User Manual

Model Number: M505N

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

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

To Contact VisionNet for Tier 2 Support:

Voice: **+ 1 925 730 3940**
Email: support@visionnetusa.com
Online: http://www.visionnetusa.com/ticketportal

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SECTION 1: GUI ACCESS

Section 1.1 – Accessing the GUI

Step 1: Accessing the GUI via a web browser

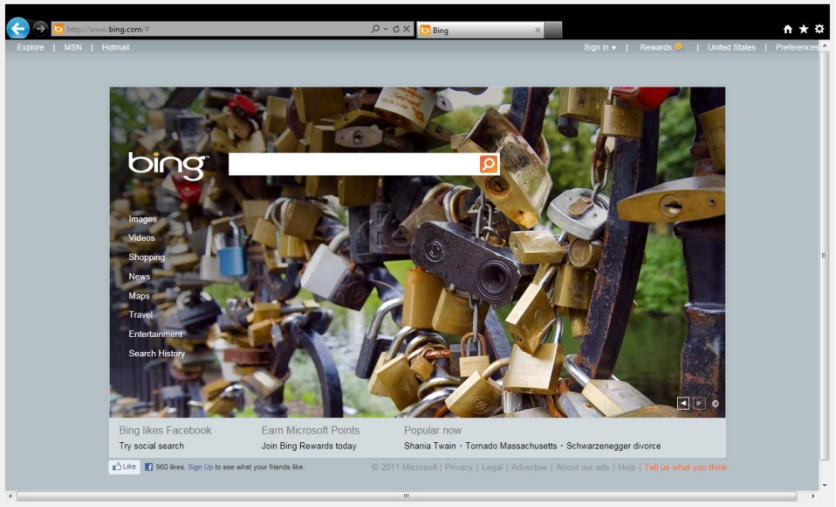
1.A **Open your Web Browser**

Enter the WAN IP Address of the device in the address bar to access the modem remotely

ie: http://67.125.108.137

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

http://192.168.1.254



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

Remote Access

Privileged

Username: support
Password: ISP Specific

Restricted

Username: techsupport
Password: ISP Specific

Local Access

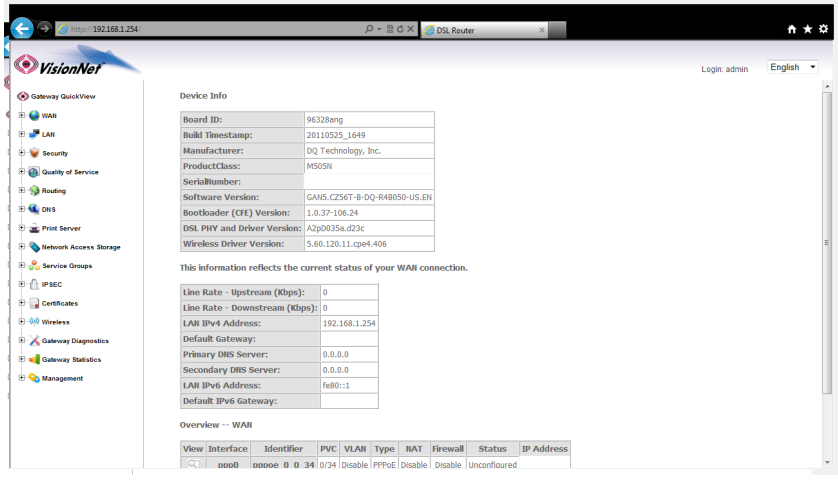
Privileged

Username: admin
Password: ISP Specific

Restricted

Username: enduser
Password: password

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



PLEASE NOTE:

ONLY the End User Login should be given to End Users. NEVER RELEASE ANY OTHER LOGIN INFORMATION.

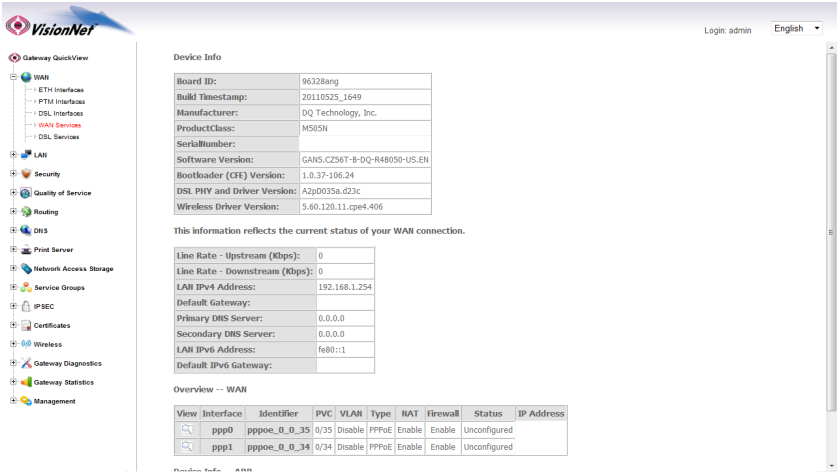
SECTION 2: TROUBLESHOOTING

Section 2.1 – View WAN Status

Step 1: Access the GUI to find the WAN Status

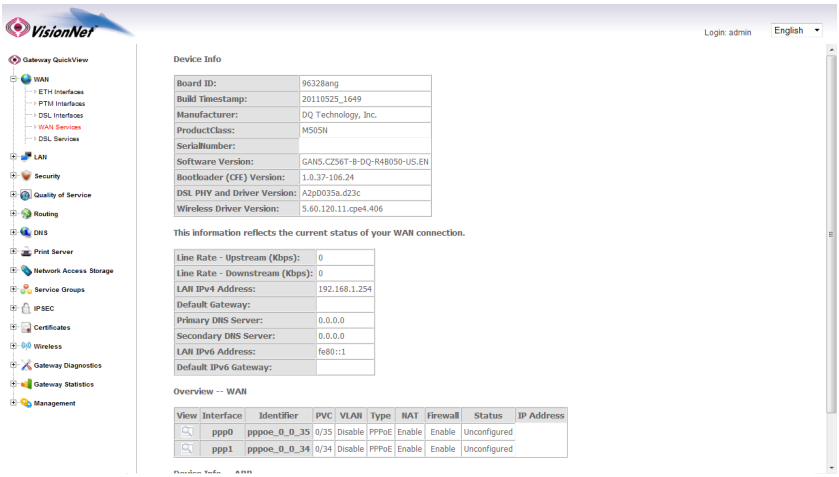
1.A **Select the "Gateway Quickview" tab located within the left-hand frameset.**

Then, scroll to the "Overview – WAN" Section



1.B

Status:	**At least one WAN Service should be "Up".** If there is not an "up" link, then there will be no WAN Access
IP Address:	**Only one WAN Service should have an IP Address** Without a WAN IP address, there will be no WAN Access. ***(With exception of Bridged Connections)***
Protocol:	**ISP Specific**



WHAT THESE STATISTICS MEAN:

This page will verify that the WAN connection is operating correctly, and that the modem has obtained a WAN IP Address

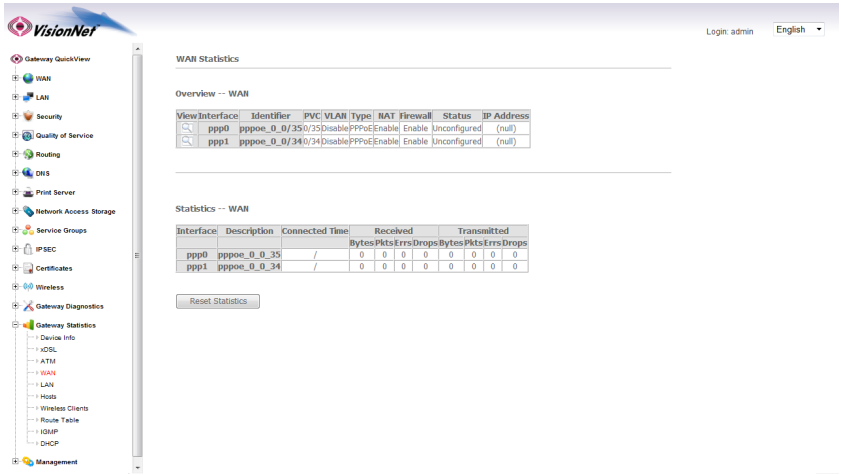
Section 2.2 – View WAN Statistics

Step 1: Access the GUI to find WAN Statistics

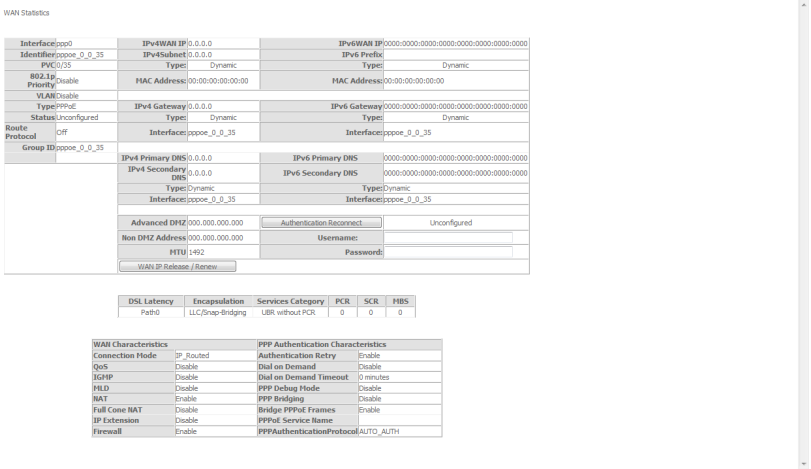
1.A **Select the "Gateway Statistics" tab located within the left-hand frameset.**

Then, scroll to the "WAN Section

Select the icon next to the active WAN connection



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



WHAT THESE STATISTICS MEAN:

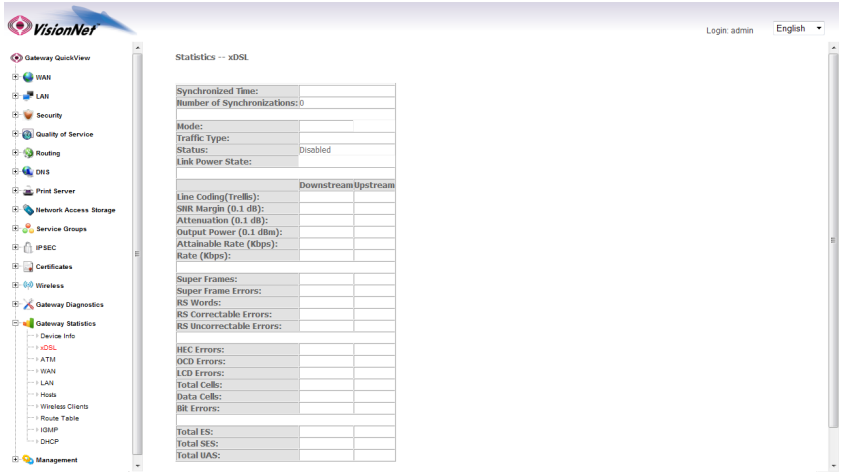
This page will verify that data is being received and transmitted. You will also be able to view detailed IPV4, IPV6, and Configuration Settings

Section 2.3 – View DSL Statistics

Step 1: Access the GUI to find DSL Statistics

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

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



WHAT THESE STATISTICS MEAN:

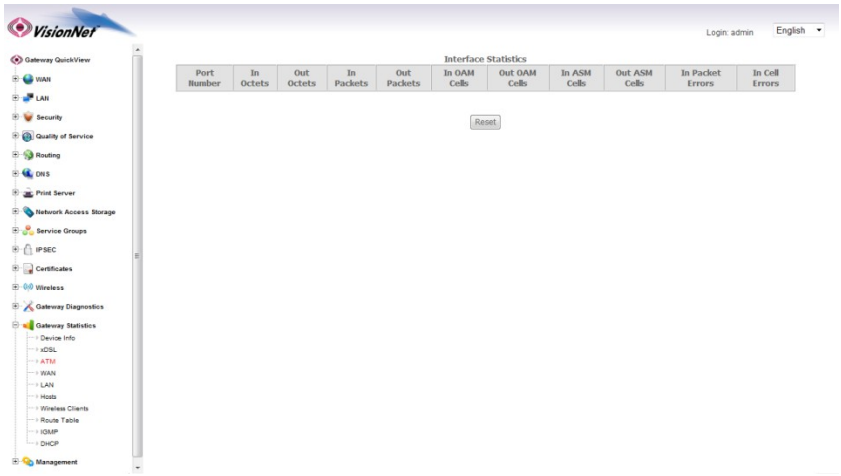
This page will verify DSL Link, and will provide information regarding line characteristics and capacities.

Section 2.4 – View ATM Statistics

Step 1: Access the GUI to find ATM Statistics

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

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



WHAT THESE STATISTICS MEAN:

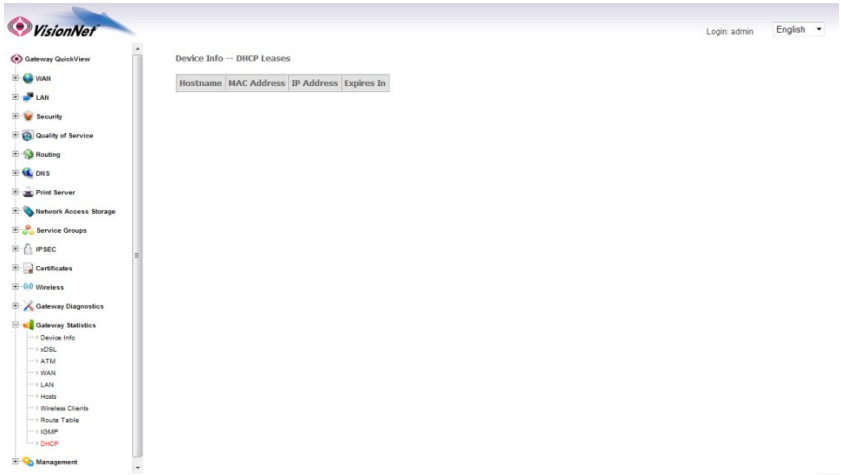
This page will verify ATM Operation, and specify the type of packets being sent

Section 2.5 – 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.

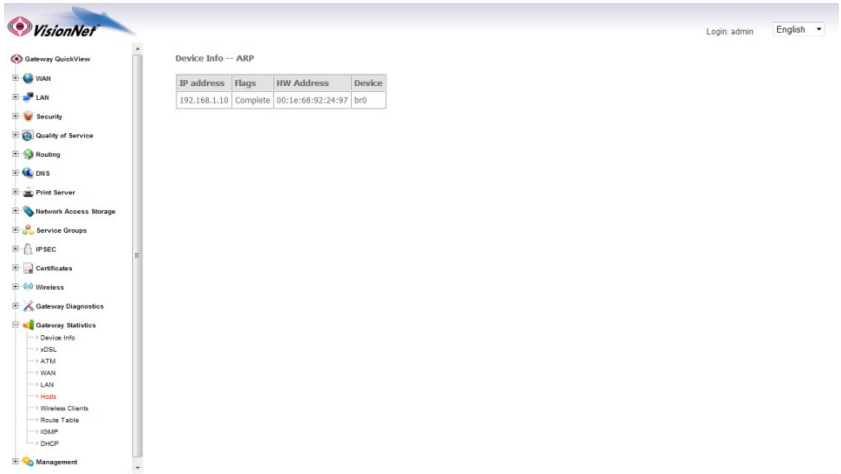
Section 2.6 – View ARP Statistics

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:

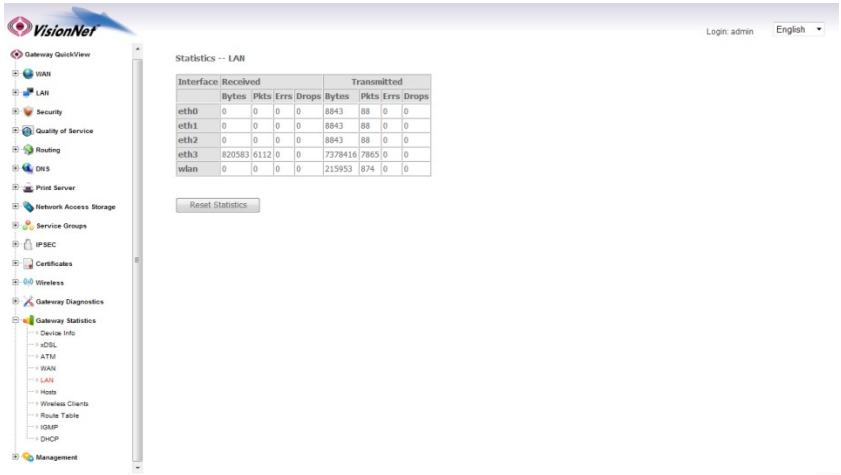
This page will provide the MAC Addresses of all recognized devices connected to the modem. A device will only be recognized once it has requested data from the modem.

Section 2.7 – View LAN Statistics

Step 1: Access the GUI to find LAN Statistics

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

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



Interface	Received				Transmitted			
	Bytes	Pkts	Errs	Drops	Bytes	Pkts	Errs	Drops
eth0	0	0	0	0	8843	88	0	0
eth1	0	0	0	0	8843	88	0	0
eth2	0	0	0	0	8843	88	0	0
eth3	820583	6112	0	0	7378416	7865	0	0
wlan	0	0	0	0	215953	874	0	0

WHAT THESE STATISTICS MEAN:

This page will verify that LAN Devices are communicating.

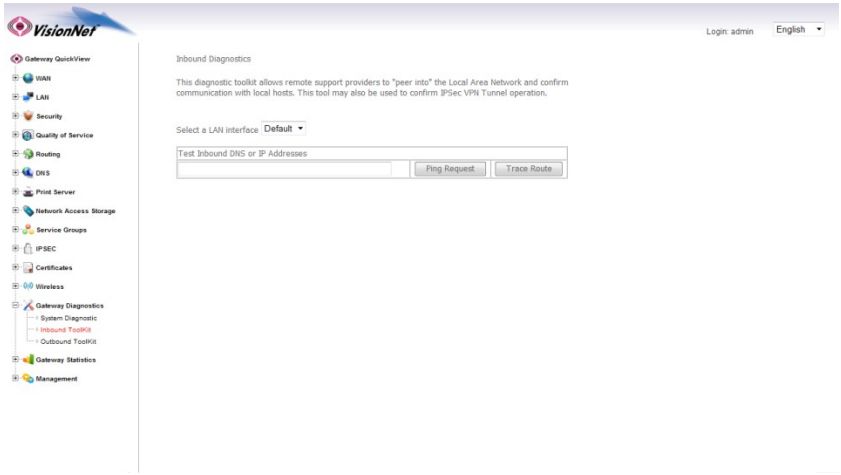
Section 2.8 – Verify Connectivity via Ping

In the event that you cannot access a LAN client, or access an internet page, you may wish to use the Ping command to test the connection.

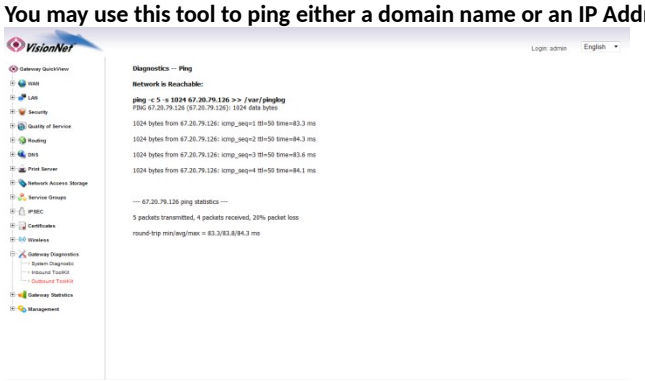
Step 1: Access the GUI to find the Ping Tool

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

Then, In the left-hand frameset, select either "Inbound Toolkit" (LAN) or "Outbound Toolkit" (WAN)



1.B **You may use this tool to ping either a domain name or an IP Address**



TO TEST LOCAL LAN DEVICES:

Enter the IP Address of the LAN Device and select "Ping Request"

ie: 192.168.1.64

TO TEST REMOTE WAN IP ADDRESSES:

Enter the WAN IP Address and select "Ping Request"

ie: 4.2.2.4

TO TEST REMOTE WAN DOMAIN NAMES:

Enter the Domain Name and select "Ping Request"

Ie: www.bing.com

1.C WHAT THIS TEST MEANS

If you can Ping a local device:

The local device has an IP Address (this does not guarantee that the Device has WAN Access)

If you can Ping the WAN Gateway:

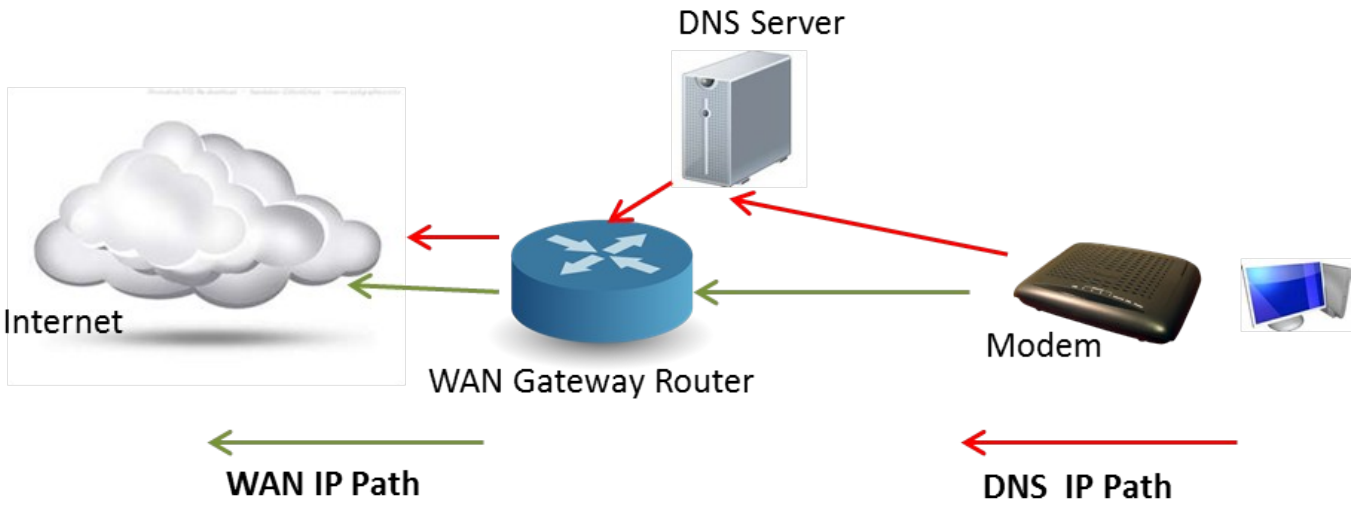
The modem's DHCP Client has properly obtained an IP Address

If you can Ping a WAN IP Address:

The modem can access the internet, but this does not necessarily mean that DNS resolution is operational

If you can Ping a WAN Domain Name

The modem can access the internet correctly



Section 2.9 – Verify Connectivity via Trace Route

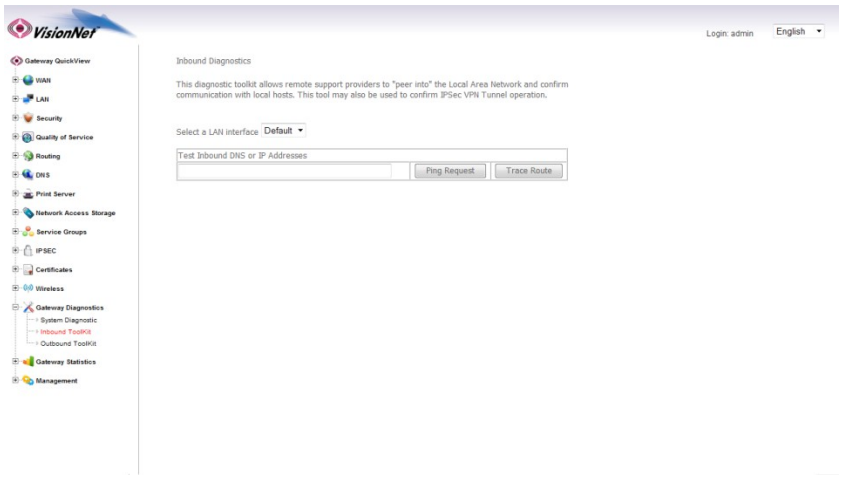
In the event that you cannot access a web page, or have sporadic internet access even though the WAN gateway is operating correctly, you may perform a Trace Route.

Please Note that the Trace Route function takes several minutes, and you cannot navigate away from the page during this process.

Step 1: Access the GUI to find the Trace Route Tool

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

Then, In the left-hand frameset, select either "Inbound Toolkit" (LAN) or "Outbound Toolkit" (WAN)



1.B **You may use this tool to trace the path of either a domain name or an IP Address**

TO TEST LOCAL LAN DEVICES:

Enter the IP Address of the LAN Device and select "Trace Route"

ie: 192.168.1.64

This test should not show more than one "hop"

TO TEST REMOTE WAN IP ADDRESSES:

Enter the WAN IP Address and select "Trace Route"

ie: 4.2.2.4

This test will show you the path of the data being sent to the internet.

IP Addresses are not checked against a DNS Server

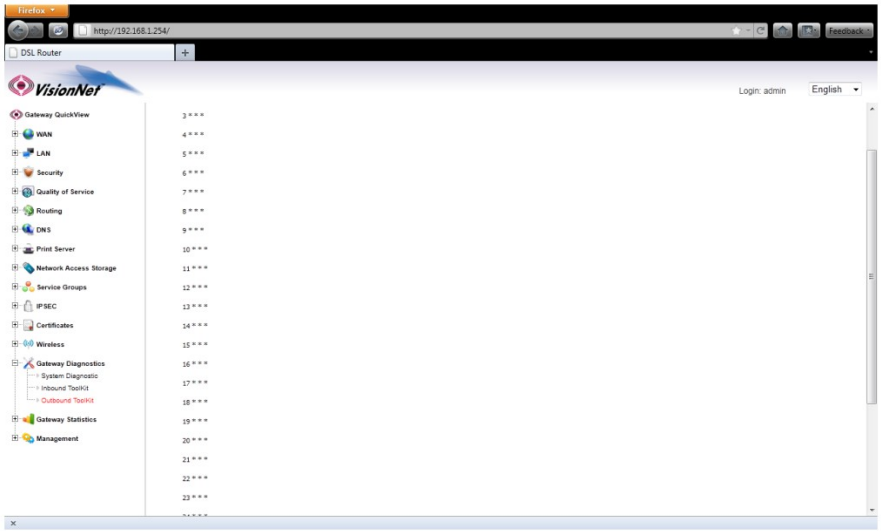
TO TEST REMOTE WAN DOMAIN NAMES:

Enter the Domain Name and select "Trace Route"

ie: www.google.com

This test will show you the path of the data being sent to the internet

This path includes resolving the Domain Name with a DNS Server

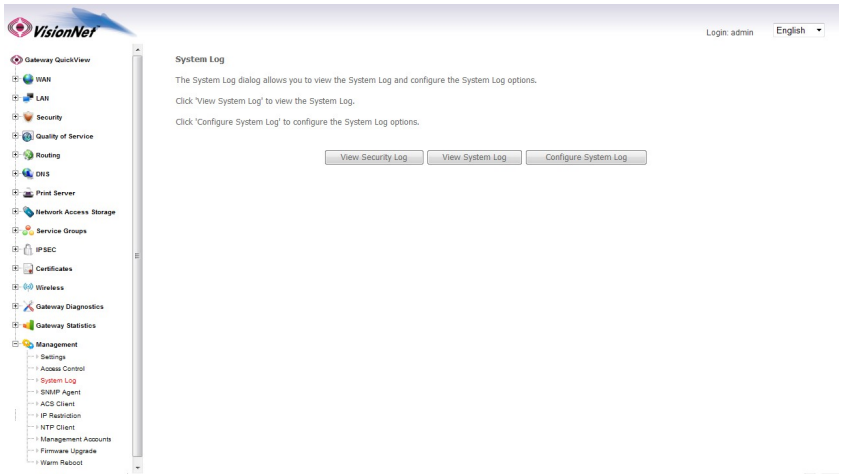

Firefox
http://192.168.1.254/
Feedback
DSL Router
VisionNet
Login: admin
English
Gateway QuickView
WAN
LAN
Security
Quality of Service
Routing
DNS
Print Server
Network Access Storage
Service Groups
IPSEC
Certificates
Wireless
Gateway Diagnostics
System Diagnostic
Inbound ToolKit
Outbound ToolKit
Gateway Statistics
Management

Section 2.10 – Local / Remote System Logging

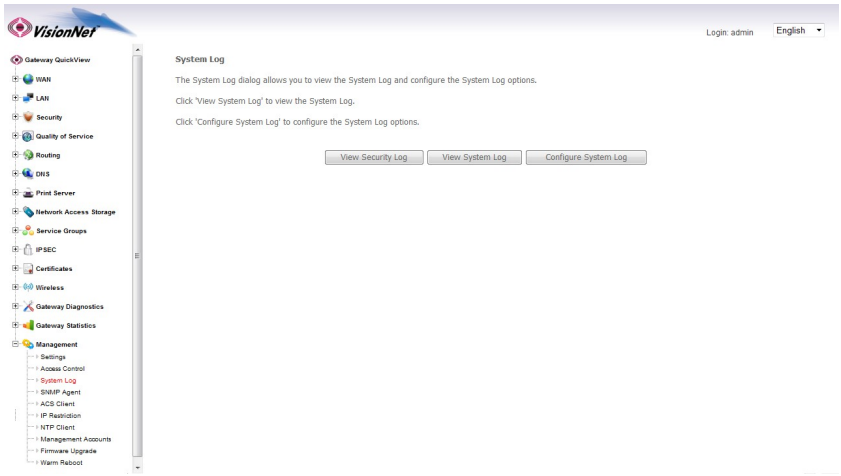
Step 1: Access the GUI to begin SysLog Configuration

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

Then, In the left-hand frameset, select "System Log"



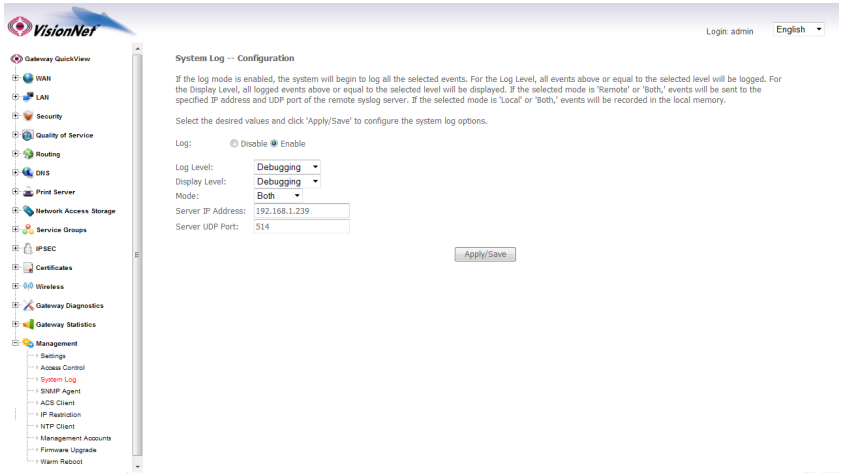
1.B **Select the "Configure System Log" Button**



Step 2: Configure the System Log

2.A Enable the System Log

Log:	**Enabled**
Mode:	**Both** Enables Internal and PC Server Logging
Log and Display Levels:	**Debugging**
Server IP Address:	**Default 192.168.1.239** This must match the IP of the computer running Kiwi VisionNet suggests that the computer running Kiwi be statically assigned to 192.168.1.239
Server UDP Port:	**514**



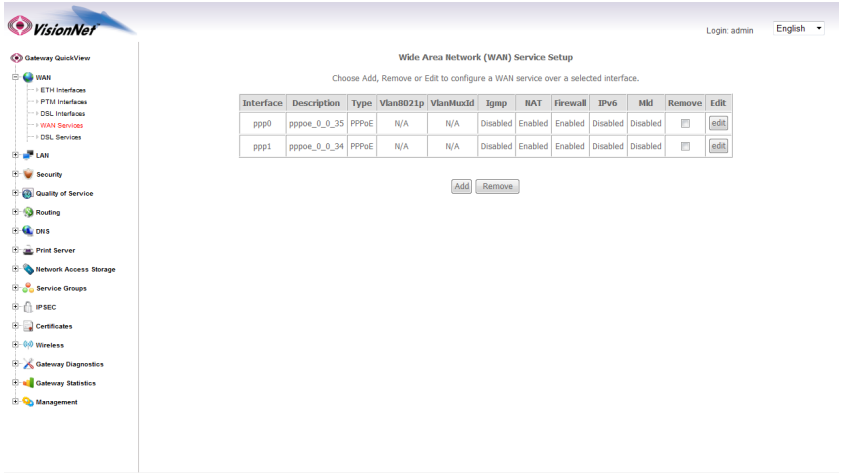
2.B Select "Save/Apply"

Section 2.11 – PPP Debug for System Logging

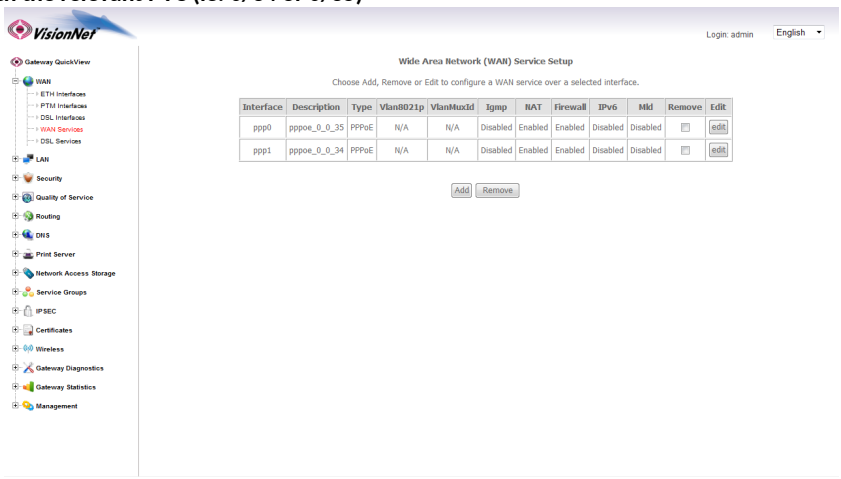
Step 1: Select the appropriate WAN Service for modification

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

Then, In the left-hand frameset, select "WAN Services"

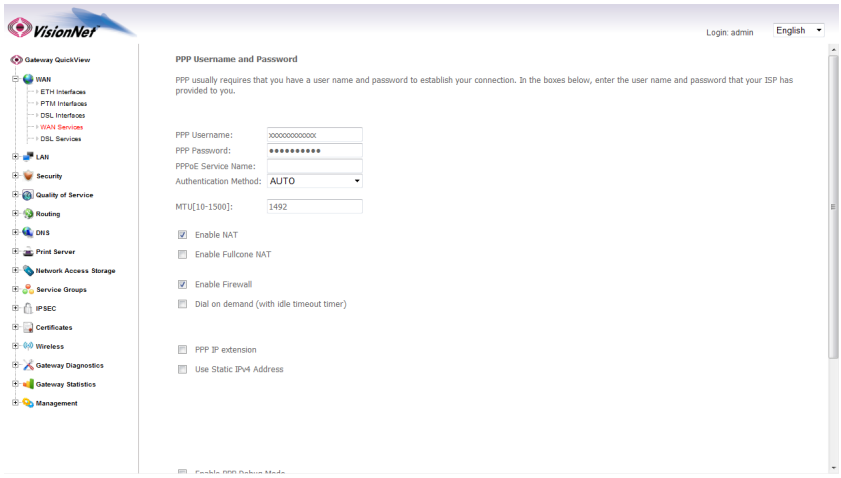


1.B **Select the "Edit" Button associated with the relevant PVC (ie: 0/34 or 0/35)**



2.A **Edit the PPP Authentication Page**

PPP DEBUG **Enabled**



2.B **Proceed through the remainder of the edit section.**

PLEASE NOTE: THIS IS TEMPORARY ONLY, AND MUST NOT BE LEFT AS A PERMANENT CONFIGURATION

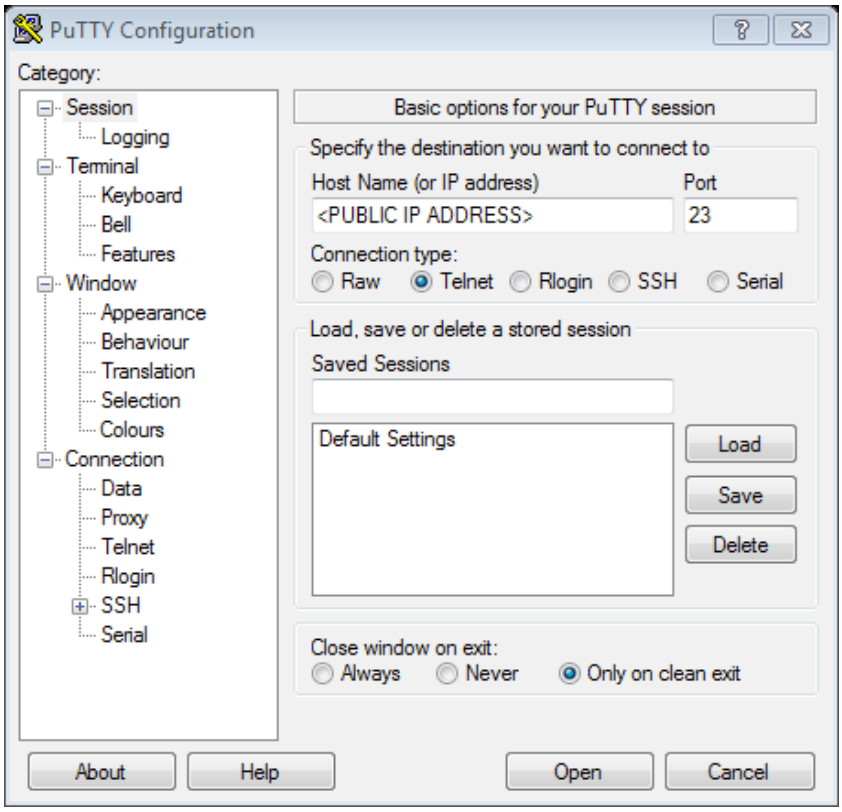
Section 2.12 – NAT INSPECTION VIA COMMAND LINE

Step 1: Open a Telnet Client

1.A **Point the Telnet Client at the IP Address of the CPE**

LOCAL: Use the private IP Address

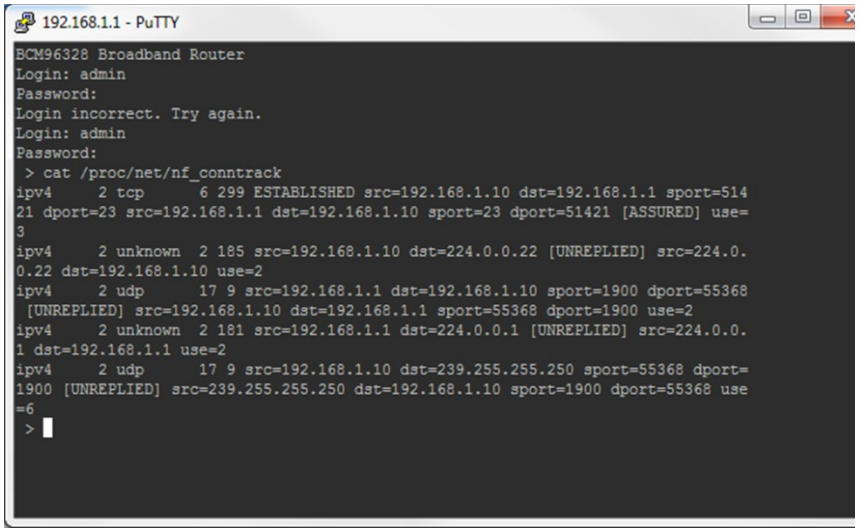
REMOTE: Use the public IP Address



1.B **Login using the appropriate username and password**

Enter the following command:

[cat /proc/net/nf_conntrack](#)



SECTION 3: WAN CONFIGURATION

Section 3.1 – Changing DSL Parameters

VisionNet modems come pre-configured with the following DSL Settings

DSL Protocol	Status
G.DMT	Enabled
G.Lite	Enabled
T1.413	Enabled
ADSL2	Enabled
ADSL2+	Enabled
Annex L	Enabled
Annex M	Disabled
Bitswap	Enabled
SRA	Disabled
PhyR	Disabled

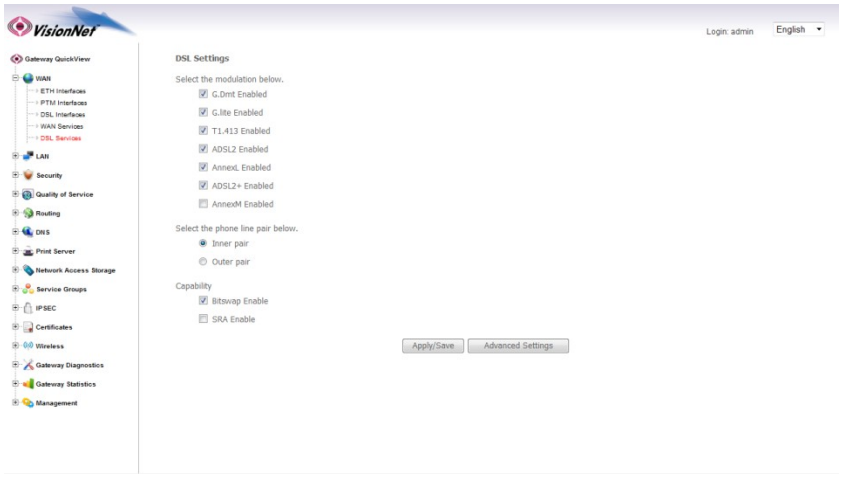
ALL VDSL2 PROTOCOLS ARE ENABLED, BY DEFAULT, FOR VDSL2 CPEs

During troubleshooting, you may be requested to change DSL Modulation settings. The below instructions will guide you through making these changes.

Step 1: Direct Your Browser to the LAN Configuration Page

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

Then, In the left-hand frameset, select "DSL Services"



1.B **For Each DSL Protocol, a checked box indicates that it is enabled; while an unchecked box indicates that it is disabled.**

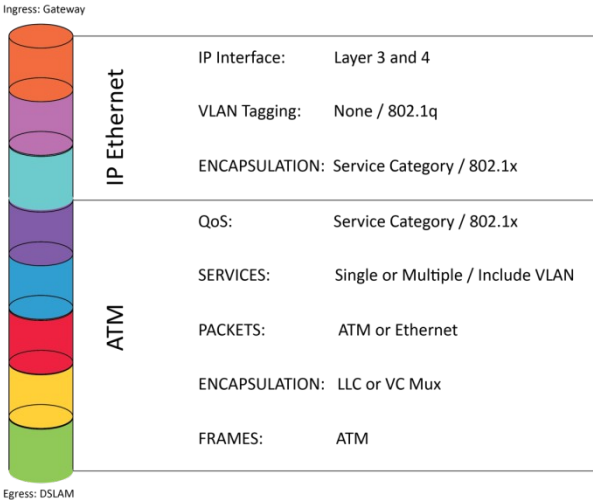
1.C **Only select "Inner Pair" under the section titled "Select the Phone Line Pair".**

Changing these settings will change physical characteristics that may prevent proper operation and/or troubleshooting in the future.

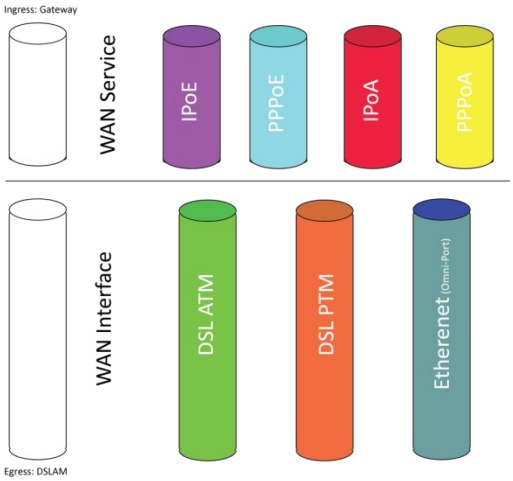
WAN INTERFACE / SERVICE CONSTRUCTION AND DECONSTRUCTION – A BRIEF INTRO

In the past, creating a WAN Service was a single operation in which the WAN Interface and WAN Service were created at the same time. This was because there was only one WAN Interface to choose from. Now that there are multiple WAN Interfaces to choose from, you must create the WAN Interface and the WAN Service separately.

PREVIOUS METHOD



NEW METHOD



SO WHAT CHANGED?

VisionNet Gateways now support

- **ATM** *(Traditional DSL)*
- **PTM** *(Used for VDSL2 and PTM over ADSL2+)*
- **Ethernet** *(Used for Ethernet WAN Port Operation)*

Which means that there are now two separate processes

BUILDING A WAN SERVICE

Create WAN Interface → Create WAN Service associated with WAN Interface

TEARING DOWN (REMOVING) A WAN SERVICE

Delete WAN Service associated with WAN Interface → Delete WAN Interface

Section 3.3 – Selecting a WAN Interface to Create

The VisionNet modem comes pre-configured. Unless you have VLAN Mux Enabled, you can only use one interface per physical port. Hence, do not attempt to build a new interface until you have removed any conflicting interfaces.

Step 1: Selecting the WAN Interface to Create

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

Then, In the left-hand frameset, select the appropriate WAN Interface

"DSL"

"Ethernet"

"PTM"

Section 3.4 – Creating a DSL Interface

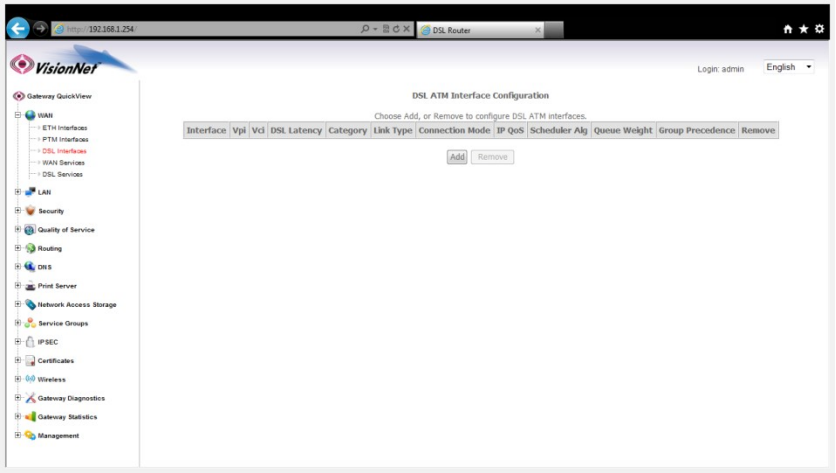
Step 1: Selecting the WAN Interface to Create

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

Then, In the left-hand frameset, select the appropriate WAN Interface

"DSL Interfaces"

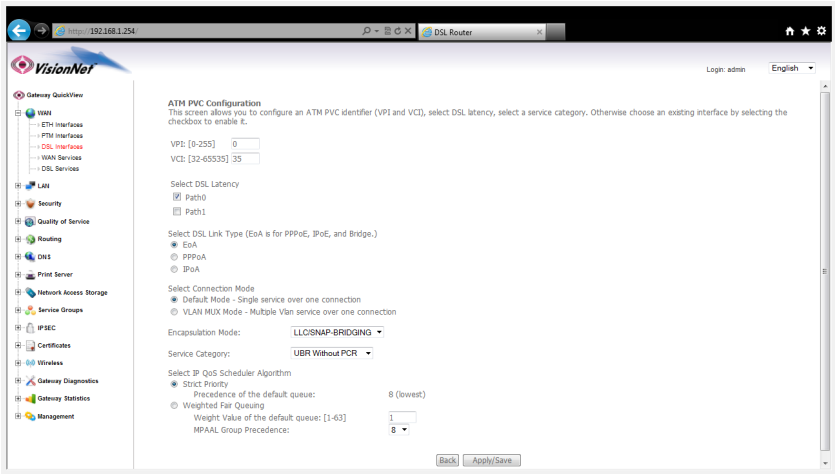
1.B **Select "Add"**



Step 2: Configuring the WAN Interface

2.A **Select the "WAN" tab located within the left-hand frameset.**

VPI:	**ISP Specific**
VCI:	**ISP Specific**
DSL Latency	**ONLY Path0 Should be checked**
Select DSL Link	**EoA** **IPOE/MER, PPPOE, Bridged** **PPPoA** **IPoA**
Select Connection Mode:	**Default Mode** **Standard (Single Service)** **VLAN MUX** **Multiple VLANs over a single PVC**
Encapsulation Mode:	**ISP Specific**
Service Category:	**ISP Specific**
Select ISP QoS	**Strict Policy** **Standard for single service config** **Weighted Fair Queuing** **Use multiple service configurations** **IE: Data PVC – 1/8** **IE: IPTV PVC – 1/1**



2.B **Select "Apply Save"**

You will see the Interface reflected in the updated Interface Table

Section 3.5 – Creating a PTM Interface

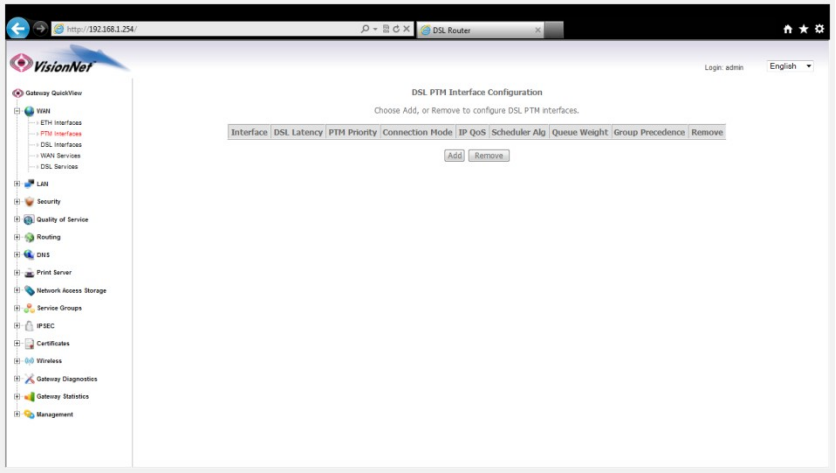
Step 1: Selecting the WAN Interface to Create

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

Then, In the left-hand frameset, select the appropriate WAN Interface

"PTM Interfaces"

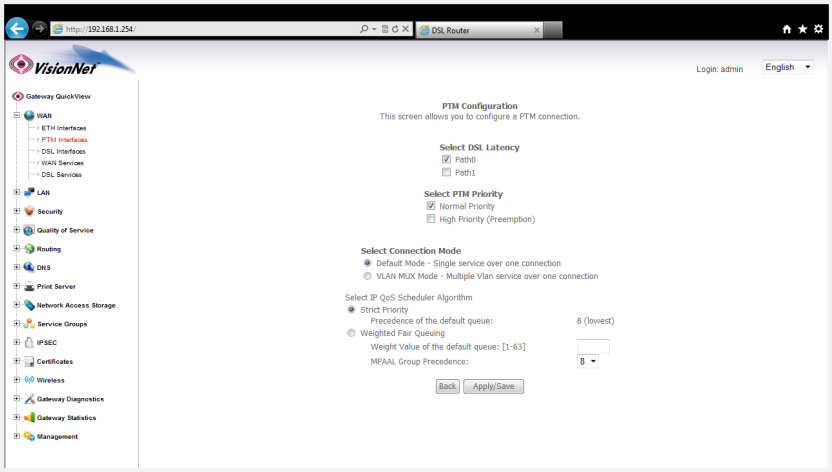
1.B **Select "Add"**



Step 2: Configuring the WAN Interface

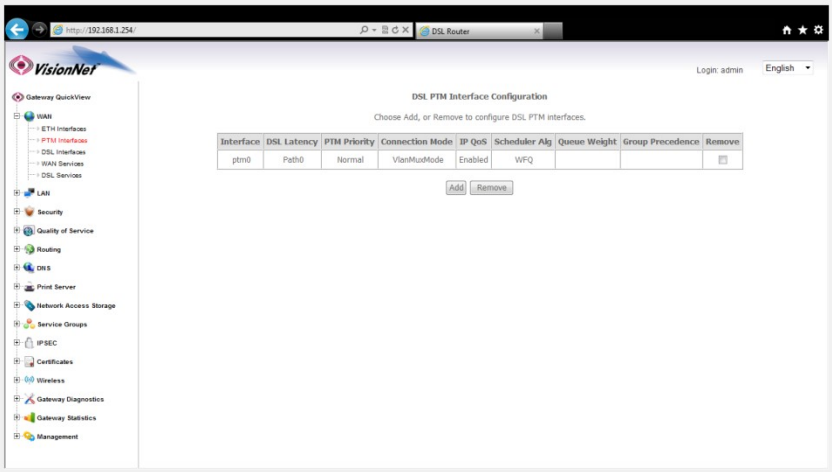
2.A **Select the "WAN" tab located within the left-hand frameset.**

DSL Latency	**ONLY Path0 Should be checked**
Select PTM Priority	**Normal Priority** **High Priority (Pre-Emption)**
Select Connection Mode:	**Default Mode** **Standard (Single Service)** **VLAN MUX** **Multiple VLANs over a sing PVC**
Select ISP QoS	**Strict Policy** **Standard for single service config** **Weighted Fair Queuing** **Use multiple service configurations**



2.B **Select "Apply Save"**

You will see the Interface reflected in the updated Interface Table



Section 3.6 – Creating an Ethernet Interface

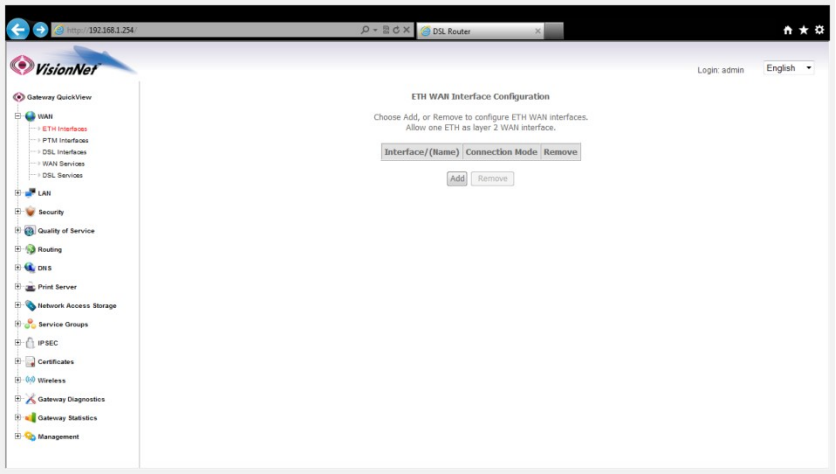
Step 1: Selecting the WAN Interface to Create

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

Then, In the left-hand frameset, select the appropriate WAN Interface

"Ethernet Interfaces"

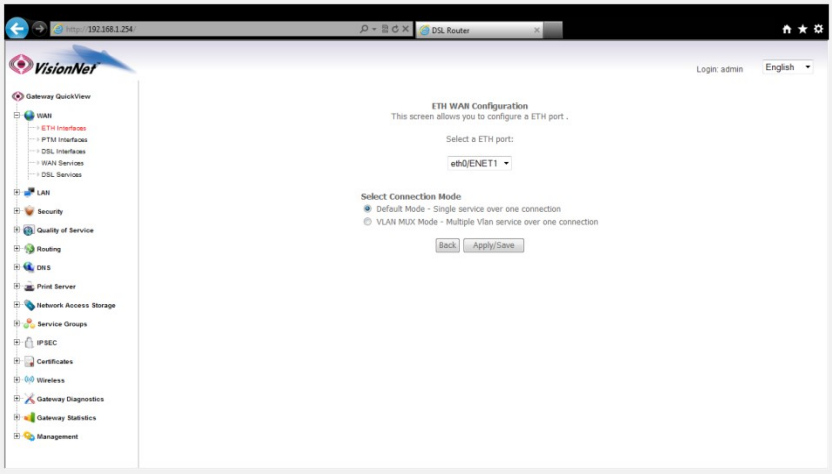
1.B **Select "Add"**



Step 2: Configuring the WAN Interface

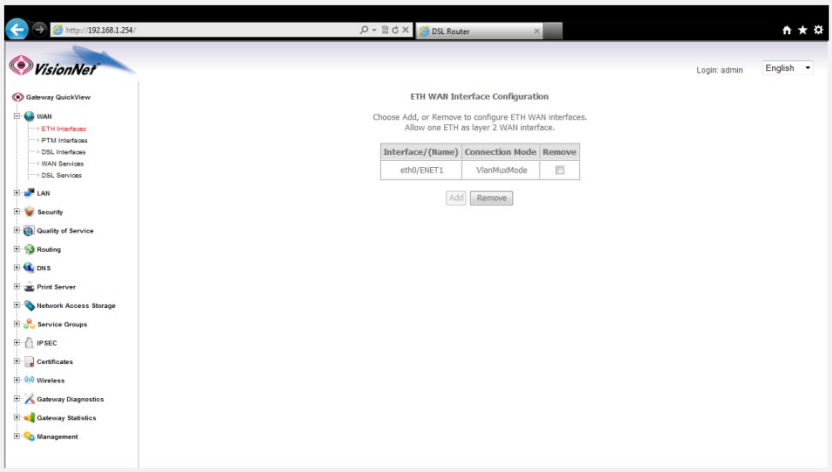
2.A **Select the "WAN" tab located within the left-hand frameset.**

Select Connection Mode:	**ENET 1 – 4** **ENET 4 Default OmniPort**
Select Connection Mode:	**Default Mode** **Standard (Single Service)** **VLAN MUX** **Multiple VLANs over a sing** **PVC**



2.B **Select "Apply Save"**

You will see the Interface reflected in the updated Interface Table



Section 3.7 – Creating an IPOE WAN Service

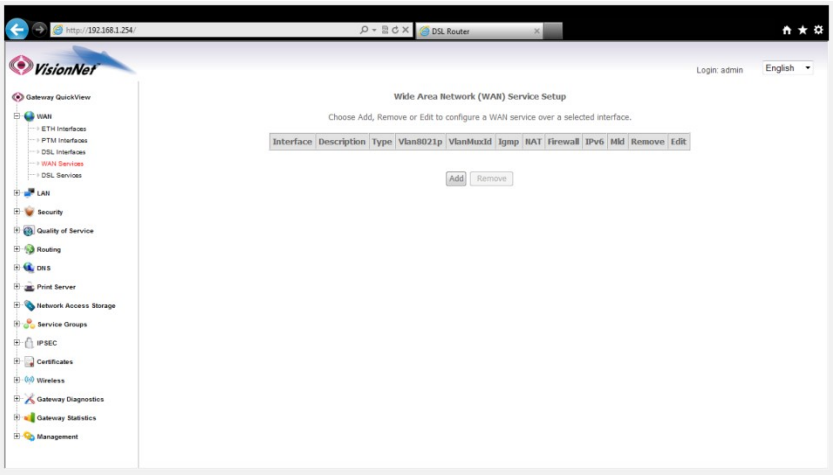
Step 1: Selecting the WAN Service to Create

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

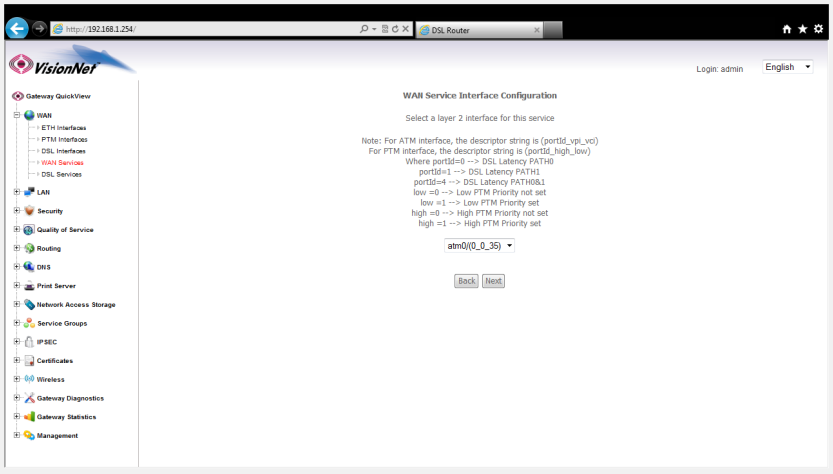
Then, In the left-hand frameset, select the appropriate WAN Interface

"Ethernet Services"

1.B **Select "Add"**



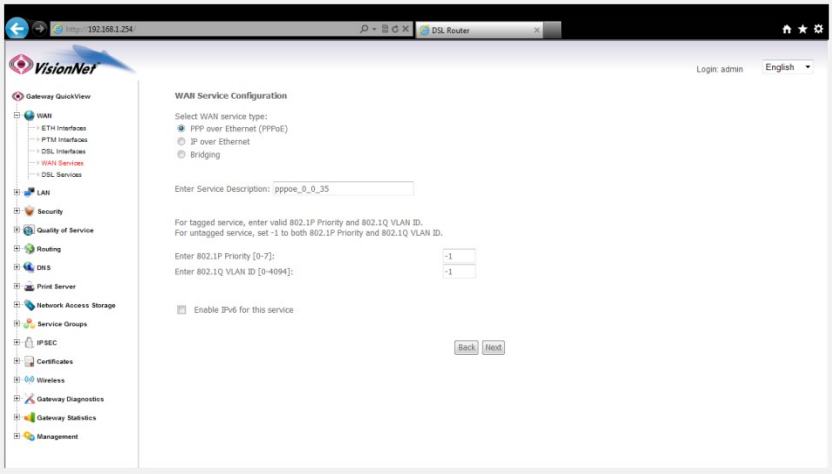
1.C **Select the desired WAN Interface**



Step 2: Configuring the WAN Service

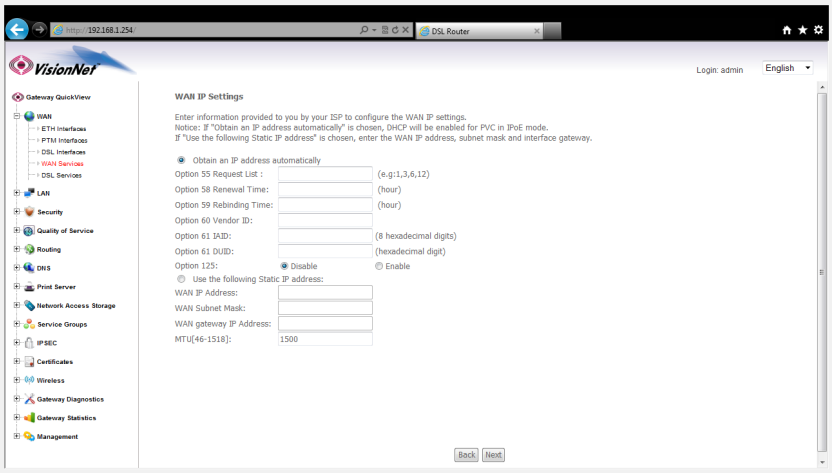
2.A WAN SERVICE CONFIGURATION.

Select WAN Service Type:	IPOE
Enter Service Description	Will not affect service – no spaces allowed
802.1P Tag (Only for VLAN Mux Services)	-1 Untagged Otherwise, choose approp tag
802.1Q Tag (Only for VLAN Mux Services)	-1 Untagged Otherwise, choose approp tag



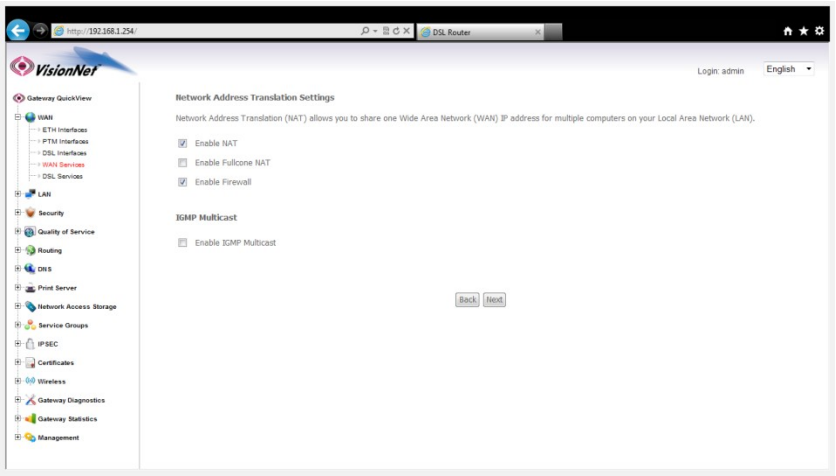
2.B Select "Next" and Proceed to "WAN IP Settings"

Obtain IP Address Automatically	For DHCP Service
Options 55 to 61	Only if specified by your Network Ops Manager
Use the following Static IP	Enter appropriate information
MTU	1500 unless specified by your Network Operations Manager



2.C NAT and IGMP Multi Cast

Enable NAT	Enabled unless Public IPs a be allocated to the LAN
Enable Full Cone NAT	Disabled
Enable Firewall	Enabled unless Public IPs a be allocated to the LAN
IGMP Multi - Cast	Disabled Unless IGMP Multi Cast is used for IPTV (IGMP Proxy



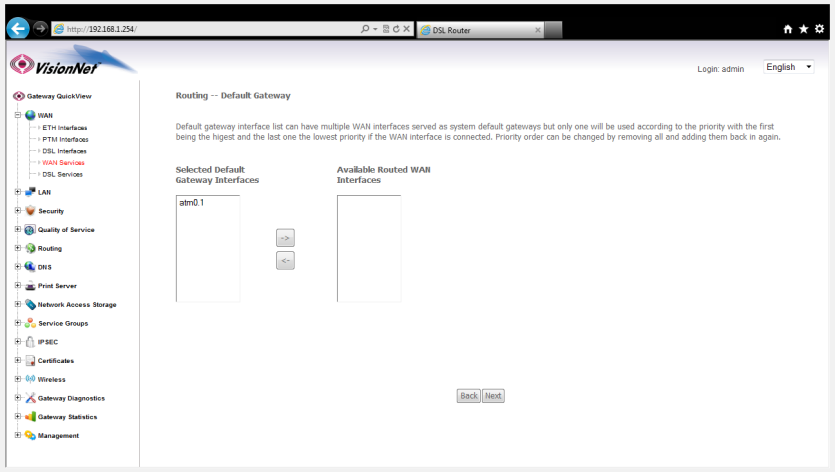
2.D Routing – Default Gateway

The DHCP Interface should be allocated to the "Selected Default Gateway" Interfaces.

This can be changed later.

The gateway priority is arranged from Top to Bottom

Gateways, that are not allocated, will not be used for the Routing Table

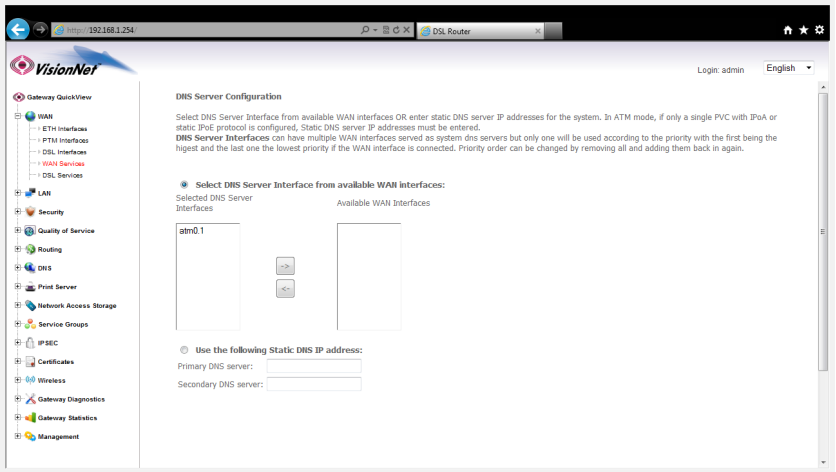


2.E DNS Server Configuration

You may prioritize the Dynamic DNS Servers

or

You may specify static DNS Servers



2.F When complete you may approve the settings. You will see the service populated in the "WAN Services" table

Section 3.8 – Creating a PPPoE WAN Service

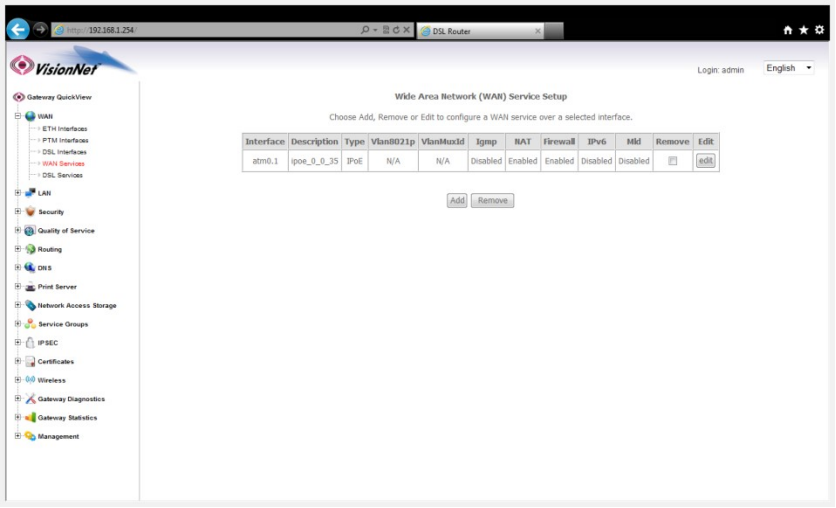
Step 1: Selecting the WAN Service to Create

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

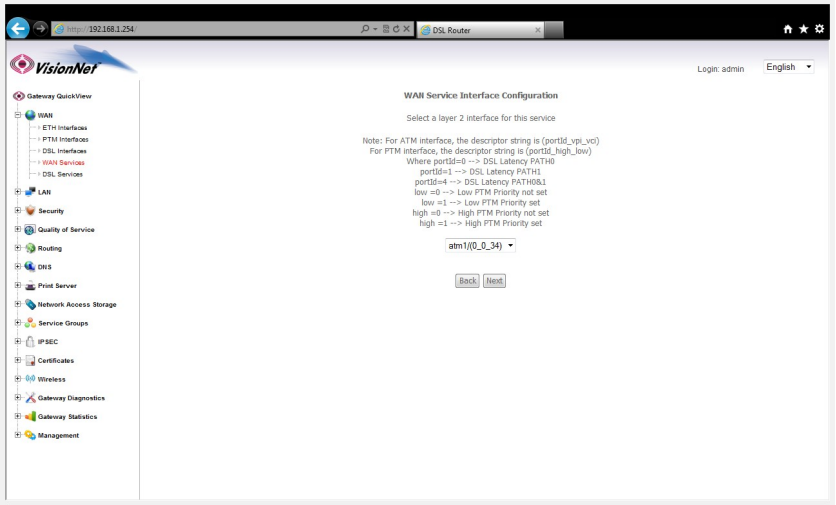
Then, In the left-hand frameset, select the appropriate WAN Interface

"Ethernet Services"

1.B **Select "Add"**



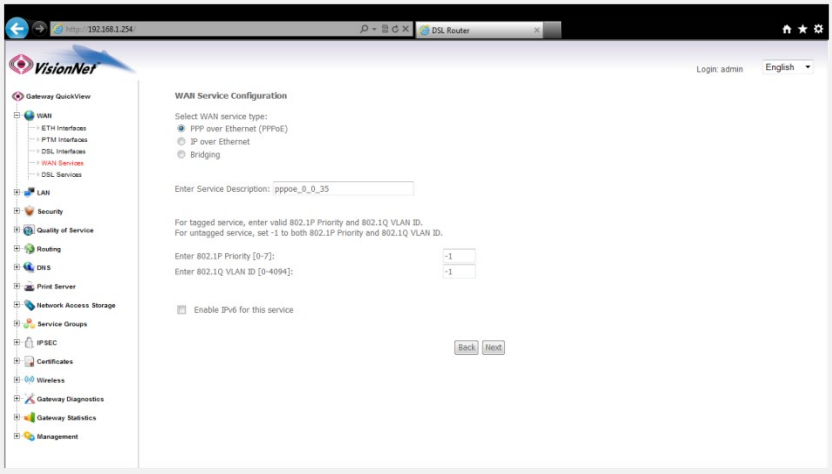
1.C **Select the desired WAN Interface**



Step 2: Configuring the WAN Service

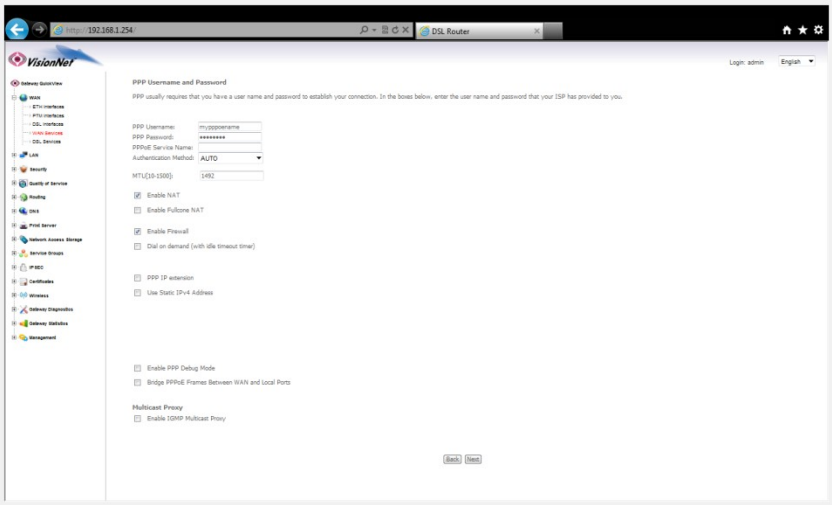
2.A WAN SERVICE CONFIGURATION.

Select WAN Service Type:	PPPoE
Enter Service Description	Will not affect service – no spaces allowed
802.1P Tag (Only for VLAN Mux Services)	-1 Untagged Otherwise, choose approp tag
802.1Q Tag (Only for VLAN Mux Services)	-1 Untagged Otherwise, choose approp tag



2.B Select "Next" and Proceed to "PPPoE Username and Password"

PPP Username	Enter unique Username
PPP Password	Enter unique Password
PPPoE Service Name	Leave blank unless specified by your Network Ops Manager
Authentication Method	AUTO unless specified by your Network Operations Manager
MTU	1492 unless specified by your Network Operations Manager
Enable NAT	Enabled, unless otherwise specified by Network Operations
Enable Full-Cone NAT	Disabled, unless specified otherwise by Network Operations
Dial on Demand	Disabled unless specified otherwise by Network Operations
PPPIP Extension	Disabled unless specified otherwise by Network Operations
Use Static IPv4 Address	Only use for static IP Settings
Enable PPP Debug Mode	Disabled – this is only for sending PPP packets to the Syslog for temporary troubleshooting
Bridge PPPoE Frames	Disabled – this will allow Clients to tunnel through the firewall to create a second PPPoE Session
MultiCast Proxy	Disabled unless specified otherwise by Network Operations



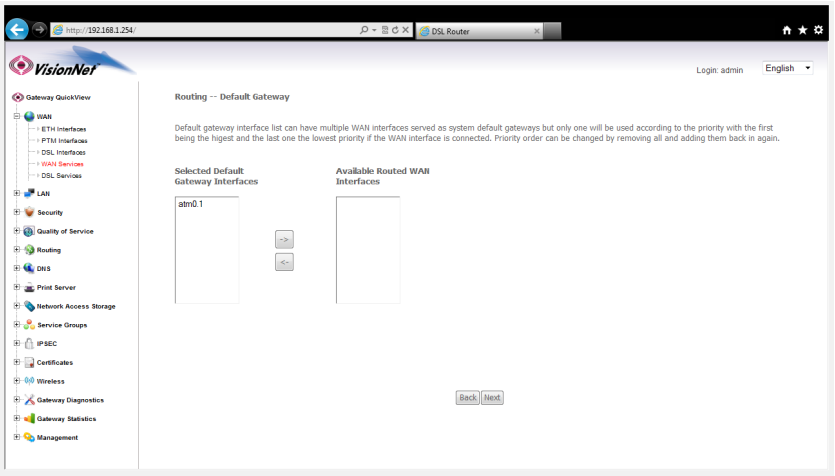
2.C Routing – Default Gateway

The DHCP Interface should be allocated to the “Selected Default Gateway” Interfaces.

This can be changed later.

The gateway priority is arranged from Top to Bottom

Gateways, that are not allocated, will not be used for the Routing Table

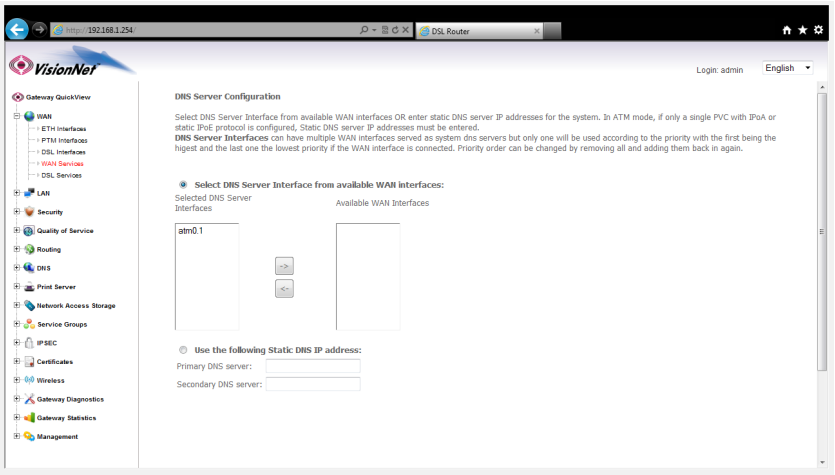


2.D DNS Server Configuration

You may prioritize the Dynamic DNS Servers

or

You may specify static DNS Servers



2.E When complete you may approve the settings. You will see the service populated in the “WAN Services” table

Section 3.9 – Creating a Bridge WAN Service

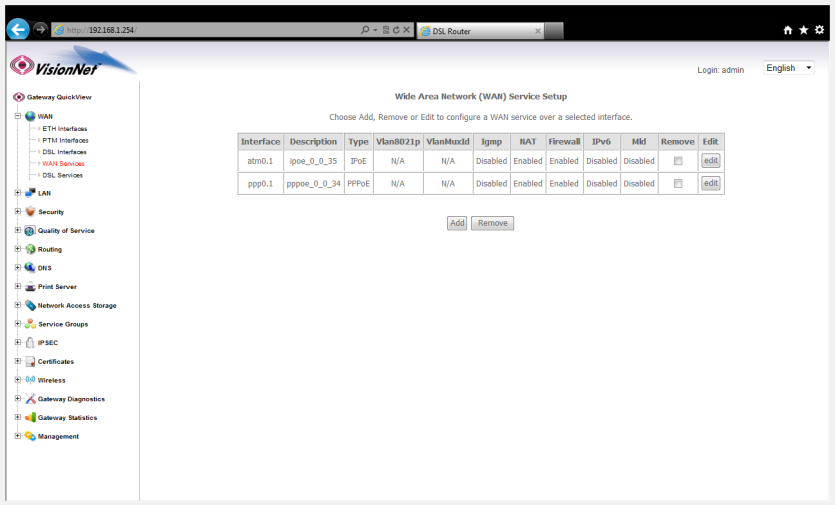
Step 1: Selecting the WAN Service to Create

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

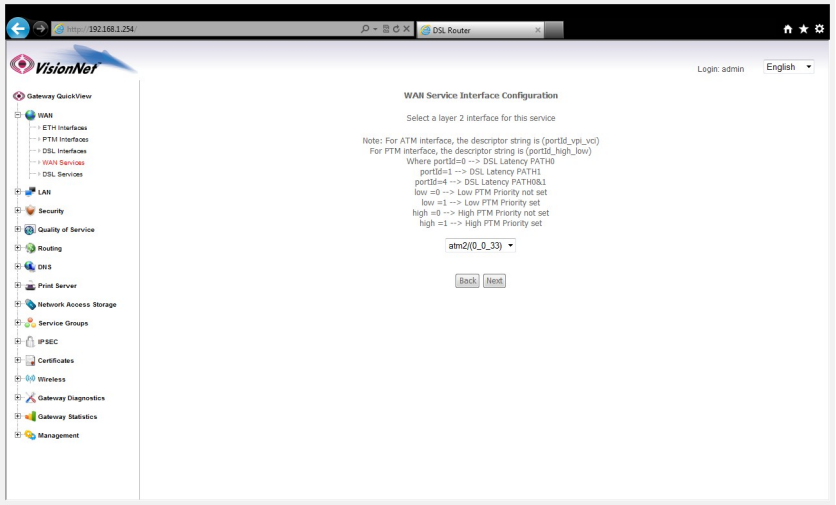
Then, In the left-hand frameset, select the appropriate WAN Interface

"Ethernet Services"

1.B **Select "Add"**



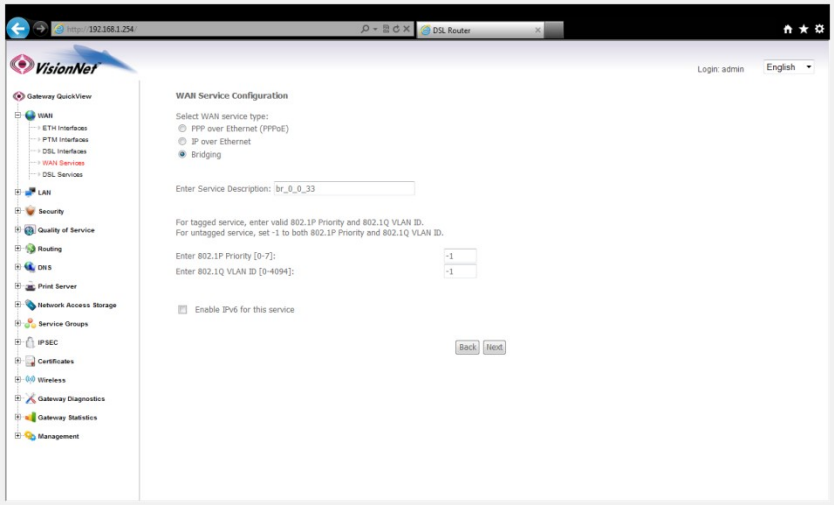
1.C **Select the desired WAN Interface**



Step 2: Configuring the WAN Service

2.A WAN SERVICE CONFIGURATION.

Select WAN Service Type:	**Bridging**
Enter Service Description	**Will not affect service – no spaces allowed**
802.1P Tag (Only for VLAN Mux Services)	**-1 Untagged** **Otherwise, choose approp tag**
802.1Q Tag (Only for VLAN Mux Services)	**-1 Untagged** **Otherwise, choose approp tag**



2.B Select "Next" to complete the Bridge WAN Service

Select "Apply / Save"

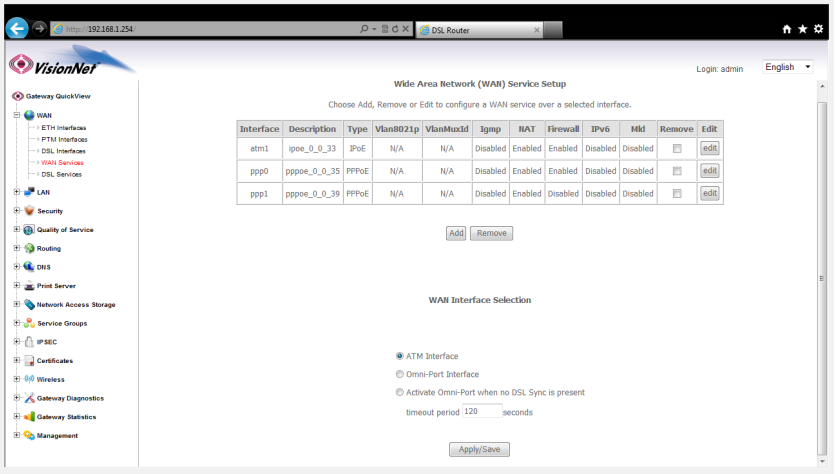
Section 3.10 – WAN Interface Prioritization

You may wish to support either the DSL or ATM Interface. You may choose the WAN Interface priority for your VisionNet gateway.

Step 1: Access the GUI to find the WAN Interface Page

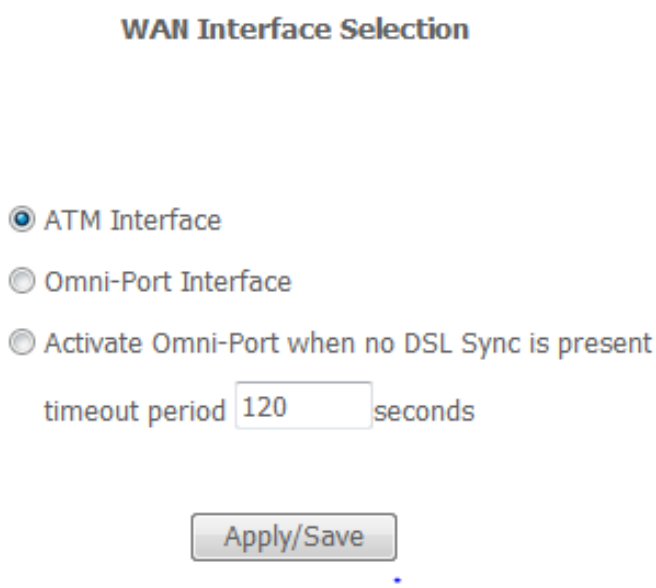
1.A **Select the "WAN" tab located within the left-hand frameset.**

Then, In the left-hand frameset, select "WAN Services"



1.B **Select the appropriate setting under "WAN INTERFACE SELECTION"**

ATM Interface	**DSL ONLY**
Omni-Port Interface	**Ethernet ONL**
Activate Omni-Port when no DSL Sync is present	**DSL Primary, Ethernet Secondary**
Timeout Period	**Time, after bo up, without D Sync prior to Ethernet Upli enabled**



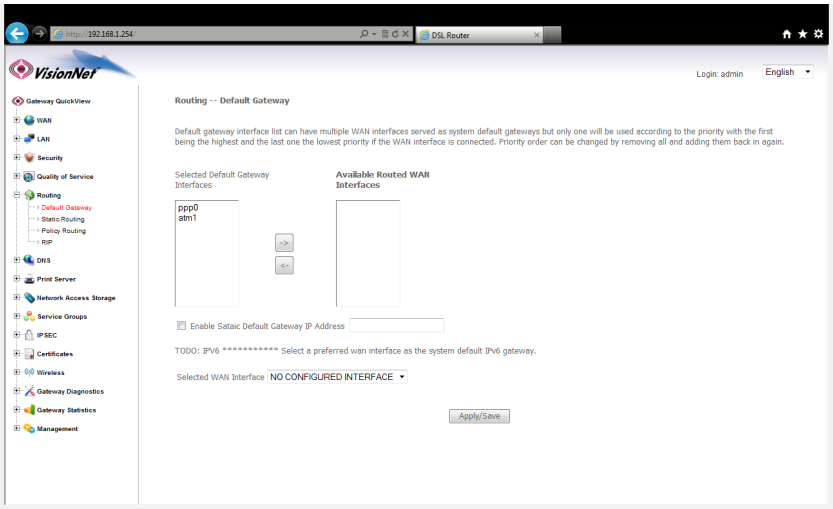
Section 3.11 – Gateway Prioritization

The VisionNet modem is designed to utilize each WAN specific gateway for it's intended purpose. You may specify which WAN Services are used for outbound traffic, and in which order, through Gateway Prioritization

Step 1: Access the GUI to find the Gateway Page

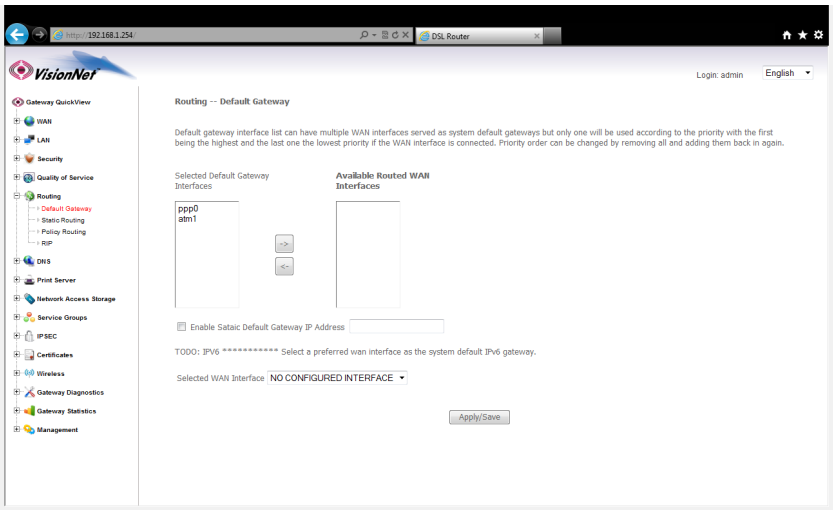
1.A **Select the "Routing" tab located within the left-hand frameset.**

Then, In the left-hand frameset, select "Default Gateway"



1.B **Check "Select Default Gateway Interfaces"**

Gateways are prioritized from top to bottom



1,C **Select "Save"**

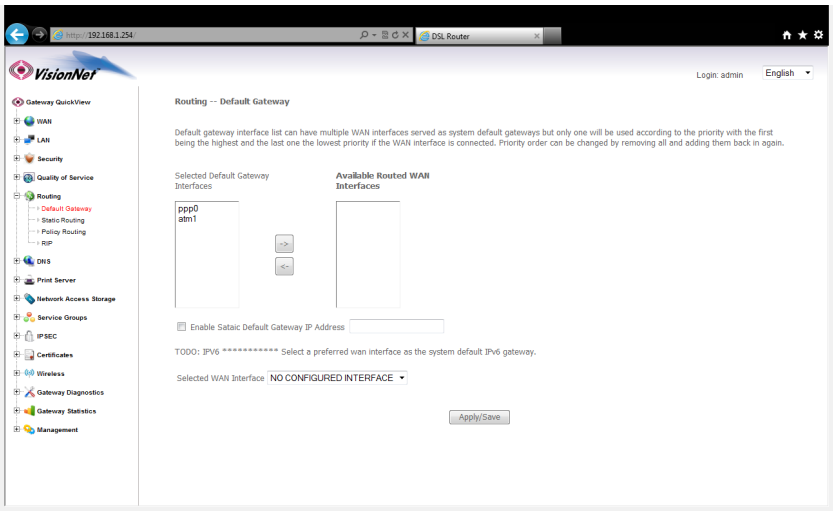
Section 3.12 – Universal Static Gateway Service

In the event that you would like to specify a universal gateway address, You may do so via the Gateway Prioritization Page

Step 1: Access the GUI to find the Gateway Page

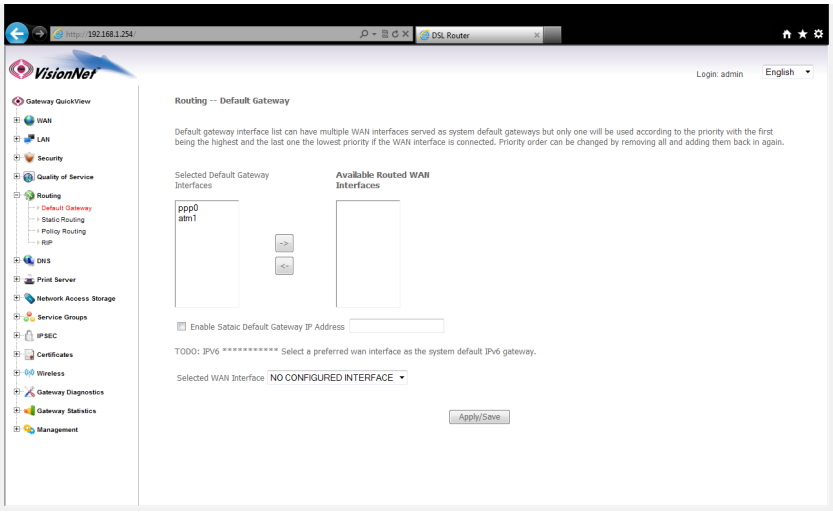
1.A **Select the "Routing" tab located within the left-hand frameset.**

Then, In the left-hand frameset, select "Default Gateway"



1.B **Check "Enable Static Gateway IP Address"**

Enter the desired Static Gateway



1,C **Select "Save"**

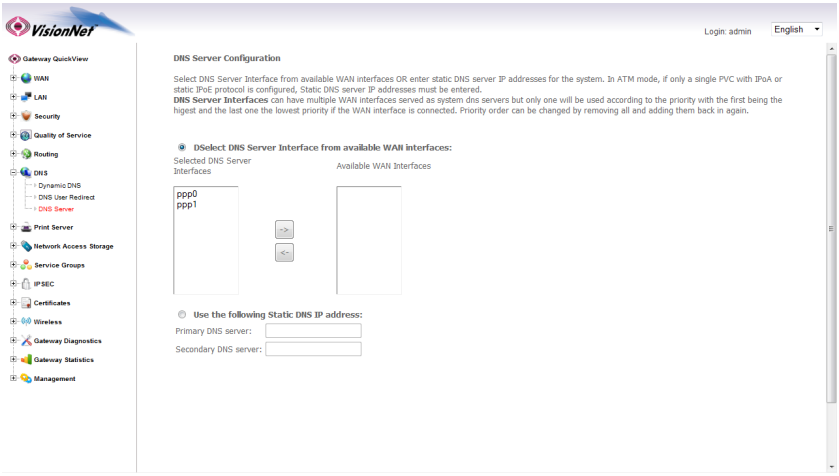
Section 3.13 – DNS Prioritization

You may use the DNS Server page to prioritize DNS Selection based upon WAN Services.

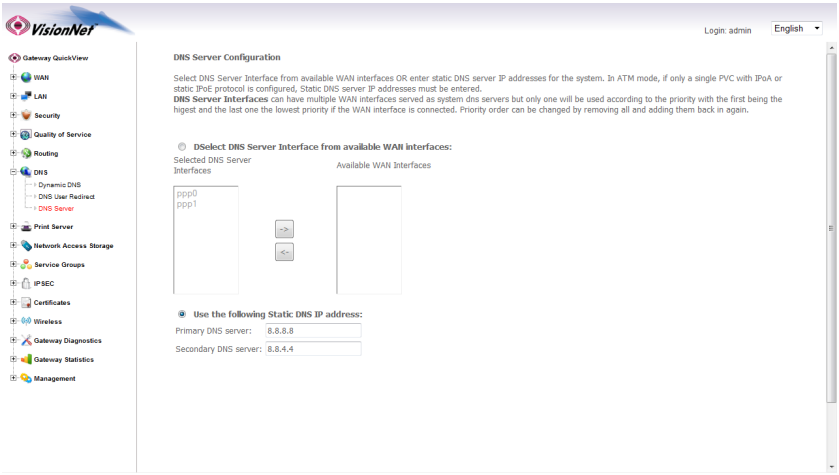
Step 1: Access the GUI to find the DNS Server Page

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

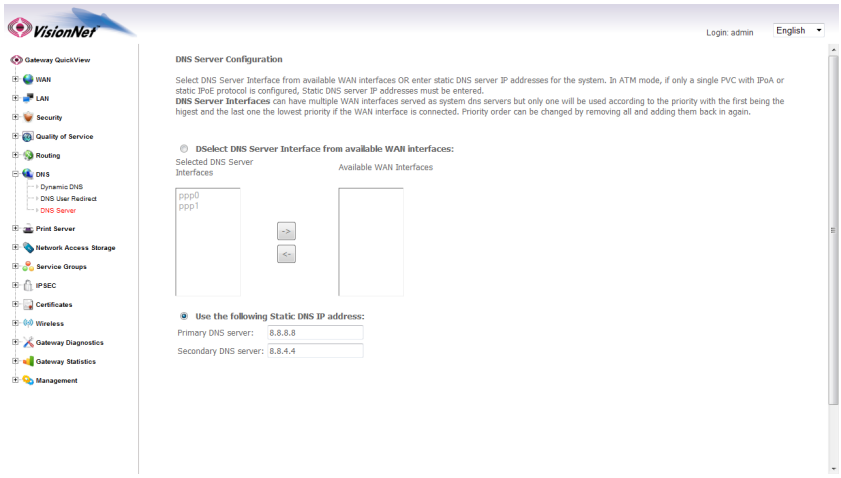
Then, In the left-hand frameset, select "DNS Server"



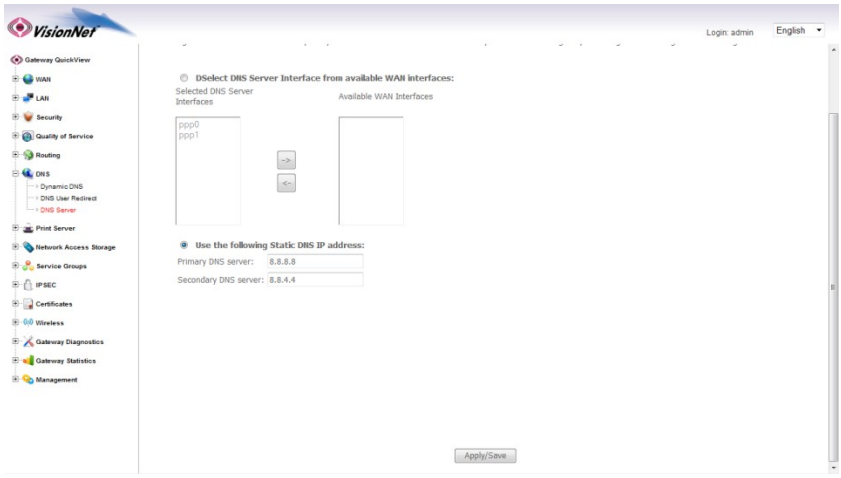
1.B **Select "Select DNS Server Interfaces from available WAN Interfaces"**



1.C Prioritize WAN Interfaces from Top to Bottom



1.D Select "Apply / Save" and then reboot the modem



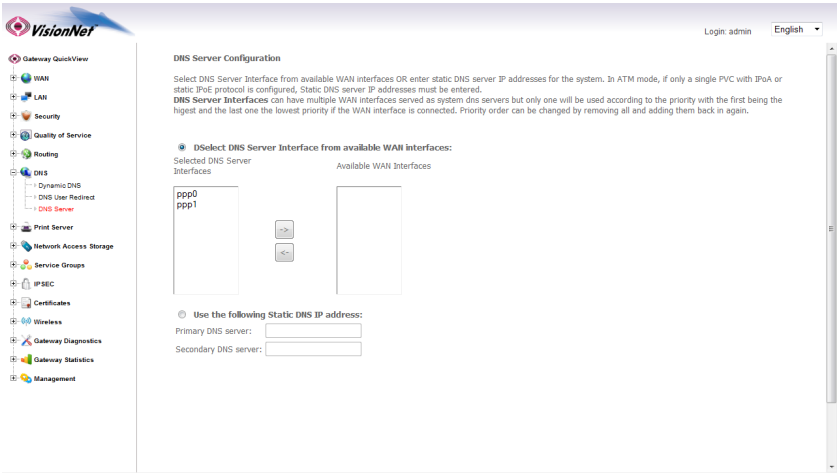
Section 3.14 – Universal Static DNS Addresses

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.

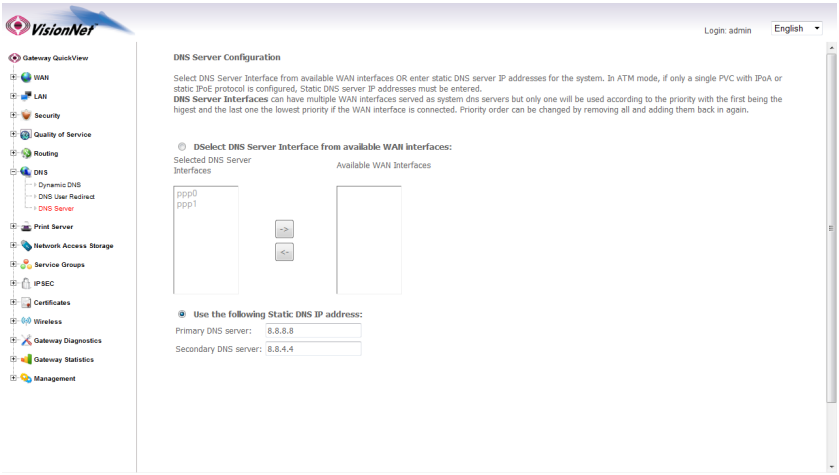
Step 1: Access the GUI to find the DNS Server Page

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

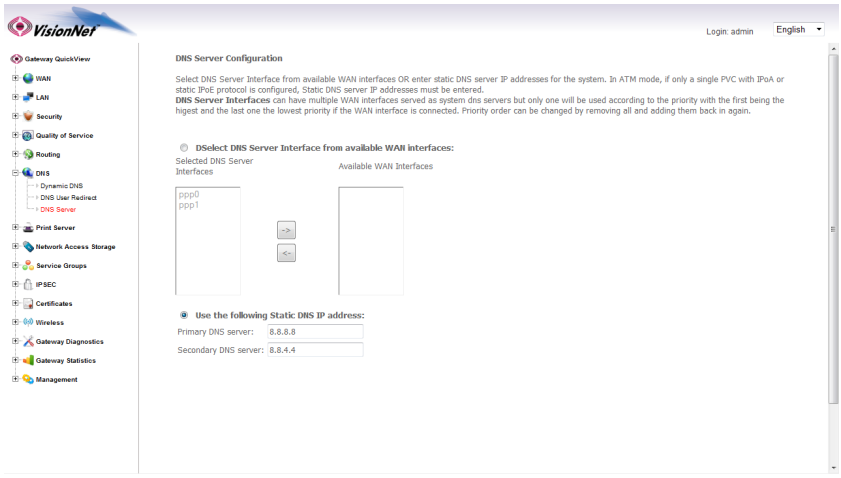
Then, In the left-hand frameset, select "DNS Server"



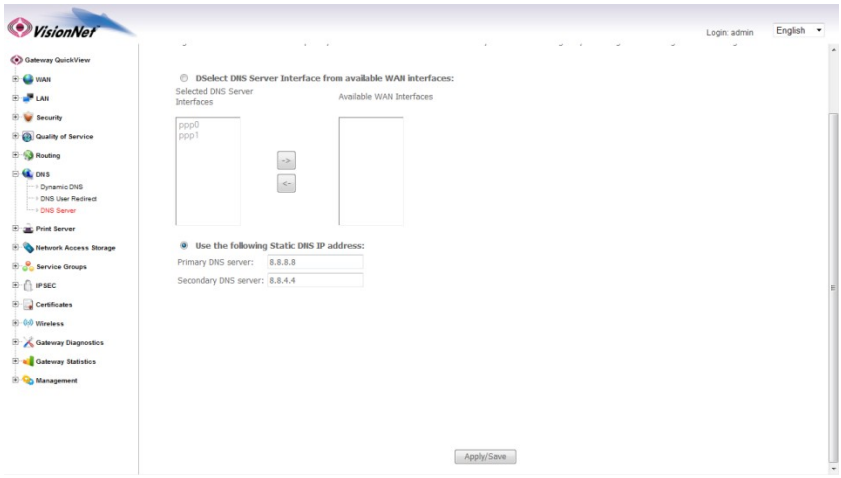
1.B **Select "Use the following Static DNS IP Address"**



1.C Enter the Primary and Secondary WAN DNS Addresses



1.D Select "Apply / Save" and then reboot the modem



SECTION 4: PUBLIC WAN IP ADDRESS ALLOCATION

Section 4.1 - Public IP Allocation – Public Subnet (WAN Interface within Subnet)

Prior to configuring the modem for a Public WAN Subnet, you must obtain the following information:

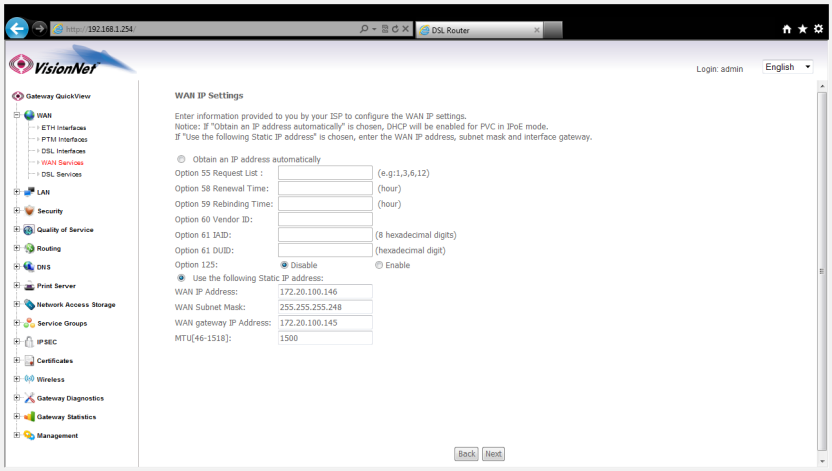
1) **The WAN Subnet to be used: (ie: 172.16.100.9 /29)**
2) **The WAN Gateway to be used**
3) **The WAN DNS Addresses to be used**

Designation	IP Address	Subnet
Network ID	172.20.111.144	255.255.255.248
Gateway WAN IP	172.20.111.145	255.255.255.248
Host B	172.20.111.146	255.255.255.248
Host C	172.20.111.147	255.255.255.248
Host D	172.20.111.148	255.255.255.248
Host E	172.20.111.149	255.255.255.248
Host F	172.20.111.150	255.255.255.248
Broadcast	172.20.111.151	255.255.255.248

Step 1: Select the appropriate WAN Service for modification

1.A Create the desired WAN Interface

Enter the required Public IP Information

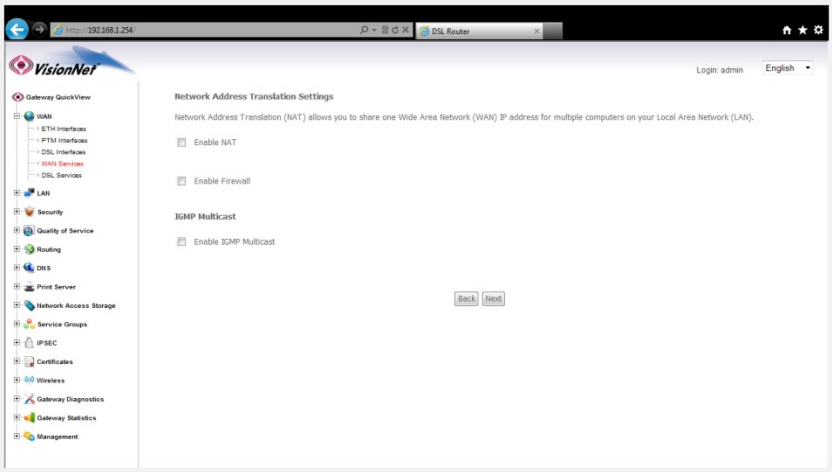


1.B Ensure the following settings

NAT must be DISABLED

Firewall must be DISABLED

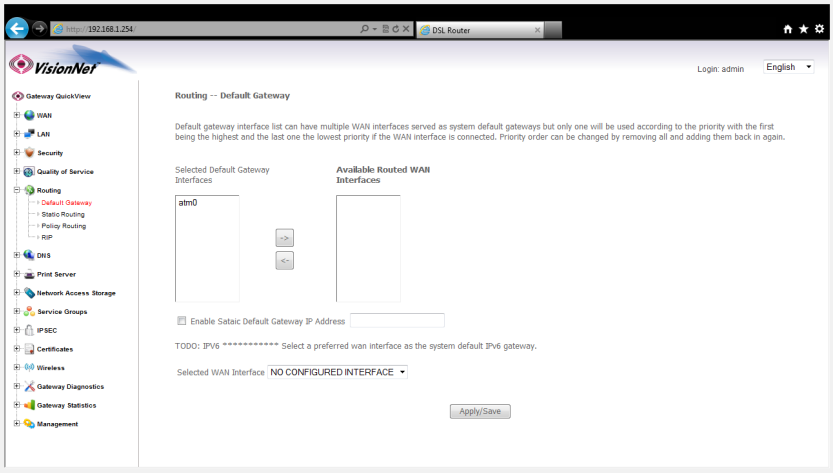
IGMP must be DISABLED



Step 2: Configure the Default Gateway

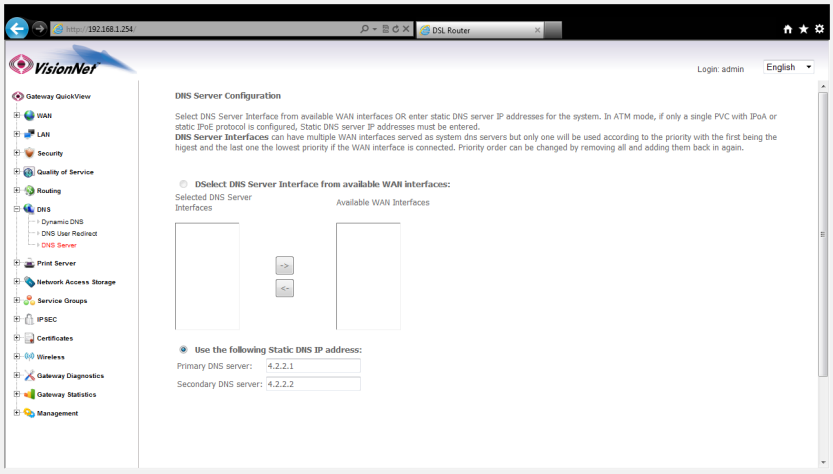
2.A **You may need to specify the gateway interface if you are using a PPP connection. Select "Routing"**

Enter ISP WAN Gateway



2.B **You may also specify the static DNS Page by access "DNS" and then "DNS SERVER"**

You may enter the Static DNS Information

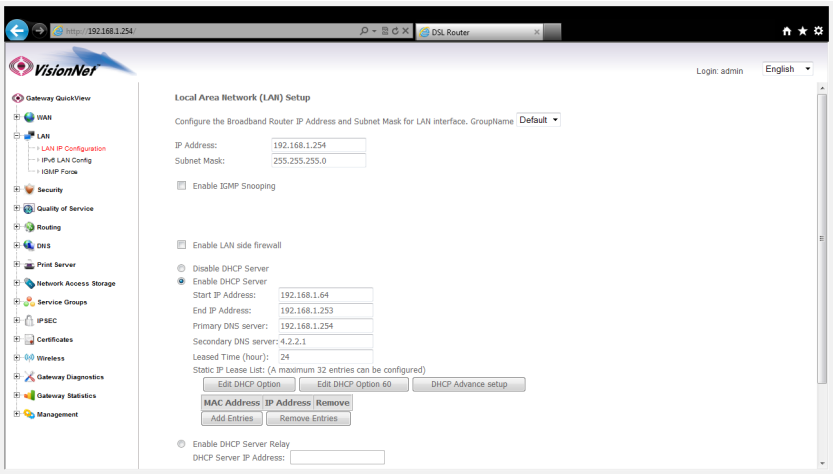


2.C **Select "Save / Apply"**

Step 3: Configure the LAN for Public IPs

3.A **From the "LAN" page located in the left hand frameset under "Advanced Setup"**

IP Address:	**Same as the WAN IP Address**
Subnet Mask:	**255.255.255.248 (or appropriate)**
Enable UPnP	**Disabled**
Enable IGMP Snooping:	**Disabled**
Enable LAN Side Firewall	**Disabled**
DHCP Server:	**Enabled (Or Disab depending)**
Start IP Address:	**Second Host IP Address**
End IP Address:	**6th Host IP Addres**
Subnet Mask:	**255.255.255.248**
DNS Servers	**Enter primary anc Secondary**
Leased Time (hour):	**24**
Reserve IP Address	**Unnecessary**
Configure Secondary IP Address:	**Unchecked**



3.B **Once complete, select "Save/Reboot"**

PLEASE NOTE THAT LAN DEVICES MUST BE REBOOT PRIOR TO OBTAINING NEW, PUBLIC, IP ADDRESSES

Section 4.2 – Public IP Allocation – Virtual Public Subnet (WAN Interface not within Subnet)

PLEASE NOTE: THIS IS ONLY FOR BUSINESS CUSTOMERS WHO HAVE BEEN ASSIGNED A SERIES OF STATIC IP ADDRESSES. PLEASE OBTAIN APPROVAL FROM A SUPPORT MANAGER BEFORE BEGINNING THIS PROCEDURE

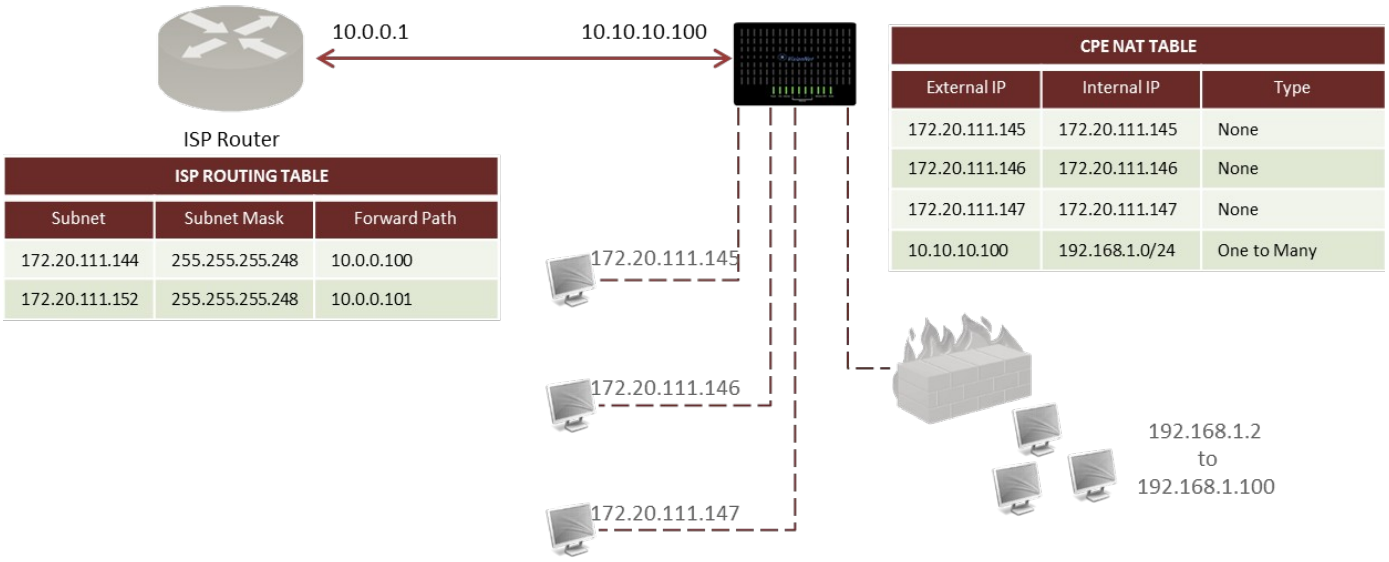
Prior to configuring the modem for a Public WAN Subnet, you must obtain the following information:

The WAN Subnet to be used: (ie: 172.16.100.144 /29)

Designation	IP Address	Subnet
Network ID	172.20.111.144	255.255.255.248
Secondary LAN IP	172.20.111.145	255.255.255.248
Host B	172.20.111.146	255.255.255.248
Host C	172.20.111.147	255.255.255.248
Host D	172.20.111.148	255.255.255.248
Host E	172.20.111.149	255.255.255.248
Host F	172.20.111.150	255.255.255.248
Broadcast	172.20.111.151	255.255.255.248

Why Virtual IP Allocation

You may wish to allocate IP Addresses, directly to devices, that are assigned to the customer; but not the primary WAN Interface of the Gateway



ISP ROUTING TABLE

Subnet	Subnet Mask	Forward Path
172.20.111.144	255.255.255.248	10.0.0.100
172.20.111.152	255.255.255.248	10.0.0.101

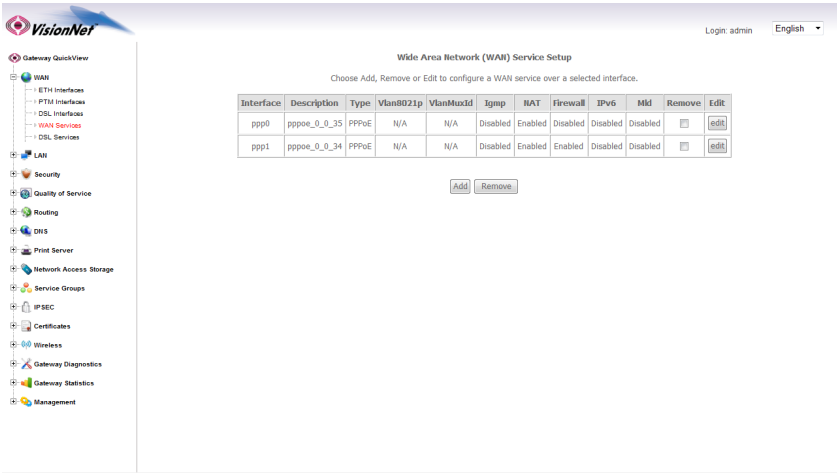
CPE NAT TABLE

External IP	Internal IP	Type
172.20.111.145	172.20.111.145	None
172.20.111.146	172.20.111.146	None
172.20.111.147	172.20.111.147	None
10.10.10.100	192.168.1.0/24	One to Many

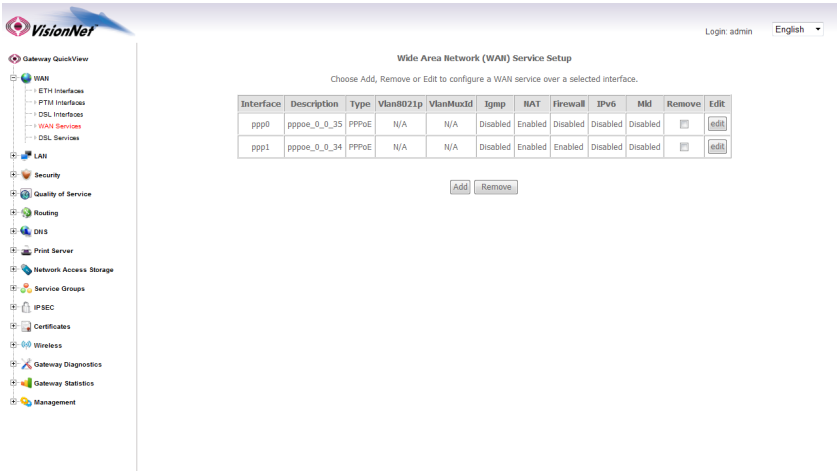
Step 1: Edit an existing WAN Connection

1.A In the left-hand frameset select "WAN"

Then select "WAN Services"

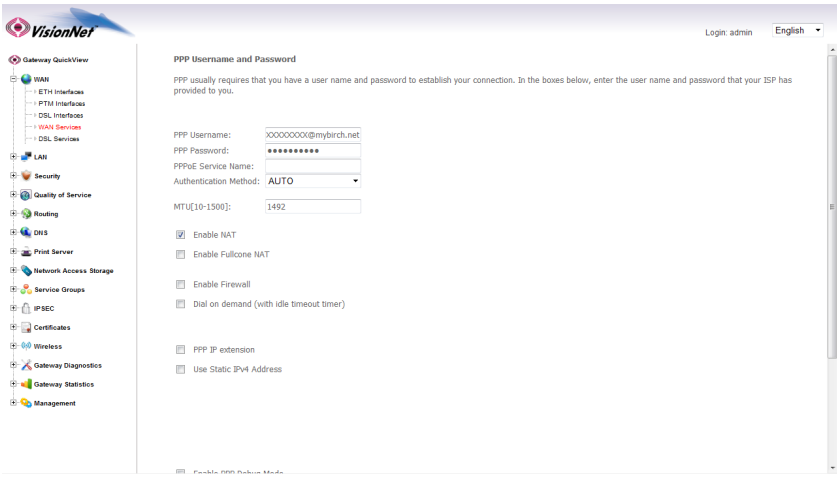


1.B Choose the appropriate WAN Service, and select "Edit"



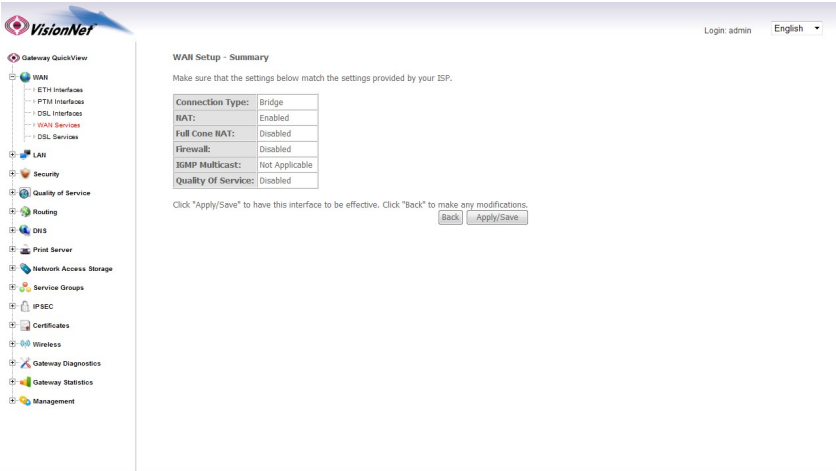
1.C Disable "Firewall"

ONLY "ENABLE NAT" SHOULD BE ENABLED!!!



1.D Review the WAN Setup Summary

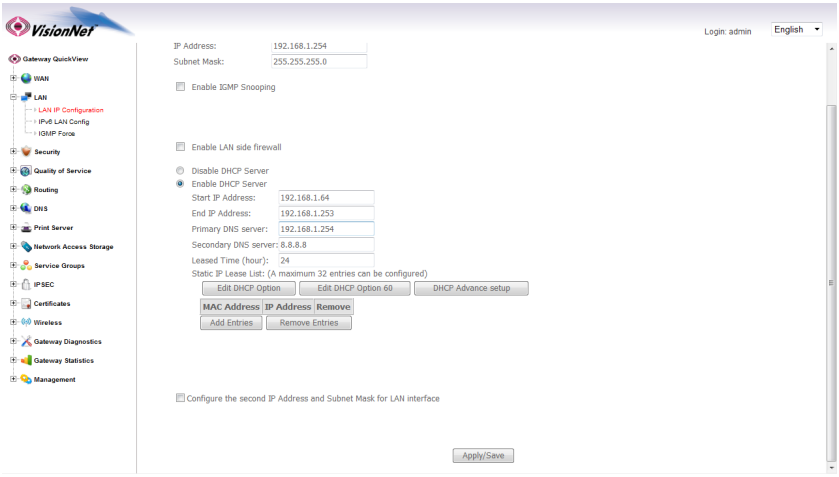
Select "Apply / Save"



Step 2: Direct Your Browser to the LAN Configuration Page

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

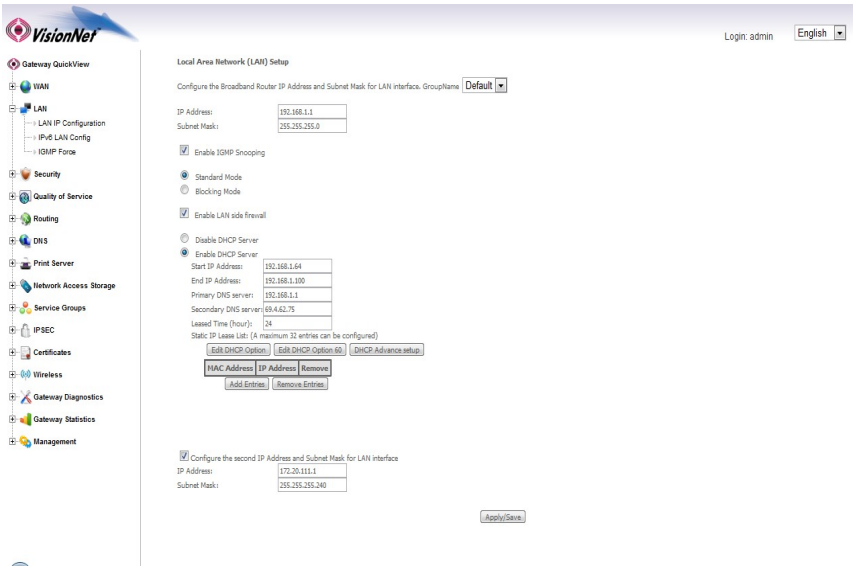
Then, In the left-hand frameset, select "LAN IP Configuration"



2.B **Select Configure the Second IP Address and Subnet Mask for LAN Interface**

Enter the first usable Host within the desired subnet

Enter the Subnet Mask (255.255.255.248)



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

Step 3: Configure Hosts

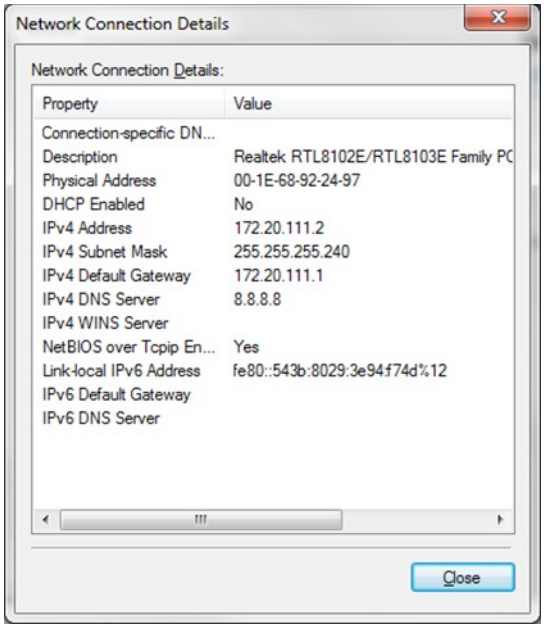
3.A EACH HOST MUST BE CONFIGURED WITH THE FOLLOWING SETTING

IP ADDRESS: Usable Host

Subnet Mask: 255.255.255.248

Gateway: First Usable Host (CPE LAN IP Address)

DNS Address: Choose appropriate Birch DNS Servers



Section 4.3 - Public IP Allocation – 1:1 NAT Public Subnet

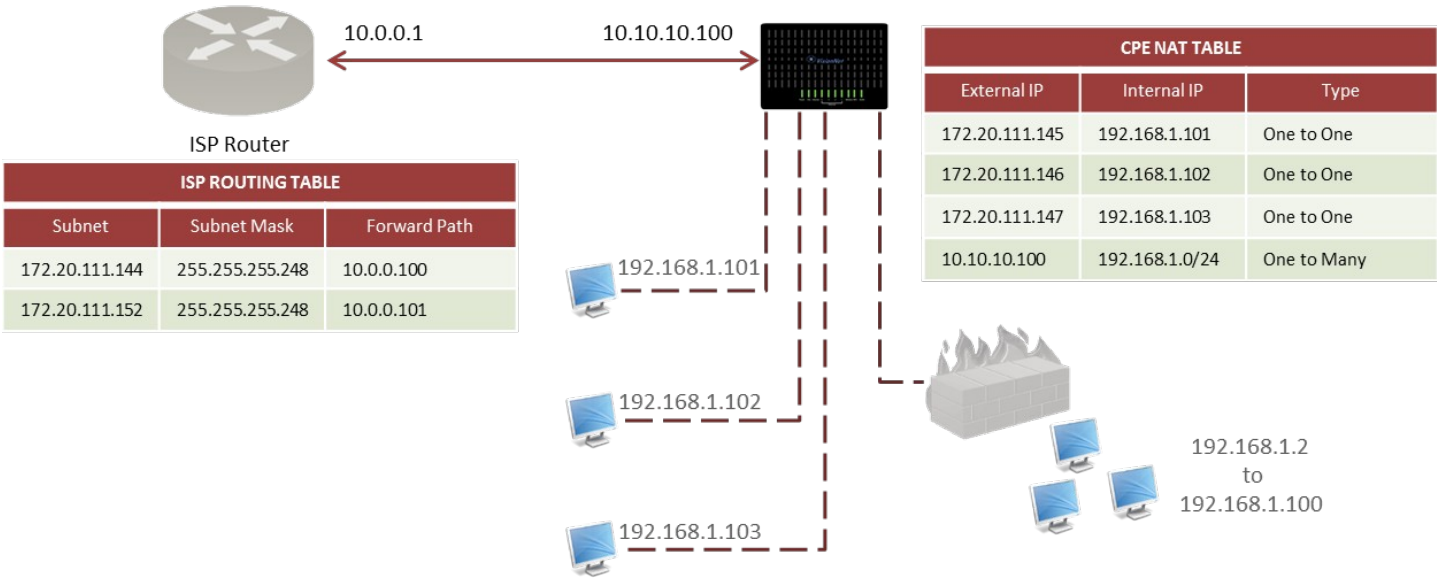
Prior to configuring the modem for a Public WAN Subnet, you must obtain the following information:

1) **The WAN Subnet to be used: (ie: 172.16.100.144 /29)**
2) **The WAN Gateway to be used**
3) **The WAN DNS Addresses to be used**

Designation	IP Address	Subnet
Network ID	172.20.111.144	255.255.255.248
Host A	172.20.111.145	255.255.255.248
Host B	172.20.111.146	255.255.255.248
Host C	172.20.111.147	255.255.255.248
Host D	172.20.111.148	255.255.255.248
Host E	172.20.111.149	255.255.255.248
Host F	172.20.111.150	255.255.255.248
Broadcast	172.20.111.151	255.255.255.248

Why 1:1 NAT (Multi-NAT)

Multi-NAT will allow you to forward traffic, destined for a WAN IP Address within the assigned subnet, to an internal Host assigned with a private LAN IP.



ISP ROUTING TABLE

Subnet	Subnet Mask	Forward Path
172.20.111.144	255.255.255.248	10.0.0.100
172.20.111.152	255.255.255.248	10.0.0.101

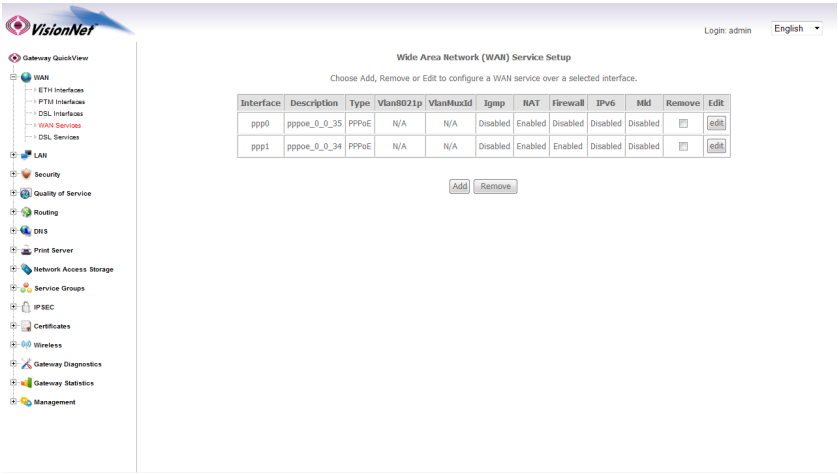
CPE NAT TABLE

External IP	Internal IP	Type
172.20.111.145	192.168.1.101	One to One
172.20.111.146	192.168.1.102	One to One
172.20.111.147	192.168.1.103	One to One
10.10.10.100	192.168.1.0/24	One to Many

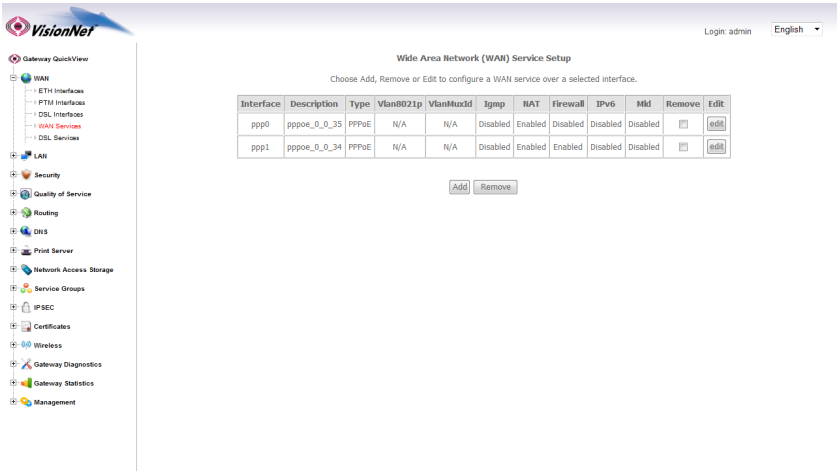
Step 1: Edit an existing WAN Connection

1.A **In the left-hand frameset select "WAN"**

Then select "WAN Services"

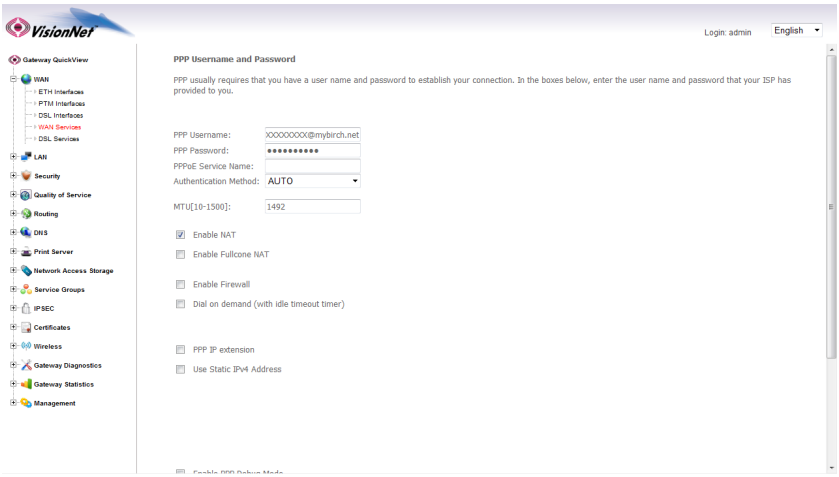


1.B **Choose the appropriate WAN Service, and select "Edit"**

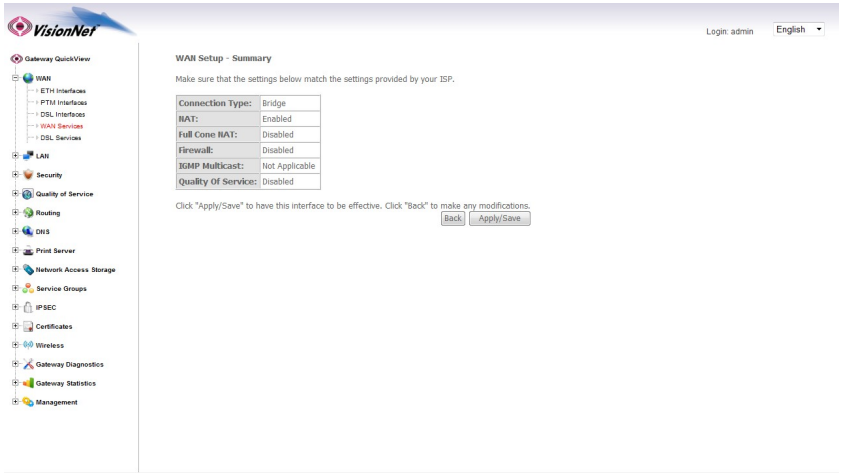


1.C **Disable "Firewall"**

ONLY "ENABLE NAT" SHOULD BE ENABLED!!!



1.D Review the WAN Setup Summary



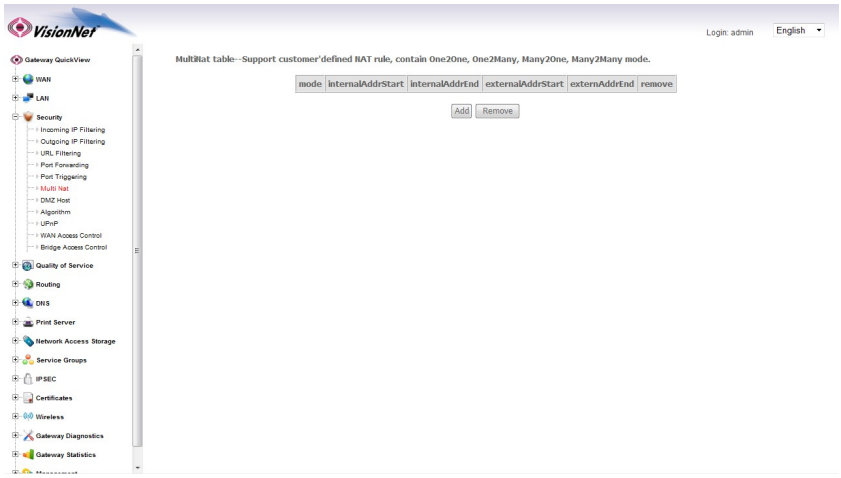
Select "Apply / Save"

Step 2: Apply Static LAN IPs to Devices to that will have direct WAN Access

2.A Please see section 4.2 for further instruction

Step 3: Configure 1:1 NAT

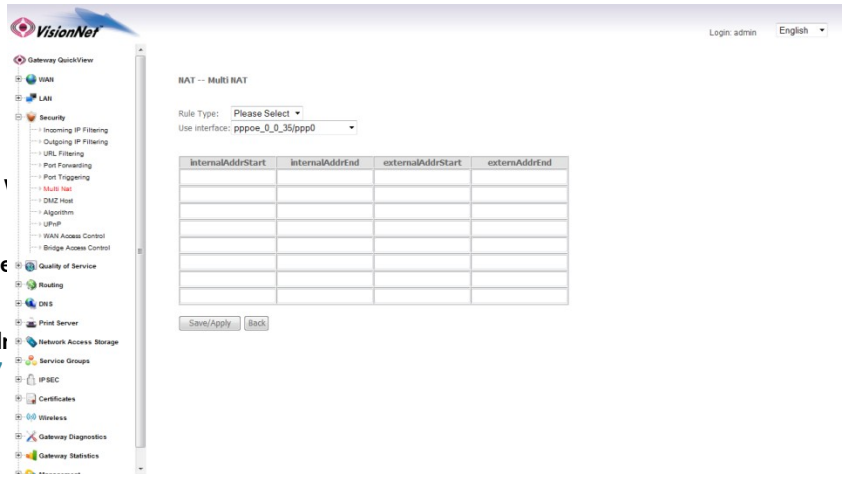
3.A In the left-hand frameset select "Security"



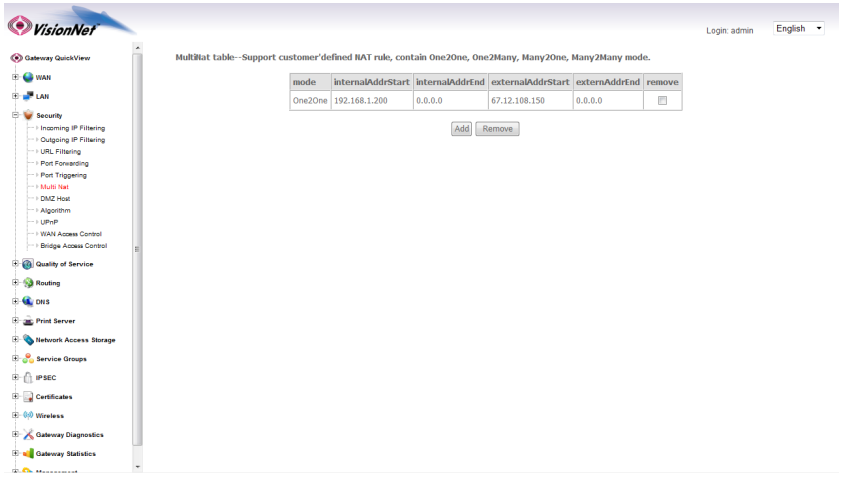
Then select "Multi-NAT"

3.B **Select Add**

Rule Type:	**One to One**
Use Interface:	**Choose appropriate** Interface
Internal AddrStart	**Choose LAN IP Addre** ie: 192.168.1.200
External AddrStart	**Choose WAN IP Addr** – ie: 172.20.111.147



3.C **Review the NAT Table**



Section 4.4 - Public IP Allocation – PPPIP Extension

Why PPPIP Extension?

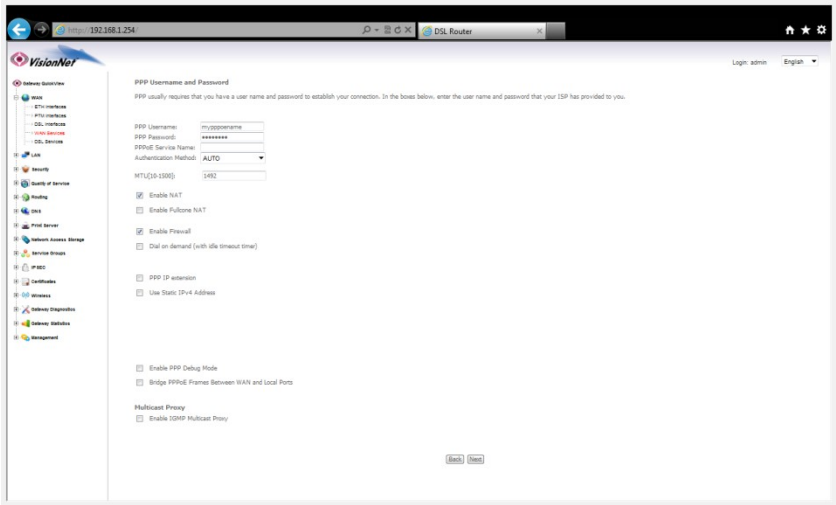
- *You may wish for the modem to manage the PPP Authentication*
- *You may wish for the IP Address, obtained by the Gateway, to forward to a LAN Host*
- *You may not wish for a full subnet to be assigned*

PPPIP Extension will forward the Gateway's WAN IP to the first LAN Host that makes a DHCP request

Step 1: When creating a WAN Connection

1.A PPP Configuration

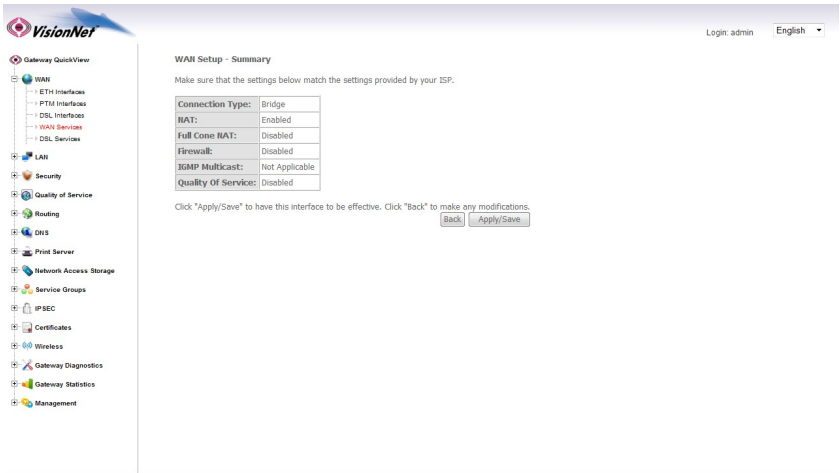
PPPIP Extension must be enabled



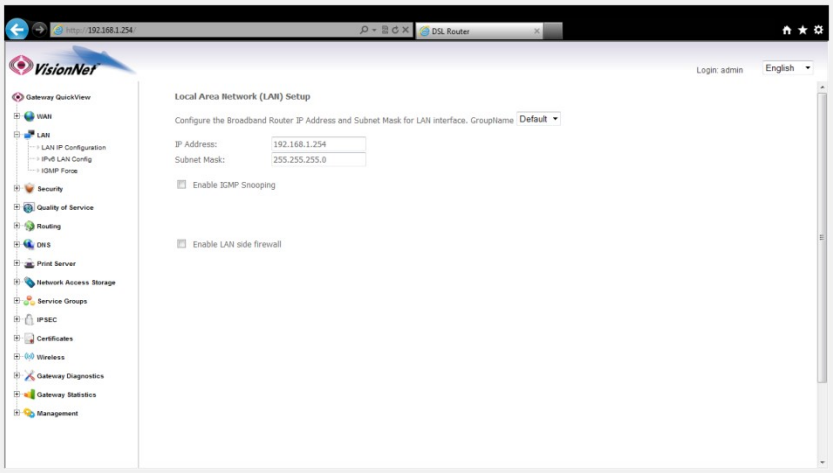
1.B NAT must be DISABLED

Full Cone NAT must be DISABLED

Firewall must be DISABLED



1.C **The LAN Section will be modified automatically**



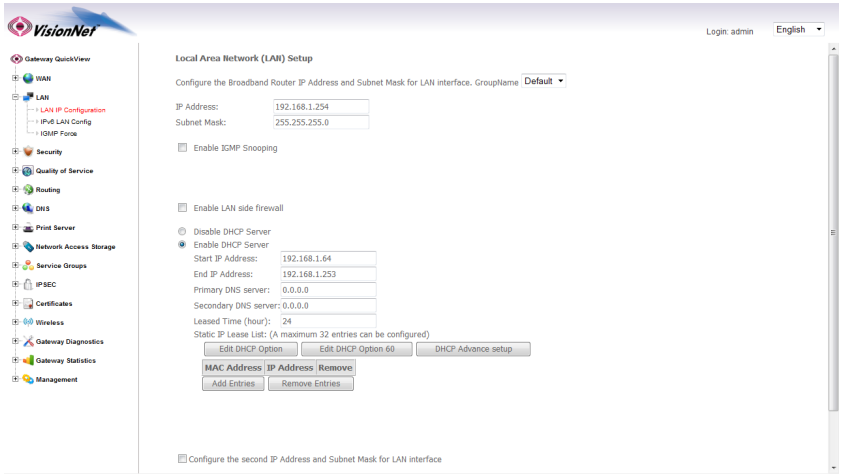
SECTION 5: LAN CONFIGURATION

Section 5.1 – Configuration LAN Services

Step 1: Direct Your Browser to the LAN Configuration Page

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

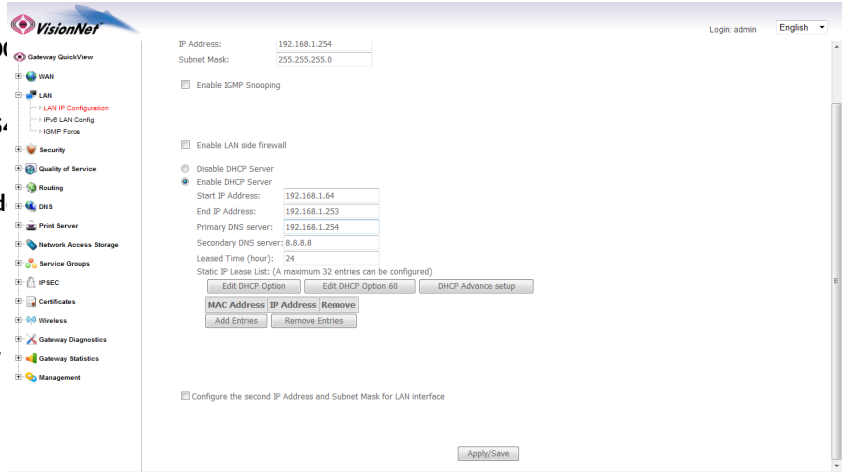
Then, In the left-hand frameset, select "LAN IP CONFIGURATION"



Step 2: Configure LAN Settings

2.A **Configure the LAN IP Characteristics**

IP Address:	**192.168.1.254**
Subnet Mask:	**255.255.255.0**
Enable IGMP Snooping:	**Unchecked**
DHCP Server:	**Enabled**
Start IP Address:	**192.168.1.64**
End IP Address:	**192.168.1.10**
Primary DNS Server:	**192.168.1.25**
Secondary DNS Server:	**WAN DNS Ad**
Leased Time (hour):	**24**
All other settings	**Unnecessary**
Configure Second IP Address:	**Unchecked**



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

Section 5.2 – 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.

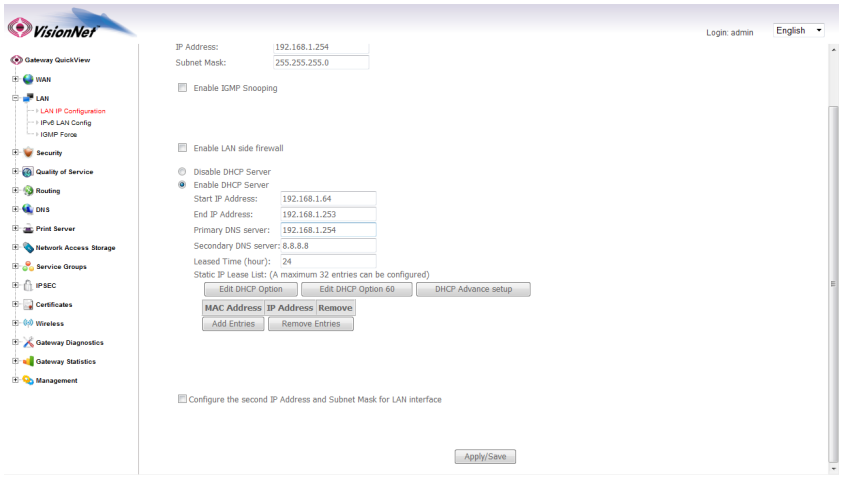
These devices may be provided a Static IP Address via the DHCP Server. When a Reserved IP Address is specified, the modem will consistently provide the same dynamic IP Address to the specified MAC Address. The Reserved IP Address will not be assigned to any other LAN Devices.

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.**

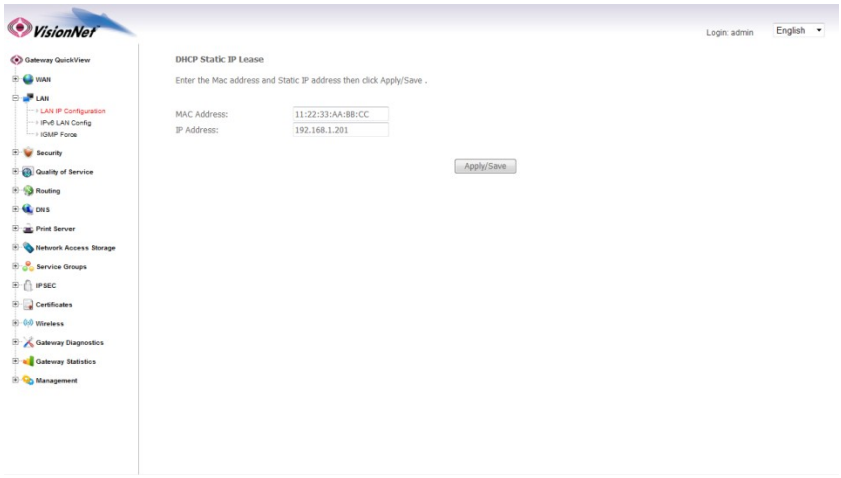
Then, In the left-hand frameset, select "LAN IP Configuration"



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 5.3 – IGMP Force

IGMP Rules

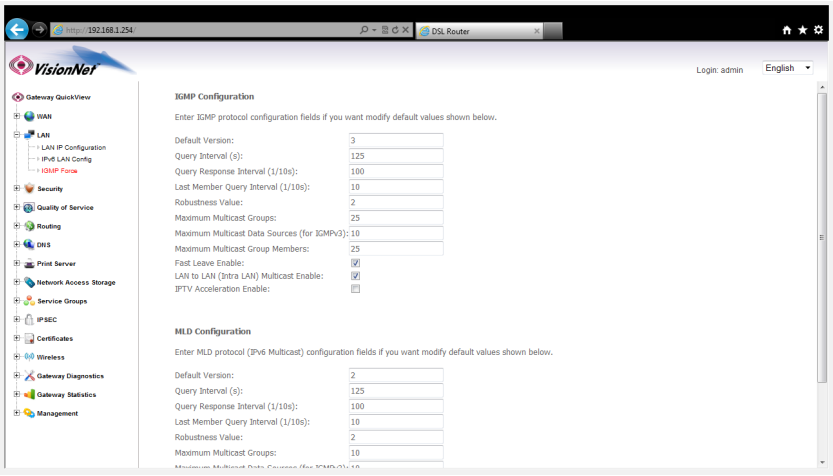
When IGMP Proxy is used, you may force the IGMP values and conventions.

There are times that you may wish to define one protocol exclusively (IE IGMP v3 in lieu of v2)

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 "IGMP Force"



1.B **Make desired changes**

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

SECTION 6: SECURITY CONFIGURATION

Section 6.1 – Port Forwarding

VISIONNET MODEMS ARE PRE-CONFIGURED FOR THE FOLLOWING 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:

IP Camera Port Forwarding Rules have been enabled

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
Camera 3	6233	192.168.1.233	80	TCP/UDP
Camera 4	6234	192.168.1.234	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

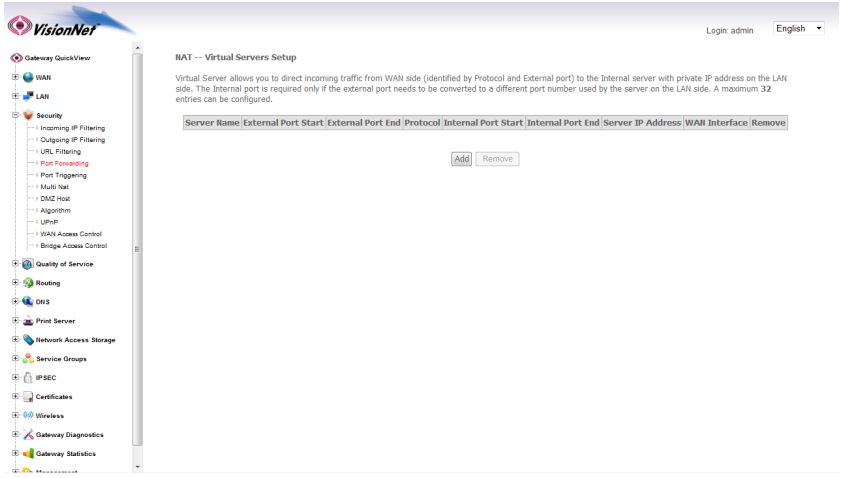
The customer will remotely access their camera by pointing their browser to the Public IP Address of the modem, and appending the appropriate port number. (ie: 67.126.108.104:6231)

The customer should have either a static IP, or a DynDNS URL Account to ensure that they may access the camera consistently. The customer can configure DynDNS settings via the end-user login.

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.

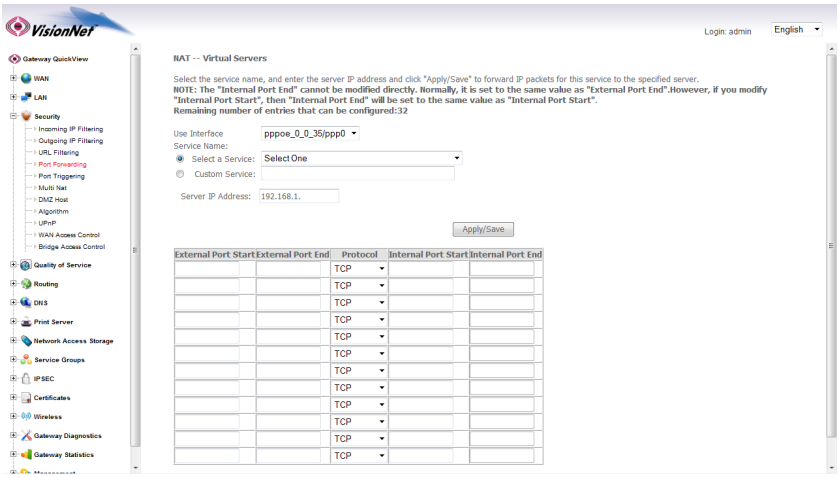
Step 2: Configure the Port Forwarding Rule

2.A Choose the name of the rule

Choose the appropriate WAN Interface:

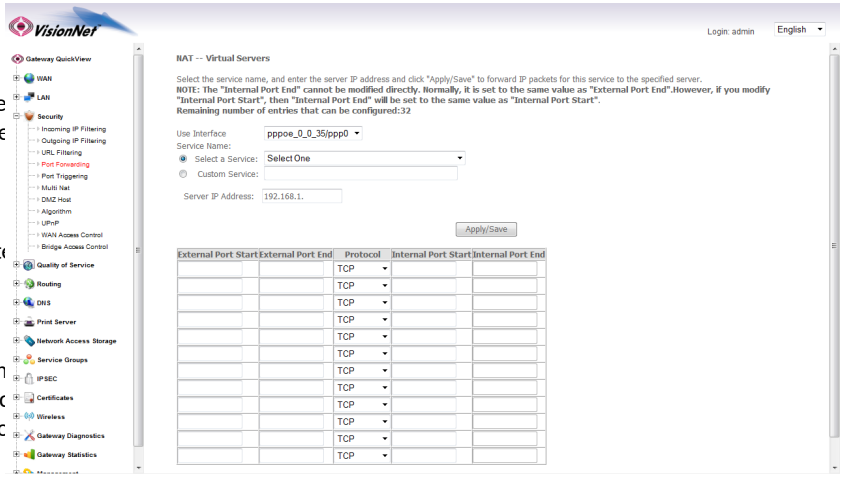
If the Service you would like to have is already available in the "Select a Service" menu, you may select this service for auto-population.

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 Came example)
External Port End	This should be the same as "Int Port Start"
Remote IP	This should left blank, unless on one remote device, with a static will be allowed to access this pc



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 6.2 – 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

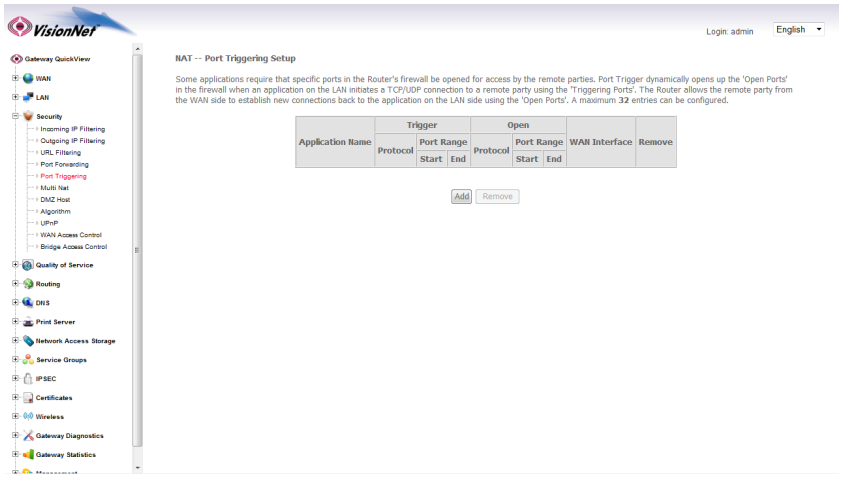
In this scenario, a LAN Device (ie: The end-user's laptop) will make an outbound UDP request on ports 500 and 10001. The modem responds to this by temporarily forwarding ports 500 and 10001 to the IP address of the initiating LAN Device (ie: The end-users laptop) for the life of the session.

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.**

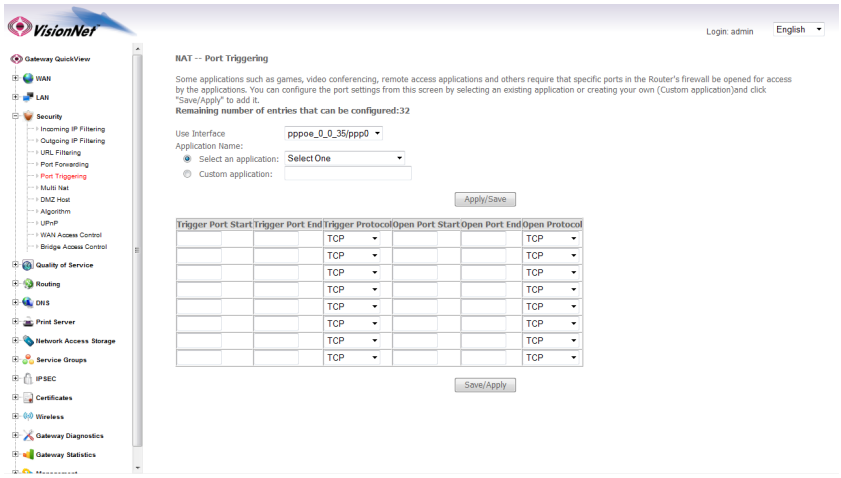
Please Note: If the port to be assigned is already specified in the existing Port Triggering Table, you must remove the rule containing this port prior to creating a new one.

Step 2: Configure the Port Forwarding Rule

2.A Select the appropriate WAN Interface

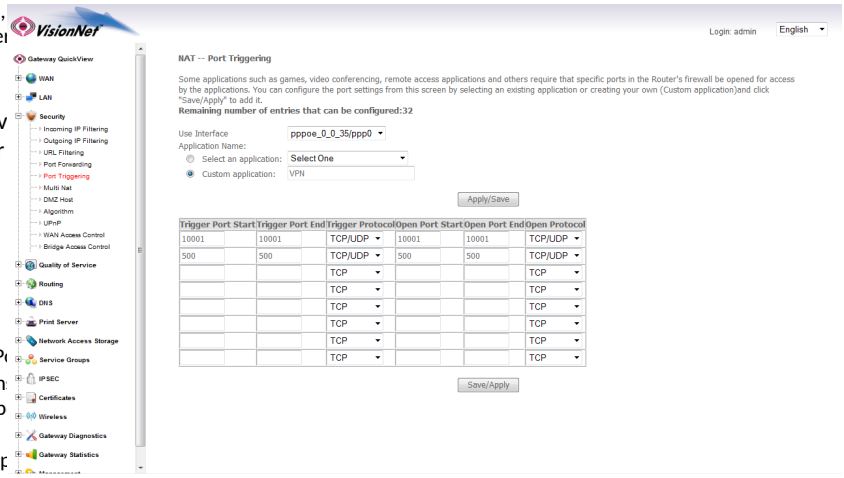
If the Service you would like to have is already available in the "Select a Service" menu, you may select this service for auto-population.

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
Trigger Port End	This will usually match the "Trigger Port Start" parameter; some applications, however, may use a succession of ports. In this case you will enter the final port in that range. If these ports are not in succession, must enter the next port as anothe in the rule
Protocol	This should be "TCP/UDP" to av possible errors due to end-user communication
Open Port Start	This is the WAN Port that the remote server will reply on
Open Port End	This will usually match the "Open P Start" parameter; some application however, may use a succession of p In this case you will enter the final p 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 6.3 – DMZ Host

DEFINITION OF DMZ Host

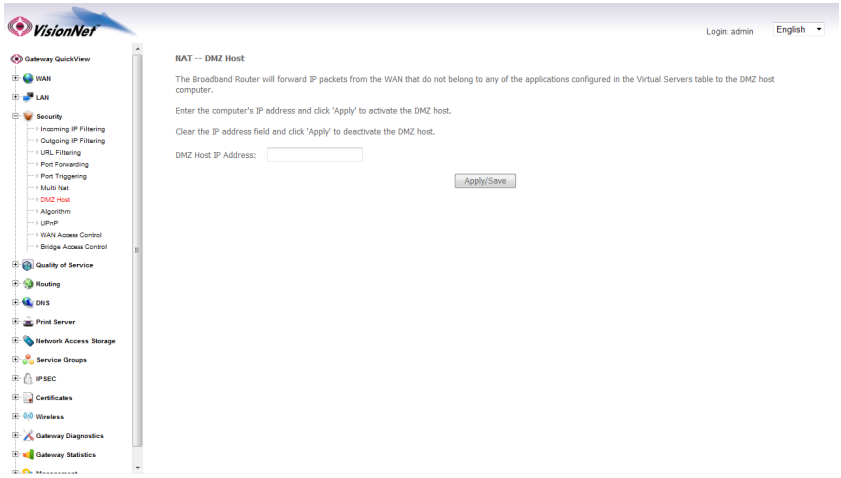
In the event that a remote application attempts to communicate via an inactive, or unspecified, port; the port will be dynamically forwarded to the IP Address specified as the DMZ Host.

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.**

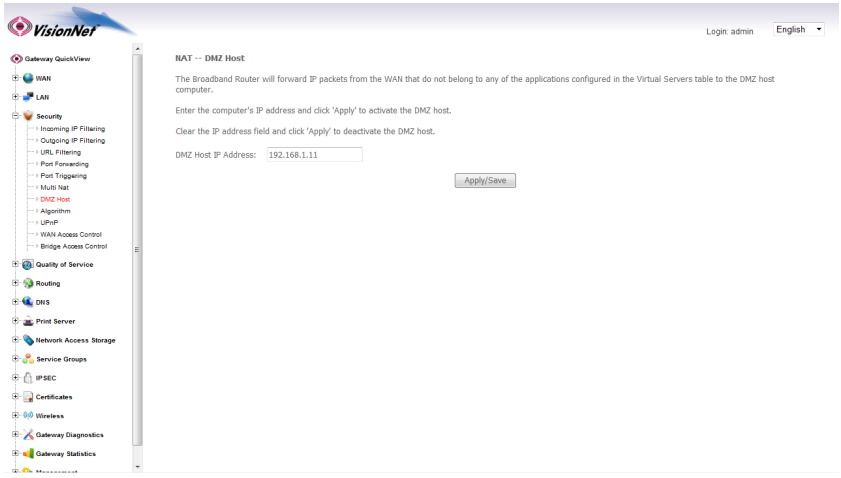
Then, In the left-hand frameset, select "DMZ Host"



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 6.4 - UPnP

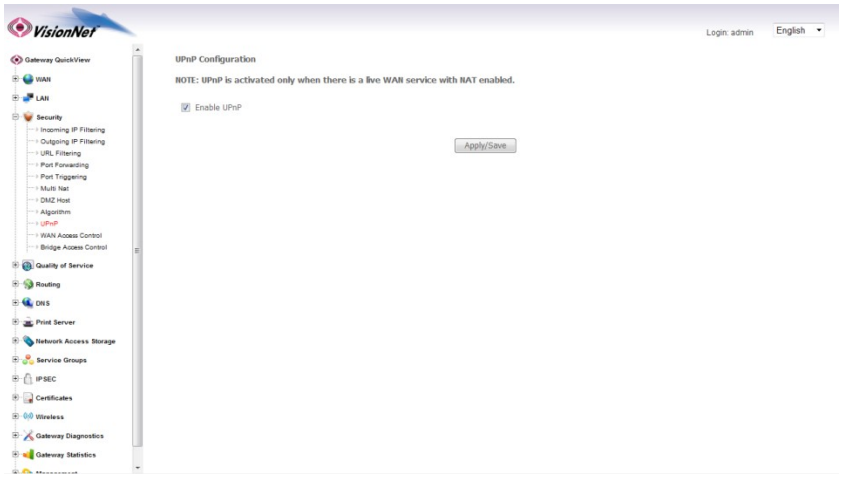
UPnP Definition

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

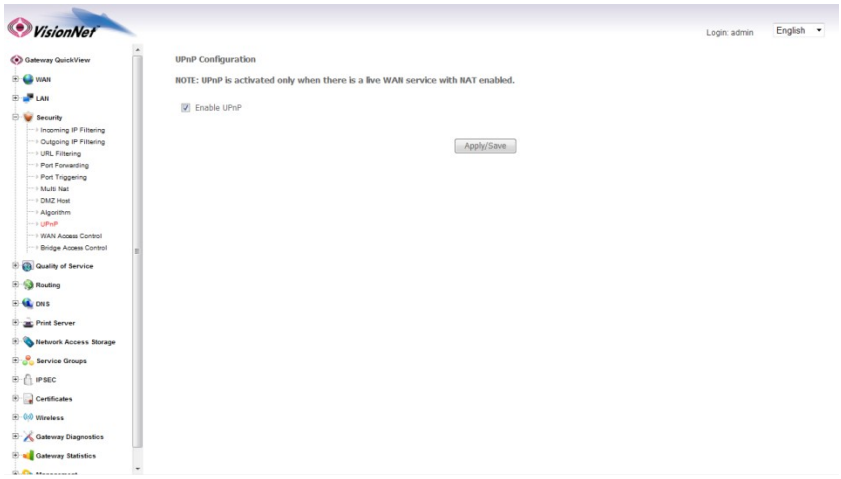
1.A **Select the "Security" tab located within the left-hand frameset.**

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 6.5 – Algorithm Enable / Disable

Algorithms Defined

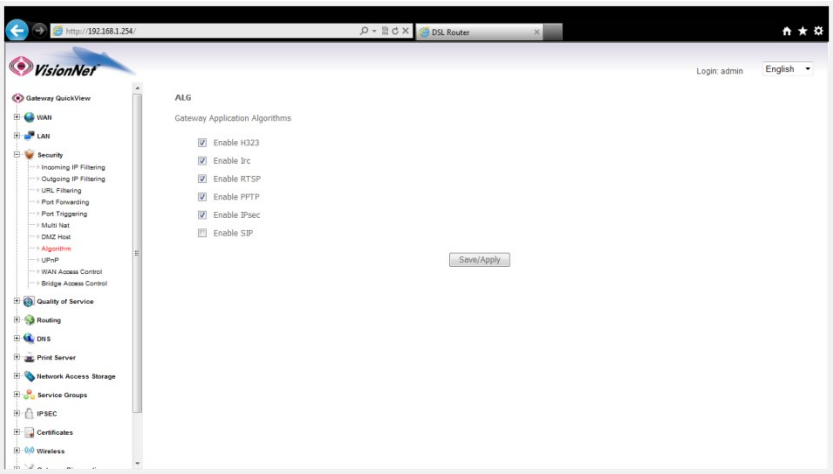
The VisionNet gateway can open ports, based on industry standards and conventions, when certain traffic is detected. You must enable or disable these algorithms to adjust operation.

These algorithm port conventions are only honored when the Firewall is enabled

Step 1: Direct Your Browser to the Algorithm Page

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

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



1.B **Enable / Disable Algorithms**

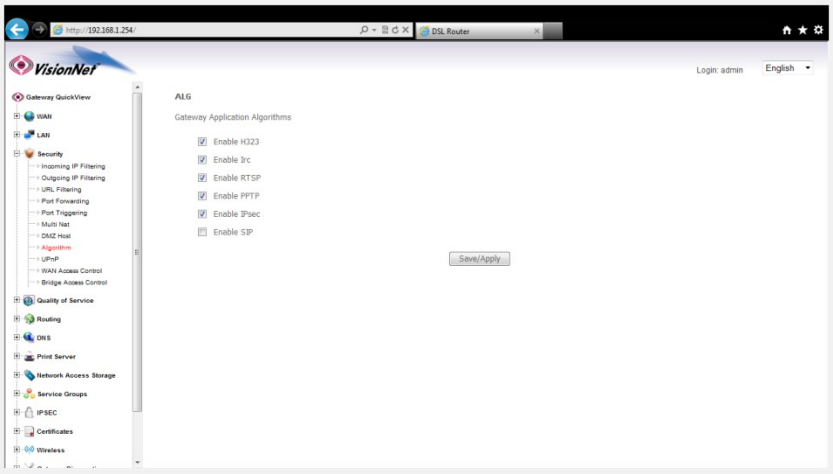
H323

IRC

RTSP

IPSEC

SIP



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

Section 6.6 – WAN Access Control (Parental Controls)

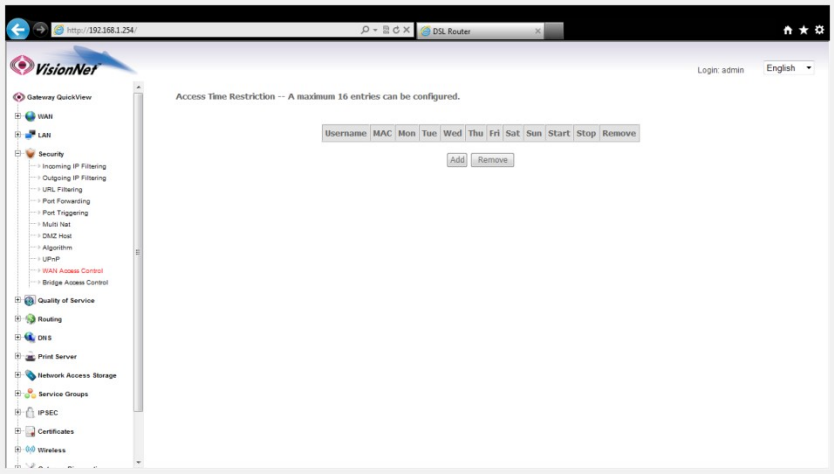
WAN Access Control

The VisionNet Gateway can allow / disallow WAN Access to LAN hosts by a weekly time schedule. MAC Addresses are used to identify devices.

Step 1: Direct Your Browser to the WAN Access Control Page

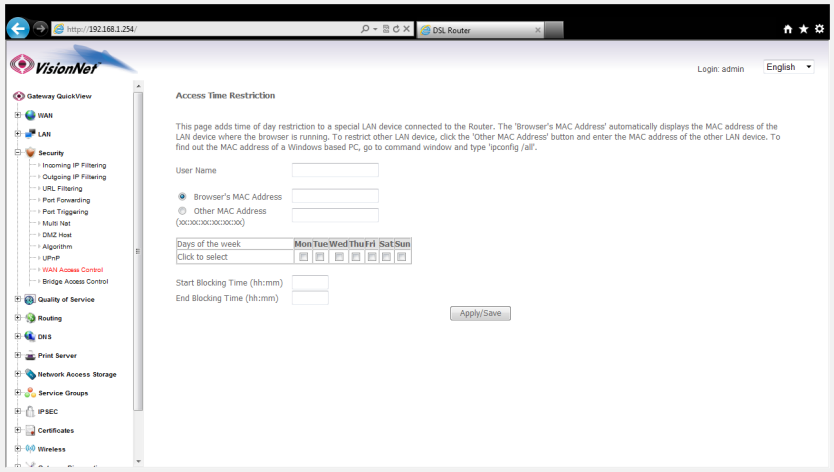
1.A **Select the "Security" tab located within the left-hand frameset.**

Then, In the left-hand frameset, select "WAN Access Control"



1.B **Define Access Time Restrictions**

UserName	This is simply for organizational purposes and does not affect performance
MAC Address	Browser's MAC Address: MAC Address of host accessing the Other MAC Address: User Defined Address
Days of the Week	Days of the Week that Blocking be applied
Start / Stop Blocking Time	Time where device will be restri from the WAN



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

Section 6.7 – URL Filtering (Parental Controls)

URL Filtering

The VisionNet Gateway can allow / disallow access to certain URLs.

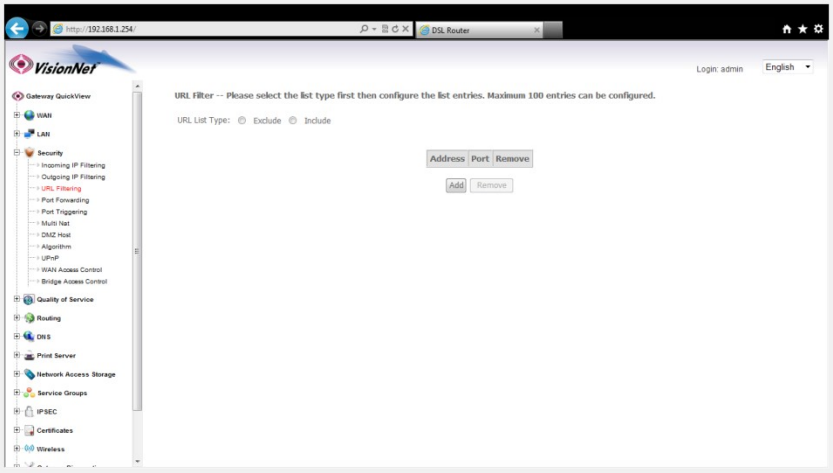
Step 1: Direct Your Browser to the WAN Access Control Page

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

Then, In the left-hand frameset, select "URL Filtering"

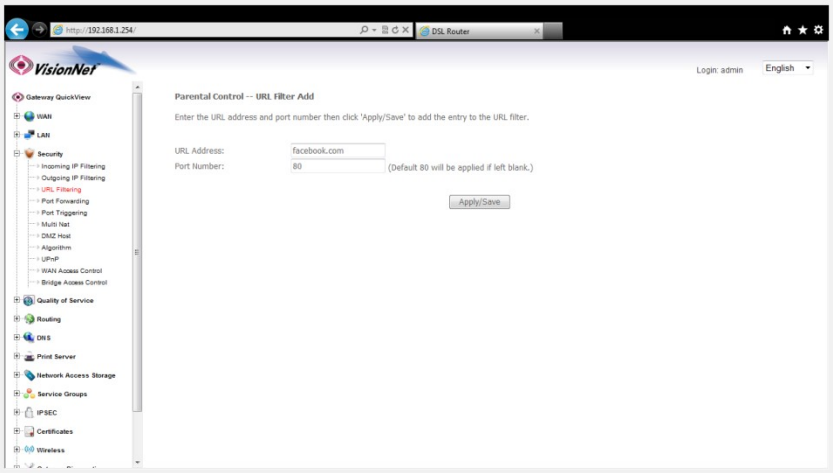
Include: Only the approved URLs will be allowed

Exclude: Only the disallowed URLs will be blocked



1.B **Define URL Restrictions**

URL	IE: facebook.com
Port Number	80 by default



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

Section 6.8 – IP Filtering

IP Filtering

You may restrict inbound or outbound traffic based upon Layer 3 Identification

Step 1: Direct Your Browser to the WAN Access Control Page

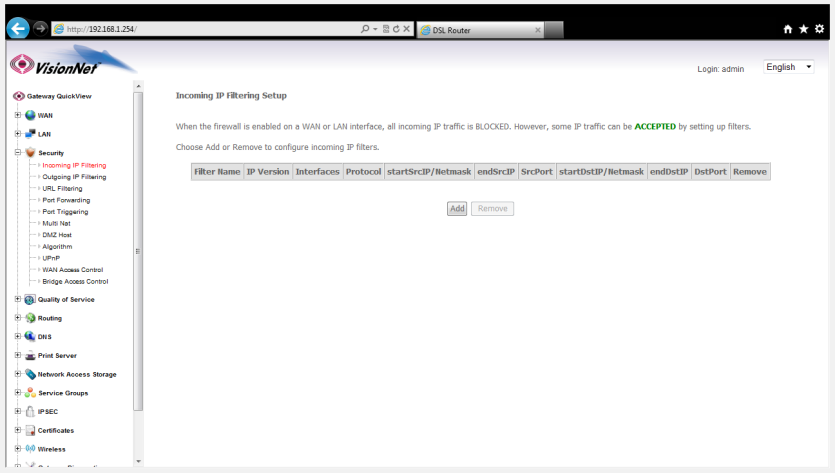
1.A **Select the "Security" tab located within the left-hand frameset.**

Then, In the left-hand frameset, select either:

Inbound IP Filtering

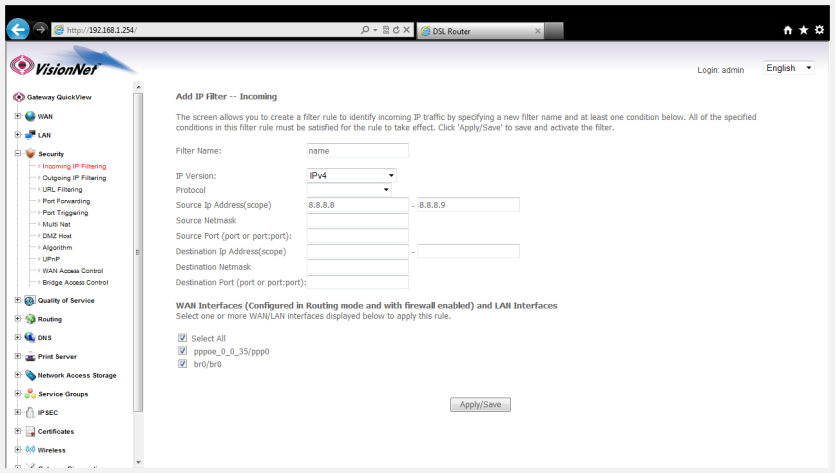
OR

Outbound IP Filtering



1.B **Define IP Filtering**

Define at least one condition for identification of traffic



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

Section 6.9 – Bridge Access Control

Bridge Access Control

You may restrict or allow MAC based traffic for Bridge Interfaces

Step 1: Direct Your Browser to the WAN Access Control Page

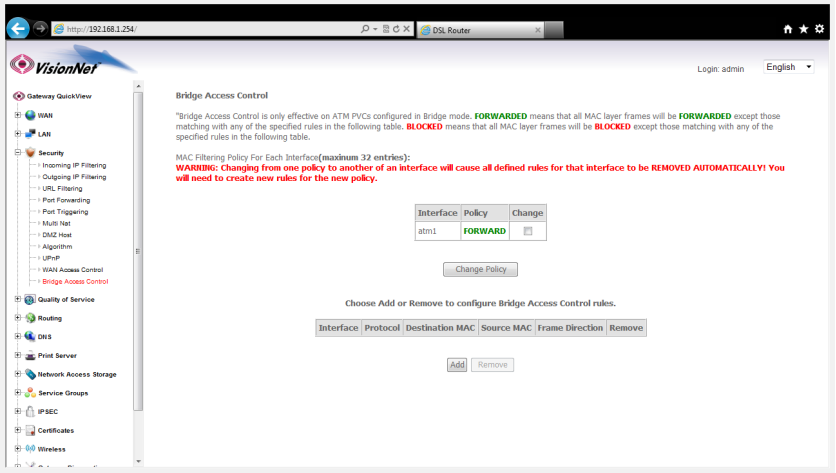
1.A **Select the "Security" tab located within the left-hand frameset.**

Then, In the left-hand frameset, select either:

Bridge Access Control

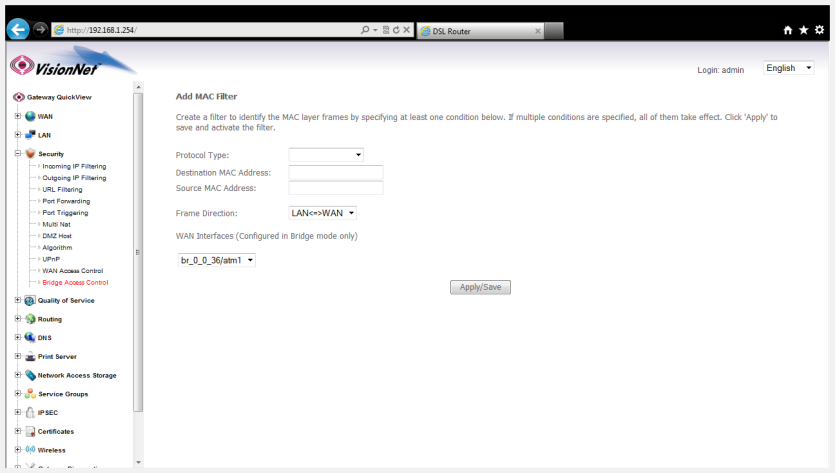
Forwarded: Everything forwarded except defined traffic

Blocking: Everything Blocked except defined traffic



1.B **Define Restrictions**

Define at least one condition for identification of traffic



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

SECTION 7: Quality of Service

Section 7.1: QoS Enable / Disable

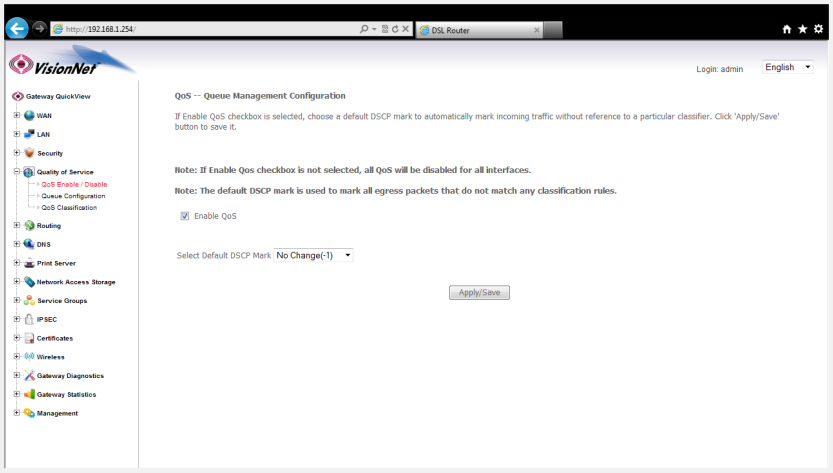
Step 1: Access the QoS Enable / Disable Page

1.A **Select the "Quality of Service" tab located within the left-hand frameset.**

You may Enable QoS

Unless specified otherwise, do not change the Default DSCP Mark

This will enable QoS rules within the device



1.B **Select "Save / Apply"**

Section 7.2 – QoS Interface Configuration

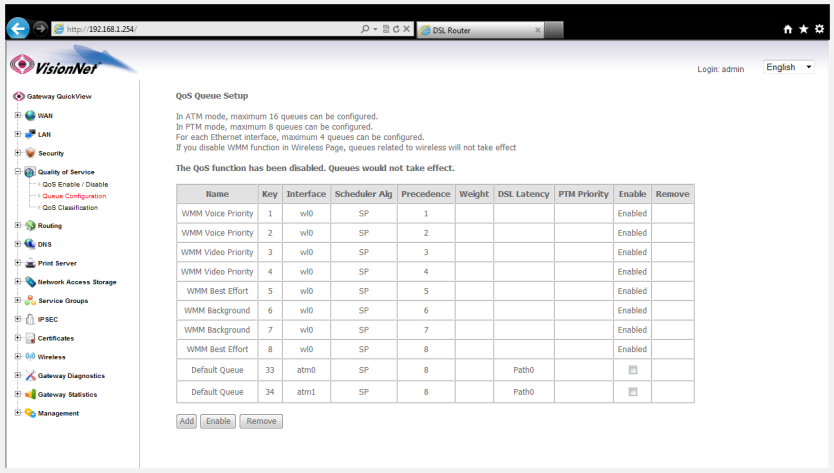
You may add, enable, and remove the QoS Interface Prioritization Table within this page.

Step 1: Direct Your Browser to the QoS Interface Configuration Page

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

Then, In the left-hand frameset, select:

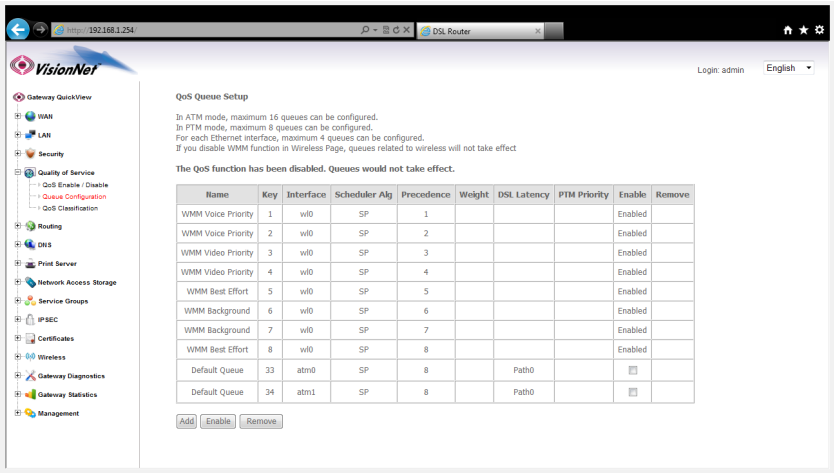
Queue Configuration



Name	Key	Interface	Scheduler Alg	Precedence	Weight	DSL Latency	PTM Priority	Enable	Remove
WMM Voice Priority	1	wl0	SP	1				Enabled	
WMM Voice Priority	2	wl0	SP	2				Enabled	
WMM Video Priority	3	wl0	SP	3				Enabled	
WMM Video Priority	4	wl0	SP	4				Enabled	
WMM Best Effort	5	wl0	SP	5				Enabled	
WMM Background	6	wl0	SP	6				Enabled	
WMM Background	7	wl0	SP	7				Enabled	
WMM Best Effort	8	wl0	SP	8				Enabled	
Default Queue	33	atm0	SP	8		Path0			
Default Queue	34	atm1	SP	8		Path0			

1.B **Enable / Disable Rules**

You must enable a rule for it to take precedence. You may also create Queue precedence for interfaces within this section



Name	Key	Interface	Scheduler Alg	Precedence	Weight	DSL Latency	PTM Priority	Enable	Remove
WMM Voice Priority	1	wl0	SP	1				Enabled	
WMM Voice Priority	2	wl0	SP	2				Enabled	
WMM Video Priority	3	wl0	SP	3				Enabled	
WMM Video Priority	4	wl0	SP	4				Enabled	
WMM Best Effort	5	wl0	SP	5				Enabled	
WMM Background	6	wl0	SP	6				Enabled	
WMM Background	7	wl0	SP	7				Enabled	
WMM Best Effort	8	wl0	SP	8				Enabled	
Default Queue	33	atm0	SP	8		Path0			
Default Queue	34	atm1	SP	8		Path0			

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

Section 7.3 – QoS Classification

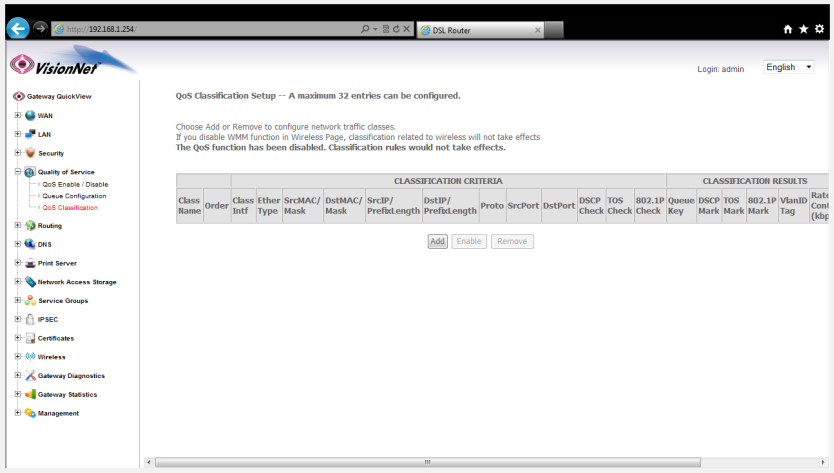
You may add, enable, and remove the QoS Configuration

Step 1: Direct Your Browser to the WAN Access Control Page

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

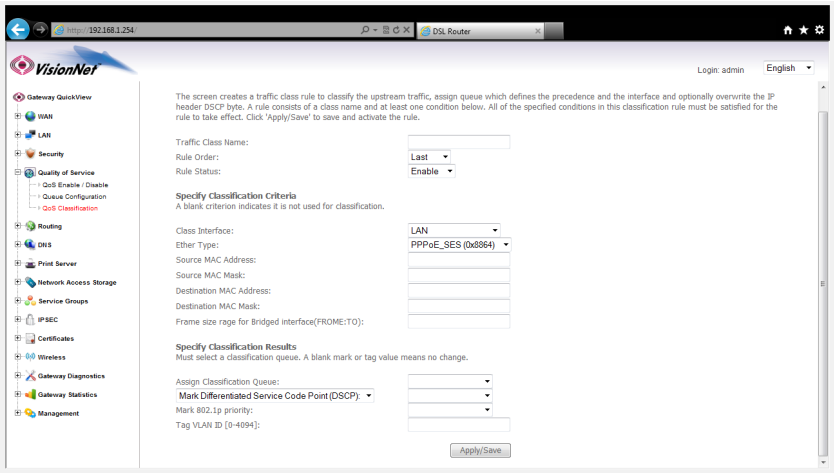
Then, In the left-hand frameset, select:

QoS Classification



1.B **Create a new QoS Classification**

You may identify and modify QoS tagging within this table



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

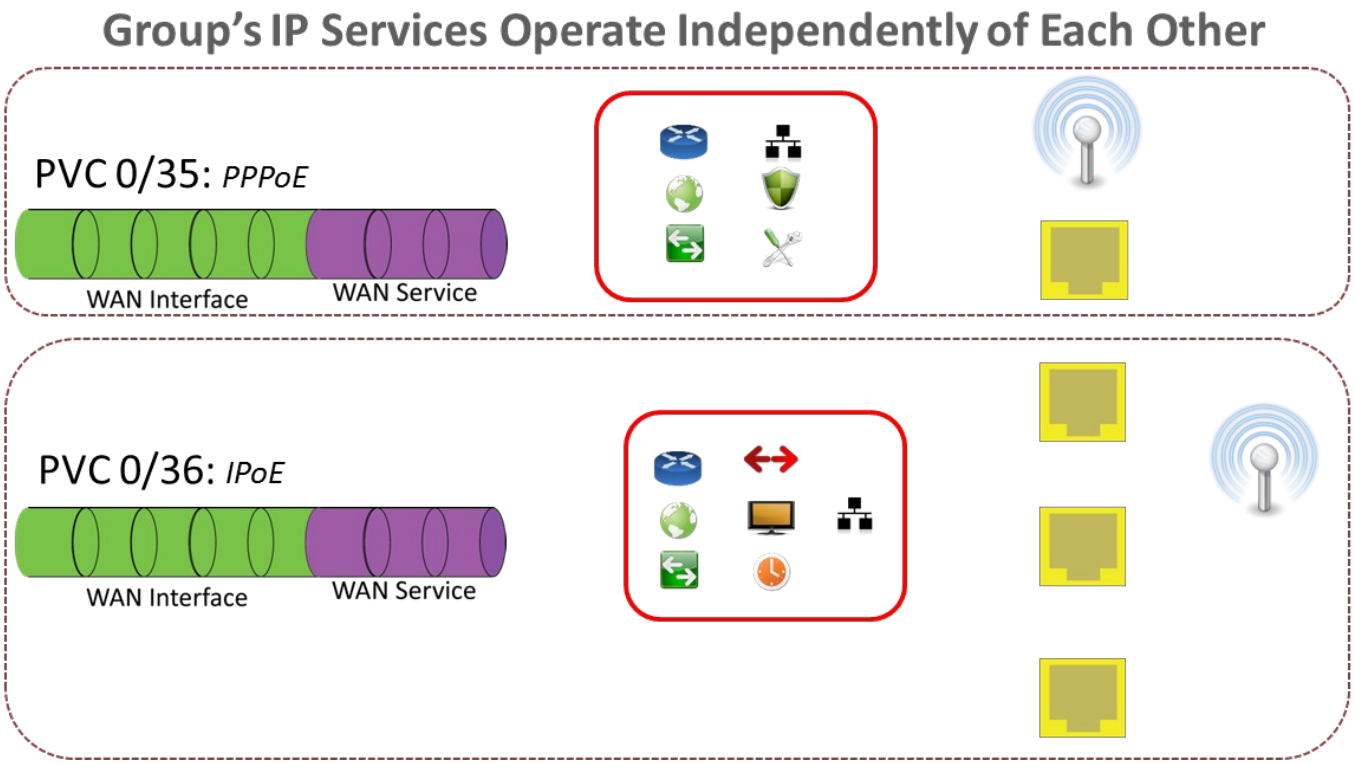
SECTION 8: Service Grouping

Section 8.1: Service Group Logic

The Service Group Operates similarly to port mapping of the past. A WAN interface may provide service, to particular Interfaces, independent of other services.

The key difference between Service Grouping, and Port Mapping of the past, is that the VisionNet device supports multiple NAT Sessions, DHCP Servers, and Network Conventions between Service Grouping.

A Service Group, Therefore, Operates similarly to a traditional VLAN; except that the VLAN Tagging conventions are transparent to the administrator.



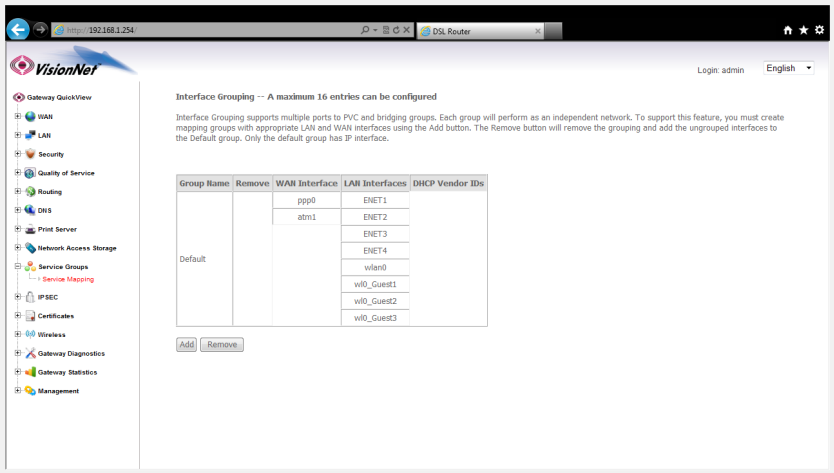
Section 8.2 – Service Group Creation

Step 1: Direct Your Browser to the Service Group Page

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

Then, In the left-hand frameset, select:

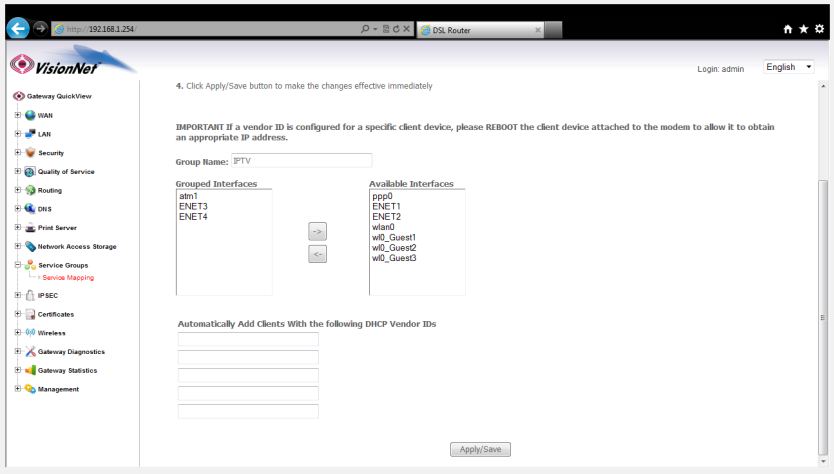
Service Mapping



1.B **Select Add**

You may select physical interfaces to be grouped together with specific WAN services. These will operate independently of the primary gateway operation.

You may also group clients by DHCP Vendor IDs (Boot P Classification)



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

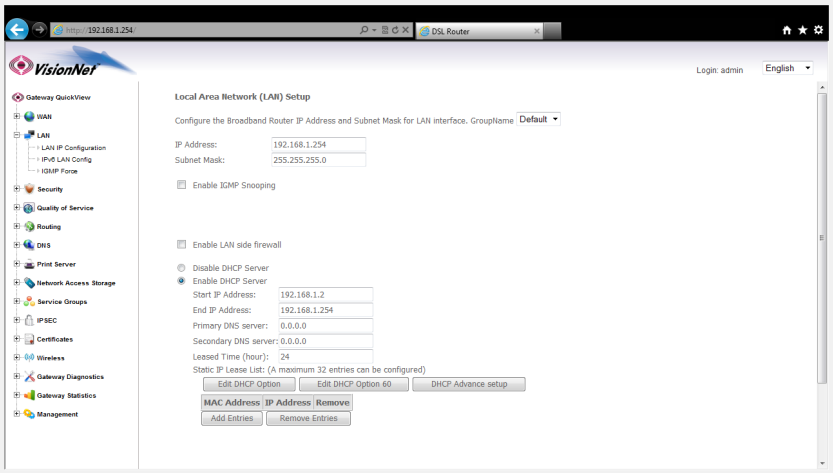
Section 8.3 – Service Group LAN Management

Step 1: Direct Your Browser to the LAN Page

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

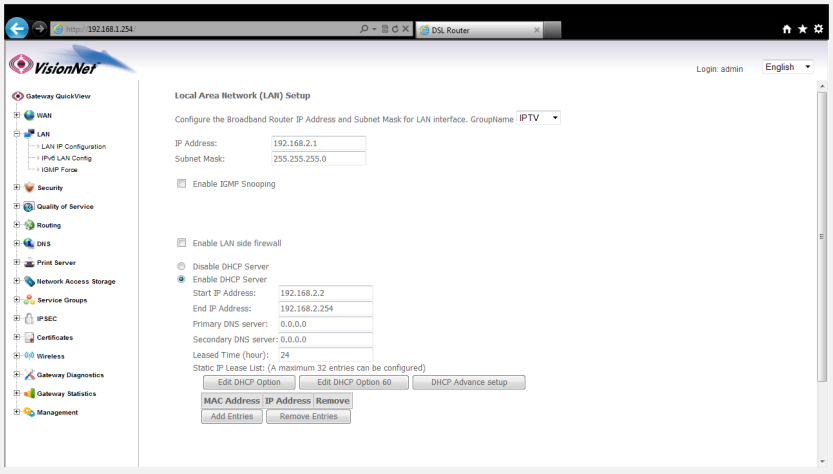
Then, In the left-hand frameset, select:

LAN IP Management



1.B **Select the appropriate GroupName**

You may configure the Service Group LAN Settings independent of the Primary Service Group



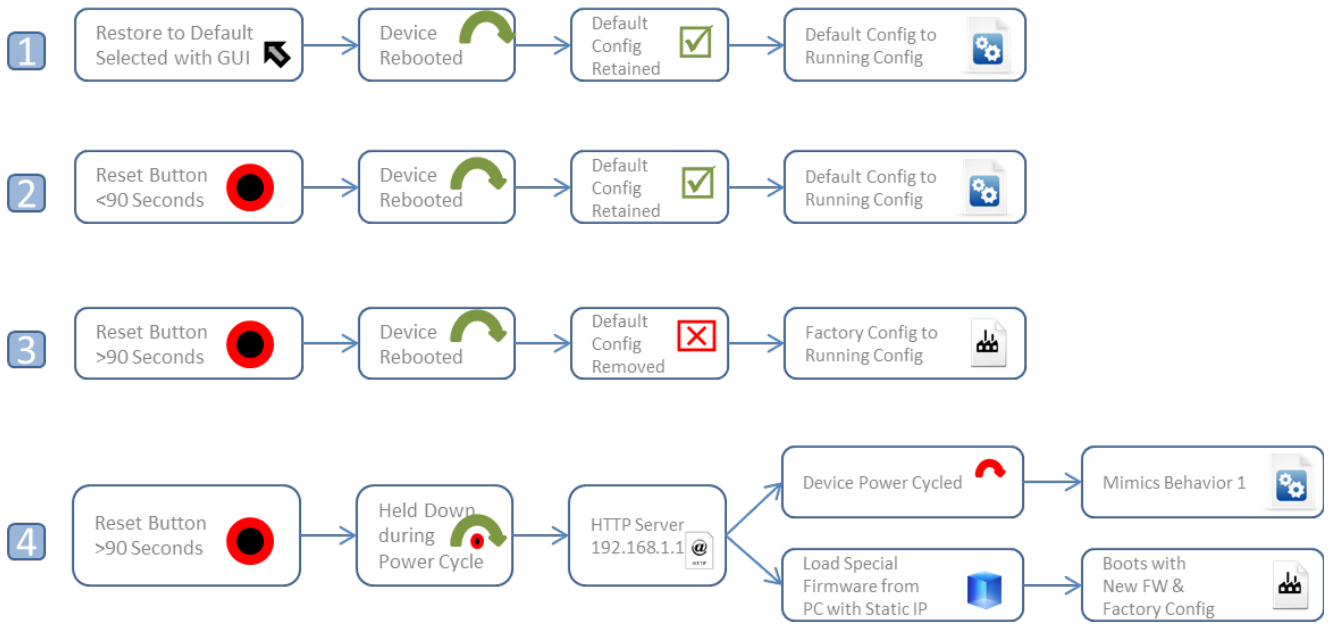
1.C **Select "Apply Save"**

SECTION 9: CONFIGURATION SETTINGS

Section 9.0 – Configuration File Logic

	Running Configuration	• *Configuration in Use*
	Startup Configuration	• Automatically updated from Running Configuration
	Default Configuration	• *Default Settings retained during "reset"*
	Factory Configuration	• *Only accessible from a board reclaim*

Device Reset Behavior



Section 9.1 – Save Backup Configuration

When to save the Backup Configuration:

Prior to making remote changes to the modem

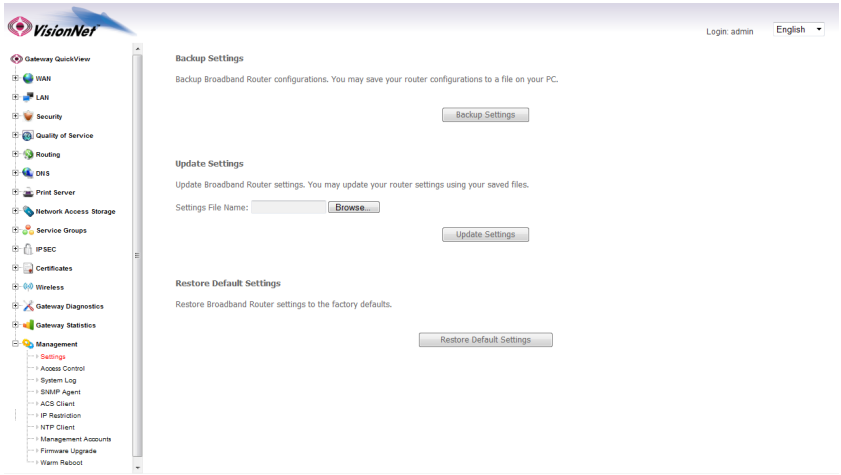
Where to save the backup configuration:

It is suggested that the backup configuration is kept on your PC Desktop and given a customer name

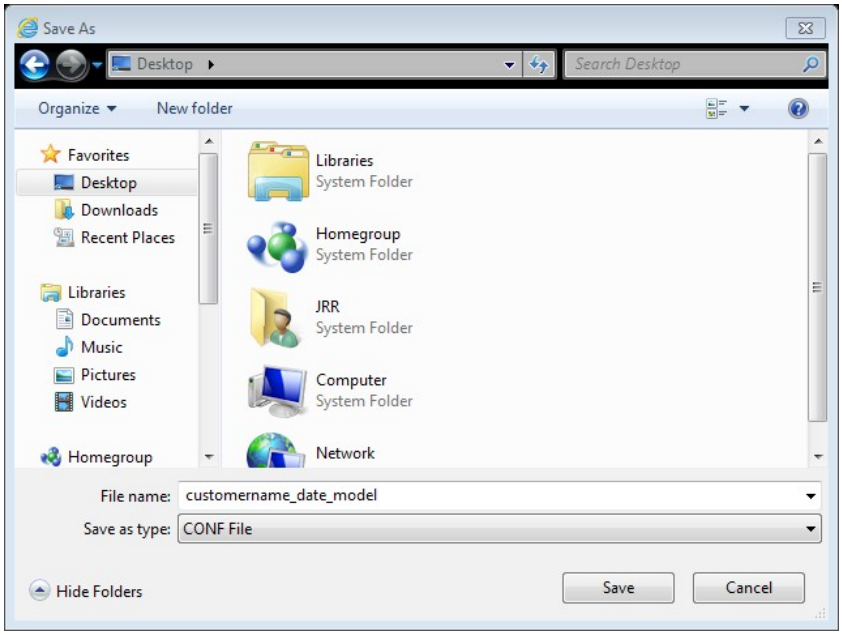
Step 1: Access the GUI to find Backup Configuration Tool

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

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



1.B **Select "Backup Settings" and choose your download location via your browser's download tool.**



Section 9.2 – OverWrite Default Configuration

When to update the default configuration:

ONLY UPDATE THE DEFAULT CONFIGURATION WITH APPROVAL FROM A SUPPORT MANAGER.

The VisionNet modem comes with a pre-configured default configuration. In the event that you would like to access the original configuration, please ask the customer to hold the reset button for 5 seconds.

Behavior of the Default Configuration:

The default configuration is loaded to the running configuration when the customer holds the modem's reset button for 5 seconds. It is also loaded to the running configuration when **"Restore Default"** is selected within the GUI.

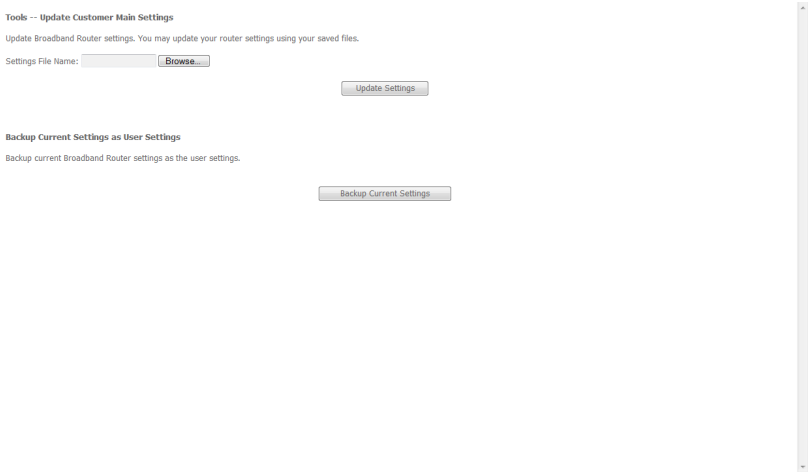
Step 1: Access the GUI to find the Default Configuration Page

1.A **The "Update Default Configuration" page is hidden within the GUI to prevent un-authorized access.**

The hidden URL is located at :

http://XXX.XXX.XXX.XXX/customer main.html

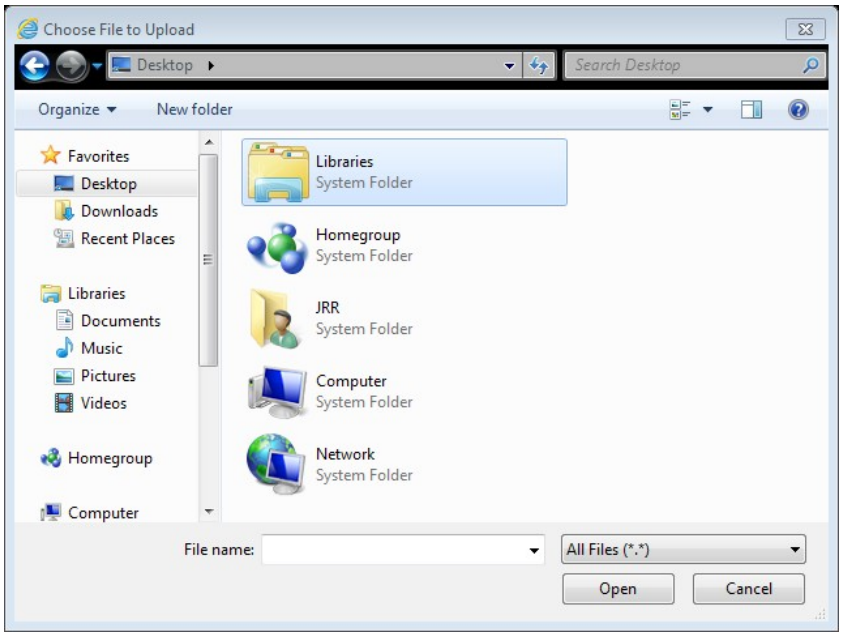
Where **XXX.XXX.XXX.XXX**
Is the IP address of the modem
(either local or remote)



1.B.1 **You may select "Backup Current Settings" to save the running configuration as the default configuration - or -**

1.B **Select "Browse" button and choose your file location via your browser's upload tool.**

Select the "Update User Settings" button



Section 9.3 – Update the Running Configuration

When to update the Running Configuration:

When you wish to test new settings without affecting the default configuration.

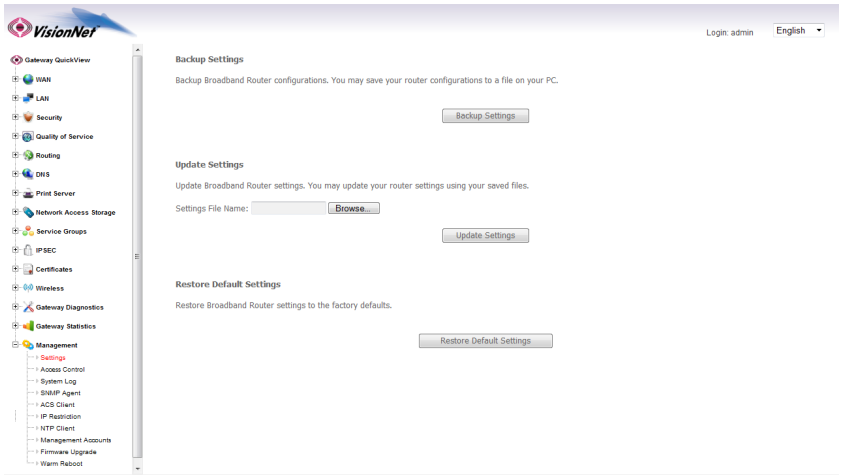
Behavior of the Running Configuration:

The running configuration only affects the modems functionality during operation and standard reboots. It is erased when the customer presses the reset button or the **"Restore Default"** function is activated.

Step 1: Access the GUI to find Backup Configuration Tool

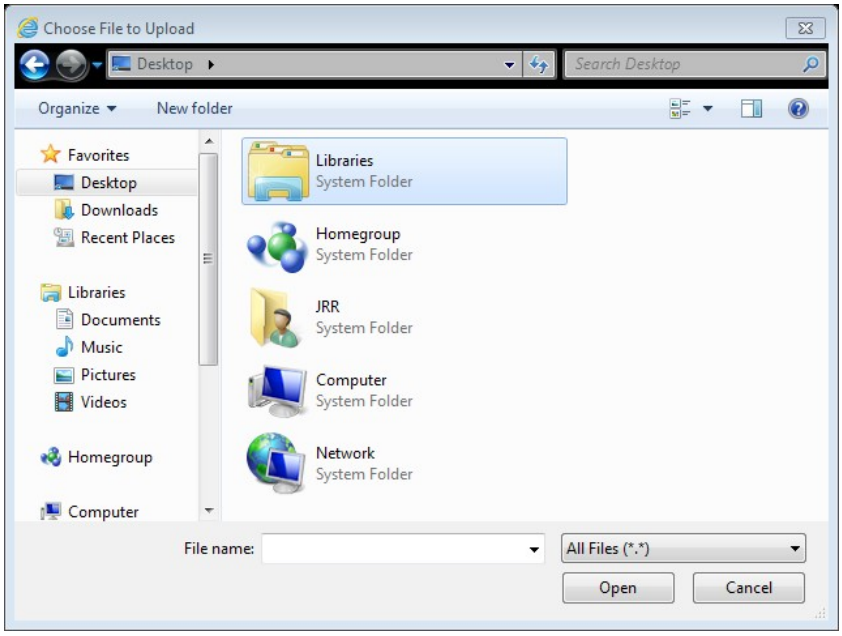
1.A **Select the "Management" tab located within the left-hand frameset.**

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



1.B **Select "Browse" button and choose your file location via your browser's upload tool.**

Select the "Update Settings" button



Section 9.4 – Restore the Default Settings

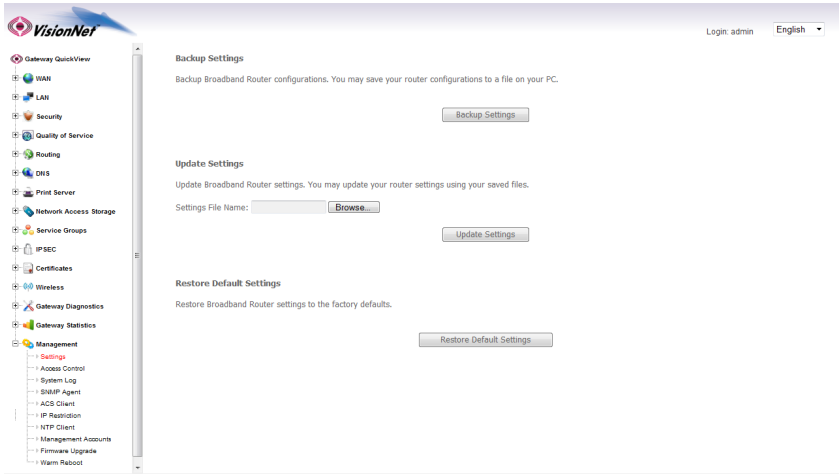
When to Restore the Default Settings

When undocumented changes have been made that limit Internet Access, or the customer has made changes that affect performance.

Restoring the Default Settings via the GUI

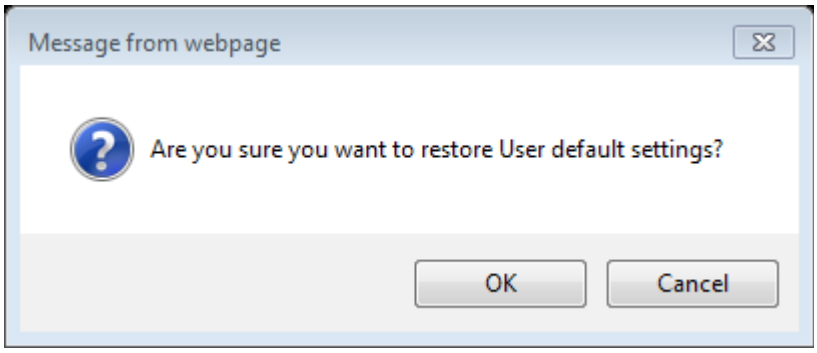
1.A **Select the "Management" tab located within the left-hand frameset.**

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



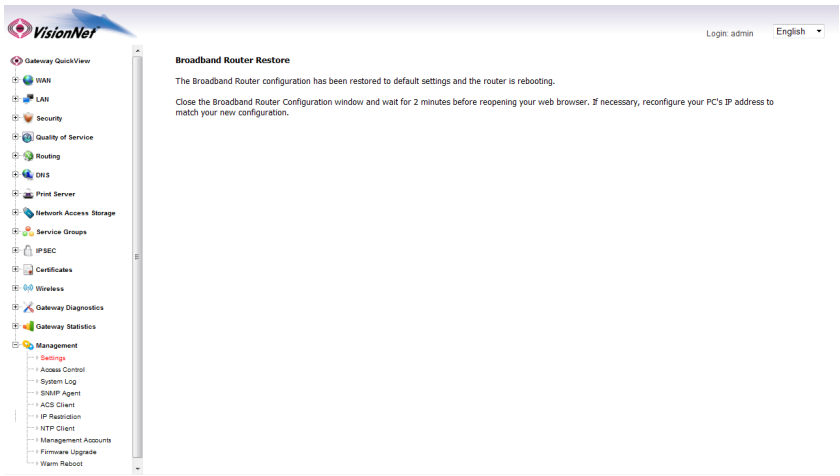
1.B **Select the "Restore Default Settings".**

When challenged, approve the restore.



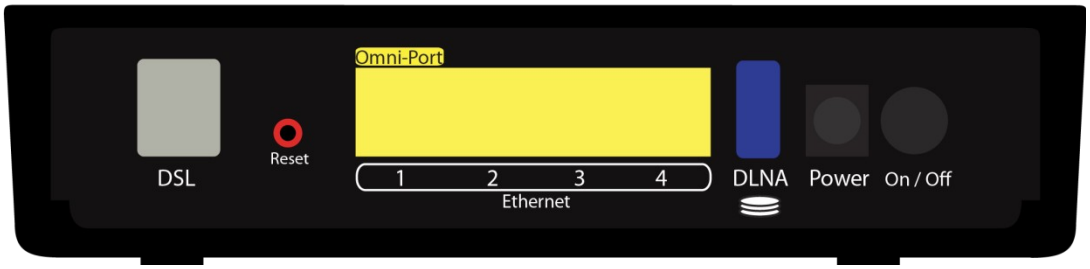
The modem will reset itself. You may need to refresh your browser.

It is possible that the modem will obtain a new IP Address upon reboot.



Restoring the Default Settings via the Reset Button

2.A **Press the Reset Button and hold down for 5 seconds**



2.B **Wait for the modem to reboot**

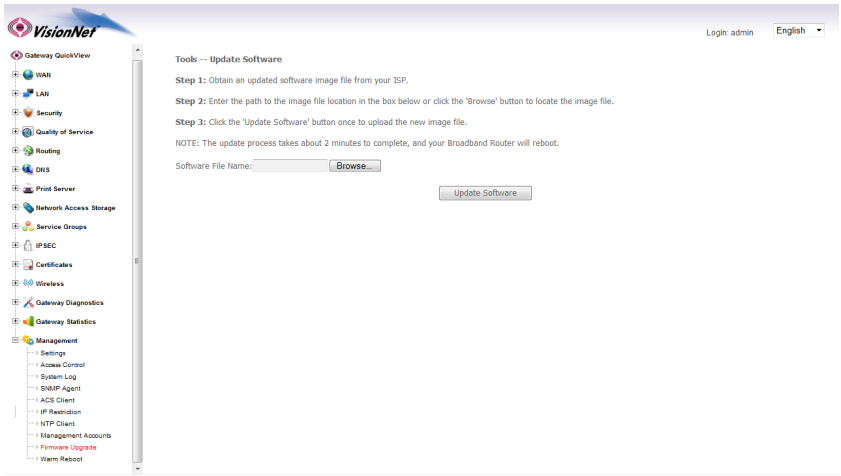
Section 9.5 – Update Firmware

There may be times that you are requested, by a support manager, to update the product software.

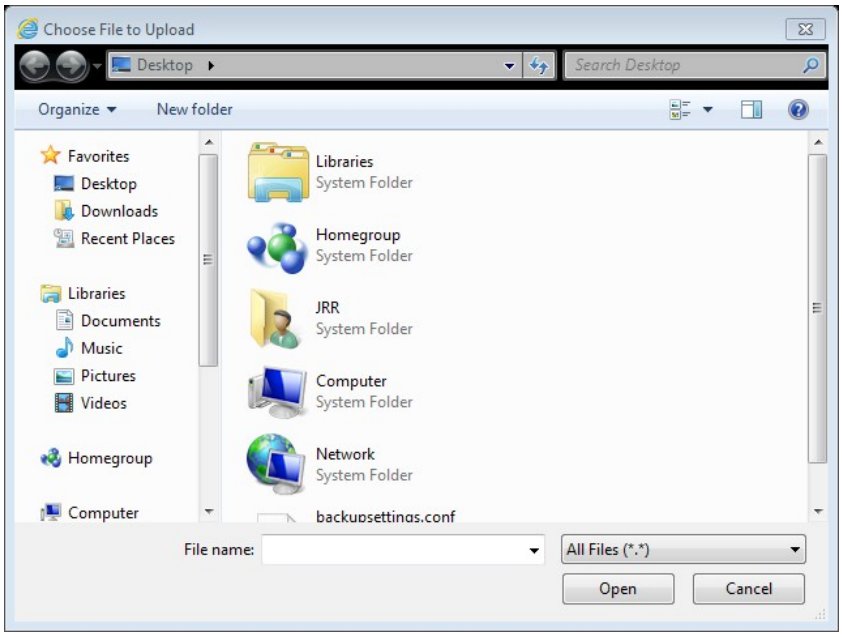
Step 1: Access the GUI to find the Update Firmware Tool

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

Then, In the left-hand frameset, select "Firmware Upgrade"



1.B **Select the "Browse" button and select the firmware file on your PC**



1.C **Once you have specified the firmware, select the "Update Software" button. The modem will reset itself.**

Section 9.6 – Rebooting the Modem

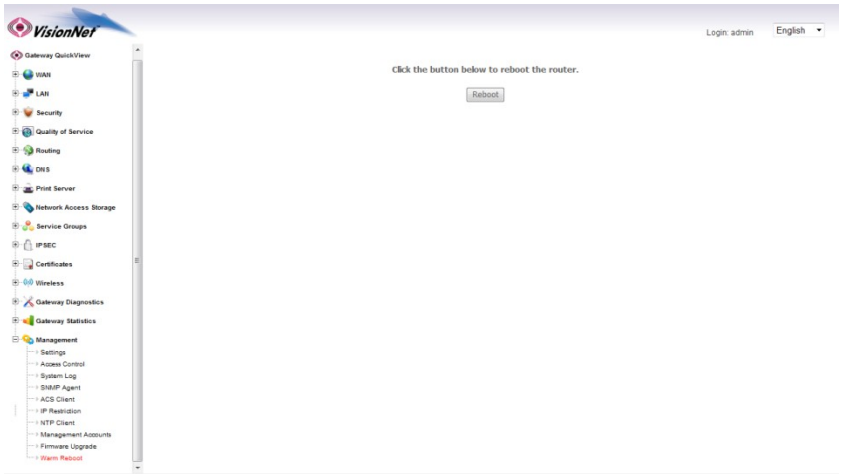
Sometimes, the modem may need to be reset in order for changes to take effect, or to re-initialize network settings.

Rebooting the modem will reboot the modem to the running configuration, not the default configuration.

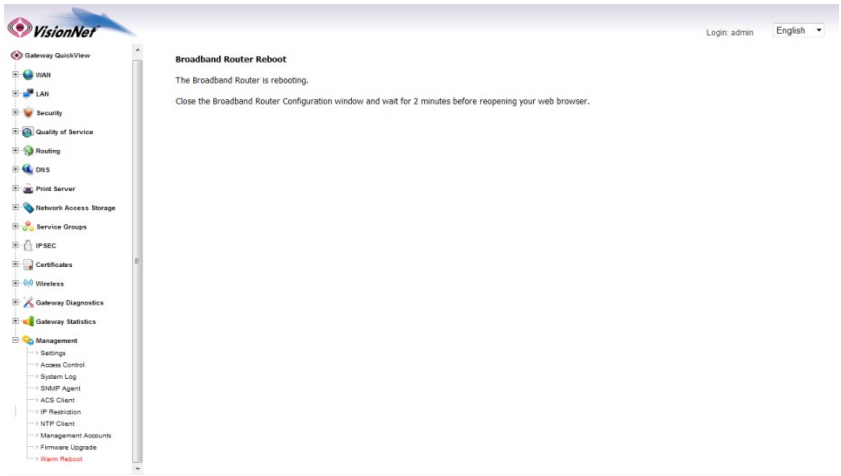
Step 1: Access the GUI to find the Reboot Tool

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

Then, In the left-hand frameset, select "Warm Reboot"



1.B **Select the "Reboot" button. The modem will reset itself with the running configuration**



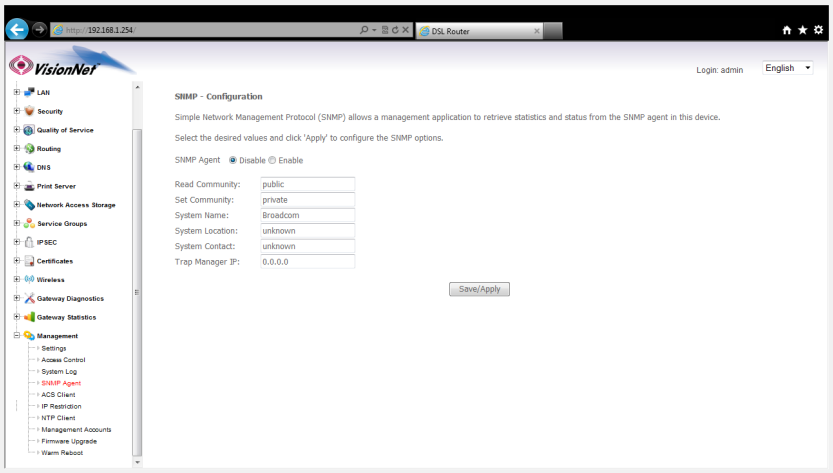
Section 9.7 – SNMP Configuration

SNMP Traps will allow for you to monitor modem performance

Step 1: Access the GUI and find the SNMP Configuration Page

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

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



1.B **Enter the appropriate information, and the select "Save/Apply"**

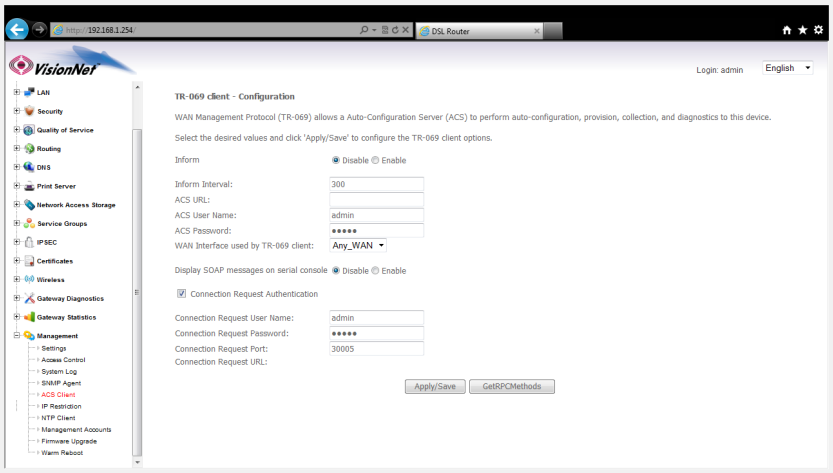
Section 9.8 – ACS Configuration

ACS / TR-069 Servers may be used to access the Gateway.

Step 1: Access the GUI and find the ACS Configuration Page

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

Then, In the left-hand frameset, select "ACS Client"



1.B **Enter the appropriate information, and the select "Save/Apply"**

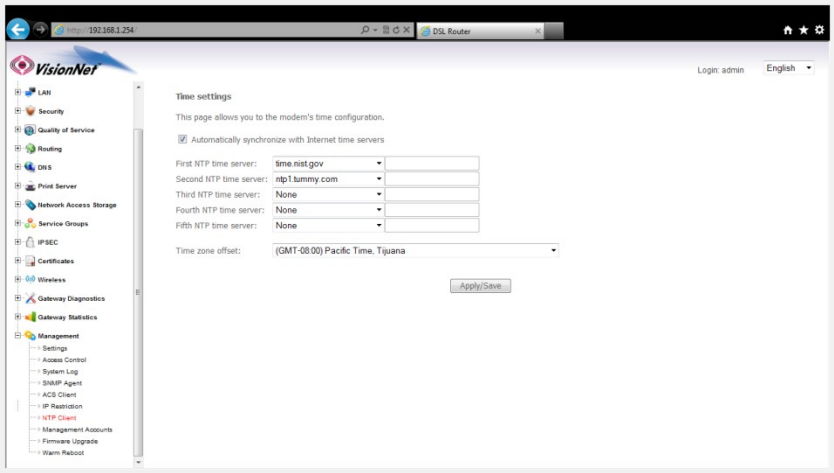
Section 9.9 – NTP Configuration

Network Time Protocol is necessary for accurate SysLog TimeStamps

Step 1: Access the GUI and find the SNMP Configuration Page

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

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



1.B **Enter the appropriate information, and the select "Save/Apply"**

Section 9.10 – IP Restriction

This will create Access Control Lists for remote and local Access

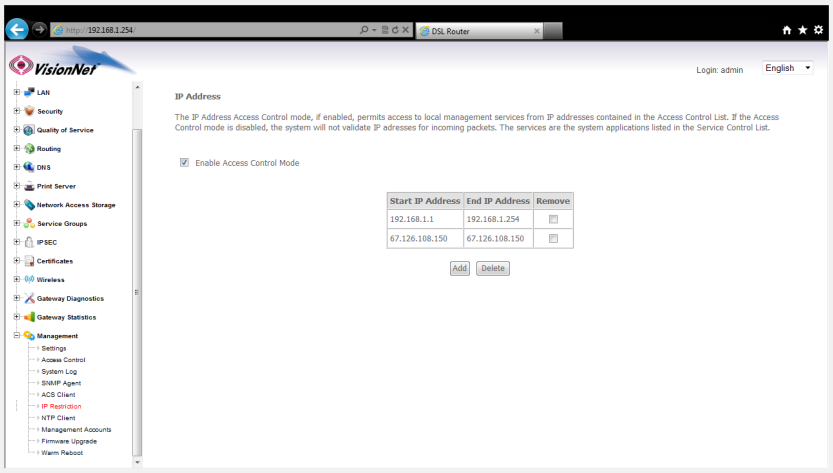
Step 1: Access the GUI and find the SNMP Configuration Page

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

Then, In the left-hand frameset, select "IP Restriction"

NOTE: YOU MUST ENTER THE LAN IPs, AND THE APPROPRIATE WAN IPs BEFORE YOU ENABLE THE ACL.

IF YOU ENABLE THE ACL WITHOUT THIS TABLE BUILT, YOU WILL NEED TO DEFAULT THE UNIT



1.B **Enter the appropriate information, and the select "Save/Apply"**

Section 9.11 – Remote Access

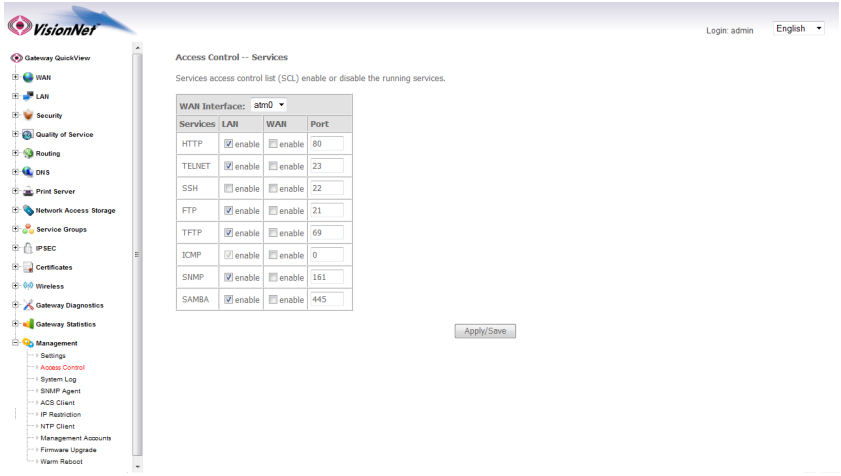
The VisionNet modems come pre-configured to allow remote management access.

Step 1: Access the GUI to find the Remote Access Tool

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

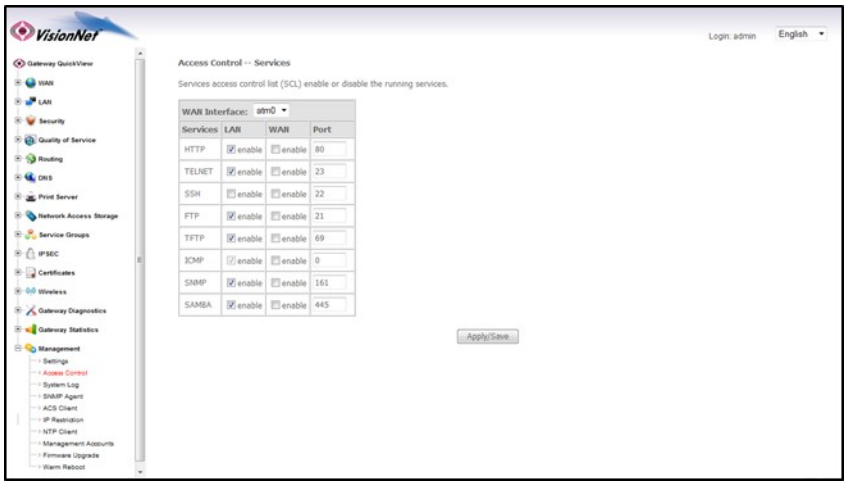
Then, In the left-hand frameset, select "Access Control"

Then, In the drop-down box, select "WAN Interface: ATM 0 or ATM 1" (Depending upon which network the device is operating)



1.B **Select / Unselect each option. The Default Settings are specified below**

Protocol	LAN	WAN	Port
FTP	☑	☑	21
HTTP	☑	☑	80
ICMP	☑	☑	N/A
SNMP	☑	☑	161
SSH	☑	☑	22
Telnet	☑	☑	23
TFTP	☑	☑	69



1.C **Select the "Save / Apply" button**

SECTION 10: WiFi Configuration

Section 10.1 – WIRELESS CHANNEL CONFIGURATION

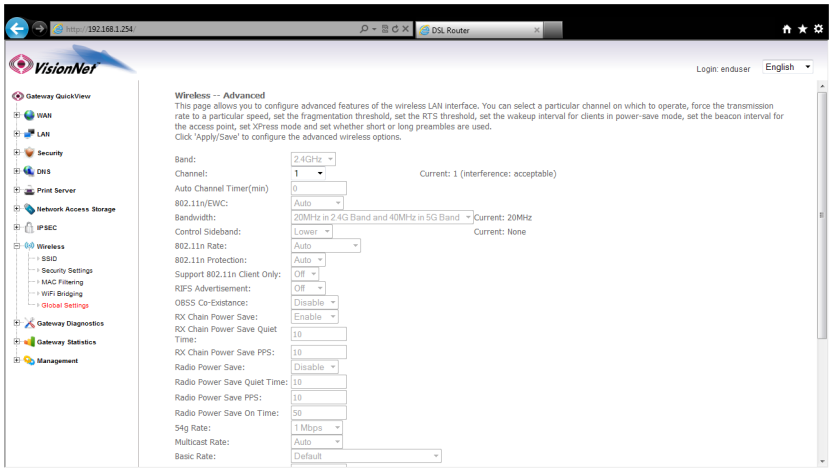
When to change the Wireless Channel.

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"

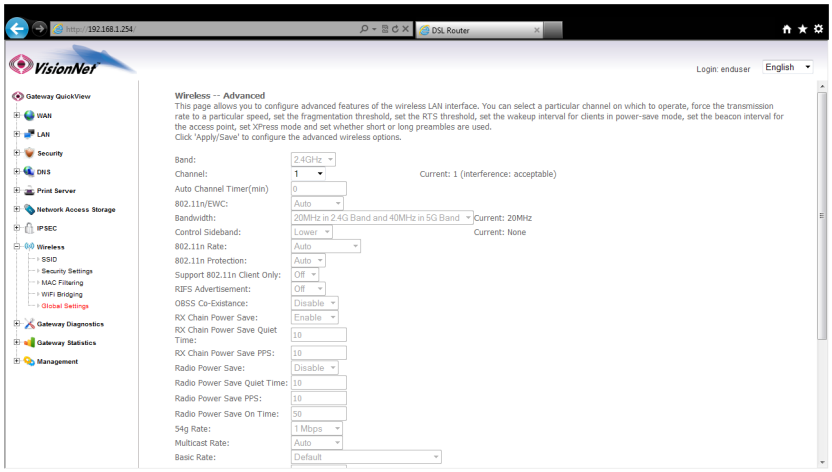


1.B **Enter the desired Channel.**

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 10.2 – SSID CONFIGURATION

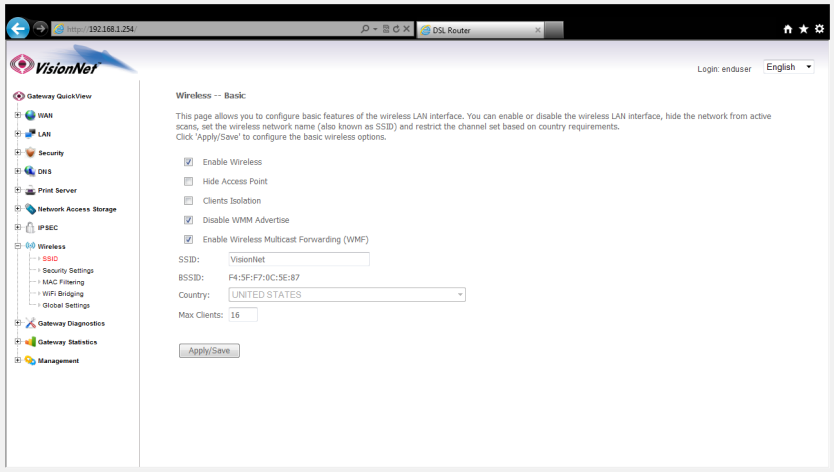
When to change the Wireless SSID

You may wish to broadcast a different network name than the one provided; change the broadcasting conventions; or alter the services advertised by the BSSID.

Step 1: Direct Your Browser to the SSID Configuration Page

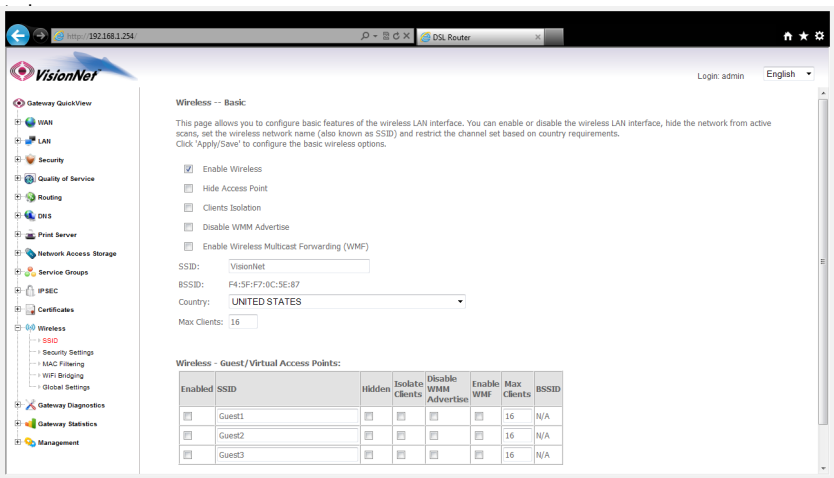
1.A Select the "Wireless" tab located within the left-hand frameset.

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



1.B Enter the new SSID Name

Enable Wireless	Wireless should be enabled
Hide Access Point	The SSID Name will not be broadcas
Clients Isolation	No direct WiFi to WiFi connections
Disable WMM Advertise	This should be enabled. Older devices may not support this feature
Enable WMF	This should be enabled; some wirel devices will make Multicast request
SSID	THIS IS WHERE YOU DEFINE THE SSI NAME
BSSID	No modification – this is the MAC Address that is advertised
Country	United States is the support module
Max Clients	Limits the amount of devices that can connect



1.C Guest / Virtual SSIDs

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

Section 10.3 – WIRELESS ENCRYPTION

When to change the Wireless Encryption

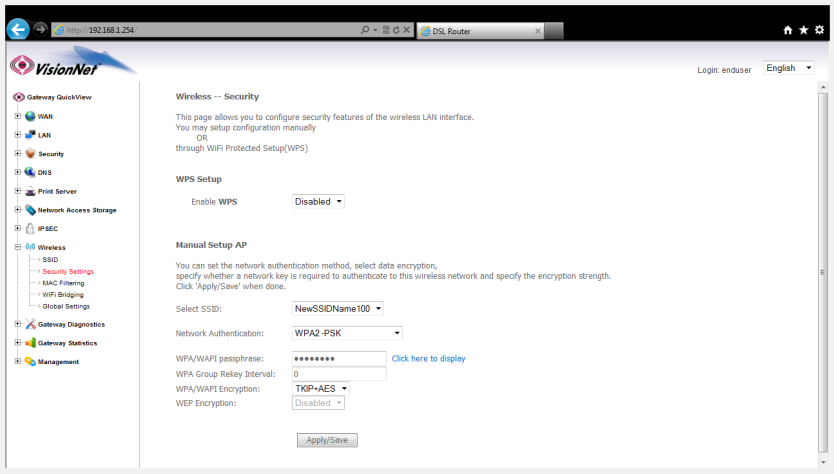
You may wish to use a special login password for your wireless network.

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

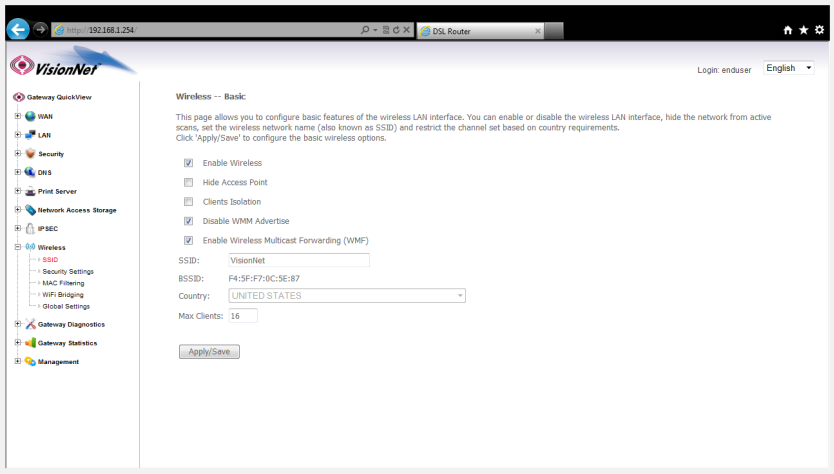
1.A **Select the "Wireless" tab located within the left-hand frameset.**

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 ' PSK WEP should not be used ur the consumer device in question only support WEP
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.**

Section 10.4– GLOBAL SETTINGS

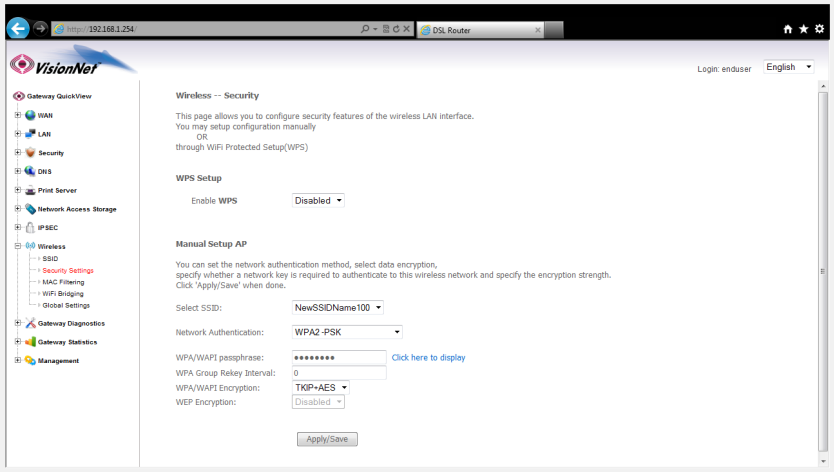
When to change the GLOBAL SETTINGS

Some devices offer very specific support for Wireless. Listed below are the items that may be changed; along with VisionNet suggested settings

Step 1: Direct Your Browser to the Global Settings Page

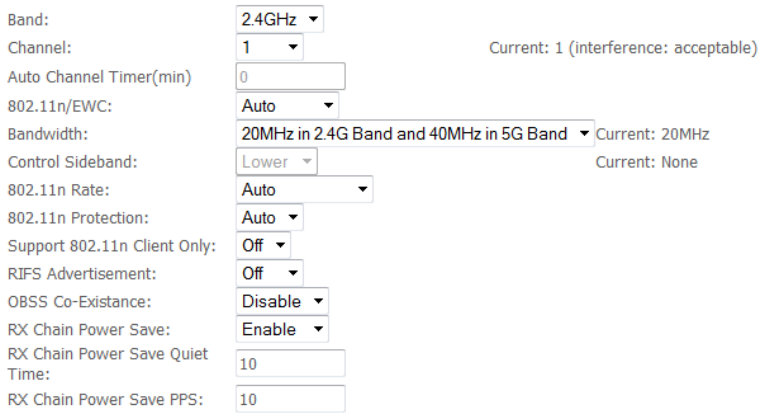
1.A Select the "Wireless" tab located within the left-hand frameset.

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



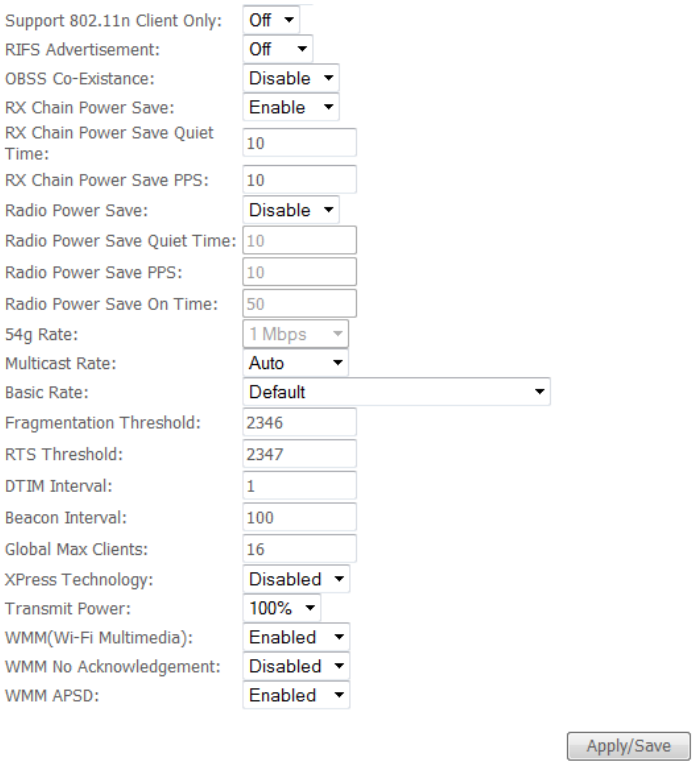
1.B Under "Wireless - Advanced"

BAND	2.4Ghz is the only band supported
Channel	This is selected based upon the network environment
Auto Channel Timer	If the wireless channel is se Auto, you must specify the timeout- Devices will be disconnecte during a channel change
Bandwidth	All devices support 20Mhz Only some devices support Mhz 20 Mhz is therefore preferr
Control Sidebar	40Mhz operation uses two channels – the second channel is related to the primary channel



1.C Under "Wireless - Advanced"

802.11N Only	Off
RIFS Advertisment	Off This is a legacy protocol
OBSS Coexistence	Off This is used in environments where multiple APs use the same BSSID Name – but thi open up the possibility of hacking if not in a controlle environment
RX Chain Power Save	Off WMM is preferrable
MultiCast Rate	Auto
Basic Rate	Default
Xpress Technology	Disabled This is only for Broadcom wireless clients – We do no suggest Proprietary Setting used ever
Transmit Power	100% You may wish diminish outp in MTUs where there are m APs in the area – You cannc however, control other Consumer Electronics
WMM	Enabled – This is required for higher speeds – only WMM Advertise should be disabled
WMM No Acknowledgement	Disabled – some devices may not support this
WMM APSD	This is a WMM Power save that replaces the RX Chain power save options



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

Section 10.5– MAC FILTERING

When to MAC Filtering

MAC Filtering is not a security measure, and does not replace encryption. Even with MAC Filtering you can sniff packets for review; and MAC Addresses can be spoofed.

MAC Address filtering, however, can help to minimize the effects of unwanted requests, and the connection of average users.

Step 1: Direct Your Browser to the MAC Filter Page

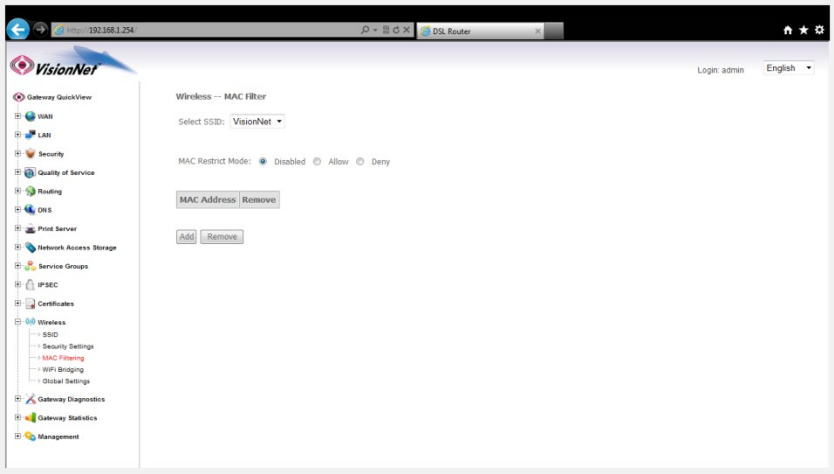
1.A **Select the "Wireless" tab located within the left-hand frameset.**

Then, In the left-hand frameset, select "MAC Filtering"

Allow: Means that only the specified MACs are allowed

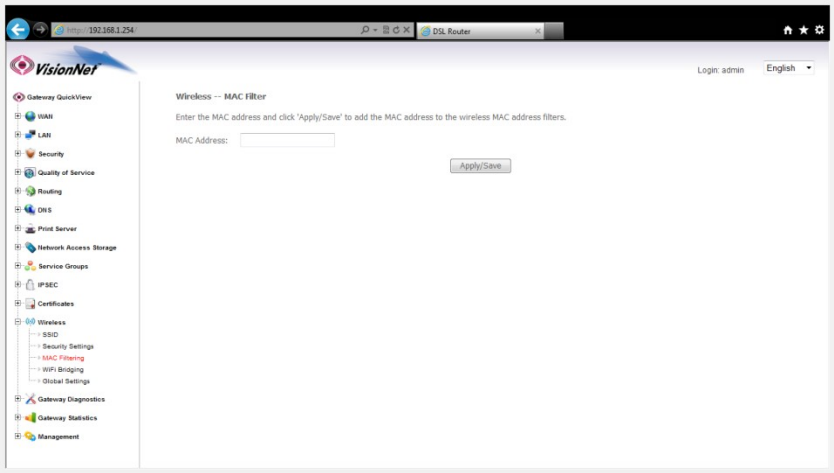
Deny: Means that the specified MAC Addresses are not allowed access

Disabled: Means that the MAC Filtering table is not applied



1.B **Select the appropriate SSID, and then select Add**

You may now add a MAC Address to be filtered



Section 10.6 - Wireless Bridge

What is Wireless Bridge

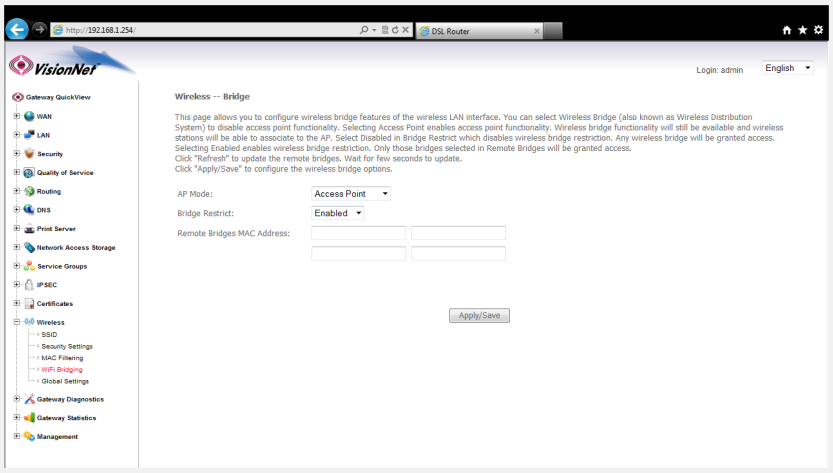
Wireless Bridge allows an AP to connect to another AP to rebroadcast the network

Step 1: Direct Your Browser to the Wireless Bridge Page

1.A **Select the "Wireless" tab located within the left-hand frameset.; then select "Wireless Bridging"**

Then, In the left-hand frameset, select "MAC Filtering"

AP Mode	Select Wireless Bridge or Access Point
Bridge Restrict	Disabled if you are using Bridging; If enabled other APs will not be allow connect
Remote Bridges	The MAC Addresses of the allowed Bridges

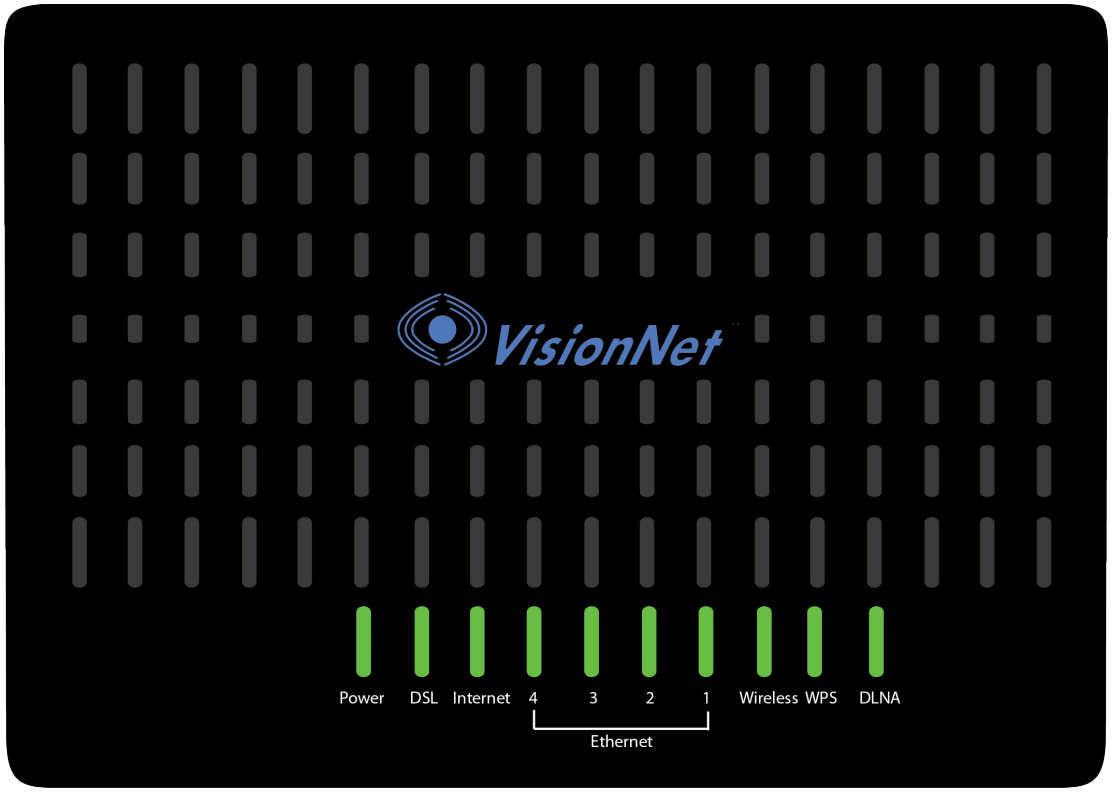


1.B **Select "Apply / Save"**

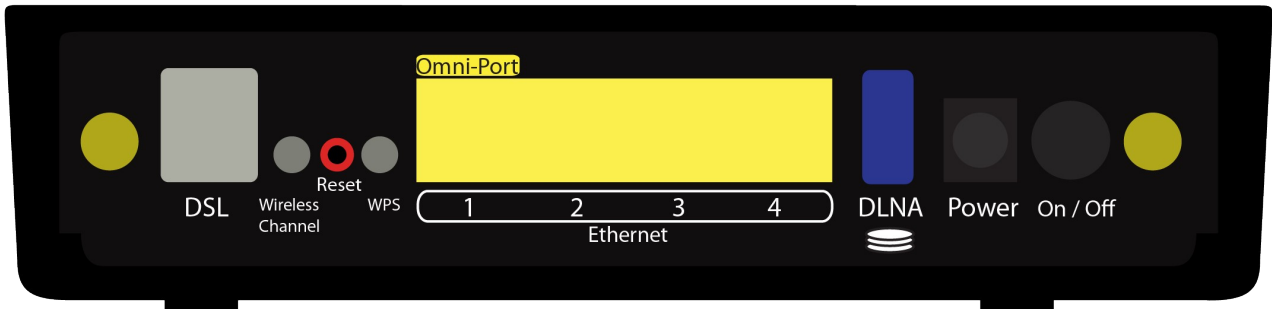
SECTION 11: PRODUCT DEPICTIONS AND BEHAVIOR

Section 11.1 - Product Depictions

M505N LED VIEW



M505N REAR VIEW



Section 11.2 - LED Behavior

LED Label	Purpose	Location	Color/Behavior
Power	Status Power/ Router	Front	Solid Green – Power On Off – Power Off Flashing Red – Flashing Power on self test Solid Red - Failure (not bootable) or device malfunction *A malfunction is any error of internal sequence or state that will prevent the device From connecting to the DSLAM or passing customer data. This may be identified at various times such after power on or during operation through the use of self testing or in operations which result in a unit state that is not expected or should not occur.*
Ethernet 1	Status Ethernet Port	Front	Off - Power Off – or – No Powered device detected Solid Green – Powered device connected ; including wake on LAN Flashing Green – LAN activity present for that port
Ethernet 2	Status Ethernet Port	Front	Off - Power Off – or – No Powered device detected Solid Green – Powered device connected ; including wake on LAN Flashing Green – LAN activity present for that port
Ethernet 3	Status Ethernet Port	Front	Off - Power Off – or – No Powered device detected Solid Green – Powered device connected ; including wake on LAN Flashing Green – LAN activity present for that port
Ethernet 4	Status Ethernet Port	Front	Off - Power Off – or – No Powered device detected Solid Green – Powered device connected ; including wake on LAN Flashing Green – Activity present for that port
DLNA	Status USB Port	Front	Off - Power Off – or – No Device detected Solid Green – Device connected Flashing Green – Activity present on port
Wireless	Status Wireless	Front	Off - Modem off or Wireless not activated Solid Green – Wireless activated Flashing Green – Wireless activity is present
DSL	Status DSL	Front	Green – DSL Good Sync Off - Powered off Flashing Green - DSL Attempting sync *Signal Detection – Flashing 2hz with 50% duty cycle* *Carrier Detected, Modem training – Flashing at 4hz with 50% duty cycle*
Internet	Status WAN	Front	Internet Light – Must indicate at least one type of connection Solid Green – IP connected – no traffic passing Device has a WAN IP via either static/ DHCP/ or IPCP If PPP is used, device has authenticated and has a WAN IP Address If IP or PPPOE session is idle and dropped, light to remain green as long as ADSL is still present. *Light to turn red if upon attempting new session it fails.* Off – Modem Power Off. LED Should remain off if modem is in bridged mode or if DSL Connection is not present Flashing Green – Device has WAN IP Address and IP Traffic is passing through device Red – Device attempted initiate session, either authentication or to obtain an IP Address, and failed.

Section 12.1 – Port Mirroring

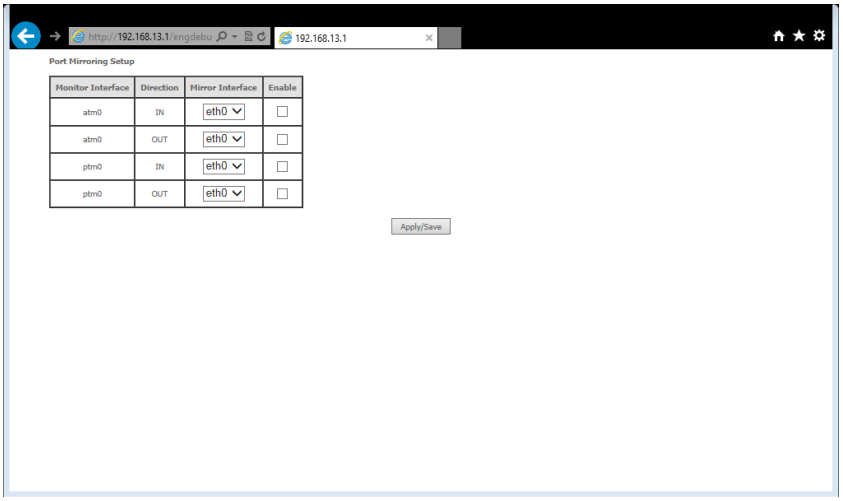
Port Mirroring will allow for complete packet captures when using a capture application such as WinPCAP or tcpdump.

Mirroring a WAN port will duplicate WAN packets to the first Ethernet Port for technicians to view.

Step 1: Access the GUI to find Backup Configuration Tool

1.A **In your browser, go to : http://192.168.x.x/engdebug.cmd**

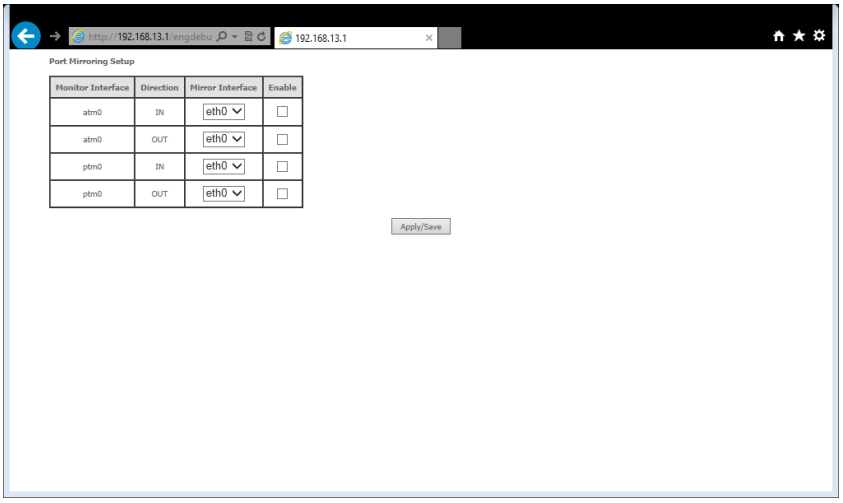
Then, enable "In" and "Out" (Ingress and Egress packets) for the appropriate WAN interface



2.A **Select the Ethernet Port for Mirroring**

Please note that number begins with "O". Hence

Eth0 = Port 1
Eth1 = Port 2
Eth2 = Port 3



3.A **Select "Apply / Save" .**