KEEBOX

User's Guide

Wireless 150 N Home Router
W150NR

V1

Table of Contents

Before you Begin

Please read and make sure you understand all the prerequisites for proper installation of your new Wireless Router. Have all the necessary information and equipment on hand before beginning the installation.

Installation Notes

In order to establish a connection to the Internet it will be necessary to provide information to the Router that will be stored in its memory. For some users, only their account information (Username and Password) is required. For others, various parameters that control and define the Internet connection will be required. You can print out the two pages below and use the tables to list this information. This way you have a hard copy of all the information needed to setup the Router. If it is necessary to reconfigure the device, all the necessary information can be easily accessed. Be sure to keep this information safe and private.

Low Pass Filters

Since ADSL and telephone services share the same copper wiring to carry their respective signals, a filtering mechanism may be necessary to avoid mutual interference. A low pass filter device can be installed for each telephone that shares the line with the ADSL line. These filters are easy to install passive devices that connect to the ADSL device and/or telephone using standard telephone cable. Ask your service provider for more information about the use of low pass filters with your installation.

Operating Systems

The Router uses an HTML-based web interface for setup and management. The web configuration manager may be accessed using any operating system capable of running web browser software, including Windows 98 SE, Windows ME, Windows 2000, Windows XP, and Windows Vista.

Web Browser

Any common web browser can be used to configure the Router using the web configuration management software. The program is designed to work best with more recently released browsers such as Opera, Microsoft Internet Explorer® version 6.0, Netscape Navigator® version 6.2.3, or later versions. The web browser must have JavaScript enabled. JavaScript is enabled by default on many browsers. Make sure JavaScript has not been disabled by other software (such as virus protection or web user security packages) that may be running on your computer.

Ethernet Port (NIC Adapter)

Any computer that uses the Router must be able to connect to it through the Ethernet port on the Router. This connection is an Ethernet connection and therefore requires that your computer be equipped with an Ethernet port as well. Most notebook computers are now sold with an Ethernet port already installed. Likewise, most fully assembled desktop computers come with an Ethernet NIC adapter as standard equipment. If your computer does not have an Ethernet port, you must install an Ethernet NIC adapter before you can use the Router. If you must install an adapter, follow the installation instructions that come with the Ethernet NIC adapter.

WLAN Ethernet Adapter

Any computer that uses the Wireless ADSL Router must be able to connect to it through the Wireless Ethernet (WLAN) on the Wireless ADSL Router. This connection is a Wireless Ethernet (WLAN or WiFi) connection and therefore requires that your computer be equipped with a Wireless Ethernet Adapter as well. Many notebook computers are now sold with a Wireless Ethernet Adapter already installed. There is also a Wired Ethernet port that is used to connect the WLAN adapter to your wired network. This port can be used to configure the Wireless ADSL Router. Most fully assembled desktop computers come with an Ethernet NIC adapter as standard equipment. If your computer does not have an Ethernet port, you must install an Ethernet NIC adapter before you can configure the Wireless ADSL Router. If you must install an adapter, follow the installation instructions that come with the Ethernet NIC adapter.

Additional Software
It may be necessary to install software on your computer that enables the computer to access the Internet. Additional software must be installed if you are using the device a simple bridge. For a bridged connection, the information needed to make and maintain the Internet connection is stored on another computer or gateway device, not in the Router itself.

If your ADSL service is delivered through a PPPoE or PPPoA connection, the information needed to establish and maintain the Internet connection can be stored in the Router. In this case, it is not necessary to install software on your computer. It may however be necessary to change some settings in the device, including account information used to identify and verify the connection.

All connections to the Internet require a unique global IP address. For bridged connections, the global IP settings must reside in a TCP/IP enabled device on the LAN side of the bridge, such as a PC, a server, a gateway device such as a router or similar firewall hardware. The IP address can be assigned in a number of ways. Your network service provider will give you instructions about any additional connection software or NIC configuration that may be required.

Information you will need from your ADSL service provider

Username
This is the Username used to log on to your ADSL service provider's network. Your ADSL service provider uses this to identify your account.

Password
This is the Password used, in conjunction with the Username above, to log on to your ADSL service provider's network. This is used to verify the identity of your account.

WAN Setting / Connection Type
These settings describe the method your ADSL service provider uses to transport data between the Internet and your computer. Most users will use the default settings. You may need to specify one of the following WAN Setting and Connection Type configurations (Connection Type settings listed in parenthesis):

- PPPoE/PPoA (PPPoE LLC, PPPoA LLC or PPPoA VC-Mux)
- Bridge Mode (1483 Bridged IP LLC or 1483 Bridged IP VC Mux)
- IPoA/MER (Static IP Address) (Bridged IP LLC, 1483 Bridged IP VC Mux, 1483 Routed IP LLC, 1483 Routed IP VC-Mux or IPoA)
- MER (Dynamic IP Address) (1483 Bridged IP LLC or 1483 Bridged IP VC-Mux)

Modulation Type
ADSL uses various standardized modulation techniques to transmit data over the allotted signal frequencies. Some users may need to change the type of modulation used for their service. The default DSL modulation (ADSL2+ Multi-Mode) used for the Router automatically detects all types of ADSL, ADSL2, and ADSL2+ modulation.

Security Protocol
This is the method your ADSL service provider will use to verify your Username and Password when you log on to their network. Your Router supports the PAP and CHAP protocols.

VPI
Most users will not be required to change this setting. The Virtual Path Identifier (VPI) is used in conjunction with the Virtual Channel Identifier (VCI) to identify the data path between your ADSL service provider's network and your computer. If you are setting up the Router for multiple virtual connections, you will need to configure the VPI and VCI as instructed by your ADSL service provider for the additional connections. This setting can be changed in the WAN Settings window of the web management interface.

VCI
Most users will not be required to change this setting. The Virtual Channel Identifier (VCI) used in conjunction with the VPI to identify the data path between your ADSL service provider's network and your computer. If you are setting up the Router for multiple virtual connections, you will need to configure the VPI and VCI as instructed by your ADSL service provider for the additional connections. This setting can be changed in the WAN Settings window of the web management interface.

VCI
Most users will not be required to change this setting. The Virtual Channel Identifier (VCI) used in conjunction with the VPI to identify the data path between your ADSL service provider's network and your computer. If you are setting up the Router for multiple virtual connections, you will need to configure the VPI and VCI as instructed by your ADSL service provider for the additional connections. This setting can be changed in the WAN Settings window of the web management interface.

Information you will need about the Router

Username
This is the Username needed access the Router's management interface. When you attempt to connect to the device through a web browser you will be prompted to enter this Username. The default Username for the Router is "admin." The user cannot change this.

Password
This is the Password you will be prompted to enter when you access the Router's management interface. The default Password is blank The user may change this.

LAN IP addresses for the Router
This is the IP address you will enter into the Address field of your web browser to access the Router's configuration graphical user interface (GUI) using a web browser. The default IP address is 192.168.10.1. This may be changed to suit any IP address scheme the user desires. This address will be the base IP address used for DHCP service on the LAN when DHCP is enabled.

LAN Subnet Mask for the Router
This is the subnet mask used by the Router, and will be used throughout your LAN. The default subnet mask is 255.255.255.0. This can be changed later.

Information you will need about your LAN or computer

Ethernet NIC
If your computer has an Ethernet NIC, you can connect the Router to this Ethernet port using an Ethernet cable. You can also use the Ethernet ports on the Router to connect to other computer or Ethernet devices.

DHCP Client status
The ADSL Router is configured, by default, to be a DHCP server. This means that it can assign an IP address, subnet mask, and a default gateway address to computers on your LAN. The default range of IP addresses the Router will assign are from 192.168.1.2 to 192.168.1.254. Your computer (or computers) needs to be configured to obtain an IP address automatically (that is, they need to be configured as DHCP clients.)

It is recommended that your collect and record this information here, or in some other secure place, in case you have to re-configure your ADSL connection in the future.

Once you have the above information, you are ready to setup and configure the Router.

Wireless Tips

The following are some general wireless tips to help minimize the impact of interference within an environment.

Assign your network a unique SSID. Do not use anything that would be identifying like “Smith Family Network”. Choose something that you would easily identify when searching for available wireless networks.

Do **not** turn off the SSID broadcast. The SSID broadcast is intended to be on and turning it off can cause connectivity issues. The preferred method of securing a wireless network is to choose a strong form of encryption with a strong and varied encryption key.

Note: after setting up the SSID, encryption type and encryption key/passphrase, please make a note of them for future reference. You will need this information to connect your wireless computers to the wireless router/access point.

Change the channel. Most wireless access points and routers are defaulted to channel 6. If you have a site survey tool that will display the channels you can plan your channel selection around neighboring access points to minimize interference from them. If your site survey tool does not display the channel try using channels 1 or 11.

If using 802.11n you should be securing the network with WPA2 security.

Note: Due to Wi-Fi certification considerations if you choose WEP, WPA or WPA2-TKIP encryption this device may operate in legacy wireless mode (802.11b/g). You may not get 802.11n performance as these forms of encryption are not supported by the 802.11n specification.

Please also make sure that the wireless hardware is not placed in any type of shelving or enclosures.

Avoid stacking hardware on top of each other to prevent overheating issues. Maintain enough free space around the hardware for good ventilation and airflow. There should also be plenty of free space around the antennas to allow the wireless signal to propagate.

There are a number of other environmental factors that can impact the range of wireless devices.

1. Adjust your wireless devices so that the signal is traveling in a straight path, rather than at an angle. The more material the signal has to pass through the more signal you will lose.

2. Keep the number of obstructions to a minimum. Each obstruction can reduce the range of a wireless device. Position the wireless devices in a manner that will minimize the amount of obstructions between them.

3. Building materials can have a large impact on your wireless signal. In an indoor environment, try to position the wireless devices so that the signal passes through less dense material such as dry wall. Dense materials like metal, solid wood, glass or even furniture may block or degrade the signal.

4. Antenna orientation can also have a large impact on your wireless signal. Use the wireless adapter’s site survey tool to determine the best antenna orientation for your wireless devices.

5. Interference from devices that produce RF (radio frequency) noise can also impact your signal. Position your wireless devices away from anything that generates RF noise, such as microwaves, HAM radios, Walkie-Talkies and baby monitors.

6. Any device operating on the 2.4GHz frequency will cause interference. Devices such as 2.4GHz cordless phones or other wireless remotes operating on the 2.4GHz frequency can potentially drop the wireless signal. Although the phone may not be in use, the base can still transmit wireless signal. Move the phone's base station as far away as possible from your wireless devices.

If you are still experiencing low or no signal consider repositioning the wireless devices or installing additional access points. The use of higher gain antennas may also provide the necessary coverage depending on the environment.

Device Installation

The Router connects two separate physical interfaces, an ADSL (WAN) and an Ethernet (LAN) interface. Place the Router in a location where it can be connected to the various devices as well as to a power source. The Router should not be located where it will be exposed to moisture or excessive heat. Make sure the cables and power cord are placed safely out of the way so they do not create a tripping hazard. As with any electrical appliance, observe common sense safety procedures.

The Router can be placed on a shelf or desktop, ideally you should be able to see the LED indicators on the front if you need to view them for troubleshooting.

Power on Router

The Router must be used with the power adapter included with the device.

1. Insert the AC Power Adapter cord into the power receptacle located on the rear panel of the Router and plug the adapter into a suitable nearby power source.
2. You should see the Power LED indicator light up green.
3. If the Ethernet port is connected to a working device, check the LAN LED indicators to make sure the connection is valid. The Router will attempt to establish the ADSL connection, if the ADSL line is connected and the Router is properly configured this should light up after several seconds. If this is the first time installing the device, some settings may need to be changed before the Router can establish a connection.

Factory Reset Button

The Router may be reset to the original factory default settings by using a ballpoint or paperclip to gently push down the reset button in the following sequence:

1. Ensure the Router is powered on.
2. Press and hold the reset button on the back of the device for approximately 5 to 8 seconds.
3. This process should take around 1 to 2 minutes.

Remember that this will wipe out any settings stored in flash memory including user account information and LAN IP settings. The device settings will be restored to the factory default IP address **192.168.10.1** and the subnet mask is **255.255.255.0**, the default management Username is "admin" and the default Password is "admin."

Network Connections

Connect ADSL Line

Use the ADSL cable included with the Router to connect it to a telephone wall socket or receptacle. Plug one end of the cable into the ADSL port (RJ-11 receptacle) on the rear panel of the Router and insert the other end into the RJ-11 wall socket. If you are using a low pass filter device, follow the instructions included with the device or given to you by your service provider. The ADSL connection represents the WAN interface, the connection to the Internet. It is the physical link to the service provider's network backbone and ultimately to the Internet.

Connect Router to Ethernet

The Router may be connected to a single computer or Ethernet device through the 10BASE-TX Ethernet port on the rear panel. Any connection to an Ethernet concentrating device such as a switch or hub must operate at a speed of 10/100 Mbps only. When connecting the Router to any Ethernet device that is capable of operating at speeds higher than 10Mbps, be sure that the device has auto-negotiation (NWay) enabled for the connecting port. Use standard twisted-pair cable with RJ-45 connectors. The RJ-45 port on the Router is a crossed port (MDI-X). Follow standard Ethernet guidelines when deciding what type of cable to use to make this connection. When connecting the Router directly to a PC or server use a normal straight-through cable. You should use a crossed cable when connecting the Router to a normal (MDI-X) port on a switch or hub. Use a normal straight-through cable when connecting it to an uplink (MDI-II) port on a hub or switch. The rules governing Ethernet cable lengths apply to the LAN to Router connection. Be sure that the cable connecting the LAN to the Router does not exceed 100 meters.

Hub or Switch to Router Connection

Connect the Router to an uplink port (MDI-II) on an Ethernet hub or switch with a straight-through cable. If you wish to reserve the uplink port on the switch or hub for another device, connect to any on the other MDI-X ports (1x, 2x, etc.) with a crossed cable.

Computer to Router Connection

You can connect the Router directly to a 10/100BASE-TX Ethernet adapter card (NIC) installed on a PC using the Ethernet cable provided.

Package Contents

- Keebox Wireless 11n Router
- Power Adapter
- Ethernet Cable
- Manual and Warranty on CD

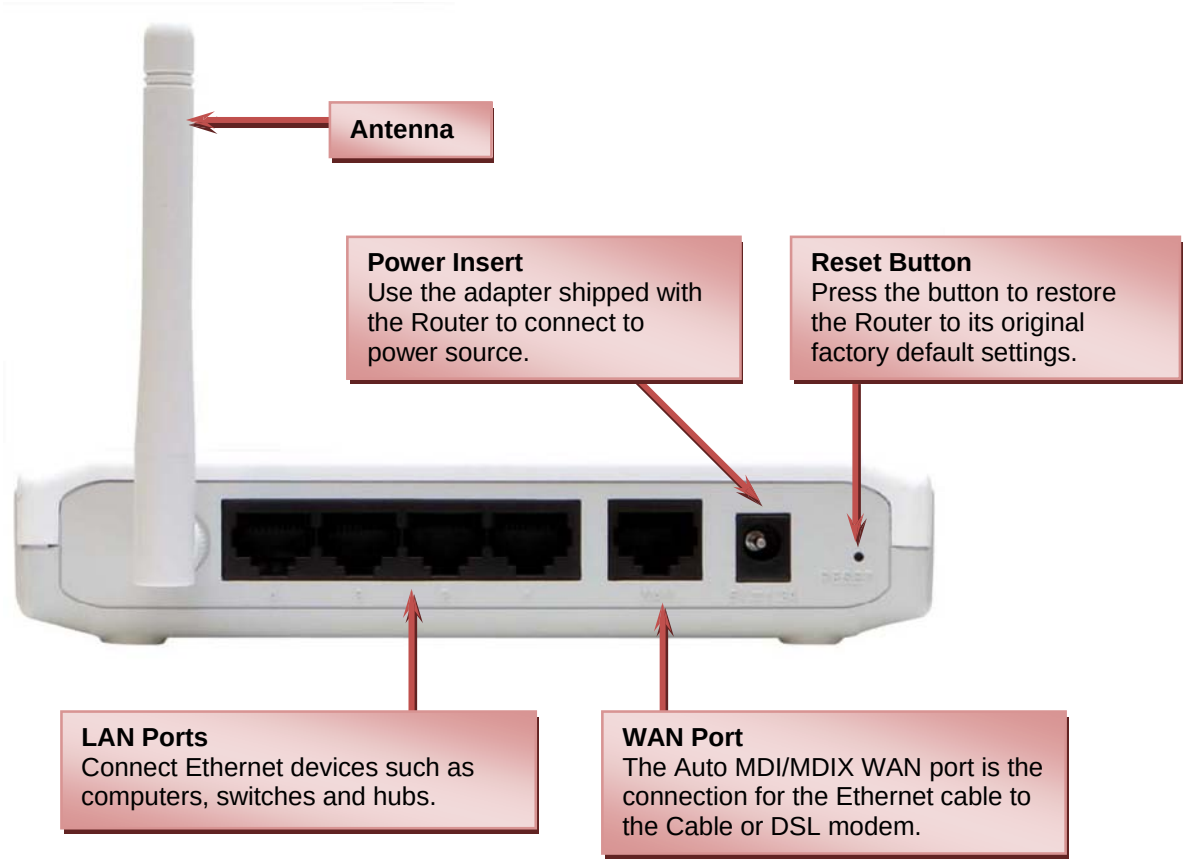
Warning: Using a power supply with a different voltage rating than the one included with the Router will cause damage and void the warranty for this product.

System Requirements

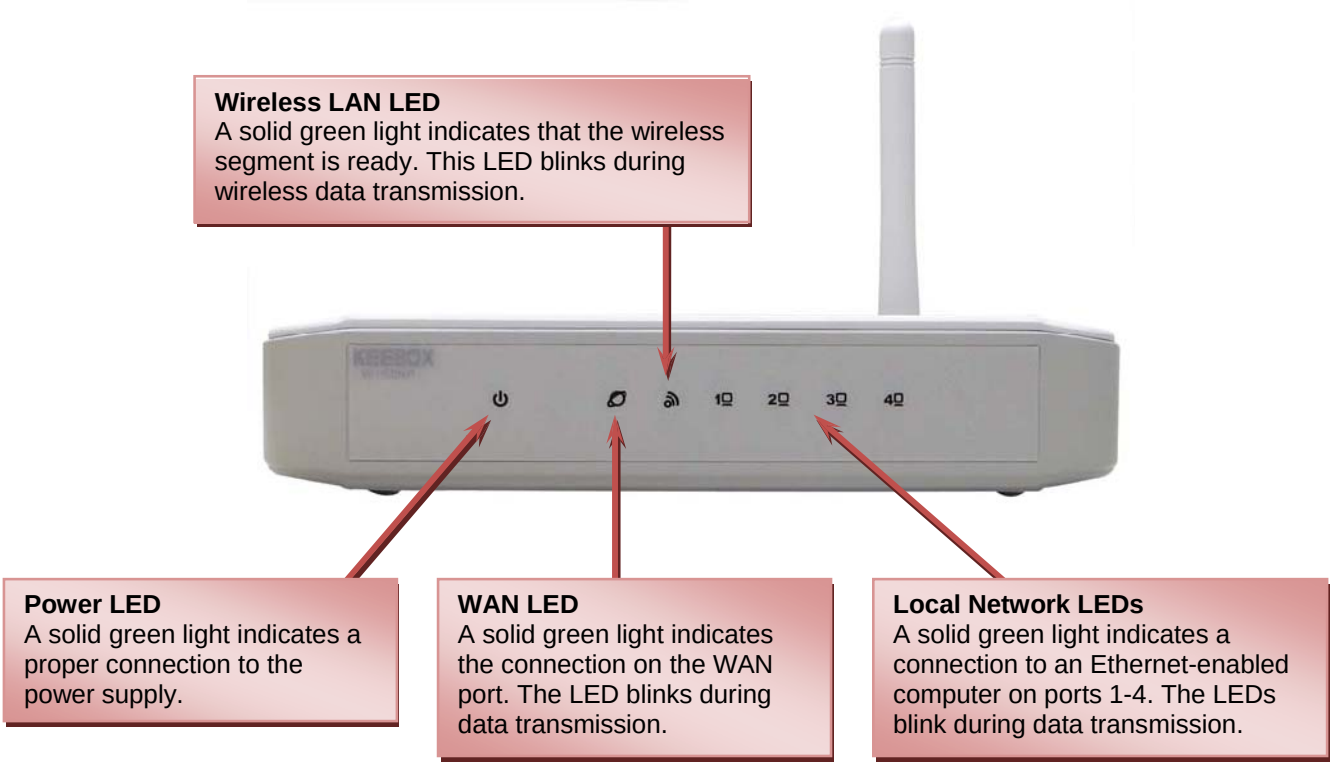
- Ethernet-based Cable or DSL Modem
- Computers with Windows®, Macintosh®, or Linux-based operating systems with an installed Ethernet adapter
- Internet Explorer 6 or Firefox 2.0 or above (for configuration)

Hardware Overview

Connections



LEDs



WPS Button

The WPS Push Button is located at the right side of the Router. Press the button to enable the WPS function. Refer to WPS section for more detail. The blue light blinks when searching for the connection. The blue light remains for 300 seconds when successfully connected.

Installation

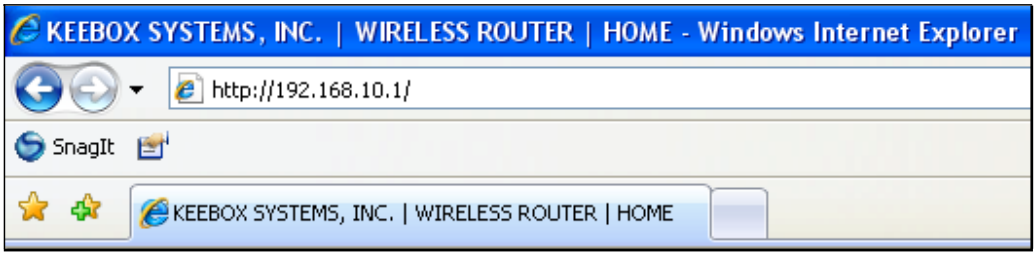
This section will walk you through the installation process. Placement of the router is very important. Do not place the router in an enclosed area such as a closet, cabinet, or in the attic or garage.

Configuration

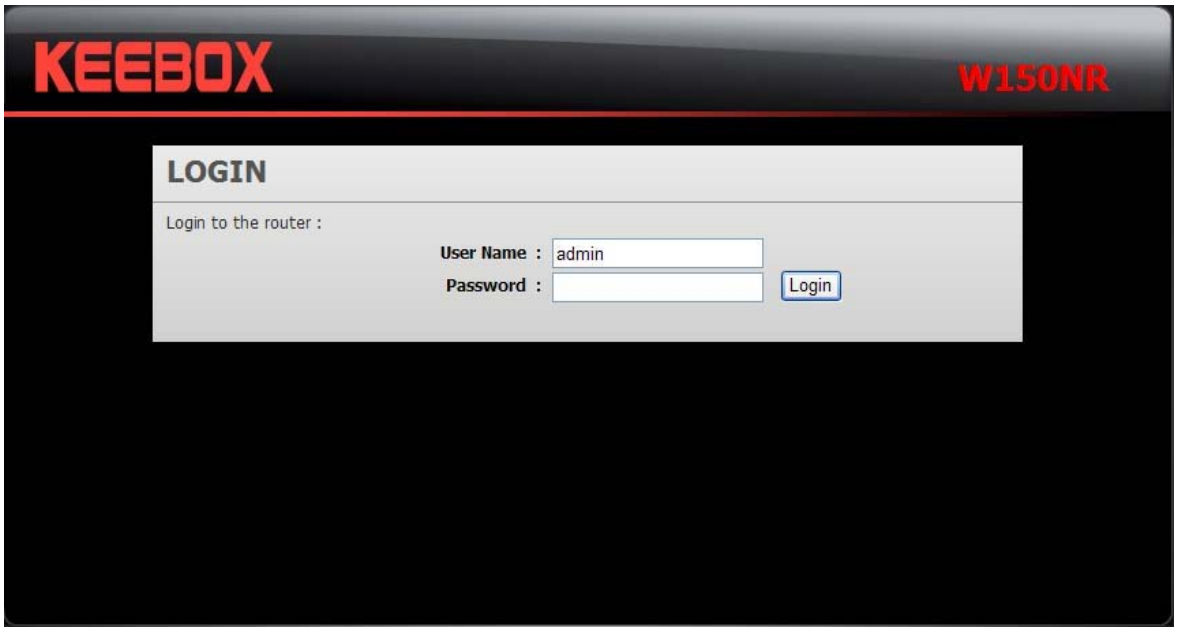
This section will show you how to set up and configure your new D-Link Router using the Web-based configuration utility.

Web-based Configuration Utility

To access the configuration utility, open a web-browser such as Internet Explorer and enter the IP address of the Router (192.168.10.1).



The following screen appears.



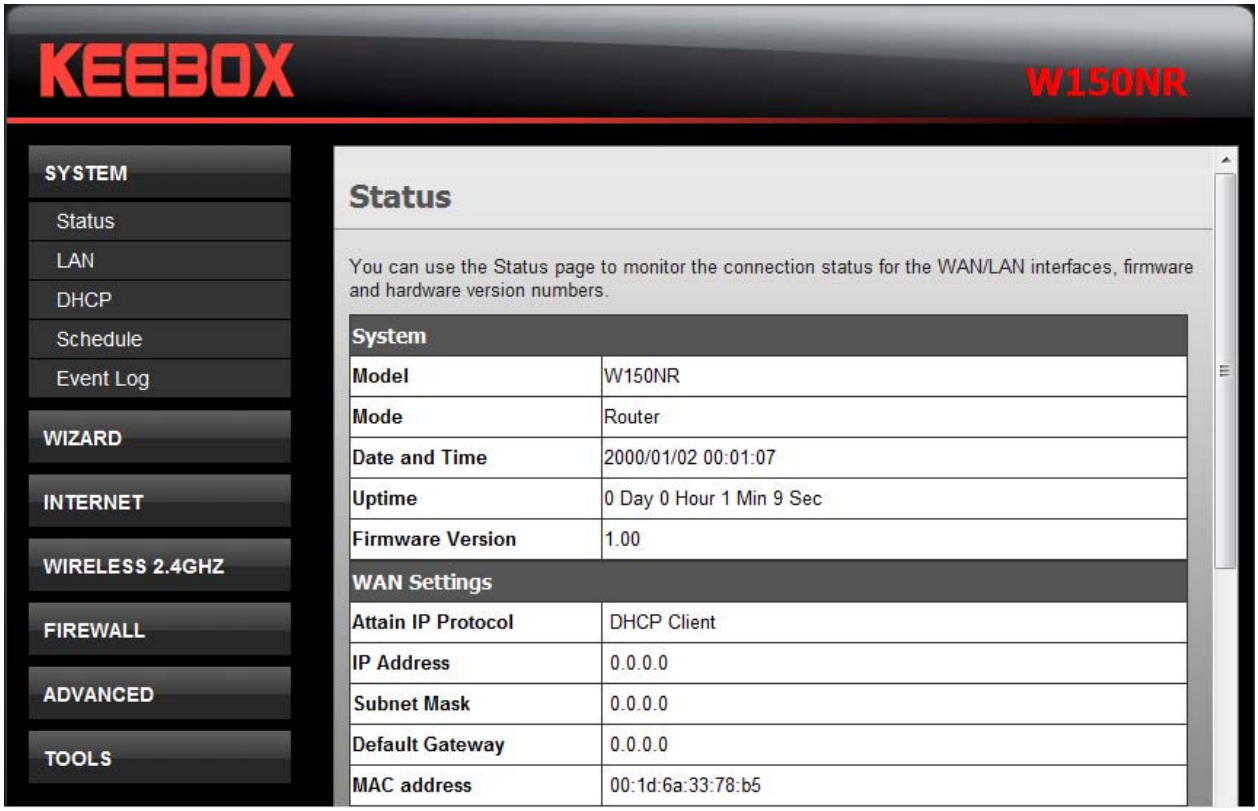
Enter the user name, admin, and leave the password blank by default.

System

This chapter provides basic system information and settings of the Router.

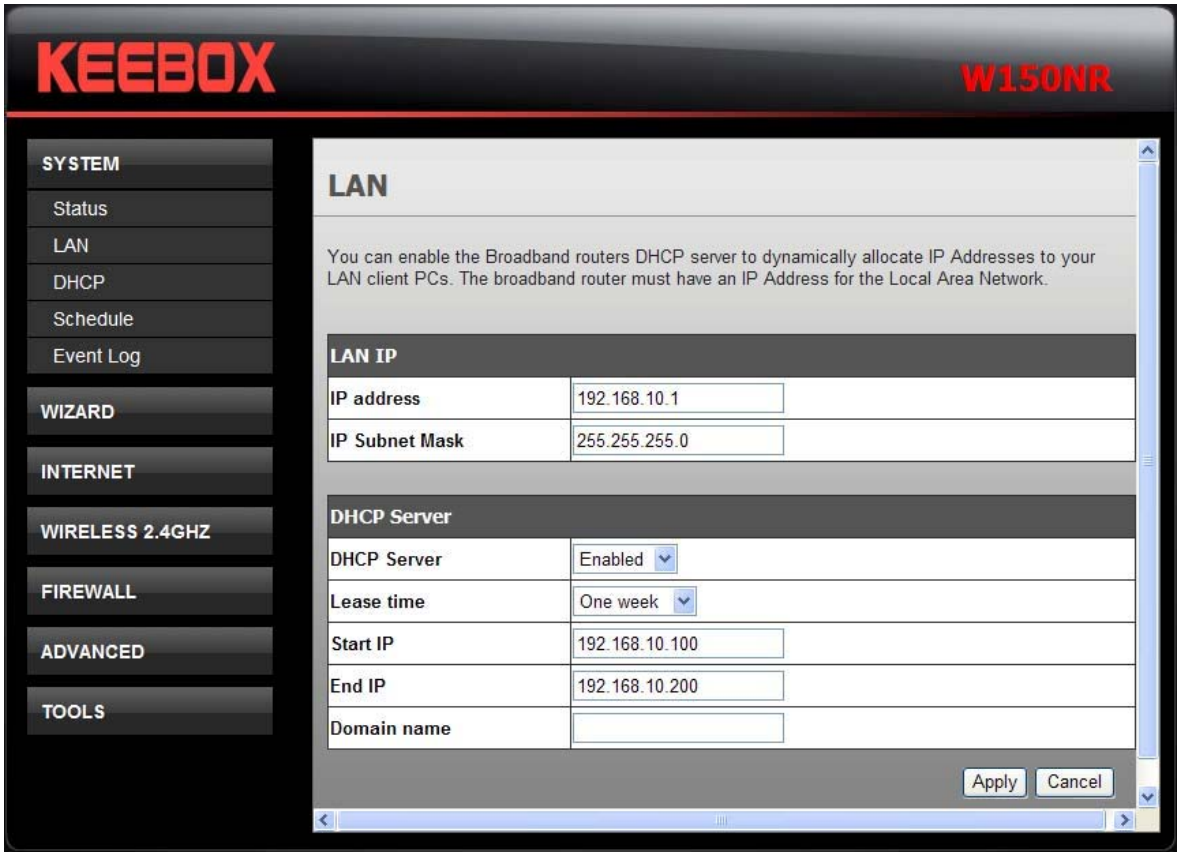
Status

This window displays the current information about the Router, including the basic system information, WAN, LAN and WLAN settings.



LAN

This section allows you to change the local network settings of the Router and to configure the DHCP settings.



Fields	Description
IP address	Enter the IP address of the Router. The default IP address is *192.168.10.1*.
IP Subnet Mask	Enter the subnet mask. The default subnet mask is *255.255.255.0*.

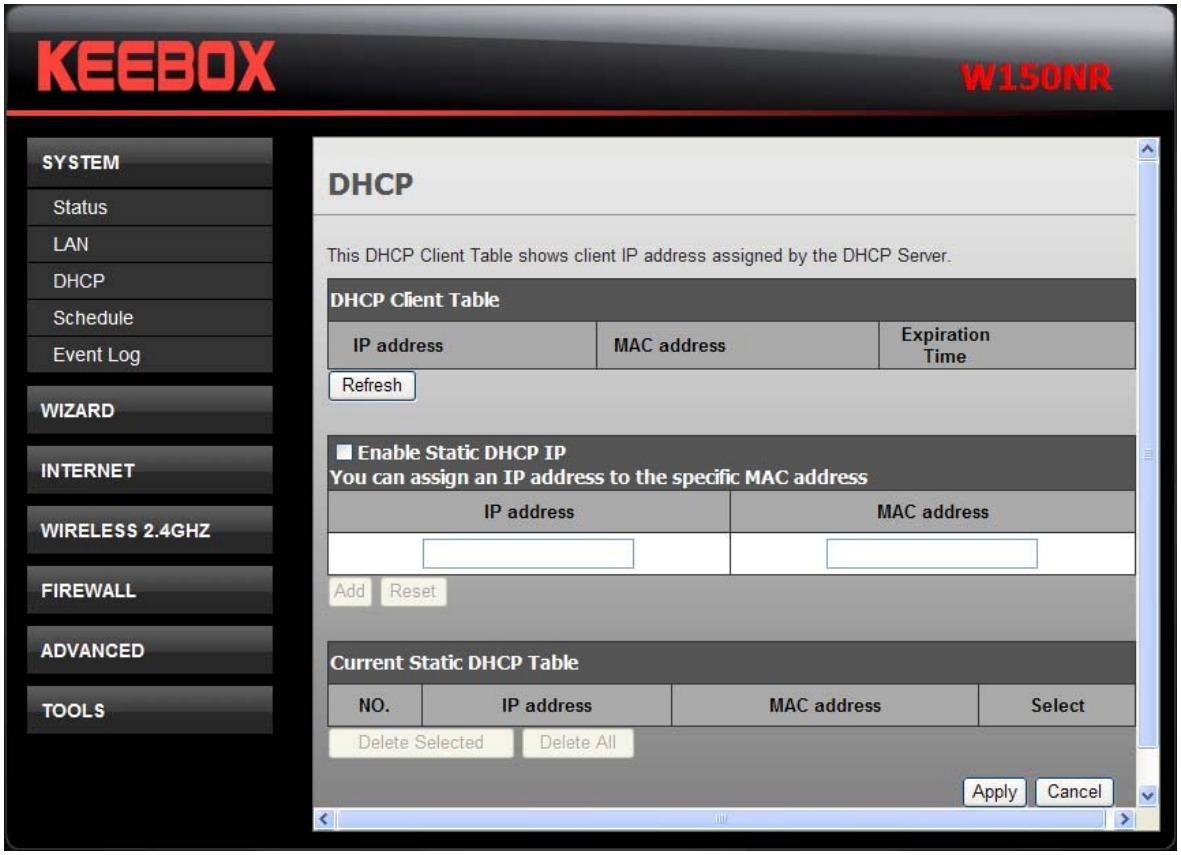
DHCP stands for Dynamic Host Control Protocol. The Router has a built-in DHCP server. The DHCP Server will automatically assign an IP address to the computers on the LAN/private network. Be sure to set your computers to be DHCP clients by setting their TCP/IP settings to **Obtain an IP Address Automatically**. When turning your computers on, they will automatically load the proper TCP/IP settings provided by the Router. The DHCP Server will automatically allocate an unused IP address from the IP address pool to the requesting computer. You must specify the starting and ending address of the IP address pool.

Fields	Description
DHCP Server	Use the drop-down list to enable or disable the DHCP server function.
Lease time	The length of time for the IP address lease.
Start IP	Enter the starting IP address for the DHCP server's IP assignment.
End IP	Enter the ending IP address for the DHCP server's IP assignment.
Domain name	Enter the domain name.

Click **Apply** to save the changes.

DHCP

This window allows you to configure the DHCP client information.



The DHCP Client Table displays all the client IP address assigned by the DHCP server.

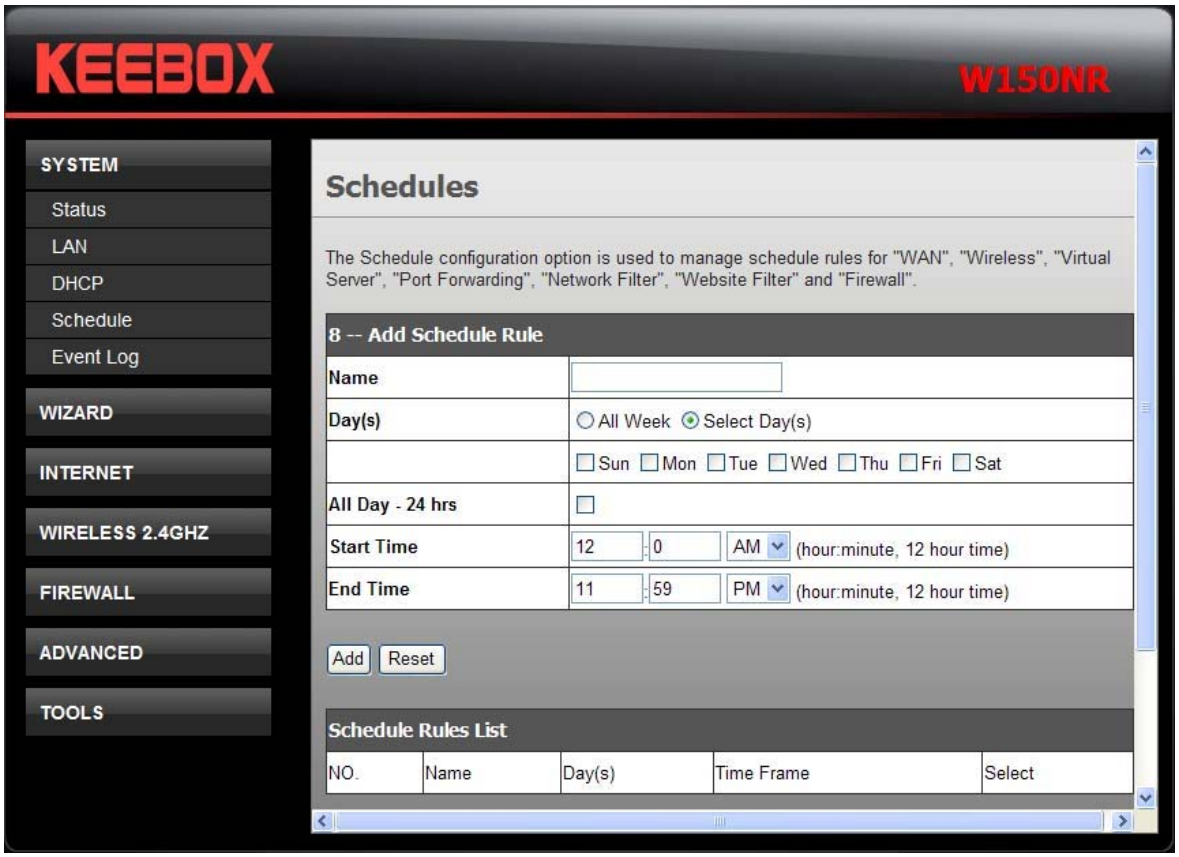
To assign an IP address to a specific MAC address, tick **Enable Static DHCP IP** check box, enter the IP and MAC addresses in the fields and click the **Add** button. The information will display in the Current Static DHCP Table.

To remove specific static DHCP IP addresses, tick the corresponding check boxes under **Select**, and click **Delete Selected**. To remove all entries, click **Delete All**.

Click **Apply** to save the changes.

Schedule

The Router allows the user the ability to manage schedule rules for various wireless settings, filter features, firewall features and virtual server settings.



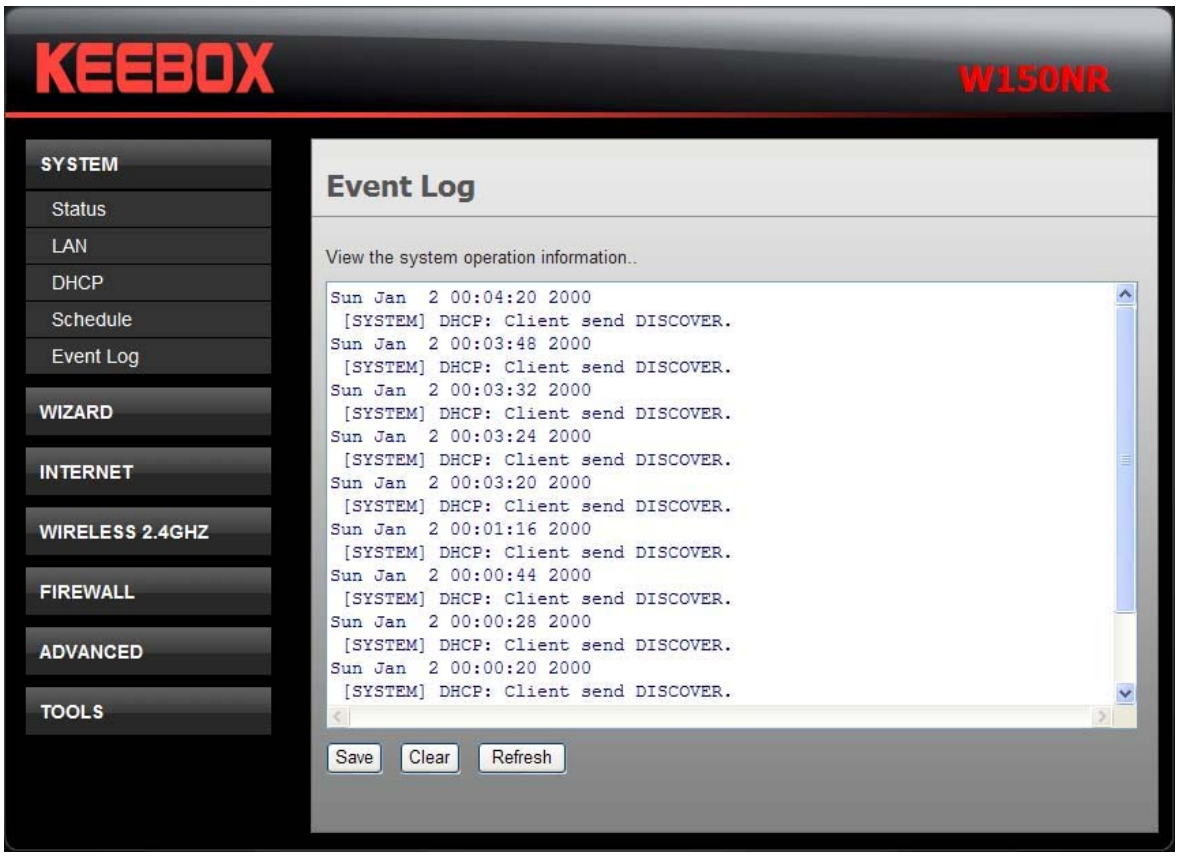
Fields	Description
Name	Enter a name for the schedule.
Day(s)	Click the radio button to choose the desired day(s), either **All Week** or **Select Day(s)**. If the latter is selected, use the checkboxes directly below to specify the individual days.
All Day – 24 hrs	Tick the check box to apply the new schedule rule to a full day.
Start Time	If the schedule rule is not applied to a full day, specify the starting time of the schedule rule in this field.
End Time	If the schedule rule is not applied to a full day, specify the ending time of the schedule rule in this field.

Click **Add** to save the changes and see the rule in the Schedule Rules List. To remove specific schedule rules, tick the corresponding check boxes under **Select**, and click **Delete Selected**. To remove all entries, click **Delete All**. Click **Reset** to clear all the information that has not been saved.

Click **Apply** to save the changes.

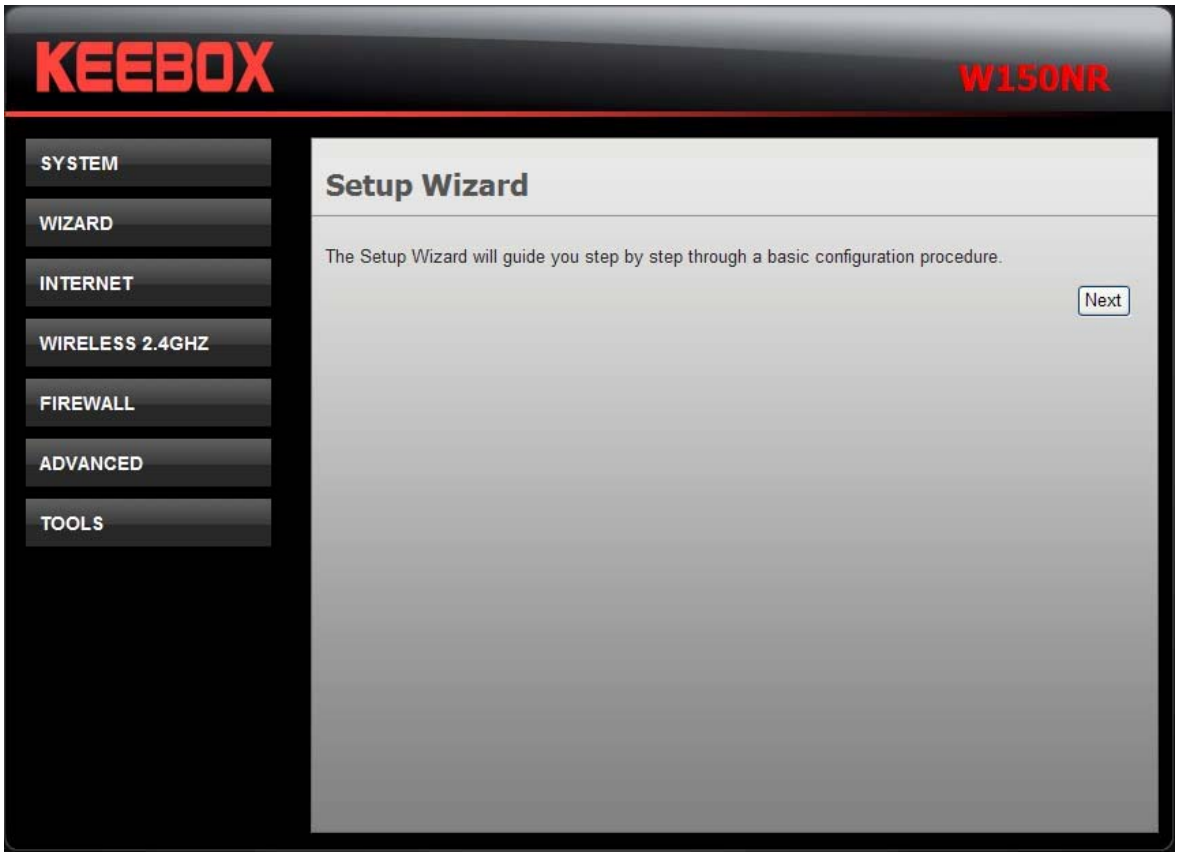
Event Log

The system log displays chronological event log data. You may also save a simple text file containing the log to your computer. Click the **Save** button and follow the prompts to save the file. Click **Clear** to remove all the event log. Click **Refresh** to update the information.

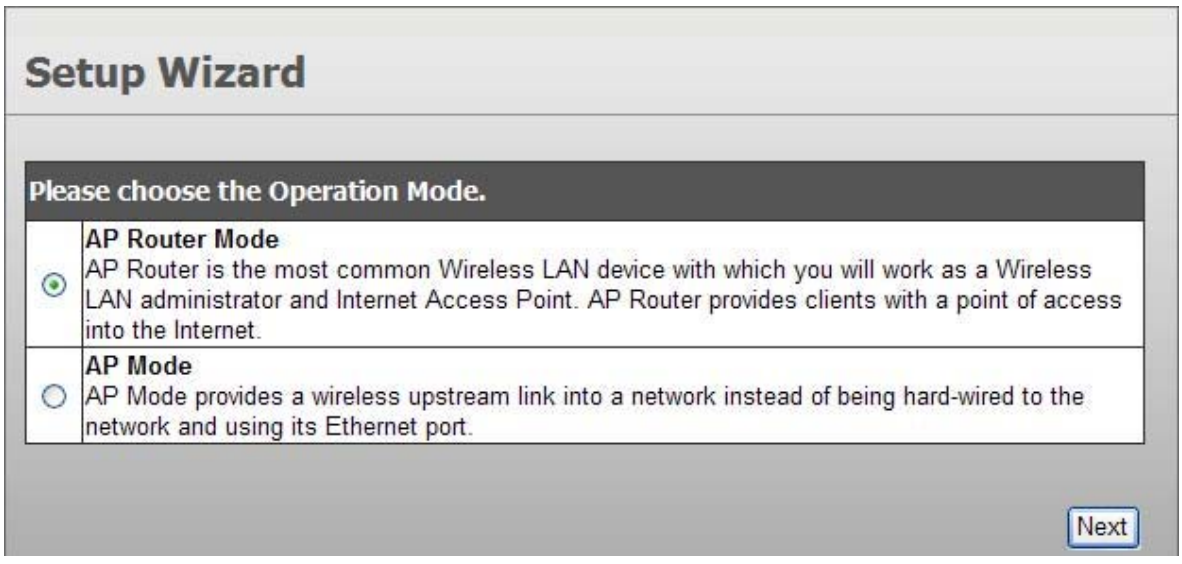


Wizard

This window guides the user the set up the Internet connections of the Router.



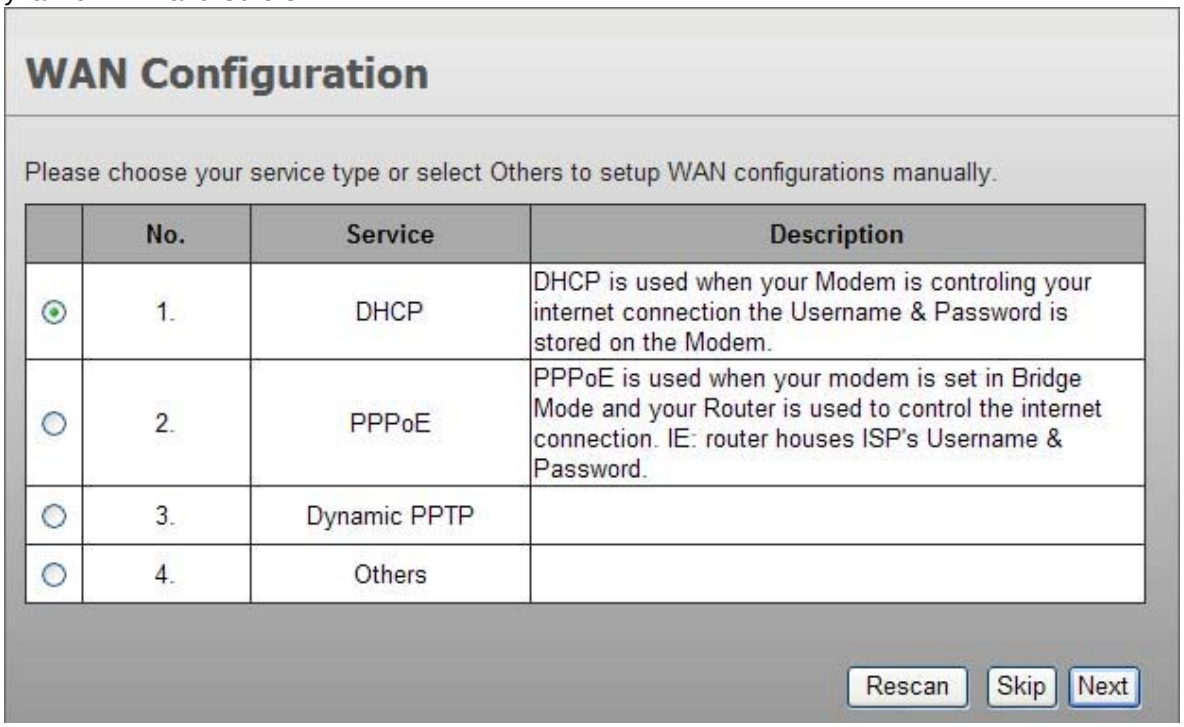
Click the **Next** button to continue. The following window appears.



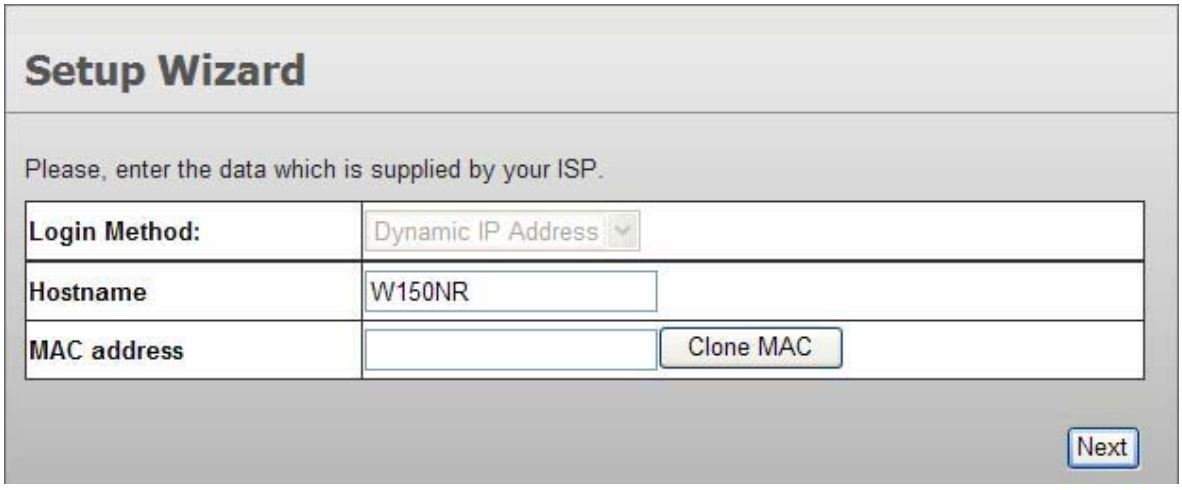
Click the radio button to select one of the operation modes and click **Next** to continue.

AP Router Mode – WAN Configuration

In this window, select various WAN connections to configure. The available selections are DHCP, PPPoE Dynamic PPTP and Others.

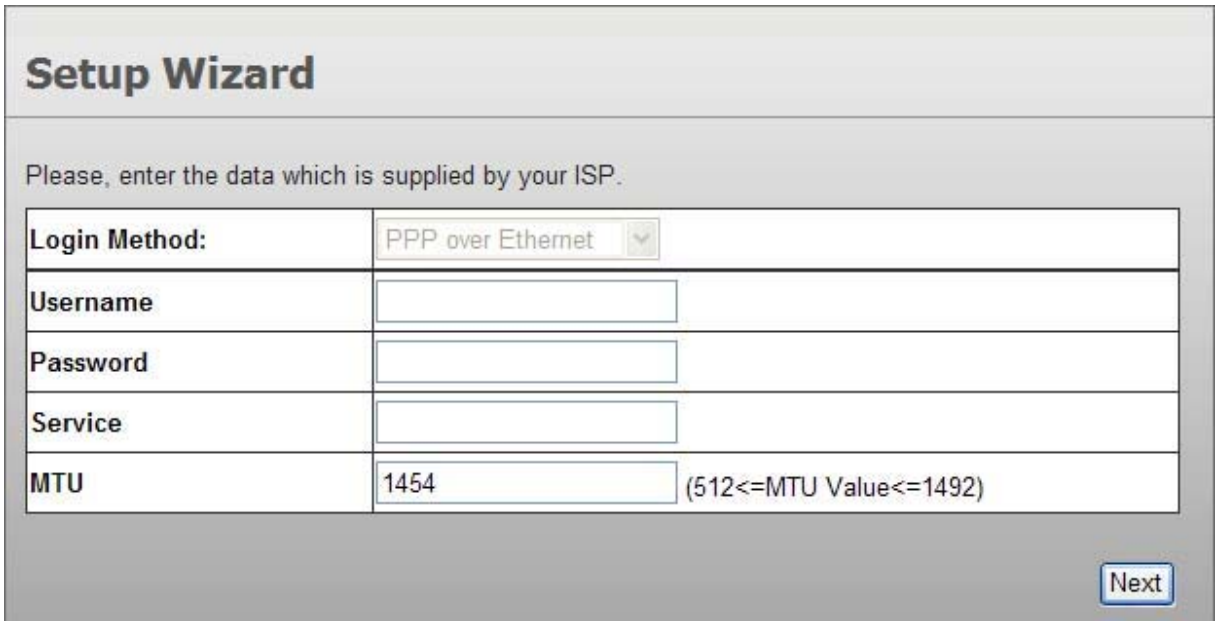


If selecting **DHCP**, click **Next** and the following window appears.



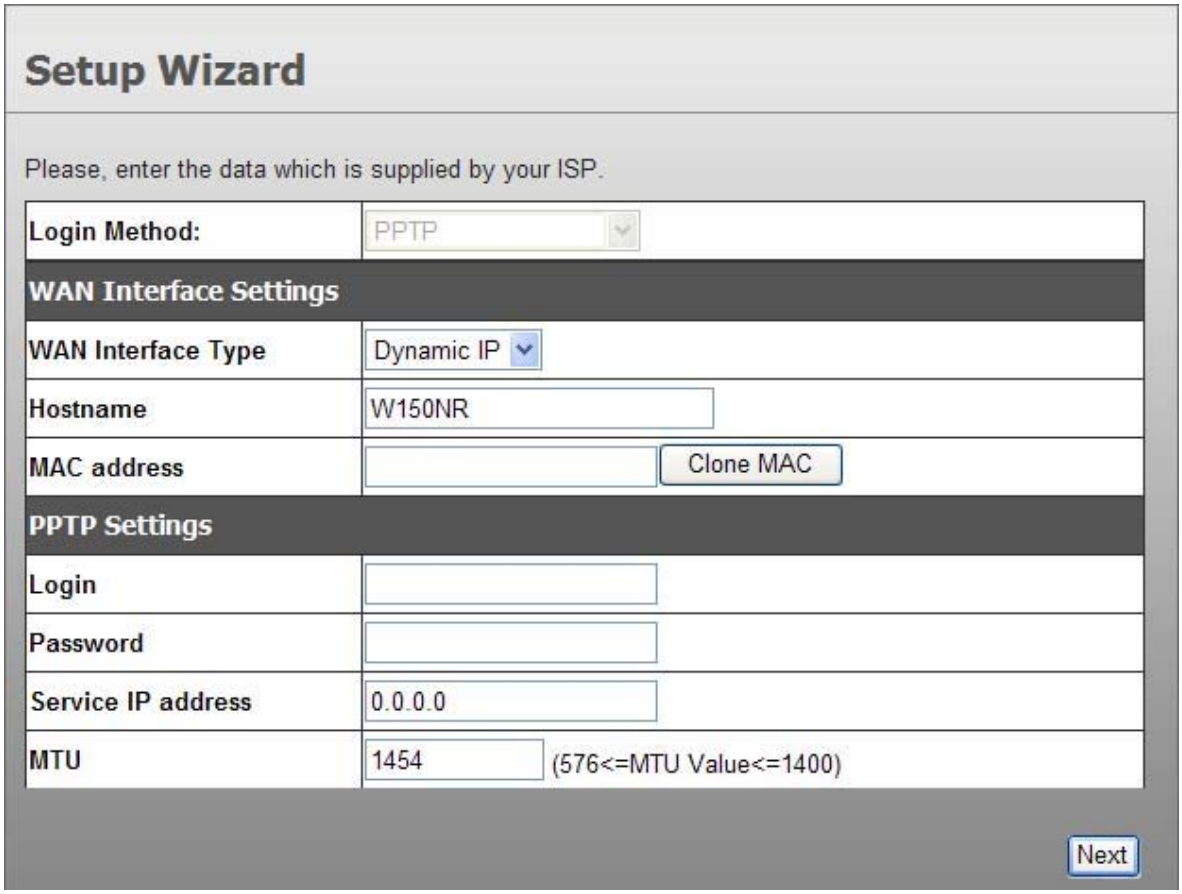
You may need to enter the MAC address of the computer that was last connected directly to your modem. If you are currently using that computer, click **Clone MAC** and then click **Next** to continue.
The Host Name is optional but may be required by some ISPs. The default host name is the device name of the Router and may be changed.

If selecting **PPPoE**, click **Next** and the following window appears.



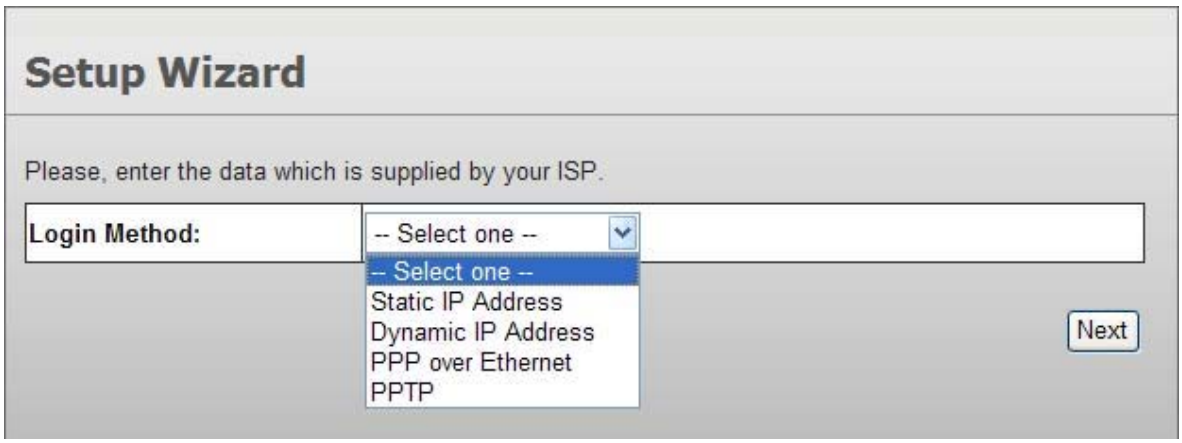
Type in the **Username** and **Password** used to identify and verify your account to the ISP. Leave the **MTU** value at the default setting unless you have specific reasons to change this. Click Next to continue

If selecting **Dynamic PPTP**, click **Next** and the following window appears.



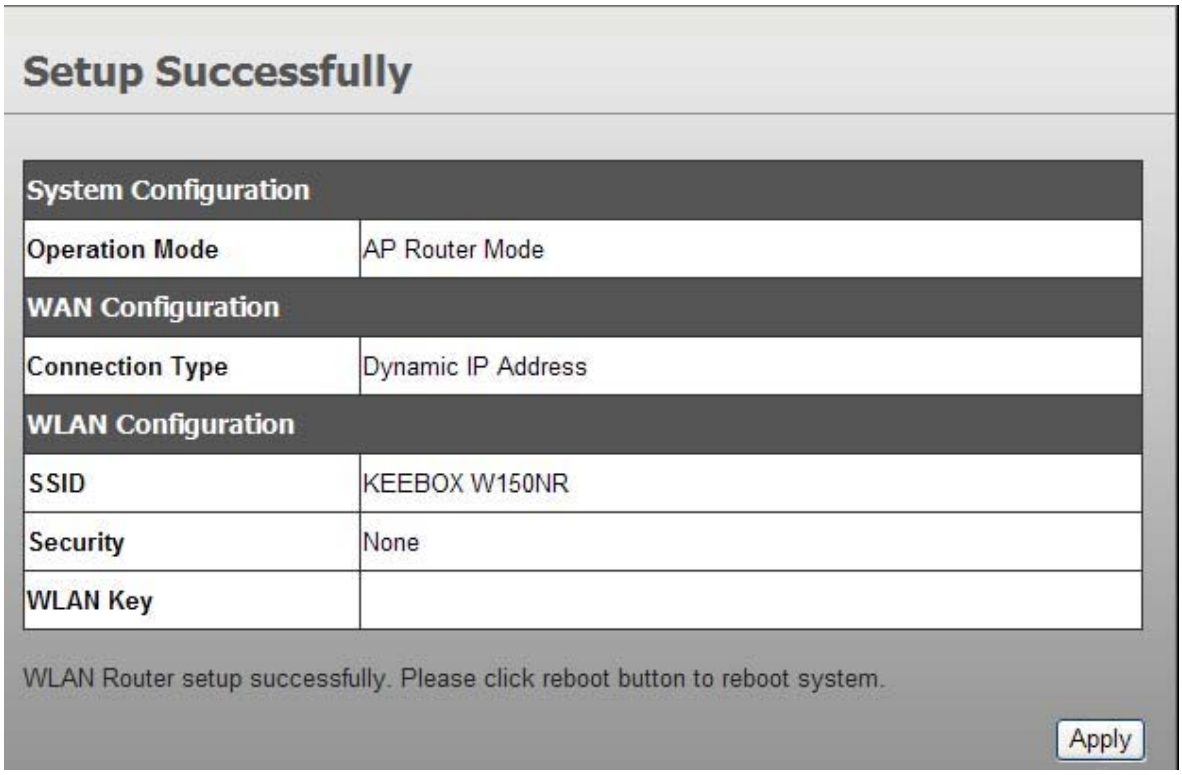
In WAN Interface Settings, use the drop-down list to choose Dynamic or Static IP. If **Dynamic IP** is selected, you may need to enter the MAC address of the computer or click **Clone MAC** to directly copy the MAC address of the computer. If **Static IP** is selected, enter the IP address, its subnet mask and gateway's IP address.
In PPTP Settings, enter the username in Login, its Password, and Service IP address. Leave the **MTU** value at the default setting unless you have specific reasons to change this.
Click **Next** to continue.

If selecting **Others**, click **Next** and the following window appears.



Use the drop-down list to select a WAN mode and configure the settings. Click **Next** to continue.

Configure the wireless security settings in the window. Click the radio buttons to select the wireless security type, and enter the SSID and encryption in the lower half of the window. Click **Next** to continue.



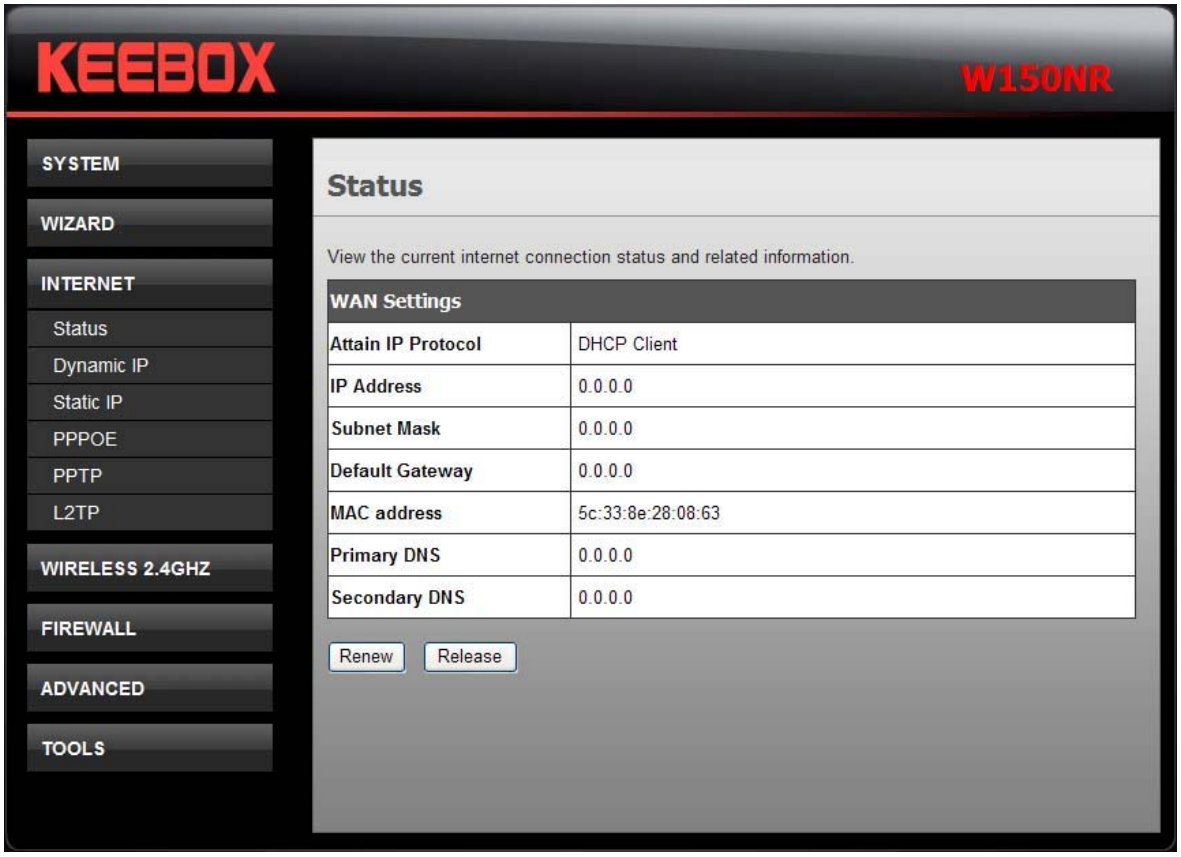
The final step of wizard displays the settings you just made. Click **Apply** to save the settings.

Internet

This chapter provides more manual settings about Internet connection.

Status

This window displays the current Internet connection of the Router.



Dynamic IP

Use this window to configure the dynamic IP.

Fields	Description
Hostname	This field is optional, but may be required by some ISPs. The default host name is the device name of the Router and may be changed.
MAC address	The default MAC address is set to the WAN's physical interface MAC address on the Router. You can use the **Clone MAC** button to copy the MAC address of the Ethernet Card installed by your ISP and replace the WAN MAC address with the MAC address of the Router. It is not recommended that you change the default MAC address unless required by your ISP.

Click **Apply** to save the changes.

Static IP

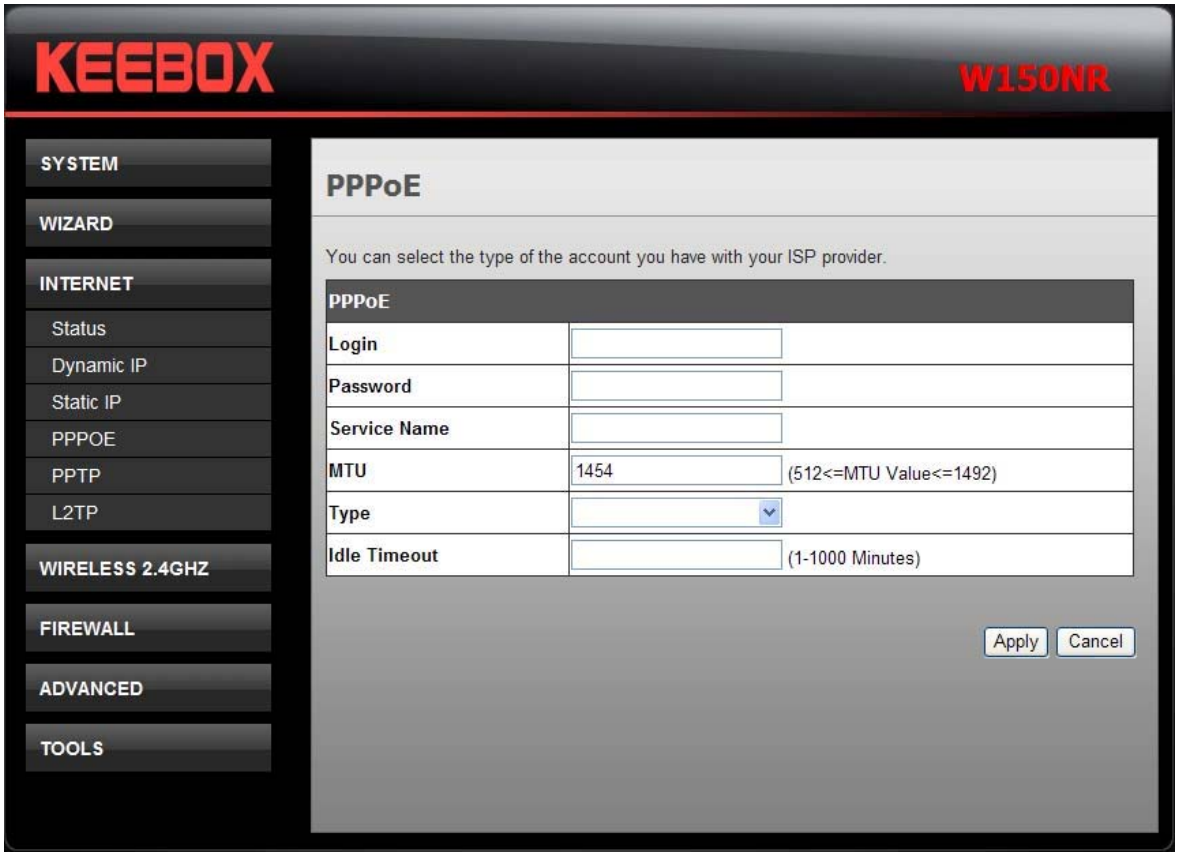
Use this window to configure the static IP.

Fields	Description
IP address	Enter the IP address assigned by your ISP.
IP Subnet Mask	Enter the subnet mask assigned by your ISP.
Default Gateway	Enter the Gateway assigned by your ISP.
Primary DNS	Enter the primary DNS server IP address assigned by your ISP.
Secondary DNS	Enter the secondary DNS server IP address. This is optional.

Click **Apply** to save the changes.

PPPoE

Choose PPPoE (Point to Point Protocol over Ethernet) if the ISP uses a PPPoE connection. The ISP will provide you with a username and password. This option is typically used for DSL services. Make sure to remove your PPPoE software from your computer. The software is no longer needed and will not work through a router.

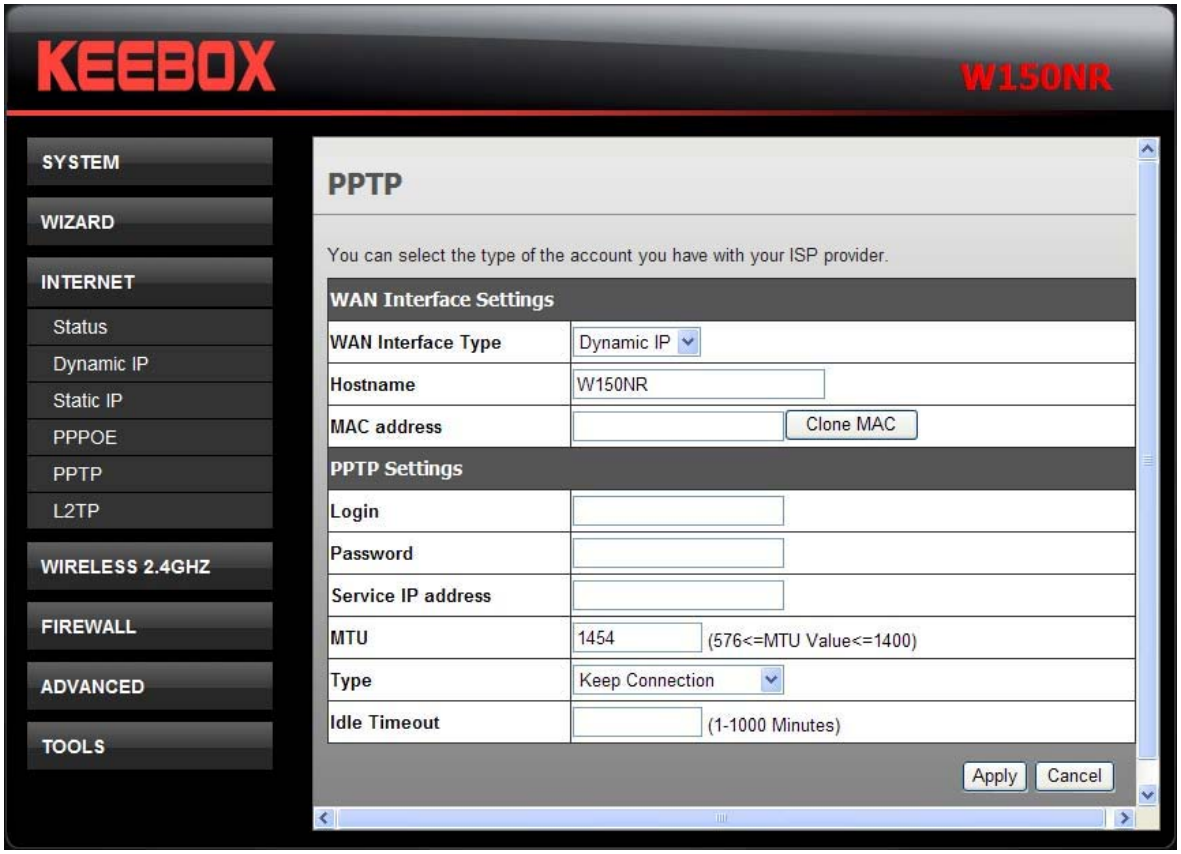


Fields	Description
Login	Enter the PPPoE login name.
Password	Enter the PPPoE password.
Service Name	Enter the ISP service name. This is optional.
MTU	Maximum Transmission Unit is for optimal performance with some ISPs.
Type	Use the drop-down list to select *Keep Connection*, *Automatic Connection* or *Manual Connection*.
Idle Timeout	This is an age-out value, in minutes, before the Router times out.

Click **Apply** to save the changes.

PPTP

Choose PPTP (Point-to-Point-Tunneling Protocol) if your ISP uses a PPTP connection. Your ISP will provide you with a username and password. This option is typically used for DSL services.



Fields	Description
WAN Interface Type	Use the drop-down list to choose between *Dynamic IP* and *Static IP*.
Hostname	The selection appears when choosing **Dynamic IP** in **WAN Interface Type**. This field is optional, but may be required by some ISPs. The default host name is the device name of the Router and may be changed.
MAC address	The selection appears when choosing **Dynamic IP** in **WAN Interface Type**. The default MAC address is set to the WAN's physical interface MAC address on the Router. You can use the **Clone MAC** button to copy the MAC address of the Ethernet Card installed by your ISP and replace the WAN MAC address with the MAC address of the Router. It is not recommended that you change the default MAC address unless required by your ISP.
My IP address	The selection appears when choosing **Static IP** in **WAN Interface Type**. Enter the IP address assigned by your ISP.
My Subnet Mask	Enter the subnet mask assigned by your ISP.
Gateway IP Address	Enter the Gateway assigned by your ISP.
Login	Enter the PPTP login name.
Password	Enter the PPTP password.
Service IP address	Enter the ISP service IP address.
MTU	Maximum Transmission Unit is for optimal performance with some ISPs.
Type	Use the drop-down list to select *Keep Connection*, *Automatic Connection* or *Manual Connection*.
Idle Timeout	This is an age-out value, in minutes, before the Router times out.

Click **Apply** to save the changes.