NetCommWireless

3G WiFi Router with Voice
3G22WV

Signal strength / HIGH / MED / LOW / SIGNAL / WWW / PHONE / LAN 4 / LAN 3 / LAN 2 / LAN/WAN / WIFI / POWER

USER GUIDE

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Save Our Environment

When this equipment has reached the end of its useful life, it must be taken to a recycling centre and processed separately from domestic waste.

The cardboard box, the plastic contained in the packaging, and the parts that make up this device can be recycled in accordance with regionally established regulations. Never dispose of this electronic equipment along with your household waste. You may be subject to penalties or sanctions under the law. Instead, ask for disposal instructions from your municipal government.

Please be responsible and protect our environment.

This manual covers the following products:
NetComm 3G22WV

DOCUMENT VERSION	DATE
1.0 – Initial document release	05/12/2011
1.1 – Revised to final firmware release	25/09/2012
1.2 – Added "Accessing a connected USB drive" section	03/01/2013
1.3 – Added Telephony Profile section and updated some screenshots	24/01/2013

Table 1 - Document Revision History

Table of Contents

Overview

Introduction

This manual provides information related to the installation, operation, and utilisation of the 3G22WV.

Target Users

The individual reading this manual is presumed to have a basic understanding of telecommunications terminology and concepts.

Prerequisites

Before continuing with the installation of your 3G22WV, please confirm that you comply with the minimum system requirements below.

- An activated mobile broadband SIM card.
- Computer with Windows, Macintosh, or Linux-based operating systems with a working Ethernet adapter with TCP/IP Protocol installed.
- A Web Browser such as Internet Explorer, Netscape Navigator, Mozilla Firefox, Opera, Safari etc.
- Wireless Computer System Requirements:
  - Computer with a working 802.11b, 802.11g or 802.11n wireless adapter.

Telephony Requirements

- Standard analogue PSTN or cordless PSTN phone handset (DECT) with an RJ-11 port.
  (ISDN phone handsets are not supported)
- RJ-11 to RJ-11 phone connectivity cable

Notation

The following symbols are utilised in this user manual:

The following note requires attention

The following note provides a warning

The following note provides relevant information

Product Introduction

Product Overview

- Quad-Band HSPA+ (where network is available)
- Up to 21Mbps downlink / 5.76Mbps uplink[1]
- 1 x Voice ports (circuit-switched)
- 3 x 10/100 LAN Ethernet port
- 1 x 10/100/1000 LAN / WAN Ethernet port for optional alternate Internet connectivity (ADSL/Cable/Satellite)
- 802.11n/300Mbps Wireless[1] (Backward compatible with 802.11b/g)
- 2 x Internal WiFi antennas
- Browser based interface for configuration and management
- Wireless security options- WEP, WPA, WPA2
- 2 x USB ports for attaching USB Storage devices to share with connected clients

1. Speeds are dependent on network coverage. See your mobile broadband provider coverage maps for more details. The total number of WiFi users can also affect data speeds. Maximum wireless signal rate and coverage values are derived from IEEE Standard 802.11g and 802.11n specifications. Actual wireless speed and coverage are dependent on network and environmental conditions included but not limited to volume of network traffic, building materials and construction/layout.

Package Contents

The 3G22WV package consists of:

- 3G22WV – NetComm Wireless 3G WiFi Router with Voice
- 12VDC~1.5A Power Adapter
- 1 x RJ-45 LAN Cable
- 1 x RJ-11 phone cable
- Quick Setup Guide
- Wireless Security Card

If any of these items are missing or damaged, please contact NetComm Wireless Support immediately by visiting the NetComm Wireless Support website at: http://support.netcommwireless.com/

Product Features

The NetComm Wireless 3G WiFi Router with Voice creates a secure WiFi network, providing Internet access for up to 15 users and simultaneous phone service using a mobile broadband network. With quick and easy setup the NetComm Wireless 3G WiFi Router with Voice provides a landline experience without the need for fixed line connections. Simply plug the NetComm Wireless 3G WiFi Router with Voice into a power outlet then insert an active mobile broadband SIM card into the slot on the rear panel to access a mobile broadband Internet connection within minutes.

The NetComm Wireless 3G WiFi Router with Voice incorporates a WLAN 802.11b/g/n access point, four 10/100Mbps Ethernet ports, with one able to act as a 10/100/1000Mbps Ethernet WAN port and one phone port for making and receiving telephone calls. Two USB ports provide connectivity to attached USB Storage for connected clients. It features the latest security options such as WPA and WPA2 data encryption, SPI (Stateful Packet Inspection) Firewall and VPN pass through.

Physical Dimensions and Indicators

LED Indicators

The 3G22WV has been designed to be placed on a desktop. All of the cables exit from the rear for better organization. The display is visible on the front of the 3G22WV to provide you with information about network activity and the device status. See below for an explanation of each of the indicator lights.
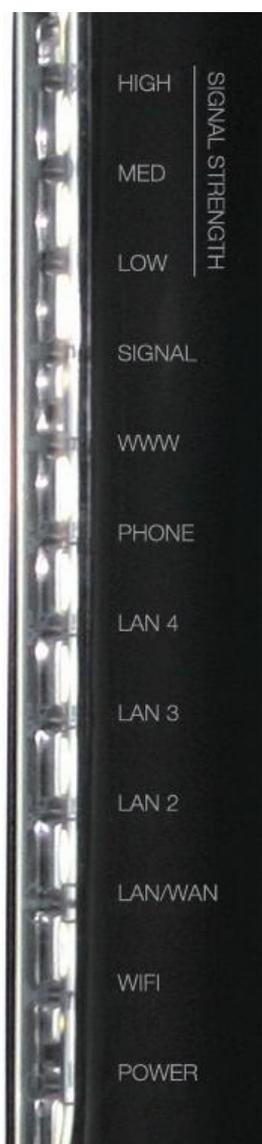
LED INDICATOR	DEFINITION
HIGH	High 3G Signal strength available
MED	Medium 3G Signal strength available
LOW	Low 3G Signal strength available
SIGNAL	Connection established with 3G network
WWW	Internet connection established
PHONE	Solid blue light when the analogue telephone connected to Line 1 is off-hook, blinks on incoming call
LAN 4	Powered device connected to the LAN port (includes devices with Wake-On-LAN capability where a slight voltage is supplied to an Ethernet connection). Blinks on LAN port traffic.
LAN 3	Powered device connected to the LAN port (includes devices with Wake-On-LAN capability where a slight voltage is supplied to an Ethernet connection). Blinks on LAN port traffic.
LAN 2	Powered device connected to the LAN port (includes devices with Wake-On-LAN capability where a slight voltage is supplied to an Ethernet connection). Blinks on LAN port traffic.
LAN 1 / WAN	Powered device (computer / router) connected to the LAN / WAN port (includes devices with Wake-On-LAN capability where a slight voltage is supplied to an Ethernet connection). Blinks on LAN port traffic
WiFi	Solid blue light when WLAN is enabled. Blinks on traffic (data transfer)
Power	Solid amber light when device is powered on. Blinking during device start up.

Table 2 - LED Indicators

Integrated Interfaces

The following integrated interfaces are available at the rear of the 3G22WV:

INTERFACE	FUNCTION
SIM Slot	Insert your SIM card here (until you hear a click). Please be careful to insert the SIM in the correct orientation by viewing the printed icon.
3G Antenna Connector	Attach an (optional) external 3G Antenna here.
LAN 4 - 2	LAN Port for wired Ethernet clients (Computers, Laptops, etc.)
LAN 1 / WAN	LAN or WAN port for wired Ethernet clients or bridged devices (an ADSL modem, etc.)
Voice	Phone port to enable connection to a standard analogue telephone
Power	Power connector, connects to a DC 12V 1.5A Power Adapter
Reset	Hold this button down for over 10 seconds to reset to factory defaults.

Table 3 - Rear Panel Ports

Physical Dimensions

The following page lists the physical dimensions of the 3G22WV.

Figure 1 - 3G22WV Dimensions

3G22WV DIMENSIONS	
Length	160mm
Height	195 mm
Width	65 mm
Weight	250 grams

Table 4 - Device Dimensions

3G22WV Default Settings

The following tables list the default settings for the 3G22WV.

LAN (MANAGEMENT)	
Static IP Address:	192.168.20.1
Subnet Mask:	255.255.255.0
Default Gateway:	192.168.20.1

Table 5 - LAN Management Default Settings

WAN (INTERNET)	
WAN mode:	Disabled (operates as LAN by default)

Table 6 - WAN Port Default Settings

WIRELESS (WIFI)	
SSID:	(refer to the included Wireless Security card)
Security:	WPA2-PSK
Security Key:	(refer to the included Wireless Security card)

Table 7 - WiFi Default Settings

3G22WV WEB INTERFACE ACCESS	
Username:	admin
Password:	admin

Table 8 - Web Interface Default Settings

Safety and Product Care

With reference to unpacking, installation, use and maintenance of your electronic device, the following basic guidelines are recommended:

- To avoid fire or shock hazard do not use or install this product near water. For example, near a bathtub, kitchen sink, laundry tub, or near a swimming pool. Also, do not expose the equipment to rain or damp areas (e.g. a wet basement).
- Do not connect the power supply cord on elevated surfaces. Allow it to lie freely. There should be no obstructions in its path and no heavy items should be placed on the cord. In addition, do not walk on, step on or mistreat the cord.
- To safeguard the equipment against overheating, make sure that all openings in the unit that offer exposure to air are unobstructed.

WARNING
Disconnect the power line from the device before servicing.

Transport and Handling

When transporting the 3G22WV, it is recommended the product be returned in the original packaging. This ensures the product will not be damaged.

In the event the product needs to be returned, ensure it is securely packaged with appropriate padding to prevent damage during courier transport.

Installation and Configuration of the 3G22WV

Placement of your 3G22WV

Just like your mobile phone, the 3G22WV's location will affect its signal strength to the Mobile Broadband Base Station (Cell Tower). The data speed achievable from the 3G22WV is relative to this signal strength, which is affected by many environmental factors. Please keep in mind that the 3G22WV will need adequate signal strength in order to provide Internet connectivity whilst choosing a location to place your 3G22WV.

Similarly, the wireless connection between your 3G22WV and your WiFi devices will be stronger the closer your connected devices are to your 3G22WV. Your wireless connection and performance will degrade as the distance between your 3G22WV and connected devices increases. This may or may not be directly noticeable, and is greatly affected by the individual installation environment.

If you have concerns about your network's performance that might be related to range or obstruction factors, try moving the computer to a position between three to five meters from the 3G22WV in order to see if distance is the problem.

> Please note: While some of the items listed below can affect network performance, they will not prohibit your wireless network from functioning. If you are concerned that your network is not operating at its maximum effectiveness, this checklist may help.

If you experience difficulties connecting wirelessly between your WiFi Devices and your 3G22WV, please try the following steps:
- In multi-storey homes, place the 3G22WV on a floor that is as close to the centre of the home as possible. This may mean placing the 3G22WV on an upper floor.
- Try not to place the 3G22WV near a cordless telephone that operates at the same radio frequency as the 3G22WV (2.3GHz).

Avoid obstacles and interference

Avoid placing your 3G22WV near devices that may emit radio "noise," such as microwave ovens. Dense objects that can inhibit wireless communication include:
- Refrigerators
- Washers and/or dryers
- Metal cabinets
- Large aquariums
- Metallic-based, UV-tinted windows
- If your wireless signal seems weak in some spots, make sure that objects such as those listed above are not blocking the signal's path (between your devices and the 3G22WV).

Cordless Phones

After considering the above issues if the performance of your wireless network is still impaired and you have a cordless phone:
- Try moving cordless phones away from your 3G22WV and your wireless-enabled computers.
- Unplug and remove the battery from any cordless phone that operates on the 2.3GHz band (check manufacturer's information). If this fixes the problem, your phone may be interfering with the 3G22WV.
- If your phone supports channel selection, change the channel on the phone to the farthest channel from your wireless network. For example, change the phone to channel 1 and move your 3G22WV to channel 11. See your phone's user manual for detailed instructions.
- If necessary, consider switching to a 900MHz or 5GHz cordless phone.

Choose the "Quietest" Channel for your Wireless Network

In locations where homes or offices are close together, such as apartment buildings or office complexes, there may be wireless networks nearby that can conflict with your wireless network. Use the Site Survey capabilities found in the Wireless Utility of your wireless adapter to locate any other wireless networks that are available (see your wireless adapter's user manual), and switch your Router and computers to a channel as far away from other networks as possible.

Experiment with more than one of the available channels, in order to find the clearest connection and avoid interference from neighbouring cordless phones or other wireless devices.

Hardware installation

1. Insert your SIM card (until you hear a click) into the SIM slot.
2. For voice functionality, connect a standard analogue telephone to the port labelled "Voice" using the RJ-11 cable provided.
3. Connect the power adapter to the Power socket on the back of the 3G22WV.
4. Plug the power adapter into the wall socket and switch on the power.
5. Wait approximately 60 seconds for the 3G22WV to power up.

Connecting via a cable

1. Connect the Ethernet cable provided to any port marked LAN 1-4 at the back of the 3G22WV.
2. Connect the other end of the yellow Ethernet cable to your computer.
3. Wait approximately 30 seconds for the connection to establish.
4. Open your Web browser and type http://192.168.20.1 into the address bar and press enter.
5. Follow the steps to set up your 3G22WV.
6. After the setup process is completed, you will be connected to the Internet.

Connecting wirelessly

1. Ensure WiFi is enabled on your device (computer/laptop/Smartphone).
2. Scan for wireless networks in your area and connect to the network name shown on the included Wireless Security Card.
3. When prompted for your wireless security settings, enter the Wireless security key shown on the included Wireless Security Card.
4. Wait approximately 30 seconds for the connection to establish.
5. Open your Web browser and type http://192.168.20.1 into the address bar and press enter.
6. Follow the steps to set up your 3G22WV.
7. After the setup process is completed, you will be connected to the Internet.
8. To connect additional devices via WiFi, repeat steps 1 through 4.

![NetCommWireless logo]

First time setup

The first time you connect to the router's IP address via the web browser you are presented with the option to use a setup wizard to help you quickly get started using your NetComm Wireless Router. If you would prefer not to use the setup wizard, please proceed to the next section titled "Management Console Login Procedure". To begin using the setup wizard, click the **Yes, let's get started with the Wizard** button.
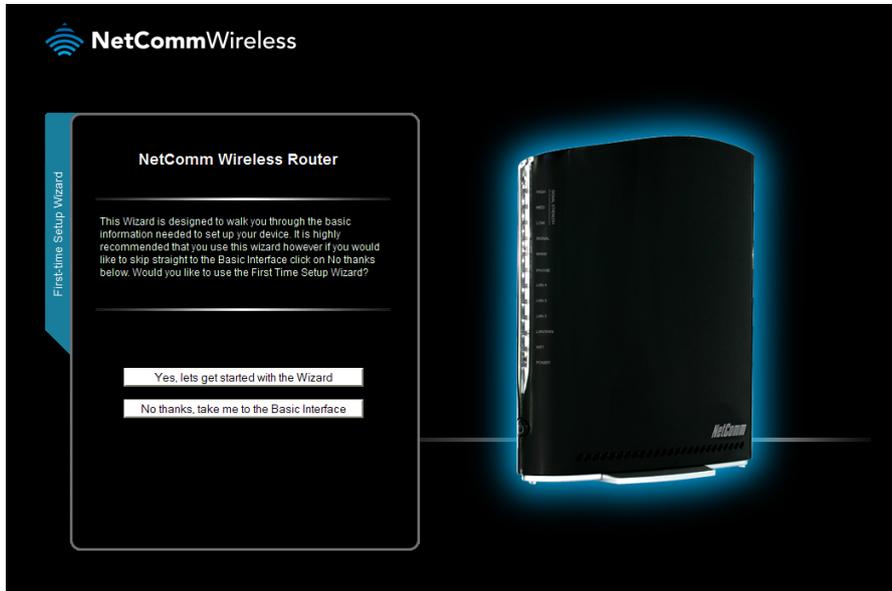

Figure 2 - First time setup screen

Step 1

Use the drop down list to select the region you are in for the telephony profile, then select the time zone you are in. If your SIM card is PIN locked, you should also enter the PIN on this screen. To save you entering the PIN again later, you can set the router to save your SIM's PIN.

Figure 3 - Setup wizard Step 1

Step 2

It is recommended for security purposes that you change the default username and/or password. Enter a secure username and/or password then confirm the password.

Figure 4 - Setup wizard Step 2

Step 3

Use the radio buttons to turn the Wireless radio on or off. When SSID Broadcast is enabled, the network name will show up when you do a scan for WiFi networks on your client devices. If you disable this, you must know the name of the SSID to connect to the wireless network. In the SSID Broadcast Name field, enter a recognisable name for your network so that you can easily identify it when it comes time to connect wirelessly from a client.
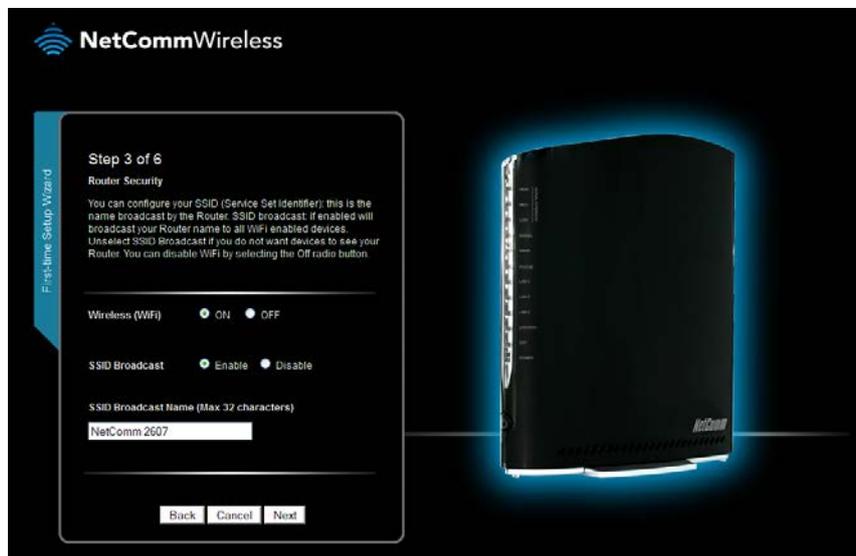
Figure 5 - Setup wizard Step 3

Step 4

Select the type of wireless security you wish to use with the Network Authentication Type drop down list then enter a security key of at least 8 characters. If you choose WPA-PSK, the WPA Encryption will be TKIP, otherwise the router will use AES encryption.

Figure 6 - Setup wizard Step 4

Step 5

This page allows you to setup the WWAN (Wireless Wide Area Network) connection. This is the connection to your mobile broadband provider. In most cases, setting the broadband router to automatically configure your connection will be sufficient but if your carrier has given you specific details to use, remove the check from the box and enter the details as provided to you by your carrier.

Figure 7 - Setup wizard Step 5

Step 6

A summary of your settings is shown. If you need to make any corrections to the settings click the **Back** button, otherwise, click the **Finish** button to begin using your router.

Figure 8 - Setup wizard Step 6

Management Console Login Procedure

After first time setup, the management console will be password protected to prevent unauthorized access to the configuration settings of your 3G22WV.

To log in to the management console and view the status and make changes to your 3G22WV, please follow the steps below:

1. Open your web browser (e.g. Internet Explorer/Firefox/Safari) and navigate to http://192.168.20.1 or http://my.router
2. Click the Login tab on the left and enter the username and password configured during the first time setup process then click the "Submit" button. The default username and password is "admin" if the details haven't been customized. Click the "Submit" button to continue.

Please Note: If you forget the username and password you selected during the 3G22WV set-up process, holding the reset button for over 10 seconds will restart the unit with the original settings (username: admin / no password).
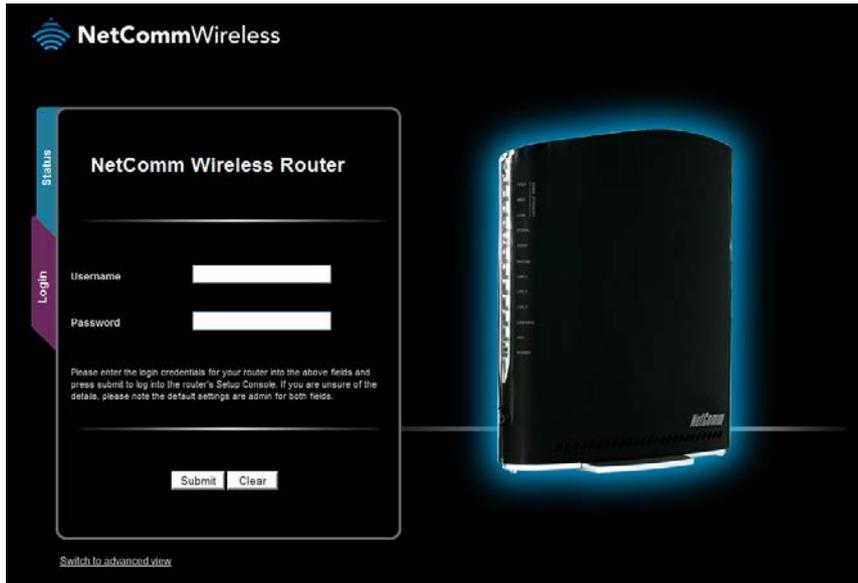
Figure 9 - Management Console Login

Management Console

Basic Status Overview

The basic status page provides basic system related information. It is shown after logging in to the 3G22WV, and can also be accessed by selecting Basic Status from the menu.

Figure 10 - Basic View – Status

The status page shows the 3G Frequency, Signal Strength (dBm), Connection status, Current 3G Provider, Current 3G APN and the SIM Status.

Figure 11 - Basic View – Wireless

This page allows you to configure basic WiFi settings for this device such as enabling/disabling the WiFi functionality, changing the Wireless Network Name (SSID) or the Wireless Security key.

OPTION	DEFINITION
Wireless (WiFi)	Select the On or Off option to disable or enable the Wireless functionality.
WiFi Network Name (SSID)	The SSID (Service Set Identifier) is the name of your wireless network. Use a unique name to identify your wireless device so that you can easily connect to it from your wireless clients. This field is case sensitive and can be up to 32 characters.
Security key	Enter your chosen Wireless Security key here. The default WPA2-PSK key is printed on the wireless security card and on the Product ID on the bottom of the 3G22WV. Please note that whilst the key can be customized on this page, the key will revert to the default if the 3G22WV is reset to factory default.

Table 9 - Basic View - WiFi Settings

Figure 12 - Basic View – Internet

The 3G Operation Mode can be configured on this page. Please see the table below for options allowed for the 3G operation mode:

OPTION	DEFINITION
Automatically Configure My Mobile Broadband	The router will attempt to automatically detect the mobile broadband provider and APN of the inserted SIM car. If your SIM card has a PIN code or requires a username or password to connect do not select this option.
Mobile Broadband	Select to enable or disable the mobile broadband profile.
Custom APN (if required)	Enter an APN if the Auto Config option does not correctly identify your mobile broadband service setting's APN.
Country	Select the country you wish to operate the router in.
SIM Status	The current status of the inserted SIM. If 'SIM PIN' is shown, enter the SIM PIN code in the fields below.
PIN	Enter the SIM PIN code numbers here (if required).
Confirm PIN	Re-enter the SIM PIN code numbers here (if required).
Remember PIN	Select to remember the entered SIM PIN. Selecting yes for this option means you will not need to enter the PIN code again to use the inserted SIM card.

Table 10 - Basic View - Internet Settings

You can also elect to enable the "Automatically Configure My Mobile Broadband" option. This option attempts to automatically fill out the correct APN from your mobile broadband SIM card enabling you to connect to the applicable mobile service. Please verify the APN detected is correct by clicking on the Status tab. The current APN will be listed above the "SIM Status" field.

Alternatively, you can disable the "Automatically Configure My Mobile Broadband" option and manually enter the APN you would like to use.

If the "Automatically Configure My Mobile Broadband" option does not correctly detect your APN and you are unsure of what to enter manually, please contact your mobile broadband service provider for more information.

Advanced Features

The basic configuration interface is intended to provide access to all the settings that most people will want to use on their 3G22WV. There are advanced settings available if desired which are accessible by viewing the advanced settings pages.

Home
Clicking the Home menu item will return you to the Basic View page.

Status
The status page provides system related information and is displayed when you login to the 3G22WV management console and switch to Advanced View. By default, the status page will show System Information, Mobile Broadband (MBB), Connection Status and Ethernet Port Status settings.

Figure 13 - Advanced View – Status

ITEM	DEFINITION
System Information Section	
System Uptime	The current amount of time the router has been connected to the internet.
Router Version	The firmware version running on the router.
Phone Module	The type of phone module and the firmware version of the module.
Mobile Broadband (MBB) Section	
Profile Name	The name of the current mobile broadband profile in use.
Interface	The type of connection the mobile broadband profile is using.
Status	The current status of the internet connection.
APN	The Access Point Name being used to connect to the mobile broadband provider.
IP Address	The WAN IP address of the current internet connection.
Connection Status Section.	
Provider	The mobile broadband provider being used to connect to the internet.
Frequency	The frequency band currently in use.
IMEI	The IMEI (International Mobile Equipment Identity) of the router, a unique code for identifying devices on a cellular GSM network.
Signal Strength	The strength of the mobile broadband signal detected
SIM Status	The status of the SIM card that is currently inserted into the router.

Table 11: Advanced View - Status Settings

LAN port Mode

The LAN1 port can also operate as a WAN port for connecting to a bridged Ethernet device such as an xDSL modem. Using the pull down menu in the "Ethernet Port Status" section, select the LAN1 mode applicable for your environment.

To view the LAN, PPPoE or Call Forwarding status, click on the relevant link below the green menu bar. Each of these sections is hidden by default. To view them all, click on the "All Status" button. Each section contains a breakdown of information relevant to the connection type or function.

Figure 14: Advanced Status – LAN

ITEM	DEFINITION
IP	The IP address and subnet mask of the router is displayed here.
MAC Address	The MAC address of the router is listed here.

Table 12: Advanced Status - LAN Status Settings

Figure 15: Advanced Status - Call Forwarding

ITEM	DEFINITION
Call Waiting	The status of call waiting which is a feature is allowing the user to suspend a current telephone call and switch to a new incoming call.
Unconditional Call Forwarding	The status of the Unconditional Call Forwarding feature which forwards an incoming call to another number in all cases.
Busy Call Forwarding	The status of the Busy Call Forwarding feature which forwards an incoming call if the line is busy.
No Reply Call Forwarding	The status of the No Reply Call Forwarding feature which forwards an incoming call if the call is not answered.
Not Reachable Call Forwarding	The status of the Not Reachable Call Forwarding feature which forwards a call if the call cannot connect due to the router Voice settings not responding or blocked.

Table 13: Advanced Status - Call Forwarding Settings

Internet Settings

Mobile Broadband

Connection

This page allows you to setup your WWAN (Wireless Wide Area Network) connection.

Figure 16 - Advanced View – Mobile Broadband Connection Settings

OPTION	DEFINITION
Profile Name	A name to identify the profile and associated mobile broadband settings.
APN Name	Enter the APN name you wish to use to connect to your mobile broadband provider. Please don't edit this unless you are aware of what effect it will have.
Mobile Broadband Connection	The profile can be disabled or enabled using this option.
Username	If applicable enter the username assigned to you by your mobile broadband provider in order to connect to the mobile broadband service.
Password	If applicable enter the password assigned to you by your mobile broadband provider in order to connect to the mobile broadband service.
Authentication Type	Select the type of authentication in use by the mobile broadband network. For more information, please contact your mobile broadband service provider.
Reconnect Delay	The delay between attempts to reconnect to the mobile broadband service.
Reconnect Retries	The number of reconnection tries made to the mobile broadband service.
Metric	This field allows you to customize the metric of the mobile broadband interface. This setting will have no effect for most users, but may be required for advanced routing configurations (Static Routes, RIP, VPN, etc.)
MTU	Enter the Maximum Transmission Unit, the size in bytes of the largest datagram packet that can be sent over the network connection.
NAT Masquerading	Enabled by Default, this option allows you to switch NAT (Network Address Translation) on or off.
Voice Roaming (Outgoing Call)	Enable outgoing voice calls when utilising a different mobile broadband provider.
Voice Roaming (Incoming Call)	Enable incoming voice calls when utilising a different mobile broadband provider.
Data Roaming	Select to enable or disable data roaming on your mobile broadband connection

Table 14 - Advanced View - Internet Settings – Mobile Broadband – Connection Settings

Band Settings

The band settings page enables you to select which frequency band you will use for your connection and enable you to scan for available network operators in your area.
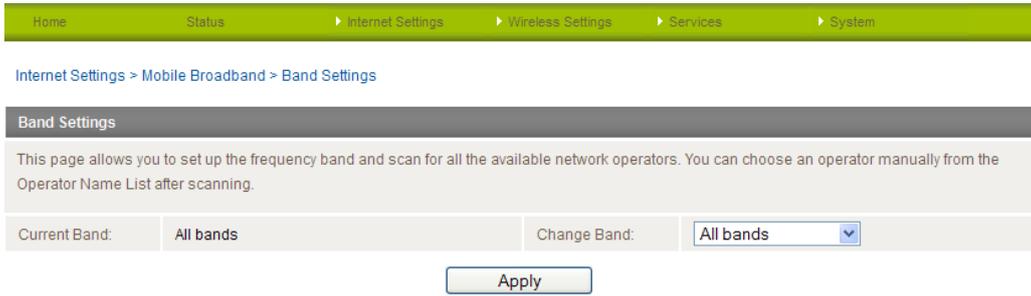
Figure 17 - Advanced View – Band Selection

The default setting of "All bands" should be appropriate for the majority of users.

You can also scan for available mobile broadband service providers in your area by selecting "Manual" for the "Current Operator Selection Mode" and then clicking the scan button.
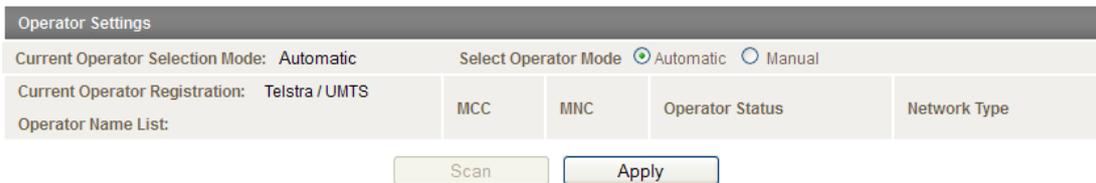
Figure 18 - Advanced View – Operator Selection

A list of the detected mobile broadband service carriers in your area will be displayed. Select the most appropriate 3G service from the list shown and click "Apply".

The default setting of "Automatic" should be appropriate for the majority of users and locations.

SIM Security

The SIM Security page enables you to configure SIM PIN related functions such as storing the PIN in use on the SIM or changing the PIN protection status.

| Home | Status | ▶ Internet Settings | ▶ Wireless Settings | ▶ Services | ▶ System |

Internet Settings > Mobile Broadband > SIM Security

SIM Security Settings

SIM Status	SIM OK
Number of Retries Remaining	3
PIN	••••
Confirm PIN	••••
Remember PIN: Enabled	⊙ Enable ○ Disable
PIN Protection: Enabled	Enable PIN ▾

Save
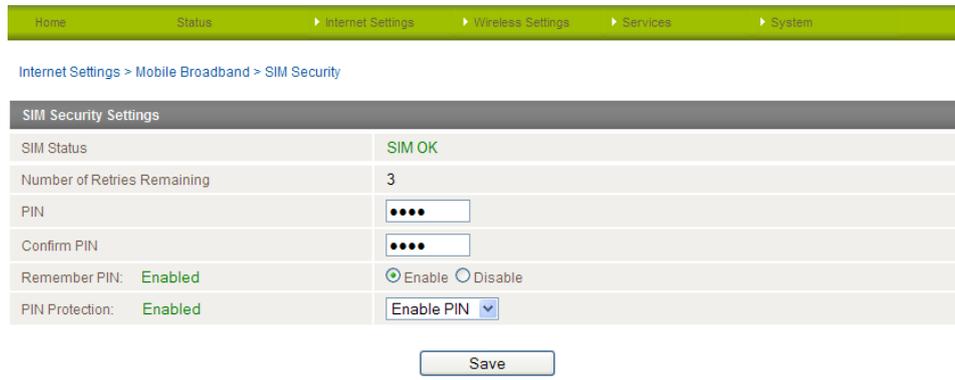
Figure 19: Mobile Broadband - SIM Security

ITEM	DEFINITION
SIM Status	The current status of the inserted SIM.
Number of Retries Remaining	The remaining number of times an incorrect SIM PIN can be entered before being prompted to enter a PUK code.
PIN	Enter the PIN for your SIM card here (if required)
Confirm PIN	Re-enter the PIN for your SIM card here (If required)
Remember PIN	Set the 3G22WV to remember the SIM PIN. This prevents it needing to be entered each time the 3G22WV starts up.
PIN Protection	Select to enable or disable PIN protection on your SIM card

Table 15: Mobile Broadband -SIM Security Settings

LAN

IP Setup

The LAN functionality of the 3G22WV can be configured from this page. Using this page, a user can change the LAN IP, LAN Subnet and DNS Masquerading options.
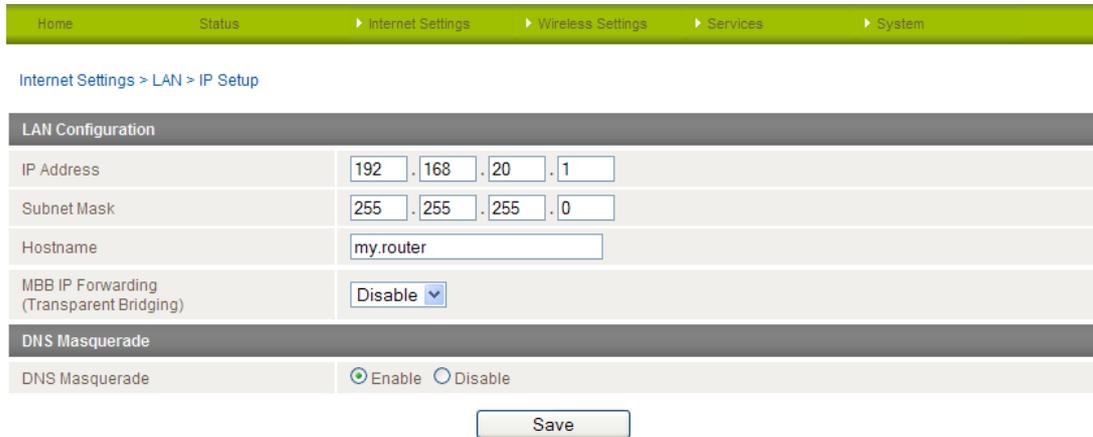
Figure 20 - Advanced View - LAN Settings

Please note: If the IP address has changed you will have to re-enter the new IP address configured in your browser to access the configuration pages.

OPTION	DESCRIPTION
IP Address	The local IP address of 3G22WV
Subnet Mask	The subnet mask for the local network.
Hostname	The hostname you may use in place of the IP address of the router.
MBB IP Forwarding (Transparent Bridging)	Enabling this field bridges the WAN port to the LAN port. The connected LAN device is then live on the Internet. To confirm 3G IP Forwarding Mode is functioning check that the local IP address on the Status page matches the IP address of the network adapter on your PC.
DNS Masquerade	Select to enable or disable DNS masquerading for connected clients.

Table 16 - Advanced View - LAN Settings

DNS Masquerading

DNS masquerading allows the router to forward DNS requests to dynamically assigned DNS servers. Clients on the router's LAN can then use the router as a DNS server without needing to know of the dynamically assigned DNS servers assigned by the cellular network.

There should be no need to disable this feature in most cases, however, if you need to do so simply select "Disable" and click the Save button.

Click 'Apply' to save any changes you make to the settings.

DHCP

The DHCP page is used to adjust the DHCP settings used by the router. The DHCP settings are then passed onto any device connecting via DHCP.

You can manually set the DHCP Start and End range, the DHCP Lease time, the default Domain name suffix, Primary and Secondary DNS Server, the Primary and Secondary WINS Server, as well as the NTP, TFTP and Option 150/Option 160 (VoIP options) settings.

Figure 21 - DHCP Settings

After entering the applicable details, click "Save".
You can also assign a particular IP address to a specific device every time that device makes a DHCP request as follows:

Figure 22 - DHCP Settings - Fixed Mapping

1. Click Add
2. Enter a name for the computer or device.
3. Enter the computer or devices' MAC address
4. Enter the IP address to be assigned to the computer or device.
5. Click "Save"

DHCP Relay Configuration

To relay the DHCP function from a remote DHCP server select the "DHCP Relay Configuration" link at the top of the page.

Figure 23: DHCP Settings - DHCP Relay Configuration

1. Set the "DHCP Relay" option to Enable.
2. Enter the IP Address of the DHCP Server you wish to relay to and press the Save button.

LAN - Advanced Setup

The Advanced Setup LAN page has settings that should only be configured by experienced administrators. The following page provides a brief overview of the features available.
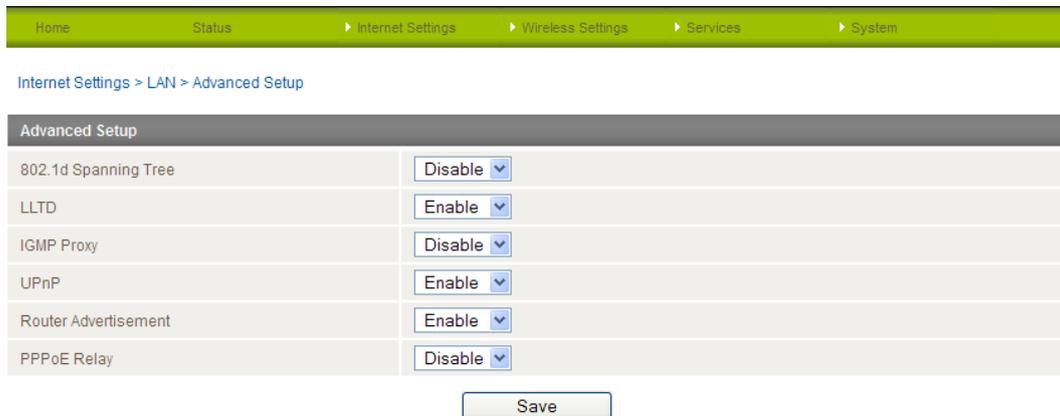
Figure 24: Internet Settings - LAN - Advanced Setup

FIELD	DESCRIPTION
802.1d Spanning Tree	The default is "Disable", select "Enable" to enable this option. The Spanning Tree protocol is used to stop loops when using wireless distribution system (WDS) links as redundant links in a distribution system.
LLTD	This field is the Link Layer Topology Discovery (LLTD) protocol. The default setting is "Disable". Select "Enable" to enable this option.
IGMP Proxy	The field is the Internet Group Management Protocol (IGMP) protocol. The default setting is "Disable". Select "Enable" to utilise this feature.
UPnP	The default option Universal Plug and Play (UPnP) is "Enabled" and is used by a network device to be automatically identified by other UPnP devices. Select "Disable" to disable this option.
Router Advertisement	Used in multicasting the Router Advertisement function periodically sends ICMP router discovery messages to identify other routers nearby. The default option is "Disable". Select "Enable" to enable it.
PPPoE Relay	PPPoE relay is also known as half bridge mode half bridge and will make the DHCP duplicate the WAN IP address from the ISP to the local client PC. The default option is "Disable". Select "Enable" to enable it.

Table 17: Internet Settings - LAN - Advanced Settings

The default is "Disable", select "Enable" to enable this option. The Spanning Tree protocol is used to stop loops when using wireless distribution system (WDS) links as redundant links in a distribution system.

WAN

The WAN page allows you to configure the optional WAN Ethernet port. Select the WAN connection type suitable for your environment and configure parameters according to the selected connection type.

STATIC (fixed IP)

If your WAN connection uses a static IP address, please select "STATIC (fixed IP)" and fill in the required information in the fields provided.
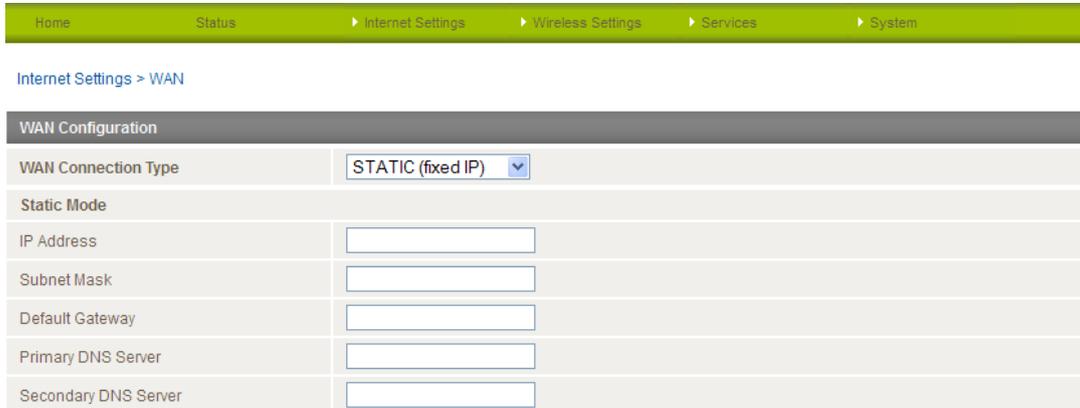
Figure 25 - Advanced View - WAN - Static IP Settings

> Please refer to the **WAN Failover Backup** section on page 29 for information on configuring the WAN failover feature and enabling the Failover notification function.

FIELD	DESCRIPTION
IP Address:	Type in the IP address assigned by your Internet Service Provider
Subnet Mask:	Type in the Subnet mask assigned by your Internet Service Provider
Default Gateway:	Type in the WAN Gateway assigned by your Internet Service Provider
Primary/ Secondary DNS:	Type in the DNS address assigned by your Internet Service Provider

Table 18 - Advanced View - WAN Settings - Static IP

Click 'Apply' to save the settings.

DHCP

This connection will get the IP address from the Internet service provider. Leave everything as default unless instructed by your Internet Service Provider.

Figure 26 - Advanced View - WAN - DHCP Settings

> Please refer to the **WAN Failover Backup** section on page 29 for information on configuring the WAN failover feature and enabling the Failover notification function.

Click 'Apply' to save the settings.

PPPoE

Most ADSL/ADSL2+ services use the PPP over Ethernet protocol. Use this protocol if you are utilising a fixed line broadband service especially if the connecting modem is in bridge mode.
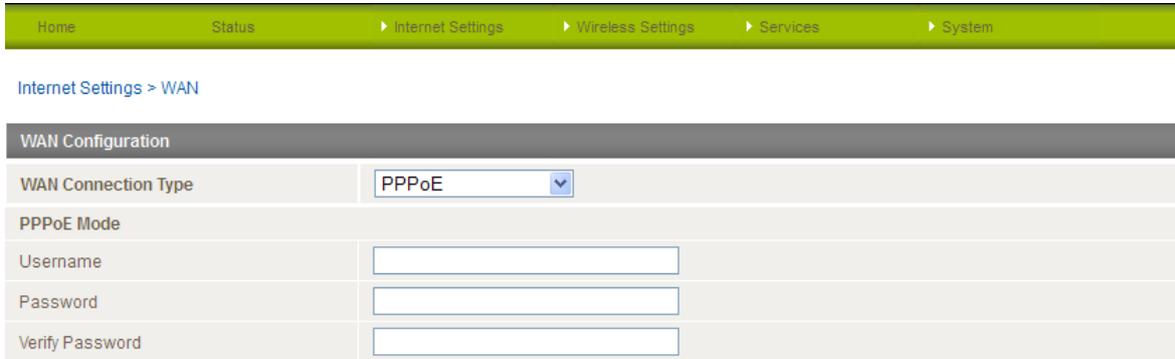
Figure 27: Advanced View - WAN - PPPoE Mode Settings

Please refer to the WAN Failover Backup section on page 29 for information on configuring the WAN failover feature and enabling the Failover notification function.

NAME	DESCRIPTION
User Name	Enter the broadband username as assigned to you by your Internet Service Provider (ISP).
Password/Verify Password	Enter the broadband password as assigned to you by your Internet Service Provider (ISP).

Table 19: Advanced View - WAN - PPPoE Mode Settings

WAN Failover Backup

The WAN Failover Backup feature of the NetComm Wireless 3G22WV is designed to provide a backup Mobile Broadband (MBB) Internet connection in the event your primary Ethernet WAN connection should fail.

To use this feature, you will need both an Ethernet WAN connection (from an xDSL modem/ISDN/Satellite etc.) and a MBB WAN connection.

Figure 28 - Failover Settings

FIELD	DESCRIPTION
Connection Type	There are four possible options that the WAN Failover Connection Type can be set to: ▪ MBB (Mobile Broadband) Failover if WAN link is down – If the fixed line connection through the WAN port fails the Mobile Broadband will connect to the internet. This is the default settings. ▪ MBB Failover with WAN ping – The 3G22WV sends ping requests to a specified Internet Host to verify whether the Internet connection is online and functioning. The Fail Count specifies how many successive ping attempts can fail before the 3G22WV fails over to the Mobile broadband Internet WAN connection while the Success Count specifies how many ping attempts must succeed in order to reset the Fail counter. ▪ WAN Only – Only the WAN port connection is used. The Mobile Broadband Connection is disabled effectively disabling the WAN failover function. ▪ MBB Only – Only the MBB connection is used. The WAN port connection is disabled.
MBB Connection	There are two possible options that the WAN Failover MBB Connection can be set to: ▪ Always On – Although the router does not use the Mobile Broadband (MBB) connection when the WAN connection is available, the MBB connection will always be online as a backup connection. This allows the router to fail over quickly to the existing MBB connection, however may result in MBB carrier charges. ▪ Dial When Required – The router dials the Mobile Broadband (MBB) connection when the MBB connection is required. The router will also automatically disconnect MBB connection if the connection becomes unnecessary.
Destination Address	The address to ping in order to test the status of the internet connection.
Second Address	The alternate address to ping in order to test the status of the internet connection.
Periodic PING Timer	The interval at which a periodic ping request is sent to the destination address or the second address.
Periodic PING Accelerated Timer	When 4 consecutive pings to the destination and the second address fail, the router will send 4 consecutive pings to both destination and second addresses at this interval.
Fail Count	The number of times accelerated pings can fail before the router reboots.
Success Count	The number of pings that can succeed before the router returns to periodic pings and does not reboot.

Table 20: Advanced View - WAN Failover Settings

USSD

The USSD page is used to send USSD (short SMS style) messages to the mobile broadband service provider.
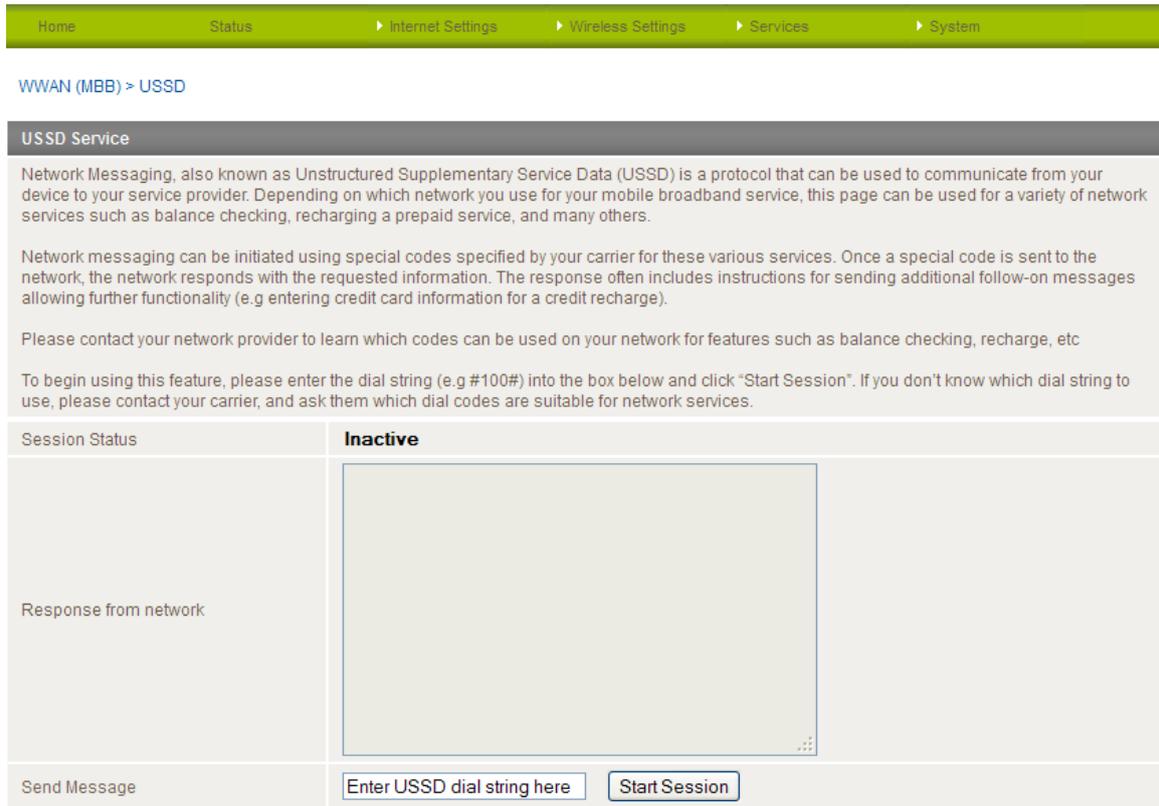

Figure 29 - Advanced View – USSD

USSD is a real-time messaging service usually utilised to perform mobile account related tasks such as the following:

- Checking available credit for a mobile service account.
- Obtaining more credit for a mobile service account.
- Verifying your mobile account information.

Enter the USSD message to be sent in the "Send Message" field at the bottom of the screen and then click "Start Session".

Any responses from your mobile broadband Service Provider will be displayed in the "Response from Network" box in the middle of the page.

Please contact your mobile broadband Service provider for a list of available USSD commands for your mobile broadband service.

Routing

Static

The Static Route page is used to add or delete static routes. Static routes can be used to facilitate communication between devices on different networks.
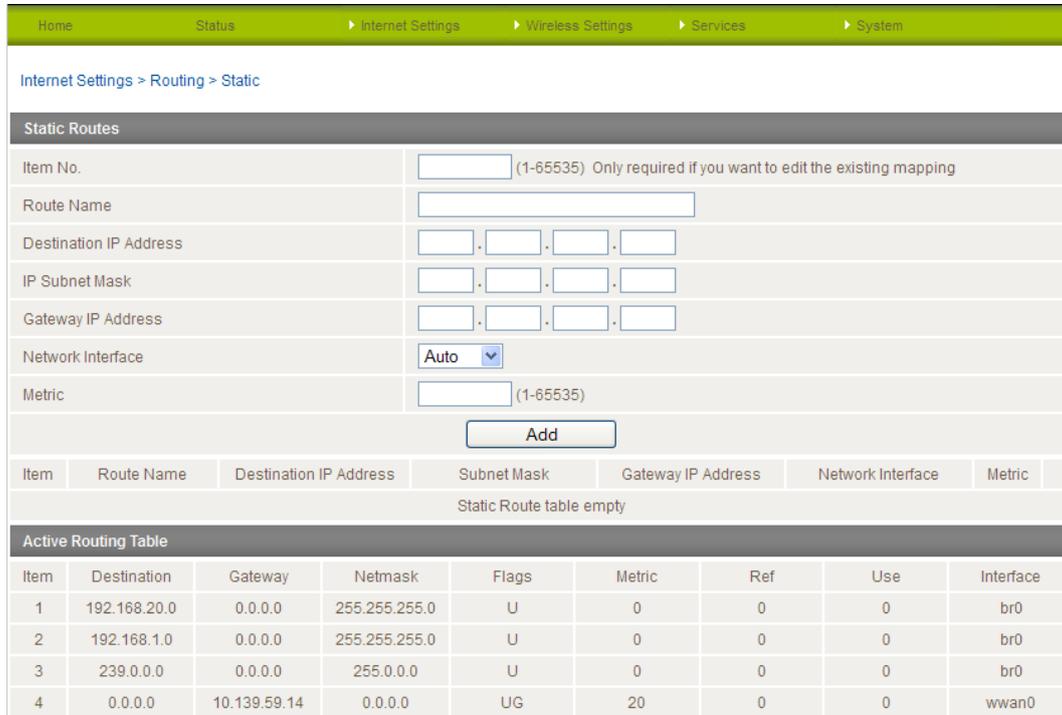
Home	Status	▶ Internet Settings	▶ Wireless Settings	▶ Services	▶ System

Internet Settings > Routing > Static

Static Routes

Item No.	____ (1-65535) Only required if you want to edit the existing mapping
Route Name	____
Destination IP Address	__ . __ . __ . __
IP Subnet Mask	__ . __ . __ . __
Gateway IP Address	__ . __ . __ . __
Network Interface	Auto ▾
Metric	____ (1-65535)
	Add

Item	Route Name	Destination IP Address	Subnet Mask	Gateway IP Address	Network Interface	Metric
			Static Route table empty			

Active Routing Table

Item	Destination	Gateway	Netmask	Flags	Metric	Ref	Use	Interface
1	192.168.20.0	0.0.0.0	255.255.255.0	U	0	0	0	br0
2	192.168.1.0	0.0.0.0	255.255.255.0	U	0	0	0	br0
3	239.0.0.0	0.0.0.0	255.0.0.0	U	0	0	0	br0
4	0.0.0.0	10.139.59.14	0.0.0.0	UG	20	0	0	wwan0

Figure 30 - Static Route Settings

Some routes are added by default by the router on initialisation such as the Ethernet subnet route for routing to a device on the Ethernet subnet. A PPP route is also added upon obtaining a WAN PPP connection.

Adding Static Routes
- Enter the required values in the fields (as shown above) for route being added.
- Click "ADD"

Please note: You must increment the "Route no" by 1 for each route in the "Route no" field otherwise that route will be overwritten.

The Active Routing table at the bottom will then show the new route added.

Deleting Static Routes
Click the "Delete Entry" text (in blue).

RIP

RIP (Routing Information Protocol) is used for advertising routes to other routers. Thus all the routes in the router's routing table will be advertised to other nearby routers. For example, the route for the router's Ethernet subnet could be advertised to a Router on the PPP interface side so that a Router on this network will know how to route to a device on the router's Ethernet subnet. You will have to add the routes appropriately in the Static Routes section – see Adding Static Routes (above).

Please note: Some routers will ignore RIP.
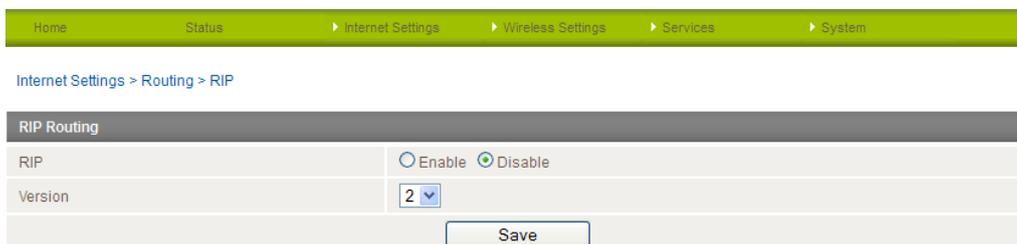
Home	Status	▶ Internet Settings	▶ Wireless Settings	▶ Services	▶ System

Internet Settings > Routing > RIP

RIP Routing

RIP	○ Enable ● Disable
Version	2 ▾
	Save

Figure 31 - RIP Settings

- Click Enable on the RIP Page
- Select RIP version
- Click the Save button.

NAT

The NAT page is used to configure the Network Address Translation rules currently in use on the router. The router is in NAT mode by default. The NAT configuration settings are also known as Port Forwarding rules.
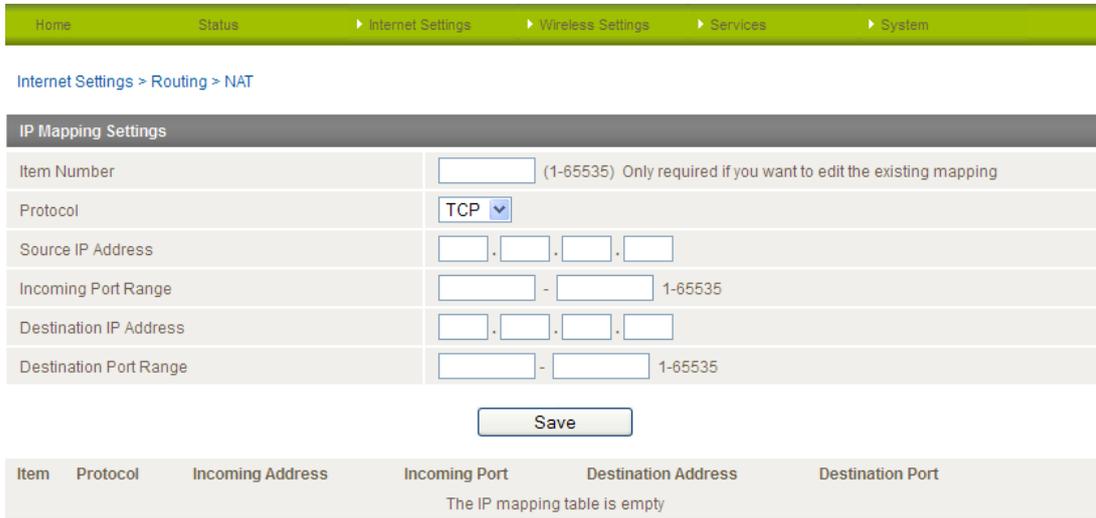

Figure 32 - NAT Settings

This is only needed if you need to map inbound requests to a specific port on the WAN IP address to a device connected on the Ethernet interface, e.g. a web camera.

How to configure Port Forwarding

OPTION	DEFINITION
Item no	Number to identify the port mapping. 1 to as many as needed.
Protocol	Specify the protocol to use for the port mapping. TCP, UDP, All protocols.
Source IP Address	Specifies either a "Friendly" IP address that is allowed to access the router or a wildcard IP address of 0.0.0.0 that allows all IP addresses to access the router.
Incoming Port Range	Specify the external port(s) to listen to.
Destination IP Address	Local Area Network Address of device to forward inbound requests to.
Destination Port Range	Local Area Network Port(s) to forward connections to.

Table 21 - NAT Configuration Items

1. Enter the IP Mapping configuration information as appropriate.
2. Click Save

Please note: If the "Incoming Port Range" specifies a single port (as above) then the destination port can be set to any port. If the "Incoming Port Range" specifies a range of port numbers then the "Destination Port Range" MUST be the same as the "Incoming Port Range".

To delete a port forwarding rule, click on the corresponding "Delete Entry" link from the list of IP Mappings.

DMZ

If you have a client PC that cannot run an Internet application (e.g. Games) properly from behind the NAT firewall, then you can open up the firewall restrictions to allow unrestricted two-way Internet access by defining a DMZ Host.

The DMZ function allows you to re-direct all packets going to your WAN port IP address, to a particular IP address in your LAN. The difference between the virtual server and the DMZ function is that the virtual server re-directs a particular service/Internet application (e.g. FTP, websites) to a particular LAN client/server, whereas DMZ re-directs all packets (regardless of services) going to your WAN IP address to a particular LAN client/server.
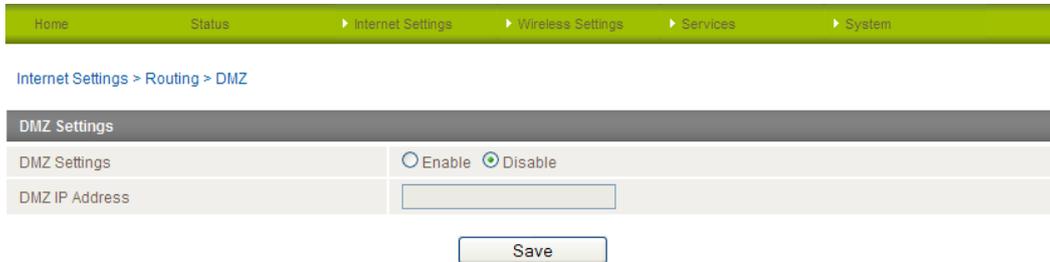
Figure 33 - Advanced View - DMZ Settings

OPTION	DEFINITION
DMZ Settings:	Enable/disable DMZ.
DMZ IP Address:	Enter the IP address of a particular host in your LAN Network that will receive all the packets originally going to the WAN port/Public IP address of your 3G22WV.

Table 22 - Advanced View - DMZ Settings

Click 'Apply' to save the above configurations.

Mac/IP/Port Filtering

This page allows you to setup MAC, IP and port filtering rules to protect your network from malicious activity. The filtering rules can be used to either allow or block certain users and/or ports from accessing the Internet.

Figure 34: Advanced View - Services - MAC/IP/Port Filtering

OPTION	DEFINITION
Basic Settings	
MAC/IP/Port Filtering	Select Enable to enable the MAC/IP/Port Filtering feature on the 3G22WV.
Default Policy	Select whether packets that do not match any of the configured rules are accepted or dropped by the router.
MAC/IP/Port Filtering Settings	
MAC Address:	The MAC address of a local computer or network device attempting to access the 3G27WV-R's network.
Destination IP Address:	The destination IP Address for the filter rule.
Source IP Address:	The source IP Address for the filter rule.
Protocol:	Select the port number's protocol type (TCP, UDP or both). If you are unsure, use the default "TCP&UDP" setting.
Destination Port Range:	The destination Port Range of the filter rule. If there is only one port involved enter the same port number in both text fields.
Source Port Range:	The source Port Range of the filter rule. . If there is only one port involved enter the same port number in both text fields.
Action:	Either accept or drop the packet that matches all of the rule specifications.
Comment:	Add a comment to identify the purpose of the rule (optional).

Table 23: Advanced View - Services - MAC/IP/Port Filtering

Content Filtering

This page allows you to configure content, URL and host filters to restrict improper internet content access from LAN computers across one or both of the MBB and Ethernet WAN connections.

Figure 35: Advanced View - Services - Routing - Content Filtering

OPTION	DEFINITION
Content Filter Settings	Select which connection type the content filtering will apply to. Options include the mobile broadband connection only, the Ethernet WAN connection only or both the 4G and Ethernet WAN connections.
Web Content Filter:	Tick the boxes to enable Proxy, Java or ActiveX content filtering. Click "Apply" to save any settings changes.
URL Filter:	Block access to a website by entering its full URL address and clicking the "Add" button. Rules previously created and listed here can be deleted at any time via this page.
Web Host Filter:	Access to certain websites can be blocked by entering a keyword. Rules can be deleted at any time via this page.
Add a Host (keyword) Filter	Enter a keyword that you want to add to the filter list.

Table 24: Advanced View - Services - Routing - Content Filtering

Wireless Settings

Basic Configuration Settings

This page allows you to define the basic wireless settings for the 3G22WV.

Figure 36 – Advanced View – WiFi Settings

Radio On/Off:

WiFi is turned on by default. Changing this option to OFF will turn OFF the wireless functionality on the 3G22WV and you will not be able to connect to your 3G22WV wirelessly.

OPTION	DEFINITION
Radio On/Off	Use this option to switch the wireless functionality on or off.
Country	Select the country that the router is operating in. This field has an effect on the wireless channels that are legally available for use in a given country.
Network Mode; There are 5 modes to select from:	
11b/g mixed mode:	Both 802.11b and 802.11g wireless devices are allowed to connect to your 3G22WV.
11b only:	Select this if all of your wireless clients are 802.11b.
11g only:	Select this if all of your wireless clients are 802.11g.
11n only:	Select this if all of your wireless clients are 802.11n.
11/b/g/n Mixed mode:	Select this if 802.11b and 802.11g and 802.11n wireless devices are in your network.
Frequency (Channel):	This setting configures the frequency that the Wireless Radio uses for wireless connectivity. Select one channel that you wish to use from the drop down list.
SSID (Network Name)	The SSID (Service Set Identifier) is the name of your wireless network. Use a unique name to identify your wireless device so that you can easily connect to it from your wireless clients. This field is case sensitive and can be up to 32 characters long. You should change the default SSID for added security.
Activate this SSID	Use this option to disable or enable the use of the SSID.
Broadcast this SSID	This option can be used to hide the wireless broadcasting of the SSID so that only informed parties can connect via wireless.
Network Authentication	See the following pages for an explanation of the different security types available.

Table 25 - Advanced View - WiFi Settings

Click 'Apply' to save any changes you make to the settings.

Security Settings

This section allows you to configure the wireless security for your 3G22WV. Setting up sufficient wireless security can prevent unauthorized access to your wireless network.

Figure 37 - Advanced View - WiFi Security Settings

OPTION	DEFINITION
SSID	The network name that appears when you scan for wireless networks to join.
Activate this SSID	Enables or disables the SSID
Broadcast SSID	Enables or disables the SSID being broadcast. When enabled, your wireless network is visibly to devices when they scan for a network to join.
Network Authentication	Select the security mode for the wireless network. See below for more information
WPA Pre-Shared Key	The pre-shared key necessary to connect to the wireless network.
WPA Group Rekey Interval	The time in seconds that the WPA group key is refreshed. The group key is used to encrypt the wireless connection and regularly changing the group key provides extra security to your wireless network. In most cases, the default value of 600 is sufficient. You should not change this setting unless instructed to by technical support.
WPA Encryption	Displays the encryption method in use.

Table 26 - Advanced View - WiFi Security Settings

Network Authentication

You may choose from the following wireless security options:

- Disabled
- Open
- Shared
- WPA
- WPA-PSK
- WPA2
- WPA2- PSK
- WPA-PSK-WPA2-PSK
- WPA1-WPA2
- 802.1x.

WEP

WEP (Wireless Encryption Protocol) helps prevent against unwanted wireless users accessing your 3G22WV. It offers a lower level of security in comparison to WPA-PSK and WPA2-PSK. Enter the Security Key you would like to use in the WEP Key 1 field.

Figure 38: Advanced View - WiFi Security Settings -WEP

WPA1/WPA2

WPA (WiFi Protected Access) authentication is suitable for enterprise applications. It must be used in conjunction with an authentication server such as RADIUS to provide centralized access control and management. It provides a stronger encryption and authentication solution.

Figure 39 - Advanced View - WiFi Security Settings - WPA1/WPA2

WPA-PSK/WPA2-PSK

A newer type of security is WPA-PSK (TKIP) and WPA2-PSK (AES). This type of security gives a more secure network compare to WEP. Use TKIP Encryption Type for WPA-PSK and AES for WPA2-PSK. After that, please enter the key in the Passphrase field. The key needs to be more than 8 characters and less than 63 characters and it can be any combination of letters and numbers.

Please note that the configuration for WPA-PSK and WPA2-PSK is also identical.

Figure 40 - Advanced View - WiFi Security Settings - WPA-PSK/WPA2-PSK

Your 3G22WV uses WPA2-PSK by default. Check your Wireless Security Card or the device label on the bottom of the 3G22WV for your default SSID and Security key to begin connecting your wireless devices.

802.1x

In order to use 802.1X security, you need to have a RADIUS server on your network that will act as the authentication server. Please type in the details for your RADIUS server in the fields required.

Figure 41 - Advanced View - WiFi Security Settings - 802.1x

Please note: After configuring wireless security, you also need to configure your wireless adapter to use the same security settings before you can connect wirelessly. Not all wireless adapters support WPA-PSK/WPA2-PSK/WPA/WPA2 security; Please refer to your wireless adapter user guide for more details. It is strongly recommended to set up a simple wireless security such as WPA-PSK (when the wireless client supports WPA-PSK) in order to secure your network.

Most wireless adapters in computers and laptops support at least WEP and WPA.

Advanced Wireless Settings

This page allows you to modify the advanced wireless settings for your NetComm Smart Hub 4G. These settings should not be changed unless you are aware of what effect they will have.

Figure 42: Advanced View - Wireless - Advanced Settings

For details on the advanced wireless settings page please see the table on the following page.

OPTION	DEFINITION
BG Protection Mode	A mechanism to enable the router to communicate with older legacy wireless network adapters that use 802.11b and 802.11g wireless protocols.
Client Idle Timeout	The wireless client connections will timeout if there is no data packets transmitted within the specified seconds range.
Beacon Interval:	The interval of time in which the wireless router broadcasts a beacon which is used to synchronize the wireless network.
Data Beacon Rate (DTIM):	Enter a value between 1 and 255 for the Delivery Traffic Indication Message (DTIM). A DTIM is a countdown informing clients of the next window for listening to broadcast and multicast messages.
Fragment Threshold:	This specifies the maximum size of a packet during the fragmentation of data to be transmitted. If you set this value too low, it will result in bad performance.
RTS Threshold:	When the packet size is smaller than the RTS threshold, the wireless router will not use the RTS/CTS mechanism to send this packet.
TX Power:	This determines the transmit or output power of the broadcast wireless signal.
Short Preamble	A radio preamble is a part of a datagram packet at the head of the Physical Layer Convergence Protocol (PLCP) to increase throughput. Shortening the preamble reduces the size of the data packet increasing throughput. However not all wireless network adapters are able to use this setting.
Short Slot	The amount of time the router waits after a packet collision before retransmitting the data packet. Enabling the short slot reduces this time from 20ms to 9ms, therefore increasing overall throughput.
Tx Burst	The Transmission Burst boosts the WLAN data packet throughput to maximise transmission rates according to the wireless protocol being used. However this may increase the rate of dropped packets due to environmental factors such as radio interference which can make the optimal wireless data packet transmission rate less than the maximum possible transmission rate.
Pkt_Aggregate	Packet Aggregation in IP networking is a function that concatenates multiple data packets into a single Transmission Unit to reduce redundancy and network traffic overhead.
Country Code	The Country Code option controls the wireless channels that the router can broadcast on, defined by each countries wireless regulations.
AP Isolation:	This feature allows you to isolate clients on your wireless network. To enable communication between the wireless clients connected to your NetComm Smart Hub 4G set this option to Disabled. To terminate the communication between the wireless clients set this option to enabled.
MBSSID AP Isolation	The MBSSID AP Isolation function provides isolation among different SSIDs. When enabled this function prevents wireless client terminals with different SSIDs from communicating with each other.
BSSID	The Broadcast Service Set Identifier. Select 'Disabled' to hide the SSID of your NetComm Smart Hub 4G. If disabled, other people will not be able scan and detect this product's SSID.
WiFi Multimedia	
WMM Capable:	The WMM (WiFi MultiMedia) option if enabled supports QoS for experiencing better audio, video and voice in applications.
WMM Parameters:	Click on the WMM Configuration button to configure the WMM parameters.
Multicast-to-Unicast Converter	
Multicast-to-Unicast	This function converts multicast data to unicast data and is disabled by default.
Others	
HT TxStream	This option sets the stream number that wireless antenna transmits.
HT RxStream	This option sets the stream number that wireless antenna receives.
HT Physical Mode	
Operating Mode	The options available for this field are Mixed Mode or Green Field. The default operation mode is Mixed Mode.
Channel Bandwidth	The channel bandwidth can be set to a mixed 20/40 MHz (the default value) giving an 802.11g connection speed of up to 150 Mbps and an 802.11n connection speed of up to 300 Mbps. For legacy wireless adapters the Channel Bandwidth can be set to 20 MHz slowing the connection speed for 802.11g and 802.11n to 54 Mbps and 74 Mbps respectively as well as providing backward compatibility for older, slower 802.11b/g devices.
Guard Interval	The guard interval is designed to help wireless clients minimise the effects of multipath delays. When you add a guard time the back portion of useful signal time is copied and appended to the front. The options available for this field are Long or Auto. The default setting is Auto.
MCS	The Modulation and Coding Scheme (MCS) function sets the modulation, coding and number of spatial channels. The default MCS value is Auto.
Reverse Direction Grant (RDG)	The Reverse Direction Grant (RDG) function reduces the transmitted data packet collision rate by using the reverse direction protocol. The RDG improves transmission performance and scalability in a wireless environment. By default the RDG setting is enabled.
Aggregation MSDU (A-MSDU)	The MAC Service Data Unit (MSDU) Aggregation function wraps multiple Ethernet frames bound for a common destination in a single 802.11 frame. This reduces the number of required packet headers making the transmission more efficient.
Auto Block ACK	The 802.11n protocol uses the Auto Block ACK function for security of the data transmission. If a wireless client receives a unicast A-MPDU (Aggregated MAC Packet Data Unit) frame, it should respond by sending back an ACK frame without delay. A Block Acknowledgement reduces the number of the ACK frames while providing an individual acknowledgement of each aggregated data frame.
Decline BA Request	The Decline BA Request function can be set to refuse block acknowledgement requests from wireless clients. By default this function is disabled.

Table 27: Advanced View - Advanced Wireless Settings

MAC Filtering

This page allows you to setup MAC address filtering rules to protect your wireless network from malicious activity. The filtering rules can be used to either allow or block certain devices or computers from accessing the Internet.
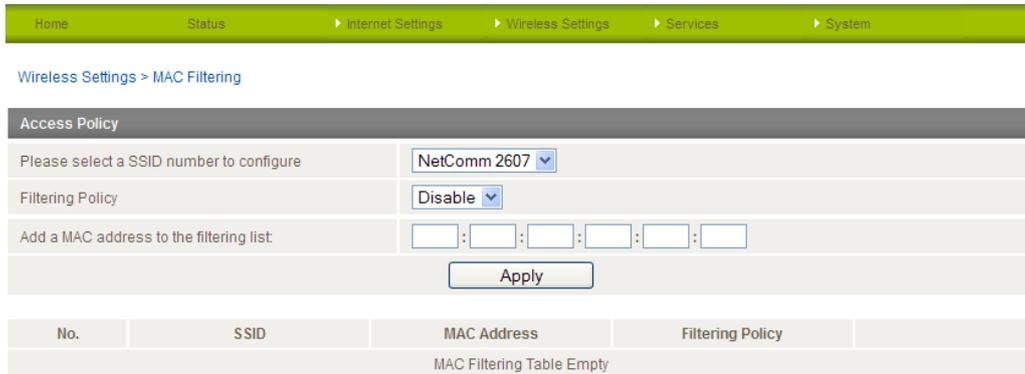

Figure 43: Advanced View - Wireless - MAC Filtering

OPTION	DEFINITION
Filtering Policy	There are three possible options: ▪ Disable – MAC Filtering is disabled. ▪ Allow. – Allow the specified device(s) access to the network. All other wireless devices (not listed) will be denied access to the wireless network. ▪ Reject – Reject the specified device(s) access to the network. All other wireless devices (not listed) will be allowed access to the wireless network.
Add a MAC address to the filtering list	Specify a 12 digit hexadecimal MAC address to add to the MAC filtering list.

Table 28: Advanced View - Wireless - MAC Filtering

WDS (Wireless Distribution System)

The Wireless Distribution system allows the router's network to be expanded, using connecting access points that are capable of using WDS mode. There are two methods of WDS that can be employed; WDS Bridge mode or WDS Repeater mode. In both WDS Bridge and Repeater modes the router and all associated access points must use the same Encryption type and encryption key as well as wireless channel (frequency)
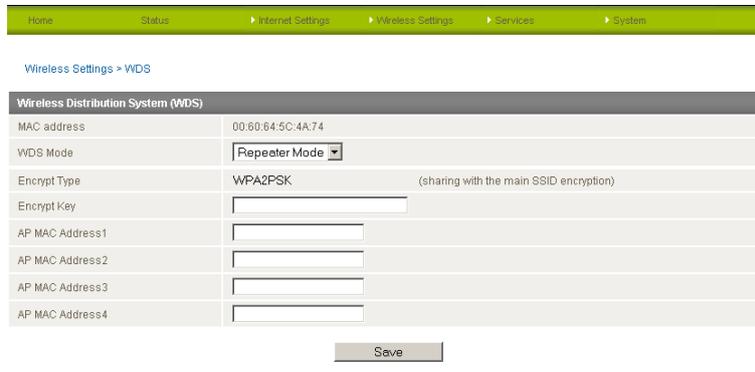

Figure 44: Advanced View - Wireless Settings - WDS

In WDS Bridge mode the wireless signal of the router and each access point is used as a bridge. With 100% of the wireless signal used to link the router and access points this means network access can only be made through Ethernet cable connections. Wireless clients will not be able to connect to either the router or access points.
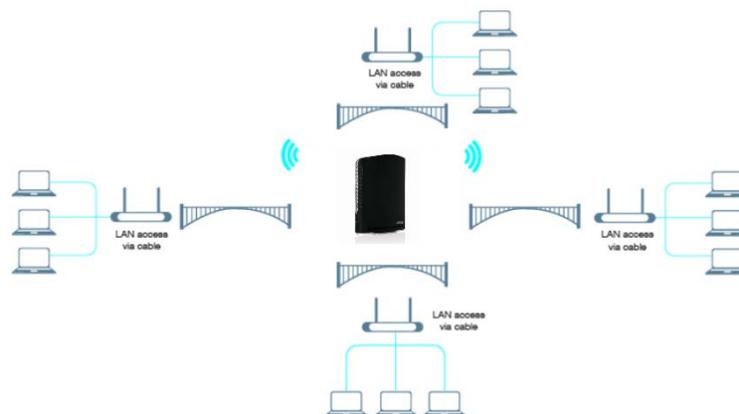
Figure 45: Advanced View - Wireless - WDS Bridge Mode

In WDS repeater mode access points connect to the router and repeat the wireless signal of the router and also allow connections to wireless clients. With the wireless signal divided between linking the router and access points and also between access points and wireless clients the distance possible between the router and access points will be approximately halved when compared with WDS bridge mode
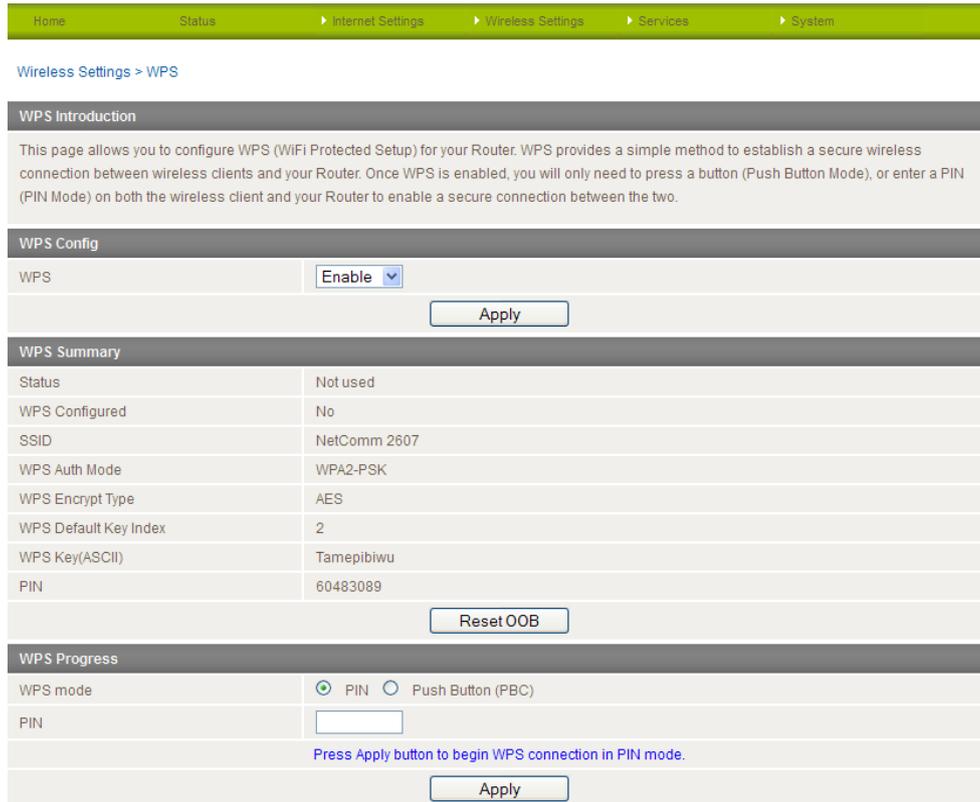

Figure 46: Advanced View - Wireless - WDS Repeater Mode

WPS (WiFi Protected Setup)

WPS is the simplest way to establish a connection between wireless clients and your 3G22WV. This method removes the need to manually select the encryption mode and enter in a passphrase key. You only need to press a button on both the wireless client and the NetComm Smart Hub 4G router, and the WPS feature will complete the wireless connection. The 3G22WV supports two types of WPS:

OPTION	DEFINITION
WPS via Push Button	A specific button needs to be pressed on the wireless client or in the wireless client utility to start WPS mode. Then switch the 3G22WV to WPS mode either by pushing the WPS button on the wireless router, or by clicking the 'Apply' button in the web configuration interface.
WPS via PIN code	A PIN code needs to be assigned to the wireless client set to WPS mode. Then to complete the wireless connection input the wireless client PIN into the 3G22WV web interface.

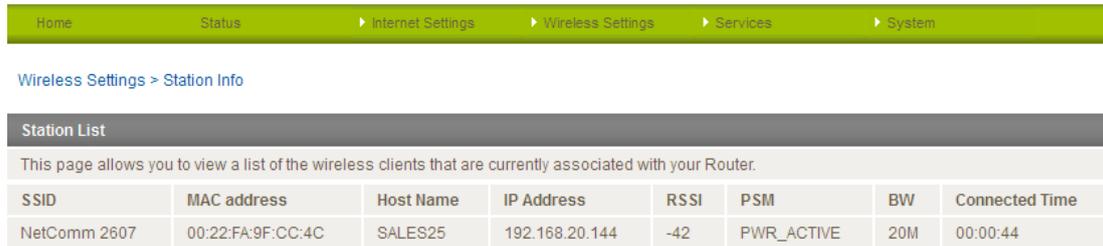*Table 29: Advanced View - Wireless – WPS*

Figure 47: Advanced View - Wireless – WPS

OPTION	DEFINITION
Status	If the wireless security (encryption) function of this wireless router is properly set, you will see a 'Success' message here. Otherwise, you will see a message in the WPS Status field stating 'Idle'.
WPS Configured	Shows whether WPS is configured or not.
SSID	This is the network broadcast name (SSID) of the router.
WPS Auth Mode	This field shows the active authentication mode for the wireless connection.
WPS Encrypt Type	This field shows the encryption type used by the wireless settings.
WPS Default Key Index	This field shows which key index is in use by the wireless settings.
WPS Key(ASCII)	This field shows the current wireless passphrase key in use by the wireless settings.
PIN	This is the WPS PIN code of the wireless router. You may need this information when connecting to other WPS enabled wireless devices.
WPS Mode	Select either PIN mode or PBC (which is the WPA via Push Button).

Table 30: Advanced View - Wireless - WPS Settings

Station Info

The Station List shows the wireless clients currently associated with your 3G22WV.

Figure 48 - Advanced View – WiFi Station List

OPTION	DEFINITION
SSID	The wireless network name.
MAC Address	The wireless client's unique 12 digit hexadecimal identifier.
Host Name	The name of the computer or device connected to the router.
IP Address	The local network address assigned to the wireless client by the router.
RSSI	The Received Signal Strength Indicator (RSSI) measures the wireless signal strength.
PSM	This field shows the Power Saving Mode (PSM) status.
BW	The bandwidth field gives an estimation of the range of the wireless signal.
Connected Time	This field shows how long the wireless client has been connected to the router.

Table 31: Advanced View - Wireless Settings - Station List Settings

Services

DDNS

The DDNS page is used to configure the Dynamic DNS feature of the router. A number of dynamic DNS hosts are offered to select from.
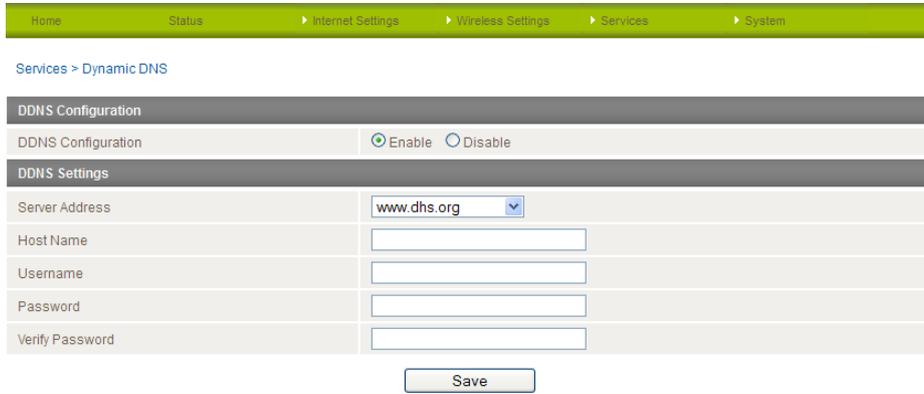

Figure 49 - DDNS Settings

Dynamic DNS provides a method for the router to update an external name server with the current WAN IP address.

The following DDNS Providers can be configured with the router:

- www.dhs.org
- www.dyndns.org
- www.dyns.cx
- www.easydns.com
- www.justlinux.com
- www.ods.org
- www.tzo.com
- www.zoneedit.com

To configure dynamic DNS:
1. Click Enable.
2. Select the Dynamic DNS service that you wish to use. Enter your dynamic DNS account credentials.
3. Click the Save button.

NTP

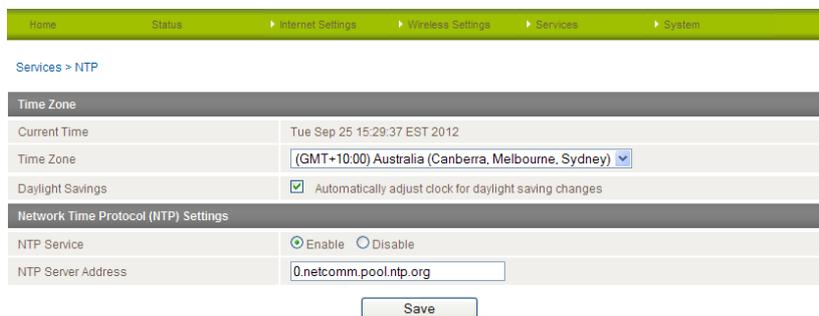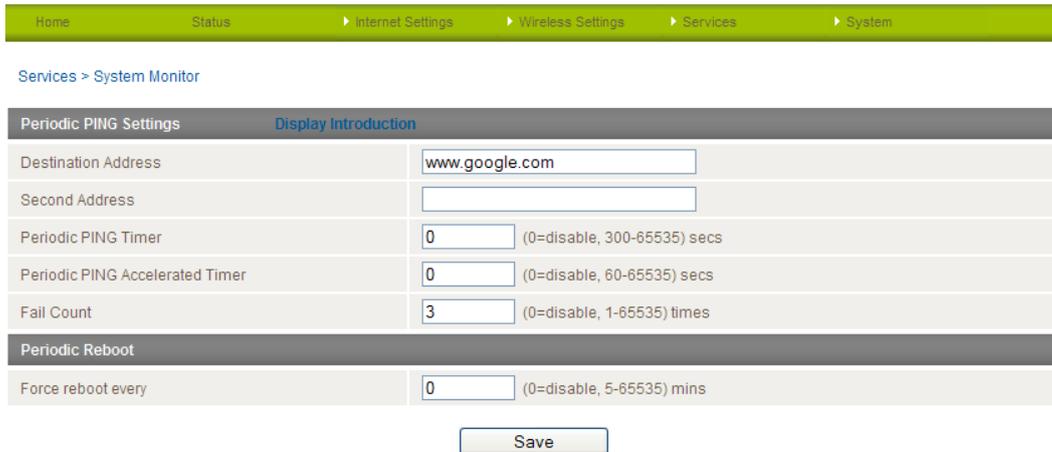The NTP page is used to configure NTP Synchronisation or to select the NTP server used for synchronisation.

Figure 50 - NTP Settings

The NTP (Network Time Protocol) settings allow your router to synchronise its internal clock with a global Internet Time server. This setting will affect functions such as System Log entries and Firewall settings where the current system time is displayed.
You can use the default NTP server or enter one manually if required.

System Monitor

The System Monitor page is used to configure the behaviour of the Periodic Ping monitor function.

Figure 51 - System Monitor Settings

The Periodic Ping Reset Monitor configures the router to transmit controlled ping packets to user specified IP addresses. Should the router not receive responses to the pings, the router will reboot. The purpose of this feature is to ensure the recovery of the router if the internet connection disconnects and does not reconnect for any reason.

This works as follows:
1. After every "Periodic Ping Timer" configured interval, the router sends 3 consecutive pings to the "Destination Address".
2. If all 3 pings fail the router sends 3 consecutive pings to the "Second Address".
3. The router then sends 3 consecutive pings to the "Destination Address" and 3 consecutive pings to the "Second Address" every "Periodic Ping Accelerated Timer" seconds.
4. If all accelerated pings in step 3 (above) fail the number of times configured in "Fail Count", the router reboots.
5. If any ping succeeds the router returns to step 1 and does not reboot.

⚠️ Please note: The "Periodic Ping Timer" should never be set to a value less than 60 seconds; this is to allow the router time to reconnect to the cellular network following a reboot.

How to Disable the Periodic Ping Monitor

To disable the Periodic Ping Reset Monitor simply set to "Fail Count" 0

⚠️ Please note: The traffic generated by the periodic ping feature is counted as chargeable usage, please keep this in mind when selecting how often to ping.
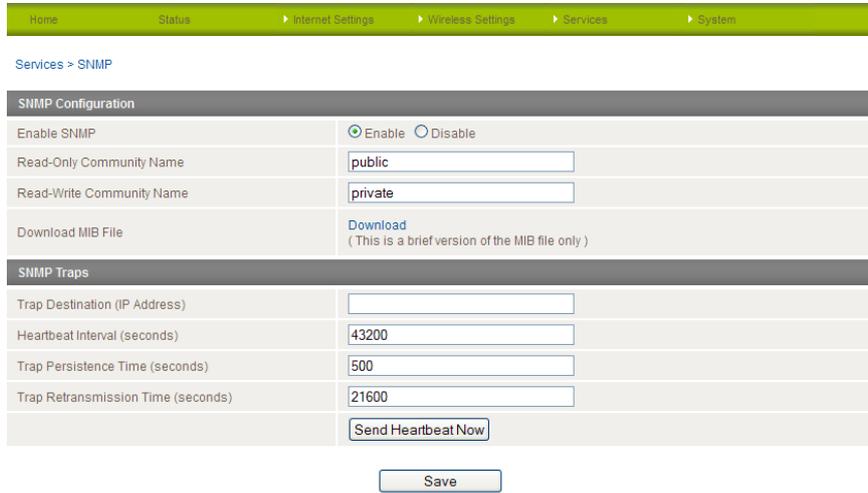
How to configure a Forced Reset

Also known as an automatic reboot this facility can be configured to automatically reboot after a period of time specified in minutes. While this is not necessary, it does ensure that in the case of remote installations, it will reboot the router if some anomaly occurs.

This feature is available by clicking on the "Services" menu followed by the "System Monitor" menu item on the right.

The default value is 0 which disables the Forced Reset Timer. The maximum value is 65535 minutes (1092.5 hours or 45.5 days).

SNMP

The Simple Network Management Protocol (SNMP) feature can be used to display or collect data from the 3G22WV that can be sent to a network management system so that the 3G22WV can be monitored for conditions that require administrative attention. Various system information including interface statistics, uptime, and memory usage are available when viewed with an appropriate SNMP trap monitor.

*Figure 52: Advanced View - Services - SNMP*

OPTION	DEFINITION
Enable SNMP	Use this field to switch on the SNMP functionality
Read-Only Community Name	The default name to identify the router with read only privileges is "public". This name can be changed to further identify the router from other network devices.
Read-Write Community Name	The default name to identify the router with read and write privileges is "private". This name can be changed to further identify the router from other network devices.
Download MIB File	Use the download link to obtain a copy of the Management Information Base (MIB) file for the 3G22WV. This file contains all the available SNMP identifying objects for each module that the 3G22WV uses.

Table 32: Advanced View - Services - SNMP Settings

Telephony Profile

The Telephony Profile page allows you to select the region of your router for the purpose of setting up phone calls. There are 3 available regions; **Default (Australia, New Zealand)**, **Canada**, and **North America**. The region selected affects settings such as dial tone, message wait indicators, and conferencing options among others.

Use the drop down list to select the appropriate region and click the **Apply** button. Remember to reboot the router so that the new settings take effect.
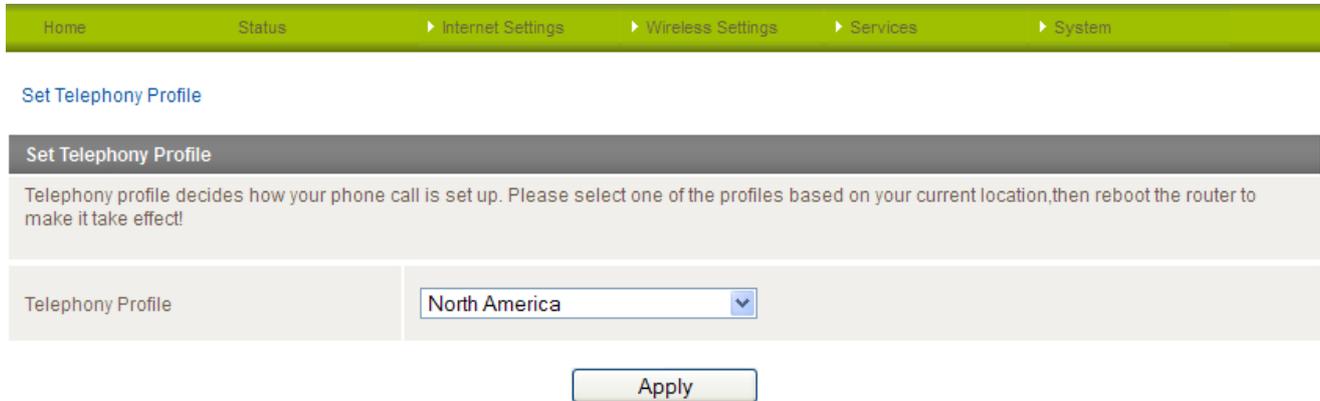
Figure 53 – Advanced View – Services - Set Telephony Profile

SMS

The SMS tools application has been developed to include basic SMS functionality such as sending a message, receiving a message and redirecting an incoming message to another destination. You can also utilise this functionality to read and change run-time variables on the router.

Basic functionality supported:
- Ability to send a text message via a 3G network and store in permanent storage
- Ability to receive a text message via a 3G network and store in permanent storage
- Ability to forward incoming text messages via a 3G network to another remote destination which may be a TCP/UDP server or other mobile devices.

Setup

General SMS functionality is enabled by default. You can open the Setup page in order to configure additional settings. To do this, click on "SMS" and then "Setup".
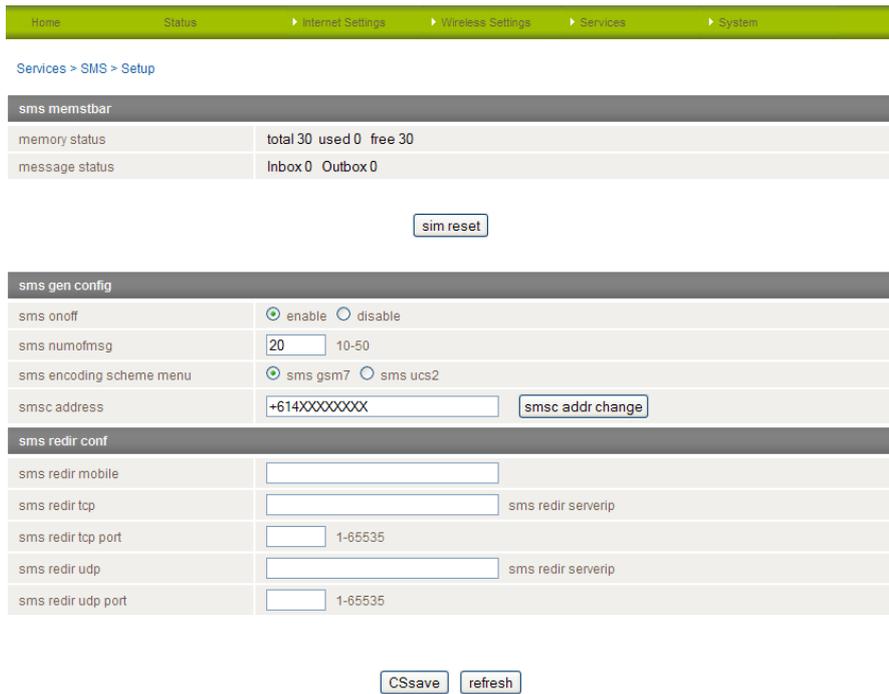

Figure 54 - Advanced View - SMS - Setup

OPTION	DEFINITION
General SMS Configuration	
Memory Status	Shows the current number of available and used SMS storage slots available on the SIM.
Message Status	Shows the location of the SMS messages currently stored on the SIM.
SMS Enable/Disable	The SMS functionality can be disabled or enabled using this field.
Messages / Page	Enter the number of SMS messages to display per page.
Encoding Scheme	The encoding method used for SMS messages.
SMSC Address	Every cellular network has an SMS centre (SMSC) that handles all SMS message routing and regulates each SMS message according to network traffic demands. This address is usually a standard phone number and is essential for SMS functionality with the 3G22WV.
SMS Configuration for Redirection	
Redirect to Mobile	Forward incoming text messages to a remote destination can be defined here.
Redirect to TCP	Forward incoming text messages to the remote TCP destination can be defined here.
TCP Port to Redirect	The TCP port which will be used to connect to the remote destination.
Redirect to UDP	Forward incoming text messages to the remote UDP destination can be defined here.
UDP Port to redirect	The UDP port which will be used to connect to the remote destination.

Table 33 - Advanced View - SMS Settings

Incoming text messages can be redirected to another mobile device and/or a TCP/UDP message server using the settings listed under the "SMS Configuration for Redirection" heading.

Redirect to Mobile

You can forward incoming text messages to a different destination number. This destination number can be another mobile phone or 3G router phone number. To disable the feature, simply delete the number in the "Redirect to Mobile" field and click the "Save" button.

For Example: If someone sends a text message and Redirect to Mobile is set to "0412345678", this text message is stored on the router and forwarded to "0412345678" at the same time.

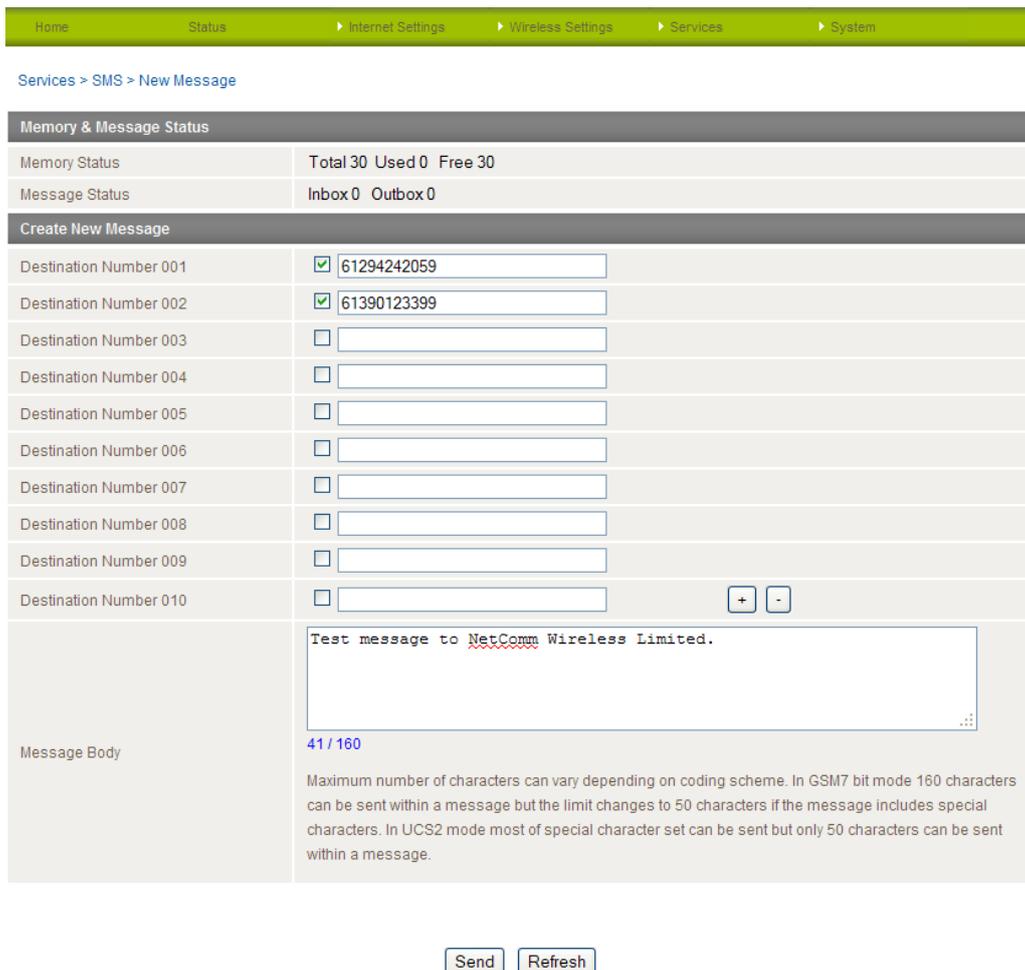### Redirect to TCP & TCP Port, Redirect to UDP & UDP Port

You can also forward incoming text messages to a TCP/UDP based destination. The TCP or UDP server can be any kind of public or private server if the server accepts incoming text based message.

The TCP/UDP address can be an IP address or domain name. The port number range is from 1 to 65535. Please refer to your TCP/UDP based SMS server configuration for which port to use.

For Example: If someone sends a text message and Redirect to TCP is set to "192.168.20.3" and "2002", this text message is stored in the router and forwarded to "192.168.20.3" on port "2002" at the same time.

Compose

This page allows the user to send a new text message to one or multiple recipients.

Figure 55 - Advanced View - SMS - New Message

A new SMS message can be sent to a maximum of 100 recipients at the same time. After sending the message, the result is displayed next to the destination number as "Success" (in blue) or "Failure" (in red).
By default 10 recipient entry fields are shown on this page however you can increase or decrease this number by pressing the + or – button at right side of the last recipient entry field.

You can select to enable or disable individual message recipients by selecting the checkbox beside each entered number.
After entering the appropriate recipient numbers, type your SMS message in the "Message Body" field and then click the "Send" button.

Inbox / Outbox

The SMS Inbox page allows a user to read, delete, reply or forward an SMS message to another mobile device. To Delete, Reply, or Forward an SMS message, select the applicable message and click the appropriate button for the function you would like to perform.

Figure 56 - Advanced View - SMS - Inbox

The SMS Outbox page allows a user to check all SMS messages sent from the 3G22WV.

Figure 57 - Advanced View - SMS - Outbox

The Refresh button will refresh the page and show any new messages which have been received.
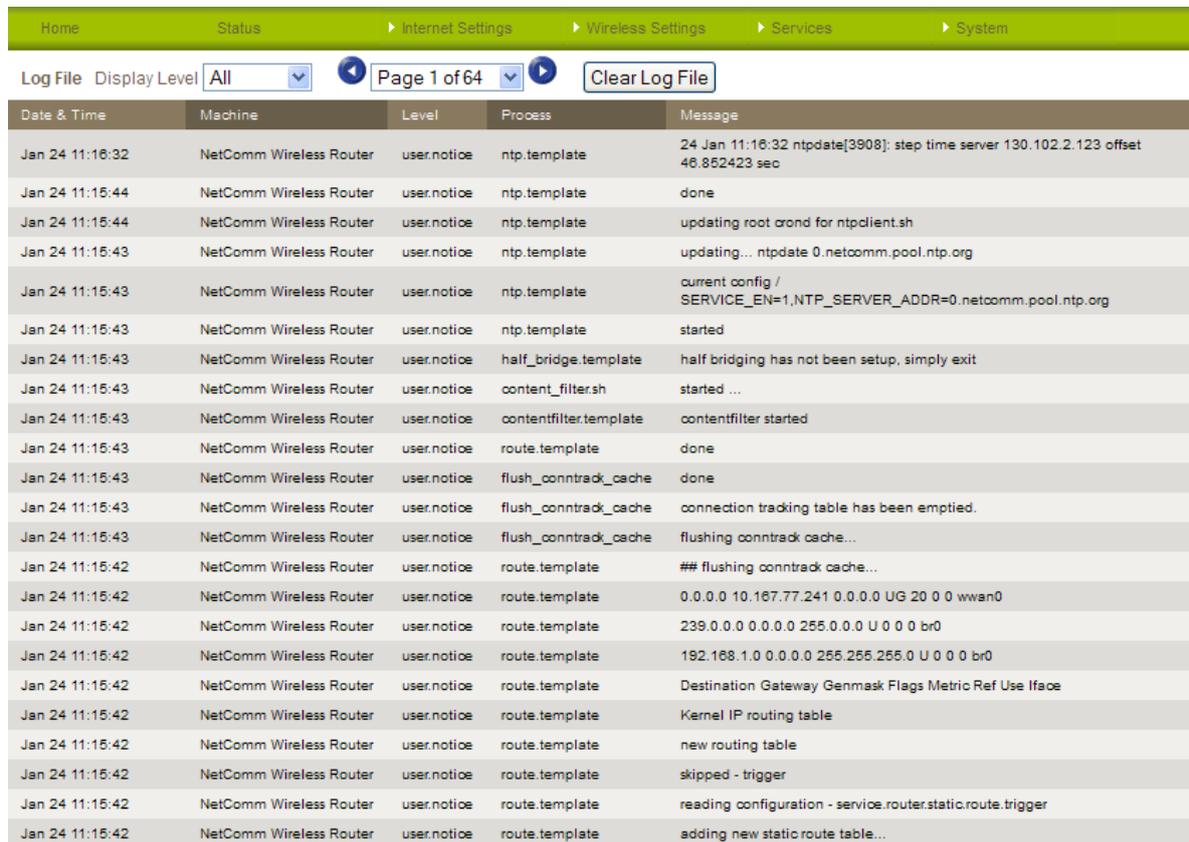
System

Startup Wizard

If you wish to re-run the initial setup wizard, you can do so by moving the mouse over the System menu, and clicking on "Start Wizard" option.

Log

The Log page is used to download or display the current System Log of the router.

Figure 58 - System Log

The System Log enables you to troubleshoot any issues you may be experiencing with your router.
Selecting the appropriate logging level will show you either informational messages about your router or every message produced when "All" is selected.

ITEM	DEFINITION
All	This option displays all system log messages.
Debug	This option shows extended system log messages with full debugging level details.
Info	This option shows informational messages only.
Notice	This option shows normal system logging information.
Warning	This option shows warning messages only.
Error	This option shows error condition messages only.

Table 34 - System Log Detail Levels

You can also download the current System Log to your computer for off-line viewing. To do this, click the "Download Log File" link at the bottom of the page.

Settings

The settings page is used to backup or restore the routers configuration or to reset it to factory defaults.
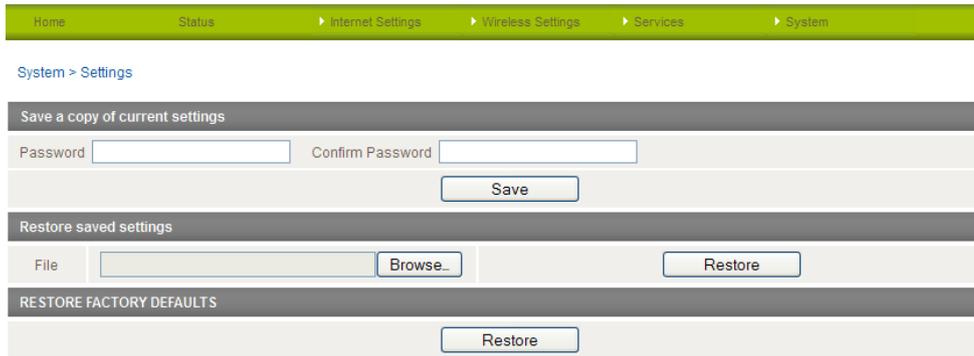
Figure 59 - Load / Save Configuration Page

To save a copy of the router's configuration

- Key in the administration user Password and click the Save button.

This will download a copy of the current settings from the router to your PC.

Please note: The following conditions apply:-

- It is NOT possible to edit the contents of the file downloaded; if you modify the contents of the configuration file in any way you will not be able to restore it later.
- You may change the name of the file if you wish but the filename extension must remain ".cfg"

To restore a copy of the router's configuration

1. Click the Browse button.
2. Select the configuration file you wish to restore.
3. Click the Restore button.

To restore the router's configuration to the factory defaults

Click the Restore button to restore the router to factory default settings.

The router will then restart with the factory default configuration loaded.

Update Firmware

This page allows you to upgrade the 3G22WV's internal software.

To upgrade the firmware of your 3G22WV, you need to download the upgrade image file to your local hard disk, and then click the Browse button and navigate to the location of the firmware file on your computer.

Once you have selected the new firmware file, click 'Apply' to start the upgrade process.

Figure 60 - Advanced View - Firmware Update

The upgrade process takes several minutes. During the firmware upgrade process, all the lights on the front of the 3G22WV will flash.

Do not interrupt the power supply during the upgrade process.

Once completed, follow the on-screen prompts and your 3G22WV will restart.

The Administration page is used to enable or disable remote administration and set the username / password required to access the 3G22WV remotely.
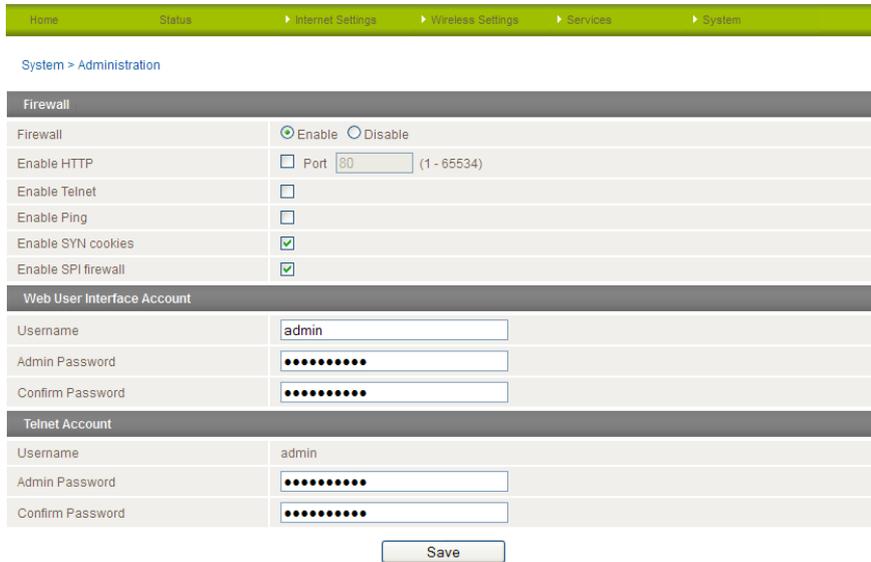
Figure 61 - Administration Configuration Items

OPTION	DEFINITION
Firewall Settings	
Firewall	Use this option to disable or enable the router's firewall.
Enable HTTP	Enable or disable remote HTTP access to the router. You can also set the port you would like remote HTTP access to be available on.
Enable Telnet	Select this option to enable the router to be accessed and configured using telnet commands.
Enable Ping	Select this option to enable the router to be pinged from remote devices.
Web User Interface Account Settings	
Admin Password	Enter the new password for the selected user account.
Confirm Password	Re-enter the new password for the selected user account.
Telnet Account Settings	
Admin Password	Enter the new password for the selected telnet user account.
Confirm Password	Re-enter the new password for the selected user account.

Table 35 - Administration Configuration Items

Please note: The password will only be changed if you enter two matching passwords. It is not necessary to change the password if you are only changing the incoming port number.

To access the router's configuration pages remotely from a remote computer, perform the following steps:
1. Open a new browser window (e.g. Internet Explorer, Firefox, Safari ...).

2. In the address bar, enter the router's WAN IP address and assigned port number, e.g. "10.10.10.10: 8080".

Please note: You can find the router's WAN IP address by clicking on the "Status" menu. The Local field in the WWAN section shows the router's WAN IP address.

3. Click "Login" and type "admin" in the Username and "admin" in the Password fields (without quotes). Then click on "Submit".

System Configuration

The System configuration page is used to specify an external syslog server or enable the diagnostics function.
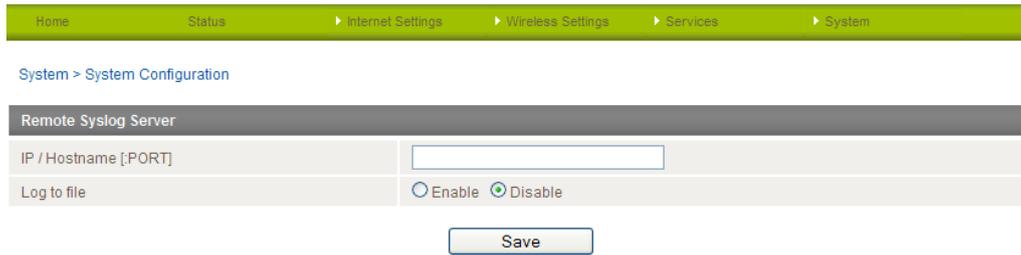
Figure 62 - System Configuration Items

OPTION	DEFINITION
IP / Hostname [:PORT]	The IP address and port of the external syslog server you would like logging information sent to.
Log to file	Enables or disables the remote syslog server from logging to a file.

Table 36 - System Configuration Items

Statistics

This page allows you to view the LAN, WAN and wireless statistics of your 3G22WV.

Figure 63: Advanced View - System – Statistics

Logoff

The logoff menu option will log the current user out of the web configuration session.
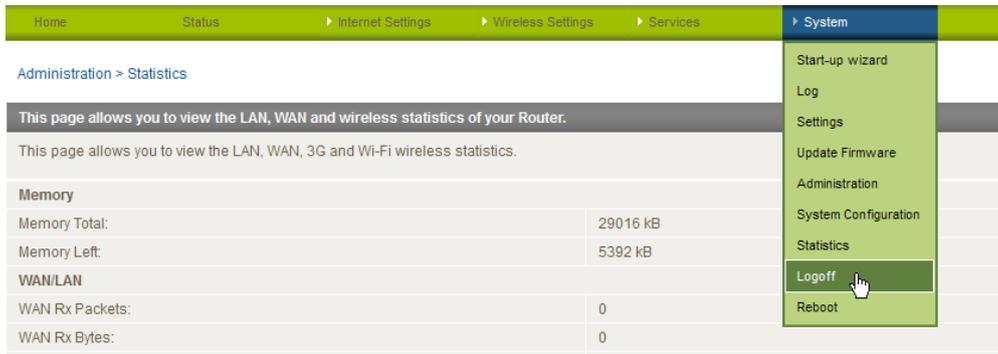
Figure 64 - Logoff

Reboot

The reboot item will reboot the router. This can be useful if you have made configuration changes you want to implement or want to reboot the router.

Figure 65 - Reboot Router

Additional Product Information

Accessing a connected USB drive

USB drives connected to one of the 3G22WV's USB ports may be accessed over the network.

ℹ️ Note: The 3G22WV supports reading and writing to FAT32 and NTFS formatted drives only.

To access a USB drive connected to the 3G22WV:

1. Open Windows Explorer and in the address bar, type \\192.168.20.1 then press Enter. If you have changed the IP address of the router, replace the default IP address with the one you configured for the router.

2. The Windows Explorer window changes to show a list of attached devices. The screenshot below shows a connected drive listed as "Disk A".
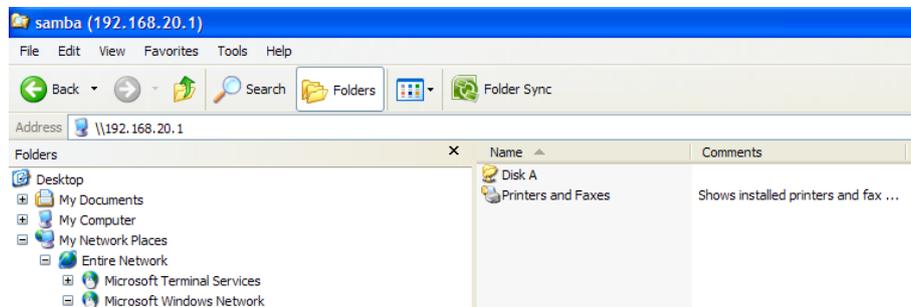
Figure 66 - List of attached devices

3. To access the files stored on the drive, double click on the "Disk A" link. The files on the drive are displayed.
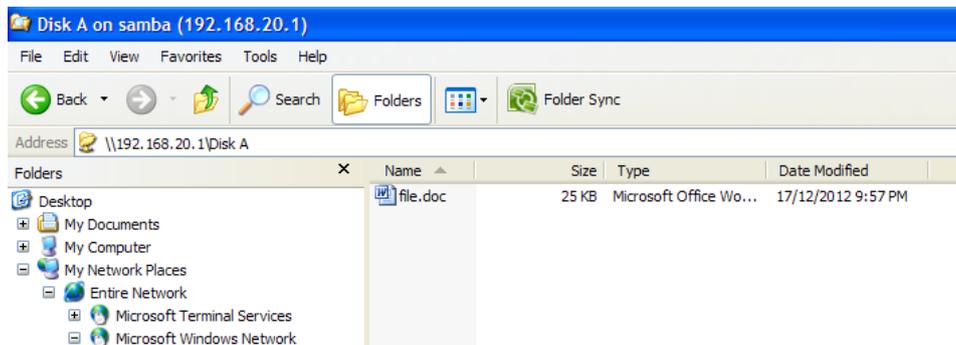
Figure 67 - FIles stored on USB disk

4. For future easy access, map the network drive and assign it a drive letter on your computer by right-clicking on "Disk A" from the folders panel on the left and then selecting **Map Network Drive…**.
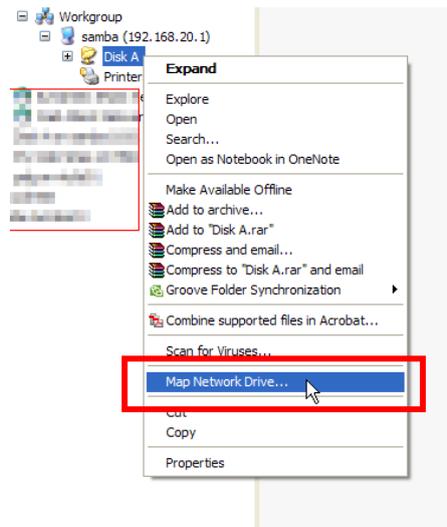
Figure 68 - Map Network Drive link

5. Select a letter to assign the drive and ensure that **Reconnect at logon** is selected so that after your computer has been restarted, your drive will still be available. Click **Finish**.

Figure 69 - Map Network Drive

6. The attached drive is mounted each time Windows starts with the selected drive letter.
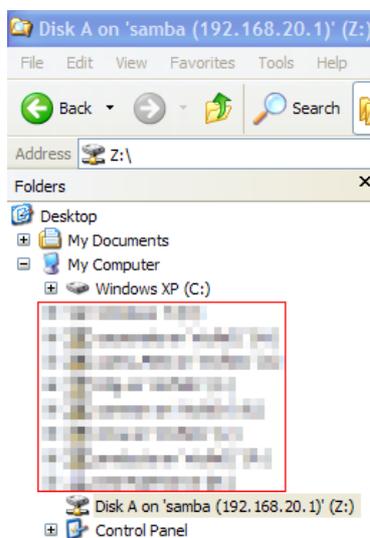
Figure 70 - Assigned drive letter in Windows Explorer

Using the 3G22WV to make and receive telephone calls

The 3G22WV provides circuit switched voice services via two telephony line interfaces offering the ability to make and receive telephone calls via a regular analogue telephone using the 3G mobile network.

Please note: Please refer to your mobile service provider for activation of your voice service and information about the call charges that apply.

It's important to note that the 3G22WV has two separate line interfaces that share a single outbound/inbound telephone line. This means that handset(s) connected via one port will not be able to use the line at the same time as handsets connected via the other port.

If a call is already in progress via the first port, the user on the handset(s) connected to the second port will receive a busy signal. Incoming calls will ring and can be answered on either port, however once a call is answered from one port, handset(s) on the second port will receive a busy signal.

Handset requirements

The 3G22WV allows you to make telephone calls over the 3G network using a standard analogue telephone via the built in RJ-11 Phone ports. Please refer to the documentation provided by the manufacturer of your analogue telephone for assistance with the operation of your telephone handset.

Maximum REN Loading

Please note that each of the line interfaces on the 3G22WV is capable of supporting multiple analogue telephones connected via splitters. The ringer equivalence number (REN) for each line is 5. Therefore, a maximum of 5 handsets each with a REN number of 1 can be connected to each line port.

Before you start making a phone call, make sure you check the following:
1. You have an activated 3G SIM card inserted prior to powering on the 3G22WV.
2. Your 3G22WV is powered on and operating normally.
3. A working analogue telephone connected into either the Line 1 or Line 2 port.
4. You hear the dial tone and the Line LED on the front of your 3G22WV should light up after lifting the handset.

How to place a call

To make a call, simply lift the handset and dial the number following the instructions provided by your telephone handset manufacturer.

How to receive a call

When an incoming call is received, both Line 1 and Line 2 lights will start flashing and any phones connected to the 3G22WV will ring. Answer the telephone following the instructions provided by your telephone handset manufacturer to conduct the call.

Please note: If the call is answered from a telephone connected to Line 1, telephones connected to Line 2 will receive an engaged tone for the duration of the call.

If there is no phone connected to the 3G22WV, all incoming calls will be transferred to Voicemail (if enabled on the account).

Answering an incoming call when on a call

Call waiting enables a 2nd incoming call to be received while you are on a call. To answer a call waiting call, perform a hook-flash (briefly depressing the hook button). The incoming call should then be answered. Upon hanging up or performing another hook-flash, you will be returned to the original telephone call.

Accessing voicemail

To access your voicemail, please dial *98 and follow the voice prompts.

Call feature codes

Quick Reference Table

The 3G22WV supports a number of call feature codes for supplementary services.

FEATURE	ACTIVATION	DEACTIVATION	STATUS
Caller ID	#31# (to block an individual call)	*31# (to unblock an individual call)	N/A
Call Waiting	*43#	#43#	*#43#
Call Forwarding Unconditional	*21*<Directory Number>#	#21#	*#21#
Call Forwarding No Answer	*61*<Directory Number>#	#61#	*#61#
Call Forwarding Busy	*67*<Directory Number>#	#67#	*#67#
Call Forwarding Unreachable	*62*<Directory Number>#	#62#	*#62#

Table 37 - Additional Product Information - Call Feature Codes Quick Reference

Caller ID

Caller ID transmits a caller's number to the called party's telephone equipment when the call is being set up but before the call is answered. Where available, caller ID can also provide a name associated with the calling telephone number.
- To force Caller ID to be blocked for an outbound call, dial #31# followed by the number you wish to dial.
- To force Caller ID to be unblocked for an outbound call, dial *31# then follow the dialling number.

Call Waiting

Call waiting allows for indication and answering of an incoming telephone whilst an existing call is underway.
- To disable call waiting, dial #43#, and hang up after you hear 2 high pitch beeps.
- To enable call waiting, dial *43#, and hang up after you hear 2 low pitch beeps.
- To check the status of Call Waiting, dial *#43# or view the advanced status page of the management console.
  - Call waiting is disabled if you hear 2 high pitch beeps.
  - Call waiting is enabled if you hear 2 low pitch beeps.

Call forwarding (or call diverting), is a feature that allows an incoming call to be redirected to another number depending on the circumstances at the time of receiving the call.

Please note: The Call Waiting feature will automatically turn off if you enable Call forwarding. Call Waiting will need to be enabled again after Call Forwarding is disabled.

Call Forwarding Unconditional

Call forwarding Unconditional will divert all incoming calls to a phone number that you desire.
- To enable Call Forwarding Unconditional, dial *21*<Directory Number>#
  (Where directory number is the number you wish to forward calls to)
- Hang up after you hear 2 low pitch beeps.
- To disable Call Forwarding Unconditional, dial #21#
- Hang up after you hear 2 high pitch beeps.
- To check the status of Call Forwarding Unconditional, dial *#21# or view the advanced status page of the management console.
  - Call Forwarding Unconditional is disabled if you hear 2 high pitch beeps.
  - Call Forwarding Unconditional is enabled if you hear 2 low pitch beeps.

Call Forwarding No Answer

Call forwarding No Answer will divert all incoming calls to a phone number that you desire only if the incoming call is not answered.
- To enable Call Forwarding No Answer, dial *61*<Directory Number>#
  (Where directory number is the number you wish to forward calls to)
- Hang up after you hear 2 low pitch beeps.
- To disable Call Forwarding No Answer, dial #61#
- Hang up after you hear 2 high pitch beeps.
- To check the status of Call Forwarding No Answer, dial *#61# or view the advanced status page of the management console.
  - Call Forwarding No Answer is disabled if you hear 2 high pitch beeps.
  - Call Forwarding No Answer is enabled if you hear 2 low pitch beeps.

Call Forwarding Busy

Call forwarding busy will divert all incoming calls to a phone number that you desire only if your telephone is busy on another call.

> To enable Call Forwarding Busy, dial *67*<Directory Number>#
> (Where directory number is the number you wish to forward calls to)

- Hang up after you hear 2 low pitch beeps.
- To disable Call Forwarding Busy, dial #67#
- Hang up after you hear 2 high pitch beeps.
- To check the status of Call Forwarding Busy, dial *#67# or view the advanced status page of the management console.
    - Call Forwarding Busy is disabled if you hear 2 high pitch beeps.
    - Call Forwarding Busy is enabled if you hear 2 low pitch beeps.

Call Forwarding Not Reachable

Call forwarding busy will divert all incoming calls to a phone number that you desire only if your telephone is unreachable by the network.

- To enable Call Forwarding Not Reachable dial *62*<Directory Number>#
- (Where directory number is the number you wish to forward calls to)
- Hang up after you hear 2 low pitch beeps.
- To disable Call Forwarding Not Reachable, dial #62#, Hang up after you hear 2 high pitch beeps.
- To check the status of Call Forwarding Not Reachable, dial *#62# or view the advanced status page of the management console.
    - Call Forwarding No Answer is disabled if you hear 2 high pitch beeps.
    - Call Forwarding No Answer is enabled if you hear 2 low pitch beeps.

Conference Call

This can be achieved by performing a hook-flash and then by dialling the third party.

Wait for the third party to answer your call and then perform another hook-flash to conference all the parties together.

> Please note: In order to activate a conference call, you will need to have originated both calls.

Troubleshooting the Voice Function

What do I do if I have no dial tone?
Please follow the procedure listed below:
1. Check to make sure the phone is plugged into your 3G22WV on either Line 1 port or Line 2 port.
2. Check to make sure you are using the correct cable (Cat-3 UTP Telephone Cable with RJ-11 plugs).
3. Check to make sure the line light on the front panel of the 3G22WV turns solid blue if you lift the handset.
4. Check to make sure the blue 3G indication light on the front of the 3G22WV is blinking.
5. Check to make sure your 3G SIM card is activated and insert into your 3G22WV properly.
6. Check and see if you get the dial tone after rebooting your 3G22WV.

I have noise interference during telephone calls. How can I fix this?
To resolve this issue, try the following:
- Verify that the RJ-11 cable is securely connected and not damaged.
- Try to remove any telephone splitters from the connection between your phone and the 3G22WV.
- Try rebooting your 3G22WV.

Technical Data

The following table lists the hardware specifications of the 3G22WV.

MODEL	3G22WV
CPU	Ralink RT3352
Modem Chipset/Module	MC8704
UMTS bands	Quad-band UMTS/HSPA+/HSUPA/HSDPA (850/900/1900/2100MHz)
GSM bands	Quad-band GSM/GPRS (850/900/1800/1900MHz)
Maximum Data Throughput / 3G Radio interface	Up to 21 Mbps downlink (HSDPA Cat 14) Up to 5.76 Mbps uplink (HSUPA Cat 6)
Connectivity	3G WWAN x 1, 10/100 Ethernet LAN x 3, 10/100/1000 Ethernet LAN/WAN x 1, WLAN, RJ-11 x 1
Antenna connector	UFL (female connector)
LED Indicators	Power, 3G, WiFi, Internet/WAN, LAN, Voice, Signal Strength
Operating Temperature	0 ~ 50 degrees Celsius (operating temperature)
Power input	12VDC – 1.5A
Dimensions & Weight	160 mm (L) x 195 mm (H) x 65 mm (W) 362 grams

Table 38 - Technical Specifications for the 3G22WV

Electrical Specifications

A suitable power supply is available on request or via direct purchase from the NetComm Online shop. It is recommended that the 3G22WV be powered using the 12VDC/1.5A power supply which is included with the device.

Environmental Specifications / Tolerances

The 3G22WV is able to operate over a wide variety of temperatures from 0℃ ~ 50℃ (ambient).

FAQ

1. Does the NetComm 3G WiFi Router with Voice require any configuration out of the box?

   No, the NetComm 3G WiFi Router with Voice is plug and play device. Plug the device into an electrical outlet and once the status indicator lights are on, plug in your analogue phone and LAN cable for voice and data connectivity. For WiFi connectivity the SSID (Service Set Identifier) and network key (password) are located on the bottom of the device. If you would like to customize your settings you can enter 192.168.20.1 into your Web browser to access the Management Console and device settings.

2. I cannot seem to access the web page interface

   The default IP address of the unit is 192.168.20.1, so first try to open a web browser to this address. Also check that your laptop/PC is on the same subnet as the router's Ethernet port.

3. The router was connected but cannot get back online

   You may need to enable the periodic ping timer using the System Monitor Link from the Management Console. This ensures that if the connection drops (i.e. outage on the network) that the router will reboot after so many failed pings and then force a re-connect. Set the timer to around 15 mins should be sufficient.

   Please note: The traffic generated by the periodic ping feature is counted as chargeable usage, please keep this in mind when selecting how often to ping.

4. The router is rebooting frequently

   Check the System Monitor link in the Administration menu on the management console and see if the Periodic Reset timeout is set to something other than 0. If it is set to 1 this means the unit will reboot every minute regardless of what happens. Reset it to 0 if you don't want this feature or something quite large if you don't want the router to reboot so often.

5. The router has connection but cannot access the internet

   Check that DNS Proxy is enabled by clicking on the LAN link on the configuration interface. Make sure that the DHCP DNS server address 1 IP address is set to the same address as that of the Ethernet port.

6. I cannot seem to get a 3G WAN connection

   Click on the 3G Internet Settings link on the webpage interface and check that the correct APN settings are entered.
   - Also check that the username and password credentials are correct if the APN in use requires these.
   - Make sure that Auto Connect is enabled on the PPP Profile Connect section on the Data Connection page.
   - Check you have suitable 3G signal strength and that your SIM is active and does not require a PIN code to be entered.

7. The SIM status indicates that the SIM is "not installed or reboot required" on the home page

   If a SIM is installed correctly this may indicate that the SIM has been removed or inserted whilst the unit is powered up. In this case you must reboot the unit. The Reset button on the home page will reboot the router.

8. How can I see the data usage on my NetComm 3G WiFi Router with Voice?

   You can check your current Usage statistics by clicking on the "Usage Monitor" link at the top of the Status Page in the Advanced View.

9. Can I make voice calls from the NetComm 3G WiFi Router with Voice?

   Yes. By simply connecting a regular landline (Analogue) telephone to the port labelled Line 1 using the RJ-11 Cable provided. To activate the phone jacks in your home or office connect an RJ-11 Cable from the port labelled "Line 2" to any wall jack. When you lift the receiver you will hear a dial tone and can place your call.

10. How do I see I have a voicemail message?

    Voicemail is a feature of the 3G network and your 3G service provider, not a feature embedded in the device. If you have a voicemail messages waiting you will hear an intermittent dial tone on your phone, and if your phone has a message waiting indicator light, it will be lit.

11. Is the NetComm 3G WiFi Router with Voice secure; can other people access my wireless network?

The NetComm 3G WiFi Router with Voice comes configured with WPA-PSK WiFi security enabled. When you first access the Internet, type 192.168.20.1 into the address bar, the wizard will pop up to configure your computer to connect with the security setting (please see the Quick Start Guide for more information on connecting your data devices to the NetComm 3G WiFi Router with Voice). Only people you allow access to, will be able to connect to the NetComm 3G WiFi Router with Voice ensuring your connection is secure and safe.

12. Can I change the name and password of my wireless network?

Yes. You can change your NetComm 3G WiFi Router with Voice settings from the browser user interface by typing 192.168.20.1 into the address bar of your Web browser. You can change the SSID (Service Set Identifier), security standard (WPA, WPA2, WEP) and your WiFi password.

13. How do I share my Internet connection, using the NetComm 3G WiFi Router with Voice, with other users?

Provide any users you want to share your WiFi Internet connection with, the SSID (Service Set Identifier) and WiFi network password for your NetComm 3G WiFi Router with Voice. Each user will need to select the NetComm 3G WiFi Router with Voice SSID, on their WiFi enabled computer or device and enter the network password you provide.

14. What is the difference between upload and download speeds and why do they differ?

Upload is when you send information (e.g. emails) from your computer and download is when you receive information via the Internet. The speeds at which upload and download operate depend on the way you use the Internet and the size of files you send and receive.

15. Do I need to attach an antenna on this device?

Yes. Your NetComm 3G WiFi Router with Voice comes equipped with an antenna; you need to attach the 3G antenna to get the 3G signal.

16. I have lost the security card that came with the setup instructions. What can I do?

If you have lost your security card, and forgotten the wireless security details (SSID and WiFi network password), there is a label stuck to the base of your NetComm 3G WiFi Router with Voice with all your original security details. If the label is unreadable or has been removed, the WiFi network password can be viewed or reset by logging in to the Management Console using an Ethernet Cable connected to the LAN port of the NetComm 3G WiFi Router with Voice.

17. I forgot my Management Console password. What can I do?

If you have forgotten your Management Console password and cannot access the Web user interface, you will need to reset your NetComm 3G WiFi Router with Voice back to default settings. To reset your device press and hold the reset button on the back of your NetComm 3G WiFi Router with Voice for 10-15 seconds, all the indicator lights on the unit will flash when your device is reset. After a reset, the default WiFi settings (SSID and WPA key) can be found on the base of your NetComm 3G WiFi Router with Voice. (Note - this will also reset any custom settings and passwords you may have already set up).

18. Can I use the NetComm 3G WiFi Router with Voice overseas?

No. The NetComm 3G WiFi Router with Voice is not equipped for international roaming or data services. If you require the capability to call international locations, please speak with your 3G service provider to enable international calling on your NetComm 3G WiFi Router with Voice.

Appendix A: Tables

Legal & Regulatory Information

Intellectual Property Rights

All intellectual property rights (including copyright and trade mark rights) subsisting in, relating to or arising out this Manual are owned by and vest in NetComm Wireless Limited (ACN 002490486) (**NetComm Wireless Limited**) (or its licensors). This Manual does not transfer any right, title or interest in NetComm Wireless's (or its licensors') intellectual property rights to you.

You are permitted to use this Manual for the sole purpose of using the NetComm Wireless product to which it relates. Otherwise no part of this Manual may be reproduced, stored in a retrieval system or transmitted in any form, by any means, be it electronic, mechanical, recording or otherwise, without the prior written permission of NetComm Wireless Limited.

NetComm and NetComm Wireless is a trademark of NetComm Wireless Limited. All other trademarks are acknowledged to be the property of their respective owners.

Customer Information

The Australian Communications & Media Authority (ACMA) requires you to be aware of the following information and warnings:

1. This unit may be connected to the Telecommunication Network through a line cord which meets the requirements of the AS/CA S008-2011 Standard.

2. This equipment incorporates a radio transmitting device, in normal use a separation distance of 20cm will ensure radio frequency exposure levels complies with Australian and New Zealand standards.

3. This equipment has been tested and found to comply with the Standards for C-Tick and or A-Tick as set by the ACMA. These standards are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio noise and, if not installed and used in accordance with the instructions detailed within this manual, may cause interference to radio communications. However, there is no guarantee that interference will not occur with the installation of this product in your home or office. If this equipment does cause some degree of interference to radio or television reception, which can be determined by turning the equipment off and on, we encourage the user to try to correct the interference by one or more of the following measures:

   ▪ Change the direction or relocate the receiving antenna.

   ▪ Increase the separation between this equipment and the receiver.

   ▪ Connect the equipment to an alternate power outlet on a different power circuit from that to which the receiver/TV is connected.

   ▪ Consult an experienced radio/TV technician for help.

4. The power supply that is provided with this unit is only intended for use with this product. Do not use this power supply with any other product or do not use any other power supply that is not approved for use with this product by NetComm Wireless Limited. Failure to do so may cause damage to this product, fire or result in personal injury.

Consumer Protection Laws

Australian and New Zealand consumer law in certain circumstances implies mandatory guarantees, conditions and warranties which cannot be excluded by NetComm Wireless Limited and legislation of another country's Government may have a similar effect (together these are the Consumer Protection Laws). Any warranty or representation provided by NetComm Wireless Limited is in addition to, and not in replacement of, your rights under such Consumer Protection Laws.
If you purchased our goods in Australia and you are a consumer, you are entitled to a replacement or refund for a major failure and for compensation for any other reasonably foreseeable loss or damage. You are also entitled to have the goods repaired or replaced if the goods fail to be of acceptable quality and the failure does not amount to a major failure. If you purchased our goods in New Zealand and are a consumer you will also be entitled to similar statutory guarantees.

Product Warranty

All NetComm Wireless products have a standard one (1) year warranty from date of purchase, however, some products have an extended warranty option (refer to packaging and the warranty card) (each a Product Warranty). To be eligible for the extended

warranty option you must supply the requested warranty information to NetComm Wireless Limited within 30 days of the original purchase by registering online via the NetComm Wireless web site at www.netcommwireless.com . For all Product Warranty claims you will require proof of purchase. All Product Warranties are in addition to your rights and remedies under applicable Consumer Protection Laws which cannot be excluded (see Section 3 above).

Subject to your rights and remedies under applicable Consumer Protection Laws which cannot be excluded (see Section 3 above), the Product Warranty is granted on the following conditions:

1. the Product Warranty extends to the original purchaser (you / the customer) and is not transferable;

2. the Product Warranty shall not apply to software programs, batteries, power supplies, cables or other accessories supplied in or with the product;

3. the customer complies with all of the terms of any relevant agreement with NetComm Wireless Limited and any other reasonable requirements of NetComm Wireless Limited including producing such evidence of purchase as NetComm may require;

4. the cost of transporting product to and from NetComm Wireless Limited's nominated premises is your responsibility;

5. NetComm Wireless Limited does not have any liability or responsibility under the Product Warranty where any cost, loss, injury or damage of any kind, whether direct, indirect, consequential, incidental or otherwise arises out of events beyond NetComm Wireless Limited's reasonable control. This includes but is not limited to: acts of God, war, riot, embargoes, acts of civil or military authorities, fire, floods, electricity outages, lightning, power surges, or shortages of materials or labour; and

6. the customer is responsible for the security of their computer and network at all times. Security features may be disabled within the factory default settings. NetComm Wireless Limited recommends that you enable these features to enhance your security.

Subject to your rights and remedies under applicable Consumer Protection Laws which cannot be excluded (see Section 3 above), the Product Warranty is automatically voided if:

1. you, or someone else, use the product, or attempt to use it, other than as specified by NetComm Wireless Limited;

2. the fault or defect in your product is the result of a voltage surge subjected to the product either by the way of power supply or communication line, whether caused by thunderstorm activity or any other cause(s);

3. the fault is the result of accidental damage or damage in transit, including but not limited to liquid spillage;

4. your product has been used for any purposes other than that for which it is sold, or in any way other than in strict accordance with the user manual supplied;

5. your product has been repaired or modified or attempted to be repaired or modified, other than by a qualified person at a service centre authorised by NetComm Wireless Limited; or

6. the serial number has been defaced or altered in any way or if the serial number plate has been removed.

Limitation of Liability

This clause does not apply to New Zealand consumers.

Subject to your rights and remedies under applicable Consumer Protection Laws which cannot be excluded (see Section 3 above), NetComm Wireless Limited accepts no liability or responsibility, for consequences arising from the use of this product. NetComm Wireless Limited reserves the right to change the specifications and operating details of this product without notice.

If any law implies a guarantee, condition or warranty in respect of goods or services supplied, and NetComm Wireless Limited's liability for breach of that condition or warranty may not be excluded but may be limited, then subject to your rights and remedies under any applicable Consumer Protection Laws which cannot be excluded, NetComm Wireless Limited's liability for any breach of that guarantee, condition or warranty is limited to: (i) in the case of a supply of goods, NetComm Wireless Limited doing any one or more of the following: replacing the goods or supplying equivalent goods; repairing the goods; paying the cost of replacing the goods or of acquiring equivalent goods; or paying the cost of having the goods repaired; or (ii) in the case of a supply of services, NetComm Wireless Limited doing either or both of the following: supplying the services again; or paying the cost of having the services supplied again.

To the extent NetComm Wireless Limited is unable to limit its liability as set out above, NetComm Wireless Limited limits its liability to the extent such liability is lawfully able to be limited.

FCC Regulations:

- This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

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

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

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

▶ RF Exposure Information

This device meets the government's requirements for exposure to radio waves.
This device is designed and manufactured not to exceed the emission limits for exposure to radio frequency (RF) energy set by the Federal Communications Commission of the U.S. Government.

This device complies with FCC radiation exposure limits set forth for an uncontrolled environment. In order to avoid the possibility of exceeding the FCC radio frequency exposure limits, human proximity to the antenna shall not be less than 20cm (8 inches) during normal operation.

IC Regulations:

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

(1) this device may not cause interference, and

(2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

(1) l'appareil ne doit pas produire de brouillage, et

(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement."

This Class B digital apparatus complies with Canadian ICES-003.

Cet appareil numérique de la classe B est conforme à la norme NMB-003 du Canada.

IC Radiation Exposure Statement:

This equipment complies with IC RSS-102 radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.

The County Code Selection feature is disabled for products marketed in the US/Canada.

For product available in the USA/ Canada markets, only channel 1~11 can be operated. Selection of other channels is not possible.

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