End User Manual

Model Number: M605N

Product Description: VDSL2 / ADSL2+ / Ethernet WAN Residential Gateway featuring:

Qty 4 10/100 Ethernet Ports
Qty 1 Gigabit Ethernet Port
Qty 1 USB 2.0
802.11b/g/n 2T2R

TABLE OF CONTENTS

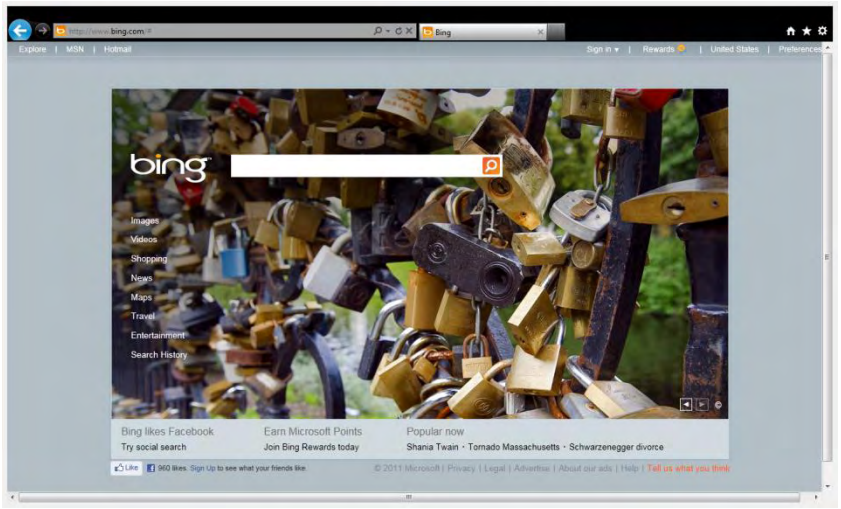
SECTION 1: GUI ACCESS

Section 1.1

ACCESSING THE GUI

Step 1: Accessing the GUI via a web browser

1.A **Open your Web Browser**

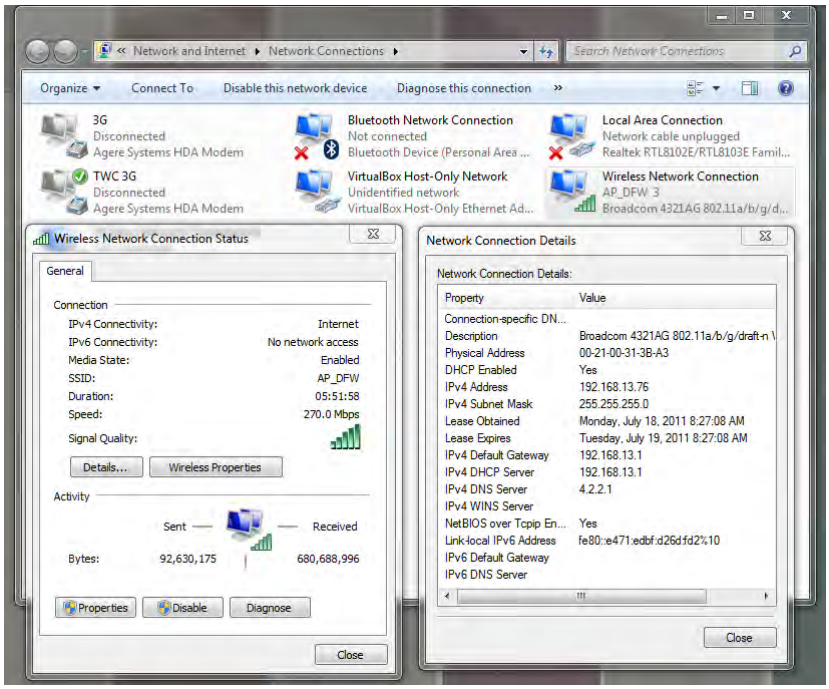


Use the modem's LAN IP Address to access the GUI locally

This is most likely
http://192.168.1.254

1.B **If you are not sure what the IP Address is, you may view the gateway address assigned, via DHCP, to the NIC Card of your PC or Device.**

Place the IPv4 Gateway address into the address bar of your browser.

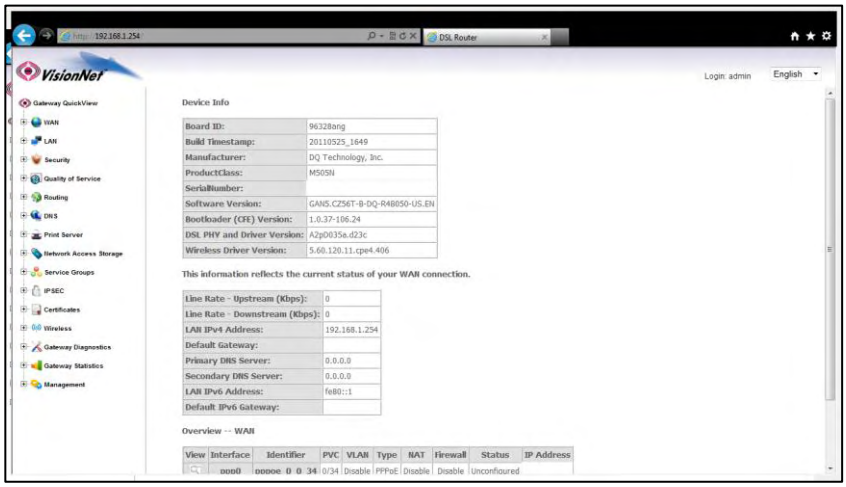


1.C Once the modem responds, you will be challenged for a User Name and Password

Local Access

Username: enduser
Password: password

1. D You will be directed to the Main GUI Page



SECTION 2: DIAGNOSTICS

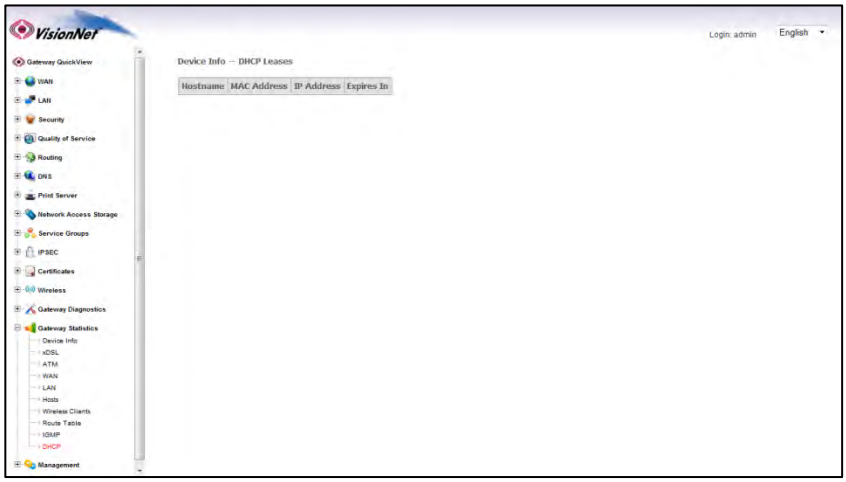
Section 2.1

VIEW DHCP STATISTICS

Step 1: Access the GUI to find DHCP Statistics

1.A **Select the "Gateway Statistics" tab located within the left-hand frameset.**

Then, In the left-hand frameset, select "DHCP"



WHAT THESE STATISTICS MEAN:

This page will provide the IP Addresses assigned by the modem's DHCP server, the MAC addresses of dynamically assigned devices, and the amount of time that the device has spent on the network.

Section 2.2

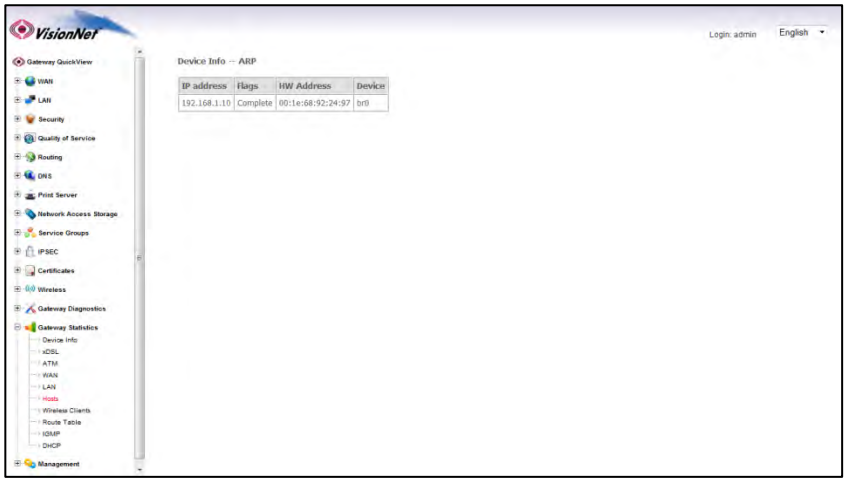
VIEW ARP STATISTICS

Step 1: Access the GUI to find ARP Statistics

This step may be used to view all connected LAN devices, and is especially useful when using the "Reserve an IP Address" feature.

1.A **Select the "Gateway Statistics" tab located within the left-hand frameset.**

Then, In the left-hand frameset, select "Hosts"



WHAT THESE STATISTICS MEAN:

This page will provide the MAC Addresses of all recognized devices connected to the modem. A device will only be recognized once it has requested data from the modem.

SECTION 3: DNS CONFIGURATION

Section 3.1

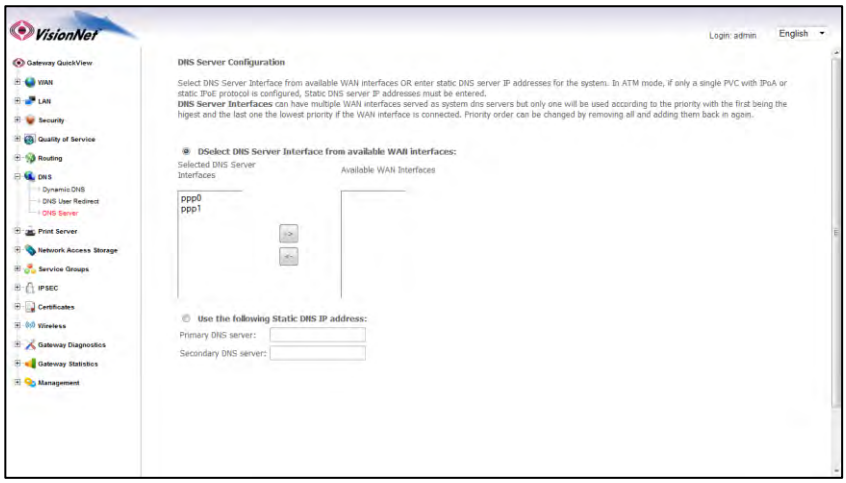
UNIVERSAL STATIC WAN DNS ADDRESSES

The VisionNet Modem may be assigned different DNS addresses for each WAN Service. In the event that Static IPs are to be used, you may update and change the settings with the following procedure.

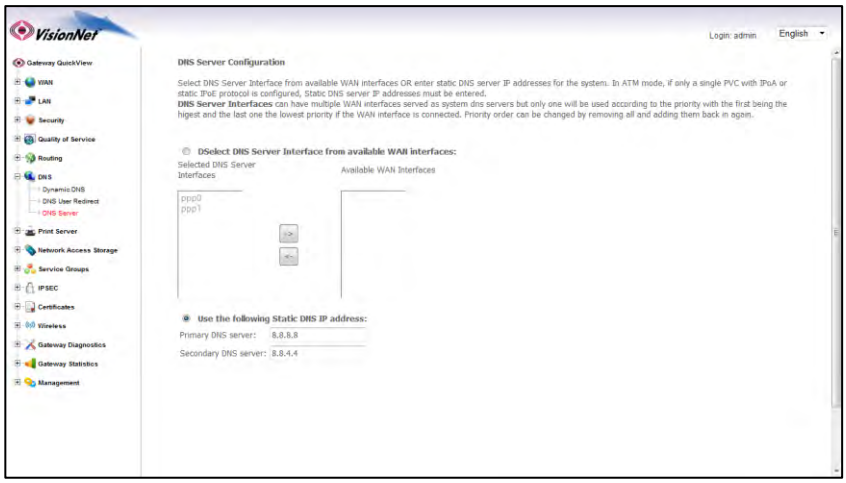
Step 1: Access the GUI to find the DNS Server Page

1.A **Select the "DNS" tab located within the left-hand frameset.**

Then, In the left-hand frameset, select "DNS Server"



1.B **Select "Use the following Static DNS IP Address"**



SECTION 4: LAN CONFIGURATION

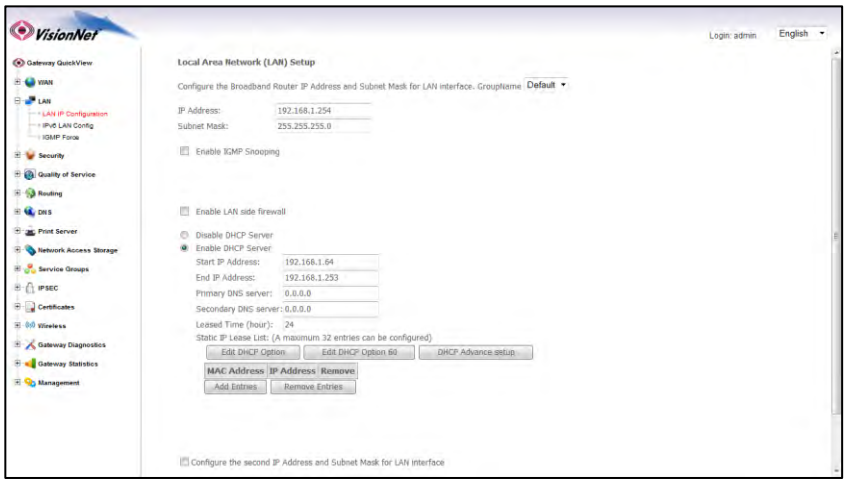
Section 4.1

CONFIGURING LAN SERVICES

Step 1: Direct Your Browser to the LAN Configuration Page

1.A **Select the "LAN" tab located within the left-hand frameset.**

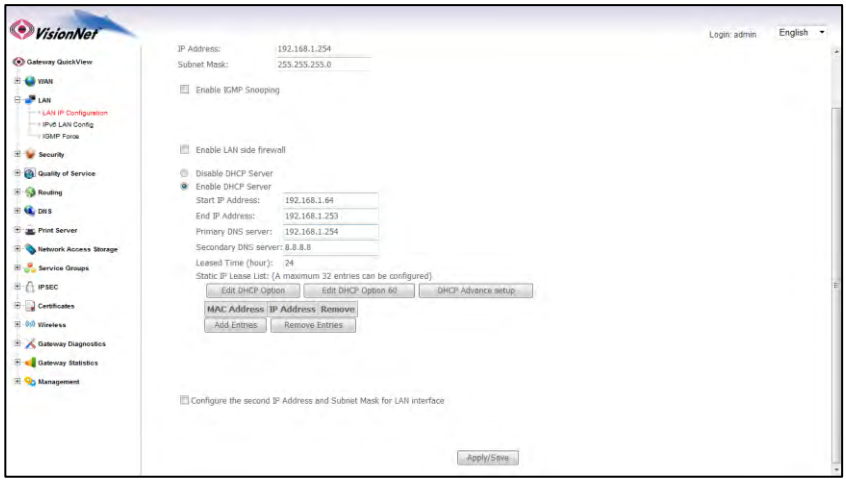
Then, In the left-hand frameset, select "LAN IP CONFIGURATION"



Step 2: Configure LAN Settings

2.A Configure the LAN IP Characteristics

IP Address:	**192.168.1.254 (Unless your ISP has specified another address)**
Subnet Mask:	**255.255.255.0**
Enable IGMP Snooping:	**DO NOT CHANGE**
DHCP Server:	**Enabled**
Start IP Address:	**192.168.1.64**
End IP Address:	**192.168.1.100**
Primary DNS Server:	**192.168.1.254**
Secondary DNS Server:	**192.168.1.254 or another DNS Server**
Leased Time (hour):	**24**
All other settings	**DO NOT CHANGE**
Configure Second IP Address:	**DO NOT CHANGE**



2.B Select "Apply / Save"

Section 4.2

RESERVING AN IP ADDRESS WITHIN THE DHCP SERVER

DEFINITION OF RESERVED IP

Some applications (Such as Port Triggering and DMZ Host) require a Static IP Address. Some devices, however, do not support Static IP Addresses or are portable in nature.

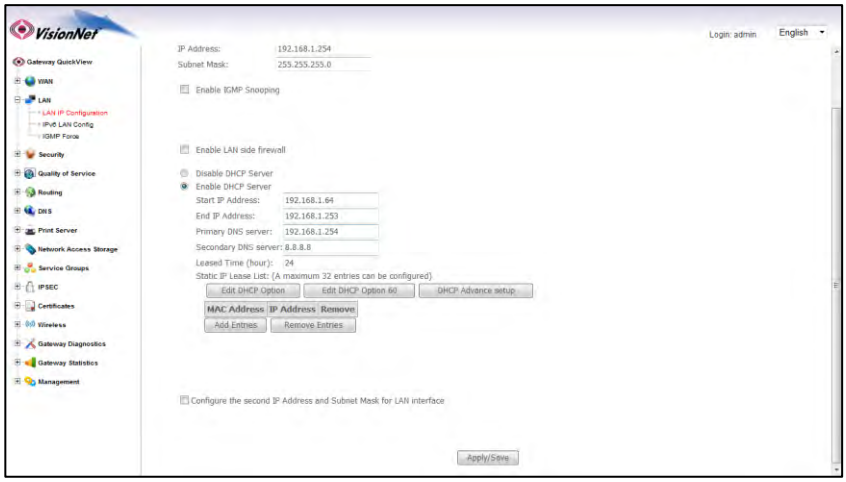
These devices may be provided a Static IP Address via the DHCP Server. When a Reserved IP Address is specified, the modem will consistently provide the same dynamic IP Address to the specified MAC Address. The Reserved IP Address will not be assigned to any other LAN Devices.

Prior to Assigning the Reserved IP Address, you must determine the MAC Address of the target LAN Device. You may copy the MAC Address from the ARP Table located within the Device Info Section of the GUI.

Step 1: Direct Your Browser to the LAN Configuration Page

1.A **Select the "LAN" tab located within the left-hand frameset.**

Then, In the left-hand frameset, select "LAN IP Configuration"



1.B **Select "Add Entries"**

You will be re-directed to the "DHCP Static IP Lease" Page

Enter the MAC Address of the intended LAN Host, and the IP Address that you would like to permanently allocate to that host.

1.C Select "Apply Save"

Section 4.3

ENABLING UPnP

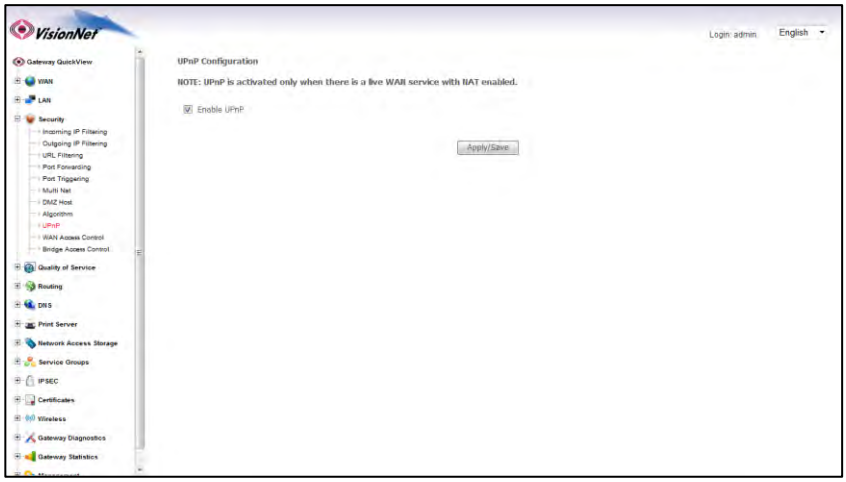
UPnP Definition

Some applications, such as the XBOX, will require UPnP for operation. UPnP will dictate how devices share information on the LAN, and the Dynamic port rules to be used for Internet Content.

Step 1: Direct Your Browser to the UPnP Page

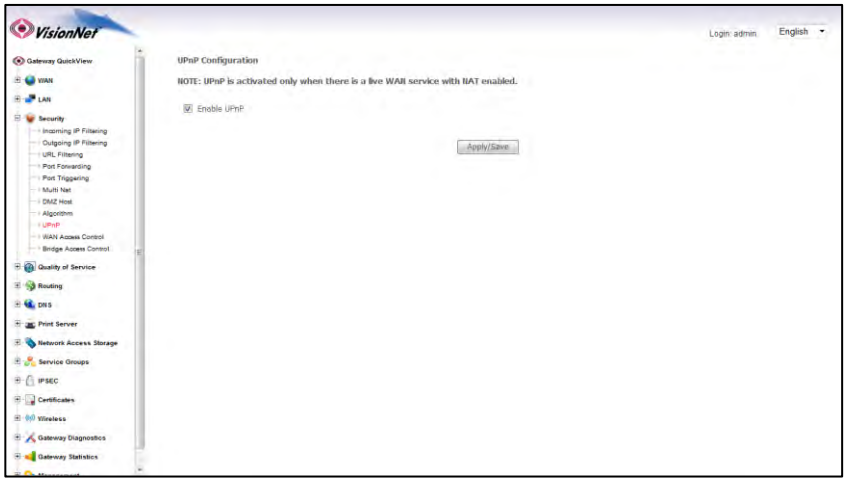
1.A **Select the "Security" tab located within the left-hand frameset.**

Then, In the left-hand frameset, select "UPnP"



1.B **Select "Enable UPnP"**

You may enable / disable UPnP by toggling the checkbox.



1.C **Select "Apply Save"**

SECTION 5: NAT CONFIGURATION

Section 5.1

CONFIGURING PORT FORWARDING

COMMON APPLICATIONS

XBOX:

UPnP will resolve most XBOX issues, however should you need to do further trouble-shooting the following Port Forwarding Rules may be enabled

Designation	WAN Port	LAN IP	LAN Port	Protocol
XBOX Live	88	192.168.1.230	88	TCP/UDP
XBOX Live	3074	192.168.1.230	3074	TCP/UDP

The most effective method of utilizing these rules, is to request that the end-user change the IP Address of their XBOX to the following Static IP settings:

XBOX Configuration	
IP Address	192.168.1.230
Subnet Mask	255.255.255.0
Gateway Address	192.168.1.254
DNS Address	192.168.1.254

IP CAMERAS:

The following is an example of IP Camera Configuration

Designation	WAN Port	LAN IP	LAN Port	Protocol
Camera 1	6231	192.168.1.231	80	TCP/UDP
Camera 2	6232	192.168.1.232	80	TCP/UDP

The most effective method of utilizing these rules, is to request that the end-user change the IP Address of their Camera to the following Static IP settings:

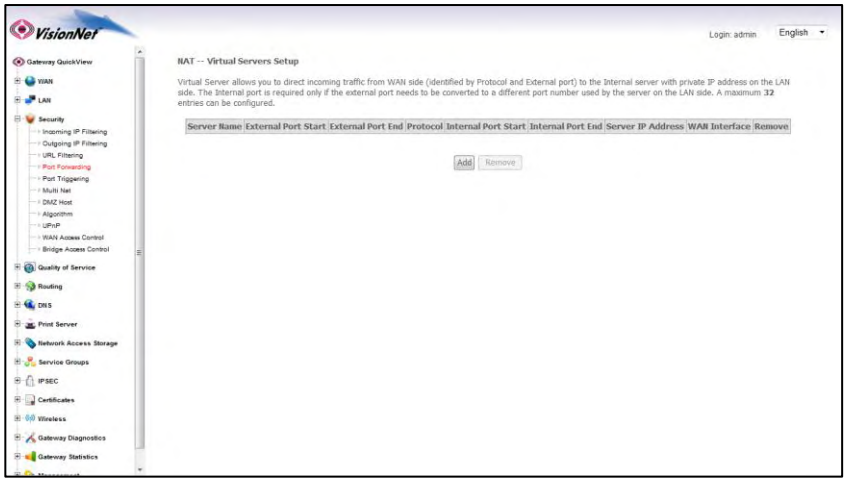
IP Camera Configuration	
IP Address	192.168.1.23x
Subnet Mask	255.255.255.0
Gateway Address	192.168.1.254
DNS Address	192.168.1.254

The customer will remotely access their camera by pointing their browser to the Public IP Address of the modem, and appending the appropriate port number. (ie: 67.126.108.104:6231)

Step 1: Direct Your Browser to the Port Forwarding Configuration Page

1.A **Select the "Security" tab located within the left-hand frameset.**

Then, In the left-hand frameset, select "Port Forwarding"



1.B **Select the "Add" Button.**

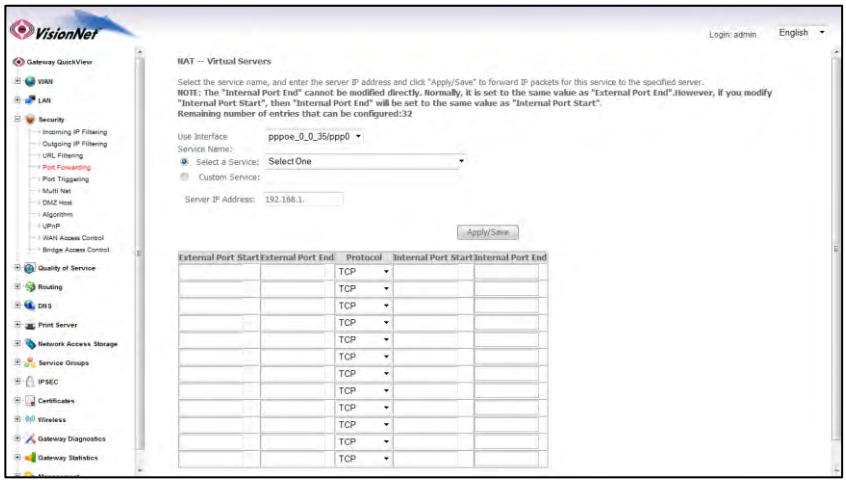
Please Note: If the port to be assigned is already specified in the existing Port Forwarding Table, you must remove the rule containing this port prior to creating a new one.

Step 2: Configure the Port Forwarding Rule

2.A **Choose the name of the rule**

Choose the appropriate WAN Interface:

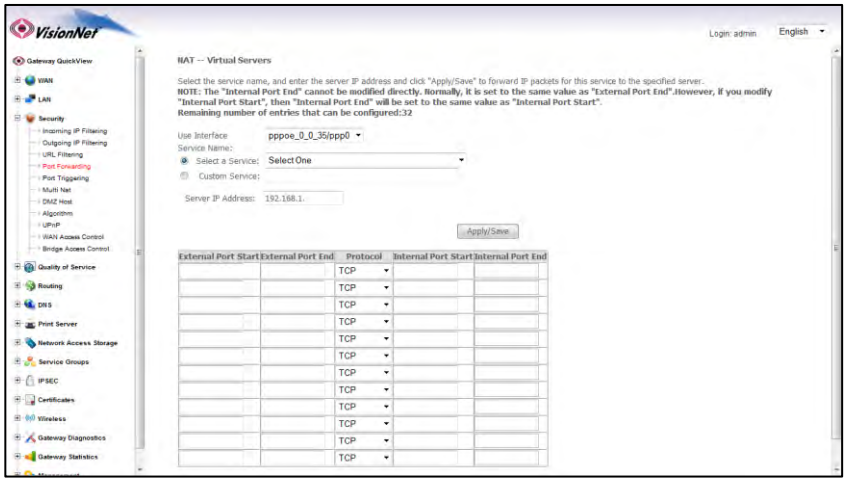
If the Service you would like to have is already available in the "Select a Service" menu, you may select this service for auto-population.



You may create a custom Service by selecting "Custom Service" and entering a new rule name

2.B Enter the port rules

External Port Start	This is the port that will be used to access the device on the WAN Side
External Port End	This should be the same as “External Port Start”
Protocol	This should be “TCP/UDP” to avoid possible errors due to end-user mis-communication
Internal Port Start	This should be the port that the device “listens” on (see IP Camera example)
External Port End	This should be the same as “Internal Port Start”
Remote IP	This should left blank, unless only one remote device, with a static IP, will be allowed to access this port.



2.C Select “Save/Apply”

2.D Considerations

For this rule to work properly, the LAN device must have either a Static IP, or a Reserved IP

The LAN Device, and modem, may should be reset to ensure that this rule continues to work correctly

Section 5.2

CONFIGURING PORT TRIGGERING

DEFINITION OF PORT TRIGGERING

Port Triggering is a dynamic version of Port Forwarding, in which the modem will dynamically create a temporary port forwarding rule based upon outbound activity. This is best applied for LAN devices that communicate with a remote server. Basic VPN functions are already supported by default, but some applications use non-standard communication methods.

An example would be port triggering configuration for the Nortel Contivity VPN Solution, which uses non-standard port VPN ports and requires Port Triggering to work.

The following are the port triggering rules required for Nortel Contivity VPNs.

	LAN Device Outbound Port	Outbound Protocol	Port Temporarily Forwarded to Initiating LAN Device	Inbound Protocol
Port Triggering for Nortel Contivity VPNs	500	TCP/UDP	500	TCP/UDP
	10001	TCP/UDP	10001	TCP/UDP

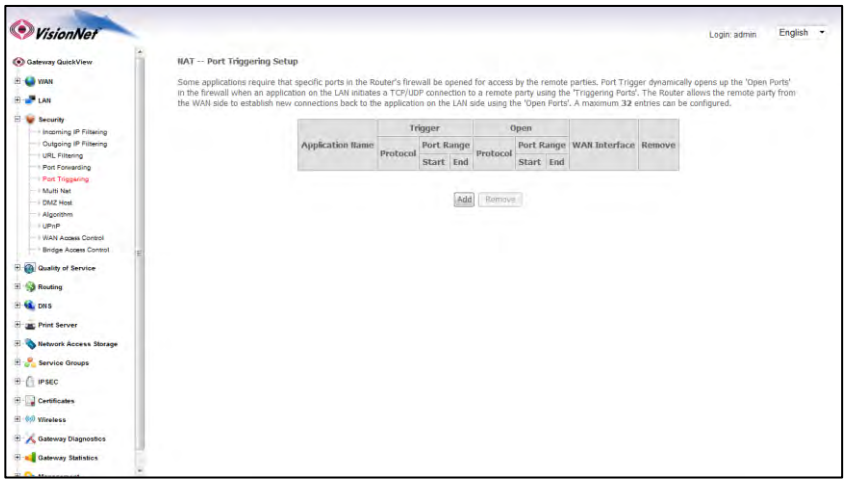
In this scenario, a LAN Device (ie: The end-user's laptop) will make an outbound UDP request on ports 500 and 10001. The modem responds to this by temporarily forwarding ports 500 and 10001 to the IP address of the initiating LAN Device (ie: The end-users laptop) for the life of the session.

Port Triggering is ideal for portable devices (ie: laptops, PDAs, etc.) which require port forwarding, but for which a Static LAN IP would be antithetical to the device's common usage.

Step 1: Direct Your Browser to the Port Triggering Configuration Page

1.A **Select the "Security" tab located within the left-hand frameset.**

Then, In the left-hand frameset, select "Port Triggering"



1.B **Select the "Add" Button.**

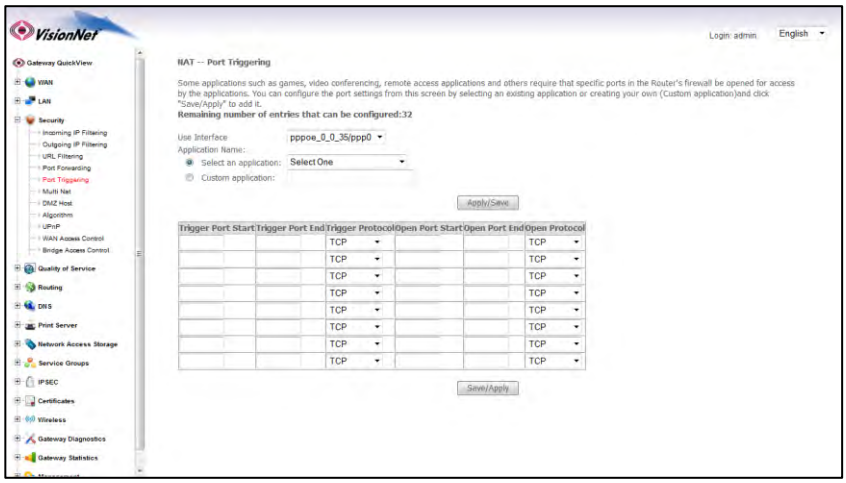
Please Note: If the port to be assigned is already specified in the existing Port Triggering Table, you must remove the rule containing this port prior to creating a new one.

Step 2: Configure the Port Forwarding Rule

2.A Select the appropriate WAN Interface

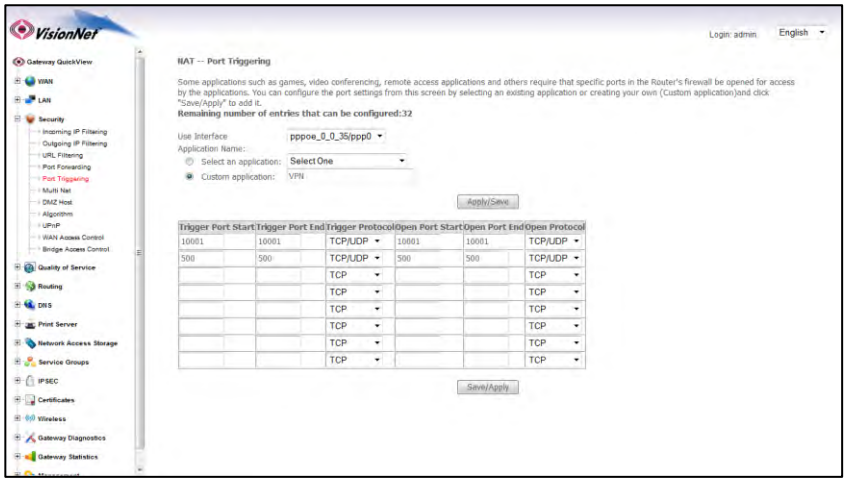
If the Service you would like to have is already available in the "Select a Service" menu, you may select this service for auto-population.

You may create a custom Service by selecting "Custom Application" and entering a new rule name



2.B Enter the port rules

Trigger Port Start	This is the port that the LAN device uses to initiate a session
	This will usually match the "Trigger Port Start" parameter; some applications, however, may use a succession of ports.
Trigger Port End	In this case you will enter the final port in that range. If these ports are not in succession, you must enter the next port as another row in the rule
Protocol	This should be "TCP/UDP" to avoid possible errors due to end-user mis-communication
Open Port Start	This is the WAN Port that the remote server will reply on
	This will usually match the "Open Port Start" parameter; some applications, however, may use a succession of ports.
Open Port End	In this case you will enter the final port in that range. If these ports are not in succession, you must enter the next port as another row in the rule
Open Port Protocol	This should be "TCP/UDP" to avoid possible errors due to end-user mis-communication



2.C **Select "Save/Apply"**

2.D **Considerations**

It may be difficult to determine which ports must be used for a particular application. It is best to specify the LAN device as the DMZ host to see if this resolves the issue.

If this does not resolve the issue, the port triggering rule should be removed and replaced with port forwarding. Once port forwarding has been verified to work then port triggering may be re-visited. If port triggering does not work, then further research should be done to identify the behavior of the communication between the LAN device and the Server.

Section 5.3

CONFIGURING THE DMZ HOST

DEFINITION OF DMZ Host

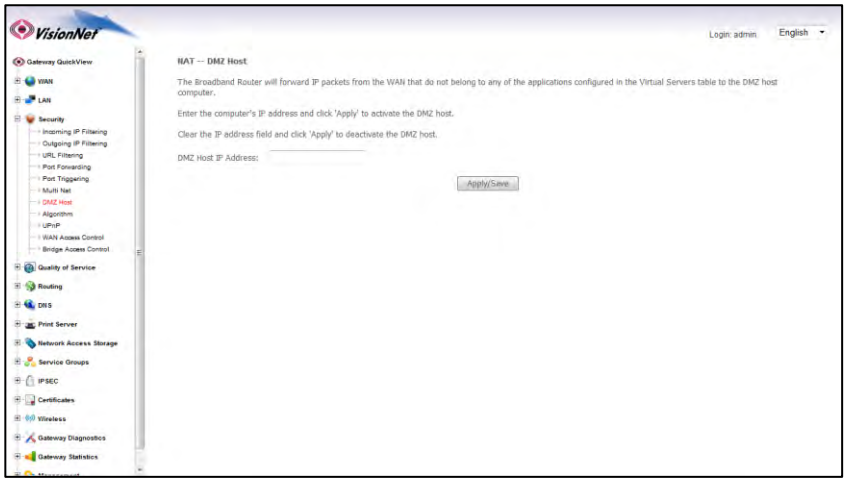
In the event that a remote application attempts to communicate via an inactive, or unspecified, port; the port will be dynamically forwarded to the IP Address specified as the DMZ Host.

If a specific device is to be assigned as a DMZ host, this device should have either a Static IP or a Reserved IP.

Step 1: Direct Your Browser to the DMZ Host Configuration Page

1.A Select the "Security" tab located within the left-hand frameset.

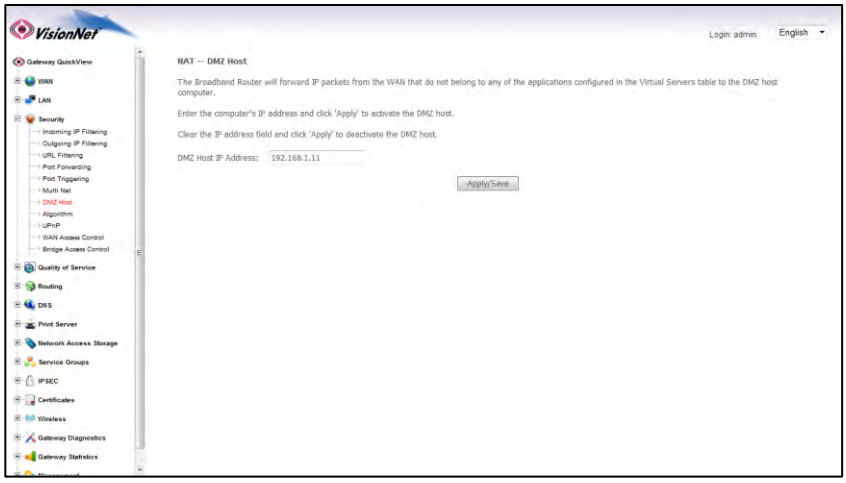
Then, In the left-hand frameset, select "DMZ Host"



1.B Enter the desired DMZ Host IP Address

This is the IP Address of the LAN Device which will receive all non-specified traffic.

This device should have either a Static IP or Reserved IP



1.C Select the "Save/Apply" Button.

SECTION 6: WIRELESS CONFIGURATION

Section 6.1

CHANGING THE WIRELESS CHANNEL

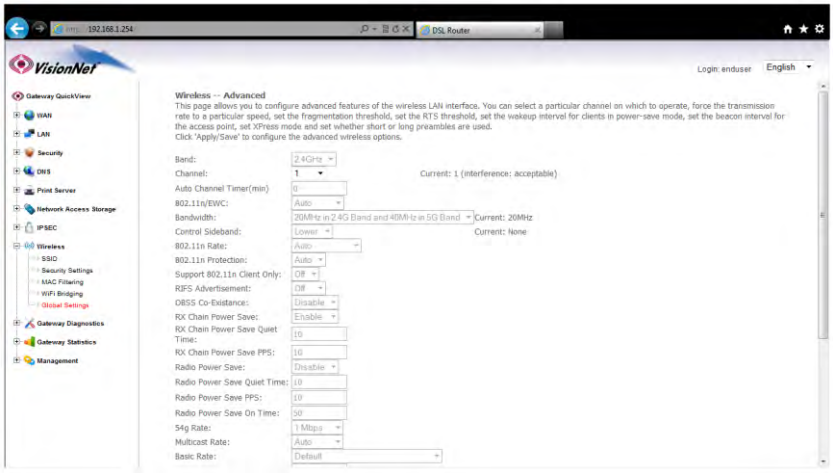
When to change the Wireless Channel.

Many items in your home, and your immediate neighbors' homes, likely use the 2.4 Ghz range. There are 11 possible channels that may be used within this spectrum. If your wireless connection becomes very slow, or drops, there may be other devices that are impeding upon your network. This is when you should consider changing your wireless channel.

Step 1: Direct Your Browser to the Global Wireless Configuration Page

1.A Select the "Wireless" tab located within the left-hand frameset.

Then, In the left-hand frameset, select "Global Settings"

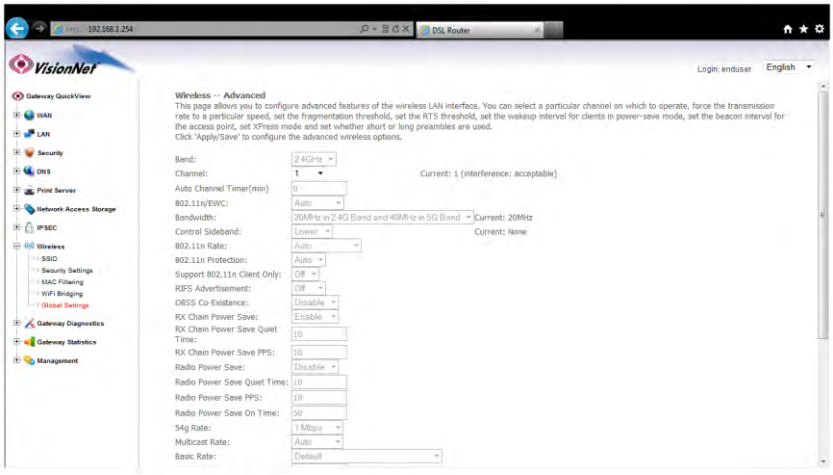


1.B Enter the desired Channel.

1, 6, and 11 tend to operate the best.

Other Channels to consider are 3 and 9.

Once you have selected the new channel, select "Save/Apply" at the bottom of the screen.



1.C Select the "Save/Apply" Button.

Section 6.2

CHANGING THE WIRELESS SSID

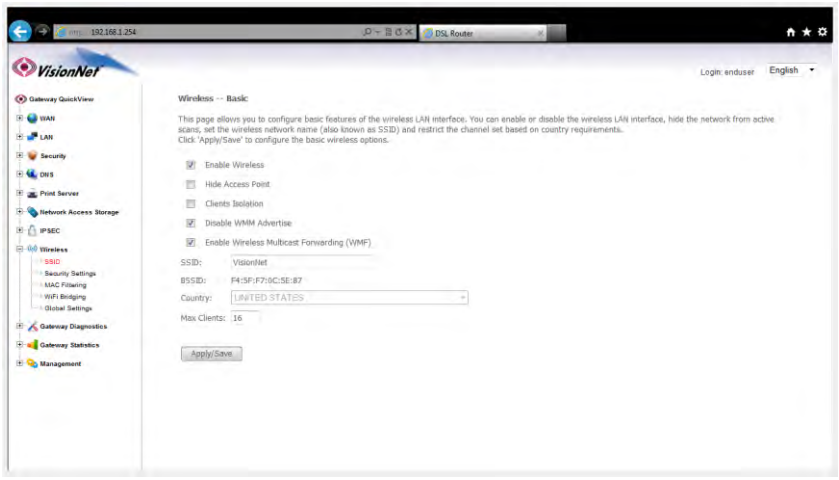
When to change the Wireless SSID

You may wish to broadcast a different network name than the one provided.

Step 1: Direct Your Browser to the SSID Configuration Page

1.A Select the "Wireless" tab located within the left-hand frameset.

Then, In the left-hand frameset, select "SSID"



1.B Enter the new SSID Name

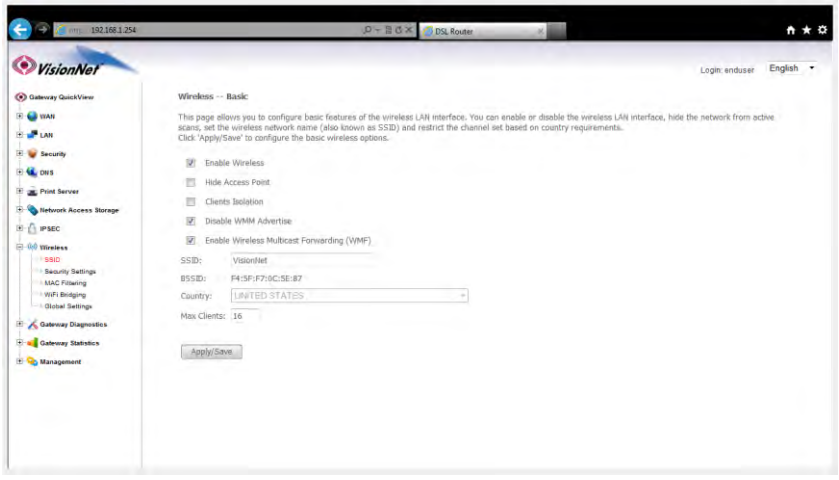
The following should be enabled:

Enabled Wireless

Disable WMM Advertise

Enable Wireless Multicast Forwarding

Once you have entered the SSID Information, select "Save/Apply" at the bottom of the screen.



1.C Select the "Save/Apply" Button.

Section 6.3

CHANGING THE WIRELESS ENCRYPTION

When to change the Wireless Encryption

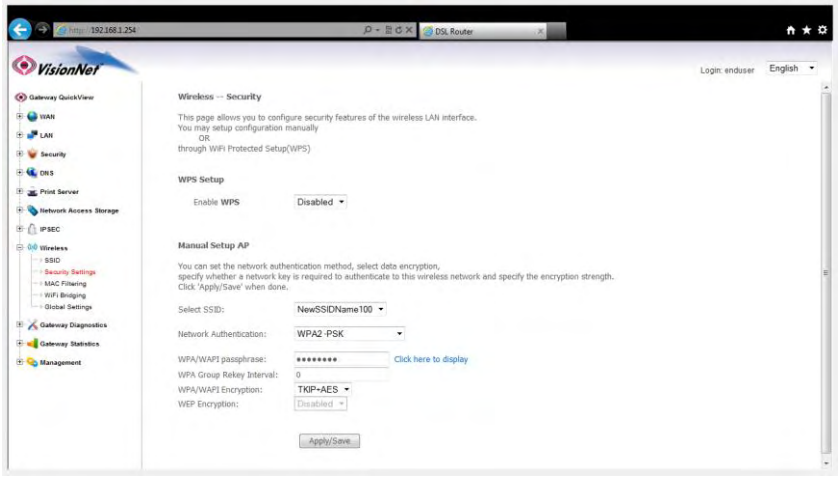
You may wish to use a special login password for your wireless network.

NEVER LEAVE YOUR NETWORK UNENCRYPTED!!! THIS IS VERY INSECURE AND COULD RESULT IN LEGAL TROUBLE SHOULD AN UNAUTHORIZED USER USES YOUR NETWORK FOR ILLEGAL ACTIVITY!

Step 1: Direct Your Browser to the Security Settings Page

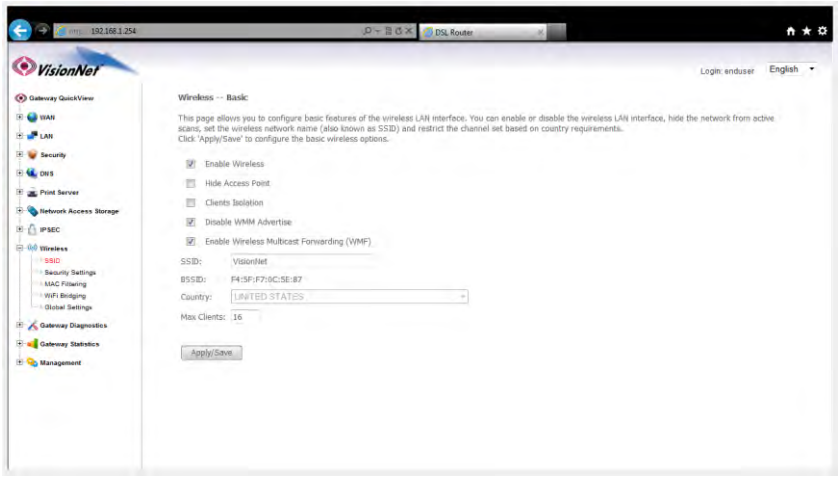
1.A **Select the "Wireless" tab located within the left-hand frameset.**

Then, In the left-hand frameset, select "Security Settings"



1.B **Under "Manual Setup AP"**

Select SSID	Choose your network name
Network Authentication	WPA2-PSK is preferable. Some devices may require WPA-PSK
WPA Passphrase	Enter the new password
Group Rekey interval	0
WPA Encryption	AES is preferable Some devices may require TKIP+AES



1.C **Select the "Click Here to Display" Button; and verify your encryption key.**

1.D **Select the "Save/Apply" Button.**

FCC Information

This equipment complies with CFR 47, Part 15.19 of the FCC rules. Operation of the equipment is subject to the following 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.

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

NOTE: THE MANUFACTURER IS NOT RESPONSIBLE FOR ANY RADIO OR TV INTERFERENCE CAUSED BY UNAUTHORIZED MODIFICATIONS TO THIS EQUIPMENT. SUCH MODIFICATIONS COULD VOID THE USER'S AUTHORITY TO OPERATE THE EQUIPMENT.

Federal Communications Commission (FCC) Requirements, Part 15

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.

Regulatory information / Disclaimers

Installation and use of this Wireless LAN device must be in strict accordance with the instructions included in the user documentation provided with the product. Any changes or modifications (including the antennas) made to this device that are not expressly approved by the manufacturer may void the user's authority to operate the equipment. The manufacturer is not responsible for any radio or television interference caused by unauthorized modification of this device, or the substitution of the connecting cables and equipment other than manufacturer specified. It is the responsibility of the user to correct any interference caused by such unauthorized modification, substitution or attachment. Manufacturer and its authorized resellers or distributors will assume no liability for any damage or violation of government

CAUTION: To maintain compliance with FCC's RF exposure guidelines, this equipment should be installed and operated with minimum distance 20cm between the radiator and your body. Use on the supplied antenna. Unauthorized antenna, modification, or attachments could damage the transmitter and may violate FCC regulations.

MPE Statement (Safety Information)

Your device contains a low power transmitter. When device is transmitted it sends out Radio Frequency (RF) signal.

Safety Information

In order to maintain compliance with the FCC RF exposure guidelines, this equipment should be installed and operated with minimum distance 20cm between the radiator and your body. Use only with supplied antenna. Unauthorized antenna, modification, or attachments could damage the transmitter and may violate FCC regulations.

FCC Part 68 Statement

This equipment complies with part 68 of the FCC rules. On the rear panel of this equipment is a label that contains, among other information, the FCC registration number and ringer equivalence number (REN) for the equipment. If requested, this information must be provided to the telephone company.The REN is used to determine the quantity of devices which may be connected to the telephone line. Excessive RENs on the telephone line may result in the devices not ringing in response to an incoming call. In most, but not all areas, the sum of the RENs should not exceed five (5.0). To be certain of the number of devices that may be connected to the line, as determined by the total RENs, contact the telephone company to determine the maximum REN for the calling area.This equipment uses the following USOC jack: RJC. An FCC-compliant telephone cord and modular plug is provided with this equipment. This equipment is designed to be connected to the telephone network or premises wiring using a compatible modular jack which is Part 68 compliant.

This equipment cannot be used on telephone company-provided coin services. Connection to Party Line Service is subject to state tariffs.If this equipment causes harm to the telephone network, the telephone company will notify you in advance that the temporary discontinuance of services may be required. If advance notice isn't practical, the telephone company will notify the customer as soon as possible. Also, you will be advised of your right to file a compliant with the FCC if you believe it is necessary.The telephone company may make changes in its facilities, equipment, operations, or procedures that could affect the operation of the equipment. If this happens, the telephone company will provide advance notice in order to maintain uninterrupted service.If the trouble is causing harm to the telephone system, the telephone company may request that you remove the equipment from the network until the problem is resolved.It is recommended that the customer install an AC surge arrestor in the AC outlet to which this device is connected. This is to avoid damaging the equipment by loca lightning strikes and other electrical surges.