User Manual

BandLuxe

R300 Series

HSPA+ WLAN Router

R200 Series

HSPA WLAN Router

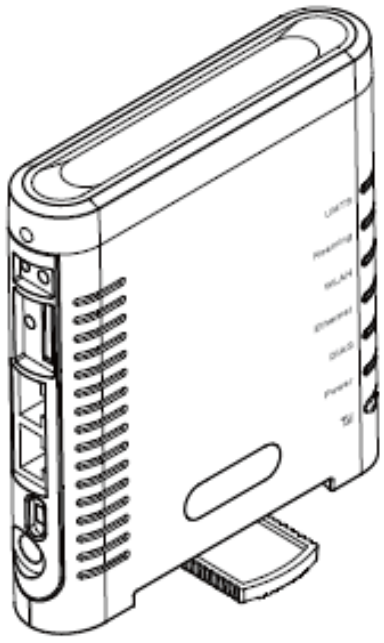
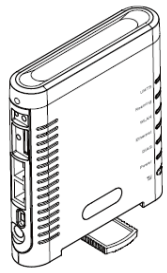
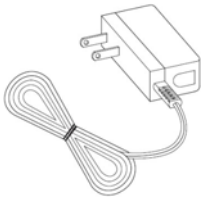


Table of Contents

Package Contents

Thank you for your purchase of this HSPA+/HSPA WLAN Router. This product is designed to access the Internet via 3.75G technology and share the bandwidth through a WiFi network. It is easy to configure and operate even for non-technical users. This manual contains instructions for installing and configuring the product. Read the manual carefully before you use the product, so that you can fully exploit the product functions.

Package Contents

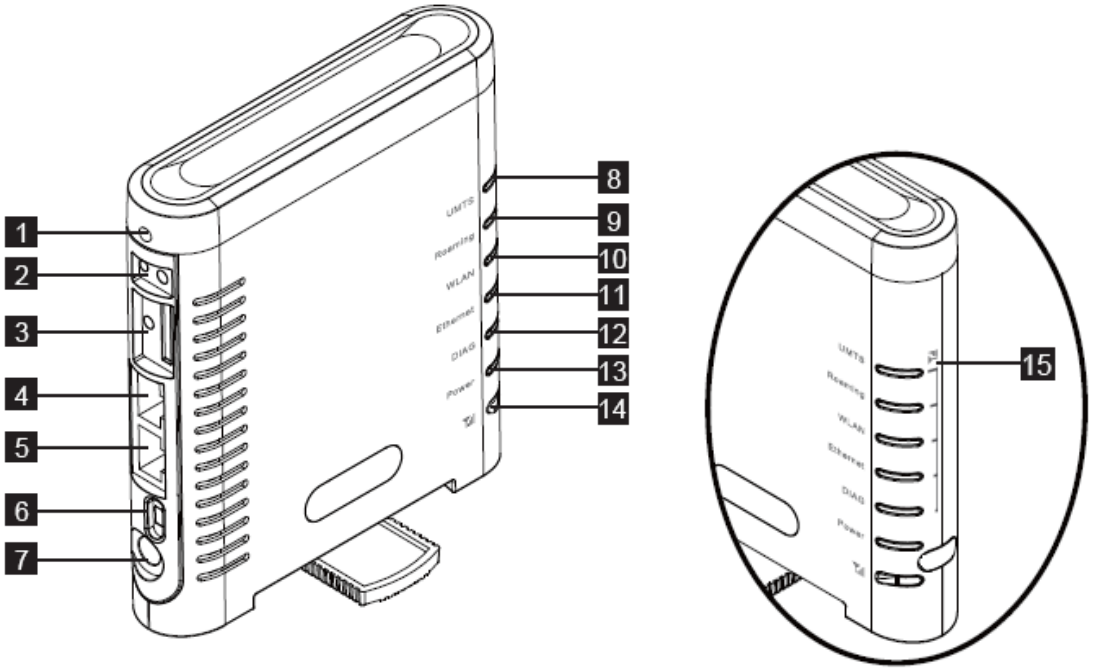
		
HSPA+/ HSPA WLAN Router	*Power Adaptor*	*User Manual CD*

Features

- HSPA+/HSPA WLAN Router
- Uplink up to 5.7 Mbps
  Downlink up to -- R300 Series: 21/ 28.8 Mbps
  R200 Series: 7.2 Mbps
- Support WiFi 802.11 b/g/Pre-n
- R300 -- UMTS: 850/900/1900/2100 MHz
  GSM: 850/900/1800/1900 MHz
- R302 -- UMTS: 2100 MHz
- R305 -- UMTS: AWS Band
- R307 -- UMTS: 850/1900 MHz
  GSM: 850/900/1800/1900 MHz

- R250 -- UMTS: 850/1900/2100 MHz
  GSM: 850/900/1800/1900 MHz
- Support WAN/LAN Ethernet Port
- Optional External 3G Antenna Port Ready
- Sleek Design and Easy to Use

Hardware Overview



1	**Reset Button**	To reset the Router, press the reset button briefly. To restore the Router's factory settings, press the reset button for longer than 5 sec.
2	**3G External Antenna Port**	To connect to the 3G External Antenna if needed.
3	**SIM Slot**	Insert SIM/USIM. Push-push type.
4	**WAN Port**	Connect a DSL or Cable modem.
5	**LAN Port**	Connect Ethernet devices such as computers, switches, and hubs.
6	**Power Switch**	To switch on/off the router.

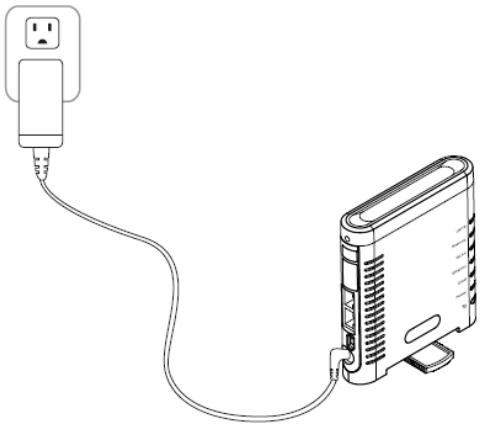
7	**Power Receptor**	Receptor for the Power Adaptor.
8	**UMTS LED**	Reference below table.
9	**Roaming LED**	Solid light shows the Router is connecting to Roaming network.
10	**WLAN LED**	Solid light indicates that the wireless segment is ready. Flashing light shows that data is being transmitted via WLAN.
11	**Ethernet LED**	Solid light shows that an Ethernet-enabled computer is connected via the LAN port but no data is being transmitted. Flashing light shows that data is being transmitted via LAN.
12	**DIAG LED**	Reference below table.
13	**Power LED**	Solid light indicates that the power supply is connected properly.
14	**3G Radio On/Off & Signal Strength Button**	Short press – Enable Signal Strength indication for 3 sec. Long press (>5 sec) – 3G radio on/off
15	**3G Radio Signal Strength Indicator**	Indicates the 3G signal strength when 3G Radio button is in short press.

Table for UMTS and DIAG LED:

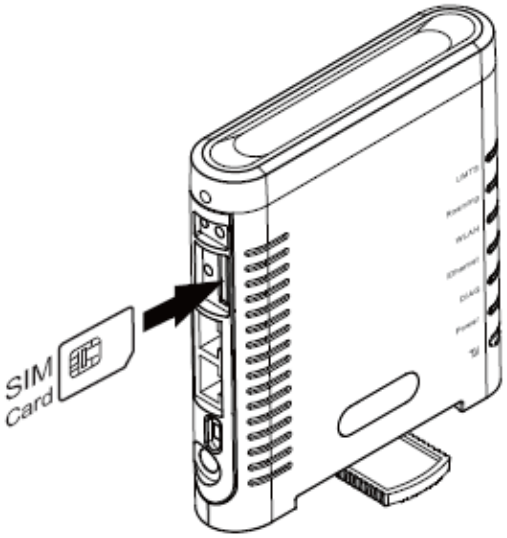
Operation status	UMTS	DIAG
Error in Router	OFF	Solid
Fail to boot module	Solid Red	Flashing
No SIM exist	Flashing Red	OFF
Waiting for PIN entering	Flashing Red	OFF
No network/Searching for network	Flashing Red	OFF
3G camped	Flashing Green/Pink	OFF
3G connected	Solid Blue/Green/Pink	OFF

Note: Pink for UMTS LED is available by product if 2G is available.

Installation



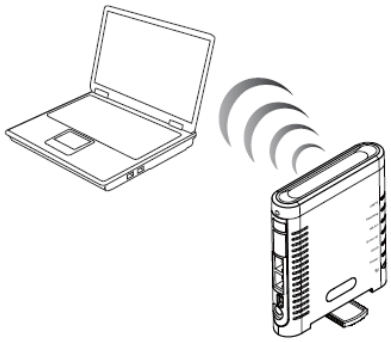
1. Connect the power adaptor to the Router and connect it to an outlet.



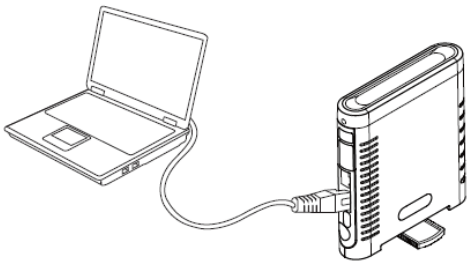
2. Insert your SIM card into the slot on the Router, making sure the SIM card orientation matches the SIM card slot, as shown in the picture.

3. Turn on the Power switch.

4. One of the following two methods can be chosen to link your Router with PC.



A. To link the Router with your PC via WiFi, in Microsoft Windows, go to *Control Panel* > ***Network Connections***, right-click on **Wireless Network Connection**, and choose **View Available Wireless Networks**. Select the **HSPA_ROUTER** wireless network, and click **Connect**.



B. To link the Router with your PC via Ethernet cable, connect one end of the cable to the LAN port on the Router, and the other end of the cable to the Ethernet port on your computer.

●	**Note:** If you choose to access the Internet via Ethernet, connect one end of the cable to the WAN port of Router, and the other end to your xDSL/Cable Modem.

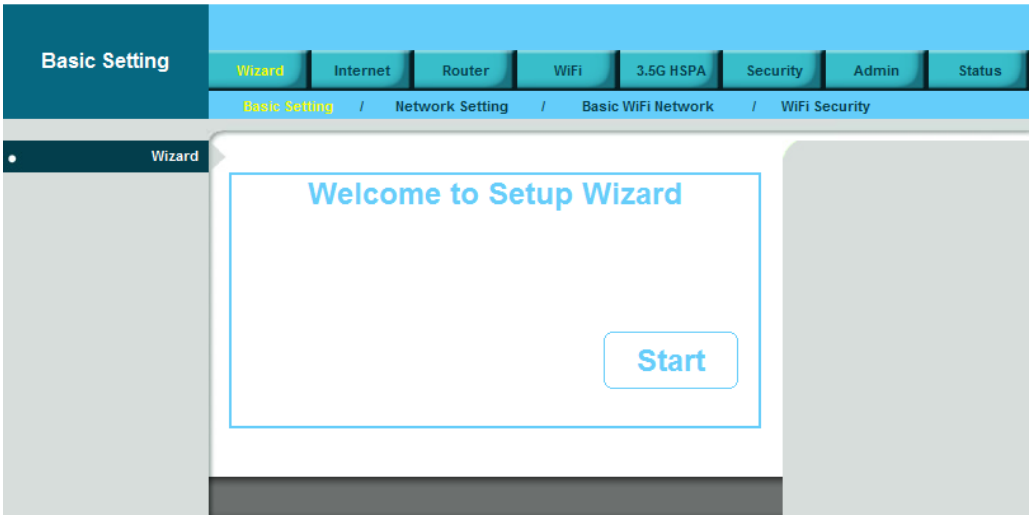
The Router uses a web-based configuration utility. To access the configuration utility, open a browser (for example Internet Explorer) and enter the IP address (**http://192.168.1.1**) or the URL

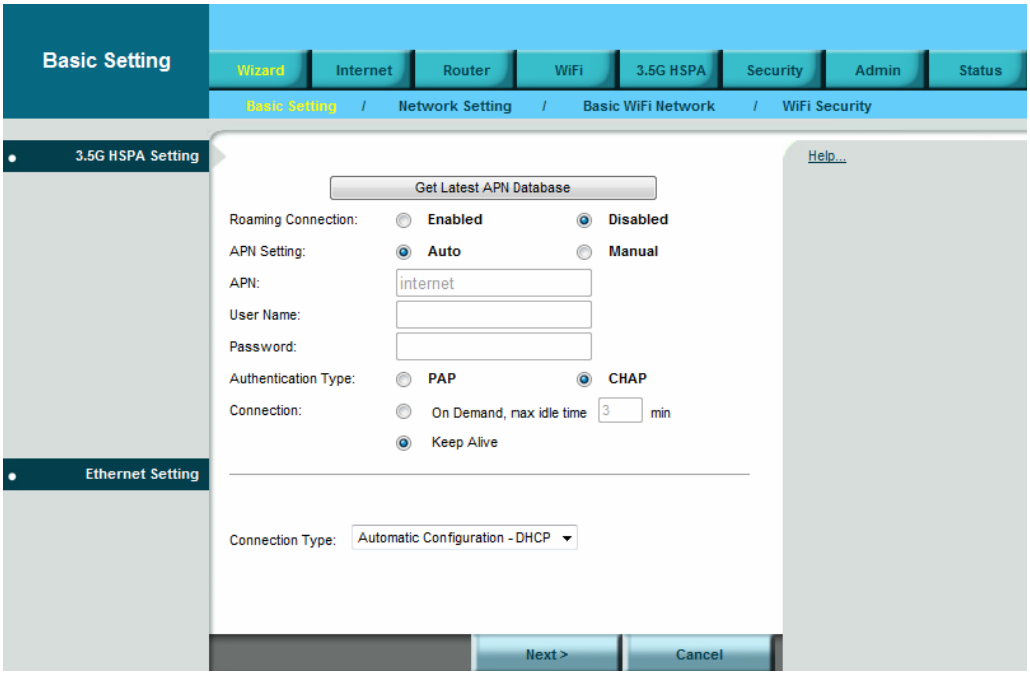
(**http://R300.ROUTER**) for the Router in your browser's address bar.

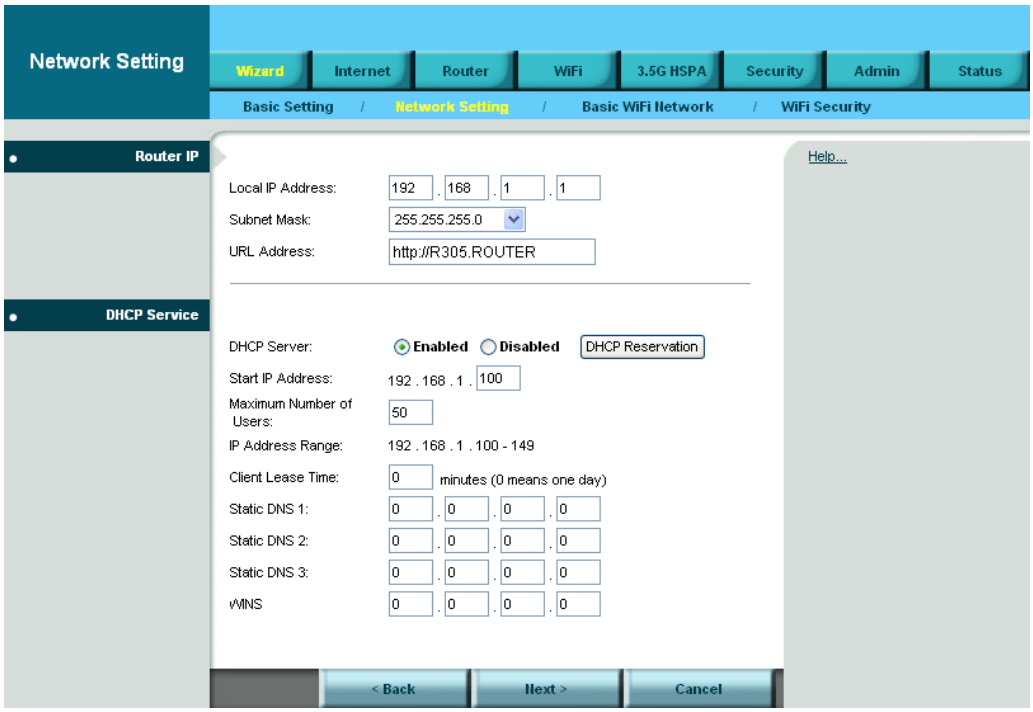
Enter the Router User name (**admin**) and Password (**hsparouter**).

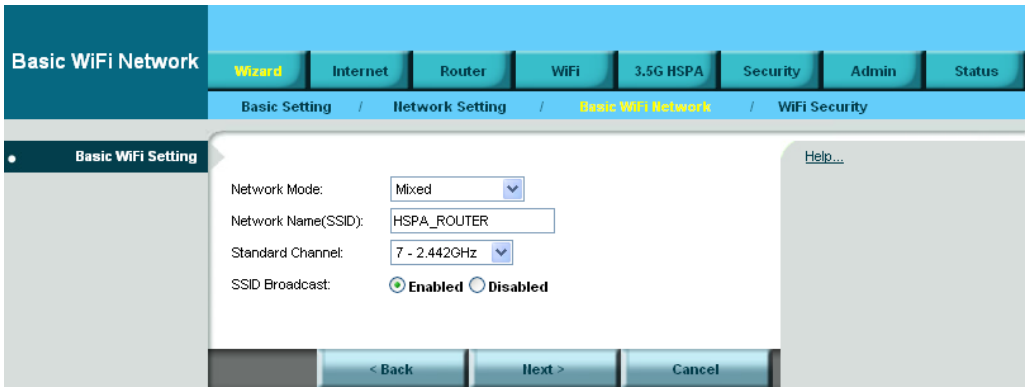
Wizard Setup

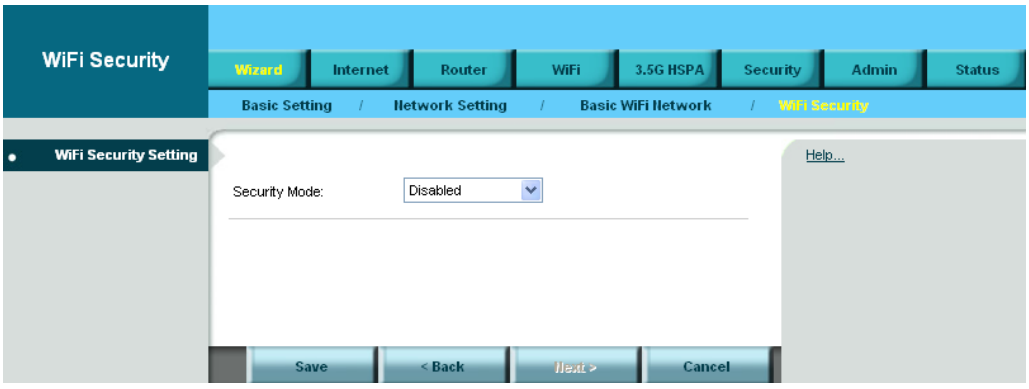
User can set preferred settings step by step via Wizard. If the router is in Factory default settings, the GUI will always open Wizard. User can set the Wizard via Basic Setting> Network Setting > Basic WiFi Network > WiFi Security.





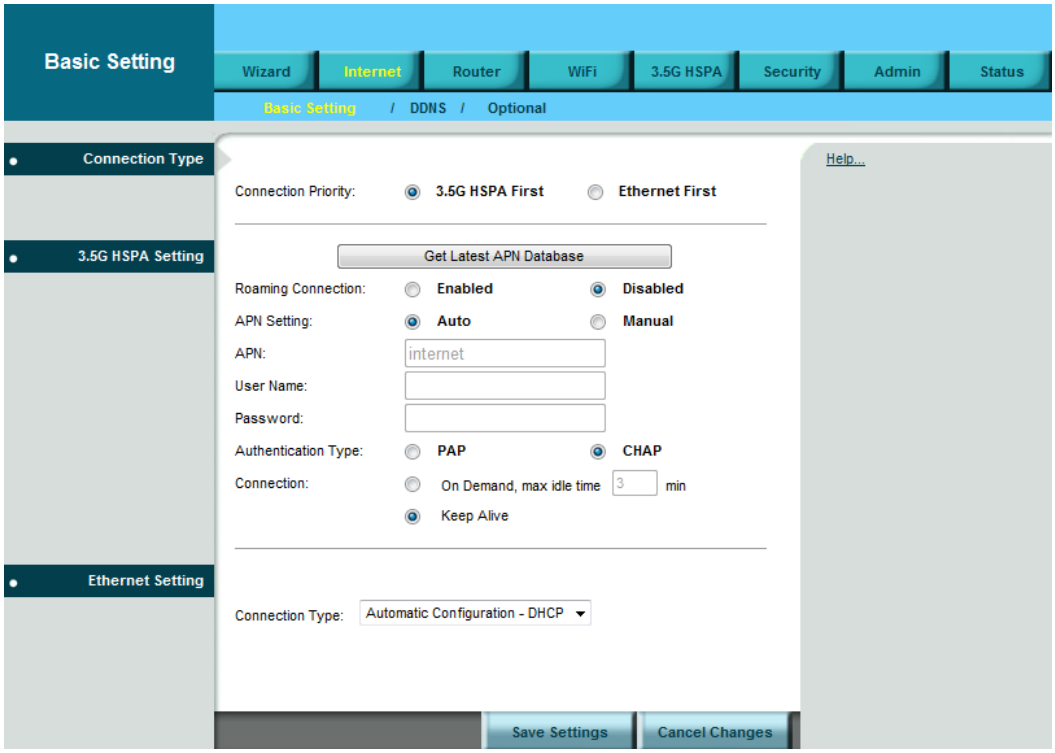

Network Setting
Wizard
Internet
Router
WiFi
3.5G HSPA
Security
Admin
Status
Basic Setting / Network Setting / Basic WiFi Network / WiFi Security
Router IP
Help...
Local IP Address: 192 . 168 . 1 . 1
Subnet Mask: 255.255.255.0
URL Address: http://R305.ROUTER
DHCP Service
DHCP Server: Enabled Disabled DHCP Reservation
Start IP Address: 192 . 168 . 1 . 100
Maximum Number of Users: 50
IP Address Range: 192 . 168 . 1 . 100 - 149
Client Lease Time: 0 minutes (0 means one day)
Static DNS 1: 0 . 0 . 0 . 0
Static DNS 2: 0 . 0 . 0 . 0
Static DNS 3: 0 . 0 . 0 . 0
WINS 0 . 0 . 0 . 0
< Back
Next >
Cancel


Basic WiFi Network
Wizard
Internet
Router
WiFi
3.5G HSPA
Security
Admin
Status
Basic Setting / Network Setting / Basic WiFi Network / WiFi Security
Basic WiFi Setting
Help...
Network Mode: Mixed
Network Name(SSID): HSPA_ROUTER
Standard Channel: 7 - 2.442GHz
SSID Broadcast: Enabled Disabled
< Back
Next >
Cancel


WiFi Security
Wizard
Internet
Router
WiFi
3.5G HSPA
Security
Admin
Status
Basic Setting / Network Setting / Basic WiFi Network / WiFi Security
WiFi Security Setting
Help...
Security Mode: Disabled
Save
< Back
Next >
Cancel

Internet Setup

Basic Setting



Connection Type

The Router can link to the internet via 3.5G HSPA or Ethernet. Select the connection type you prefer.

3.5G HSPA Setting

Get Latest APN Database

Get the latest Profile Name, Number, User Name, Password, and APN from the web site automatically.

Roaming Connection

To allow roaming network connection, select **Enabled**. To block roaming connection, select **Disabled**.

- **Note:** Charges for roaming connection may be high. Contact your mobile network operator for more information.

APN Setting

The APN (Access Point Name) is provided by your mobile network operator. You can choose to set the APN automatically or manually. In most cases, the Router works properly when the APN is set to Auto.

To set the APN manually, contact your mobile network operator for the APN, User Name and Password of the data service.

Authentication Type Setting

To allow user to set PAP (Password Authentication Protocol) or CHAP (Challenge Handshake Authentication Protocol).

Connection

On Demand: You can set the idle time for the 3.5G HSPA connection. When the Router is idle, the connection will be disconnected automatically after the idle time expires.

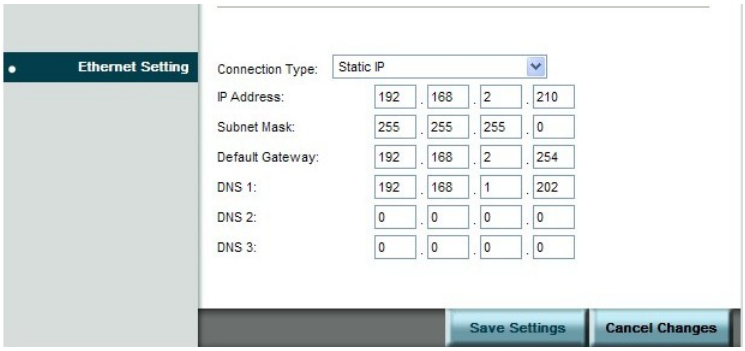
Keep Alive: The connection is always kept on. If the HSPA connection is disconnected, the Router tries to reconnect.

Ethernet Setting

Automatic Configuration - DHCP

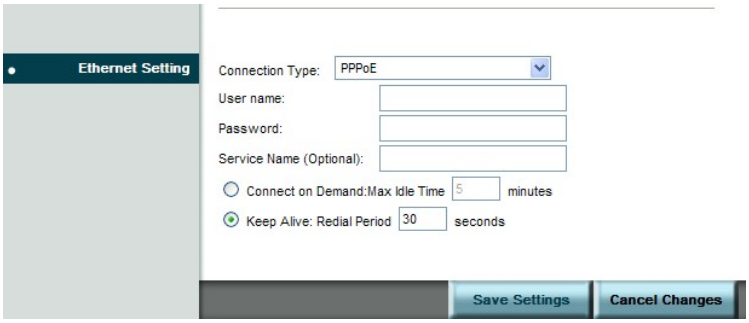
Choose **Dynamic IP Address** to obtain IP Address information automatically from your ISP. Select this option if your ISP does not give you any IP numbers to use. This option is commonly used for cable modem services.

Static IP



Select **Static IP** if all WAN IP information is provided to you by your ISP. You will need to enter the IP address, subnet mask, gateway address, and DNS address(es) provided to you by your ISP.

PPPoE



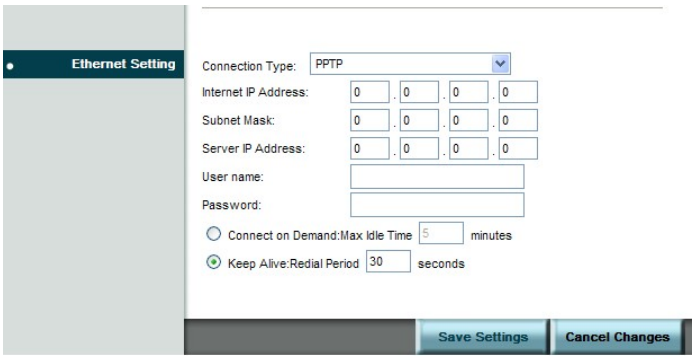
Choose **PPPoE** (Point to Point Protocol over Ethernet) if your ISP uses a PPPoE connection. Your ISP will provide you with a username and password. This option is typically used for DSL services.

Service Name: Enter the ISP Service Name (optional).

Connect on Demand: Enter a maximum idle time during which the Internet connection is maintained during inactivity.

Keep Alive: If you select this option, the Router will periodically check your Internet connection. If you are disconnected, then the Router automatically tries to re-establish your connection. To use this option, select Keep Alive. In the Redial Period field, specify how often you want the Router to check the Internet connection.

PPTP



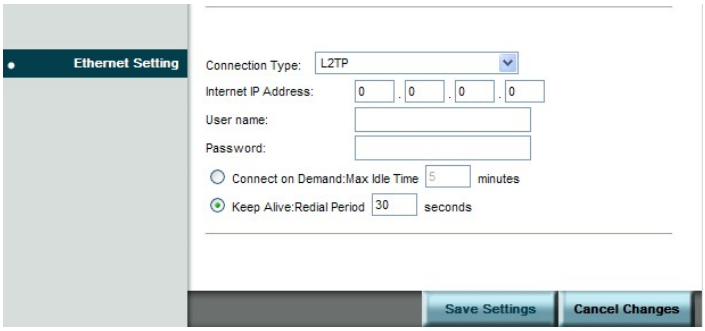
Choose **PPTP** (Point-to-Point-Tunneling Protocol) if your ISP uses a PPTP connection. Your ISP will provide you with a username and password.

Internet IP Address: Enter the IP address

Subnet Mask: This is the Router's Subnet Mask, as seen by users on the Internet (including your ISP). Your ISP will provide you with the Subnet Mask.

Server IP Address: Enter the Server IP provided by your ISP (optional).

L2TP



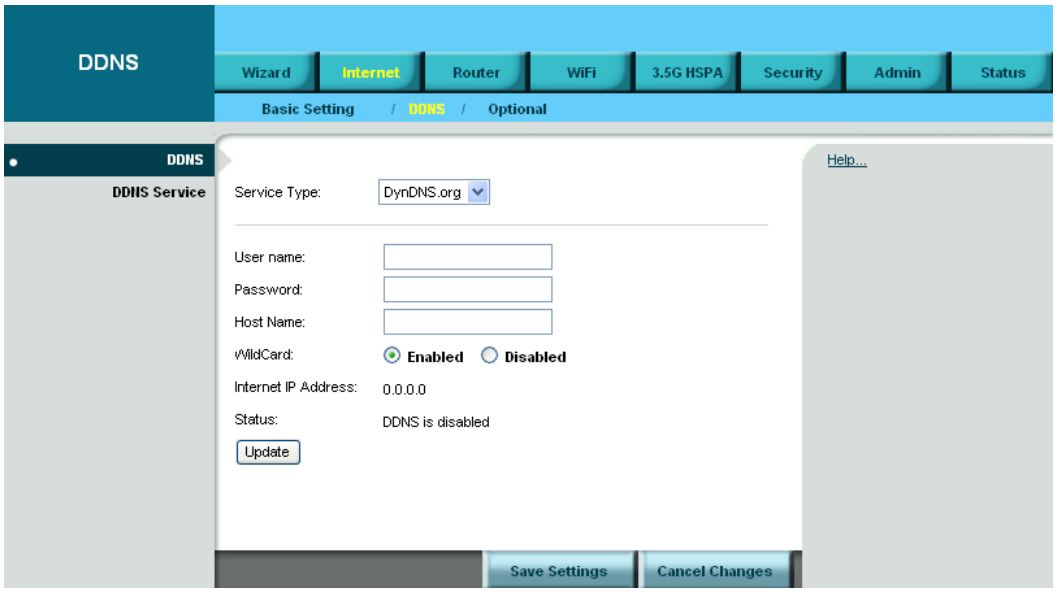
Choose **L2TP** (Layer 2 Tunneling Protocol) if your ISP uses a L2TP connection. Your ISP will provide you with a username and password.

Internet IP Address: Enter the IP address provided by your ISP.

Connect on Demand: Enter a maximum idle time during which the Internet connection is maintained during inactivity.

Keep Alive: Redial Period If you select this option, the Router will periodically check your Internet connection. If you are disconnected, the Router automatically tries to re-establish your connection. To use this option, select **Keep Alive**. In the **Redial Period** field, you specify how often you want the Router to check the Internet connection.

DDNS



DDNS (Dynamic DNS Service) is a system which allows the domain name data held in a name server to be updated in real time. It allows an Internet domain name to be assigned to a computer with a varying (dynamic) IP address. Before you can use this feature, you need to sign up for DDNS service with a DDNS service provider, www.dyndns.org or www.TZO.com.

Service Type: From the drop-down list, select your DDNS service type.

User name: Enter the user name for your DDNS account.

Password: Enter the password for your DDNS account.

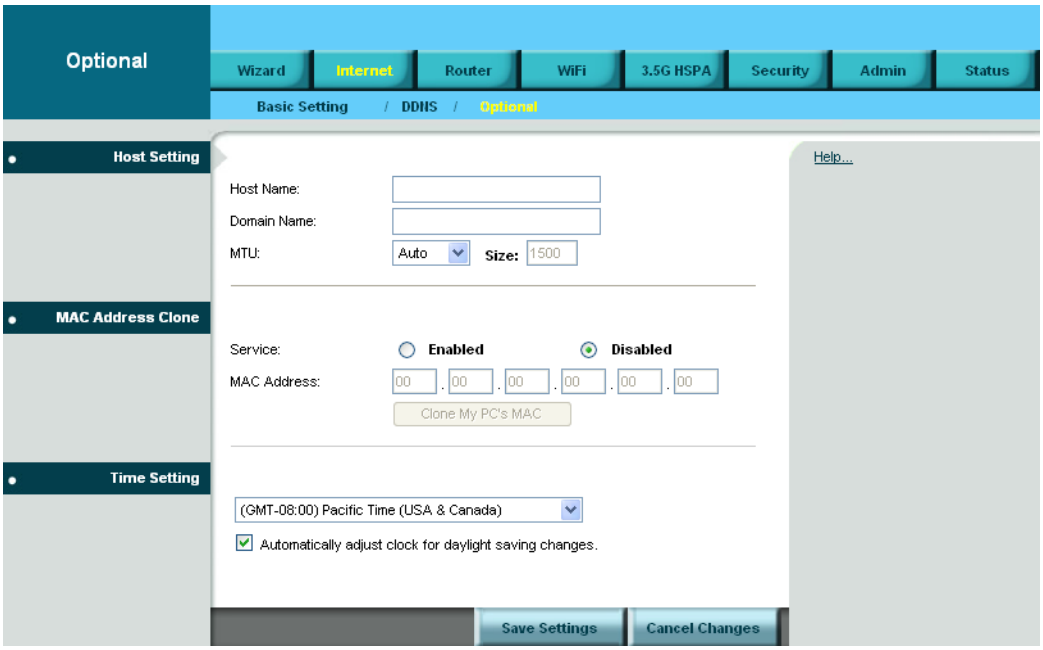
Host name: The Host Name is optional but may be required by some ISPs.

WildCard: Some DDNS servers support the wildcard alias feature which points *.yourhost.dyndns.org to your computers automatically. All aliases for your domain such as www.yourhost.dyndns.org will point to your computer by default due to Wildcard Alias. This allows users to access your computer using all types of derivatives of your domain name.

Internet IP Address: The Router's Internet IP address is displayed here. Because it is dynamic, it changes.

Status: This shows whether the DDNS service is enabled or disabled.

Optional



Host Setting

Host Name and Domain Name

These fields allow you to assign a host and domain name for the Router. Some ISPs require these names as identification. In most cases, leaving the fields blank will work.

MTU

MTU (Maximum Transmission Unit) specifics the largest packet size permitted for Internet transmission. To have the Router select the best MTU for your Internet connection, keep the default setting, Auto.

MAC Address Clone

Some ISPs will require you to register a MAC address in order to access the Internet. If you do not want to re-register the MAC address with your ISP, you can assign the MAC address you have currently registered with your ISP to the Router by clicking the **Clone My PCs MAC** button.

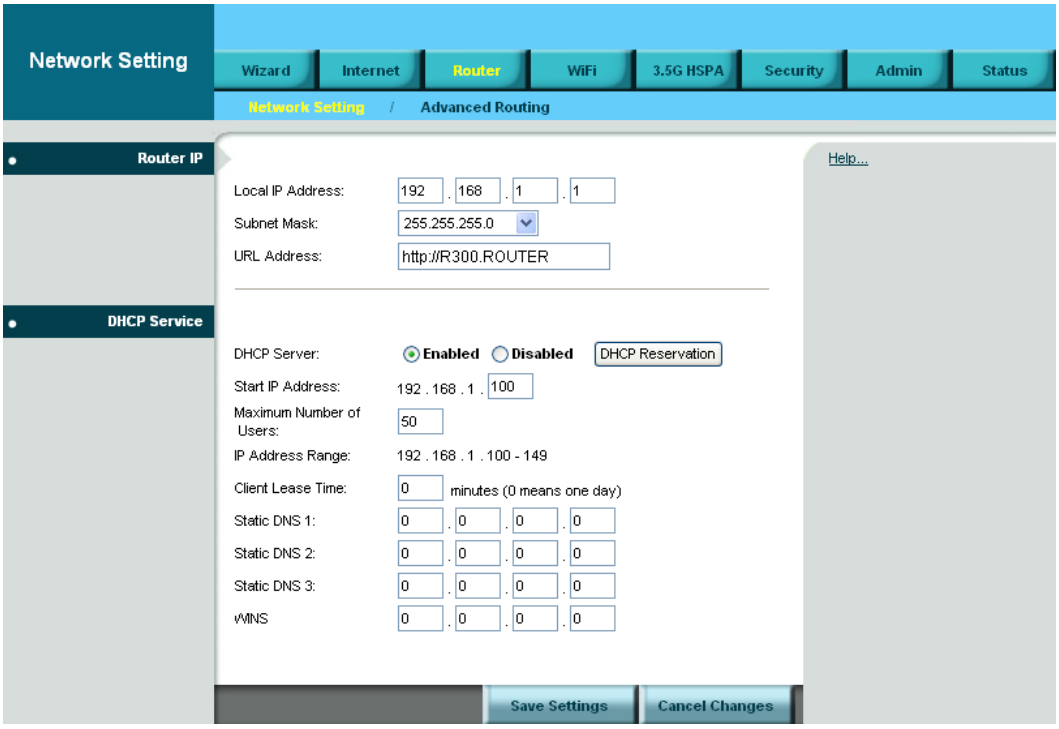
Time Setting

Select the Time Zone from the drop-down menu according to your current location.

Automatically adjust clock for daylight saving changes: Select the checkbox to enable Daylight Saving time.

Router Setup

Network Setting



Router IP

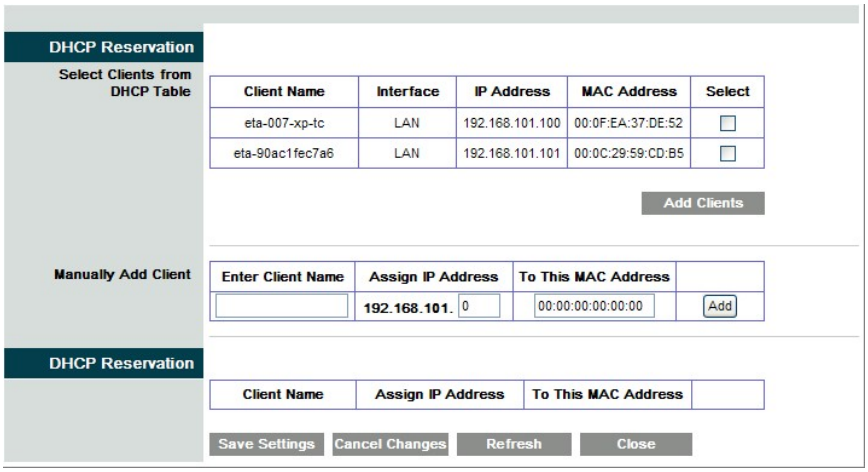
This is the Router's IP address and subnet mask which is seen in your local network. The default IP address is 192.168.1.1, and the default Subnet Mask is 255.255.255.0. Keeping the default values will work.

DHCP Service

DHCP stands for Dynamic Host Control Protocol. The DHCP Server will automatically assign an IP address to the computers on the LAN/private network. If the Router's DHCP server option is enabled, make sure there is no other DHCP server on your network.

DHCP Reservation

To assign the same IP address to a PC every time it reboots, click the **DHCP Reservation** button.



A list of DHCP clients is displayed with the following information: Client Name, Interface, IP Address, and MAC Address. Select a checkbox to reserve a client's IP address. To add clients, click **Add Clients**. To manually assign an IP address, enter the client's name in the **Enter Client Name** field. Enter an IP address in the **Assign IP Address** field. Enter a MAC Address in the **To This MAC Address** field. Click **Add**. A list of DHCP clients and their fixed local IP addresses is displayed at the bottom of the screen. If you want to remove a client from this list, click **Remove**. To view the most up-to-date information, click **Refresh**.

Start IP Address: Enter a starting IP address for the DHCP server's IP assignment.

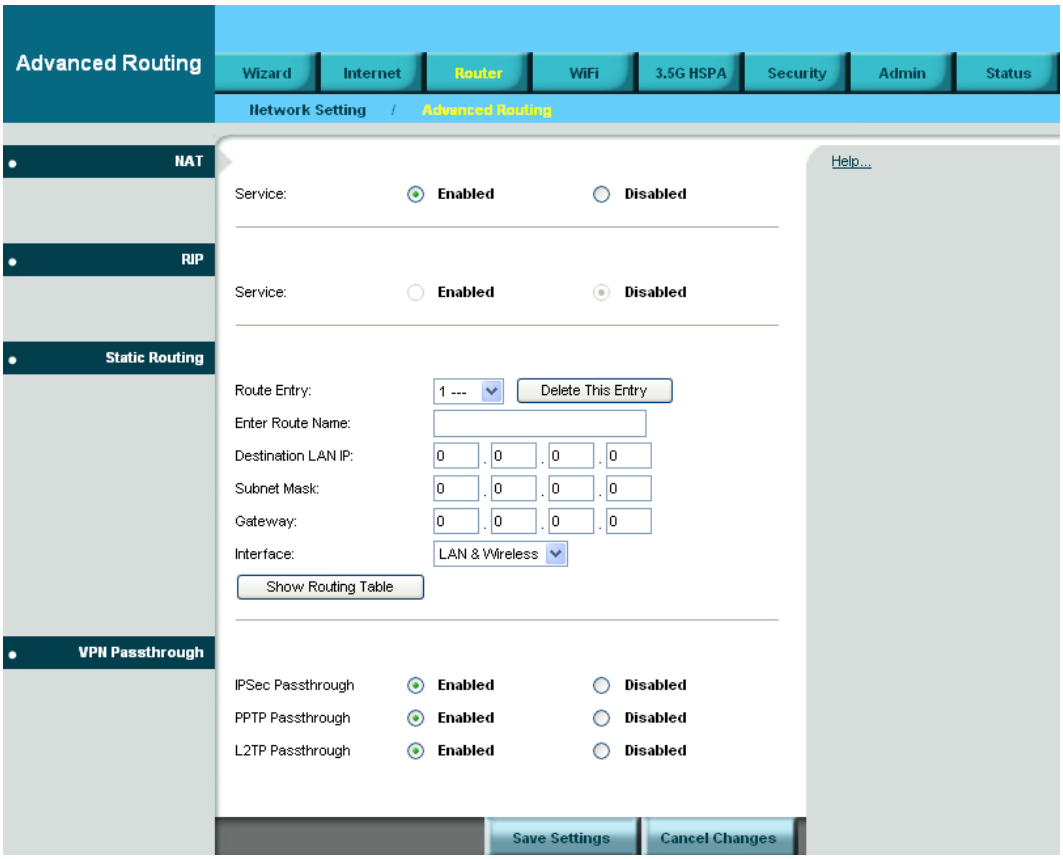
Maximum Number of Users: Enter the maximum number of PCs that you want the DHCP server to assign IP addresses to.

DHCP Lease Time: The length of time for the IP address lease. Enter the lease time in minutes.

Static DNS (1-3): The Domain Name System (DNS) is how the Internet translates domain or website names into Internet addresses or URLs. Your ISP will provide you with at least one DNS Server IP Address. You can enter up to three DNS Server IP Addresses here. The Router will use these for quicker access to functioning DNS servers.

WINS: The Windows Internet Naming Service (WINS) manages each PC's interaction with the Internet. If you use a WINS server, enter that server's IP Address here. Otherwise, leave this blank.

Advanced Routing



NAT Setup

The Network Address Translation (NAT) service is a standard that allows multiple computers on a private network to share a single IP address.

RIP

The **Routing Information Protocol (RIP)** helps the Router dynamically adapt to changes of network connections by communicating information about which networks each Router can reach and how far away those networks are.

Static Routing

This section allows you to define fixed routes to defined destinations.

Route Entry: To set up a static route, select a number from the drop-down list.

Enter Route Name: Enter a name for the route here.

Destination LAN IP: Enter the Destination IP address that will be assigned to a specific network or host.

Subnet Mask: Enter the subnet mask associated with the Destination IP.

Gateway: This is the IP address of the gateway device that allows for contact between the Router and the remote network or host.

Interface: This interface tells you whether the Destination IP Address is on the LAN & Wireless (Ethernet and wireless networks) or the WAN (Internet).

Show Routing Table: Click **Show Routing Table** to open a screen displaying how data is routed through your local network. Click **Refresh** to update the information.

VPN Passthrough

A **Virtual Private Network (VPN)** is a type of secured private network connection, built upon publicly-accessible infrastructure such as the Internet. They usually provide connectivity to various devices behind a gateway or firewall.

IPSec Passthrough

IP Security (IPSec) provides authentication and encryption. Since it is mainly a Layer 3 technology, it can secure all data on the network. To allow IPSec tunnels to pass through the Router, click **Enabled**.

PPTP Passthrough

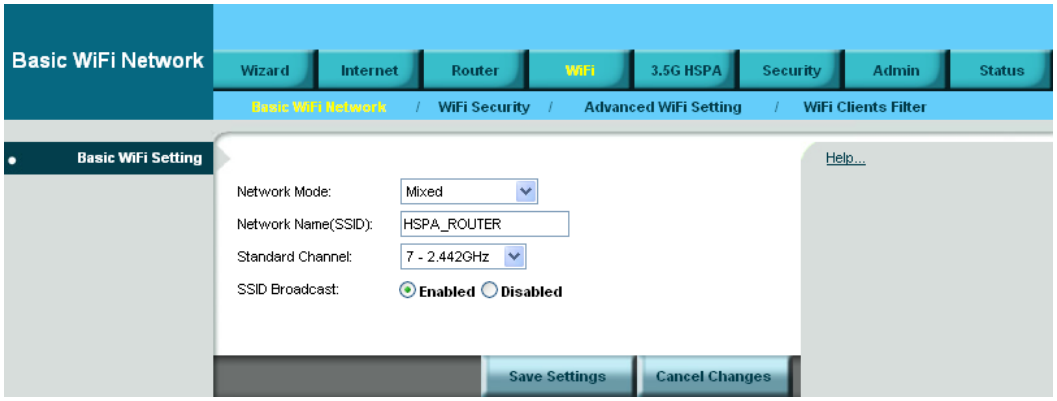
Point-to-Point Tunneling Protocol (PPTP) allows you to establish a connection to an enterprise network. To allow PPTP tunnels to pass through the Router, click **Enabled**.

L2TP Passthrough

Layer 2 Tunneling Protocol (L2TP) is an extension of the Point-to-Point Tunneling Protocol and is also used to establish virtual private networks. To allow L2TP tunnels to pass through the Router, click **Enabled**.

WiFi Setup

Basic WiFi Network



Basic WiFi Setting

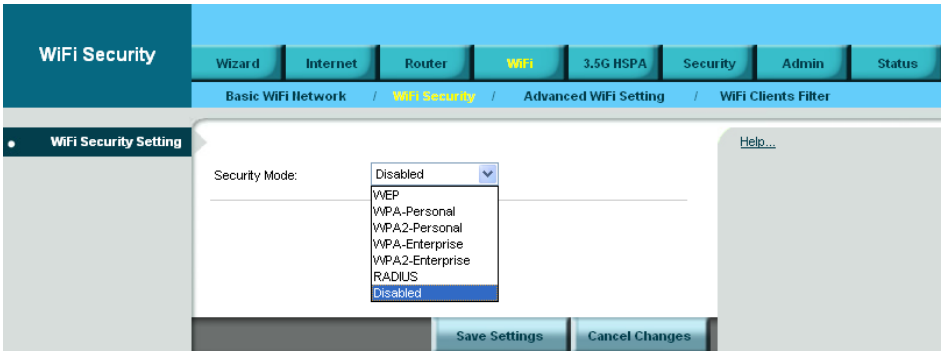
Network Mode: From this drop-down menu, you can select the wireless standards running on your network. If you have 802.11g, 802.11b, 802.11n devices in your network, keep the default setting, Mixed. If you have only 802.11g devices, select **Wireless-G Only**. If you have only 802.11b devices, select **Wireless-B Only**. If you do not want to use any WiFi network, select **Disabled**.

Network Name (SSID): Network Name is used for identifying the Wireless LAN (WLAN).

Standard Channel: The radio channel number. The permissible channels depend on the Regulatory Domain (e.g in the USA, it is 1 to 11).

SSID Broadcast: Disable this function will let your SSID setting not be exposed to view in the air. For security purposes, you may choose to hide your network's SSID by selecting **Disable** from the drop-down list. This will prevent computers scanning for the presence of wireless networks to detect your network name.

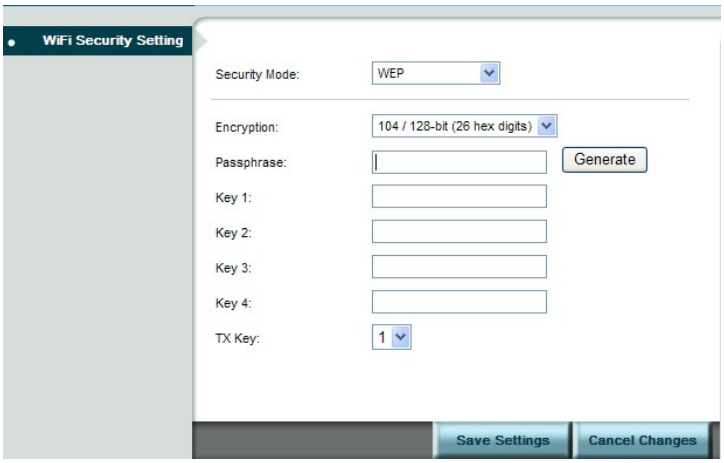
WiFi Security



WiFi Security Setting

Router provides several different levels of security to protect your WiFi network. Select a level in the Security Mode drop-down menu.

WEP



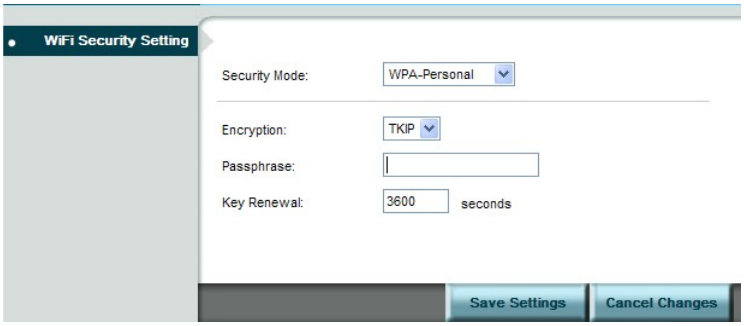
The Router supports two WEP (Wired Equivalent Privacy) standards: 64-bit and 128-bit. Select a standard from the drop-down list. The 64-bits encryption requires 10 hexadecimal digits (letters a-f and numbers 0-9 are valid). The 128-bits encryption requires 26 hexadecimal digits (letters a-f and numbers 0-9 are valid).You can set up to four different keys.

Passphrase: Strings of hexadecimal characters are not easy to remember. This conversion utility converts a simple word or phrase into hex, so that you can easily remember and regenerate the pass-phrase.

TX Key: You can specify which key you want to use for the WiFi network.

WPA, or WiFi Protected Access, is a WiFi standard that was designed to improve the security features of WEP. WPA uses two encryption methods, TKIP and AES, with dynamic keys.

WPA-Personal

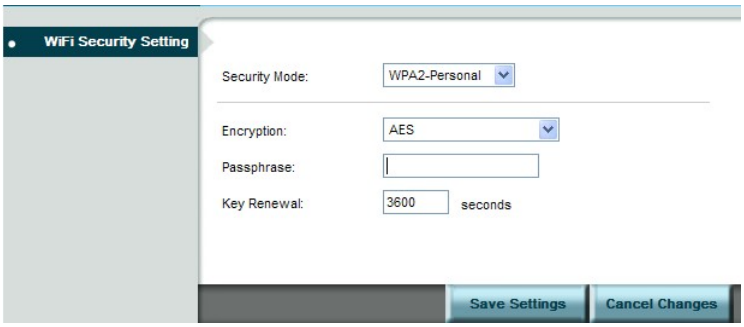


Encryption: Choose **TKIP** or **AES** from the drop down list. (AES is a stronger encryption method than TKIP.)

Passphrase: Enter a passphrase between 8-63 characters.

Key Renewal: Enter a key renewal value to tell the Router how often it should change the encryption keys. The value must be between 60-99999.

WPA2-Personal



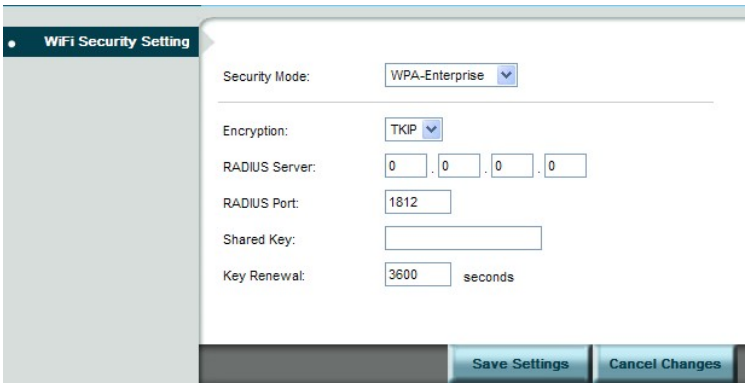
WPA2 is a more advanced, more secure version of WPA.

Encryption: Choose **AES**, or **WPA-TKIP**, or **WPA2-AES** from the drop down list.

Passphrase: Enter a passphrase between 8-63 characters.

Key Renewal: Enter a key renewal value to tell the Router how often it should change the encryption keys. The value must be between 60-99999.

WPA-Enterprise



This option features WPA used in coordination with a RADIUS server. (This should only be used when a RADIUS server is connected to the Router.)

Encryption: Choose **TKIP** or **AES** from the drop down list. (AES is a stronger encryption method than TKIP.)

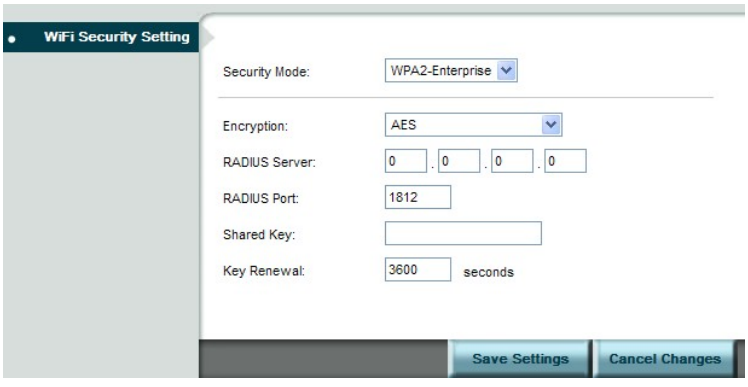
RADIUS Server: Enter the IP Address of the RADIUS server.

RADIUS Port: Enter the port number of the RADIUS server. The default value is 1812.

Shared Key: Enter the key shared between the Router and the server.

Key Renewal: Enter a key renewal value to tell the Router how often it should change the encryption keys. The value must be between 60-99999.

WPA2-Enterprise



This option features WPA2 used in coordination with a RADIUS server. (This should only be used when a RADIUS server is connected to the Router.)

Encryption: Choose **AES** or **WPA-TKIP** or **WPA2-AES** from the drop down list.

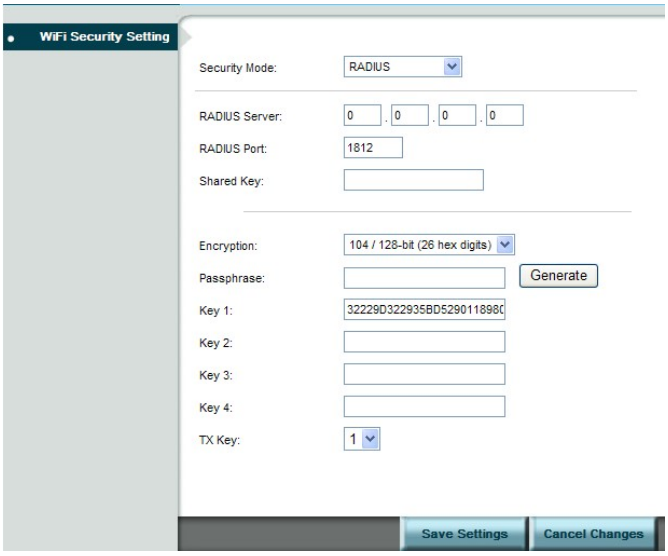
RADIUS Server: Enter the IP Address of the RADIUS server.

RADIUS Port: Enter the port number of the RADIUS server. The default value is 1812.

Shared Key: Enter the key shared between the Router and the server.

Key Renewal: Enter a key renewal value to tell the Router how often it should change the encryption keys. The value must be between 60-99999.

RADIUS



RADIUS stands for Remote Authentication Dial-In User Service. It is a networking protocol that uses access servers to provide centralized management of access to large networks.

RADIUS Server: Enter the IP Address of the RADIUS server.

RADIUS Port: Enter the port number of the RADIUS server. The default value is 1812.

Shared Key: Enter the key shared between the Router and the server.

Encryption: Select either 64-bits or 128-bits from the drop-down list The 64-bits encryption requires 10 hexadecimal digits. The 128-bits encryption requires 26 hexadecimal digits .You can set up to four different keys.

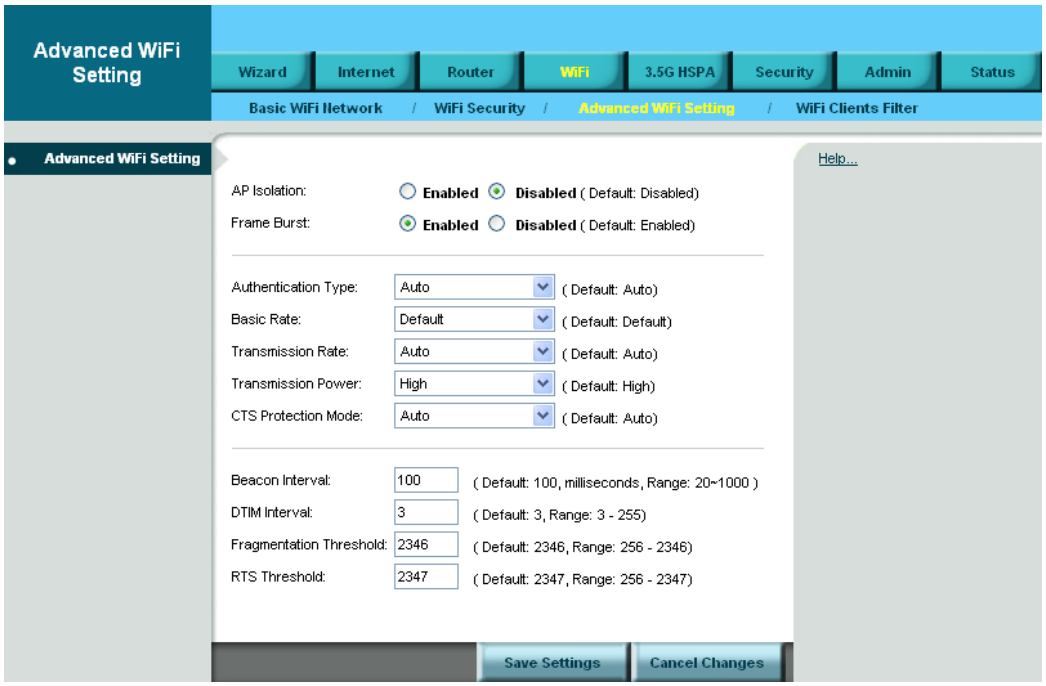
Passphrase: Strings of hexadecimal characters are not easy to remember. This conversion utility converts a simple word or phrase into hex, so that you can easily remember and regenerate the pass-phrase.

TX Key: You can specify which key you want to use for the WiFi network.

Disabled

If you do not want to use any security method for your wireless network, choose **Disabled**.

Advanced WiFi Setting



AP Isolation: This isolates all wireless clients and wireless devices on your network from each other. Wireless devices will be able to communicate with the Router but not with each other.

Frame Burst: Enabling this option may provide your network with greater performance.

Authentication Type: The default is Open System authentication, where the sender and the recipient do not use a WEP key for authentication. To use a WEP key for authentication, select Shared Key.

Basic Rate: The Basic Rate setting is not actually one rate of transmission but a series of rates at which the Router can transmit. The Router advertises its Basic Rate to the other wireless devices in your network, so they know which rates are used. The Router also advertises that automatically selects the best rate for transmission. The default setting is **Auto**, where the Router can transmit at all standard wireless rates. The Basic Rate is not the actual rate of data transmission. If you want to specify the Router's rate of data transmission, configure the **Transmission Rate** setting.

Transmission Rate: The rate of data transmission should be set depending on the speed of your wireless network. You can select from a range of transmission speeds.

CTS Protection Mode: CTS (Clear To Send) is a function used to minimize collisions among wireless devices on a wireless local area network (LAN). The default setting is **Auto** and the Router automatically uses CTS Protection Mode when your Wireless-G products are experiencing severe problems and are not able to transmit to the Router in an environment with heavy traffic. This function boosts the Router's ability to catch all Wireless-B and Wireless-G transmissions, but it severely decreases performance.

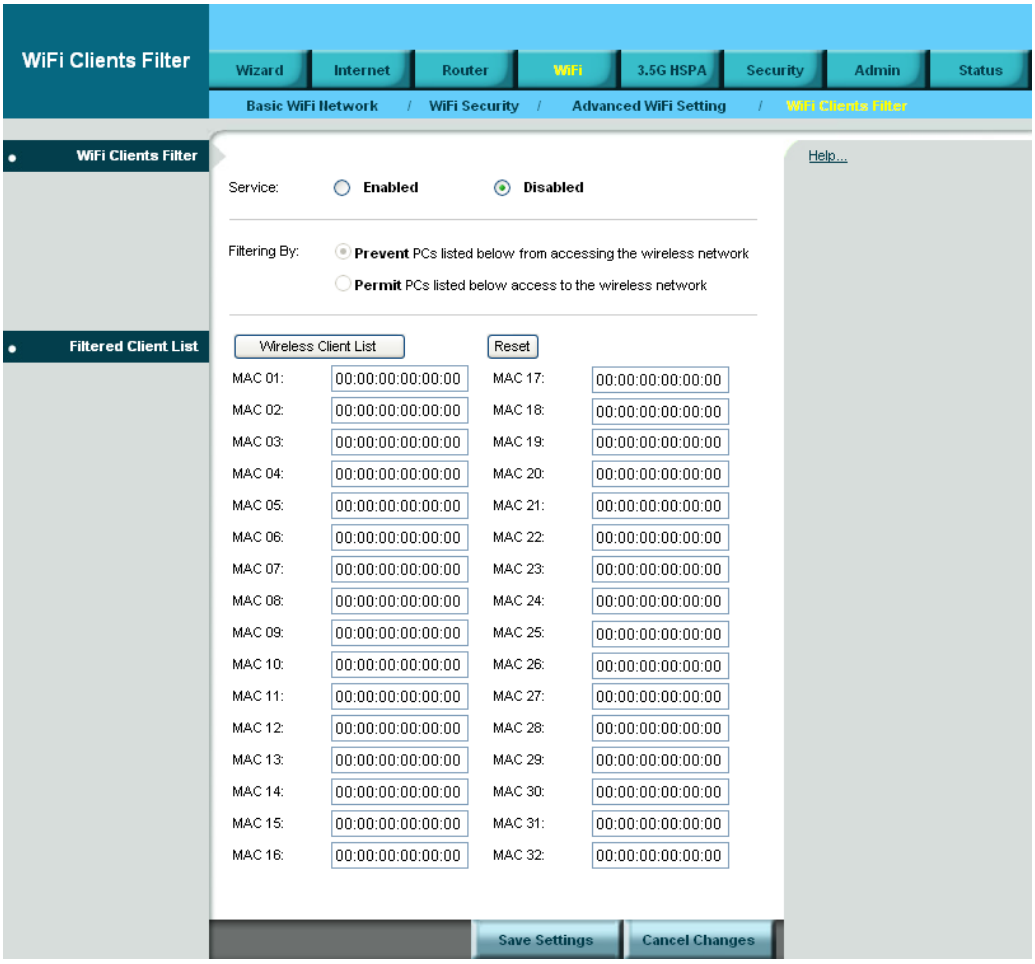
Beacon interval: Beacons are packets sent by an Access Point to synchronize a wireless network. Specify a value. 100 is the default setting.

DTIM Interval: The default setting for DTIM (Delivery Traffic Indication Message) is 3. A DTIM is a countdown informing clients of the next window for listening to broadcast and multicast messages.

Fragmentation Threshold: The fragmentation threshold, which is specified in bytes, determines whether packets will be fragmented. Packets exceeding the setting value will be fragmented before transmission. 2346 is the default setting.

RTS Threshold: This value should remain at its default setting of 2347. If inconsistent data flow is a problem, only a minor modification should be made.

WiFi Clients Filter



WiFi Clients Filter

You can allow or deny specific users to access your wireless network by using the WiFi Clients Filter.

Service: To use the WiFi Clients Filter, select Enabled. To disable it, select **Disabled**.

Filtering By: You can filter users by two methods: **Prevent** the listed PCs from accessing the wireless network, or **Permit** the listed PCs to access the wireless network. Select the method you want.

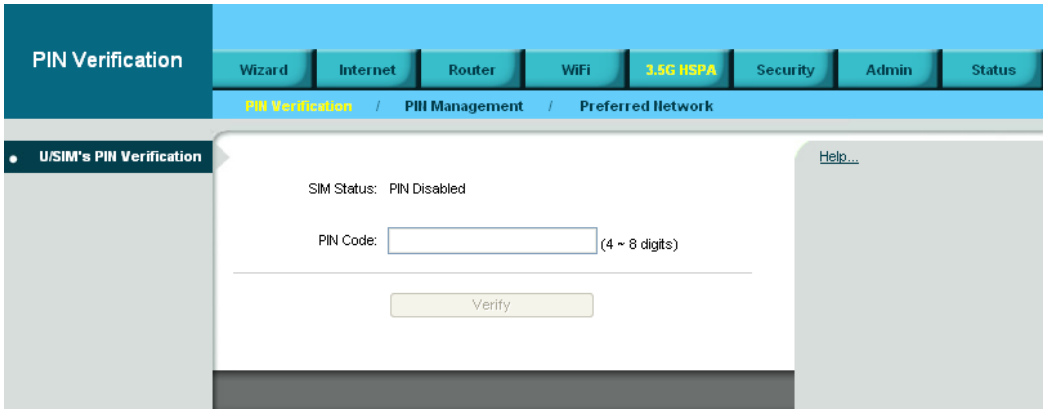
Filtered Client List

Enter MAC addresses in the Filtered Client List section, and click **Save Settings**.

To display a list of network users, click **Wireless Client List**.

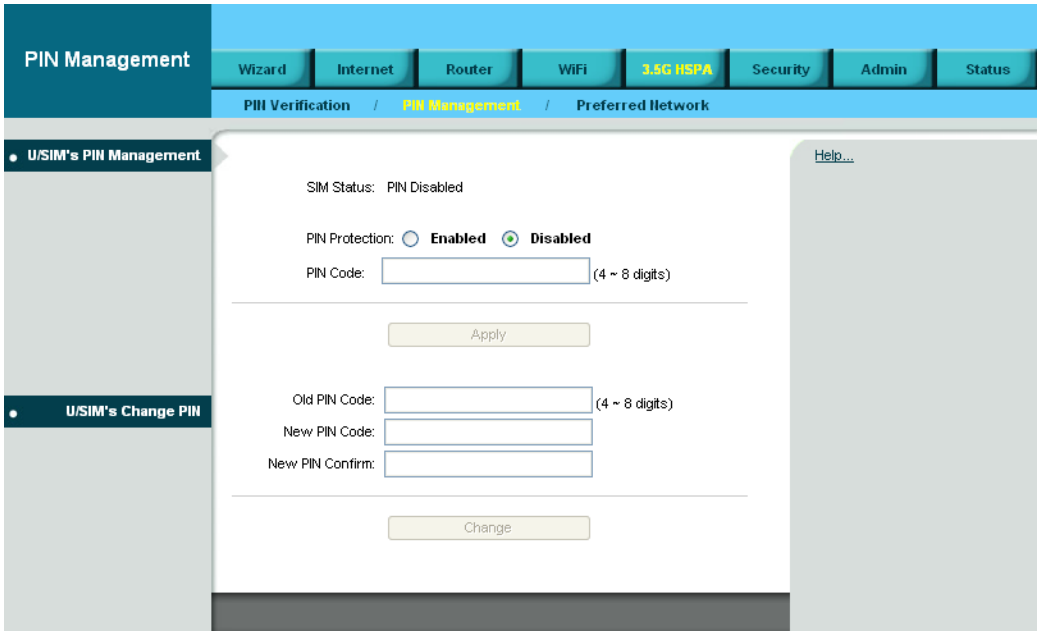
3.5G HSPA Setup

PIN Verification



If your SIM card PIN protection is enabled, you must enter the PIN code for verification. Enter the code in the PIN Code field, and click **Verify**.

PIN Management



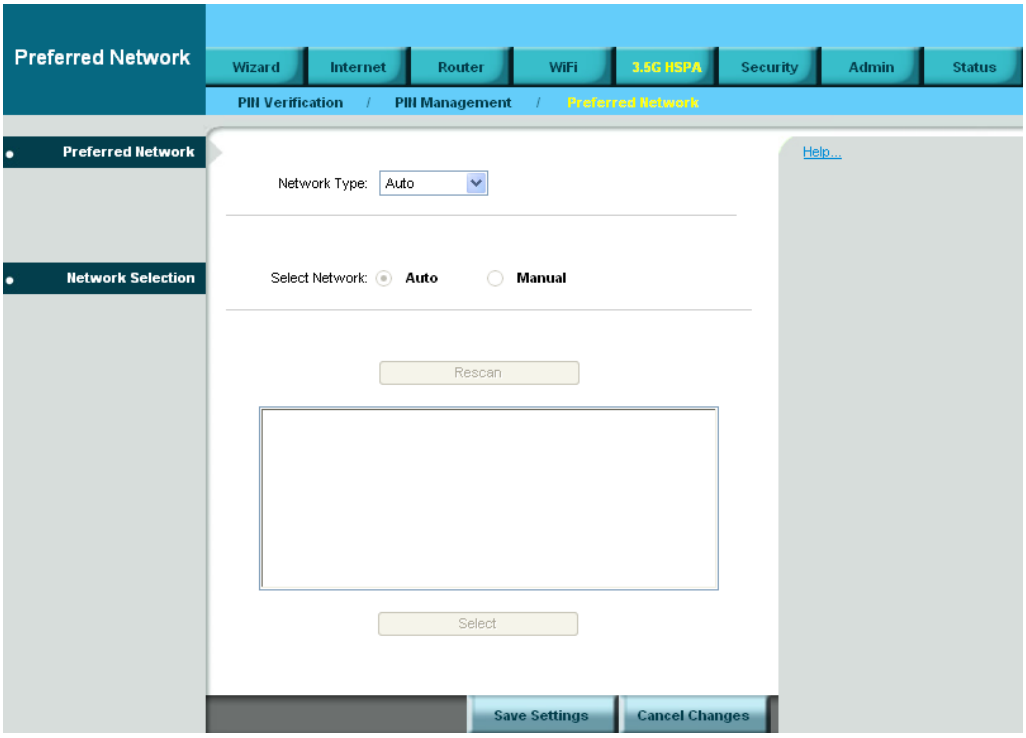
U/SIM's PIN Management

After your SIM card is verified, you can enable or disable the PIN protection on your SIM card. Select **Enabled** or **Disabled**, and click **Apply**.

U/SIM's Change PIN

You can change the PIN code on the SIM card. Enter your original PIN code in the **Old PIN Code** field, enter the new PIN code in the **New PIN Code** field and the **New PIN Confirm** field, and click **Change**.

Preferred Network



Preferred Network

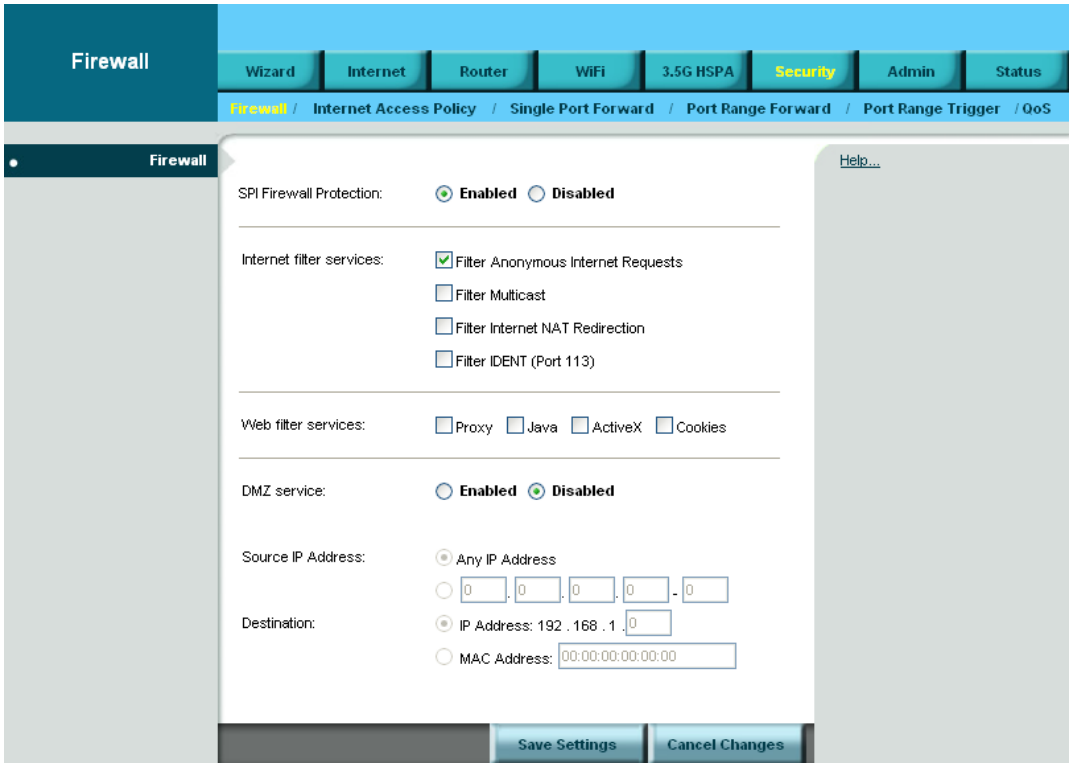
Network Type: In the drop-down menu, select the network type your SIM card supports. If you do not know the network type, select **Auto**.

Network Selection

To select the mobile network operator automatically, in the **Select Network** field, select **Auto**. To select the operator from a list, select **Manual** and click **Rescan**. The list is displayed below. Select the mobile network operator you are currently using on your SIM card.

Security Setup

Firewall



Firewall

This tab is used to configure a firewall that filters out various types of unwanted traffic on the Router's local network.

SPI Firewall Protection

The SPI (stateful packet inspection) firewall is programmed to recognize legitimate packets for different types of connections. Only packets matching a known connection state will be allowed by the firewall; others will be rejected.

Internet filter services

Filter Anonymous Internet Requests: This feature makes it more difficult for outside users to work their way into your network.

Filter Multicast: Multicasting allows for multiple transmissions to specific recipients at the same time. If multicasting is permitted, the Router allows

IP multicast packets to be forwarded to the appropriate computers.

Filter Internet NAT Redirection: To use port forwarding to block access to local servers from local networked computers, select **Filter Internet NAT Redirection**.

Filter IDENT (Port 113): This feature keeps port 113 from being scanned by devices outside of your local network.

Web filter services

Using the Web Filters feature, you may enable up to four specific filtering methods.

Proxy: Use of WAN proxy servers may compromise the Router's security. Select this option to disable access to any WAN proxy servers.

Java: Java is a programming language for websites. Select this option to disable Java. If you disable Java, you run the risk of not having access to Internet sites created using this programming language.

ActiveX: ActiveX is a programming language for websites. Select this option to disable ActiveX. If you disable ActiveX, you run the risk of not having access to Internet sites created using this programming language.

Cookies: A cookie is data stored on your PC and used by Internet sites when you interact with them. Select this option to disable cookies.

DMZ service

When a firewall is used, it is sometimes necessary to place some clients (for example Internet games, video conferencing, or VPN connections) outside of the firewall while leaving the others protected. You can do this using a Demilitarized Zone. This feature allows you to specify the IP address of the computers that are placed outside the firewall of your network.

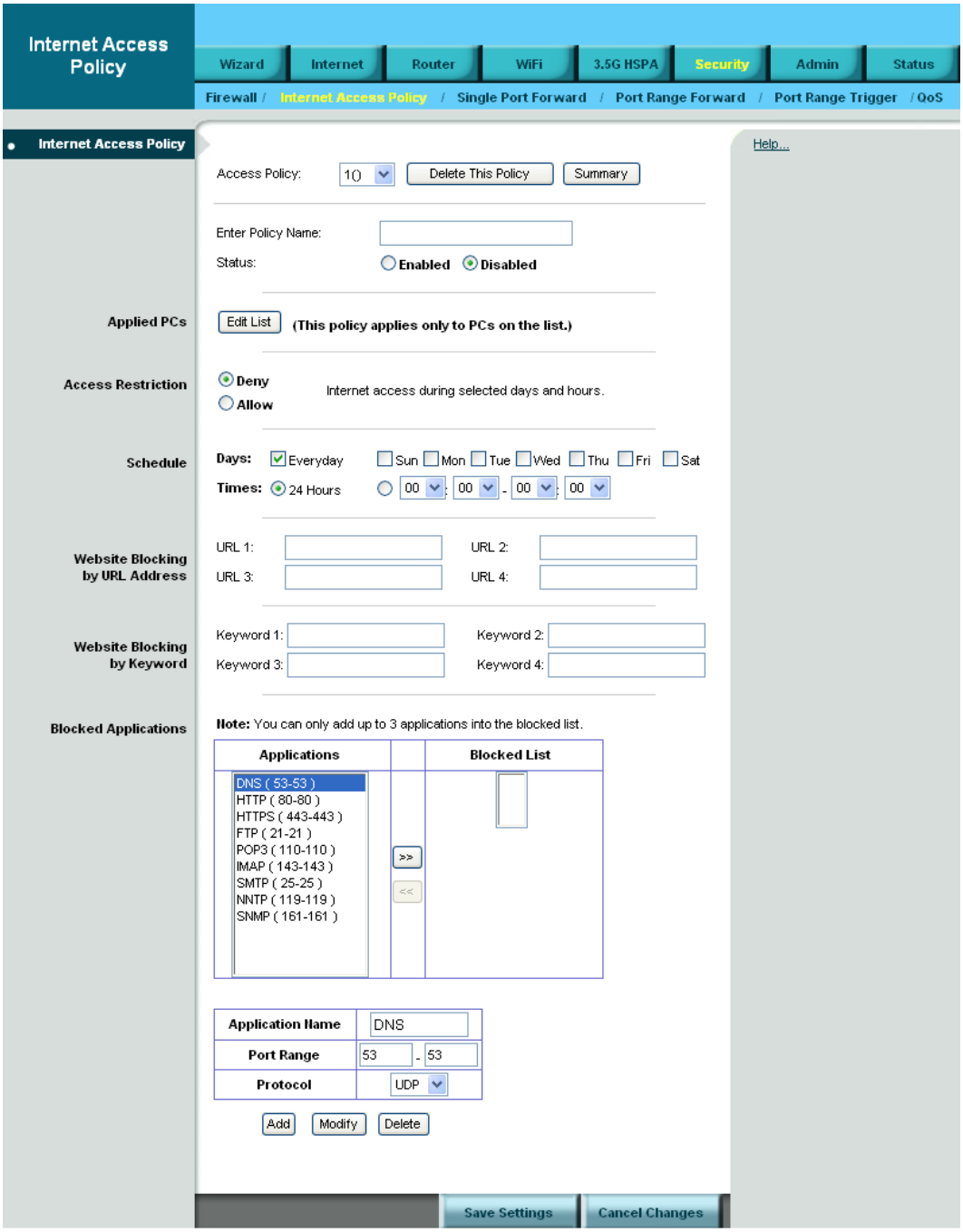
Source IP Address

If you want to allow any Internet IP address to access the exposed computer, select **Any IP Address**. If you want to allow a specific IP address or range of IP addresses to access the exposed computer, select the second option and enter the IP address or range of IP addresses in the fields provided.

Destination

Enter the IP address or MAC address of the computer you want to expose.

Internet Access Policy



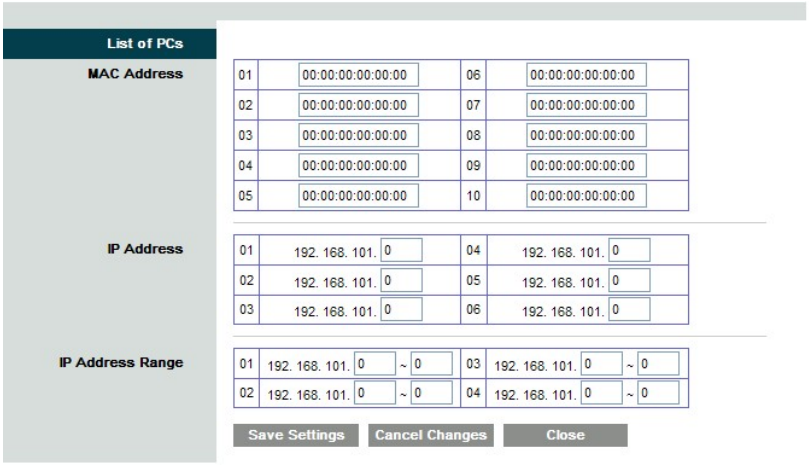
Access can be managed by a policy. Use the settings on this screen to establish and access policies. To display a policy's settings, select the policy from the drop-down menu. To delete a policy, select the policy's number and click **Delete This Policy**. To view all the policies, click **Summary**. To delete multiple policies, in the Summary screen, selecting the policies and click **Delete**).

To create an Internet access policy:

1. Select a number from the **Access Policy** dropdown menu.

2. Enter a policy name in the field provided.

3. To enable the policy, select **Enabled**.



4. To select which PCs are affected by the policy, click **Edit List**. The List of PCs screen appears. You can select a PC by MAC Address or IP Address. You can also enter a range of IP Addresses if you want the policy to affect a group of PCs. After making your changes, click **Save Settings** to apply your changes or **Cancel Changes** to cancel your changes. Then click **Close**.

5. Select the appropriate option, Deny or Allow, depending on whether you want to block or allow Internet access for the PCs you listed on the List of PCs screen.

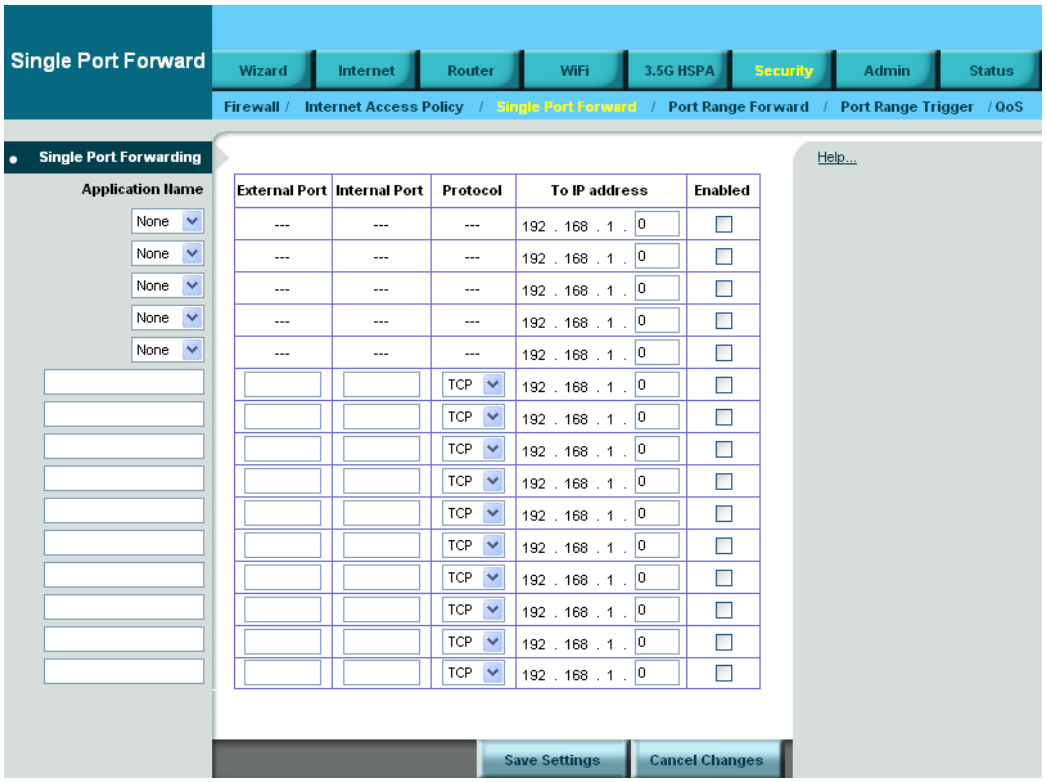
6. Decide which days and what times you want this policy to be enforced. Select the individual days during which the policy will be in effect, or select **Everyday**. To set times for the policy, select **24 Hours**, and enter the times you want.

7. To filter websites by URL, enter URLs in the **Website Blocking by URL Address** fields. To filter websites by keywords, enter keywords in the **Website Blocking by Keyword** fields.

8. To filter access to various services accessed over the Internet, such as FTP or telnet, select services in the **Applications** column, and click **Add** to add them to the Blocked List. (You can only add up to 3 applications.) You can also add an application into the **Applications** column. Enter the information in the **Application Name**, **Port Range**

and **Protocol** fileds, and click **Add**.

Single Port Forward



Single Port Forwarding

Port Forwarding allows you to set up public services on your network, such as web servers, ftp servers, e-mail servers, and other specialized Internet applications. To forward a port, enter the information in each field.

Application Name: You can select an application from the 10 preset applications in the drop-down menu. For custom applications, enter the name of your application in one of the available fields.

External Port: Enter the port number of external ports used by the server or Internet application.

Internal Port: Enter the port number of internal ports used by the server or Internet application.

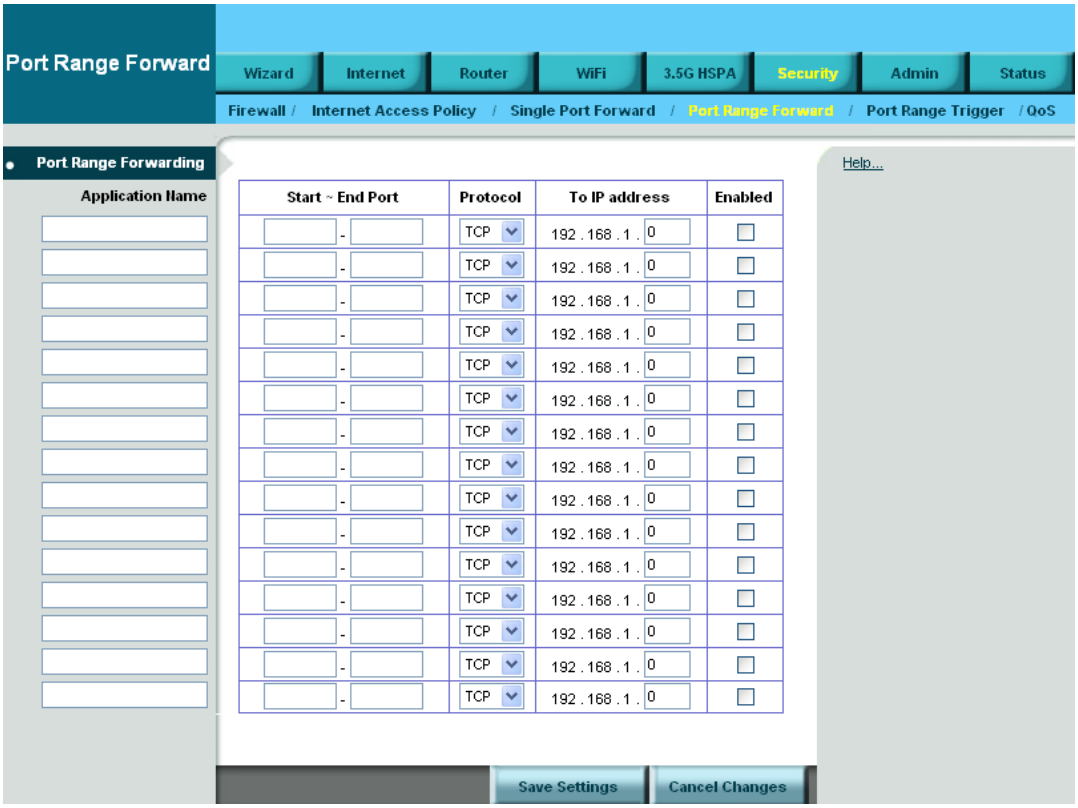
Protocol: Select the protocol used for this application: TCP, UDP, or Both.

To IP address: For each application, enter the IP address of the PC running the specific application.

Enabled: To enable port forwarding for the application, select **Enabled**.

To apply the changes, click **Save Settings**.

Port Range Forward



Port Range Forwarding

Port Range Forwarding allows you to set up public services on your network, such as web servers, ftp servers, e-mail servers, and other specialized Internet applications.

Application Name: Enter the name of your application.

Start - End Port: Enter the number that starts the port range in the left field and the number that ends the range in the right field.

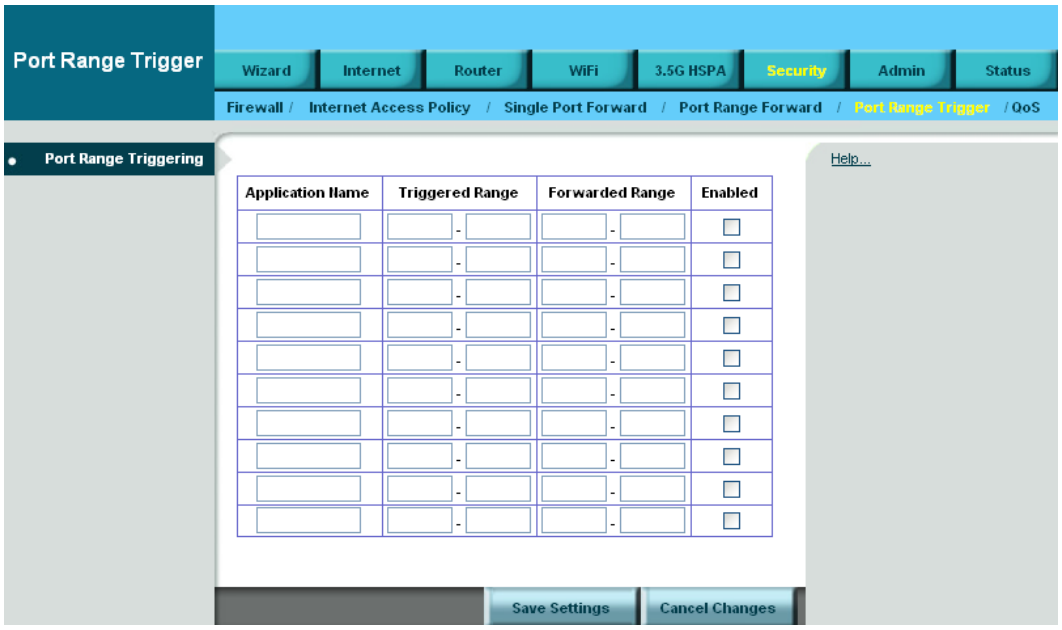
Protocol: Select the protocol used for this application: **TCP**, **UDP**, or **Both**.

To IP address: For each application, enter the IP address of the PC running the specific application.

Enabled: To enable port forwarding for the application, click the **Enabled** checkbox to enable port forwarding for the relevant application.

To apply the changes, click **Save Settings**.

Port Range Trigger



Port Range Triggering

This feature allows the Router to watch outgoing data for specific port numbers. The Router remembers the IP address of the computer that sends the matching data, so that when the requested data returns through the Router, the data is pulled back to the proper computer by way of IP address and port mapping rules.

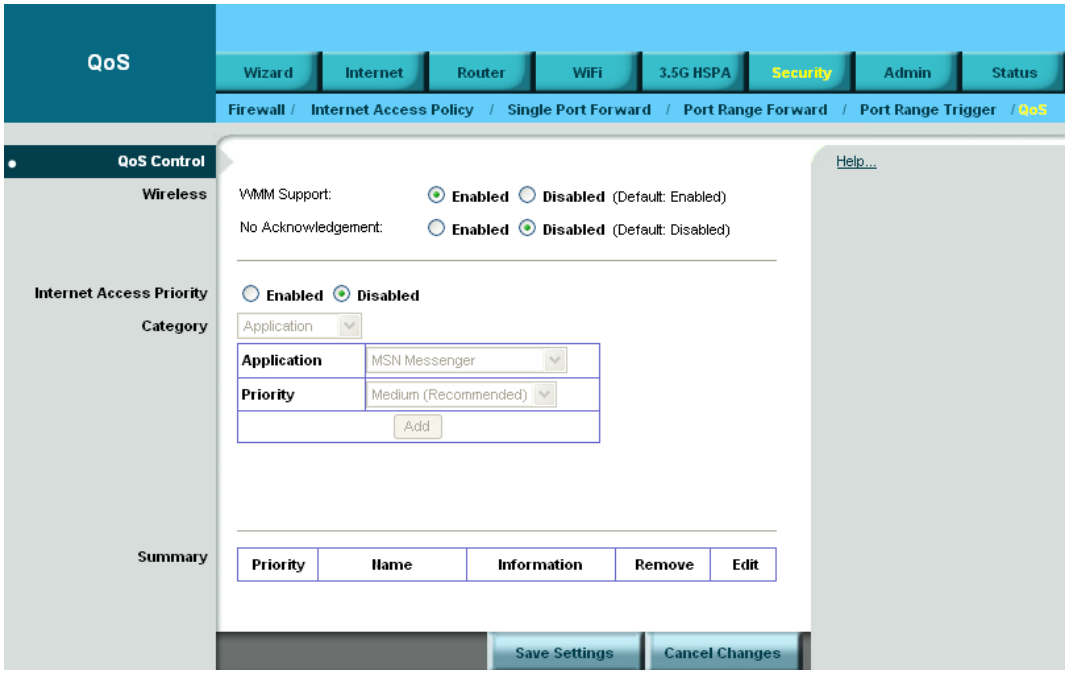
Application Name: Enter the application name of the trigger.

Triggered Range: For each application, enter the triggered port number range. Check with the Internet application documentation for the port number needed. Enter the starting port number of the Triggered Range in the left field. Enter the ending port number of the Triggered Range in the right field.

Forwarded Range: For each application, enter the forwarded port number range. Check with the Internet application documentation for the port number needed. Enter the ending port number of the Triggered Range in the right field.

Enabled: To enable port triggering for the application, select **Enabled**.

QoS



QoS Control

Quality of service is the ability to provide different priorities to different applications, users, or data flows, or to guarantee a certain level of performance to a data flow.

Wireless

WMM Support: If no devices on your network support WMM, select **Disabled**. Otherwise, keep the default, **Enabled**.

No Acknowledgement: If the Router's Acknowledgement feature is disabled, the Router will not re-send data if an error occurs, then keep the default, **Disabled**. Otherwise, select **Enabled**.

Internet Access Priority

You can set the Internet bandwidth priority for a variety of applications and devices. There are four levels priority: **High**, **Medium**, **Normal**, and **Low**. To use the Internet Access policies you set, select **Enabled**.

Category

There are four categories available. Select one of the categories and proceed to the instructions for your selection.

To add an online games or applications:

1. Select the appropriate online games or applications.
2. Select the appropriate priority: **High**, **Medium**, **Normal**, or **Low**.
3. Click **Add** to save your changes.

To add a new online games or applications:

1. Select **Add a New Game/Application**.
2. Enter any name to indicate the name of the entry.
3. Enter the port range that the application will be using. You can have up to three ranges to define for this bandwidth allocation. Port numbers can range from 1 to 65535.
4. Select the protocol **TCP** or **UDP**, or select **Both**.
5. Select the appropriate priority: **High**, **Medium**, **Normal**, or **Low**.
6. Click **Add** to save your changes.

To add an MAC address:

1. Enter a name for your device.
2. Enter the MAC address of your device.
3. Select the appropriate priority: **High**, **Medium**, **Normal**, or **Low**.
4. Click **Add** to save your changes.

To add a Voice Device:

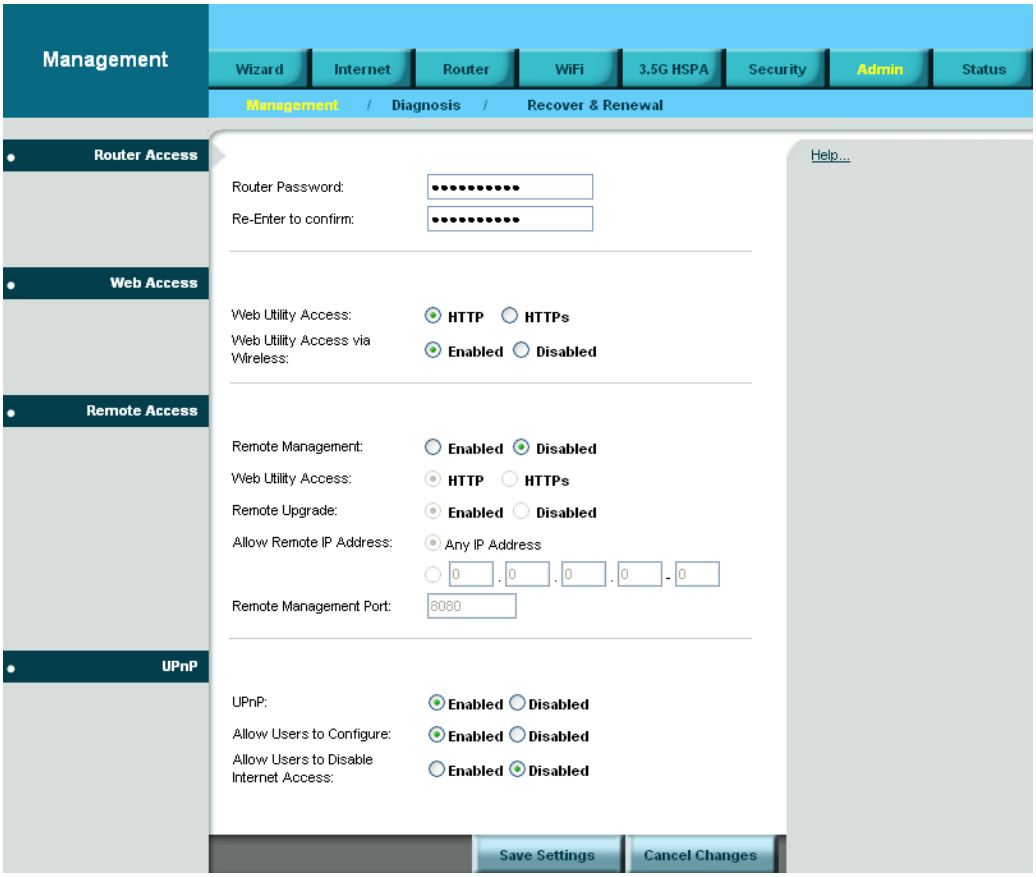
1. Enter a name for your voice device.
2. Enter the MAC address of your voice device.
3. Select the appropriate priority: **High**, **Medium**, **Normal**, or **Low**.
4. Click **Add** to save your changes.

Summary

This lists the QoS entries you have created for your applications and devices. Select **Edit** to edit an item or **Remove** to remove the item. Preset items cannot be edited.

Admin Setup

Management



Router Access

You can change the Router's password here. Enter the password you want to set in the **Router Password** field, and re-enter it in the **Re-Enter to confirm** field. Then click **Save Settings**.

Web Access

Web Utility Access: HTTP (HyperText Transport Protocol) is the communications protocol used to connect to servers on the World Wide Web. **HTTPs** uses SSL (Secured Socket Layer) to encrypt data transmitted for higher security.

Web Utility Access via Wireless: If you are using the Router in a public domain where you are giving wireless access to your guests, you can disable wireless access to the Router's web-based utility. The wireless

access to the Router web-based utility can be disabled. If you disable the setting, you are only able to access the web-based utility via a wired connection.

Remote Access

Remote Management: To access the Router remotely, from outside the network, select **Enabled**.

Web Utility Access: Choose to access the Router via **HTTP** or **HTTPs**.

Remote Upgrade: To enable remote upgrade of the Router, select **Enabled**.

Allow Remote IP Address: To allow any IP address to access to access the Router, select Any IP Address. To allow a specific range of IP addresses to access the Router, enter IP addresses.

Remote Management Port: Enter the port number that will be open to outside access.

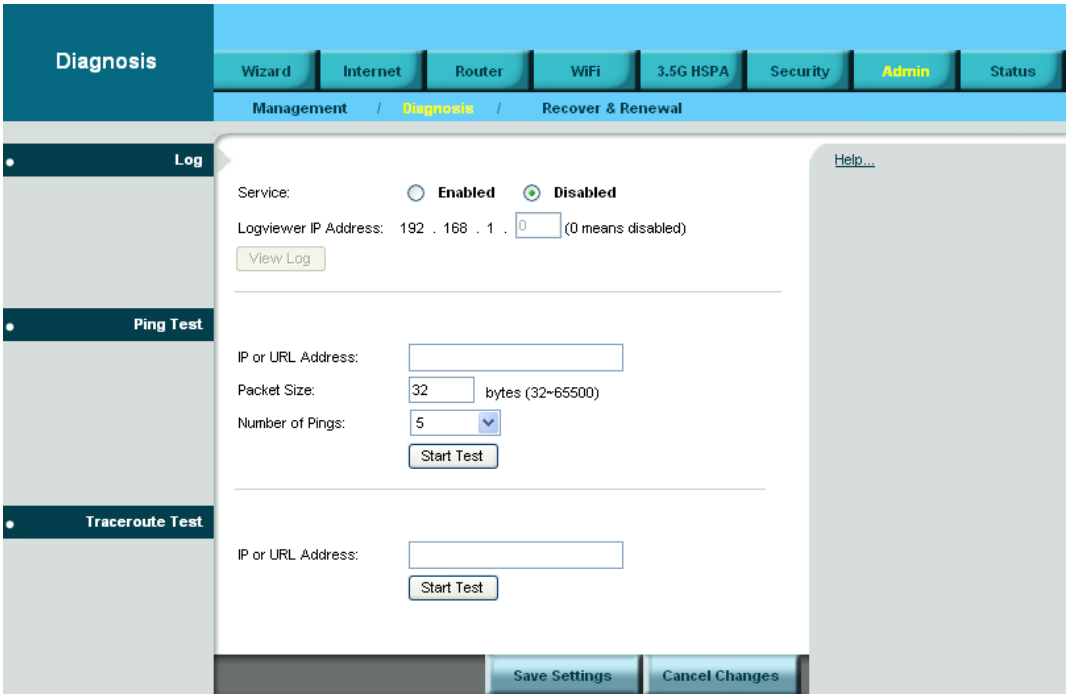
UPnP

UPnP: Universal Plug and Play (UPnP) is a set of computer network protocols that allows compatible devices to be ready to work without any configuration once they are connected to the network.

Allow Users to Configure: To enable manual changes to the Router while using the UPnP feature, keep the default setting, **Enabled**. To disable manual changes, select **Disabled**.

Allow Users to Disable Internet Access: To prohibit users from accessing the Router web-based utilities, keep the default setting, **Disabled**. Otherwise, select **Enabled**.

Diagnosis



Log

The Router can keep logs of all traffic for your Internet connection. To monitor the network, select **Enabled**.

You can view logs by clicking **View Log**. If you want to view logs in a browser, enter an IP address in the **Logviewer IP Address** field. You can enter this IP in a browser to view logs.

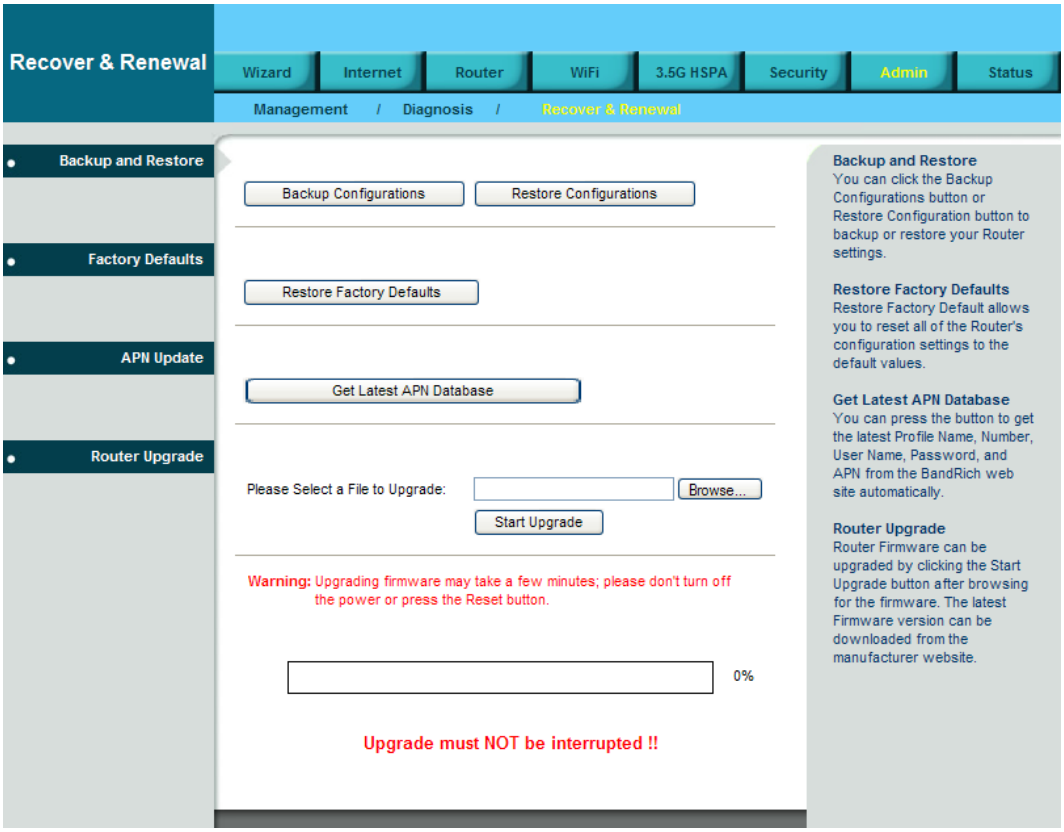
Ping Test

To check the status of a connection, enter the IP address or URL that you want to ping in the **IP or URL Address** field, define the packet size you want to use in the **Packet Size** field, And select the number of times you wish to ping: **5**, **10**, **15**, or **Unlimited**. Click **Start Test** to begin the ping test. A new screen displays the test results.

Traceroute Test

To test the performance of a connection, enter a URL or IP address in the **IP or URL Address** field, and click **Start Test**. A new screen displays the test results.

Recover & Renewal



Backup and Restore

Backup Configurations

Click **Backup Configurations** to back up your Router's current configuration. In the file dialog box, select a location and file name for the configuration file.

Restore Configurations

Click the **Restore Configurations**. In the file dialog box, click Browse to locate the configuration file, and click **Restore**.

Factory Defaults

To reset the Router's configuration settings to the default values, click **Restore Factory Default**.

APN Update

To update the APN database, click **Get Latest APN Database**. In the

dialog box, click **Start**.

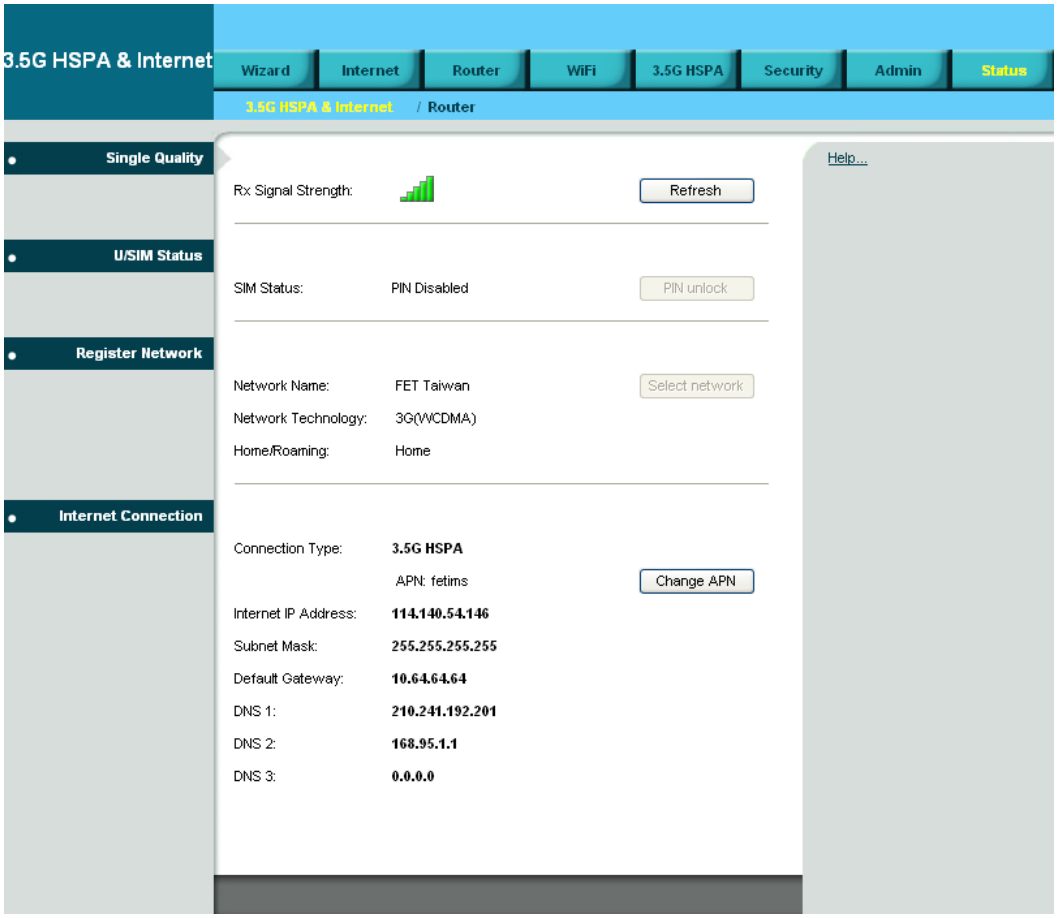
Router Upgrade

To upgrade the Router's firmware, click **Browse** and locate the latest firmware upgrade file. After the file is located, click **Start Upgrade**. The upgrade progress is displayed.

Warning: Upgrading firmware may take a few minutes; do not turn off the power or press the Reset button during upgrade.

Status

3.5G HSPA & Internet



Signal Quality

When you access the Internet via 2G or 3G, click **Refresh** to show the signal strength.

U/SIM Status

Your SIM card verification status is shown in this area. Clicking **Pin unlock** displays the **PIN Verification** tab.

Register Network

Network Name: This shows the name of your network operator.

Network Technology: This shows the network technology you are

currently using.

Home/Roaming: This indicates whether the Router is in Home or Roaming status.

Internet Connection

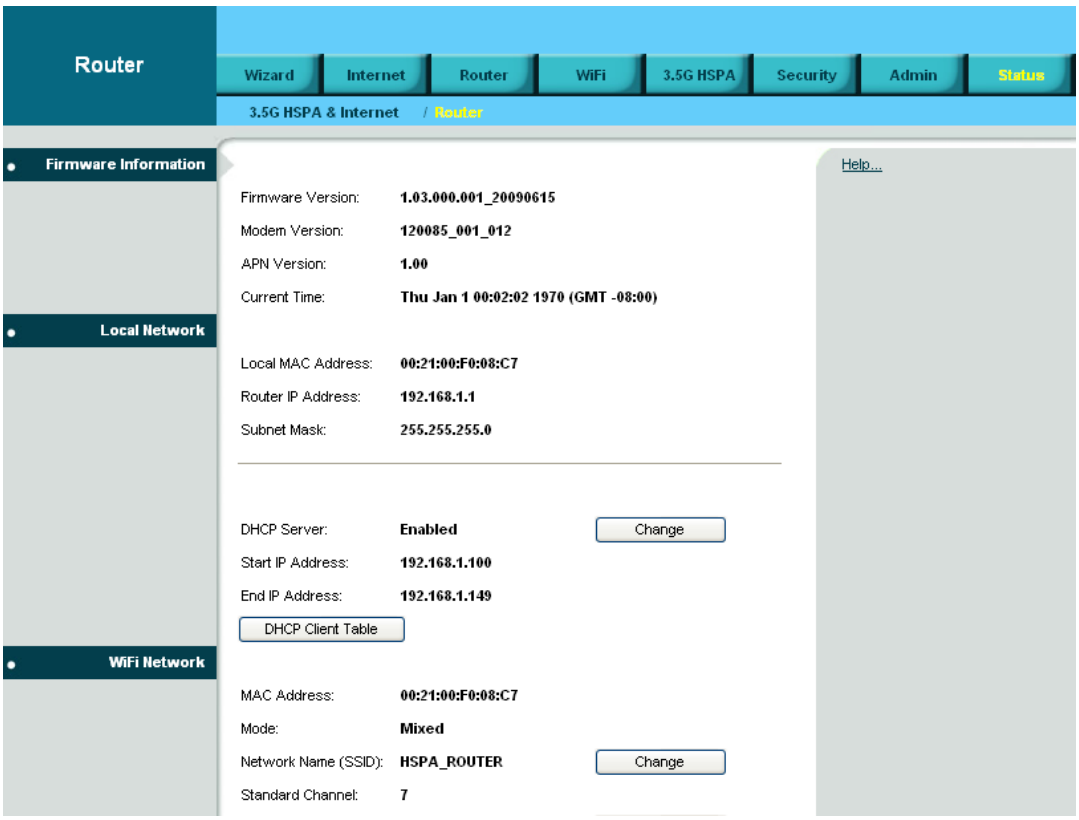
Connection Type: This indicates the type of Internet connection you are using.

Internet IP Address: This is the Router's IP Address, as seen on your local network.

Subnet Mask and **Default Gateway:** The Router's Subnet Mask and Default Gateway address are displayed here for DHCP and static IP connections.

DNS1-3: The DNS (Domain Name System) IP addresses currently used by the Router are shown here.

Router



Firmware Information

Firmware Version: This is the Router's current firmware.

Modem Version: This is the 3G Module's current firmware.

APN Version: This is the APN's current version.

Current Time: This shows the time, as you set on the Optional tab.

Local Network

Local MAC Address: This is the Router's MAC Address, as seen by your ISP

Router IP Address: The Router's IP Address that appears on your local network.

Subnet Mask: This shows the current subnet mask being configured for your local network.

DHCP Server: The status of the DHCP server function is displayed here.

Start IP Address: This shows the beginning of the range of IP Addresses used by devices on your local Ethernet network.

End IP Address: The end of the range of IP Addresses used by devices on your local Ethernet network is shown here.

DHCP Client Table: Click this button to open a screen showing you which PCs are utilizing the Router as a DHCP server.

WiFi Network

MAC Address: This is the Router's MAC Address, as seen on your local wireless network.

Mode: This displays the wireless mode (Mixed, Wireless-G Only, Wireless-B Only, or Disabled) used by the network.

Network Name (SSID): This displays the wireless network name or SSID.

Standard Channel: This displays the channel on which your wireless network is broadcasting.

Security: This shows the security method you are using.

SSID Broadcast: This shows whether the Router's SSID Broadcast function is on or off.

Appendix A: FAQ

Q: What should I know and how long does it take when I upgrade the firmware of router or modem?

A:
1. While upgrade the firmware, it must take some time to do the job. During that, you ARE NOT ALLOWED to turn off the power or interrupt the progress.
2. You may use Ethernet cable or Wireless to upgrade the firmware. It is suggested to use Ethernet cable.
3. It may take 2 minutes to upgrade the firmware of the router and 5 minutes to upgrade the firmware of the modem.
4. When the firmware of the modem is upgrading, the UMTS LED will flash among Blue-Green-Red. You should wait until the LED is in single color (about 4~5 minutes).

Q: How to connect to Router?

A:
1. Connect Ethernet cable between PC/NB and Router.
2. Use WiFi to connect.

Q: What's the default "User name" and "Password" for the Router?

A: User name: admin
Password: hsparouter

Q: How to enter GUI?

A:
1. Connect PC/NB to Router.
2. Open Internet Explorer or other Web browser.
3. Input "http://192.168.1.1" (default) or "http://R300.ROUTER".
4. Input User name and Password.

Q: How to setup the configuration for the Router?

A:
1. Enter Wizard page to setup.
2. Enter each GUI page to setup.

Q: Why can't I connect to the network via built-in 3G module?

A:
1. Check the SIM/USIM if it is inserted well.
2. Check the UMTS LED on Router if it is Solid.
3. Check the Status on GUI if the SIM/USIM detected well.
4. Check the Status on GUI if the APN it is correct.
5. Check the Internet on GUI if the Connection is "Keep Alive" or not.

Q: Why the Roaming LED on Router is light?

A: Because the SIM/USIM is in roaming network.

If you want to connect to the network while roaming:

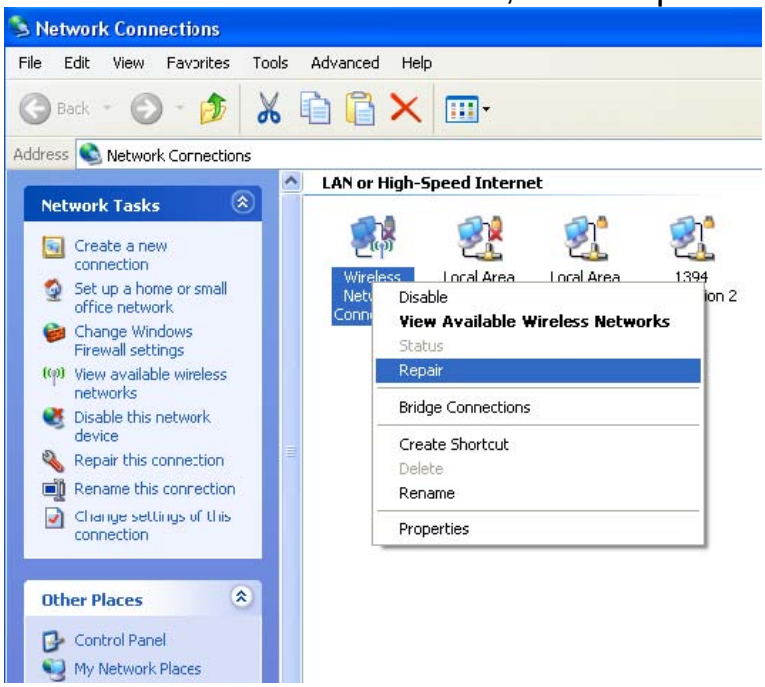
1. Ask the operator of SIM to turn on the roaming service allowed to connect to the network.
2. Set the Internet on GUI with Roaming Connection Enabled.

Q: Why can't I link on the GUI?

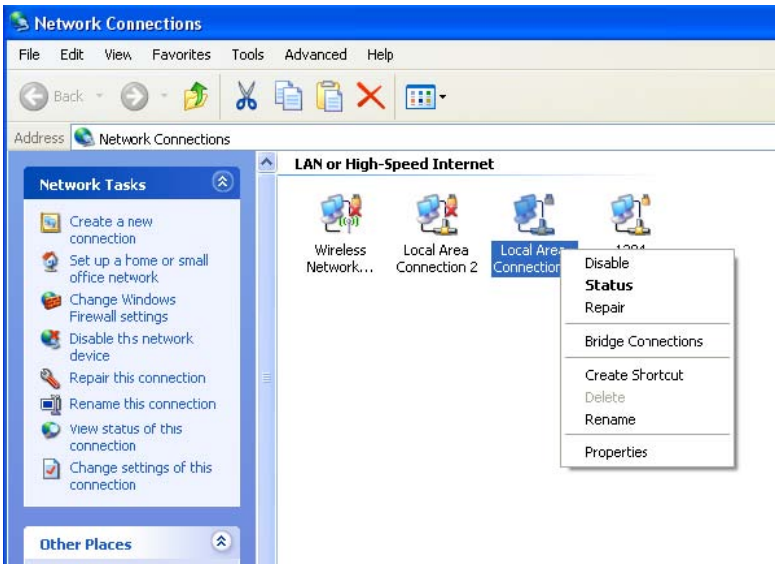
A: If you have changed your WiFi security, SSID, Local IP address, you have to repair your network to get a new IP that you can link the GUI.

XP:

If you are a WiFi user, click Network Connections and right click on Wireless Network Connection, click Repair.

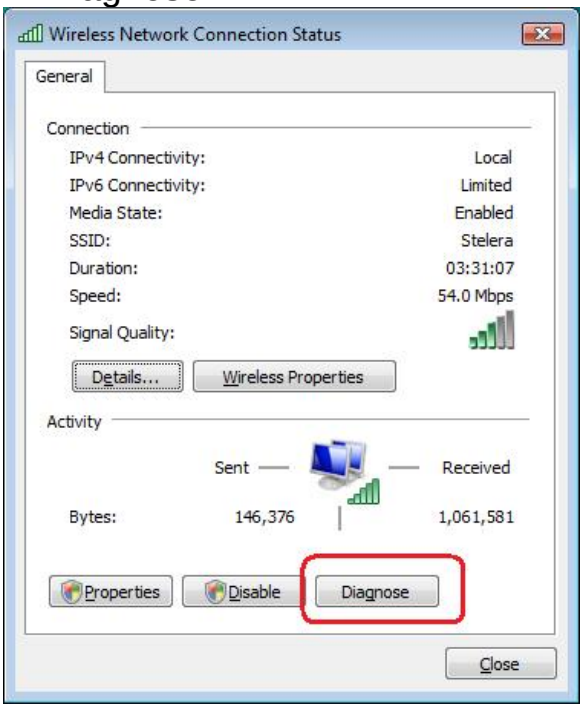


If you use Local Area Connection to connect the Router, click Network Connections and right click on Local Area Connection, click Repair.

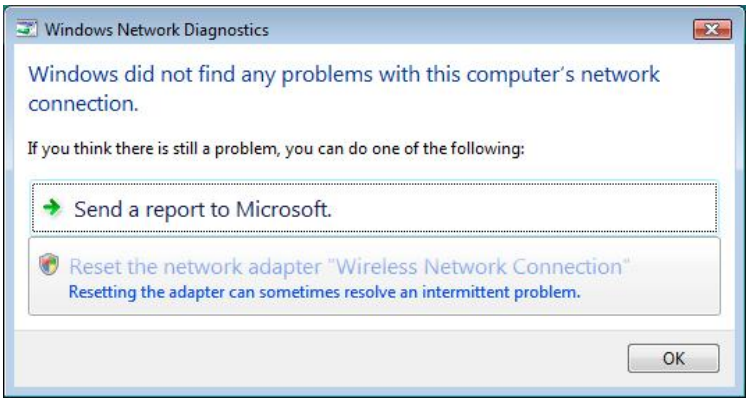


Vista:

1. If you are a WiFi user, please click Network and Sharing Center > Manage network connections > Wireless Network Connection > Diagnose



2. Please click Reset the network adapter “Wireless Network Connection” and it will began to repair.

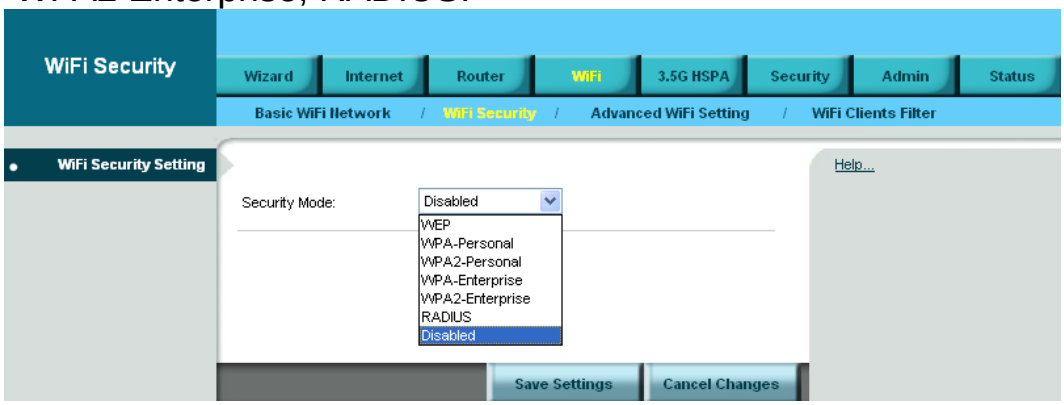


3. If you use Local Area Connection to connect the Router, please click Network and Sharing Center > Manage network connections > Local Area Connection > Diagnose, do the step 1 and following the message to repair it.

Q: How to setup my WiFi settings from GUI?

A: Entering the GUI first then click WiFi > Basic WiFi Network, you can setup your basic WiFi settings here.

If you want to set your WiFi Security please click “WiFi Security”. There are six wireless security mode options supported by the Router: WEP, WPA Personal, WPA2 Personal, WPA Enterprise, WPA2 Enterprise, RADIUS.



Q: How can I have a long-time link?

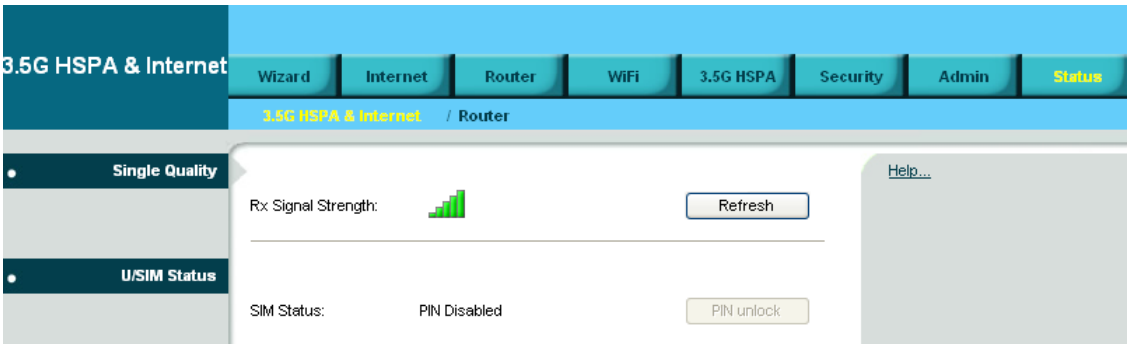
A: Please set the internet > Basic Setting > 3.5G HSPA Setting > Connection to Keep Alive.

Q: Why can’t I use the Router in the office?

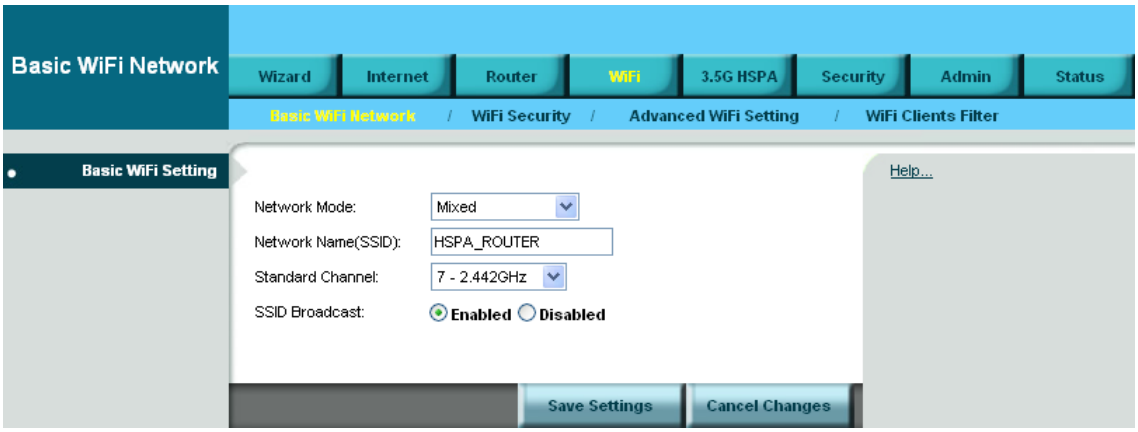
A: Your Router’s IP address might be conflict with the office default settings.

Q: Why my internet speed is so slow with Router?

A: 1. You can check the GUI Status > Single Quality, the Rx Signal Strength. If the footstep is too low it means the signal is too weak.



2. You can go to the GUI WiFi > Basic WiFi Network, change the Standard Channel to others then save.

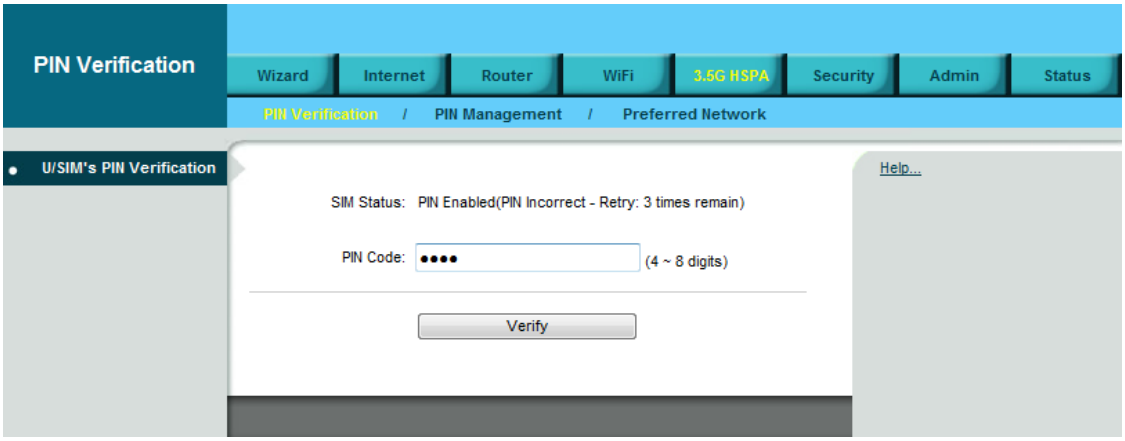


Q: Why can't I use VPN via Router?
A: You may check your office IP settings, the IP settings must not conflict with each other.

Q: How do I do the settings when I use xDSL to link the Router?
A: 1. PPPoE: Go to the GUI Internet > Basic Setting > Ethernet Setting. Change Connection Type to PPPoE Fill information in the blank of Username and Password which provide by your ISP. Remember to connect your xDSL or Modem to the WAN Port on your Router.
2. Static IP: Go to the GUI Internet > Basic Setting > Ethernet Setting. Change Connection Type to Static IP. Fill information in the blank provide by your ISP. Remember to connect your xDSL or Modem to the WAN Port on your Router.

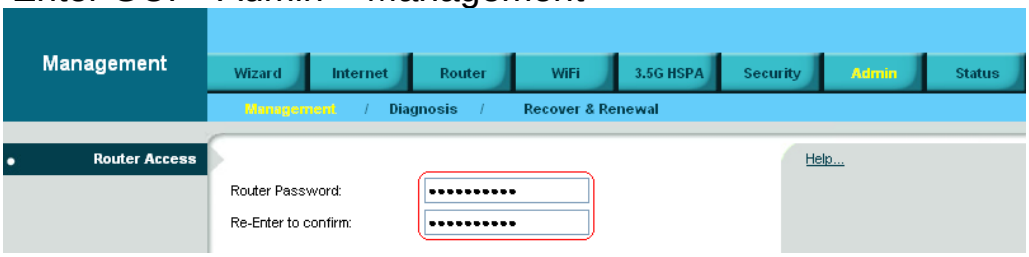
Q: Can I prevent others from using my Router?
A: Yes, there are some ways to prevent others from using your ROUTER.
1. Enable your WiFi client filter.
2. Disabled your SSID Broadcast.
3. Setting your WiFi security.

Q: My PIN code is enabled and where can I input the PIN code to use my Router?
A: Enter GUI > 3.5G HSPA > PIN Verification and input your PIN Code.



Q: Why does my SIM status display “No Device” or “SIM Error”, what can I do?
A: You can check the SIM card is inserted correctly in your router.

Q: Where can I change the password of Router?
A: Enter GUI > Admin > Management



Q: Can I backup all my settings of Router?
A: Enter GUI > Admin > Recover & Renewal, Select “Backup Configuration”.

Q: How to use the Reset button on the Router?
A: 1. Short press the Reset can restart the Router.
2. Long press the Reset for more than 5 sec can reset the Router to factory default.

Q: Where can I reset Router to factory default?
A: 1. Long press the Reset button on the Router for more than 5 sec.
2. Enter GUI > Admin > Recover & Renewal, Select “Restore Factory Defaults”.

Q: If I remove the SIM when 3G is connected, why can’t I see the SIM status change?
A: You have to restart the router to see the status.

Appendix B: Specification

Form Factor	
Weight (g)	170g
Interface	
LAN port	RJ45, 1 port
WAN port	RJ45, 1 port, can be configured to be 2nd LAN port
Power supply plug	Yes
Reset button	Yes
SIM slot	Yes, Push-push type
Connectivity and Data Speed	
UMTS Band	By built-in module
HSPA/WCDMA Data Rate	Uplink up to 5.7 Mbps Downlink up to R300 Series: 21/ 28.8 Mbps R200 Series: 7.2 Mbps
WCDMA power class	Power Class 3
WLAN	802.11b/g with Pre-n 2.4 GHz band
LAN	Ethernet 10/100 Mbps
Antenna	
GSM/WCDMA Main Antenna	Embedded
WCDMA RX Diversity Antenna	Embedded
3G External Antenna Port	Yes
WiFi Antenna	Embedded

Protocol	
Default connection	"3.5G HSPA First" or "Ethernet First" customizable
Automatic WAN connection fail-over	Supported
WME Traffic Prioritization / Traffic Shaping	Supported
Fixed WAN connection	DHCP, Static IP, PPPoE, PPTP, L2TP
UMTS/HSPA connection	Connection On Demand, Keep Alive, Auto APN matching with USIM
Security	Multiple VPN passthrough (IPsec, PPTP, L2TP), Internet access restriction, Firewall, DoS Prevention, Traffic and Event Logging
NAT-NAPT	Port forwarding, Port triggering, DMZ,Multicast Pass-Through, Static Routing, Dynamic Routing (RIP 1, RIP2), QoS
DNS	DNS Agent, DDNS
ALG Support	Yahoo messenger, AOL messenger, MSN messenger, ICQ, RealAudio, NetMeeting, Telnet, FTP, Microsoft Traceroute, Quake, IRC, Microsoft PPTP Client
Browser-based Admin GUI	Setup Wizard in GUI. Browser supported: IE, Firefox, Safari
Browser-based Admin GUI Multi-Language Supported	English, Traditional Chinese,
Other Features	IPv4, TCP, UDP, ICMPv4, ARP, DHCP Server/Client, HTTPs, NTP, TFTP server, MAC Clone
Wireless LAN	
802.11b data rate	1/2/5.5/11 Mbps, Auto or Fixed Rate
802.11g data rate	6/9/12/18/24/36/48/54 Mbps, Auto or Fixed Rate
802.11n data rate	65Mbps/135Mbps (No MIMO)
Security	WPA2/WPA/AES/TKIP, WPA/WPA2 PSK mode, 802.1x (identify all EAP types supported), 64/128 bits WEP Encryption, MAC address filtering, open system and shared key authentication, SSID Broadcast Disable
Other Features	Support up to 32 simultaneous wireless users, WME
Status Indication	

LED	LED location from top to bottom: UMTS, Roaming, WLAN, Ethernet, DIAG and Power. UMTS, Roaming, WLAN, Ethernet, DIAG LED will be multiplexed for signal strength when 3G button short pushed
Accessories	
Power adaptor	Supported, Input 100~240V AC, 50~60GHz Output 12V DC, 1A (targeted)
Power Consumption	
Voltage	12V DC
Data mode	4.0V Peak: 2.5A, Average: 1A / 1.5V average: 0.5A
Environment	
Operation Temperature	0°C to 40°C (32°F to 104°F)
Storage Temperature	-20°C to 60°C (-4°F to 140°F)
Operating Humidity	10% to 80% Non-Condensing
Storage Humidity	5% to 90% Non-Condensing
Conformance	
	FCC
	RoHS

Appendix C: Important Safety Information and Glossary

Europe – EU Declaration of Conformity

CE

European Union Notice
Products with CE marking comply with the R&TTE Directive (99/5/EC), the EMC Directive (2004/108/EC), and the Low Voltage Directive (2006/95/EC) issued by the Commission of the European Community.
Compliance with these directives implies conformity to the following European Norms (in parentheses are the equivalent international standards).

EN 60950-1 (IEC 60950-1)
Safety of Information Technology Equipment.

EN 300 328
Electromagnetic compatibility and Radio spectrum Matters (ERM); Wideband Transmission systems; data transmission equipment operating in the 2.4 GHz ISM band and using spread spectrum modulation techniques.

EN 301 489-24
Electromagnetic compatibility and Radio spectrum Matters (ERM); Electromagnetic Compatibility (EMC) standard for radio equipment and services; Part 24: Specific conditions for IMT-2000 CDMA direct spread (UTRA) for mobile and portable (UE) radio and ancillary equipment.

ETSI EN 301 511
Global system for mobile communications (GSM); Harmonised EN for mobile stations in the GSM 900 and GSM 1800 bands, covering essential requirements of article 3.2 of the R&TTE directive (1995/5/EC).

ETSI EN 301 489-1
Electromagnetic compatibility and Radio spectrum Matters (ERM); Electromagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements.

ETSI EN 301 489-7
Electromagnetic compatibility and Radio spectrum Matters (ERM); Electromagnetic Compatibility (EMC) standard for radio equipment and services; Part 7: Specific conditions for mobile and portable radio and ancillary equipment of digital cellular radio telecommunications systems (GSM and DCS).

ETSI EN 301 489-17
Electromagnetic compatibility and Radio spectrum Matters (ERM);
Electromagnetic Compatibility (EMC) standard for radio equipment and services;
Part 17: Specific conditions for 2.4 GHz wideband transmission systems.

ETSI EN 301 908-1 & -2
Electromagnetic compatibility and Radio spectrum Matters (ERM); Base Stations (BS), Repeaters and User Equipment (UE) for IMT-2000 Third Generation cellular networks;
Part 1: Harmonised EN for IMT-2000, introduction and common requirements, covering essential requirements of article 3.2 of the R&TTE Directive.

EN 50385
Product standard to demonstrate the compliance of radio base stations and fixed terminal stations for wireless telecommunication systems with the basic restrictions or the reference levels related to human exposure to radio frequency electromagnetic fields (110 MHz - 40 GHz) - General public.

Federal Communication Commission Interference Statement

15.21
You are cautioned that changes or modifications not expressly approved by the part responsible for compliance could void the user's authority to operate the equipment.

15.105(b)

Federal Communications Commission (FCC) 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 or more 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 of the device.

FCC RF Radiation Exposure Statement:

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

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

Glossary

2G: Second-generation mobile networking technology. Represents a switchover from analog to digital; most 2G networks use GSM.

3G: Third-generation mobile networking technology that enables simultaneous transfer of voice and non-voice data; most 3G networks use WCDMA.

3.5G: A more recent standard of mobile networking technology; generally uses HSDPA.

3.75G: A more recent standard of mobile networking technology; generally uses HSUPA.

APN (Access Point Name/Network): Provides GPRS routing information. Consists of:

Network ID: Identifies the external service requested by a GPRS user.

Mobile network operator ID: Specifies routing information.

ARFCN (Absolute Radio Frequency Channel Number): The specific ID numbers for all radio channels used in cellular mobile communications.

bps (bits per second): How data flow is measured.

CHAP (Challenge Handshake Authentication Protocol): CHAP identifiers are changed frequently and authentication can be requested by the server at any time.

DNS (Domain Name System): Helps route network traffic by making the addressing process more user-friendly.

DHCP (Dynamic Host Configuration Protocol): How devices obtain IP addresses from a server.

DUN (Dial-Up Network): Windows component that enables online access via a modem.

EDGE (Enhanced Data GSM Environment/Enhanced Data for Global Evolution): Advanced GPRS that delivers multimedia and other data needing greater bandwidth at up to 237 kbps.

GPRS (General Packet Radio Service): Delivers data in packets at up to 86 kbps.

GSM (Global System for Mobile Communications): The most popular cellular network, mostly operates in 850-900 or 1800-1900 MHz; the primary 2G system.

HSDPA (High Speed Downlink Packet Access): Advanced WCDMA that delivers downlink bandwidth intensive data at up to 7.2Mbps; typically associated with 3.5G.

HSUPA (High Speed Uplink Packet Access): Advanced WCDMA that delivers uplink bandwidth intensive data at up to 5.76Mbps; typically associated with 3.75G.

HSPA+ (High Speed Packet Access +): This is also known as HSPA Evolved, is the next step and is more focused on delivering data services enabling speeds of up

to 42Mbps in the downlink and 11Mbps in the uplink.

IMEI (International Mobile Equipment Identity): A number unique to each GSM/UMTS device that can be used block network access by a stolen mobile device.

IP (Internet Protocol): Routes packets over a network.

Kbps (Kilobits per second): A data flow measure; 1024 bits/second.

LAN (Local Area Network): A data network with limited range but good bandwidth.

Mbps (Megabits per second): A data flow measure; 1,048,576 bits/second.

PAP (Password Authentication Protocol): The difference between PAP authentication and a manual or scripted login, is that PAP is not interactive. The username and password are entered in the client's dialing software and sent as one data package as soon as the modems have established a connection, rather than the server sending a login prompt and waiting for a response.

PPP (Point-to-Point Protocol): An internet connection method.

PIN (Personal Identity Number): Four to eight digital numbers SIM card security code; allows access to the carrier’s network.

Rx: Shorthand for Reception.

SIM (Subscriber Identity Module): A small card that contains key mobile device identification, subscription and contact information.

Tx: Shorthand for Transmission.

WCDMA (Wideband Code Division Multiple Access): Advanced EDGE that supports 384kbps data flow. Most 3G networks use this standard, the same as UMTS.