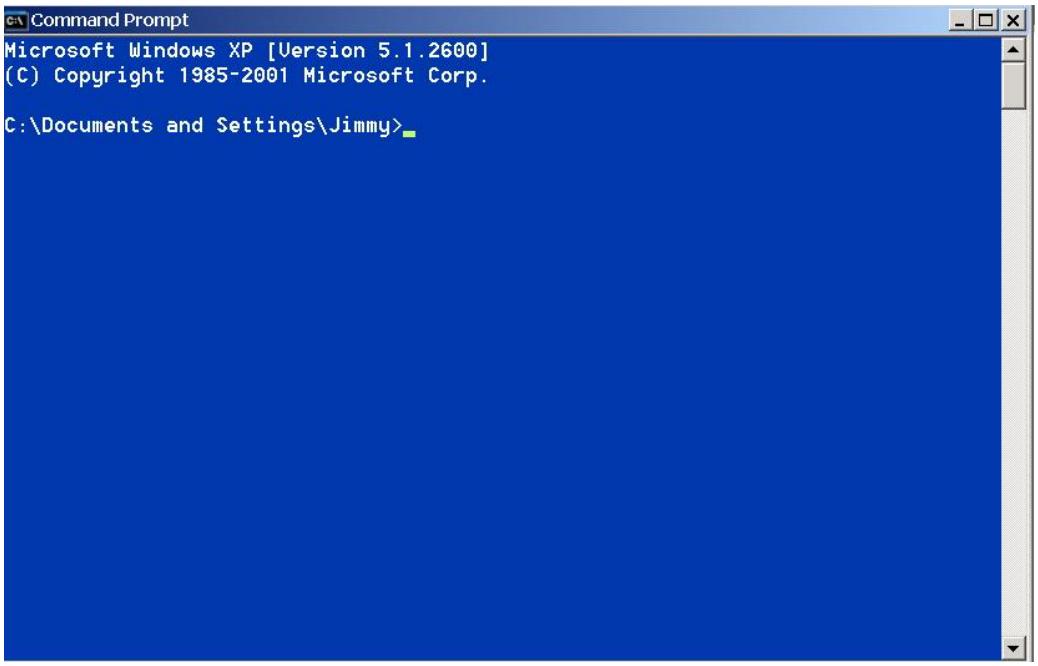


Parameters	Description
Enable/Disable	Enable/Disable the DDNS function of this router
Host Name	Your static domain name that use DDNS.
DDNS Server	Select a DDNS service provider.
User Name	The account that your DDNS service provider assigned to you.
Password	The password you set for the DDNS service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

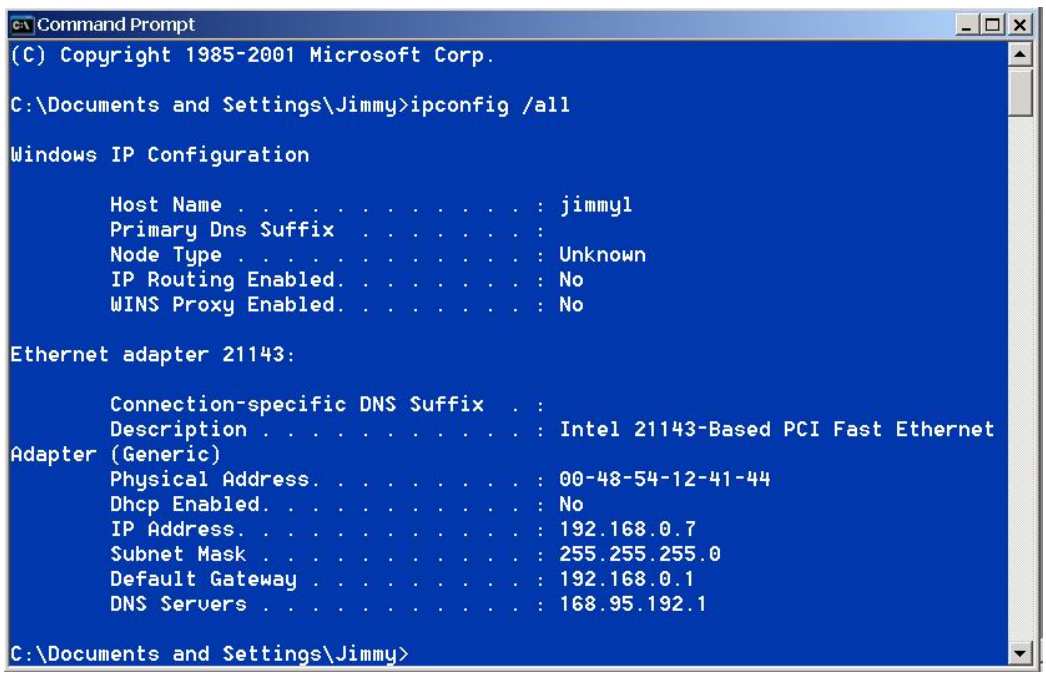
Appendix A

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)

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 pre-configured 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 for the 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-401E'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 graphical user 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.