# User manual

# ET-WV525

*Draft Manual: The Manual is preliminary and some features discussed may not be applicable or complete and are not final. (i.e. Network/Computer/Software/System Requirements and features, Packet Contents, Installation Description, User Interface and .etc.)*

# SAFETY INFORMATION

## SAFETY WARNINGS

To reduce the risk of electric shock, do not remove the cover (or back).
No user serviceable parts are inside. Refer to qualified service personnel.

| | | |
|---|---|---|
| | CAUTION<br>RISK OF ELECTRIC SHOCK<br>DO NOT OPEN | |
| This symbol indicates “dangerous voltage” inside the product that presents a risk of electric shock or personal injury. | Caution: To prevent electric shock, match wide blade of plug to the wide slot, fully insert. | This symbol indicates important instructions accompanying the product. |

**Warning**

- To reduce the risk of fire or electric shock, do not expose this appliance to rain or moisture.

**Caution**

- Apparatus shall not be exposed to dripping or splashing and no objects filled with liquids, such as vases, shall be placed on the apparatus.
- The Mains plug is used as a disconnect device and shall stay readily operable at any time.
- This apparatus shall always be connected to an AC outlet with a protective grounding connection.
- To disconnect the apparatus from the mains, the plug must be pulled out from the mains socket, therefore the mains plug shall be readily operable.

## PRECAUTIONS

- Ensure that the AC power supply in your house complies with the identification sticker located on the back of your product.
- Install your product horizontally or vertically, on a suitable base (furniture), with enough space around it for ventilation (7.5~10cm).
- Do not place the product on amplifiers or other equipment which may become hot.
- Do not stack anything on top of the product.
- In order to disconnect the product completely from the power supply, remove the main plug from the wall outlet, especially when left unused for a long period of time.
- During thunderstorms, disconnect the AC main plug from the wall outlet. Voltage peaks due to lightning could damage the product.
- Do not expose the product to direct sunlight or other heat sources. This could lead to overheating and malfunction of the product.
- Protect the product from moisture, and excess heat or equipment creating strong magnetic or electric fields (i.e. speakers.).
- Disconnect the power cable from the AC supply if the product malfunctions.
- Your product is not intended for industrial use. Use of this product is for personal use only.
- Condensation may occur if your product has been stored in cold temperatures. If transporting the product during the winter, wait approximately 2 hours until the product has reached room temperature before using.

# TABLE OF CONTENTS


**Safety Information ..... 2**
- Safety Warnings ..... 2
- Precautions ..... 2

**Getting Started ..... 4**
- Package Contents ..... 4
- System Requirements ..... 4
- About this Product ..... 5
- Features ..... 5
- Description ..... 6
  - Front View ..... 6
  - Back View ..... 6
- Installation ..... 7
  - Before you Begin ..... 7
  - Wireless Installation Considerations ..... 7
  - Connect to Cable/DSL/Satellite Modem. ..... 7
  - Connect to Another Router ..... 8
- Connecting to the Web UI ..... 9
  - Router's Defaults ..... 9
  - Connecting using the Browser ..... 9

**Web User Interface ..... 10**
- Setup Category ..... 11
  - Internet - Wizard ..... 12
  - Internet - Manual Internet Connection ..... 18
  - Wireless Settings ..... 27
  - Network Settings ..... 35
- Advanced Category ..... 37
  - Virtual Server ..... 38
  - Port Forwarding ..... 39
  - Application Rules ..... 40
  - Quality of Service (QoS) ..... 41
  - Network Filter ..... 43
  - Access Control ..... 44
  - Website Filter ..... 47
  - Inbound Filter ..... 48
  - Firewall Settings ..... 49
  - Routing ..... 50
  - Advanced Wireless ..... 51
  - Wi-Fi Protected Setup ..... 53
  - Advanced Network Settings. ..... 55
  - Guest Zone ..... 57
  - IPv6 ..... 59
  - IPv6 Firewall ..... 72
- Tools Category ..... 73
  - Admin ..... 74
  - Time ..... 75
  - Syslog ..... 76
  - Email Settings ..... 77
  - System ..... 78
  - Firmware ..... 79
  - Dynamic DNS ..... 80
  - System Check ..... 81
  - Schedules ..... 82
- Status Category ..... 83
  - Device Info ..... 84
  - Logs ..... 86
  - Statistics ..... 87
  - Internet Sessions ..... 87
  - Wireless ..... 88
  - IPv6 ..... 88
- Support Category ..... 89

**Knowledge Base ..... 90**
- One Foot Connection (OFC) Method ..... 90
  - Connect my Samsung TV to the router using OFC. ..... 90
- Plug & Access Connection Method ..... 91
  - Connect my Samsung TV to the router using Plug & Access. ..... 91
- Priority Quality of Service ..... 91
- Wireless Basics ..... 92
- Wireless Modes ..... 94
- Wireless Security ..... 94
  - What is WPA? ..... 94
- Networking Basics ..... 95
- Connect to a Wireless Network ..... 96
  - Using Windows® 7 ..... 96
  - Configuration WPS ..... 97
  - *Using Windows Vista®* ..... 100
  - Using Windows® XP ..... 101

**Troubleshooting ..... 102**

**Technical Specifications ..... 104**

# GETTING STARTED

## PACKAGE CONTENTS

Check for the supplied accessories below:

- Wireless 802.11ac Dual Band Router
- Power Adapter with extra Power Cable
- Ethernet Cable
- CD-ROM (with installation software and manuals)
- Quick Installation Guide
- Stand
- Mounting Kit

## SYSTEM REQUIREMENTS

**Network Requirements:**

- 10/100Mbps Ethernet LAN adapter
- 802.11a/g/n/ac Wireless Adapter
- Ethernet-based Cable or DSL Modem

**Computer Requirements:**

- Window 7/Vista/XP (with SP3)
- 10/100 Ethernet LAN adapter
- CD-ROM drive

**Software Requirements:**

- Operating System like Microsoft Windows, Macintosh, or Linux
- Browser like Internet Explorer (6 or higher), Mozilla Firefox (3.0 or higher), Safari (3.0 or higher), or Chrome (2.0 or higher)

# About this Product

This user's guide provides a wonderful insight into the functionality of the product called the Samsung ET-WV530. This guide is based on the current running firmware/software version available for this product and might touch on some new and exciting topics never seen on this product line before providing a rewarding reading experience and in the end acts as a guide when installing and maintaining this product.

# Features

The Samsung wireless router is packed with a load of features. Most of these features are what is expected from an Internet Wireless router, and then there are the features that are unique to Samsung products.

- **Internet Connectivity**. In conjunction with a DSL or Cable Modem, this device can act as the Internet Gateway to your local network. Connections like, PPPoE, Static and Dynamic IP Connections, PPTP, and L2TP connection can be made.
- **Wireless LAN functionality**. This router supports the full package of what the 802.11n protocol has to offer. Other remarkable features are WMM, Automatic Fallback, RF Output Level Control, Latest Wireless Security requirements, WPS and much more.
- **Networking**. This router is equipped with 4 10/100Mbps LAN port and 1 10/100Mbps Internet port. This device can handle a network of up to 1000 MAC addresses.
- **Multicasting**. Supports IGMPv2.
- **DHCP**. This device supports both Server and Client functionality.
- **Quality of Service**. QoS rules can be created to shape traffic based on weight or priority. IP Pools can be managed based on application port numbers.
- **Advanced Security**. The Samsung router supports also a list of security features like Network Filtering, Access Control, Website Filtering, Inbound Filtering and SPI.
- **IPv6**. One of the most attractive features of this router is the fact that not only does it support local IPv6 support, but also IPv6 Internet Connection support. This is truly an Internet Gateway ahead of it's time.
- **More**. Other features like DDNS, System Checking, Firmware Updates, Email Settings (for notification), and Schedules are also available on this device.
- **One Foot Connection**. This powerful, Samsung unique, feature allows you to connect your Samsung TV automatically to this router, using the OFC connection method.
- **Plug & Access**. This powerful, Samsung unique, feature allows you to connect this router to any Samsung wireless device easily by using USB memory stick.
- **Samsung Priority QoS**. This powerful, Samsung unique, feature will identify any Samsung networking device in your network and give it the higher wireless network traffic priority. The is perfect for video steaming to your Samsung TV.

# Description

## Font View

| | | |
|---|---|---|
| 1 | POWER LED | A solid blue light indicates a proper connection to the power supply. |
| 2 | INTERNET LED | A solid blue light indicates the PPP negotiation has successfully completed. |
| 3 | 2.4Ghz LED | A solid light indicates that the 2.4GHz wireless segment is ready. This LED blinks during wireless data transmission. |
| 4 | 5Ghz LED | A solid light indicates that the 5.0GHz wireless segment is ready. This LED blinks during wireless data transmission. |
| 5 | WPS BUTTON | Press the WPS button for 1 second to initiate the WPS process. The button will flash blue while a WPS connection is being established. The button will light solid blue for 5 seconds when the device has successfully been added to the network. |

## Back View

| | | |
|---|---|---|
| 1 | USB PORT | The USB port can be used for WPS enabled Wireless USB adapters. One other feature this port is used for is called the **Plug & Access** feature. |
| 2 | LAN PORTS | The 4 x RJ-45 LAN ports can be used for 10/100Mbps LAN connections like computers. |
| 3 | INTERNET PORT | The RJ-45 Internet (WAN) port can be used for connections like a DSL/Cable modem. |
| 4 | RESET BUTTON | Pressing the Reset button restores the router to its original factory default settings. |
| 5 | POWER SWITCH | Use this switch to power on/power off the device. |
| 6 | POWER RECEPTOR | Receptor for the supplied power adapter. |

# 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, attic or garage.

## Before you Begin

- Please configure the router with the computer that was last connected directly to your modem.
- You can only use the Ethernet port on your modem. If you were using the USB connection before using the router, then you must turn off your modem, disconnect the USB cable and connect an Ethernet cable to the Internet port on the router, and then turn the modem back on. In some cases, you may need to call your ISP to change connection types (USB to Ethernet).
- If you have DSL and are connecting via PPPoE, make sure you disable or uninstall any PPPoE software such as WinPoet, Broadjump, or Enternet 300 from your computer or you will not be able to connect to the Internet.
- When running the Setup Wizard from the CD, make sure the computer you are running the CD from is connected to the Internet and online or the wizard will not work. If you have disconnected any hardware, reconnect your computer back to the modem and make sure you are online.

## Wireless Installation Considerations

The wireless router lets you access your network using a wireless connection from virtually anywhere within the operating range of your wireless network. Keep in mind, however, that the number, thickness and location of walls, ceilings, or other objects that the wireless signals must pass through, may limit the range. Typical ranges vary depending on the types of materials and background RF (radio frequency) noise in your home or business. The key to maximizing wireless range is to follow these basic guidelines:

1. Keep the number of walls and ceilings between the router and other network devices to a minimum - each wall or ceiling can reduce your adapter's range from 3-90 feet (1-30 meters.) Position your devices so that the number of walls or ceilings is minimized.
2. Be aware of the direct line between network devices. A wall that is 1.5 feet thick (.5 meters), at a 45-degree angle appears to be almost 3 feet (1 meter) thick. At a 2-degree angle it looks over 42 feet (14 meters) thick! Position devices so that the signal will travel straight through a wall or ceiling (instead of at an angle) for better reception.
3. Building Materials make a difference. A solid metal door or aluminum studs may have a negative effect on range. Try to position access points, wireless routers, and computers so that the signal passes through drywall or open doorways. Materials and objects such as glass, steel, metal, walls with insulation, water (fish tanks), mirrors, file cabinets, brick, and concrete will degrade your wireless signal.
4. Keep your product away (at least 3-6 feet or 1-2 meters) from electrical devices or appliances that generate RF noise.
5. If you are using 2.4GHz cordless phones or X-10 (wireless products such as ceiling fans, lights, and home security systems), your wireless connection may degrade dramatically or drop completely. Make sure your 2.4GHz phone base is as far away from your wireless devices as possible. The base transmits a signal even if the phone in not in use.

## Connect to Cable/DSL/Satellite Modem

If you are connecting the router to a cable/DSL/satellite modem, please follow the steps below:

1. Place the router in an open and central location. Do not plug the power adapter into the router.
2. Unplug the modem's power adapter. Shut down your computer.
3. Unplug the Ethernet cable (that connects your computer to your modem) from your computer and place it into the Internet port on the router.
4. Plug an Ethernet cable into one of the four LAN ports on the router. Plug the other end into the Ethernet port on your computer.
5. Plug in your modem. Wait for the modem to boot (about 30 seconds).
6. Plug the power adapter to the router and connect to an outlet or power strip.
7. Use the power switch to power on the router. Wait about 30 seconds for the router to boot.
8. Turn on your computer.

# Connect to Another Router

If you are connecting the router to another router to use as a wireless access point and/or switch, you will have to do the following before connecting the router to your network:

- Disable UPnP™
- Disable DHCP
- Change the LAN IP address to an available address on your network. The LAN ports on the router cannot accept a DHCP address from your other router.

To connect to another router, please follow the steps below:

1. Plug the power into the router and use the power switch to power up the router. Connect one of your computers to the router (LAN port) using an Ethernet cable. Make sure your IP address on the computer is 192.168.0.xxx (where xxx is between 2 and 254). If you need to change the settings, write down your existing settings before making any changes. In most cases, your computer should be set to receive an IP address automatically in which case you will not have to do anything to your computer.
2. Open a web browser and enter http://192.168.0.1 and press Enter. When the login window appears, set the user name to '**admin**' and leave the password box empty. Click **Login** to continue.
3. Click on Advanced and then click Advanced Network. Uncheck the Enable UPnP checkbox. Click Save Settings to continue.
4. Click Setup and then click Network Settings. Uncheck the Enable DHCP Server checkbox. Click Save Settings to continue.
5. Under Router Settings, enter an available IP address and the subnet mask of your network. Click Save Settings to save your settings. Use this new IP address to access the configuration utility of the router in the future. Close the browser and change your computer's IP settings back to the original values as in Step 1.
6. Disconnect the Ethernet cable from the router and reconnect your computer to your network.
7. Connect an Ethernet cable in one of the LAN ports of the router and connect it to your other router. Do not plug anything into the Internet (WAN) port of the router.
8. You may now use the other 3 LAN ports to connect other Ethernet devices and computers. To configure your wireless network, open a web browser and enter the IP address you assigned to the router. Refer to the Configuration and Wireless Security sections for more information on setting up your wireless network.

# Connecting to the Web UI

This section will help you to connect to your router's Web User Interface (Web UI) for the first time.

## Router's Defaults

The router's default values are as follows:

| | |
|---|---|
| **IP Address:** | 192.168.0.1 |
| **Username:** | admin |
| **Password:** | (blank) |

## Connecting using the Browser

To connect the router's Web UI, you'll need to use your Internet Browser. Open you Internet browser, like Internet Explorer, and enter the router's default IP address in the address bar as follows.

After entering the IP address (default is 192.168.0.1), press <enter> or click on the '**Go**' option. This will open a page called the login page, which will look like this:

Enter the username and password in the spaces provided and click on the **Login** button.

# Web User Interface

This Web User Interface is divided into categories, found in the top menu, and pages, found in the left menu.

The Samsung Wireless router Web UI provides five categories to edit.

| | |
|---|---|
| **Setup:** | In this category the user will be able to configure the basic features for this router to function properly on a network. Features like Internet Connectivity, Local Area Network Connectivity and Wireless Connectivity. |
| **Advanced:** | In this category the user will be able to configure the more advanced features that can be done by this router. Features like Port Forwarding, Firewall settings, Quality of Service settings and more. |
| **Tools:** | In this category the user will be able to configure features that are related to the router itself. Features like the time settings, login accounts, firmware update and more. |
| **Status:** | In this category the user will be able to view information regarding the configuration and functionality of this device. Displays like WAN, LAN and Wireless configurations, System, Firewall and Router logs, and more. |
| **Support:** | In this category the user will have access to a portal of information regarding each and every page that exists on this device. This information gives the basic description of parameter and uses for the pages. |

# Setup Category

In this category the user will be able to configure the basic features for this router to function properly on a network. Features like Internet Connectivity, Local Area Network Connectivity and Wireless Connectivity.

Pages that can be configured in the **Setup** category are as follows:
**Internet:** On this page the user can configure the Internet settings for this router.
**Wireless Settings:** On this page the user can configure the Wireless settings for this router.
**Network Settings:** On this page the user can configure the Network settings for this router.

# INTERNET - WIZARD

When configuring the device for the first time, we recommend that you click use the **Internet Connection Setup Wizard**, and follow the instructions on the screen. This wizard is designed to assist user with a quick and easy method to configure the Internet Connectivity of this router.

To initiate the quick and easy Internet connection wizard, click on the **Internet Connection Setup Wizard** button. This will start a 4 step configuration process.

This wizard will guide you through a step-by-step process to configure your new Samsung router and connect to the Internet.
**Step 1:** In this step the user will be able to re-configure the **Login Password** for this device.
**Step 2:** In this step the user will be able to configure the **Time Zone** used by this device.
**Step 3:** In this step the user will be able to configure the **Internet Connectivity** of this device.
**Step 4:** In this step the user will be able to save the settings and initiate the connection process.

Click on the **Prev** button to return to the previous window. Click on the **Next** button to continue to the next step.
Click on the **Cancel** button to discard the changes made and return to the Internet home page.

**Step 1:** By default, the new Samsung Router does not have a password configured for administrator access to the Web-based configuration pages. To secure the new networking device, please set and verify a password here.

The following parameters can be configured:

| | |
|---|---|
| **Password:** | Enter the new login password used here. |
| **Verify Password:** | Re-enter the new login password used here. |

Click on the **Prev** button to return to the previous window. Click on the **Next** button to continue to the next step.
Click on the **Cancel** button to discard the changes made and return to the Internet home page.

**Step 2:** Select the appropriate time zone for your location. This information is required to configure the time-based options for the router.

The following parameters can be configured:

| | |
|---|---|
| **Time Zone:** | Select the appropriate Time Zone used. This information will be used by the time-based options on this router. |

Click on the **Prev** button to return to the previous window. Click on the **Next** button to continue to the next step.
Click on the **Cancel** button to discard the changes made and return to the Internet home page.

**Step 3:** On this page the user will be able to configure the Internet Connectivity used by this device.

The following parameters can be configured:

| | |
|---|---|
| **Dynamic IP Address:** | Choose this if your Internet connection automatically provides you with an IP Address. Most Cable Modems use this type of connection. |
| **PPPoE** | Choose this option if your Internet connection requires a PPPoE username and password to get online. Most DSL modems use this type of connection. |
| **PPTP** | Choose this option if your Internet connection requires a PPTP username and password to get online. |
| **L2TP** | Choose this option if your Internet connection requires an L2TP username and password to get online. |
| **Static IP Address:** | Choose this option if your Internet Setup Provider provided you with IP Address information that has to be manually configured. |

Click on the **Prev** button to return to the previous window. Click on the **Next** button to continue to the next step.
Click on the **Cancel** button to discard the changes made and return to the Internet home page.

**Configure your Internet Connection: Dynamic IP Address Connection**

After selecting the **Dynamic IP Address** Internet connection method, the following page will appear:

The following parameters can be configured:

| | |
|---|---|
| **MAC Address:** | Enter the MAC address of the Internet gateway (plugged into the Internet port of this device) here. |
| **Clone Button:** | If the configuration PC also acts as the Internet gateway, then click on the **Clone Your PC's MAC Address** button to copy the PC's MAC address into the space provided. If you're not sure, leave the MAC Address field blank. |
| **Host Name:** | Enter the host name used here. You may also need to provide a Host Name. If you do not have or know this information, please contact your ISP. |

Click on the **Prev** button to return to the previous window. Click on the **Next** button to continue to the next step.
Click on the **Cancel** button to discard the changes made and return to the Internet home page.

**Configure your Internet Connection: PPPoE Connection**

After selecting the **PPPoE** Internet connection method, the following page will appear:

The following parameters can be configured:

| | |
|---|---|
| **Address Mode:** | Here the user can specify whether this Internet connection requires the use of a Dynamic or Static IP address. PPPoE usually requires a Dynamic IP configuration. |
| **IP Address:** | Enter the PPPoE IP address used here. This option is only available if Static IP is selected. |
| **User Name:** | Enter the PPPoE account user name used here. This information is given by the ISP. |
| **Password:** | Enter the PPPoE account password used here. This information is given by the ISP. |
| **Verify Password:** | Re-enter the PPPoE account password used here. |
| **Service Name:** | This optional field enables the user to enter a service name to identify this Internet connection here. |

Click on the **Prev** button to return to the previous window. Click on the **Next** button to continue to the next step.
Click on the **Cancel** button to discard the changes made and return to the Internet home page.

## Configure your Internet Connection: PPTP Connection

After selecting the **PPTP** Internet connection method, the following page will appear:

The following parameters can be configured:

| | |
|---|---|
| **Address Mode:** | Here the user can specify whether this Internet connection requires the use of a Dynamic or Static IP address. PPTP usual requires a Dynamic IP configuration. |
| **PPTP IP Address:** | Enter the PPTP IP address used here. This option is only available if Static IP is selected. |
| **PPTP Subnet Mask:** | Enter the PPTP Subnet Mask used here. |
| **PPTP Gateway IP Address:** | Enter the PPTP Gateway IP address used here. |
| **PPTP Server IP Address:** | Enter the PPTP Server IP address used here. This is normally the same a the PPTP Gateway IP address. |
| **User Name:** | Enter the PPTP username used here. |
| **Password:** | Enter the PPTP password used here. |
| **Verify Password:** | Re-enter the PPTP password used here. |

Click on the **Prev** button to return to the previous window. Click on the **Next** button to continue to the next step.
Click on the **Cancel** button to discard the changes made and return to the Internet home page.

## Configure your Internet Connection: L2TP Connection

After selecting the **L2TP** Internet connection method, the following page will appear:

The following parameters can be configured:

| | |
|---|---|
| **Address Mode:** | Here the user can specify whether this Internet connection requires the use of a Dynamic or Static IP address. L2TP usual requires a Dynamic IP configuration. |
| **L2TP IP Address:** | Enter the L2TP IP address used here. This option is only available if Static IP is selected. |
| **L2TP Subnet Mask:** | Enter the L2TP Subnet Mask used here. |
| **L2TP Gateway IP Address:** | Enter the L2TP Gateway IP address used here. |
| **L2TP Server IP Address:** | Enter the L2TP Server IP address used here. This is normally the same a the L2TP Gateway IP address. |
| **User Name:** | Enter the L2TP username used here. |
| **Password:** | Enter the L2TP password used here. |
| **Verify Password:** | Re-enter the L2TP password used here. |

Click on the **Prev** button to return to the previous window. Click on the **Next** button to continue to the next step.
Click on the **Cancel** button to discard the changes made and return to the Internet home page.

**Configure your Internet Connection: Static IP Address Connection**

After selecting the **Static IP Address** Internet connection method, the following page will appear:

The following parameters can be configured:

| | |
|---|---|
| **IP Address:** | Enter the Static IP address provided by the ISP here. |
| **Subnet Mask:** | Enter the Subnet Mask provided by the ISP here. |
| **Gateway Address:** | Enter the Gateway IP address provided by the ISP here. |
| **Primary DNS Address:** | Enter the Primary DNS IP address used here. |
| **Secondary DNS Address:** | Enter the Secondary DNS IP address used here. This field is normally optional. Only one DNS address is required for a functional Internet connection, but using a second DNS address provides more stability. |

Click on the **Prev** button to return to the previous window. Click on the **Next** button to continue to the next step.
Click on the **Cancel** button to discard the changes made and return to the Internet home page.

**Step 4:** The Internet Connection Setup Wizard has completed. Click the **Connect** button to save your settings.

Click on the **Prev** button to return to the previous window. Click on the **Next** button to continue to the next step.
Click on the **Cancel** button to discard the changes made and return to the Internet home page.

After clicking the **Connect** button to following window will appear. The device will save the settings and return to the main Internet page.

# Internet - Manual Internet Connection

On this page the user can configure the Internet Connection settings manually. To access the Manual Internet Connection page, click on the **Manual Internet Connection Setup** button.

On this page there a multiple parameter that can be configured regarding the Internet Connection setup. We'll discuss them from top to bottom.

At any given point the user can save the configurations done, on this page, by clicking on the **Save Settings** button. If you choose to discard the changes made, them click on the **Don't Save Settings** button.

**Internet Connection Type: Static IP**

Select Static IP from the drop-down menu if all the Internet port's IP information is provided to you by your ISP. You will need to enter in the IP address, subnet mask, gateway address, and DNS address(es) provided to you by your ISP. Each IP address entered in the fields must be in the appropriate IP form, which are four octets separated by a dot (x.x.x.x). The Router will not accept the IP address if it is not in this format.

The following parameters can be configured:

| | |
|---|---|
| **IP Address:** | Enter the Static IP address provided by the ISP here. |
| **Subnet Mask:** | Enter the Subnet Mask provided by the ISP here. |
| **Gateway Address:** | Enter the Gateway IP address provided by the ISP here. |
| **Primary DNS Address:** | Enter the Primary DNS IP address used here. |
| **Secondary DNS Address:** | Enter the Secondary DNS IP address used here. This field is normally optional. Only one DNS address is required for a functional Internet connection, but using a second DNS address provides more stability. |
| **MTU:** | Maximum Transmission Unit - you may need to change the MTU for optimal performance with your specific ISP. 1500 is the default MTU. |
| **MAC Address:** | The default MAC Address is set to the Internet port's physical interface MAC address on the Broadband Router. It is not recommended that you change the default MAC address unless required by your ISP. You can use the **Clone Your PC's MAC Address** button to replace the Internet port's MAC address with the MAC address of your Ethernet card. |

Click on the **Save Settings** button to accept the changes made.
Click on the **Don't Save Settings** button to discard the changes made.

**Internet Connection Type: Dynamic IP (DHCP)**

Select Dynamic IP (DHCP) from the drop-down menu to obtain IP Address information automatically from your ISP. Select this option if your ISP does not give you any IP numbers to use. This option is commonly used for cable modem services.

The following parameters can be configured:

| | |
|---|---|
| **Host Name:** | The Host Name is optional but may be required by some ISPs. Leave blank if you are not sure. |
| **Primary DNS Server:** | Enter the Primary DNS IP address used here. |
| **Secondary DNS Server:** | Enter the Secondary DNS IP address used here. This field is normally optional. Only one DNS address is required for a functional Internet connection, but using a second DNS address provides more stability. |
| **MTU:** | Maximum Transmission Unit - you may need to change the MTU for optimal performance with your specific ISP. 1500 is the default MTU. |
| **MAC Address:** | The default MAC Address is set to the Internet port's physical interface MAC address on the Broadband Router. It is not recommended that you change the default MAC address unless required by your ISP. You can use the **Clone Your PC's MAC Address** button to replace the Internet port's MAC address with the MAC address of your Ethernet card. |

Click on the **Save Settings** button to accept the changes made.
Click on the **Don't Save Settings** button to discard the changes made.

**Internet Connection Type: PPPoE (Username / Password)**

Select PPPoE (Username/Password) from the drop-down menu if your ISP uses a PPPoE connection. Your 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.

The following parameters can be configured:

| | |
|---|---|
| **Address Mode:** | Here the user can specify whether this Internet connection requires the use of a Dynamic or Static IP address. PPPoE usually requires a Dynamic IP configuration. |
| **IP Address:** | Enter the PPPoE IP address used here. This option is only available if Static IP is selected. |
| **Username:** | Enter the PPPoE account user name used here. This information is given by the ISP. |
| **Password:** | Enter the PPPoE account password used here. This information is given by the ISP. |
| **Verify Password:** | Re-enter the PPPoE account password used here. |
| **Service Name:** | This optional field enables the user to enter a service name to identify this Internet connection here. |
| **Reconnect Mode:** | Use the radio buttons to specify the reconnect mode. The user can specify a custom schedule or specify the **On Demand**, or **Manual** option. To specify a custom schedule, use the drop-down menu to select one of the schedules that has been defined in the Schedules page. To create a new schedule, click the **New Schedule** button to open the Schedules page. Schedules will be discussed later. |
| **Maximum Idle Time:** | Enter a maximum idle time during which the Internet connection is maintained during inactivity. To disable this feature, enable Auto-reconnect. |
| **DNS Mode:** | This option allow the router to obtain the DNS IP addresses from the ISP, when **Receive DNS from ISP** is selected, or allows the user to enter DNS IP address manually, when **Enter DNS Manually** is selected. |
| **Primary DNS Server:** | Enter the Primary DNS IP address used here. |

This page is a continue from the PPPoE Internet Connection Type:

| | |
|---|---|
| **Secondary DNS Server:** | Enter the Secondary DNS IP address used here. This field is normally optional. Only one DNS address is required for a functional Internet connection, but using a second DNS address provides more stability. |
| **MTU:** | Maximum Transmission Unit - you may need to change the MTU for optimal performance with your specific ISP. 1492 is the default MTU. |
| **MAC Address:** | The default MAC Address is set to the Internet port's physical interface MAC address on the Broadband Router. It is not recommended that you change the default MAC address unless required by your ISP. You can use the **Clone Your PC's MAC Address** button to replace the Internet port's MAC address with the MAC address of your Ethernet card. |

Click on the **Save Settings** button to accept the changes made.
Click on the **Don't Save Settings** button to discard the changes made.

**Internet Connection Type: PPTP (Username / Password)**

Select PPTP (Point-to-Point Tunneling Protocol) from the drop-down menu 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.

The following parameters can be configured:

| | |
|---|---|
| **Address Mode:** | Here the user can specify whether this Internet connection requires the use of a Dynamic or Static IP address. PPTP usual requires a Dynamic IP configuration. |
| **PPTP IP Address:** | Enter the PPTP IP address used here. This option is only available if Static IP is selected. |
| **PPTP Subnet Mask:** | Enter the PPTP Subnet Mask used here. |
| **PPTP Gateway IP Address:** | Enter the PPTP Gateway IP address used here. |
| **PPTP Server IP Address:** | Enter the PPTP Server IP address used here. This is normally the same a the PPTP Gateway IP address. |
| **Username:** | Enter the PPTP username used here. |
| **Password:** | Enter the PPTP password used here. |
| **Verify Password:** | Re-enter the PPTP password used here. |
| **Reconnect Mode:** | Use the radio buttons to specify the reconnect mode. The user can specify a custom schedule or specify the **On Demand**, or **Manual** option. To specify a custom schedule, use the drop-down menu to select one of the schedules that has been defined in the Schedules page. To create a new schedule, click the **New Schedule** button to open the Schedules page. Schedules will be discussed later. |
| **Maximum Idle Time:** | Enter a maximum idle time during which the Internet connection is maintained during inactivity. To disable this feature, enable Auto-reconnect. |
| **Primary DNS Server:** | Enter the Primary DNS IP address used here. |
| **Secondary DNS Server:** | Enter the Secondary DNS IP address used here. This field is normally optional. Only one DNS address is required for a functional Internet connection, but using a second DNS address provides more stability. |

This page is a continue from the PPTP Internet Connection Type:

| | |
|---|---|
| **MTU:** | Maximum Transmission Unit - you may need to change the MTU for optimal performance with your specific ISP. 1400 is the default MTU. |
| **MAC Address:** | The default MAC Address is set to the Internet port's physical interface MAC address on the Broadband Router. It is not recommended that you change the default MAC address unless required by your ISP. You can use the **Clone Your PC's MAC Address** button to replace the Internet port's MAC address with the MAC address of your Ethernet card. |

Click on the **Save Settings** button to accept the changes made.
Click on the **Don't Save Settings** button to discard the changes made.

**Internet Connection Type: L2TP (Username / Password)**

Choose L2TP (Layer 2 Tunneling Protocol) if your ISP uses a L2TP connection. Your ISP will provide you with a username and password. This option is typically used for DSL services.

The following parameters can be configured:

| | |
|---|---|
| **Address Mode:** | Here the user can specify whether this Internet connection requires the use of a Dynamic or Static IP address. L2TP usual requires a Dynamic IP configuration. |
| **L2TP IP Address:** | Enter the L2TP IP address used here. This option is only available if Static IP is selected. |
| **L2TP Subnet Mask:** | Enter the L2TP Subnet Mask used here. |
| **L2TP Gateway IP Address:** | Enter the L2TP Gateway IP address used here. |
| **L2TP Server IP Address:** | Enter the L2TP Server IP address used here. This is normally the same a the PPTP Gateway IP address. |
| **Username:** | Enter the L2TP username used here. |
| **Password:** | Enter the L2TP password used here. |
| **Verify Password:** | Re-enter the L2TP password used here. |
| **Reconnect Mode:** | Use the radio buttons to specify the reconnect mode. The user can specify a custom schedule or specify the **On Demand**, or **Manual** option. To specify a custom schedule, use the drop-down menu to select one of the schedules that has been defined in the Schedules page. To create a new schedule, click the **New Schedule** button to open the Schedules page. Schedules will be discussed later. |
| **Maximum Idle Time:** | Enter a maximum idle time during which the Internet connection is maintained during inactivity. To disable this feature, enable Auto-reconnect. |
| **Primary DNS Server:** | Enter the Primary DNS IP address used here. |
| **Secondary DNS Server:** | Enter the Secondary DNS IP address used here. This field is normally optional. Only one DNS address is required for a functional Internet connection, but using a second DNS address provides more stability. |

This page is a continue from the L2TP Internet Connection Type:

| | |
|---|---|
| **MTU:** | Maximum Transmission Unit - you may need to change the MTU for optimal performance with your specific ISP. 1400 is the default MTU. |
| **MAC Address:** | The default MAC Address is set to the Internet port's physical interface MAC address on the Broadband Router. It is not recommended that you change the default MAC address unless required by your ISP. You can use the **Clone Your PC's MAC Address** button to replace the Internet port's MAC address with the MAC address of your Ethernet card. |

Click on the **Save Settings** button to accept the changes made.
Click on the **Don't Save Settings** button to discard the changes made.

# Wireless Settings

On this page the user can configure the Wireless settings for this device. There are 3 ways to configure Wireless using this router. Firstly, the user can choose to make use for the quick and easy Wireless Connection Wizard. Secondly, the user can choose to make use Wi-Fi Protected Setup. Lastly, the user can configure the Wireless settings manually.

## Wireless Settings: Wireless Network Setup Wizard

The Wireless Network Setup Wizard is specially designed to assist basic network users with a simple, step-by-step set of instructions to configure the wireless settings of this router. It is highly recommended to customized the wireless network settings to fit into your environment and to add higher security.

To initiate the Wireless Network Setup Wizard click on the **Wireless Connection Setup Wizard** button.

**Step 1:** In this step, the user must enter a custom Wireless Network Name or SSID for the frequency band 2.4GHz and 5Ghz. Enter the new SSID names in the appropriate spaces provided. Secondly the user can choose between two wireless security wizard configurations. The user can select '**Automatically assign a network key**', by which the router will automatically generate a WPA/WPA2 pre-shared key using the TKIP and AES encryption methods; or the user can select '**Manually assign a network key**', by which the user will be prompt to manually enter a WPA/WPA2 pre-shared key using the TKIP and AES encryption methods.

Click on the **Prev** button to return to the previous page. Click on the **Next** button to continue to the next page.
Click on the **Cancel** button to discard the changes made and return to the main wireless page.

**Step 2:** This step will only be available if the user selected '**Manually assign a network key**' in the previous step. Here the user can manually enter the WPA/WPA2 pre-shared key in the **Wireless Security Password** space provided. If the user chooses to use the same key for both frequency bands, then select the '**Use the same Wireless Security Password**

**on both 2.4GHz and 5GHz band**' option. Un-selecting this option will allow the user to manually enter a pre-shared key for both individual frequency bands. The key entered must be between 8 and 63 characters long.
**Remember**, this key will be used when wireless clients wants to connect to this device. So please remember this key to prevent future troubleshooting.

Click on the **Prev** button to return to the previous page. Click on the **Next** button to continue to the next page.
Click on the **Cancel** button to discard the changes made and return to the main wireless page.

**Setup Complete:** On this page the user can view the configuration made and verify whether they are correct.

Click on the **Prev** button to return to the previous page.
Click on the **Cancel** button to discard the changes made and return to the main wireless page.
Click on the **Save** button to accept the changes made.

After click the **Save** button the device will save the settings made and return to the main wireless page.

## Wireless Settings: Wi-Fi Protected Setup Wizard

If your Wireless Clients support the WPS connection method, this Wi-Fi Protected Setup Wizard can be used to initiate a wireless connection between this device and Wireless clients with a simple click of the WPS button. The Wi-Fi Protected Setup Wizard is specially designed to assist basic network users with a simple, step-by-step set of instructions to connect wireless clients to this router using the WPS method.

To initiate the Wi-Fi Protected Setup Wizard click on the **Add Wireless Device with WPS** button.

**Step 1:** In this step the user have two options to choose from. You can choose **Auto** if the wireless client supports WPS, or **Manual** if the wireless client does not support WPS.

Click on the **Prev** button to return to the previous page. Click on the **Next** button to continue to the next page.
Click on the **Cancel** button to discard the changes made and return to the main wireless page.

**Step 2:** After selecting **Auto**, the following page will appear. There are two ways to add a wireless device, that supports WPS. Firstly, there is the **Personal Identification Number (PIN)** method. Using this method will prompt the user to enter a **PIN** code. This PIN code should be identical on the wireless client.
Secondly, there is the **Push Button Configuration (PBC)** method. Using this method will allow the wireless client to connect to this device by similarly pressing the PBC button on it.

Click on the **Prev** button to return to the previous page. Click on the **Next** button to continue to the next page.
Click on the **Cancel** button to discard the changes made and return to the main wireless page.

**Step 2:** After selecting **Manual**, the following page will appear. On this page to user can view the wireless configuration of this router. The wireless clients should configure their wireless settings to be identical to the settings displayed on this page for a successful connection. This option is for wireless clients that can't use the WPS method to connect to this device.

Click on the **Prev** button to return to the previous page. Click on the **Next** button to continue to the next page.
Click on the **Cancel** button to discard the changes made and return to the main wireless page.
Click on the **Wireless Status** button to navigate to the Status > Wireless page to view what wireless client are connected to this device.

## Wireless Settings: Manual Wireless Network Setup

The manual wireless network setup option allows user to configure the wireless settings of this device manually. This option is for the more advanced user and includes all parameter that can be configured for wireless connectivity.

To initiate the Manual Wireless Network Setup page, click on the **Manual Wireless Connection Setup** button.

On this page the user can configure all the parameters related to the wireless connectivity of this router.

The following parameters can be configured:

| | |
|---|---|
| **Wireless Band:** | Displays the wireless band being configured. In this option we find that the following parameters will be regarding the 2.4GHz band. |
| **Enable Wireless:** | Check the box to enable the wireless function. If you do not want to use wireless, uncheck the box to disable all the wireless functions. Select the time frame that you would like your wireless network enabled. The schedule may be set to **Always**. Any schedule you create will be available in the drop-down menu. Click **New Schedule** to create a new schedule. |
| **Wireless Network Name:** | The Service Set Identifier (SSID) is the name of your wireless network. Create a name using up to 32 characters. The SSID is case-sensitive. |
| **Enable Auto Channel Selection:** | The auto channel selection setting can be selected to allow this device to choose the channel with the least amount of interference. |
| **Wireless Channel:** | By default the channel is set to 1. The Channel can be changed to fit the channel setting for an existing wireless network or to customize the wireless network. If you enable Auto Channel Selection, this option will be greyed out. |
| **Transmission Rate:** | Select the transmit rate. It is strongly suggested to select Best (Automatic) for best performance. |
| **Wireless Mode:** | Here the user can manually select the preferred frequency band to use for this wireless network. |
| **Band Width:** | When using the 802.11n frequency band, the user have an option to choose between a 20MHz or 20/40MHz bandwidth. |

| | |
|---|---|
| **WMM Enable:** | WMM (Wi-Fi Multimedia) is QoS for your wireless network. Check this box to improve the quality of video and voice applications for your wireless clients. This feature is not available in 802.11n configurations. |
| **Enabled Hidden Wireless:** | Check this box if you do not want the SSID of your wireless network to be broadcasted. If the SSID is hidden, the SSID will not be seen by Site Survey utilities, so your wireless clients will have to know the SSID of your router in order to connect to it. |

By default the wireless security of this router will be disabled. In this next option the user can enabled or disable wireless security for the frequency band 2.4GHz. There are two types of encryption that can be used. WEP or WPA/WPA2.

**Wireless Security Mode: WEP Wireless Security (basic)**

Wired Equivalent Privacy (WEP) is the most basic form of encryption that can be used for wireless networks. Even though it is known as a 'weak' security method, it is better than no security at all. Older wireless adapter sometimes only supports WEP encryption and thus we still find this encryption method used today.

The following parameters can be configured:

| | |
|---|---|
| **Authentication:** | Displays that the authentication method **Open System** is used. |
| **WEP Encryption:** | Here the user can specify to either use a 64Bit or a 128Bit encrypted key. |
| **Default WEP Key:** | Here the WEP key number used will be displayed. The Key number used by WEP on this device can only be set to 1. |
| **WEP Key:** | Enter the WEP key used here. For 64-bit keys you must enter 10 hex digits into each key box. For 128-bit keys you must enter 26 hex digits into each key box. A hex digit is either a number from 0 to 9 or a letter from A to F. You may also enter any text string into a WEP key box, in which case it will be converted into a hexadecimal key using the ASCII values of the characters. A maximum of 5 text characters can be entered for 64-bit keys, and a maximum of 13 characters for 128-bit keys. |

**Wireless Security Mode: WPA/WPA2 Wireless Security (enhanced)**

Wi-Fi Protected Access (WPA) is the most advanced and up to date wireless encryption method used today. This is the recommended wireless security option.

The following parameters can be configured:

| | |
|---|---|
| **Cipher Type:** | Select the appropriate cipher type to use here. Options to choose from are Temporal Key Integrity Protocol (**TKIP**), Advanced Encryption Standard (**AES**), and **Auto (TKIP/AES)**. |
| **PSK/EAP:** | WPA supports two authentication frameworks. Pre-Shared Key (PSK) and Extensible Authentication Protocol (EAP). PSK requires only the use of a pass-phrase (Shared Secret) for security. EAP on the other hand requires the installation of a RADIUS Server on the local network. |
| **RADIUS Server IP Address:** | When the user chooses to use the EAP authentication framework, the RADIUS server's IP address can be entered here. |
| **Port:** | When the user chooses to use the EAP authentication framework, the RADIUS server's port number can be entered here. |
| **Shared Secret:** | Enter the shared secret used here. This secret phrase needs to be the same on all of the wireless client for them to be able to connect to the wireless network successfully. |

The next section will allow the user to configure all the parameters regarding the **5GHz** frequency band.

The following parameters can be configured:

| | |
|---|---|
| **Wireless Band:** | Displays the wireless band being configured. In this option we find that the following parameters will be regarding the 5GHz band. |
| **Enable Wireless:** | Check the box to enable the wireless function. If you do not want to use wireless, uncheck the box to disable all the wireless functions. Select the time frame that you would like your wireless network enabled. The schedule may be set to **Always**. Any schedule you create will be available in the drop-down menu. Click **New Schedule** to create a new schedule. |
| **Wireless Network Name:** | The Service Set Identifier (SSID) is the name of your wireless network. Create a name using up to 32 characters. The SSID is case-sensitive. |
| **Enable Auto Channel Selection:** | The auto channel selection setting can be selected to allow this device to choose the channel with the least amount of interference. |
| **Wireless Channel:** | By default the channel is set to 36. The Channel can be changed to fit the channel setting for an existing wireless network or to customize the wireless network. If you enable Auto Channel Selection, this option will be greyed out. |
| **Transmission Rate:** | Select the transmit rate. It is strongly suggested to select Best (Automatic) for best performance. |
| **Wireless Mode:** | Here the user can manually select the preferred frequency band to use for this wireless network. |
| **Band Width:** | When using the 802.11n frequency band, the user have an option to choose between a 20MHz or 20/40MHz bandwidth. |
| **WMM Enable:** | WMM (Wi-Fi Multimedia) is QoS for your wireless network. Check this box to improve the quality of video and voice applications for your wireless clients. This feature is not available in 802.11n configurations. |
| **Enabled Hidden Wireless:** | Check this box if you do not want the SSID of your wireless network to be broadcasted. If the SSID is hidden, the SSID will not be seen by Site Survey utilities, so your wireless clients will have to know the SSID of your router in order to connect to it. |

By default the wireless security of this router will be disabled. In this next option the user can enabled or disable wireless security for the frequency band 5GHz. These settings are identical to what we've discussed for the 2.4GHz security earlier.

Click on the **Save Settings** button to accept the changes made.
Click on the **Don't Save Settings** button to discard the changes made.

# Network Settings

On this page the user can configure the internal network settings of the router and also able to configure the built-in DHCP server to assign IP addresses to computers on the network. The IP address that is configured here is the IP address that is used to access the Web-based management interface. If you change the IP address in this section, you may need to adjust your PC's network settings to access the network again.

In this next section the user can configure the router settings of this device.

The following parameters can be configured:

| | |
|---|---|
| **Router IP Address:** | Enter the IP address of the router. The default IP address is 192.168.0.1. If you change the IP address, once you click Apply, you will need to enter the new IP address in your browser to get back into the configuration utility. |
| **Default Subnet Mask:** | Enter the Subnet Mask. The default subnet mask is 255.255.255.0. |
| **Host Name:** | Enter a Host Name to identify this device. |
| **Local Domain Name:** | Enter the Domain name (Optional). |
| **Enable DNS Relay:** | Uncheck the box to transfer the DNS server information from your ISP to your computers. If checked, your computers will use the router for a DNS server. |

**DHCP Server Settings**

DHCP stands for Dynamic Host Control Protocol. This device 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 you turn 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.

At the bottom of the page, click on the **Save Settings** button to accept the changes made.
Click on the **Don't Save Settings** button to discard the changes made.

The following parameters can be configured:

| | |
|---|---|
| **Enable DHCP Server:** | Check this box to enable the DHCP server on your router. Uncheck to disable this function. |
| **DHCP IP Address Range:** | Enter the starting and ending IP addresses for the DHCP server's IP assignment. |
| **DHCP Lease Time:** | The length of time for the IP address lease. Enter the Lease time in minutes. |

**Note:** If you statically (manually) assign IP addresses to your computers or devices, make sure the IP addresses are outside of this range or you may have an IP conflict.

In the **DHCP Reservation List** a list of DHCP clients, which MAC address that have been locked to specific IP addresses in the DHCP pool, will be displayed.

In the '**Number of Dynamic DHCP Clients**' section, all the active DHCP clients will be displayed.

In the **DHCP Reservation** section, the user can configure reserved IP address to selective DHCP clients, by entering their MAC addresses in the list along with the appropriate IP address.

The following parameters can be configured:

| | |
|---|---|
| **Checkbox:** | Check this box to enable the reservation. |
| **Computer Name:** | Enter the computer name. Alternatively, select a computer that currently has a DHCP lease from the drop down menu and click << to automatically populate the Computer Name, IP Address, and MAC Address fields. |
| **IP Address:** | Enter the IP address you want to assign to the computer or device. This IP Address must be within the DHCP IP Address Range. |
| **MAC Address:** | Enter the MAC address of the computer or device. |

# ADVANCED CATEGORY

In this category the user will be able to configure the more advanced features that can be done by this router. Features like Port Forwarding, Firewall settings, Quality of Service settings and more.

Pages that can be configured in the **Advanced** category are as follows:
**Virtual Server:** On this page that user can configure Virtual Server policies related to this router.
**Port Forwarding:** On this page the user will be able to forward a list of ports to an internal IP address.
**Application Rules:** On this page, the user can create a set of application rules.
**QoS:** The QoS Engine option helps improve your network gaming performance by prioritizing applications. By default the QoS Engine settings are disabled and application priority is not classified automatically.
**Network Filter:** On this page the user can configure network filtering rules.
**Access Control:** On this page the user can configure access control rules.
**Website Filter:** On this page the user can configure website and domain filtering rules.
**Inbound Filter:** On this page the user can configure Inbound Firewall Filtering rules.
**Firewall Settings:** On this page the user can configure some basic Firewall settings.
**Routing:** On this page the your can setup multiple routing profiles and rules.
**Advanced Wireless:** On this page the user can configure more advanced wireless properties.
**Guest Zone:** On this page the user can create and maintain guest zone for wireless access.
**IPv6:** On this page the user can configure the IPv6 connectivity of this device.
**IPv6 Firewall:** On this page the user can configure the IPv6 Firewall properties for this device.

# Virtual Server

This router can be configured as a virtual server so that remote users accessing Web or FTP services via the public IP address can be automatically redirected to local servers in the LAN (Local Area Network). The router's firewall feature filters out unrecognized packets to protect the LAN network so all computers networked with the router are invisible to the outside world. The user can make some of the LAN computers accessible from the Internet by enabling Virtual Server. Depending on the requested service, the router redirects the external service request to the appropriate server within the LAN network.
The router is also capable of port-redirection, meaning that incoming traffic to a particular port may be redirected to a different port on the server computer.

On this page, the user can open external access to single ports.

The following parameters can be configured:

| | |
|---|---|
| **Checkbox:** | Check the box on the left side to enable the Virtual Server rule. |
| **Name:** | Enter a name for the rule or select an application from the drop-down menu. Select an application and click << to populate the fields. |
| **IP Address:** | Enter the IP address of the computer on your local network that you want to allow the incoming service to. If your computer is receiving an IP address automatically from the router (DHCP), you computer will be listed in the Computer Name drop-down menu. Select your computer and click <<. |
| **Port (Public/Private):** | Enter the port that you want to open next to Public Port and Private Port. The public and private ports are usually the same. The public port is the port seen from the Internet side, and the private port is the port being used by the application on the computer within your local network. |
| **Traffic Type:** | Select TCP, UDP, or All from the Protocol drop-down menu. |
| **Schedule:** | Use the drop-down menu to schedule the time that the Virtual Server Rule will be enabled. The schedule may be set to Always, which will allow the particular service to always be enabled. You can create your own times in the Schedules page. |

Click on the **Save Settings** button to accept the changes made.
Click on the **Don't Save Settings** button to discard the changes made.

# Port Forwarding

On this page the user will be able to forward a list of ports to an internal IP address.

The following section allows the user to configure the port forwarding rules.

The following parameters can be configured:

| | |
|---|---|
| **Checkbox:** | Tick the checkbox on the left side to enable the Port Forwarding rule. |
| **Name:** | Enter a name for the rule or select an application from the drop-down menu. Select an application and click << to populate the fields. |
| **IP Address:** | Enter the IP address of the computer on your local network that you want to allow the incoming service to. If your computer is receiving an IP address automatically from the router (DHCP), you computer will be listed in the Computer Name drop-down menu. Select your computer and click <<. |
| **Ports to Open (TCP/UDP):** | Enter the external port number in the appropriate space provided. If the port number is TCP then enter the number in the TCP space, and if the port number is UDP than enter it in the UDP space. |
| **Schedule:** | Use the drop-down menu to schedule the time that the Port Forwarding rule will be enabled. The schedule may be set to Always, which will allow the particular service to always be enabled. You can create your own times in the Schedules page. |
| **Inbound Filter:** | Select the inbound filter rule here. Options to choose from are **Allow All**, **Deny All**, and any other custom rule created. |

Click on the **Save Settings** button to accept the changes made.
Click on the **Don't Save Settings** button to discard the changes made.

# Application Rules

Some applications require multiple connections, such as Internet gaming, video conferencing, Internet telephony and others. These applications have difficulties working through NAT (Network Address Translation). Special Applications makes some of these applications work with the router. If you need to run applications that require multiple connections, specify the port normally associated with an application in the "Trigger Port" field, select the protocol type as TCP or UDP, then enter the firewall (public) ports associated with the trigger port to open them for inbound traffic.

On this page, the user can create a set of application rules.

The following parameters can be configured:

| | |
|---|---|
| **Checkbox:** | Check the box on the left side to enable the Application Rule. |
| **Name:** | Enter a name for the rule. You may select a predefined application from the Application drop-down menu and click <<. |
| **Application:** | Displays a list of predefined application to use in the rules. |
| **Port (Trigger):** | This is the port used to trigger the application. It can be either a single port or a range of ports. |
| **Port (Firewall):** | This is the port number on the Internet side that will be used to access the application. You may define a single port or a range of ports. You can use a comma to add multiple ports or port ranges. |
| **Protocol:** | Select the protocol of the firewall port (TCP, UDP, or All). |
| **Schedule:** | The schedule of time when the Application Rule will be enabled. The schedule may be set to Always, which will allow the particular service to always be enabled. You can create your own times in the Schedules page. |

Click on the **Save Settings** button to accept the changes made.
Click on the **Don't Save Settings** button to discard the changes made.

# Quality of Service (QoS)

The QoS Engine option helps improve your network gaming performance by prioritizing applications. By default the QoS Engine settings are disabled and application priority is not classified automatically.

Smart QoS improves VoIP voice quality or streaming by ensuring your VoIP or streaming traffic is prioritized over other network traffic, such as FTP or Web.

The following parameters can be configured:

| | |
|---|---|
| **Enable QoS:** | This option is disabled by default. Enable this option for better performance and experience with online games and other interactive applications, such as VoIP. |
| **Uplink Speed:** | The speed at which data can be transferred from the router to your ISP. This is determined by your ISP. ISP's often define speed as a download/upload pair. For example, 1.5Mbits/284Kbits. Using this example, you would enter 284. Alternatively you can test your uplink speed with a service such as www.dslreports.com. |
| **Downlink Speed:** | The speed at which data can be transferred from the ISP to the router. This is determined by your ISP. ISP's often define speed as a download/upload pair. For example, 1.5Mbits/284Kbits. Using this example, you would enter 1500. Alternatively you can test your downlink speed with a service such as www.dslreports.com. |
| **Queue Type:** | Here the user can specify the queue type used. When choosing the option **Strict Priority Queue**, the router will apply QoS based on the internal specification for the queue ID's listed. When choosing the option **Weight Fair Queue**, the router will apply QoS based on the user defined percentage in the Queue Weight column. |
| **Queue ID:** | In this column the Queue ID used will be displayed. |
| **Queue Priority:** | In this column the Queue Priority used will be displayed. |
| **Queue Weight:** | After choosing to use the Weight Fair Queue option, under Queue Type, the user will be able to manual enter the Queue Weight for each individual Queue ID. |

Click on the **Save Settings** button to accept the changes made.
Click on the **Don't Save Settings** button to discard the changes made.

After specifying the QoS framework used, in the QoS setup section, the user can now create individual rules for scenarios that require the use of traffic control and data priority manipulation.

The following parameters can be configured:

| | |
|---|---|
| **Checkbox:** | Tick this option to enable the rule specified. |
| **Name:** | Enter a custom name for the rule being created here. This name is used for identification. |
| **Priority:** | Select the appropriate priority requirement from the drop-down menu that will be applied to this rule. Option to choose from are **Highest**, **Higher**, **Normal**, and **Best Effort**. |
| **Protocol:** | Select the protocol used for the application for in the drop-down menu and it will automatically place it in the Protocol field. |
| **Local IP Range:** | Enter the local IP range used here. This is the IP range of you Local Area Network. The Router's IP cannot be included in this range. |
| **Remote IP Range:** | Enter the remote IP range used here. This is the IP range of the public network from the Internet Port side. To apply this rule to any IP addresses from the public side, enter the range 0.0.0.1 to 255.255.255.254. |
| **Application Port:** | Enter the application port number used here. |

Click on the **Save Settings** button to accept the changes made.
Click on the **Don't Save Settings** button to discard the changes made.

# Network Filter

The MAC (Media Access Controller) Address filter option is used to control network access based on the MAC Address of the network adapter. A MAC address is a unique ID assigned by the manufacturer of the network adapter. This feature can be configured to ALLOW or DENY network/Internet access.

In the **MAC Filtering Rules** section, the user can create and edit Network filter rules. This maximum amount of rules that can be created are 24 rules.

The following parameters can be configured:

| | |
|---|---|
| **Configure MAC Filtering:** | Select **Turn MAC Filtering OFF**, **Turn MAC Filtering ON and ALLOW computers listed to access the network**, or **Turn MAC Filtering ON and DENY computers listed to access the network** from the drop-down menu. |
| **Checkbox:** | Check the box on the left side to enable the Network Filter. |
| **MAC Address:** | Enter the MAC address you would like to use in this filtering rule. |
| **DHCP Client List:** | Select a DHCP client from the Computer Name drop-down menu and click << to copy that MAC Address. |
| **Schedule:** | The schedule of time when the Network Filter will be enabled. The schedule may be set to Always, which will allow the particular service to always be enabled. Click the New Schedule button to create your own times in the Schedules page. |

Click on the **Save Settings** button to accept the changes made.
Click on the **Don't Save Settings** button to discard the changes made.

# Access Control

The Access Control option allows you to control access in and out of your network. Use this feature as Access Controls to only grant access to approved sites, limit web access based on time or dates, and/or block internet access for applications like P2P utilities or games.

In **Access Control** section the user can enable the access control feature and add new access control policies.

The following parameters can be configured:

| | |
|---|---|
| **Enable Access Control:** | Tick this option to enable the Access Control feature. |
| **Add Policy:** | Click on this button to add a new Access Control Policy. |

After clicking on the **Add Policy** button, the add policy wizard will guide you through the step-by-step process in adding a new policy. The first window explains the process.

Click on the **Next** button to continue to the next window.
Click on the **Cancel** button to discard the changes made and return to the main Access Control window.

**Step 1:** In the first step, the user can enter the policy name used.

The following parameters can be configured:

| | |
|---|---|
| **Policy Name:** | Enter the new policy name used for this rule here. |

Click on the **Prev** button to return to the previous window.
Click on the **Next** button to continue to the next window.
Click on the **Cancel** button to discard the changes made and return to the main Access Control window.

**Step 2:** In the second step, the user can configure the schedule settings for this rule.

The following parameters can be configured:

| | |
|---|---|
| **Details:** | Select the appropriate predefined schedule rule to apply to this rule from the drop-down menu. |

Click on the **Prev** button to return to the previous window.
Click on the **Next** button to continue to the next window.
Click on the **Cancel** button to discard the changes made and return to the main Access Control window.

**Step 3:** In the third step, the user can configure the address type and IP address of the machines used in this rule.

The following parameters can be configured:

| | |
|---|---|
| **Address Type:** | Specify a machine with its IP or MAC address, or select 'Other Machines' for machines that do not have a policy. |
| **IP Address:** | After selecting the IP address type, the user can enter the IP address of the machines used in this rule here. Alternatively, the user can select a Computer from the **Computer Name** list. |
| **Machine Address:** | After selecting the MAC address type, the user can enter the MAC address of the machine used in this rule here. Alternatively, the used can select a Computer from the **Computer Name** list. |
| **Add:** | Click on this button to add the machine to the list. |
| **Update:** | After clicking the option, the user will be able to update the machine information. |
| **Delete:** | If the user chooses to remove a machine from the list, click on the icon. |

Click on the **Prev** button to return to the previous window.
Click on the **Next** button to continue to the next window.
Click on the **Cancel** button to discard the changes made and return to the main Access Control window.

**Step 4:** In the fourth step, the user can select the filtering method used for this rule.

he following parameters can be configured:

| | |
|---|---|
| **Method:** | Here the user can select the filtering method used. Options to choose from are '**Log Web Access Only**', '**Block All Access**', and '**Block Some Access**'. |
| **Apply Web Filter:** | After selecting the '**Block Some Access**' option, the user will be able to select this option. Selecting this option will allow the web filter access control feature to be applied to this rule. |
| **Apply Advance Port Filters:** | After selecting the '**Block Some Access**' option, the user will be able to select this option. Selecting this option will allow the advanced port filters access control feature to be applied to this rule. |

Click on the **Prev** button to return to the previous window.
Click on the **Next** button to continue to the next window.
Click on the **Cancel** button to discard the changes made and return to the main Access Control window.
Click on the **Save** button to accept the changes made and return to the main Access Control window.

In the Policy Table section a list on access control rules will be displayed. To edit a specific rule, click on the icon. To remove a specific rule, click on the icon.

Click on the **Save Settings** button to accept the changes made.
Click on the **Don't Save Settings** button to discard the changes made.

# WEBSITE FILTER

Website Filters are used to allow you to set up a list of Web sites that can be viewed by multiple users through the network.

Website Filter is used to allow or deny computers on your network from accessing specific web sites by keywords or specific Domain Names. Select '**ALLOW computers access to ONLY these sites**' in order only allow computers on your network to access the specified URLs and Domain Names. '**DENY computers access to ONLY these sites**' in order deny computers on your network to access the specified URLs and Domain Names.

The following parameters can be configured:

| | |
|---|---|
| **Website URL/Domain:** | Enter the URL or Domain name that you want to allow or block here.<br>An example of an URL is: http://www.facebook.com/<br>An example of a domain name is: facebook.com |

Click on the **Clear the list below...** button to remove all the entries from the spaces in the list.

Click on the **Save Settings** button to accept the changes made.
Click on the **Don't Save Settings** button to discard the changes made.

# Inbound Filter

The Inbound Filter option is an advanced method of controlling data received from the Internet. With this feature you can configure inbound data filtering rules that control data based on an IP address range.

Inbound Filters can be used for limiting access to a server on your network to a system or group of systems. Filter rules can be used with Virtual Server, Port Forwarding, or Remote Administration features. The user can add new Inbound filter rule in the next section.

The following parameters can be configured:

| | |
|---|---|
| **Name:** | The user can enter a custom name for the inbound filter rule here. |
| **Action:** | Select an action that will take place when this rule is initiated. Options to choose from are **Allow** and **Deny**. |
| **Enable:** | Tick this option to enable the specified IP range for this rule. |
| **Remote IP Start:** | Enter the remote starting IP address here in the range. |
| **Remote IP End:** | Enter the remote ending IP address here in the range. |
| **Add:** | Click this button to add the new inbound filter rule. |
| **Cancel:** | Click this button to discard the new inbound filter rule. |

In the **Inbound Filter List** section, the user can view a list of the inbound filter rules already created. To edit a specific rule, click on the appropriate icon. The delete a specific rule, click on the icon.

# Firewall Settings

A firewall protects your network from the outside world. The router offers a firewall type functionality. The SPI feature helps prevent cyber attacks. Sometimes you may want a computer exposed to the outside world for certain types of applications. If you choose to expose a computer, you can enable DMZ. DMZ is short for Demilitarized Zone. This option will expose the chosen computer completely to the outside world.

Firewall rules can be used to allow or deny traffic passing through the router. You can specify a single port by utilizing the input box at the top or a range of ports by utilizing both input boxes. DMZ means “Demilitarized Zone”. DMZ allows computers behind the router firewall to be accessible to Internet traffic. Typically, your DMZ would contain Web servers, FTP servers and others.

The following parameters can be configured:

| | |
|---|---|
| **Enable SPI:** | Check the Enable SPI box to enable the SPI (Stateful Packet Inspection, also known as dynamic packet filtering) feature. Enabling SPI helps to prevent cyber attacks by tracking more state per session. It validates that the traffic passing through the session conforms to the protocol. |

In the **DMZ Host** section, the user will be able to configure the DMZ settings for this router.

The following parameters can be configured:

| | |
|---|---|
| **Enable DMZ:** | Tick this option to enable the DMZ feature. |
| **DMZ IP Address:** | Enter the IP address of the computer on the LAN that you want to have unrestricted Internet communication in the DMZ IP address field. To specify an existing DHCP client, use the Computer Name drop-down to select the computer that you want to make a DMZ host. If selecting a computer that is a DHCP client, be sure to make a static reservation in the Setup > Network Settings page so that the IP address of the DMZ machine does not change. |

Click on the **Save Settings** button to accept the changes made.
Click on the **Don’t Save Settings** button to discard the changes made.

# Routing

The Routing option is an advanced method of customizing specific routes of data through your network.

In the **Static Routing** section, the user can configure routing rules used by this router. The maximum amount of rules that can be configured is 32.

The following parameters can be configured:

| | |
|---|---|
| **Checkbox:** | To enable a route, check the box that is on the left side of the route. |
| **Interface:** | Use the drop-down menu to specify if the IP packet must use the WAN or LAN interface to transit out of the Router. |
| **Destination:** | Enter the IP address of the packets that will take this route. |
| **Subnet Mask:** | Enter the subnet mask to specify the subnet of the IP packets that will take this route. |
| **Gateway:** | Enter the next hop that will be taken if this route is used. |

Click on the **Save Settings** button to accept the changes made.
Click on the **Don't Save Settings** button to discard the changes made.

# Advanced Wireless

These options are for users that wish to change the behavior of their 802.11n wireless radio from the standard settings. We do not recommend changing these settings from the factory defaults. Incorrect settings may impact the performance of your wireless radio. The default settings should provide the best wireless radio performance in most environments.

In the next section, the user can configure the more advanced wireless settings for the **2.4GHz frequency** band.

The following parameters can be configured:

| | |
|---|---|
| **Wireless Band:** | Here the user can view the wireless frequency band being configured. In the case **2.4GHz**. |
| **Transmit Power:** | This option sets the transmit power of the antennas. |
| **Beacon Interval:** | Beacons are packets sent by an Access Point to synchronize a wireless network. Specify a value. 100 is the default setting and is recommended. |
| **RTS Threshold:** | Here the user can enter the RTS threshold value used. This value should remain at its default setting of 2346. If inconsistent data flow is a problem, only a minor modification should be made. |
| **Fragmentation:** | The fragmentation threshold, which is specified in bytes, determines whether packets will be fragmented. Packets exceeding the 2346 byte setting will be fragmented before transmission. 2346 is the default setting. |
| **DTIM Interval:** | Here the user can enter the DTIM Interval value. Delivery Traffic Indication Message (DTIM) is a countdown informing clients of the next window for listening to broadcast and multicast messages. The default settings is 1. |
| **Preamble Type:** | Use the radio buttons to specify whether the Router should use the **Short Preamble** or **Long Preamble** type. The preamble type defines the length of the CRC (Cyclic Redundancy Check) block for communication between the Router and roaming wireless adapters. |
| **Short Guard Interval:** | Check this box to reduce the guard interval time therefore increasing the data capacity. However, it's less reliable and may create higher data loss. |

In the next section, the user can configure the more advanced wireless settings for the **5GHz frequency** band.

The following parameters can be configured:

| | |
|---|---|
| **Wireless Band:** | Here the user can view the wireless frequency band being configured. In the case **5GHz**. |
| **Transmit Power:** | This option sets the transmit power of the antennas. |
| **Beacon Interval:** | Beacons are packets sent by an Access Point to synchronize a wireless network. Specify a value. 100 is the default setting and is recommended. |
| **RTS Threshold:** | Here the user can enter the RTS threshold value used. This value should remain at its default setting of 2346. If inconsistent data flow is a problem, only a minor modification should be made. |
| **Fragmentation:** | The fragmentation threshold, which is specified in bytes, determines whether packets will be fragmented. Packets exceeding the 2346 byte setting will be fragmented before transmission. 2346 is the default setting. |
| **DTIM Interval:** | Here the user can enter the DTIM Interval value. Delivery Traffic Indication Message (DTIM) is a countdown informing clients of the next window for listening to broadcast and multicast messages. The default settings is 1. |
| **Preamble Type:** | Use the radio buttons to specify whether the Router should use the **Short Preamble** or **Long Preamble** type. The preamble type defines the length of the CRC (Cyclic Redundancy Check) block for communication between the Router and roaming wireless adapters. |
| **Short Guard Interval:** | Check this box to reduce the guard interval time therefore increasing the data capacity. However, it's less reliable and may create higher data loss. |

Click on the **Save Settings** button to accept the changes made.
Click on the **Don't Save Settings** button to discard the changes made.

# Wi-Fi Protected Setup

Wi-Fi Protected Setup (WPS) System is a simplified method for securing your wireless network during the “Initial setup” as well as the “Add New Device” processes. The Wi-Fi Alliance (WFA) has certified it across different products as well as manufactures. The process is just as easy, as depressing a button for the Push-Button Method or correctly entering the 8-digit code for the Pin-Code Method. The time reduction in setup and ease of use are quite beneficial, while the highest wireless Security setting of WPA2 is automatically used.

In the Wi-Fi Protected Setup section, the user can enable the WPS feature of this router.

The following parameters can be configured:

| | |
|---|---|
| **Enable:** | Tick this option to enable the Wi-Fi Protected Setup feature. |
| **Wi-Fi Protected Setup:** | This parameter displays the WPS setup status. |
| **Reset to Unconfigured:** | Click this button disable the WPS feature used on this router. |

In the **PIN Settings** section, the user not only will be able to view the PIN code, but will also be able to reset the PIN to default or to generate a new PIN code. A PIN is a unique number that can be used to add the router to an existing network or to create a new network. The default PIN may be printed on the bottom of the router. For extra security, a new PIN can be generated. You can restore the default PIN at any time. Only the Administrator (“admin” account) can change or reset the PIN.

The following parameters can be configured:

| | |
|---|---|
| **PIN:** | Shows the current value of the router’s PIN. |
| **Reset PIN to Default:** | Click this button to restore the default PIN of the router. |
| **Generate New PIN:** | Click this button to create a random number that is a valid PIN. This becomes the router’s PIN. You can then copy this PIN to the user interface of the registrar. |

Click the **Connect your Wireless Device** button to start Wireless Connection Setup Wizard. This wizard helps you add wireless devices to the wireless network.

The wizard will either display the wireless network settings to guide you through manual configuration, prompt you to enter the PIN for the device, or ask you to press the configuration button on the device. If the device supports Wi-Fi Protected Setup and has a configuration button, you can add it to the network by pressing the configuration button on the device and then the on the router within 60 seconds. The status LED on the router will flash three times if the device has been successfully added to the network.

There are several ways to add a wireless device to your network. A “registrar” controls access to the wireless network. A registrar only allows devices onto the wireless network if you have entered the PIN, or pressed a special Wi-Fi Protected Setup button on the device. The router acts as a registrar for the network, although other devices may act as a registrar as well.

Click on the **Save Settings** button to accept the changes made.
Click on the **Don’t Save Settings** button to discard the changes made.

# Advanced Network Settings

This section contains settings which can change the way the router handles certain types of traffic. We recommend that you not change any of these settings unless you are already familiar with them or have been instructed to change them by one of our support personnel.

**UPnP:**

UPnP is short for Universal Plug and Play which is a networking architecture that provides compatibility among networking equipment, software, and peripherals. The device is a UPnP enabled router, meaning it will work with other UPnP devices/ software. If you do not want to use the UPnP functionality, it can be disabled by selecting “Disabled”.

The following parameters can be configured:

| | |
|---|---|
| **Enable UPnP:** | Tick this option to enable the UPnP feature of the router. |

**WAN Ping:**

When you Enable WAN Ping response, you are causing the public WAN (Wide Area Network) IP address on the device to respond to ping commands sent by Internet users. Pinging public WAN IP addresses is a common method used by hackers to test whether your WAN IP address is valid.

The following parameters can be configured:

| | |
|---|---|
| **Enable WAN Ping:** | Tick this option to enable the WAN Ping Response option of the router. |

**WAN Port Speed:**

This allows you to select the speed of the WAN interface of the router: Choose 100Mbps, 10Mbps, or 10/100Mbps Auto.

The following parameters can be configured:

| | |
|---|---|
| **WAN Port Speed:** | You may set the port speed of the Internet port to 10Mbps, 100Mbps, or auto. Some older cable or DSL modems may require you to set the port speed to 10Mbps. |

**Multicast Streams:**

This section enables the user to allow Multicast traffic to pass from the Internet to your network more efficiently.

The following parameters can be configured:

| | |
|---|---|
| **Enable Multicast Streams:** | Enable this option if you are receiving video on demand type of service from the Internet. The router uses the IGMP protocol to support efficient multicasting transmission of identical content, such as multimedia, from a source to a number of recipients. This option must be enabled if any applications on the LAN participate in a multicast group. If you have a multimedia LAN application that is not receiving content as expected, try enabling this option. |
| **Wireless Enhance Mode:** | Check the Wireless Enhance Mode box to enable the router to forward all multicast streams from the Internet to the wireless station using a unicast stream. This feature helps improve the quality of multimedia applications for wireless users. |

Click on the **Save Settings** button to accept the changes made.
Click on the **Don't Save Settings** button to discard the changes made.

# Guest Zone

On this page, the user will be able to configure the Guest Zone, settings. The guest zone provide a separate network zone for guest to access Internet.

In the Guest Zone section below, the user will be able to enable the routing function between guest zones.

The following parameters can be configured:

| | |
|---|---|
| **Enable Routing:** | Tick this option to enable routing between guest zones. |

In the following section, the user will be able to configure the Guest Zone Wireless Network settings used by the **2.4GHz** frequency band.

The following parameters can be configured:

| | |
|---|---|
| **Enable Guest Zone:** | Tick this option to enable the Guest Zone feature for the frequency band 2.4GHz. Use the drop-down menu to schedule the time that the Firewall rule will be enabled. The schedule may be set to Always, which will allow the particular service to always be enabled. Click the New Schedule button to create your own times in the Schedules page. |
| **Wireless Band:** | Displays the frequency band used. |
| **Wireless Network Name:** | The Service Set Identifier (SSID) is the name of your wireless network. Create a name using up to 32 characters. The SSID is case-sensitive. |
| **Security Mode:** | The security mode enables the user to configure wireless security for this wireless guest zone. For more information about wireless security, refer to the Wireless Settings page. |

In the following section, the user will be able to configure the Guest Zone Wireless Network settings used by the **5GHz** frequency band.

The following parameters can be configured:

| | |
|---|---|
| **Enable Guest Zone:** | Tick this option to enable the Guest Zone feature for the frequency band 5GHz. Use the drop-down menu to schedule the time that the Firewall rule will be enabled. The schedule may be set to Always, which will allow the particular service to always be enabled. Click the New Schedule button to create your own times in the Schedules page. |
| **Wireless Band:** | Displays the frequency band used. |
| **Wireless Network Name:** | The Service Set Identifier (SSID) is the name of your wireless network. Create a name using up to 32 characters. The SSID is case-sensitive. |
| **Security Mode:** | The security mode enables the user to configure wireless security for this wireless guest zone. For more information about wireless security, refer to the Wireless Settings page. |

Click on the **Save Settings** button to accept the changes made.
Click on the **Don't Save Settings** button to discard the changes made.

# IPv6

On this page the user can configure the mode that the Router will use to access an IPv6 Internet connection.

There are several connection types to choose from: Link-local, Static IPv6, DHCPv6, Stateless Auto-Configuration, PPPoE, IPv6 over IPv4 Tunnel and 6to4. If you are unsure of your connection method, please contact your IPv6 ISP.

| | |
|---|---|
| ⚠ | **Note:** If using the PPPoE option, you will need to ensure that any PPPoE client software on your computers has been removed or disabled. |

**IPv6 Connection Type: Static IPv6**

In the following section we'll discuss the parameters that can be configured when setting up an Static IPv6 connection. This mode is used when your ISP provides you with a set IPv6 addresses that does not change. The IPv6 information is manually entered in your IPv6 configuration settings. You must enter the IPv6 address, Subnet Prefix Length, Default Gateway, Primary DNS Server, and Secondary DNS Server. Your ISP provides you with all this information.

The following parameters can be configured:

| | |
|---|---|
| **My IPv6 Connection is:** | Select the appropriate IPv6 Connection Type used for this configuration here. |

The following parameters can be configured:

| | |
|---|---|
| **IPv6 Address:** | Enter the WAN IPv6 address for the router here. |
| **Subnet Prefix Length:** | Enter the WAN subnet prefix length value used here. |
| **Default Gateway:** | Enter the WAN default gateway IPv6 address used here. |
| **Primary DNS Server:** | Enter the WAN primary DNS Server address used here. |
| **Secondary DNS Server:** | Enter the WAN secondary DNS Server address used here. |

The following parameters can be configured:

| | |
|---|---|
| **LAN IPv6 Address:** | Enter the LAN (local) IPv6 address for the router here. |
| **Link-Local Address:** | Displays the Router's LAN Link-Local Address here. |

The following parameters can be configured:

| | |
|---|---|
| **Enable Auto-Configuration:** | The user can tick this option to enable the auto-configuration feature. |
| **Auto-Configuration Type:** | The user can select the auto-configuration type used here. Options to choose from are **Stateless** or **Stateful (DHCPv6)**. |
| **Router Advertisement Lifetime:** | This option is only available when the auto-configuration type is set to **Stateless**. Enter the router advertisement lifetime value used here. |
| **IPv6 Address Range (Start):** | This option is only available when the auto-configuration type is set to **Stateful**. Enter the start IPv6 Address for the DHCPv6 range for your local computers. |
| **IPv6 Address Range (End):** | This option is only available when the auto-configuration type is set to **Stateful**. Enter the end IPv6 Address for the DHCPv6 range for your local computers. |
| **IPv6 Address Lifetime:** | This option is only available when the auto-configuration type is set to **Stateful**. Enter the IPv6 Address Lifetime (in minutes). |

Click on the **Save Settings** button to accept the changes made.
Click on the **Don't Save Settings** button to discard the changes made.

**IPv6 Connection Type: Auto-Configuration (Stateless/DHCPv6)**

In the following section we'll discuss the parameters that can be configured when setting up an Auto-Configuration (Stateless/DHCPv6) connection. This is a method of connection where the ISP assigns your IPv6 address when your router requests one from the ISP's server. Some ISP's require you to make some settings on your side before your router can connect to the IPv6 Internet.

The following parameters can be configured:

| | |
|---|---|
| **My IPv6 Connection is:** | Select the appropriate IPv6 Connection Type used for this configuration here. |

The following parameters can be configured:

| | |
|---|---|
| **Obtain IPv6:** | Select this option to obtain the DNS Server addresses automatically. |
| **Use the following IPv6:** | Select this option to manually enter the DNS Server addresses used. |
| **Primary DNS Server:** | Enter the primary DNS Server address used here. |
| **Secondary DNS Server:** | Enter the secondary DNS Server address used here. |

Use the section to configure the internal network settings of your router. The LAN IPv6 Link-Local Address is the IPv6 Address that you use to access the Web-based management interface. If you change the LAN IPv6 Address here, you may need to adjust your PC's network settings to access the network again. DHCP-PD can be used to acquire a IPv6 prefix for the LAN interface.

The following parameters can be configured:

| | |
|---|---|
| **Enable DHCP PD:** | Select this option to enable DHCP PD. |
| **LAN IPv6 Address:** | Enter the LAN IPv6 address used here. This address must be in the '/64' subnet. |
| **LAN IPv6 Link-Local Address:** | Displays the LAN IPv6 Link-Local address used here. |

The following parameters can be configured:

| | |
|---|---|
| **Enable Auto-Configuration:** | The user can tick this option to enable the auto-configuration feature. |
| **Auto-Configuration Type:** | The user can select the auto-configuration type used here. Options to choose from are **Stateless** or **Stateful (DHCPv6)**. |
| **Router Advertisement Lifetime:** | This option is only available when the auto-configuration type is set to **Stateless**. Enter the router advertisement lifetime value used here. |
| **IPv6 Address Range (Start):** | This option is only available when the auto-configuration type is set to **Stateful**. Enter the start IPv6 Address for the DHCPv6 range for your local computers. |
| **IPv6 Address Range (End):** | This option is only available when the auto-configuration type is set to **Stateful**. Enter the end IPv6 Address for the DHCPv6 range for your local computers. |
| **IPv6 Address Lifetime:** | This option is only available when the auto-configuration type is set to **Stateful**. Enter the IPv6 Address Lifetime (in minutes). |

Click on the **Save Settings** button to accept the changes made.
Click on the **Don't Save Settings** button to discard the changes made.

**IPv6 Connection Type: PPPoE**

Select this option if your ISP requires you to use a PPPoE (Point to Point Protocol over Ethernet) connection to IPv6 Internet. DSL providers typically use this option. This method of connection requires you to enter a Username and Password (provided by your Internet Service Provider) to gain access to the IPv6 Internet. The supported authentication protocols are PAP and CHAP.

The following parameters can be configured:

| | |
|---|---|
| **My IPv6 Connection is:** | Select the appropriate IPv6 Connection Type used for this configuration here. |

The following parameters can be configured:

| | |
|---|---|
| **PPPoE Session:** | Select the PPPoE Session value used here. This option will state that this connection shares it's information with the already configured IPv6 PPPoE connection, or the user can create a new PPPoE connection here. |
| **Username:** | Enter the PPPoE username used here. This information is obtainable from the ISP. |
| **Password:** | Enter the PPPoE password used here. This information is obtainable from the ISP. |
| **Verify Password:** | Re-enter the PPPoE password used here. |
| **Service Name:** | Enter the service name for this connection here. This option is optional. |
| **MTU:** | Enter the MTU value used here. The default value is 1492. |

The following parameters can be configured:

| | |
|---|---|
| **Obtain IPv6:** | Select this option to obtain the DNS Server addresses automatically. |
| **Use the following IPv6:** | Select this option to manually enter the DNS Server addresses used. |
| **Primary DNS Server:** | Enter the primary DNS Server address used here. |
| **Secondary DNS Server:** | Enter the secondary DNS Server address used here. |

Use the section to configure the internal network settings of your router. The LAN IPv6 Link-Local Address is the IPv6 Address that you use to access the Web-based management interface. If you change the LAN IPv6 Address here, you may need to adjust your PC's network settings to access the network again. DHCP-PD can be used to acquire a IPv6 prefix for the LAN interface.

The following parameters can be configured:

| | |
|---|---|
| **Enable DHCP PD:** | Select this option to enable DHCP PD. |
| **LAN IPv6 Address:** | Enter the LAN IPv6 address used here. This address must be in the '/64' subnet. |
| **LAN IPv6 Link-Local Address:** | Displays the LAN IPv6 Link-Local address used here. |

The following parameters can be configured:

| | |
|---|---|
| **Auto-Configuration:** | The user can tick this option to enable the auto-configuration feature. |
| **Auto-Configuration Type:** | The user can select the auto-configuration type used here. Options to choose from are **Stateless** or **Stateful (DHCPv6)**. |
| **Router Advertisement Lifetime:** | This option is only available when the auto-configuration type is set to **Stateless**. Enter the router advertisement lifetime value used here. |
| **IPv6 Address Range (Start):** | This option is only available when the auto-configuration type is set to **Stateful**. Enter the start IPv6 Address for the DHCPv6 range for your local computers. |
| **IPv6 Address Range (End):** | This option is only available when the auto-configuration type is set to **Stateful**. Enter the end IPv6 Address for the DHCPv6 range for your local computers. |
| **IPv6 Address Lifetime:** | This option is only available when the auto-configuration type is set to **Stateful**. Enter the IPv6 Address Lifetime (in minutes). |

Click on the **Save Settings** button to accept the changes made.
Click on the **Don't Save Settings** button to discard the changes made.

**IPv6 Connection Type: IPv6 in IPv4 Tunnel**

In section to the user can configure the IPv6 connection to run in IPv4 Tunnel mode. IPv6 over IPv4 tunneling encapsulates IPv6 packets in IPv4 packets so that IPv6 packets can be sent over an IPv4 infrastructure.

The following parameters can be configured:

| | |
|---|---|
| **My IPv6 Connection is:** | Select the appropriate IPv6 Connection Type used for this configuration here. |

The following parameters can be configured:

| | |
|---|---|
| **Remote IPv4 Address:** | Enter the remote IPv4 address used here. |
| **Remote IPv6 Address:** | Enter the remote IPv6 address used here. |
| **Local IPv4 Address:** | Enter the local IPv4 address used here. |
| **Local IPv6 Address:** | Enter the local IPv6 address used here. |
| **Subnet Prefix Length:** | Enter the Subnet prefix length value used here. |

The following parameters can be configured:

| | |
|---|---|
| **Obtain IPv6:** | Select this option to obtain the DNS Server addresses automatically. |
| **Use the following IPv6:** | Select this option to manually enter the DNS Server addresses used. |
| **Primary DNS Server:** | Enter the primary DNS Server address used here. |
| **Secondary DNS Server:** | Enter the secondary DNS Server address used here. |

The following parameters can be configured:

| | |
|---|---|
| **LAN IPv6 Address:** | Enter the LAN IPv6 address used here. This address must be in the '/64' subnet. |
| **LAN IPv6 Link-Local:** | Displays the LAN IPv6 Link-Local address used here. |

The following parameters can be configured:

| | |
|---|---|
| **Auto-Configuration:** | The user can tick this option to enable the auto-configuration feature. |
| **Auto-Configuration Type:** | The user can select the auto-configuration type used here. Options to choose from are **Stateless** or **Stateful (DHCPv6)**. |
| **Router Advertisement Lifetime:** | This option is only available when the auto-configuration type is set to **Stateless**. Enter the router advertisement lifetime value used here. |
| **IPv6 Address Range (Start):** | This option is only available when the auto-configuration type is set to **Stateful**. Enter the start IPv6 Address for the DHCPv6 range for your local computers. |
| **IPv6 Address Range (End):** | This option is only available when the auto-configuration type is set to **Stateful**. Enter the end IPv6 Address for the DHCPv6 range for your local computers. |
| **IPv6 Address Lifetime:** | This option is only available when the auto-configuration type is set to **Stateful**. Enter the IPv6 Address Lifetime (in minutes). |

Click on the **Save Settings** button to accept the changes made.
Click on the **Don't Save Settings** button to discard the changes made.

**IPv6 Connection Type: 6to4**

In this section the user can configure the IPv6 6to4 connection settings. 6to4 is an IPv6 address assignment and automatic tunneling technology that used to provide unicast IPv6 connectivity between IPv6 sites and hosts across the IPv4 Internet.

The following parameters can be configured:

| | |
|---|---|
| **My IPv6 Connection is:** | Select the appropriate IPv6 Connection Type used for this configuration here. |

The following parameters can be configured:

| | |
|---|---|
| **6to4 Address:** | Here the 6to4 configured address will be displayed. |
| **6to4 Relay:** | Enter the 6to4 relay address used here. |
| **Primary DNS Server:** | Enter the primary DNS Server address used here. |
| **Secondary DNS Server:** | Enter the secondary DNS Server address used here. |

The following parameters can be configured:

| | |
|---|---|
| **LAN IPv6 Address:** | Enter the LAN IPv6 address used here. This address must be in the '/64' subnet. |
| **LAN IPv6 Link-Local Address:** | Displays the LAN IPv6 Link-Local address used here. |

The following parameters can be configured:

| | |
|---|---|
| **Auto-Configuration:** | The user can tick this option to enable the auto-configuration feature. |
| **Auto-Configuration Type:** | The user can select the auto-configuration type used here. Options to choose from are **Stateless** or **Stateful (DHCPv6)**. |
| **Router Advertisement Lifetime:** | This option is only available when the auto-configuration type is set to **Stateless**. Enter the router advertisement lifetime value used here. |
| **IPv6 Address Range (Start):** | This option is only available when the auto-configuration type is set to **Stateful**. Enter the start IPv6 Address for the DHCPv6 range for your local computers. |
| **IPv6 Address Range (End):** | This option is only available when the auto-configuration type is set to **Stateful**. Enter the end IPv6 Address for the DHCPv6 range for your local computers. |
| **IPv6 Address Lifetime:** | This option is only available when the auto-configuration type is set to **Stateful**. Enter the IPv6 Address Lifetime (in minutes). |

Click on the **Save Settings** button to accept the changes made.
Click on the **Don't Save Settings** button to discard the changes made.

**IPv6 Connection Type: 6rd**

In this section the user can configure the IPv6 6rd connection settings.

The following parameters can be configured:

| | |
|---|---|
| **My IPv6 Connection is:** | Select the appropriate IPv6 Connection Type used for this configuration here. |

The following parameters can be configured:

| | |
|---|---|
| **6rd IPv6 Prefix:** | Enter the 6rd IPv6 address and prefix value used here. |
| **IPv4 Address:** | Enter the IPv4 address used here. |
| **Mask Length:** | Enter the IPv4 mask length used here. |
| **Assigned IPv6 Prefix:** | Displays the IPv6 assigned prefix value here. |
| **6rd Border Relay IPv4 Address:** | Enter the 6rd border relay IPv4 address used here. |
| **Primary DNS Server:** | Enter the primary DNS Server address used here. |
| **Secondary DNS Server:** | Enter the secondary DNS Server address uses here. |

The following parameters can be configured:

| | |
|---|---|
| **LAN IPv6 Address:** | Enter the LAN IPv6 address used here. This address must be in the '/64' subnet. |
| **LAN IPv6 Link-Local Address:** | Displays the LAN IPv6 Link-Local address used here. |

The following parameters can be configured:

| | |
|---|---|
| **Auto-Configuration:** | The user can tick this option to enable the auto-configuration feature. |
| **Auto-Configuration Type:** | The user can select the auto-configuration type used here. Options to choose from are **Stateless** or **Stateful (DHCPv6)**. |
| **Router Advertisement Lifetime:** | This option is only available when the auto-configuration type is set to **Stateless**. Enter the router advertisement lifetime value used here. |
| **IPv6 Address Range (Start):** | This option is only available when the auto-configuration type is set to **Stateful**. Enter the start IPv6 Address for the DHCPv6 range for your local computers. |
| **IPv6 Address Range (End):** | This option is only available when the auto-configuration type is set to **Stateful**. Enter the end IPv6 Address for the DHCPv6 range for your local computers. |
| **IPv6 Address Lifetime:** | This option is only available when the auto-configuration type is set to **Stateful**. Enter the IPv6 Address Lifetime (in minutes). |

Click on the **Save Settings** button to accept the changes made.
Click on the **Don't Save Settings** button to discard the changes made.

**IPv6 Connection Type: Link-Local Only**

The Link-local address is used by nodes and routers when communicating with neighboring nodes on the same link. This mode enables IPv6-capable devices to communicate with each other on the LAN side.

The following parameters can be configured:

| | |
|---|---|
| **My IPv6 Connection is:** | Select the appropriate IPv6 Connection Type used for this configuration here. |

The following parameters can be configured:

| | |
|---|---|
| **LAN IPv6 Link-Local Address:** | Displays the LAN IPv6 Link-Local address used here. |

Click on the **Save Settings** button to accept the changes made.
Click on the **Don't Save Settings** button to discard the changes made.

# IPv6 Firewall

On this page the user can configure the IPv6 firewall settings. The firewall settings section is an advance feature that is used to allow or deny traffic from passing through the device. It works in the same way as IP Filters with additional settings. You can create more detailed rules for the device.

In the IPv6 Firewall rules section the user can create, enable and disable IPv6 firewall rules used by this device.

The following parameters can be configured:

| | |
|---|---|
| **Configure IPv6 Filtering:** | This option defines the behaviour of all the IPv6 firewall rules created. Option to choose from are '**Turn IPv6 Filtering OFF**', '**Turn IPv6 Filtering ON and ALLOW rules listed**', and '**Turn IPv6 Filtering ON and DENY rules listed**'. Select the appropriate option used here. |
| **Checkbox:** | Tick this option to used the firewall rules created. |
| **Name:** | Enter a custom firewall rule name here. This name is used for identification. |
| **Source Interface:** | Select the appropriate source interface used here. |
| **Destination Interface:** | Select the appropriate destination interface used here. |
| **Schedule:** | Select a time schedule that will be applied to this rules here. |
| **IP Address Range:** | Enter the IPv6 address range used here. |
| **Protocol:** | Select the protocol used for this rule here. Options to choose from are **ALL**, **TCP**, **UDP**, and **ICMP**. |
| **Port Range:** | Enter the port range used for this rule here. |

Click on the **Save Settings** button to accept the changes made.
Click on the **Don't Save Settings** button to discard the changes made.

# Tools Category

In this category the user will be able to configure features that are related to the router itself. Features like the time settings, login accounts, firmware update and more.

Pages that can be configured in the **Tools** category are as follows:
**Administration:** On this page the user can configure a new password as well as remote administration settings for this device.
**Time:** On this page the user can configure the time and date settings for this router.
**System Log:** On this page the user can view and configure the system log.
**EMail Settings:** On this page the user can configure the email settings for this router.
**System:** On this page the user can reboot, reset, backup and restore this router.
**Firmware:** On this page the user can perform a firmware upgrade on this router. Also uploadable from this page is the language packs.
**Dynamic DNS:** On this page the user can configure the DDNS settings for this router.
**System Check:** On this page the user can perform and system check (using Ping) for this router.
**Schedules:** On this page the user can create and maintain time schedules for this router.

# ADMIN

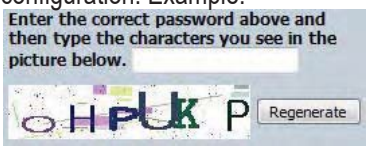
This page will allow you to change the Administrator password and configure the authentication settings. This window also allows you to enable Remote Management, via the Internet.

In the **Admin Password** section, the user can change the login password used for this device.

The following parameters can be configured:

| | |
|---|---|
| **Password:** | Enter the new login password used here. |
| **Verify Password:** | Re-enter the new login password here. |

The following parameters can be configured:

| | |
|---|---|
| **Enable Graphical Authentication:** | Tick this option to enable the graphical image confirmation when the user login to the web configuration. Example:   |
| **Enable Remote Management:** | Tick this option to enable remote management. This option will enable the router to be accessible from the Internet port. |
| **Remote Admin Port:** | Enter the remote administration port number used here. Sometimes services like an internal webserver will occupy the port number 80. In this option the user can change the remote administration port to 8080 for example. |
| **Remote Admin Inbound Filter:** | Select the appropriate remote admin inbound filter behaviour here. Options to choose from are **Allow All** and **Deny All**. |
| **Details:** | Enter the remote admin inbound filter detail description used here. |

Click on the **Save Settings** button to accept the changes made.
Click on the **Don't Save Settings** button to discard the changes made.

# TIME

The Time window allows you to configure, update, and maintain the correct time on the internal system clock. From this section you can set the time zone that you are in and set the Time Server. Daylight Saving can also be configured to automatically adjust the time when needed.

The following parameters can be configured:

| | |
|---|---|
| **Time:** | Here will be displayed the current time configuration running on this device. |
| **Time Zone:** | Select the appropriate time zone used on this device here. |
| **Enable Daylight Saving:** | Check this box if the country your are located in uses Daylight Saving time. Enter a start date and an end date for daylight saving time. |
| **Sync. your computer's time settings:** | Click this button to synchronize the router's system clock to the management computer's time settings. |

The following parameters can be configured:

| | |
|---|---|
| **Automatically synchronize:** | NTP is short for Network Time Protocol. NTP synchronizes computer clock times in a network of computers. Tick this option to enable automatic time and date synchronizing. |
| **NTP Server Used:** | Select the appropriate time server used here. The interval at which the router will communicate with the NTP server is set to 7 days. |
| **Update Now:** | After selecting the appropriate time server and enabling the automatic synchronization option, click on this button to update the current time and date of the router. |

The following parameters can be configured:

| | |
|---|---|
| **Set Manually:** | Here the user can manually configure the date and time used by this device. Options to configure are **Year**, **Month**, **Day**, **Hour**, **Minute**, and **Second**. |

Click on the **Save Settings** button to accept the changes made.
Click on the **Don't Save Settings** button to discard the changes made.

# SYSLOG

The Syslog options allow you to send log information to a System Log Server.

The following parameters can be configured:

| | |
|---|---|
| **Enable Logging:** | Tick this option to enable the Syslog feature. |
| **Syslog Server IP Address:** | Enter the Syslog Server IP address used here. |

Click on the **Save Settings** button to accept the changes made.
Click on the **Don't Save Settings** button to discard the changes made.

# Email Settings

The Email feature can be used to send the system log files and router alert messages to your email address.

The following parameters can be configured:

| | |
|---|---|
| **From Email Address:** | This email address will appear as the sender when you receive a log file or firmware upgrade notification via email. |
| **To Email Address:** | Enter the email address where you want the email sent. |
| **Email Subject:** | Enter the text that you want to appear in the subject line of the e-mail that is sent. |
| **SMTP Server Address:** | Enter the SMTP server address for sending email. If your SMTP server requires authentication, select this option. |
| **Account Name:** | Enter your account for sending email. |
| **Password:** | Enter the password associated with the account. |
| **Verify Password:** | Re-enter the password associated with the account here. |
| **Send Mail Now:** | Click this button to send a test email from the Router to verify that the email settings have been configured correctly. |

Click on the **Save Settings** button to accept the changes made.
Click on the **Don't Save Settings** button to discard the changes made.

# System

This section allows you to manage the router's configuration settings, reboot the router, and restore the router to the factory default settings. Restoring the unit to the factory default settings will erase all settings, including any rules that you've created.

The following parameters can be configured:

| | |
|---|---|
| **Save Settings To Local Hard Drive:** | Use this option to save the current router configuration settings to a file on the hard disk of the computer you are using. First, click the **Save** button. A file dialog will appear, allowing you to select a location and file name for the settings. |
| **Load Settings From Local Hard Drive:** | Use this option to load previously saved router configuration settings. First, use the **Browse** option to find a previously saved file of configuration settings. Then, click the **Upload Settings** button below to transfer those settings to the router. |
| **Restore To Factory Default Settings:** | This option will restore all configuration settings back to the settings that were in effect at the time the router was shipped from the factory. Any settings that have not been saved will be lost, including any rules that you have created. If you want to save the current router configuration settings, use the Save button above. |
| **Reboot The Device:** | Click to reboot the router. |
| **Clear Language Pack:** | If you previously installed a language pack and want to revert all the menus on the Router interface back to the default language settings, click the **Clear** button. |

Click on the **Save Settings** button to accept the changes made.
Click on the **Don't Save Settings** button to discard the changes made.

# FIRMWARE

Use the Firmware window to upgrade the firmware of the Router and install language packs. If you plan to install new firmware, make sure the firmware you want to use is on the local hard drive of the computer. If you want to install a new language pack, make sure that you have the language pack available. Please check the support site for firmware updates. You can download firmware upgrades to your hard drive from the support site.

In the **Firmware Information** section the user can view the **Current Firmware Version** number running on this device, the **Current Firmware Date** of this same firmware version running on this device, and a button to click that will **Check Online Now for Latest Firmware Version**.

In the **Firmware Upgrade** section the user can physically upgrade the firmware of this device clicking on the **Browse** button and navigating to the firmware file, saved on the local hard drive. After locating the file, click on the **Upload** button to initiate the firmware upgrade.

| | |
|---|---|
| ⚠ | **Note:** Some firmware upgrades will reset the configuration, of the device, to factory defaults. Be sure to save the current configuration first before any firmware update. |

| | |
|---|---|
| ⚠ | **Note:** Always update the firmware of this device using the **wired** connection. Never upgrade the firmware using a wireless connection. |

In the **Language Pack Upgrade** section, the user can change the router's language pack by clicking on the **Browse** button and navigating to the language pack, downloaded to the computer. After navigating to the language pack file, click on the **Upload** button to initiate the language pack upload and configuration.

Always keep a close lookout on the local vendor's website for new firmware upgrades and language packs.

Click on the **Save Settings** button to accept the changes made.
Click on the **Don't Save Settings** button to discard the changes made.

# Dynamic DNS

The DDNS feature allows you to host a server (Web, FTP, Game Server, etc…) using a domain name that you have purchased (www.whateveryournameis.com) with your dynamically assigned IP address. Most broadband Internet Service Providers assign dynamic (changing) IP addresses. Using a DDNS service provider, your friends can enter in your domain name to connect to your server no matter what your IP address is.

The following parameters can be configured:

| | |
|---|---|
| **Enable DDNS:** | Dynamic Domain Name System is a method of keeping a domain name linked to a changing IP Address. Check the box to enable DDNS. |
| **Server Address:** | Choose your DDNS provider from the drop down menu. |
| **Host Name:** | Enter the Host Name that you registered with your DDNS service provider. |
| **User Account:** | Enter the Username for your DDNS account. |
| **Password:** | Enter the Password for your DDNS account. |
| **DDNS Account Testing:** | Click this button to verify that the DDNS account user name and password have been entered correctly. |

Click on the **Save Settings** button to accept the changes made.
Click on the **Don't Save Settings** button to discard the changes made.

# System Check

This useful diagnostic utility can be used to check if a computer is on the Internet. It sends ping packets and listens for replies from the specific host.

In the **Ping Test** section the user can test the Internet connectivity by entering in a **host name** or the **IP address** that you want to ping (Packet Internet Groper) and click on the **Ping** button. The status of your Ping attempt will be displayed in the **Ping Result** box.

In the **IPv6 Ping Test** section the user can test the Internet connectivity by entering in a **host name** or the **IPv6 address** that you want to ping (Packet Internet Groper) and click on the **Ping** button. The status of your Ping attempt will be displayed in the **Ping Result** box.

In the **Ping Result** section the results of the attempted ping will be displayed.

# SCHEDULES

Schedules can be created for use with enforcing rules. For example, if you want to restrict web access to Mon-Fri from 3pm to 8pm, you could create a schedule selecting Mon, Tue, Wed, Thu, and Fri and enter a Start Time of 3pm and End Time of 8pm.

The following parameters can be configured:

| | |
|---|---|
| **Name:** | Enter the custom name for the new schedule rule here. This name is used for identification. |
| **Day(s):** | To use every day in the week for this rule, select the **All Week** option. To use only selected days for this rule, select the **Select Day(s)** option and tick the appropriate days used for this rule. |
| **All Day - 24 hrs:** | To enable this rule to run 24 hours instead of only a certain part of the day, tick this option. |
| **Start Time:** | If the **All Day** option is not selected, the user can enter the starting time here. |
| **End Time:** | If the **All Day** option is not selected, the user can enter the ending time here. |

Click on the **Add** button to add this new rule to the schedule rules list.
Click on the **Cancel** button to discard the information and cancel the rule addition.

In the **Schedule Rules List** section, the user can view the available schedule rules created. To edit an existing rule, click on the icon of the specific entry, To remove an existing rule, click on the icon of the specific entry.

# STATUS CATEGORY

In this category the user will be able to view information regarding the configuration and functionality of this device. Displays like WAN, LAN and Wireless configurations, System, Firewall and Router logs, and more.

Pages that can be configured in the **Status** category are as follows:
**Device Information:** This page displays the current information for the router. It will display the LAN, WAN (Internet), and Wireless information.
**Logs:** The Logs option allows you to view the router logs. You can define what types of events you want to view and the level of the events to view. This router also has external Syslog Server support so you can send the log files to a computer on your network that is running a Syslog utility.
**Statistics:** Here you can view the amount of packets that pass through the router on both the WAN, LAN ports and both the 802.11n/g (2.4GHz) and 802.11n/a (5GHz) wireless bands. The traffic counter will reset if the device is rebooted.
**Internet Sessions:** The Internet Sessions page displays full details of active Internet sessions through your router. An Internet session is a conversation between a program or application on a LAN-side computer and a program or application on a WAN-side computer.
**Wireless:** The wireless client table displays a list of current connected wireless clients. This table also displays the connection time and MAC address of the connected wireless clients.
**IPv6:** The IPv6 page displays a summary of the Router's IPv6 settings and lists the IPv6 address and host name of any IPv6 clients.

# Device Info

This page displays the current information for the router. It will display the LAN, WAN (Internet), and Wireless information. If your Internet connection is set up for a Dynamic IP address then a Release button and a Renew button will be displayed. Use Release to disconnect from your ISP and use Renew to connect to your ISP.

In the **General** section, information about the time and firmware is being displayed.

In the **WAN** section, information about the Internet connection is being displayed.

In the **LAN** section, information about the Local Area Network configuration is being displayed.

In the **Wireless LAN** section, information about the **2.4GHz** Wireless Local Area Network configuration is being displayed.

In the **Wireless LAN2** section, information about the **5GHz** Wireless Local Area Network configuration is being displayed.

# Logs

The router automatically logs (records) events of possible interest in it's internal memory. If there isn't enough internal memory for all events, logs of older events are deleted but logs of the latest events are retained. The Logs option allows you to view the router logs. You can define what types of events you want to view and the level of the events to view. This router also has external Syslog Server support so you can send the log files to a computer on your network that is running a Syslog utility.

The following parameters can be configured:

| | |
|---|---|
| **Save Log File:** | Click the **Save** button save the Router's log entries to a log file on your computer. |

The following parameters can be configured:

| | |
|---|---|
| **Log Type:** | Use the radio buttons to select the types of messages that you want to display from the log. System, Firewall & Security, and Router Status messages can be selected. |
| **Log Level:** | There are three levels of message importance: Critical, Warning, and Information. Select the levels that you want displayed in the log. |

The following parameters can be configured:

| | |
|---|---|
| **First - Last Page:** | Use these buttons to navigate to the first or last page of the router logs. |
| **Previous - Next:** | Use these buttons to navigate to the next or previous page of the router logs. |
| **Clear:** | Click on this button to clear all the contents from the log. |
| **Link to Email Log Settings:** | Click this button to open the Email Settings screen so that you can change the Email configuration for sending logs. |

# Statistics

The screen below displays the Traffic Statistics. Here you can view the amount of packets that pass through the router on both the WAN, LAN ports and both the 802.11n/g (2.4GHz) and 802.11n/a (5GHz) wireless bands. The traffic counter will reset if the device is rebooted.

Click on the **Refresh** button to refresh the display page.
Click on the **Reset** button to clear all the statistic information for all the fields displayed.

# Internet Sessions

The Internet Sessions page displays full details of active Internet sessions through your router. An Internet session is a conversation between a program or application on a LAN-side computer and a program or application on a WAN-side computer.

## Wireless

The wireless client table displays a list of current connected wireless clients. This table also displays the connection time and MAC address of the connected wireless clients.

In the **Number of Wireless Clients - 2.4GHz Band** section a list of 2.4GHz active wireless clients will be displayed.

In the **Number of Wireless Clients - 5GHz Band** section a list of 5GHz active wireless clients will be displayed.

## IPv6

The IPv6 page displays a summary of the Router's IPv6 settings and lists the IPv6 address and host name of any IPv6 clients.

# SUPPORT CATEGORY

In this category the user will have access to a portal of information regarding each and every page that exists on this device. This information gives the basic description of parameter and uses for the pages.

# Knowledge Base

## One Foot Connection (OFC) Method

The device supports a unique feature called the One Foot Connection method. This feature allows a user to configure their Samsung TV to connect to this router in a very unique and easy way. For this feature to work, the Samsung TV must also support the OFC feature.

### Connect my Samsung TV to the router using OFC.

**Step 1**: Turn on the power for both devices, the TV and the Router.

**Step 2**: Navigate to the **Network Settings**, of the TV, using the remote and select the **One Foot Connection** option.

**Step 3**: Place the device approximately 1 foot away from the Wireless Adapter of the TV, while both units are powered ON.

Wait until the connection has been established automatically.

**Step 4**: When a successful connection is done, a message will appear on the TV, stating that the Network Settings is done.

Place the router back to the desired location in your home.

If the OFC connection failed, a fail message will appear on the TV screen. When this happens restart the Router and the TV and try the connection again by moving the router a little closer to the TV.

| | |
|---|---|
| ⚠ | **Note:** When you want to change your wireless network settings on the router and then want to re-configure the wireless connection between the router and the TV, this procedure can be done again from **Step 1**. |

# Plug & Access Connection Method

The device supports another unique feature called the Plug & Access Connection method. This feature allows a user to configure their Samsung TV to connect to this router, wirelessly, using a Flash Memory Stick to transfer the wireless settings, used on the router, to the Samsung TV. This feature will only work between Samsung devices that support the Plug & Access connection method.

## Connect my Samsung TV to the router using Plug & Access.

**Step 1**: Turn on the power for both devices, the TV and the Router.

**Step 2**: Insert a Flash Memory Stick into the USB port, found on the back panel of the ET-WV530.

**Step 3**: The router will identify that Flash Memory Stick and start the wireless configuration settings transfer automatically. The WPS light will start to flicker when data is being written.
After the transfer has been completed, the WPS light will shine solid.

**Step 4**: Remove the Flash Memory Stick from the router and insert it into the USB port of the Samsung TV.

**Step 5**: When a successful wireless connection configuration is done, a message will appear on the TV, stating that the Network Settings is done.

| | |
|---|---|
| ⚠ | **Note:** If the Plug & Access wireless connection configuration failed, a fail message will appear on the TV screen. When this happens restart the Router and the TV and try the connection again from Step 1. |

| | |
|---|---|
| ⚠ | **Note:** When you want to change your wireless network settings on the router and then want to re-configure the wireless connection between the router and the TV, this procedure can be done again from Step 1. |

# Priority Quality of Service

The device supports another unique feature called the Priority Quality of Service (QoS) feature. This feature will recognize any Samsung wireless networking device, connected to the router, and automatically initiate the built-in priority QoS feature. After initiation the router will give higher wireless network priority to this device.

This is a remarkable feature, especially when a Samsung TV needs to stream High Definition (HD) video and audio content from the Internet for display. This feature is one of the most important aspects of this router and is only used between Samsung devices.

# WIRELESS BASICS

Wireless products are based on industry standards to provide easy-to-use and compatible high-speed wireless connectivity within your home, business or public access wireless networks. Strictly adhering to the IEEE standard, the wireless family of products will allow you to securely access the data you want, when and where you want it. You will be able to enjoy the freedom that wireless networking delivers.

A wireless local area network (WLAN) is a cellular computer network that transmits and receives data with radio signals instead of wires. Wireless LANs are used increasingly in both home and office environments, and public areas such as airports, coffee shops and universities. Innovative ways to utilize WLAN technology are helping people to work and communicate more efficiently. Increased mobility and the absence of cabling and other fixed infrastructure have proven to be beneficial for many users.

Wireless users can use the same applications they use on a wired network. Wireless adapter cards used on laptop and desktop systems support the same protocols as Ethernet adapter cards.

Under many circumstances, it may be desirable for mobile network devices to link to a conventional Ethernet LAN in order to use servers, printers or an Internet connection supplied through the wired LAN. A Wireless Router is a device used to provide this link.

## What is Wireless?

Wireless or Wi-Fi technology is another way of connecting your computer to the network without using wires. Wi-Fi uses radio frequency to connect wirelessly, so you have the freedom to connect computers anywhere in your home or office network.

## How does Wireless work?

Wireless works similar to how cordless phone work, through radio signals to transmit data from one point A to point B. But wireless technology has restrictions as to how you can access the network. You must be within the wireless network range area to be able to connect your computer. There are two different types of wireless networks Wireless Local Area Network (WLAN), and Wireless Personal Area Network (WPAN).

## Wireless Local Area Network (WLAN)

In a wireless local area network, a device called an Access Point (AP) connects computers to the network. The access point has a small antenna attached to it, which allows it to transmit data back and forth over radio signals. With an indoor access point as seen in the picture, the signal can travel up to 300 feet. With an outdoor access point the signal can reach out up to 30 miles to serve places like manufacturing plants, industrial locations, college and high school campuses, airports, golf courses, and many other outdoor venues.

## Wireless Personal Area Network (WPAN)

Bluetooth is the industry standard wireless technology used for WPAN. Bluetooth devices in WPAN operate in a range up to 30 feet away. Compared to WLAN the speed and wireless operation range are both less than WLAN, but in return it doesn't use nearly as much power which makes it ideal for personal devices, such as mobile phones, PDAs, headphones, laptops, speakers, and other devices that operate on batteries.

## Who uses wireless?

Wireless technology has become so popular in recent years that almost everyone is using it, whether it's for home, office, business, we have a wireless solution for it.

### Home

- Gives everyone at home broadband access
- Surf the web, check email, instant message, etc.
- Gets rid of the cables around the house
- Simple and easy to use

**Small Office and Home Office**

- Stay on top of everything at home as you would at office
- Remotely access your office network from home
- Share Internet connection and printer with multiple computers
- No need to dedicate office space

**Where is wireless used?**

Wireless technology is expanding everywhere not just at home or office. People like the freedom of mobility and it's becoming so popular that more and more public facilities now provide wireless access to attract people. The wireless connection in public places is usually called "hotspots".

Using a Wireless Card bus Adapter with your laptop, you can access the hotspot to connect to Internet from remote locations like: Airports, Hotels, Coffee Shops, Libraries, Restaurants, and Convention Centers.

Wireless network is easy to setup, but if you're installing it for the first time it could be quite a task not knowing where to start. That's why we've put together a few setup steps and tips to help you through the process of setting up a wireless network.

**Tips**

Here are a few things to keep in mind, when you install a wireless network.

**Centralize your router or Access Point**

Make sure you place the router/access point in a centralized location within your network for the best performance. Try to place the router/access point as high as possible in the room, so the signal gets dispersed throughout your home. If you have a two-story home, you may need a repeater to boost the signal to extend the range.

**Eliminate Interference**

Place home appliances such as cordless telephones, microwaves, and televisions as far away as possible from the router/access point. This would significantly reduce any interference that the appliances might cause since they operate on same frequency.

**Security**

Don't let you next-door neighbors or intruders connect to your wireless network. Secure your wireless network by turning on the WPA or WEP security feature on the router. Refer to product manual for detail information on how to set it up.

# Wireless Modes

There are basically two modes of networking:

- Infrastructure – All wireless clients will connect to an access point or wireless router.
- Ad-Hoc – Directly connecting to another computer, for peer-to-peer communication, using wireless network adapters on each computer, such as two or more wireless network Cardbus adapters.

An Infrastructure network contains an Access Point or wireless router. All the wireless devices, or clients, will connect to the wireless router or access point.

An Ad-Hoc network contains only clients, such as laptops with wireless cardbus adapters. All the adapters must be in Ad-Hoc mode to communicate.

# Wireless Security

This section will show you the different levels of security you can use to protect your data from intruders. The router offers wireless security options like WPA/WPA2 PSK/EAP.

## What is WPA?

WPA (Wi-Fi Protected Access), is a Wi-Fi standard that was designed to improve the security features of WEP (Wired Equivalent Privacy).

The 2 major improvements over WEP:

- Improved data encryption through the Temporal Key Integrity Protocol (TKIP). TKIP scrambles the keys using a hashing algorithm and, by adding an integrity-checking feature, ensures that the keys haven't been tampered with. WPA2 is based on 802.11i and uses Advanced Encryption Standard (AES) instead of TKIP.
- User authentication, which is generally missing in WEP, through the extensible authentication protocol (EAP). WEP regulates access to a wireless network based on a computer's hardware-specific MAC address, which is relatively simple to be sniffed out and stolen. EAP is built on a more secure public-key encryption system to ensure that only authorized network users can access the network.

WPA-PSK/WPA2-PSK uses a passphrase or key to authenticate your wireless connection. The key is an alpha-numeric password between 8 and 63 characters long. The password can include symbols (!?*&_) and spaces. This key must be the exact same key entered on your wireless router or access point.

WPA/WPA2 incorporates user authentication through the Extensible Authentication Protocol (EAP). EAP is built on a more secure public key encryption system to ensure that only authorized network users can access the network.

# Networking Basics

## Check your IP address

After you install your new network or wireless adapter, by default, the TCP/IP settings should be set to obtain an IP address from a DHCP server (i.e. wireless router) automatically. To verify your IP address, please follow the steps below.

Click on Start > Run. In the run box type cmd and click OK. (Windows® 7/Vista® users type cmd in the Start Search box.) At the prompt, type ipconfig and press Enter.

This will display the IP address, subnet mask, and the default gateway of your adapter.

If the address is 0.0.0.0, check your adapter installation, security settings, and the settings on your router. Some firewall software programs may block a DHCP request on newly installed adapters.

## Statically Assign an IP address

If you are not using a DHCP capable gateway/router, or you need to assign a static IP address, please follow the steps below:

**Step 1**

- Windows® 7 - Click on Start > Control Panel > Network and Internet > Network and Sharing Center > Change Adapter Setting.
- Windows Vista® - Click on Start > Control Panel > Network and Internet > Network and Sharing Center > Manage Network Connections.
- Windows® XP - Click on Start > Control Panel > Network Connections.
- Windows® 2000 - From the desktop, right-click My Network Places > Properties.

**Step 2**

Right-click on the Local Area Connection which represents your network adapter and select Properties.

**Step 3**

Highlight Internet Protocol (TCP/IP) and click Properties.

**Step 4**

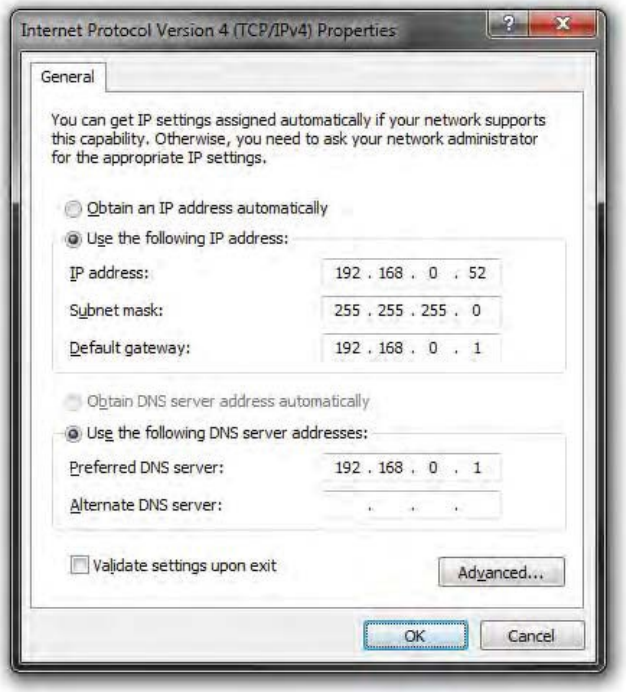
Click Use the following IP address and enter an IP address that is on the same subnet as your network or the LAN IP address on your router.

**Example:** If the router's LAN IP address is 192.168.0.1, make your IP address 192.168.0.X where X is a number between 2 and 99. Make sure that the number you choose is not in use on the network. Set Default Gateway the same as the LAN IP address of your router (192.168.0.1).

Set Primary DNS the same as the LAN IP address of your router (192.168.0.1). The Secondary DNS is not needed or you may enter a DNS server from your ISP.

**Step 5**

Click OK twice to save your settings.



# Connect to a Wireless Network

## Using Windows® 7

It is recommended to enable wireless security (WPA/WPA2) on your wireless router or access point before configuring your wireless adapter. If you are joining an existing network, you will need to know the security key or passphrase being used.

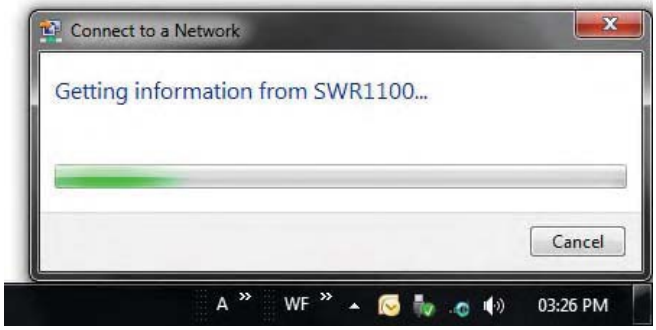
1. Click on the wireless icon in your system tray (lower-right corner).

2. The utility will display any available wireless networks in your area.

3. Highlight the wireless network (SSID) you would like to connect to and click the Connect button.

If you get a good signal but cannot access the Internet, check your TCP/IP settings for your wireless adapter. Refer to the Networking Basics section in this manual for more information.

4. The following window appears while your computer tries to connect to the router.



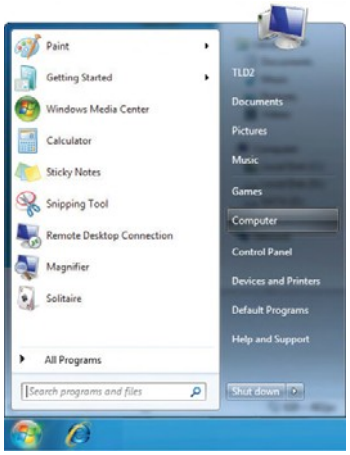

5. Enter the same security key or passphrase that is on your router and click Connect. You can also connect by pushing the WPS button on the router.

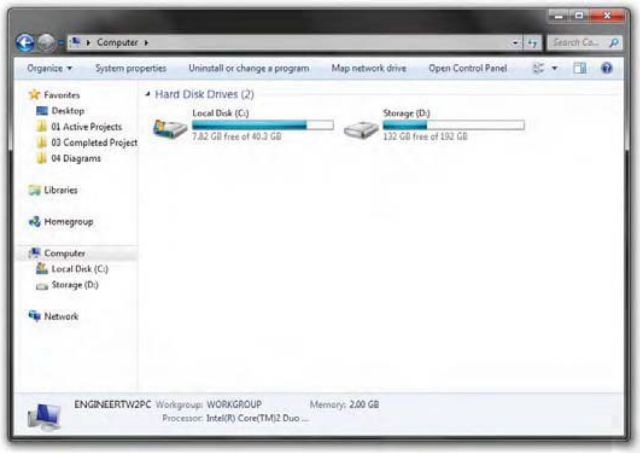
It may take 20-30 seconds to connect to the wireless network. If the connection fails, please verify that the security settings are correct. The key or passphrase must be exactly the same as on the wireless router.

# Configuration WPS

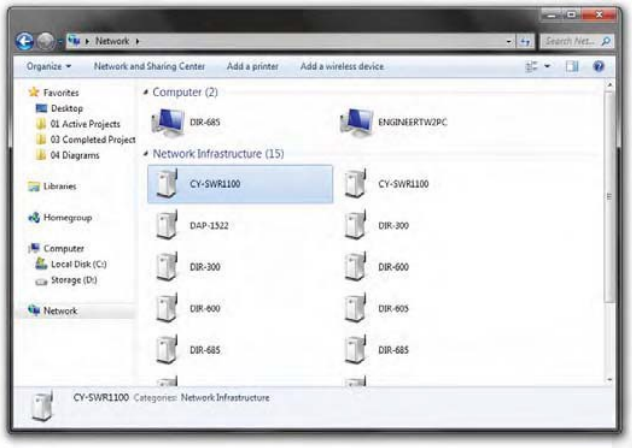
The WPS feature of the router can be configured using Windows® 7. Carry out the following steps to use Windows® 7 to configure the WPS feature of the router:

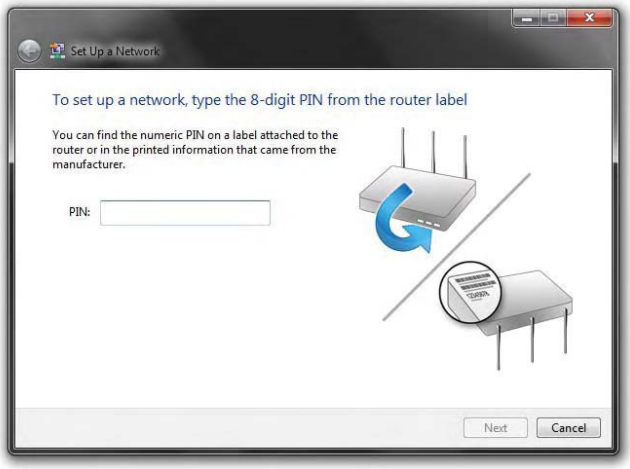
1. Click the Start button and select Computer from the Start menu.



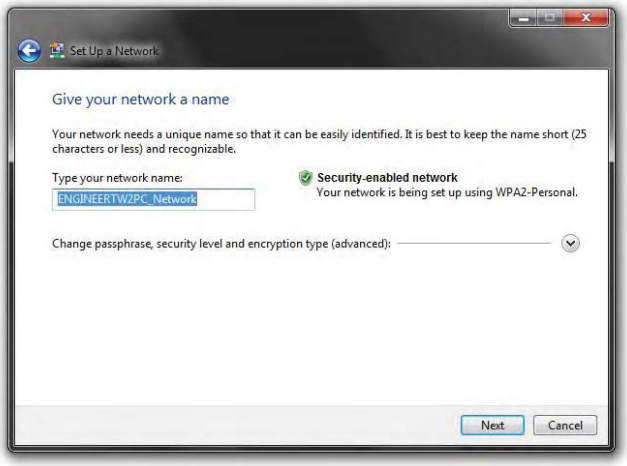




2. Click the Network option.
3. Double-click the Router.





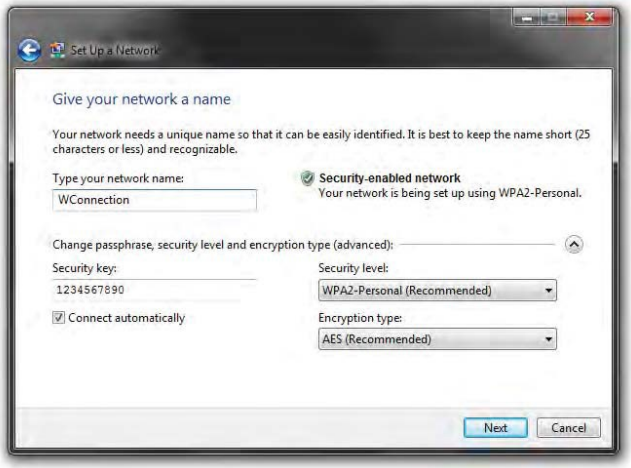

4. Input the WPS PIN number and click Next.




5. Type a name to identify the network.

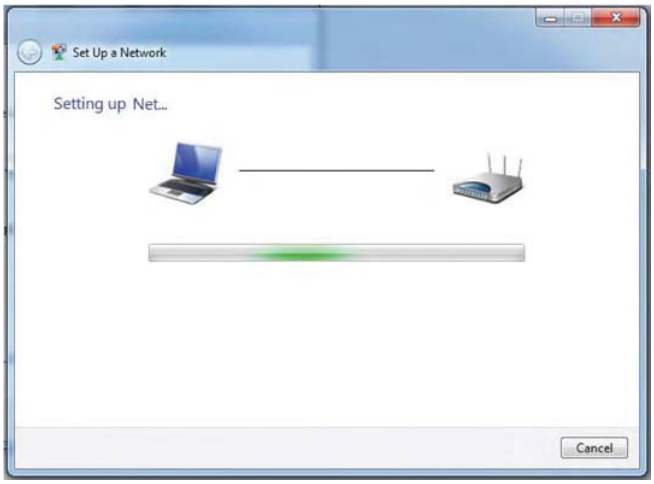
6. To configure advanced settings, click on the drop-down icon.

Click Next to continue.



7. The following window appears while the Router is being configured.

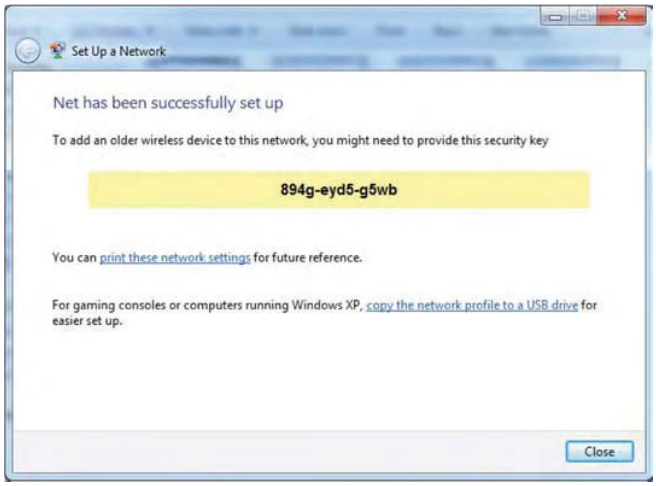
Wait for the configuration to complete.




8. The following window informs you that WPS on the device has been setup successfully.

Make a note of the security key as you may need to provide this security key if adding an older wireless device to the network in the future.

9. Click Close to complete WPS setup.



# Using Windows Vista®

Windows Vista® users may use the built-in wireless utility. If you are using another company's utility or Windows® 2000, please refer to the user manual of your wireless adapter for help with connecting to a wireless network. Most utilities will have a "site survey" option similar to the Windows Vista® utility as seen below.

If you receive the Wireless Networks Detected bubble, click on the center of the bubble to access the utility or right-click on the wireless computer icon in your system tray (lower-right corner next to the time).

Select Connect to a network.

The utility will display any available wireless networks in your area.

Click on a network (displayed using the SSID) and click the Connect button.

If you get a good signal but cannot access the Internet, check you TCP/IP settings for your wireless adapter. Refer to the Networking Basics section in this manual for more information.

It is recommended to enable wireless security (WPA/WPA2) on your wireless router or access point before configuring your wireless adapter. If you are joining an existing network, you will need to know the security key or passphrase being used.

1. Open the Windows Vista® Wireless Utility by right-clicking on the wireless computer icon in your system tray (lower right corner of screen). Select Connect to a network.

2. Highlight the wireless network (SSID) you would like to connect to and click Connect.

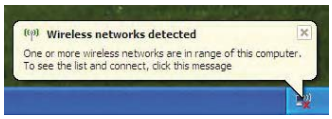
3. Enter the same security key or passphrase that is on your router and click Connect.

It may take 20-30 seconds to connect to the wireless network. If the connection fails, please verify that the security settings are correct. The key or passphrase must be exactly the same as on the wireless router.

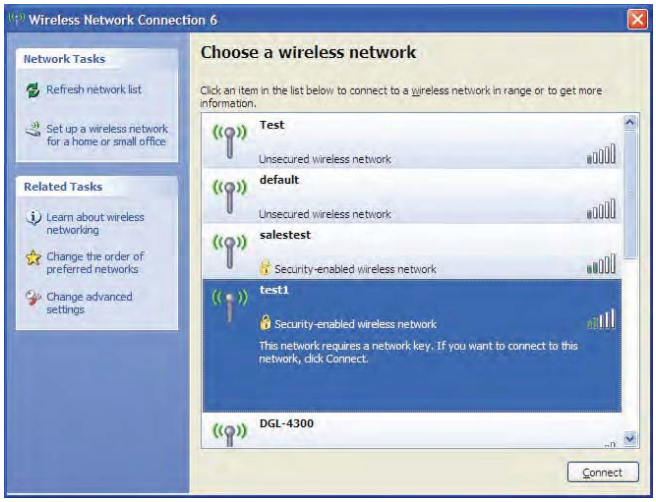
# Using Windows® XP

Windows® XP users may use the built-in wireless utility (Zero Configuration Utility). The following instructions are for Service Pack 2 users. If you are using another company's utility or Windows® 2000, please refer to the user manual of your wireless adapter for help with connecting to a wireless network. Most utilities will have a "site survey" option similar to the Windows® XP utility as seen below.

If you receive the Wireless Networks Detected bubble, click on the center of the bubble to access the utility or right-click on the wireless computer icon in your system tray (lower right corner next to the time). Select View Available Wireless Networks.



The utility will display any available wireless networks in your area. Click on a network (displayed using the SSID) and click the Connect button.

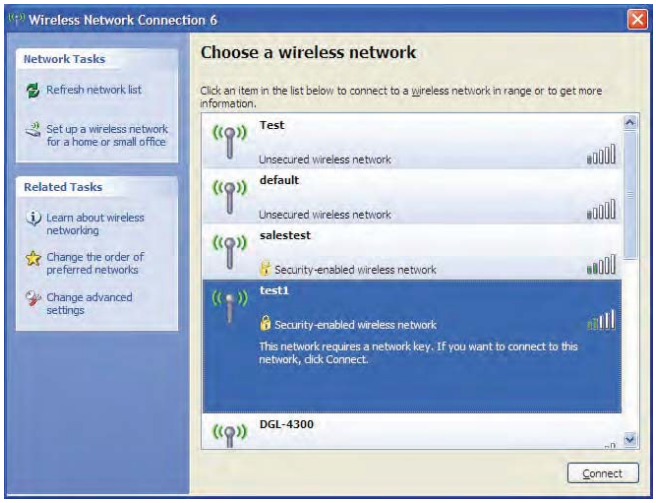



If you get a good signal but cannot access the Internet, check you TCP/ IP settings for your wireless adapter. Refer to the Networking Basics section in this manual for more information.

It is recommended to enable WPA on your wireless router or access point before configuring your wireless adapter. If you are joining an existing network, you will need to know the WPA key being used.

1. Open the Windows® XP Wireless Utility by right-clicking on the wireless computer icon in your system tray (lower-right corner of screen). Select View Available Wireless Networks.

2. Highlight the wireless network (SSID) you would like to connect to and click Connect.




3. The Wireless Network Connection box will appear. Enter the WPA-PSK passphrase and click Connect.

It may take 20-30 seconds to connect to the wireless network. If the connection fails, please verify that the WPA-PSK settings are correct. The WPA-PSK passphrase must be exactly the same as on the wireless router.

# TROUBLESHOOTING

This chapter provides solutions to problems that can occur during the installation and operation of the router. Read the following descriptions if you are having problems. The examples below are illustrated in Windows® XP. If you have a different operating system, the screen captures on your computer will look similar to the following examples.

**Why can't I access the web-based configuration utility?**

When entering the IP address of the router (192.168.0.1 for example), you are not connecting to a website nor do you have to be connected to the Internet. The device has the utility built-in to a ROM chip in the device itself. Your computer must be on the same IP subnet to connect to the web-based utility.

Make sure you have an updated Java-enabled web browser. We recommend the following:

- Microsoft Internet Explorer® 6.0 and higher
- Mozilla Firefox 3.0 and higher
- Google™ Chrome 2.0 and higher
- Apple Safari 3.0 and higher

Verify physical connectivity by checking for solid link lights on the device. If you do not get a solid link light, try using a different cable or connect to a different port on the device if possible. If the computer is turned off, the link light may not be on.

Disable any Internet security software running on the computer. Software firewalls such as Zone Alarm, Black Ice, Sygate, Norton Personal Firewall, and Windows® XP firewall may block access to the configuration pages. Check the help files included with your firewall software for more information on disabling or configuring it.

Configure your Internet settings:

- Go to Start > Settings > Control Panel. Double-click the Internet Options Icon. From the Security tab, click the button to restore the settings to their defaults.
- Click the Connection tab and set the dial-up option to Never Dial a Connection. Click the LAN Settings button. Make sure nothing is checked. Click OK.
- Go to the Advanced tab and click the button to restore these settings to their defaults. Click OK three times.
- Close your web browser (if open) and open it.

Access the web management. Open your web browser and enter the IP address of your router in the address bar. This should open the login page for your web management.

If you still cannot access the configuration, unplug the power to the router for 10 seconds and plug back in. Wait about 30 seconds and try accessing the configuration. If you have multiple computers, try connecting using a different computer.

**What can I do if I forgot my password?**

If you forgot your password, you must reset your router. Unfortunately this process will change all your settings back to the factory defaults.

To reset the router, locate the reset button (hole) on the rear panel of the unit. With the router powered on, use a paperclip to hold the button down for 10 seconds. Release the button and the router will go through its reboot process. Wait about 30 seconds to access the router. The default IP address is 192.168.0.1. When logging in, the username is admin and leave the password box empty.

**Why can't I connect to certain sites or send and receive emails when connecting through my router?**

If you are having a problem sending or receiving email, or connecting to secure sites such as eBay, banking sites, and Hotmail, we suggest lowering the MTU in increments of ten (Ex. 1492, 1482, 1472, etc).

To find the proper MTU Size, you'll have to do a special ping of the destination you're trying to go to. A destination could be another computer, or a URL.

| | |
|---|---|
| ⚠ | **Note:** AOL DSL+ users must use MTU of 1400. |

- Click on Start and then click Run.
- Windows® 95, 98, and Me users type in command (Windows® NT, 2000, and XP users type in cmd) and press Enter (or click OK).
- Once the window opens, you'll need to do a special ping. Use the following syntax: ping [url] [-f] [-l] [MTU value]

Example: ping yahoo.com -f -l 1472

You should start at 1472 and work your way down by 10 each time. Once you get a reply, go up by 2 until you get a fragmented packet. Take that value and add 28 to the value to account for the various TCP/IP headers. For example, lets say that 1452 was the proper value, the actual MTU size would be 1480, which is the optimum for the network we're working with (1452+28=1480).

Once you find your MTU, you can now configure your router with the proper MTU size.

To change the MTU rate on your router follow the steps below:

- Open your browser, enter the IP address of your router (192.168.0.1) and click OK.
- Enter your username (admin) and password (blank by default). Click OK to enter the web configuration page for the device.
- Click on Setup and then click Manual Configure.
- To change the MTU enter the number in the MTU field and click Save Settings to save your settings.
- Test your email. If changing the MTU does not resolve the problem, continue changing the MTU in increments of ten.

# TECHNICAL SPECIFICATIONS

## Hardware Specifications

**WAN Interface:**
- 1 x 10/100/1000Mbps WAN - Auto MDI/MDIX

**LAN Interface:**
- 4 x 10/100/1000Mbps PC Port - Auto MDI/MDIX

**Wireless Interface:**
- 802.11a/b/g/n (Simultaneous)

**Status LEDs:**
- Power, WAN, Wireless(2.4GHz/5GHz), WPS, LAN, USB

**Temperature:**
- Operating: 14 ~ 140°F (-10 ~ 60°C)
- Storing: -40 ~ 158°F (-40 ~ 70°C)

**Operating Voltage:**
- Input: 100~240V, 50~60Hz
- Output: DC12V, 2A

## Software Specifications

**NAT:**
- PNAT

**Protocols:**
- HTTP, DHCP, PPPoE, PPTP, L2TP

**Application Protocol:**
- H323, MSN, BattleNet, etc

**QoS:**
- TV Priority QoS

**Function Control:**
- PC-based Console management

**Wireless Connection:**
- One Foot Connection, Plug & Access

## Wireless Specifications:

**Standards:**
- IEEE 802.11a/b/g/n/ac

**Wireless Frequency Range:**
- 2.4GHz (2.4GHz ~ 2.4835GHz for USA
- 5GHz (5.15GHz ~ 5.25GHz, 5.725GHz ~ 5.850GHz

**MIMO:**
- 2Tx and 2Rx

**RF Output Power:**
- TBD

**Modulation:**
- OFDM(BPSK, QPSK, 16QAM, 64QAM), DSSS(BPSK, DQPSK, CCK)

**Wireless Security:**
- 64/128bit WEP
- WPA-PSK
- WPA2-PSK
- WPAPSK/WPA2PSK
- WPS(PIN & PBC)

## Compatibility

**LED TV:**
- D5000 Series and above

**LCD TV:**
- D550 Series

**PDP TV:**
- D550 Series and above

## Warranty

**Period:**
-

## Dimension

**Set Size:**
-

**Package:**
-

## Weight

**Product Weight:**
-

**Package Weight:**
-

## Accessory

**Contents:**
- Installation CD
- Quick Install Guide
- Power Adaptor with Power Cord
- LAN Cable
- Stand
- Mounting Kit

## Federal Communication Commission Interference Statement

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

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

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.
FCC Caution: Any changes or modifications not expressly approved by Samsung could void the user's authority to operate this equipment.

**IMPORTANT NOTE:**

**FCC Radiation Exposure Statement:**

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

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