

# NF18ACV

VDSL/ADSL2+ Dual Band AC1600 Gigabit Gateway with VoIP



## User Guide

## Important Notice

This device, like any wireless device, operates using radio signals which cannot guarantee the transmission and reception of data in all conditions. While the delay or loss of signal is rare, you should not rely solely on any wireless device for emergency communications or otherwise use the device in situations where the interruption of data connectivity could lead to death, personal injury, property damage, data loss, or other loss. NetComm Wireless accepts no responsibility for any loss or damage resulting from errors or delays in transmission or reception, or the failure of the NetComm Wireless NF18ACV to transmit or receive such data.

## Copyright

Copyright© 2021 NetComm Wireless Limited. All rights reserved.

The information contained herein is proprietary to NetComm Wireless. No part of this document may be translated, transcribed, reproduced, in any form, or by any means without prior written consent of NetComm Wireless.

Trademarks and registered trademarks are the property of NetComm Wireless Limited or their respective owners. Specifications are subject to change without notice. Images shown may vary slightly from the actual product.



**Note** – This document is subject to change without notice.

## 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 domestic 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.

## Document history

This guide covers the following products:

VDSL/ADSL2+ Dual Band AC1600 Gigabit Gateway with VoIP (NF18ACV)

Ver.	Document description	Date
v1.0	Initial document release	August 2017
v1.1	Additions and changes to Advanced Setup section	June 2018
v1.2	Added notes about Black list/White list limitations and SAMBA support	April 2021

*Table i. – Document revision history*

# Contents

<b>Overview .....</b>	<b>9</b>
Introduction .....	9
Target audience .....	9
Prerequisites .....	9
Notation .....	9
<b>Welcome .....</b>	<b>10</b>
<b>Product overview .....</b>	<b>10</b>
<b>Package contents.....</b>	<b>10</b>
<b>Product features.....</b>	<b>10</b>
Perfect for .....	10
Key Features .....	11
NF18ACV .....	11
nbn and UFB ready .....	11
Triple play services.....	11
Enhanced wireless experience .....	11
Media sharing.....	12
<b>Physical dimensions and indicators.....</b>	<b>13</b>
LED indicators .....	13
<b>Physical dimensions and weight .....</b>	<b>14</b>
<b>NF18ACV Default Settings.....</b>	<b>14</b>
<b>Interfaces .....</b>	<b>15</b>
Rear .....	15
Left Side .....	16
<b>Safety and product care.....</b>	<b>17</b>
<b>Transport and handling.....</b>	<b>17</b>
<b>Installation and configuration of the NF18ACV .....</b>	<b>18</b>
Placement of your NF18ACV .....	18
Avoiding obstacles and interference .....	18
Cordless phones .....	18
Choosing the “quietest” channel for your wireless network .....	19
<b>Hardware installation .....</b>	<b>20</b>
Connecting a client via Ethernet cable .....	20
Connecting a client wirelessly .....	20
<b>Web based configuration interface.....</b>	<b>21</b>
First-time setup wizard .....	21
ADSL .....	21
VDSL .....	22
Ethernet WAN.....	24

PPP over Ethernet (PPPoE) .....	24
IP over Ethernet (IPoE) .....	25
<b>Device Info .....</b>	<b>26</b>
Summary .....	26
WAN .....	28
Statistics .....	29
Statistics – LAN .....	29
Statistics – WAN Service .....	29
Statistics – xTM .....	30
Statistics – xDSL .....	31
Route .....	32
ARP .....	32
DHCP .....	32
CPU & Memory .....	33
<b>Advanced Setup .....</b>	<b>34</b>
Layer2 Interface .....	34
ATM Interface .....	34
PTM Interface .....	35
ETH Interface .....	36
WAN Service .....	37
PPP over Ethernet .....	38
IP over Ethernet .....	39
Bridging .....	40
LAN .....	40
IPv4 Autoconfig .....	40
IPv6 Autoconfig .....	42
LAN VLAN Setting .....	43
NAT .....	44
Virtual Servers .....	44
Port Triggering .....	45
DMZ Host .....	46
ALG .....	47
Security .....	47
IP Filtering .....	47
MAC Filtering .....	50
Parental Control .....	51
Time Restriction .....	51
URL Filter .....	52
Quality of Service .....	53
QoS Queue .....	53
QoS Classification .....	55
QoS Port Shaping .....	55
Routing .....	56
Default Gateway .....	56
Static Route .....	57
Policy Routing .....	58
RIP .....	59
DNS .....	60
DNS Server Configuration .....	60
Dynamic DNS .....	61
DSL .....	62
DSL Advanced settings .....	63
ADSL Tone Settings .....	64

UPnP .....	64
DNS Proxy .....	65
DLNA .....	65
Storage Service .....	66
Storage Device Info .....	66
User Accounts .....	66
Interface Grouping .....	67
IP Tunnel .....	68
IPv6inIPv4 .....	68
IPv4inIPv6 .....	69
IPSec .....	71
<b>Wireless.....</b>	<b>74</b>
WiFi 2.4GHz/WiFi 5GHz .....	74
Wireless – Basic.....	74
Wireless – Security.....	76
Wireless – MAC Filter .....	77
Wireless – Wireless Bridge (Wireless Distribution Service) .....	78
Wireless – Advanced.....	79
Wireless – Station Info.....	83
<b>Voice .....</b>	<b>84</b>
VoIP Status .....	84
SIP Basic Setting.....	85
SIP Advanced .....	87
Configuring a VoIP dial plan .....	89
Dial plan syntax .....	89
Dial plan example: Australia Dial Plan .....	90
SIP Extra Setting .....	90
SIP Star Code Setting .....	91
SIP Debug Setting .....	92
<b>VoIP Functionality .....</b>	<b>92</b>
Registering .....	93
Placing a Call .....	93
Anonymous call .....	93
Do Not Disturb (DND) .....	93
Call Return .....	94
Call Hold .....	94
Call Waiting .....	94
Blind Transfer .....	94
Consultative Transfer .....	94
Call Forwarding No Answer .....	95
Call Forwarding Busy .....	95
Call Forwarding All .....	95
Three-Way Conference .....	95
T.38 Faxing .....	95
Pass-Through Faxing .....	96
<b>Diagnostics .....</b>	<b>97</b>
Diagnostics – Diagnostics.....	97
Diagnostics – Ethernet OAM .....	98
Diagnostics – Ping.....	98

Diagnostics – Traceroute .....	99
Diagnostics – Start/Stop DSL .....	99
<b>Management .....</b>	<b>100</b>
Management – Settings .....	100
Backup .....	100
Update Settings .....	100
Factory Reset .....	100
Management – System Log .....	101
Management – Security Log .....	101
Management – SNMP Agent .....	102
Management – TR-069 Client .....	102
Management – Internet Time .....	103
Management – Access Control .....	104
Passwords .....	104
Access List .....	104
Services Control .....	105
Management – Update Firmware .....	106
Management – Reboot .....	106
<b>Additional Product Information .....</b>	<b>107</b>
Establishing a wireless connection .....	107
Windows 7 .....	107
Windows 8/8.1/10 .....	107
Mac OSX 10.6 .....	107
<b>Troubleshooting .....</b>	<b>108</b>
Using the indicator lights (LEDs) to Diagnose Problems .....	108
Power LED .....	108
Web Configuration .....	108
Login Username and Password .....	109
WLAN Interface .....	109
<b>Appendix: Quality of Service setup example .....</b>	<b>110</b>
<b>Reserving IP addresses .....</b>	<b>110</b>
<b>QoS Configuration Settings .....</b>	<b>112</b>
High Priority QoS Queue Configuration .....	112
Low Priority QoS Queue Configuration .....	113
High Priority QoS Classification .....	114
Low Priority QoS Classification .....	115
Limiting the upstream rate .....	117
Limiting the downstream rate .....	118
<b>Table of Figures .....</b>	<b>120</b>
<b>Table of Tables .....</b>	<b>123</b>
<b>Legal &amp; Regulatory Information .....</b>	<b>124</b>
<b>Intellectual Property Rights .....</b>	<b>124</b>
<b>Customer Information .....</b>	<b>124</b>
<b>Consumer Protection Laws .....</b>	<b>125</b>

Product Warranty ..... 125

Limitation of Liability ..... 126

Contact..... 127

## Overview

### Introduction




This manual provides information related to the installation, operation, and use of the NF18ACV.

### Target audience

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 NF18ACV, please confirm that you meet the minimum system requirements below.

-  An activated ADSL/VDSL or pre-configured WAN connection.
-  A computer with a working Ethernet adapter or wireless 802.11a/b/g/n/ac capability and the TCP/IP Protocol installed.
-  A current version of a web browser such as Internet Explorer®, Mozilla Firefox® or Google Chrome™.

### Notation

The following symbols are used in this manual:



**Note** – The following note provides useful information.



**Attention** – The following situation requires attention.











**Warning** – The following note provides a warning.

## Welcome







Thank you for purchasing a NetComm Wireless NF18ACV. This guide contains all the information you need to configure your device.

## Product overview

-  Fully featured VDSL2 / ADSL2+ gateway
-  4 x Gigabit Ethernet 10/100/1000 LAN ports
-  nbn and UFB ready – ultra-fast connection to nbn and UFB fibre network - 1 x 10/100/1000 Gigabit Ethernet WAN port
-  VoIP feature for HD quality voice calls - connect up to 2 telephones
-  Next generation WiFi 802.11 AC1600, dual band concurrent, for multiple high-speed wireless connections
-  2 x WPS push buttons for the quick and easy connection of wireless devices on both 2.4GHz and 5GHz bands
-  Access and share media and file content across the wireless home network
-  Device performance monitoring and management through TR-069

## Package contents



The NF18ACV package consists of:

-  1 x NetComm Wireless NF18ACV VDSL2/ADSL2+ Dual Band AC1600 Wireless Gigabit Gateway with VoIP
-  1 x RJ45 Ethernet cable
-  1 x RJ11 Telephone cable
-  1 x WiFi Security card
-  1 x Warranty card
-  1 x Power supply (12V/2A)

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

## Product features

### Perfect for

-  Ultra-fast connection to your fixed line VDSL2/ADSL2+ service
-  High-speed connection to nbn or UFB Fibre networks FTTN/FTTB and FTTH/FTTP

- 📶 Triple play services offer including Voice over IP
- 📶 Creating a powerful wireless home network and media sharing

## Key Features

- 📶 Fully featured VDSL2 / ADSL2+ gateway
- 📶 4 x Gigabit Ethernet 10/100/1000 LAN ports
- 📶 nbn and UFB ready – ultra-fast connection to nbn and UFB fibre network - 1 x 10/100/1000 Gigabit Ethernet WAN port
- 📶 VoIP feature for HD quality voice calls - connect up to 2 telephones
- 📶 Next generation WiFi 802.11 AC1600, dual band concurrent, for multiple high-speed wireless connections
- 📶 2x WPS push buttons for the quick and easy connection of wireless devices on both 2.4GHz and 5GHz bands
- 📶 Access and share media and file content across the wireless home network
- 📶 Device performance monitoring and management through TR-069

## NF18ACV

The NetComm Wireless NF18ACV smart residential VDSL2/ADSL2+ wireless gateway brings an enhanced and blazing fast broadband experience to the home.

### nbn and UFB ready

Featuring VDSL2/ADSL2 technologies as well as a Gigabit WAN port, the NF18ACV is a 3-in-1 gateway that provides access to **ADSL** networks, **VDSL** and all **nbn** and **UFB** fibre network options: **FTTN**, **FTTB**, **FTTH**.

### Triple play services

The NF18ACV is a triple play services enabler that supports the transmission of high-speed data, multi HD/UHD IPTV and over the top video streaming, VoIP feature for HD quality voice calls with the capacity to connect 2 phones.

### Enhanced wireless experience

The NF18ACV gateway embeds the newest generation of WiFi (802.11 ac) for powerful access point and video grade wireless capabilities. It allows both **2.4GHz** and **5GHz** bands to work concurrently, ensuring interoperability with all wireless equipment in the house.

The NF18ACV is equipped with 5GHz 3 x 3 MIMO and 2.4GHz 2 x 2 MIMO internal antennas to provide optimum reception while offering a powerful signal throughout the home. Create an ultra-fast **1600 Mbps<sup>1</sup> WiFi** home network and connect a multitude of wireless devices such as smart TVs, set top boxes, laptops, tablets, computers, NAS, smart phones and gaming consoles with upgraded coverage and performance.

---

<sup>1</sup> Maximum wireless signal rate and coverage values are derived from IEEE Standard 802.11n and 802.11ac 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.







## Media sharing


Connect a **USB device** to the NF18ACV gateway, access and share all A/V media and file content with all of the connected devices in the house in real time. The NF18ACV becomes the media hub of the house using **DLNA/UPnP** standard and enhanced wireless capabilities to create a reliable high-speed home network.

## Physical dimensions and indicators

### LED indicators

The NF18ACV has been designed to be placed on a desktop. All of the cables exit from the rear for easy organization. The display is visible on the front of the NF18ACV to provide you with information about network activity and the device status. The following is an explanation of each of the indicator lights.

LED INDICATOR	ICON	COLOUR	DEFINITION
<b>Power</b>		Green	The NF18ACV is powered on and operating normally.
		Off	The power is off.
<b>DSL</b>		Off	No DSL signal detected.
		Green Blinking	Synching
		Green	DSL synchronized.
<b>Internet</b>		Green	The NF18ACV is connected to an internet service.
		Green Blinking	Data is being transmitted to or from the internet.
		Off	The NF18ACV is not connected to the internet.
<b>WAN</b>		Green	A device is connected to the Ethernet WAN port.
		Green Blinking	Data is being transmitted to or from the WAN.
		Off	No device is connected to the Ethernet WAN port.
<b>Ethernet 1-4</b>		Green	A device is connected to the Ethernet LAN port.
		Green Blinking	Data is being transmitted to or from the Ethernet LAN port.
		Off	No device is connected to the Ethernet LAN port.
<b>WiFi 2.4</b>	<b>2.4G</b>	Green	WiFi is enabled.
		Green Blinking	Data is being transmitted to or from the Wireless interface.
		Off	WiFi is disabled.
<b>WiFi 5</b>	<b>5G</b>	Green	WiFi is enabled.
		Green Blinking	Data is being transmitted to or from the Wireless interface.
		Off	WiFi is disabled.
<b>WPS</b>	<b>WPS</b>	Green	WPS is enabled
		Green Blinking	WPS pairing is triggered.
		Off	WPS is disabled.
<b>USB 1</b>		Green	A USB device is connected.
		Green Blinking	Data is being transmitted through the USB interface.
		Off	No USB device is connected to the USB interface.

LED INDICATOR	ICON	COLOUR	DEFINITION
Telephone 1		Green	A handset is registered.
Telephone 2		Green Blinking	Incoming call or the handset is in use.
		Off	No handset registered

*Table 1 – LED indicator table*

## Physical dimensions and weight

The table below lists the physical dimensions and weight of the NF18ACV.

Dimensions	
<b>Width</b>	216 mm
<b>Height</b>	173 mm
<b>Depth</b>	61 mm
<b>Weight</b>	420 grams

*Table 2 – Physical dimensions and weigh table*

## NF18ACV Default Settings

The following tables list the default settings for the NF18ACV.

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

*Table 3 – LAN (Management) table*

Wireless (WiFi)	
SSID	(Refer to the included Wireless Security Card)
Security	WPA2-PSK (AES)
Security Key	(Refer to the included Wireless Security Card)

*Table 4 – Wireless (WiFi) table*

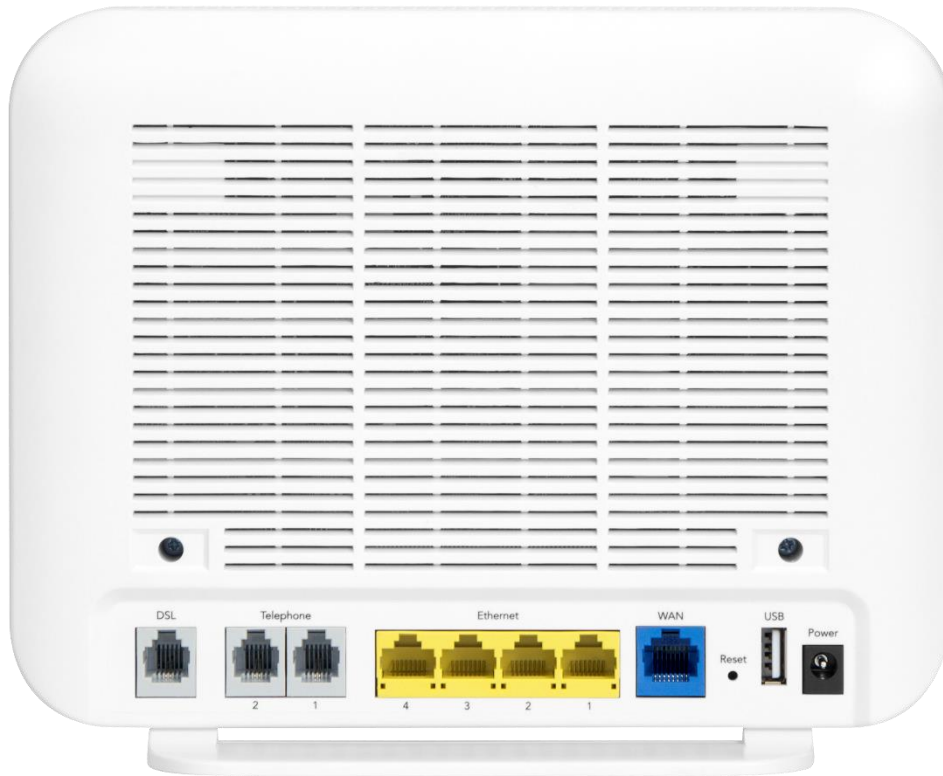
NF18ACV WEB Interface Access	
Username	admin
Password	admin

*Table 5 – NF18ACV WEB Interface Access table*

## Interfaces

### Rear

The following interfaces are available on the NF18ACV:



*Figure 1 – NF18ACV router rear view*

No.	Interface	Description
1	<b>DSL</b>	Use the provided RJ11 cable to connect the router to the telephone line operating your xDSL service.
2	<b>Telephone 1 and 2</b>	Connect a regular analogue telephone handset here for use with a VoIP service.
3	<b>Ethernet 1 - 4</b>	Gigabit Ethernet LAN ports. Connect your Ethernet based devices to one of these ports for high-speed internet access.
4	<b>WAN</b>	Gigabit capable WAN port for connection to a WAN network. Connect to your Network Termination Device (NTD) for high-speed internet access.
5	<b>Reset button</b>	Reset unit to Default by holding the Reset button down for 10 seconds when unit is powered on.
6	<b>USB</b>	Connect an external USB storage device here to use the Network Attached Storage (NAS) feature of the NF18ACV.
7	<b>Power supply jack</b>	Connection point for the included power adapter. Connect the power supply here.

*Table 6 – Rear interface table*

## Left Side

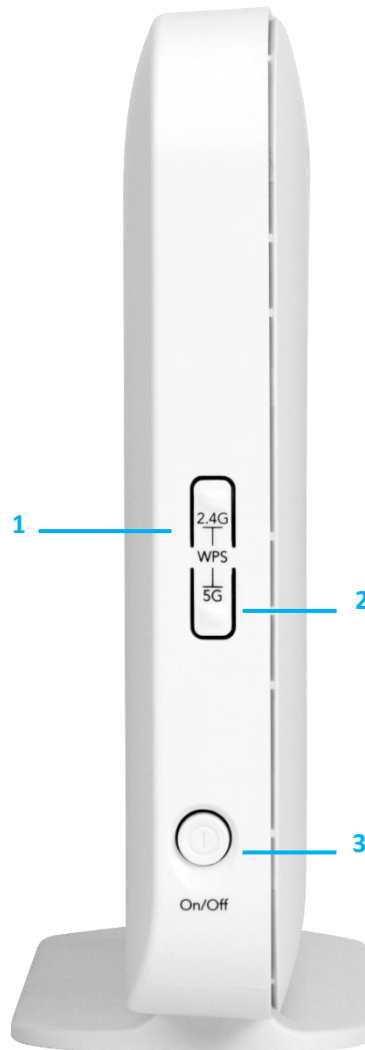






Figure 2 – NF18ACV router side view

No	Interface	Description
1	<b>2.4G WPS</b> button	Press the <b>2.4G WPS</b> button to activate the WPS PBC pairing function for the 2.4GHz radio.
2	<b>5G WPS</b> button	Press the <b>5G WPS</b> button to activate the WPS PBC pairing function for the 5GHz radio.
3	<b>On/Off</b> button	Toggles the power on and off.

Table 7 – Side interface table

## Safety and product care

Your router is an electronic device that sends and receives radio signals. Please take the time to read this list of precautions that should be taken when installing and using the router.

-  Do not disassemble the router. There are no user-serviceable parts.
-  Do not allow the router to come into contact with liquid or moisture at any time. To clean the device, wipe it with a damp cloth.
-  Do not restrict airflow around the device. This can lead to the device overheating.
-  Do not place the device in direct sunlight or in hot areas.

## Transport and handling

When transporting the NF18ACV, it is recommended to return the product in the original packaging. This ensures that the product will not be damaged.



**Attention** – 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 NF18ACV

## Placement of your NF18ACV



The wireless connection between your NF18ACV and your WiFi devices will be strong when they are in close proximity and have direct line of sight. As your client device moves further away from the NF18ACV or solid objects block direct line of sight to the router, your wireless connection and performance may degrade. 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 NF18ACV in order to see if distance is the problem.









**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 check list may help

If you experience difficulties connecting wirelessly between your WiFi Devices and your NF18ACV, please try the following steps:

-  In multi-storey homes, place the NF18ACV on a floor that is as close to the centre of the home as possible. This may mean placing the NF18ACV on an upper floor.
-  Try not to place the NF18ACV near a cordless telephone that operates at the same radio frequency as the NF18ACV (2.4GHz/5GHz).





## Avoiding obstacles and interference

Avoid placing your NF18ACV 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 NF18ACV).

## Cordless phones

If the performance of your wireless network is impaired after considering the above issues, and you have a cordless phone:

-  Try moving cordless phones away from your NF18ACV and your wireless-enabled computers.
-  Unplug and remove the battery from any cordless phone that operates on the 2.4GHz or 5GHz band (check manufacturer's information). If this fixes the problem, your phone may be interfering with the NF18ACV.
-  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 NF18ACV to channel 11. See your phone's user manual for detailed instructions.
-  If necessary, consider switching to a 900MHz or 1800MHz cordless phone.

## Choosing 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. Your wireless adapter may include a utility to assist in scanning for the least congested network, otherwise you may be able to find another piece of software that can be used. These tools display a graphical representation of the wireless networks in range and the channels on which they are operating. Try to find a channel which is not as busy and does not overlap with another one. Channels 1, 6 and 11 are the only channels on 2.4GHz which do not overlap with one another and you should ideally choose one of these channels. 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 Connect the power adapter to the Power socket on the back of the NF18ACV.
- 2 Plug the power adapter into the wall socket and switch on the power.
- 3 Wait approximately 60 seconds for the NF18ACV to power up.

### Connecting a client via Ethernet cable

- 1 Connect the yellow Ethernet cable provided to one of the yellow ports marked 'Ethernet' at the back of the NF18ACV.
- 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 enter <http://192.168.20.1> into the address bar and press enter.
- 5 Follow the steps to set up your NF18ACV.

### Connecting a client wirelessly

- 1 Ensure WiFi is enabled on your device (e.g. computer/laptop/smartphone).
- 2 Scan for wireless networks in your area and connect to the network name that matches the Wireless network name configured on the NF18ACV.



**Note** – Refer to the included Wireless Security Card for the default SSID and wireless security key of your NF18ACV.

- 3 When prompted for your wireless security settings, enter the Wireless security key configured on the NF18ACV.
- 4 Wait approximately 30 seconds for the connection to establish.
- 5 Open your Web browser, and enter <http://192.168.20.1> into the address bar and press Enter.
- 6 Follow the steps to set up your NF18ACV.

## Web based configuration interface

### First-time setup wizard



**Note** – While we highly recommend that you set up your new router using the *First-time Setup Wizard (Basic Setup)*, it is possible to configure your new router directly from the [Advanced Setup](#) features.

It is also possible to initially set up your router using the Basic Setup wizard and then later fine-tune your configuration using the Advanced Setup tools.

Please follow the steps below to configure your NF18ACV Wireless router via the web based configuration wizard.

- 1 Open a web browser and type <http://192.168.20.1/> into the address bar at the top of the window.
- 2 At the login screen, type **admin** in the username and password field, then click the **Login** button.



**Note** – ‘**admin**’ is the default username and password for the unit.

- 3 Click on the **Basic Setup** menu item on the left side of the screen.

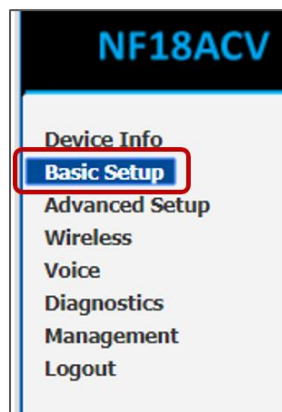


Figure 3 – NF18ACV router – Select Basic Setup

- 4 To run the Wizard having all the basic set up details that your system requires, ☒ select the Wan Connection type that you will be using: **ADSL**, **VDSL** or **Ethernet WAN**

### ADSL

- a Select **ADSL** and click the **Next** button.

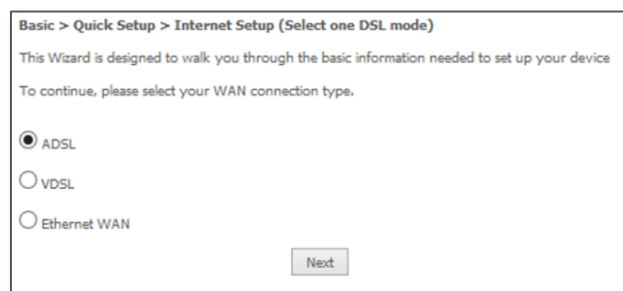


Figure 4 – NF18ACV router – Select ADSL as WAN connection type

- b Select either the **PPPoE**, **PPPoA** or **Bridging** for your internet connection as specified by your Internet Service Provider (ISP).

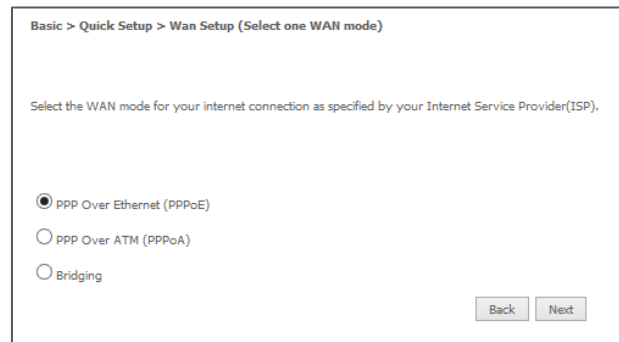


Figure 5 – Select PPPoE as WAN mode

Click the **Next** button.

- c In the **User ID** and **Password** fields, enter the PPPoE authentication username and password assigned to you by your Internet Service Provider (ISP).

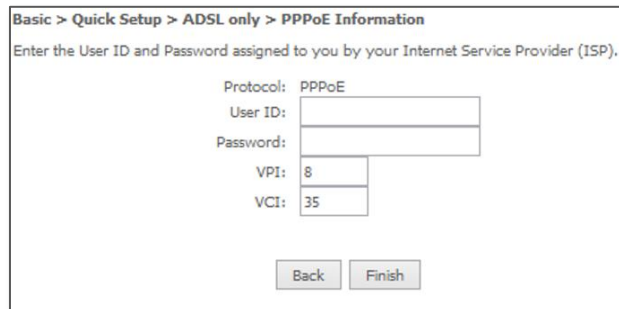


Figure 6 – Enter PPPoE User ID and Password

Click the **Finish** button.

- d The account settings are saved and the NF18ACV connects to the internet.

## VDSL

- a Select **VDSL** and click the **Next** button.

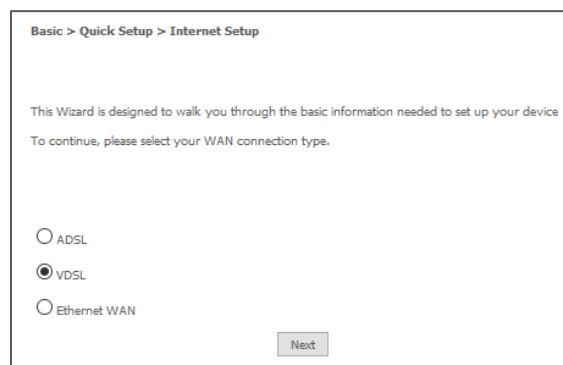
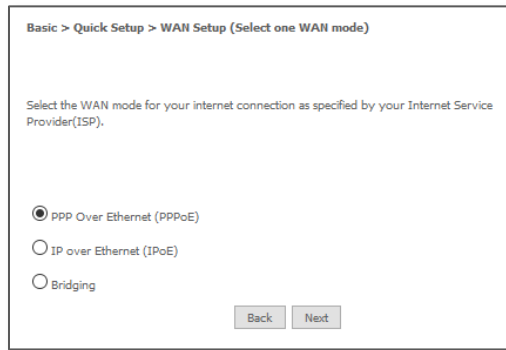


Figure 7 – NF18ACV router – Select VDSL as WAN connection type

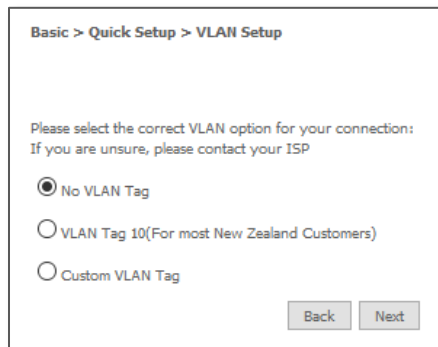
- e Select the WAN mode for your internet connection as specified by your Internet Service Provider (ISP).



*Figure 8 – Select WAN mode for VDSL connection*

Click the **Next** button.

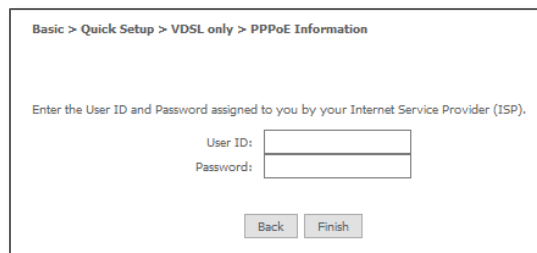
- f Select the correct VLAN option for your connection.  
For New Zealand customers, the requirement for VDSL is VLAN tag 10.  
If you are not sure of the tagging requirement for your connection, please contact your ISP.



*Figure 9 – Select VLAN option for VDSL connection*

Click the **Next** button.

- g In the User ID and Password fields, enter the username and password assigned to you by your Internet Service Provider (ISP).



*Figure 10 – VDSL connection – Enter User ID and Password*

- h Click the **Finish** button when you have entered the required details. The account settings are saved and the NF18ACV connects to the internet.

## Ethernet WAN

- a Connect an RJ45 Ethernet cable to the **WAN** port on the NF18ACV. Connect the other end of the cable to your WAN service.
- i Select **Ethernet WAN** then click the **Next** button.

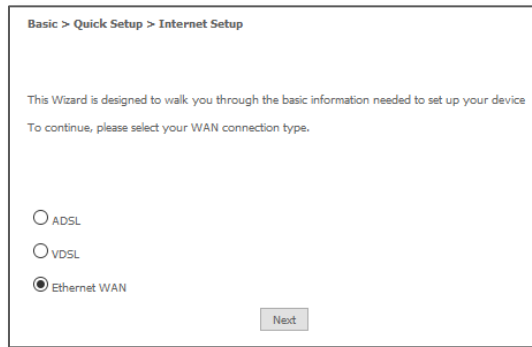


Figure 11 – NF18ACV router – Select Ethernet WAN as WAN connection type

- j Select the WAN mode for your internet connection as specified by your Internet Service Provider (ISP).

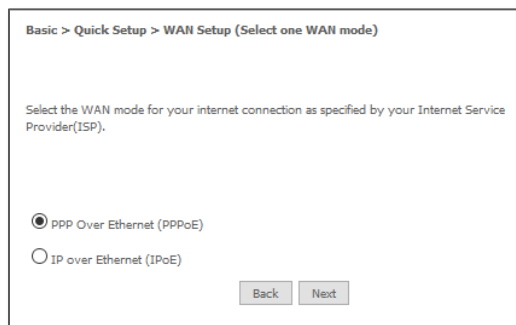


Figure 12 – Select WAN mode for Ethernet WAN connection

- k Click the **Next** button.

### PPP over Ethernet (PPPoE)

If at step 3 you selected **PPP over Ethernet (PPPoE)**:

- 4 Select the correct VLAN option for your connection.  
For **New Zealand** customers, the requirement for VDSL is **VLAN tag 10**.  
If you are not sure of the tagging requirement for your connection, please contact your ISP.

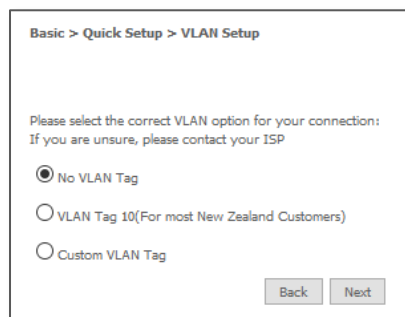


Figure 13 – Select VLAN option for PPPoE

Click the **Next** button.

- 2 Enter the User ID and Password assigned to you by your Internet Service Provider (ISP) and click **Finish**.

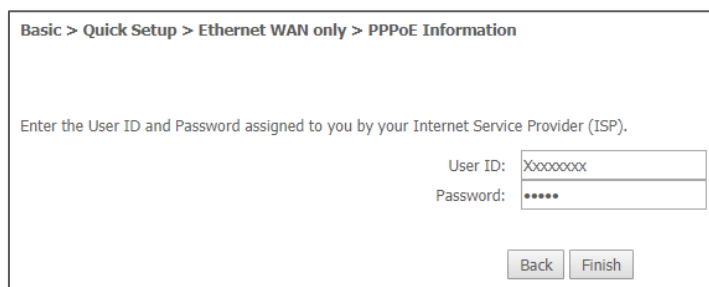


Figure 14 – Ethernet WAN connection – Enter User ID and Password

## IP over Ethernet (IPoE)

If at step 3 you selected **IP over Ethernet (IPoE)**:

- 4 Select the correct VLAN option for your connection. For **New Zealand** customers, the requirement for VDSL is **VLAN tag 10**. If you are not sure of the tagging requirement for your connection, please contact your ISP. Click the **Next** button.

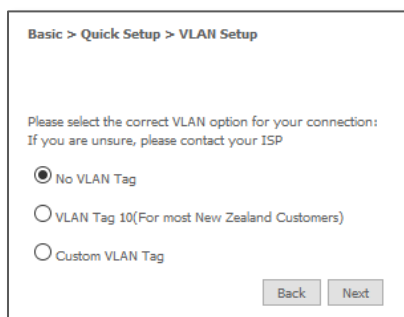


Figure 15 – IP over Ethernet (IPoE) -- VLAN Setup

- 3 If your ISP has supplied a static IP address, select **Use the following Static IP address** and enter the details, otherwise select **Obtain an IP address automatically**.

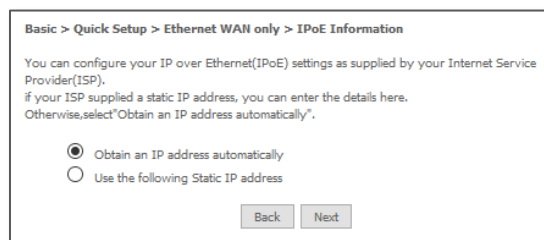


Figure 16 – IP over Ethernet (IPoE) – Static or Auto IP Address

Click the **Next** button.

- 4 The settings are displayed in a summary.

**WAN Basic Setup - Summary**

Make sure that the settings below match the settings provided by your ISP.

Connection Type:	IPoE
NAT:	Enabled
Full Cone NAT:	Disabled
Firewall:	Enabled
IGMP Multicast:	Disabled
Quality Of Service:	Enabled

Click "Apply/Save" to have this interface to be effective. Click "Back" to make any modifications.

Figure 17 – WAN Setup Summary

- Click **Apply/Save** to save them.

The account settings are saved and the NF18ACV connects to the internet.

## Device Info

### Summary

When you log in to the router, the **Device Info** summary page is displayed, giving a general overview of the status of the router and the WAN connection.

**Device Info**

Manufacturer:	NetComm Wireless
Product Class:	NF18ACV
Serial Number:	170301900018
Build Timestamp:	170427_1444
Software Version:	NF18ACV.NC.AU-R6B015.EN
Bootloader (CFE) Version:	1.0.38-118.3
DSL PHY and Driver Version:	A2pv6F039v.d26k1
VDSL PROFILE:	No profile
Wireless Driver Version:	7.35.260.64013
Voice Service Version:	Voice
Uptime:	0D 0H 1M 51S

This information reflects the current status of your WAN connection.

Line Rate - Upstream (Kbps):	0
Line Rate - Downstream (Kbps):	0
LAN IPv4 Address:	192.168.20.1
Service connection type:	
Default Gateway:	
Primary DNS Server:	0.0.0.0
Secondary DNS Server:	0.0.0.0
LAN IPv6 ULA Address:	
Default IPv6 Gateway:	
Date/Time:	Thu Jan 1 00:01:52 1970

Figure 18 – NF18ACV route – Device Info summary page

Item	Definition
<b>Device Info</b>	
<b>Manufacturer</b>	Indicates that NetComm Wireless is the manufacturer of this product.
<b>Product Class</b>	The model of the product.
<b>Serial Number</b>	The unique set of numbers assigned to the routers for identification purposes.
<b>Build Timestamp</b>	The date and time that the software running on the router was published.
<b>Software Version</b>	The current firmware version installed on the router.
<b>Bootloader (CFE) Version</b>	The current boot loader version installed on the router.
<b>DSL PHY and Driver Version</b>	The driver version of the on-board DSL chip.
<b>VDSL PROFILE</b>	The VDSL profile in use. Supports 8a, 8b, 12a and 17a VDSL profiles.
<b>DSL PHY and Driver Version</b>	The current line driver installed on the router.
<b>Wireless Driver Version</b>	The current wireless driver installed on the router.
<b>Uptime</b>	The number of days, hours and minutes that the router has been running.
<b>WAN connection</b>	
<b>Line Rate – Upstream (Kbps)</b>	The current synchronisation upstream speed of the DSL connection in Kbps (Kilobits per second).
<b>Line Rate – Downstream (Kbps)</b>	The current synchronisation upstream speed of the DSL connection in Kbps (Kilobits per second).
<b>LAN IPv4 Address</b>	The current IPv4 LAN IP address assigned to the router.
<b>Service connection type</b>	Displays whether the WAN connection is ADSL/VDSL or Ethernet WAN.
<b>Default Gateway</b>	The current default gateway address of the WAN interface.
<b>Primary DNS Server</b>	The current primary DNS server in use
<b>Secondary DNS Server</b>	The current secondary DNS server is use.
<b>LAN IPv6 ULA Address</b>	The current IPv6 LAN IP address in use if assigned.
<b>Default IPv6 Gateway</b>	The current IPv6 default gateway if assigned.
<b>Date/Time</b>	The current local date and time set on the router.

Table 8 – Device Info summary table

## WAN

The **WAN** page shows more detailed information related to the WAN interface configuration, including the firewall status, IPv4 and IPv6 addresses of the router.

WAN Info													
Interface	Description	Type	VLAN Mux ID	IPv6	IGMP Pxy	IGMP Source Enable	MLD Pxy	MLD Source Enable	NAT	Firewall	Status	IPv4 Address	IPv6 Address
ipoa0	Great	IPoA	Disabled	Disabled	Disabled	Enabled			Enabled	Enabled	Unconfigured	0.0.0.0	
eth4.1	ETH WAN	IPoE	Disabled	Disabled	Disabled	Disabled			Enabled	Enabled	Unconfigured	0.0.0.0	
ppp0.1	VDSL	PPPoE	Disabled	Disabled	Disabled	Disabled			Disabled	Enabled	Unconfigured	0.0.0.0	

Figure 19 – NF18ACV router – WAN Info list

Item	Definition
<b>Interface</b>	The Interface of the WAN connection.
<b>Description</b>	The description of the WAN connection.
<b>Type</b>	The type of WAN connection.
<b>VLAN Mux ID</b>	Details the status of VLAN Mux ID if used.
<b>IPv6</b>	The status of IPv6.
<b>IGMP Pxy</b>	Details the status of IGMP on each WAN connection. IGMP is only used with IP v4 connections. IGMP proxy enables the router to issue IGMP host messages on behalf of hosts that the router discovered through standard IGMP interfaces, allowing NAT transversal of Multicast traffic.
<b>IGMP Source Enable</b>	Details the status of IGMP Src on each WAN connection. IGMP Sources function send a membership report that includes a list of IGMP source addresses.
<b>MLD Pxy</b>	Shows the status of the Multicast Listener Discovery protocol when IPv6 is in use. Multicast Listener Discovery (MLD) proxy enables the router to issue MLD host messages on behalf of hosts that the router discovered through standard MLD interfaces.
<b>MLD Source Enable</b>	Details the status of MLD Src on each WAN connection. MLD Sources function can send a membership report that includes a list of MLD source addresses.
<b>NAT</b>	The NAT status of the WAN connection.
<b>Firewall</b>	The status of the router firewall across the WAN connection.
<b>Status</b>	The status of the WAN connection.
<b>IPv4 Address</b>	The current IP v4 address of the WAN interface.
<b>IPv6 Address</b>	The current IP v6 address of the WAN interface.

Table 9 – WAN Info table

## Statistics

### Statistics – LAN

The **Statistics – LAN** page shows detailed information about the number of bytes, packets, errors and dropped packets on each LAN interface in both directions of communication.

Statistics -- LAN

Interface	Received								Transmitted							
	Total				Multicast		Unicast	Broadcast	Total				Multicast		Unicast	Broadcast
	Bytes	Packets	Errors	Drops	Bytes	Packets	Packets	Packets	Bytes	Packets	Errors	Drops	Bytes	Packets	Packets	Packets
eth0	742666	7173	0	1	0	1011	5512	650	7615128	7688	0	0	0	333	7342	13
eth1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
eth2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
eth3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
wl0	0	0	0	28	0	0	0	0	377791	4174	0	0	0	0	0	0
wl0.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
wl0.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
wl0.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
wl1	0	0	0	39	0	0	0	0	0	0	0	0	0	0	0	1
wl1.1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
wl1.2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
wl1.3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Reset Statistics

Figure 20 – Device Info – Statistics -- LAN display

Interface	Description	
Received/Transmitted	Bytes	Rx/Tx (receive/transmit) packets in bytes.
	Packets	Rx/Tx (receive/transmit) packets.
	Errors	Rx/Tx (receive/transmit) packets with errors.
	Drops	Rx/Tx (receive/transmit) packets with drops.

Table 10 – Statistics -- LAN display table

### Statistics – WAN Service

The Statistics – WAN Service page shows detailed information about the number of bytes, packets, errors and dropped packets on the WAN interface in both directions of communication.

Statistics -- WAN

Interface	Description	Received								Transmitted							
		Total				Multicast		Unicast	Broadcast	Total				Multicast		Unicast	Broadcast
		Bytes	Packets	Errors	Drops	Bytes	Packets	Packets	Packets	Bytes	Packets	Errors	Drops	Bytes	Packets	Packets	Packets
eth4.1	ETH WAN	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Reset Statistics

Figure 21 – Device Info – Statistics – WAN Service display

Interface	Description	
<b>Received/Transmitted</b>	<b>Bytes</b>	Rx/Tx (receive/transmit) packets in bytes.
	<b>Packets</b>	Rx/Tx (receive/transmit) packets.
	<b>Errors</b>	Rx/Tx (receive/transmit) packets with errors.
	<b>Drops</b>	Rx/Tx (receive/transmit) packets with drops.

Table 11 – Statistics – WAN Service table

## Statistics – xTM

The Statistics – xTM page shows details related to the xTM (ATM/PTM) interface of the router.

Interface Statistics										
Port Number	In Octets	Out Octets	In Packets	Out Packets	In OAM Cells	Out OAM Cells	In ASM Cells	Out ASM Cells	In Packet Errors	In Cell Errors
<input type="button" value="Reset"/>										

Figure 22 – Device Info – Statistics -- xTM display

Interface	DESCRIPTION
<b>Port Number</b>	The port number used by the xTM interface.
<b>In Octets</b>	The number of data packets in octets received over the ATM interface.
<b>Out Octets</b>	The number of data packets in octets transmitted over the ATM interface.
<b>In Packets</b>	The number of data packets received over the ATM interface.
<b>Out Packets</b>	The number of data packets transmitted over the ATM interface.
<b>In OAM Cells</b>	Operation, Administration, and Maintenance (OAM) Cell is the ATM Forum specification for cells used to monitor virtual circuits.
<b>Out OAM Cells</b>	Operation, Administration, and Maintenance (OAM) Cell is the ATM Forum specification for cells used to monitor virtual circuits.
<b>In ASM Cells</b>	The number of Any Source Multicast (ASM) cells received over the interface.
<b>Out ASM Cells</b>	The number of Any Source Multicast (ASM) cells transmitted over the interface.
<b>In Packets Errors</b>	The number of packets with errors detected over the xTM interface.
<b>In Cell Errors</b>	The number of cells with errors detected over the xTM interface.

Table 12 – Statistics – xTM settings table

## Statistics – xDSL

The Statistics – xDSL page shows details related to the DSL interface of the router.

Statistics -- xDSL

Mode:		
Traffic Type:		
Status:	Disabled	
Link Power State:		

	Downstream	Upstream
Line Coding(Trellis):		
SNR Margin (0.1 dB):		
Attenuation (0.1 dB):		
Output Power (0.1 dBm):		
Attainable Rate (Kbps):		
Rate (Kbps):		

Super Frames:		
Super Frame Errors:		
RS Words:		
RS Correctable Errors:		
RS Uncorrectable Errors:		

HEC Errors:		
OCD Errors:		
LCD Errors:		
Total Cells:		
Data Cells:		
Bit Errors:		

Total ES:		
Total SES:		
Total UAS:		

xDSL BER Test
Reset Statistics

Figure 23 – NF18ACV router

## Route

The Route page displays any routes that the router has created.

**Device Info -- Route**

Flags: U - up, ! - reject, G - gateway, H - host, R - reinstate  
D - dynamic (redirect), M - modified (redirect).

Destination	Gateway	Subnet Mask	Flag	Metric	Service	Interface
192.168.20.0	0.0.0.0	255.255.255.0	U	0		br0

Figure 24 – Device Info -- Route list

## ARP

Click **ARP** to display the address resolution protocol information.

This option can be used to determine which IP address / MAC address is assigned to a particular host. This can be useful when setting up URL filtering, Time of Day filtering or Static DHCP addressing.

**Device Info -- ARP**

IP address	Flags	HW Address	Device
192.168.20.2	Complete	2c:44:fd:12:3c:6e	br0

Figure 25 – Device Info -- ARP list

## DHCP

Click DHCP to display the Dynamic Host Configuration Protocol (DHCP) lease information.

**Device Info -- DHCP Leases**

Hostname	MAC Address	IP Address	Connection Type	IP Address Assignment	Status	Expires In
	2c:44:fd:12:3c:6e	192.168.20.2	Ethernet	DHCP	Active	23 hours, 55 minutes, 47 seconds

Figure 26 – Device Info -- DHCP Leases list

You can use this to determine when a specific DHCP lease will expire, or to assist you with setting up Static DHCP addressing.

## CPU & Memory

The CPU & Memory page shows real-time graphs charting the physical memory usage and the work load of the CPU.

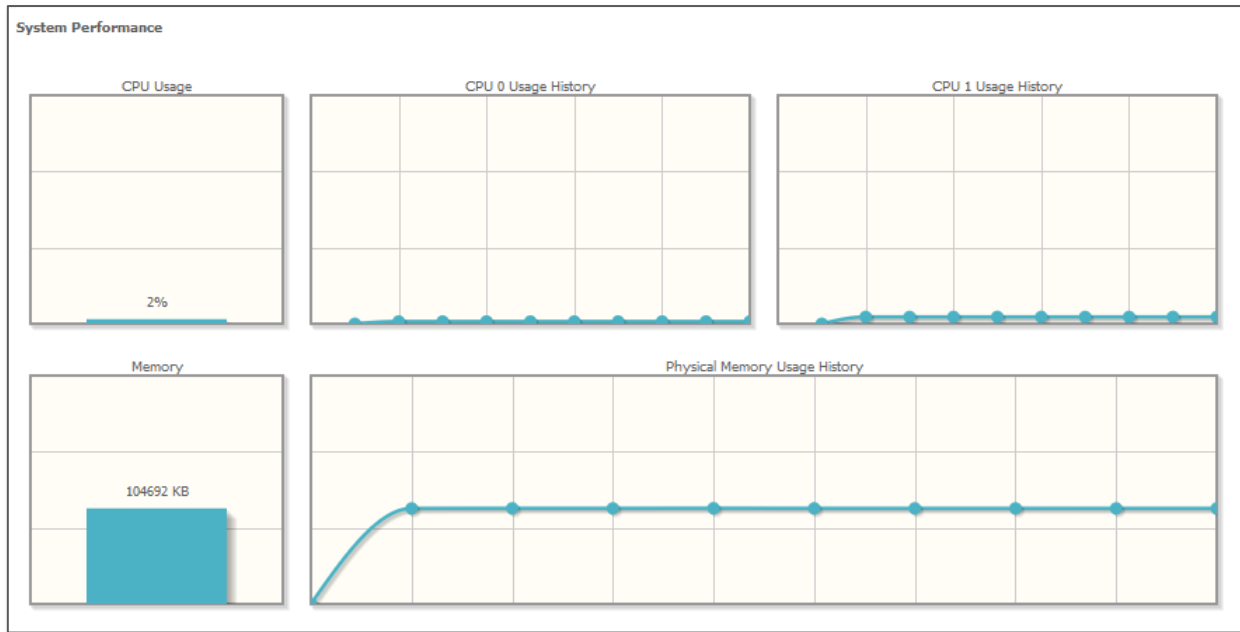


Figure 27 – Device Info – CPU & Memory display

## Advanced Setup

While you can set up your router directly from the **Advanced Setup** pages, we recommend that you use the *First-time Setup Wizard* contained in the [Basic Setup](#) section, see above.

### Layer2 Interface

#### ATM Interface

The ATM (Asynchronous Transfer Mode) interface page shows the settings of all available DSL ATM interfaces.

ATM interface is used for ADSL connections.

**DSL ATM Interface Configuration**

Choose Add, or Remove to configure DSL ATM interfaces.

Interface	VPI	VCI	DSL Latency	Category	Peak Cell Rate(cells/s)	Sustainable Cell Rate(cells/s)	Max Burst Size(bytes)	Min Cell Rate(cells/s)	Link Type	Connection Mode	IP QoS	MPAAL Precedence/Algorithm/Weight	Remove
ipoa0	8	35	Path0	UBR					IPoA	DefaultMode	Support	8/WRR/1	<input type="checkbox"/>

Figure 28 – DSL ATM Interface list

Field	Description
<b>Interface</b>	This field shows the interface name.
<b>VPI</b>	This field shows the Virtual Path Identifier (VPI) value. For <b>most</b> Australian connections the VPI is 8, for <b>most</b> New Zealand connections the VPI is 0. Please refer to your ISP for correct value.
<b>VCI</b>	This field shows the Virtual Channel Identifier (VCI) value. For <b>most</b> Australian connections the VCI is 35, for <b>most</b> New Zealand connections the VCI is 100. Please refer to your ISP for correct value.
<b>DSL Latency</b>	The value of the DSL Latency.
<b>Category</b>	This field shows the ATM service classes.
<b>Peak Cell Rate (cell/s)</b>	The maximum number of cells that may be transferred per second over the ATM interface.
<b>Sustainable Cell Rate (cell/s)</b>	An average, long-term cell transfer rate on the ATM interface.
<b>Max Burst Size (bytes)</b>	The maximum allowable burst size of cells that can be transmitted contiguously on the ATM interface.
<b>Min Cell Rate (cell/s)</b>	The minimum allowable rate at which cells may be transferred on the ATM interface.
<b>Link Type</b>	This field shows the type of link in use.
<b>Connection Mode</b>	This field shows the selected mode of connection.
<b>IP QoS</b>	This field shows the status of the Quality of Service (QoS) function.
<b>MPAAL Prec/Alg/Wght</b>	This displays data related to QoS Queue priority and algorithm.
<b>Remove</b>	Check <input checked="" type="checkbox"/> the box in this field and click <b>Remove</b> to permanently delete the ATM configuration.

*Table 13 – DSL ATM Interface Configuration settings table*

To add an ATM interface, click the **Add** button. Enter the details as required by your Internet Service Provider and click the **Apply/Save** button.

### ATM PVC Configuration

This screen allows you to configure a ATM PVC.

VPI:  [0-255]

VC1:  [32-65535]

Select DSL Latency

☒ Path0 (Fast)

☐ Path1 (Interleaved)

Select DSL Link Type (EoA is for PPPoE, IPoE, and Bridge.)

☒ EoA

☐ PPPoA

☐ IPoA

Encapsulation Mode:

Service Category:

Minimum Cell Rate:  [cells/s] (-1 indicates no shaping)

Select Scheduler for Queues of Equal Precedence as the Default Queue

☒ Weighted Round Robin

☐ Weighted Fair Queuing

Default Queue Weight:  [1-63]

Default Queue Precedence:  [1-8] (lower value, higher priority)

VC WRR Weight:  [1-63]

VC Precedence:  [1-8] (lower value, higher priority)

Note: VC scheduling will be SP among unequal precedence VC's and WRR among equal precedence VC's. For single queue VC, the default queue precedence and weight will be used for arbitration. For multi-queue VC, its VC precedence and weight will be used for arbitration.

*Figure 29 – ATM PVC Configuration page*

## PTM Interface

The router can also establish DSL connections using PTM (Packet Transfer Mode). This page shows you an overview of the PTM interfaces and allows you to add or remove them.

PTM interface is used for VDSL connections.

DSL PTM Interface Configuration					
Choose Add, or Remove to configure DSL PTM interfaces.					
Interface	DSL Latency	PTM Priority	Connection Mode	IP QoS	Remove
ptm0	Path0	Normal&High	VlanMuxMode	Support	<input type="checkbox"/>
<input type="button" value="Add"/> <input type="button" value="Remove"/>					

*Figure 30 – DSL PTM Interface list*

Click the **Add** button to create a new PTM interface.

Enter the details as required by your Internet Service Provider and click the **Apply/Save** button.

### PTM Configuration

This screen allows you to configure a PTM connection.

Select DSL Latency

☒ Path0 (Fast)

☐ Path1 (Interleaved)

Select Scheduler for Queues of Equal Precedence

☒ Round Robin (weight=1)

☐ Weighted Fair Queuing

Default Queue Weight:  [1-63]

Default Queue Precedence  [1-8] (lower value, higher priority)

Note: For WFQ, the default queue precedence will be applied to all other queues in the VC.

Figure 31 – PTM Configuration page

## ETH Interface

The ETH interface page allows you to add or remove ETH WAN interfaces.

### ETH WAN Interface Configuration

Choose Add, or Remove to configure ETH WAN interfaces.  
Allow one ETH as layer 2 wan interface.

Name	Connection Mode	Remove
eth4/eth4	VlanMuxMode	<input type="checkbox"/>

Figure 32 – ETH WAN interface list WAN Service



**Note** – When eth4 - ETH WAN Layer 2 interface is removed, the ETH WAN port will behave as an additional Ethernet LAN port.

## WAN Service

The WAN Service page displays the current Wide Area Network service setup and allows you to configure the router to connect to a larger network for Internet access.



**Attention** – WAN service requires a preconfigured Layer 2 interface, be it ATM/PTM or Ethernet WAN.

**Wide Area Network (WAN) Service Setup**

Choose Add, Remove or Edit to configure a WAN service over a selected interface.

Interface	Description	Type	VLAN 802.1p	VLAN Mux ID	IGMP Proxy	IGMP Source	NAT	Firewall	IPv6	MLD Proxy	MLD Source	Remove	Edit	Action
eth4.1	ETH WAN	Bridge	N/A	N/A	Disabled	Disabled	Disabled	Disabled	Enabled	Disabled	Disabled	<input type="checkbox"/>	<input type="button" value="edit"/>	

Figure 33 – NF18ACV router

To add a WAN service, click the **Add** button.

Use the drop down list to select the layer 2 interface to use for the WAN service and click the **Next** button.

**WAN Service Interface Configuration**

Select a layer 2 interface for this service

Note: For ATM interface, the descriptor string is (portId\_vpi\_vci)  
 For PTM interface, the descriptor string is (portId\_high\_low)  
 Where portId=0 --> DSL Latency PATH0  
 portId=1 --> DSL Latency PATH1  
 portId=4 --> DSL Latency PATH0&1  
 low =0 --> Low PTM Priority not set  
 low =1 --> Low PTM Priority set  
 high =0 --> High PTM Priority not set  
 high =1 --> High PTM Priority set

Figure 34 – WAN Service – Select layer 2 interface

Select a WAN service type, enter a **Service Description**, enter the **802.1P Priority** and **802.1Q VLAN ID if required**, then click the **Next** button.

To disable VLAN tagging, place input value of -1. Refer to your ISP for VLAN information as required by your Internet Service Provider.

**WAN Service Configuration**

Select WAN service type:

☒ PPP over Ethernet (PPPoE)

☐ IP over Ethernet

☐ Bridging

☐ Allow as IGMP Multicast Source

☐ Allow as MLD Multicast Source

Enter Service Description:

For tagged service, enter valid 802.1P Priority and 802.1Q VLAN ID.  
For untagged service, set -1 to both 802.1P Priority and 802.1Q VLAN ID.

Enter 802.1P Priority [0-7]:

Enter 802.1Q VLAN ID [0-4094]:

Network Protocol Selection:

Figure 35 – WAN Service – Select WAN Service Type

## PPP over Ethernet

Enter the PPPoE authentication details as required by your Internet Service Provider and click the **Next** button.

**PPP Username and Password**

PPP usually requires that you have a user name and password to establish your connection. In the boxes below, enter the user name and password that your ISP has provided to you.

PPP Username:

PPP Password:

PPPoE Service Name:

Authentication Method:

MTU[576-1492]:

☒ Enable NAT

☐ Enable Fullcone NAT

☒ Enable Firewall

☐ Dial on demand (with idle timeout timer)

☐ PPP IP extension

☐ Use Static IPv4 Address

☐ Enable PPP Debug Mode

☐ Bridge PPPoE Frames Between WAN and Local Ports

**IGMP Multicast Proxy**

☐ Enable IGMP Multicast Proxy

☐ Enable IGMP Multicast Source

Figure 36 – Enter PPP over Ethernet details

## IP over Ethernet

Enter the details as required by your Internet Service Provider and click the **Next** button.

### WAN IP Settings

Enter information provided to you by your ISP to configure the WAN IP settings.  
 Notice: If "Obtain an IP address automatically" is chosen, DHCP will be enabled for PVC in IPoE mode.  
 If "Use the following Static IPv4/IPv6 address" is chosen, enter the WAN IPv4/IPv6 address, subnet mask/prefix Length and interface gateway.

☒ Obtain an IP address automatically

Option 55 Request List :  (e.g:1,3,6,12)

Option 58 Renewal Time:  (hour)

Option 59 Rebinding Time:  (hour)

Option 60 Vendor ID:

Option 61 IAID:  (8 hexadecimal digits)

Option 61 DUID:  (hexadecimal digit)

Option 77 User ID:

Option 125: ☒ Disable ☐ Enable

☐ Use the following Static IP address

WAN IP Address:

WAN Subnet Mask:

WAN gateway IP Address:

Primary DNS server:

Secondary DNS server:

Figure 37 – Enter IP over Ethernet details

Select the NAT Translation settings as desired and click the **Next** button.

### Network Address Translation Settings

Network Address Translation (NAT) allows you to share one Wide Area Network (WAN) IP address for multiple computers on your Local Area Network (LAN).

☒ Enable NAT

☐ Enable Fullcone NAT

☒ Enable Firewall

**IGMP Multicast**

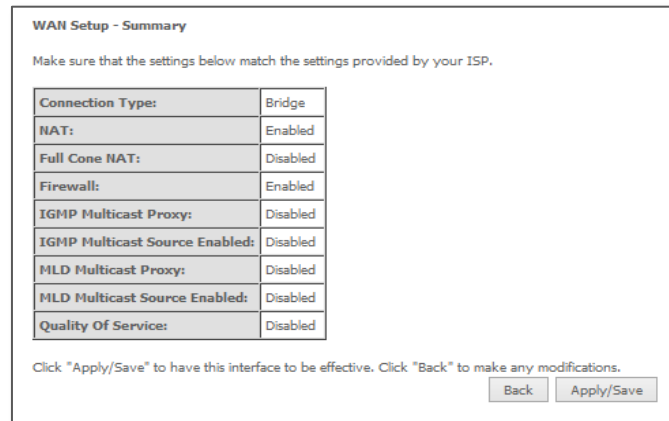
☐ Enable IGMP Multicast Proxy

☐ Enable IGMP Multicast Source

Figure 38 – Enter PPP over Ethernet NAT Translation settings

## Bridging

When you select **Ⓞ Bridging** mode, a summary of the settings is displayed. Click **Apply/Save** to commit the settings.



**WAN Setup - Summary**

Make sure that the settings below match the settings provided by your ISP.

Connection Type:	Bridge
NAT:	Enabled
Full Cone NAT:	Disabled
Firewall:	Enabled
IGMP Multicast Proxy:	Disabled
IGMP Multicast Source Enabled:	Disabled
MLD Multicast Proxy:	Disabled
MLD Multicast Source Enabled:	Disabled
Quality Of Service:	Disabled

Click "Apply/Save" to have this interface to be effective. Click "Back" to make any modifications.

Back Apply/Save

Figure 39 – Enter PPP over Ethernet details

## LAN

### IPv4 Autoconfig

The LAN window allows you to modify the settings for your local area network (LAN).



**Local Area Network (LAN) Setup**

Configure the Broadband Router IP Address and Subnet Mask for LAN interface. Group Name **Default** ▼

IP Address: 192.168.20.1  
Subnet mask: 255.255.255.0

☒ Enable IGMP Snooping

☐ Standard Mode  
☒ Blocking Mode

Enable IGMP LAN to LAN Multicast: **Disable** ▼  
(LAN to LAN Multicast is effective only when exist route mode WAN service which is connected and enable igmp proxy.)

☐ Enable LAN side firewall

☐ Disable DHCP Server  
☒ Enable DHCP Server

Start IP Address: 192.168.20.2  
End IP Address: 192.168.20.254  
Primary DNS server: 192.168.20.1  
Secondary DNS server: 0.0.0.0  
Leased Time (hour): 24

Edit DHCP Option 60 Edit DHCP Option

Static IP Lease List: (A maximum 32 entries can be configured)

HAC Address	IP Address	Remove
Add Entries Remove Entries		

☐ Enable DHCP Server Relay  
DHCP Server IP Address:

☐ Configure the second IP Address and Subnet Mask for LAN interface

Apply/Save

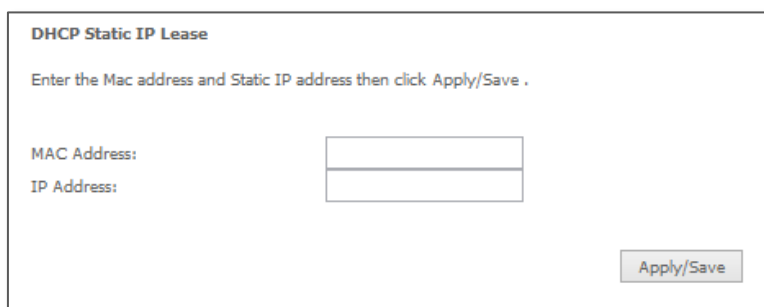
Figure 40 – LAN setup -- IPv4 Autoconfig settings

The following options are available to configure:

Parameter	Definition
<b>IP Address</b>	Enter the Local IP Address to use for the NF18ACV.
<b>Subnet Mask</b>	Enter the subnet mask to define the subnet of the Local Network.
<b>Enable IGMP Snooping</b>	Enable IGMP Snooping and select the IGMP Snooping mode to use. Standard: allow all multicast traffic to LAN clients. Blocking: only allow multicast subscribed clients to receive multicast packets.
<b>Enable LAN side Firewall</b>	Enable the LAN side firewall to restrict traffic between LAN host-LAN hosts and WiFi Clients.
<b>Enable DHCP Server</b>	Select to enable or disable the DHCP server and enter the start and end address for the DHCP IP Address pool.
<b>Enable DHCP Server Relay</b>	Disabled DHCP server, and relay all request to external server specified by the IP address.
<b>Configure the second IP Address</b>	This option enables you to set a secondary IP Address for the NF18ACV

*Table 14 – IPv4 Autoconfig settings table*

You can also reserve DHCP Addresses for specific hosts as shown below:



*Figure 41 – Enter DHCP Static IP Addresses*

To set a DHCP reservation, enter the MAC Address of the chosen host and IP to use and then click **Apply/Save**.

The NF18ACV enables you to set the DHCP options which are provided to hosts attempting to connect to the DHCP server.

These options should not normally need to be set or changed. Click **Apply/Save** to save the new LAN configuration settings.

## IPv6 Autoconfig

The IPv6 LAN Auto Configuration page allows you to configure settings pertaining to the IPv6 service.

**IPv6 LAN Auto Configuration**  
 Note:  
 1: Stateful DHCPv6 is supported based on the assumption of prefix length less than 64. Interface ID does NOT support ZERO COMPRESSION '::'. Please enter the complete information. For example: Please enter '0:0:0:2' instead of '::2'.  
 2: Unique local address must start with "fd". The prefix and the address must be in same network and the prefix length must be 64.  
☒ Enable ULA Prefix Advertisement  
☐ Randomly Generate  
☐ Statically Configure  
 Interface Address (prefix length is required):  (e.g: fd80::/64)  
 Prefix:   
 Preferred Life Time (hour):   
 Valid Life Time (hour):   
**IPv6 LAN Applications**  
☐ Enable DHCPv6 Server  
☒ Enable RADVD  
☒ Enable MLD Snooping  
☐ Standard Mode  
☒ Blocking Mode  
 Enable MLD LAN to LAN Multicast: Enable ▾  
 (LAN to LAN Multicast is enabled until the first WAN service is connected, regardless of this setting.)  
☒ Enable Relay  
 DHCPv6 Server IP Address:   
 Selected WAN Interface: Default ▾  
 Hop limit:   
Save/Apply

Figure 42 – IPv6 LAN Auto Configuration page

Option	Definition
<b>Enable Unique Local Addresses and Prefix Advertisement</b>	Enable the use of unique local addresses. The router will advertise the IPv6 /64 prefix to new devices on the network.
<b>Randomly Generate</b>	Randomly generates the unique local addresses and the prefix.
<b>Statically Configure</b>	Enter a static IPv6 address for the router if one has been assigned to you by your Internet Service Provider (ISP).
<b>IPv6 LAN Applications</b>	Enable IPv6 DHCP server

Option	Definition
<b>Enable DHCPv6 Server or RADVD</b>	<p>The Router Advertisement Daemon (radvd) is an open-source software product that implements link-local advertisements of IPv6 router addresses and IPv6 routing prefixes using the Neighbour Discovery Protocol (NDP) as specified in RFC 2461. The Router Advertisement Daemon is used by system administrators in stateless auto-configuration methods of network hosts on Internet Protocol version 6 networks.</p> <p>When IPv6 hosts configure their network interfaces, they broadcast router solicitation (RS) requests onto the network to discover available routers. The radvd software answers requests with router advertisement (RA) messages. In addition, radvd periodically broadcasts RA packets to the attached link to update network hosts. The router advertisement messages contain the routing prefix used on the link, the link maximum transmission unit (MTU), and the address of the responsible default router.</p>
<b>Stateless</b> (for DHCPv6 Server)	<p>IPv6 hosts can configure themselves automatically when connected to a routed IPv6 network using Internet Control Message Protocol version 6 (ICMPv6) router discovery messages.</p> <p>This type of configuration is suitable for small organizations and individuals. It allows each host to determine its address from the contents of received user advertisements. It makes use of the IEEE EUI-64 standard to define the network ID portion of the address.</p>
<b>Stateful</b> (for DHCPv6 Server)	<p>This configuration requires some human intervention as it makes use of the Dynamic Host Configuration Protocol for IPv6 (DHCPv6) for installation and administration of nodes over a network.</p> <p>The DHCPv6 server maintains a list of nodes and the information about their state to know the availability of each IP address from the range specified by the network administrator.</p>
<b>Enable MLD Snooping</b>	Select whether to enable or disable MLD Snooping on the router. The Multicast Listener Discovery (MLD) snooping function constrains the flooding of IPv6 multicast traffic on LANs on the router.
<b>Enable Relay</b>	When enabled, relays DHCP messages between DHCPv6 clients and DHCPv6 servers on different IPv6 networks.

Table 15 – IPv6 LAN Auto Configuration settings

## LAN VLAN Setting

This page allows you to specify a LAN port to apply VLAN tagging to.

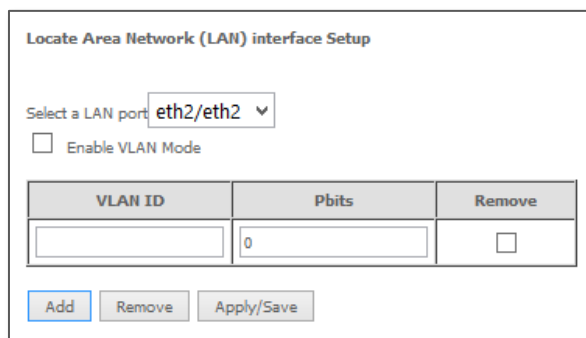


Figure 43 – Specify a LAN port for VLAN tagging

Select the LAN port using the drop down menu, then click the **Add** button. Enter the **VLAN ID** and in the Pbits field, enter a value from 0-7 indicating the priority bits that dictates the priority of the VLAN.

Click **Apply/Save** when you have finished.

## NAT

### Virtual Servers

Virtual Servers (also commonly referred to as port forwarding) allow you to direct incoming traffic from the WAN side to the Internal network host with a private IP address on the LAN side.

**NAT -- Virtual Servers Setup**

Virtual Server allows you to direct incoming traffic from WAN side (identified by Protocol and External port) to the Internal server with private IP address on the LAN side. The Internal port is required only if the external port needs to be converted to a different port number used by the server on the LAN side. A maximum 32 entries can be configured.

Server Name	External Port Start	External Port End	Protocol	Internal Port Start	Internal Port End	Server IP Address	WAN Interface	LAN Loopback	Enable/Disable	Remove
<div> Add Sava/Apply Remove </div>										

Figure 44 – NAT -- Virtual Server list

Click the **Add** button to add a virtual server.

**NAT -- Virtual Servers**

Select the service name, and enter the server IP address and click "Apply/Save" to forward IP packets for this service to the specified server.  
**NOTE:** The "Internal Port End" cannot be modified directly. Normally, it is set to the same value as "External Port End".However, if you modify "Internal Port Start", then "Internal Port End" will be set to the same value as "Internal Port Start".  
Remaining number of entries that can be configured:32

Use Interface: ▼

Service Name:  
☒ Select a Service: Select One ▼  
☐ Custom Service:

☐ Enable LAN Loopback

Server IP Address:

Status: ▼

Apply/Save

External Port Start	External Port End	Protocol	Internal Port Start	Internal Port End
<input type="text"/>	<input type="text"/>	TCP ▼	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	TCP ▼	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	TCP ▼	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	TCP ▼	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	TCP ▼	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	TCP ▼	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	TCP ▼	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	TCP ▼	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	TCP ▼	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	TCP ▼	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	TCP ▼	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	TCP ▼	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	TCP ▼	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	TCP ▼	<input type="text"/>	<input type="text"/>
<input type="text"/>	<input type="text"/>	TCP ▼	<input type="text"/>	<input type="text"/>

Save/Apply

Figure 45 – NAT -- Virtual Server Configuration page

Field	Description
<b>Select a Service or custom Server</b>	Select a pre-configured port forwarding rule or choose custom server to create your own port forwarding rule.
<b>Server IP Address</b>	Enter the IP address of the local server/host.
<b>External Port Start</b>	Enter the starting external port number range (when custom server is selected). When a predefined service is selected this field will be completed automatically.
<b>External Port End</b>	Enter the ending external port number range (when custom server is selected). When a predefined service is selected this field will be completed automatically.
<b>Protocol</b>	Options include: <b>TCP, UDP or TCP/UDP</b>
<b>Internal Port Start</b>	Enter the starting internal port number range (when custom server is selected). When a predefined service is selected this field will be completed automatically.
<b>Internal Port End</b>	Enter the ending internal port number range (when custom server is selected). When a predefined service is selected this field will be completed automatically.

Table 16 – NAT -- Virtual Server settings table

Click **Save/Apply** to save your settings when you have finished creating virtual servers.

## Port Triggering

Some applications require specific ports in the Router's firewall to be open for access by remote parties. Port Triggering opens up the 'Open Ports' in the firewall when an application on the LAN initiates a TCP/UDP connection to a remote party using the 'Triggering Ports'.

The Router allows the remote party from the WAN side to establish new connections back to the application on the LAN side using the 'Open Ports'. A maximum 32 entries can be configured.

This is a list of specific ports in the router's firewall that are open for access by remote parties.

**NAT -- Port Triggering Setup**

Some applications require that specific ports in the Router's firewall be opened for access by the remote parties. Port Trigger dynamically opens up the 'Open Ports' in the firewall when an application on the LAN initiates a TCP/UDP connection to a remote party using the 'Triggering Ports'. The Router allows the remote party from the WAN side to establish new connections back to the application on the LAN side using the 'Open Ports'. A maximum 32 entries can be configured.

**Due to limited resources, port triggering feature has some limitation:**  
sum of the outputs of all configuration entries <= 1000  
sum of the inports of one configuration entry <= 1000

Application Name	Trigger		Open			WAN Interface	Remove	
	Protocol	Port Range		Protocol	Port Range			
		Start	End		Start	End		
Port005	UDP	6801	6801	UDP	6801	6801	eth4.1	<input type="checkbox"/>

Add
Remove

Figure 46 – NAT -- Port Triggering list

Click the **Add** button and configure the port settings from an existing application in the drop-down list or create your own custom application.

**NAT -- Port Triggering**

Some applications such as games, video conferencing, remote access applications and others require that specific ports in the Router's firewall be opened for access by the applications. You can configure the port settings from this screen by selecting an existing application or creating your own (Custom application) and click "Save/Apply" to add it.  
**Remaining number of entries that can be configured:**

Use Interface: ETH WAN/eth4.1 ▼

Application Name:

☐ Select an application: Calista IP Phone ▼

☒ Custom application: CalPort005

Save/Apply

Trigger Port Start	Trigger Port End	Trigger Protocol	Open Port Start	Open Port End	Open Protocol
5190	5190	TCP/UDP ▼	3000	3000	TCP/UDP ▼
		TCP ▼			TCP ▼
		TCP ▼			TCP ▼
		TCP ▼			TCP ▼
		TCP ▼			TCP ▼
		TCP ▼			TCP ▼
		TCP ▼			TCP ▼
		TCP ▼			TCP ▼
		TCP ▼			TCP ▼

Apply/Save

*Figure 47 – NAT -- Port Trigger Configuration page*

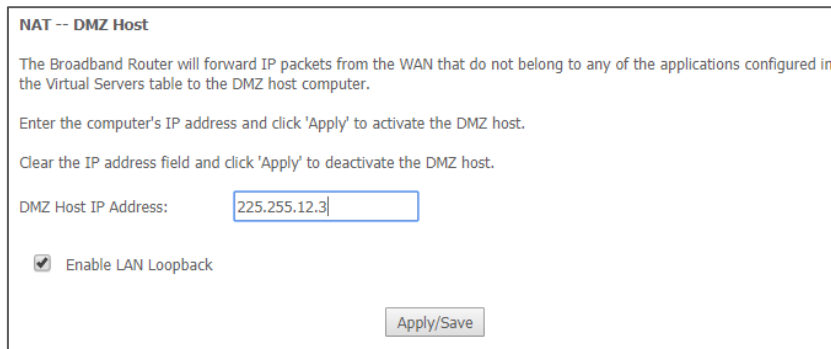
Field	Description
<b>Select an Application or Custom Application</b>	A user can select a pre-configured application from the list or select the Custom Application option to create custom application settings.
<b>Trigger Port Start</b>	Enter the starting trigger port number (when you select Custom Application). When an application is selected the port range values are automatically entered.
<b>Trigger Port End</b>	Enter the ending trigger port number (when you select Custom Application). When an application is selected the port range values are automatically entered.
<b>Trigger Protocol</b>	Options include TCP, UDP or TCP/UDP.
<b>Open Port Start</b>	Enter the starting open port number (when you select Custom Application). When an application is selected the port range values are automatically entered.
<b>Open Port End</b>	Enter the ending open port number (when you select Custom Application). When an application is selected the port range values are automatically entered.
<b>Open Protocol</b>	Options include TCP, UDP or TCP/UDP.

*Table 17 – NAT -- Port Trigger Configuration settings*

## DMZ Host

The NF18ACV will forward IP packets from the Wide Area Network (WAN) that do not belong to any of the applications configured in the Virtual Servers table or being used in the Virtual Server table to the DMZ host.

Enter the **Host's IP address** and click **Apply** to activate the DMZ host. To deactivate the DMZ Host function, clear the IP address field and press the **Save/Apply** button.



**NAT -- DMZ Host**

The Broadband Router will forward IP packets from the WAN that do not belong to any of the applications configured in the Virtual Servers table to the DMZ host computer.

Enter the computer's IP address and click 'Apply' to activate the DMZ host.

Clear the IP address field and click 'Apply' to deactivate the DMZ host.

DMZ Host IP Address:

☒ Enable LAN Loopback

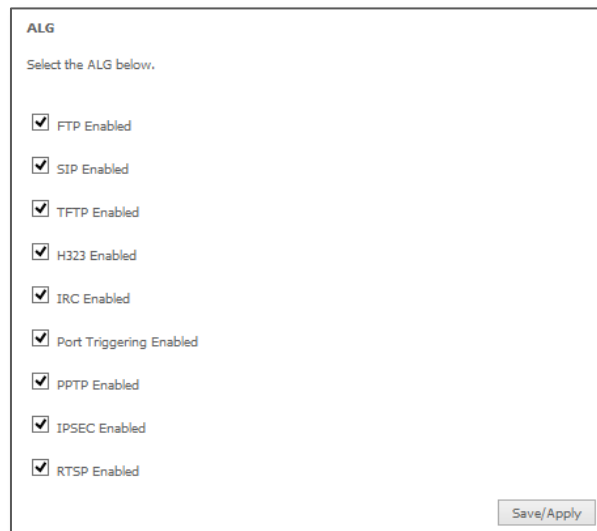
*Figure 48 – NAT – DMZ Host settings*

Note that **LAN Loopback** can also be enabled.

LAN Loopback allows the LAN host to access another LAN host/server via the external IP Address of the router. Without NAT loopback you must use the internal IP address of the device when on the LAN side.

## ALG

The Application Layer Gateway (ALG) is a feature which enables the router to parse application layer packets and support address and port translation for certain protocols. We recommend that you leave these protocols enabled unless you have a specific reason for disabling them.



**ALG**

Select the ALG below.

- ☒ FTP Enabled
- ☒ SIP Enabled
- ☒ TFTP Enabled
- ☒ H323 Enabled
- ☒ IRC Enabled
- ☒ Port Triggering Enabled
- ☒ PPTP Enabled
- ☒ IPSEC Enabled
- ☒ RTSP Enabled

*Figure 49 – NAT – Application Layer Gateway (ALG) settings*

## Security

### IP Filtering

The router supports IP Filtering which allows you to easily set up rules to control incoming and outgoing Internet traffic. The router provides two types of IP filtering: **Outgoing IP Filtering** and **Incoming IP Filtering**

**Outgoing IP Filtering Setup**

By default, all outgoing IP traffic from LAN is allowed, but some IP traffic can be **BLOCKED** by setting up filters.

Choose Add or Remove to configure outgoing IP filters.

Filter Name	IP Version	Protocol	Source IP / Prefix Length	Source Port	Destination IP / Prefix Length	Destination Port	Remove
<div style="text-align: center;"> <input type="button" value="Add"/> <input type="button" value="Remove"/> </div>							

Figure 50 – IP Filtering List

## Outgoing IP Filtering

By default, the router allows all outgoing Internet traffic from the LAN but by setting up Outgoing IP Filtering rules, you can block some users and/or applications from accessing the Internet.

To delete the rule, click ☒ in the **Remove** column next to the selected rule and then click the **Remove** button.

To create a new outgoing IP filter, click **Add**. The Add IP Filter-Outgoing page will be displayed.

**Add IP Filter -- Outgoing**

The screen allows you to create a filter rule to identify outgoing IP traffic by specifying a new filter name and at least one condition below. All of the specified conditions in this filter rule must be satisfied for the rule to take effect. Click 'Apply/Save' to save and activate the filter.

Filter Name:

IP Version:

Protocol:

Source IP address[/prefix length]:

Source Port (port or port:port):

Destination IP address[/prefix length]:

Destination Port (port or port:port):

Figure 51 –Outgoing IP Filter settings

Parameter	Definition
<b>Filter Name</b>	Enter a name to identify the filtering rule.
<b>IP Version</b>	Select the IP version to apply the filter to. (IPv4/IPv6)
<b>Protocol</b>	Select the protocol type to block(UDP/TCP/Both)
<b>Source IP Address/Subnet Mask</b>	Enter the IP Address of the host on the LAN to block
<b>Source Port</b>	Enter the port number used by the application to block
<b>Destination IP Address/Subnet Mask</b>	Enter the IP Address of the Remote Server/host to which connections should be blocked
<b>Destination Port</b>	Enter the destination port number used by the application to block

Table 18 – Outgoing IP Filter settings table

Click **Apply/Save** to take effect the settings. The new rule will then be displayed in the Outgoing IP Filtering table list.

## Incoming IP Filtering

By default, when NAT is enabled, all incoming IP traffic from WAN is blocked except for responses to requests from the LAN. However, some specific incoming traffic from the Internet can be accepted by setting up Incoming IP Filtering rules.

To delete the rule, click ☒ in the **Remove** column next to the selected rule and click the **Remove** button.

To create a new incoming IP filter, click **Add**. The Add IP Filter-Incoming page will be displayed.

### Add IP Filter -- Incoming

The screen allows you to create a filter rule to identify incoming IP traffic by specifying a new filter name and at least one condition below. All of the specified conditions in this filter rule must be satisfied for the rule to take effect. Click 'Apply/Save' to save and activate the filter.

Filter Name:

IP Version:

Protocol:

Source IP address[/prefix length]:

Source Port (port or port:port):

Destination IP address[/prefix length]:

Destination Port (port or port:port):

**WAN Interfaces (Configured in Routing mode and with firewall enabled) and LAN Interfaces**  
Select one or more WAN/LAN interfaces displayed below to apply this rule.

☒ Select All
 ☒ Great/ipoa0
 ☒ ETH WAN/eth4.1
 ☒ VDSL/ppp0.1
 ☒ br0/br0

Figure 52 – Incoming IP Filter settings

Enter the following parameters:

Parameter	Definition
<b>Filter Name</b>	Enter a name to identify the filtering rule
<b>IP Version</b>	Select the IP version to apply the filter to
<b>Protocol</b>	Select the protocol type to allow
<b>Source IP Address/ Subnet Mask</b>	Enter the IP Address of the Remote Server/Host from which to allow connections
<b>Source Port</b>	Enter the port number used by the application to allow
<b>Destination IP Address/Subnet Mask</b>	Enter the IP Address of the Host on the LAN to which connections should be allowed
<b>Destination Port</b>	Enter the destination port number used by the application to allow
<b>WAN Interface</b>	Select the WAN Interface to apply the filter to

Table 19 – Incoming IP Filter settings table

Click **Save/Apply** to take effect the settings. The new rule will then be displayed in the Incoming IP Filtering table list.

## MAC Filtering

The NF18ACV offers the ability to use MAC Address filtering on ATM PVCs. You can elect to block or allow connections based on MAC Address criteria. The default policy is to allow all connections.

### MAC Filtering Setup

MAC Filtering is only effective on ATM PVCs configured in Bridge mode. **FORWARDED** means that all MAC layer frames will be **FORWARDED** except those matching with any of the specified rules in the following table. **BLOCKED** means that all MAC layer frames will be **BLOCKED** except those matching with any of the specified rules in the following table.

MAC Filtering Policy For Each Interface (maximum 32 entries):  
**WARNING: Changing from one policy to another of an interface will cause all defined rules for that interface to be REMOVED AUTOMATICALLY! You will need to create new rules for the new policy.**

Interface	Policy	Change
ptm0.2	<b>BLOCKED</b>	<input type="checkbox"/>

Choose Add or Remove to configure MAC filtering rules.

Interface	Protocol	Destination MAC	Source MAC	Frame Direction	Remove
ptm0.2	PPPoE	1a:11:21:c2:c3:aa	1a:23:24:c2:c3:11	BOTH	<input type="checkbox"/>

Figure 53 – Security – MAC Filter list

Click **Add** to enter a new MAC Address filter.

### Add MAC Filter

Create a filter to identify the MAC layer frames by specifying at least one condition below. If multiple conditions are specified, all of them take effect. Click 'Apply' to save and activate the filter.

Protocol Type:

Destination MAC Address:

Source MAC Address:

Frame Direction:

WAN Interfaces (Configured in Bridge mode only)

Figure 54 – Security – MAC Filter settings

- 1 Enter the **Protocol type** to which the filter should apply.
- 2 Enter the **Source** and **Destination MAC Address**
- 3 Enter the **Frame Direction** of the traffic to filter
- 4 Select the **WAN interface** to which the filter should apply.

Click **Apply/Save** to save the new MAC filtering configuration.

## Parental Control

The Parental Control feature allows you to take advanced measures to ensure the computers connected to the LAN are used only when and how you decide.

### Time Restriction

This Parental Control function allows you to restrict access from a Local Area Network (LAN) connected device to an outside network through the router on selected days and at certain times. Make sure to activate the Internet Time server synchronization as described in the SNTP section, so that the scheduled times match your local time.

**Access Time Restriction -- A maximum 16 entries can be configured.**

Rule Name	MAC	Mon	Tue	Wed	Thu	Fri	Sat	Sun	Start	Stop	Remove
AfterSchool	ec:08:6b:02:aa:0a	x	x	x	x	x			13:00	20:00	<input type="checkbox"/>
DaytimeSatSun	ec:08:6b:02:aa:0a						x	x	09:00	16:30	<input type="checkbox"/>

Figure 55 – Advanced – Parental Control – Time Restriction

To add a time restriction rule, press the **Add** button. The following screen appears.

**Access Time Restriction**

This page adds time of day restriction to a special LAN device connected to the Router. The 'Browser's MAC Address' automatically displays the MAC address of the LAN device where the browser is running. To restrict other LAN devices, click the 'Other MAC Address' button and enter the MAC address of the other LAN devices. To find out the MAC address of a Windows based PC, go to command window and type 'ipconfig /all'.

Rule Name

☒ Browser's MAC Address 
  
☐ Other MAC Address 
  
(xx:xx:xx:xx:xx:xx)

Days of the week

	Mon	Tue	Wed	Thu	Fri	Sat	Sun
Click to select	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Start Blocking Time (hh:mm)

End Blocking Time (hh:mm)

Figure 56 – Advanced – Parental Control – Add Time Restriction

Field	Description
<b>Rule Name</b>	A user defined name for the time restriction rule.
<b>Browser's MAC Address</b>	The MAC address of the network card of the computer running the browser.
<b>Other MAC Address</b>	The MAC address of another LAN device or network card.
<b>Days of the Week</b>	The days of the week for which the rules apply.
<b>Start Blocking Time</b>	The time of day when the restriction starts. (24 hour time: 00:00–23:59)
<b>End blocking time</b>	The time of day when the restriction ends. (24 hour time: 00:00–23:59)
<b>Apply/Save button</b>	Press the <b>Apply/Save</b> button to save a time restriction rule.

Table 20 – Advanced – Parental Control – Add Time Restriction Settings

## URL Filter

With the URL filter, you are able to add certain websites or URLs to a safe or blocked list. This will provide you added security to ensure any website you deem unsuitable will not be able to be seen by anyone who is accessing the Internet via the NF18ACV.

Select the **Black List** (to block) or **White List** (to allow) option and then click **Add** to enter the URL you wish to add to the URL Filter list. Please note that the Black List/White list function will not work on sites that use the HTTPS protocol.

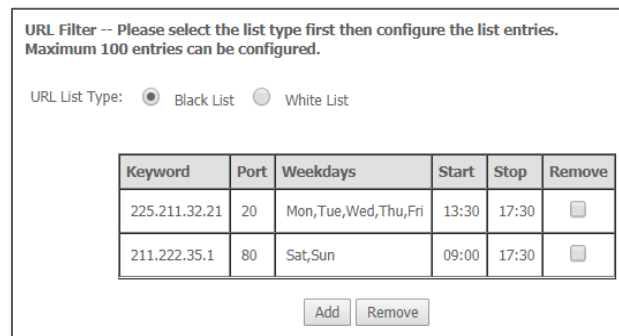


Figure 57 – Advanced – Parental Control – URL Filter

Once you have chosen to add a URL to the list you will be prompted to enter the address. Simply type it in and select the **Apply/Save** button.

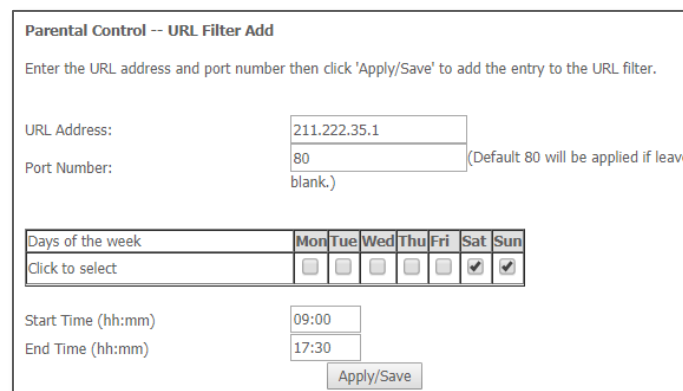


Figure 58 – Advanced – Parental Control – Add URL Filter

Field	Description
<b>URL Address</b>	The URL address of the device you want to black list or white list.
<b>Port Number</b>	The Port Number (Default is 80).
<b>Days of the Week</b>	The days of the week for which the rules apply.
<b>Start Time</b>	The time of day when the restriction starts. (24 hour time: 00:00–23:59)
<b>End time</b>	The time of day when the restriction ends. (24 hour time: 00:00–23:59)
<b>Apply/Save button</b>	Press the <b>Apply/Save</b> button to save a time restriction rule.

Table 21 – Advanced – Parental Control – Add URL Restriction Settings

## Quality of Service

Quality of Service offers a defined level of performance in a data communications system - for example the ability to guarantee that video traffic is given priority over other network traffic to ensure that video streaming is not disrupted by other network traffic. This means that if you are streaming video and someone else in the house starts downloading a large file, the download won't disrupt the flow of video traffic.

**QoS -- Queue Management Configuration**  

If Enable QoS checkbox is selected, choose a default DSCP mark to automatically mark incoming traffic without reference to a particular classifier. Click 'Apply/Save' button to save it.

**Note:** If Enable QoS checkbox is not selected, all QoS will be disabled for all interfaces.

**Note:** The default DSCP mark is used to mark all egress packets that do not match any classification rules.

☒ Enable QoS

Select Default DSCP Mark: No Change(-1)

Apply/Save

Figure 59 – Advanced – Enable QoS

To enable QoS select the **Enable QoS** checkbox, and set the **Default DSCP (Differentiated Services Code Point) Mark**. Then press the **Apply/Save** button.

## QoS Queue

**QoS Queue Setup**  

In ATM mode, maximum 16 queues can be configured.  
 In PTM mode, maximum 8 queues can be configured.  
 For each Ethernet interface, maximum 4 queues can be configured.  
 For each Ethernet WAN interface, maximum 8 queues can be configured.  
 To add a queue, click the **Add** button.  
 To remove queues, check their remove-checkboxes, then click the **Remove** button.  
 The **Enable** button will scan through every queues in the table. Queues with enable-checkbox checked will be enabled. Queues with enable-checkbox un-checked will be disabled.  
 The enable-checkbox also shows status of the queue after page reload.

Name	Key	Interface	Qid	Prec/Alg/Wght	DSL Latency	PTM Priority	Shaping Rate(bps)	Min Bit Rate(bps)	Burst Size(bytes)	Enable	Remove
Default Queue	65	ipoa0	1	8/WFQ/1	Path0					<input checked="" type="checkbox"/>	
Default Queue	66	ptm0	1	8/WRR/1	Path0	Low				<input checked="" type="checkbox"/>	

Add Enable Remove

Figure 60 – Advanced – QoS Queue Setup

Click the **Add** button to add a QoS Queue. The following screen is displayed.

**QoS Queue Configuration**

This screen allows you to configure a QoS queue and assign it to a specific layer2 interface. The scheduler algorithm is defined by the layer2 interface.

Name:

Enable: Enable ▼

Interface: eth1(wan) ▼

Queue Precedence: 1(SP) ▼ (lower value, higher priority)

- The precedence list shows the scheduler algorithm configured at each precedence level.
- Note that precedence level with SP scheduler may have only one queue.
- precedence level with WRR/WFQ scheduler may have multiple queues.

Apply/Save

*Figure 61 – Advanced – QoS – Add QoS Queue*

The above screen allows you to configure a QoS queue entry and assign it to a specific network interface. Each of the queues can be configured for a specific precedence. The queue entry configured here will be used by the classifier to place ingress packets appropriately.



**Note** – Precedence level 1 relates to higher priority while precedence level 3 relates to lower priority.

## WLAN Queue

The **QoS WLAN Queue** page displays a summary of the QoS configuration.

**QoS Wlan Queue Setup**

Note: If WMM function is disabled in Wireless Page, queues related to wireless will not take effects.

Name	Key	Interface	Qid	Prec/Alg/Wght	Enable
WMM Voice Priority	1	wl0	8	1/SP	Enabled
WMM Voice Priority	2	wl0	7	2/SP	Enabled
WMM Video Priority	3	wl0	6	3/SP	Enabled
WMM Video Priority	4	wl0	5	4/SP	Enabled
WMM Best Effort	5	wl0	4	5/SP	Enabled
WMM Background	6	wl0	3	6/SP	Enabled
WMM Background	7	wl0	2	7/SP	Enabled
WMM Best Effort	8	wl0	1	8/SP	Enabled

*Figure 62 – Advanced – QoS – WLAN Queue*

## QoS Classification

**QoS Classification Setup** -- A maximum 32 entries can be configured.

To add a rule, click the **Add** button.  
 To remove rules, check their remove-checkboxes, then click the **Remove** button.  
 The **Enable** button will scan through every rules in the table. Rules with enable-checkbox checked will be enabled. Rules with enable-checkbox un-checked will be disabled.  
 The enable-checkbox also shows status of the rule after page reload.  
 If you disable WMM function in Wireless Page, classification related to wireless will not take effects

CLASSIFICATION CRITERIA																			CLASSIFICATION RESULTS					
Class Name	Order	Class Interface	Ethernet Type	Source MAC/ Mask	Destination MAC/ Mask	Source IP/ Prefix Length	Destination	Min/Max/ IpLength	Protocol	Source Port	Destination	DSCP Check	802.1P Check	TC Check	Queue Key	DSCP Mark	802.1P Mark	TC Mark	Rate Limit(kbps)	Enable	Remove			
																					<input type="button" value="Add"/>	<input type="button" value="Enable"/>	<input type="button" value="Remove"/>	

Figure 63 – Advanced – QoS Classification list

Click the **Add** button to configure network traffic classes.

**Add Network Traffic Class Rule**

This screen creates a traffic class rule to classify the ingress traffic into a priority queue and optionally mark the DSCP or Ethernet priority of the packet. Click 'Apply/Save' to save and activate the rule.

Traffic Class Name:

Rule Order:

Rule Status:

**Specify Classification Criteria** A blank criterion indicates it is not used for classification.

Ingress Interface:

Ether Type:

Source MAC Address:

Source MAC Mask:

Destination MAC Address:

Destination MAC Mask:

**Specify Classification Results** (A blank value indicates no operation.)

Specify Egress Interface (Required):

Specify Egress Queue (Required):

- Packets classified into a queue that exit through an interface for which the queue is not specified to exist, will instead egress to the default queue on the interface.

Mark 802.1p priority:

- Class non-vlan packets egress to a non-vlan interface will be tagged with VID 0 and the class rule p-bits.  
 - Class vlan packets egress to a non-vlan interface will have the packet p-bits re-marked by the class rule p-bits. No additional vlan tag is added.  
 - Class non-vlan packets egress to a vlan interface will be tagged with the interface VID and the class rule p-bits.  
 - Class vlan packets egress to a vlan interface will be additionally tagged with the packet VID, and the class rule p-bits.

Set Rate Limit(kbps):  [Kbits/s]

Figure 64 – Advanced – QoS – Network Traffic Class settings

The above screen creates a traffic class rule to classify the upstream traffic, assign queuing priority and optionally overwrite the IP header TOS (type of service) byte. A rule consists of a class name and at least one condition. All of the specified conditions in this classification rule must be satisfied for the rule to take effect.

Click the **Apply/Save** button to save and activate the rule.

## QoS Port Shaping

Port Shaping allows the limiting of continuous network speed without affecting burst traffic. For example, when your browser loads a web page, this is a type burst traffic as the browser aims to fetch small amounts of data quickly and then leaves the connection idle. Limiting port speed alone will affect the speed at which web pages are loaded, causing users to feel that their overall internet connection speed is slow.

By configuring QoS Port Shaping with a Burst size, web pages are allowed to load using the burst speed, while continuous traffic such as file downloads will be shaped at a lower rate.

To identify the best way to configure shaping rate and burst size, consider the equation below:

$$\text{Time window} = \text{Burst size} / \text{rate}$$

For example, if a 200 Mbps bandwidth limit is configured with a 5 ms burst window, the calculation becomes 200 Mbps x 5 ms = 125 Kbytes, which is approximately eighty-three (83) 1500-byte packets. If the 200 Mbps bandwidth limit is configured on a Gigabit Ethernet interface, the burst duration is 125000 bytes / 1 Gbps = 1 ms at the Gigabit Ethernet line rate.

After 1ms of burst data at full gigabit speed, the speed is shaped to 200Mbps.

**QoS Port Shaping Setup**

QoS port shaping supports traffic shaping of Ethernet interface.  
If Shaping Rate is set to -1, it means no shaping and Burst Size will be ignored.

Interface	Type	Shaping Rate (Kbps)	Burst Size (bytes)
eth4	WAN	<input type="text" value="-1"/>	<input type="text" value="0"/>
eth0	LAN	<input type="text" value="-1"/>	<input type="text" value="0"/>
eth1	LAN	<input type="text" value="-1"/>	<input type="text" value="0"/>
eth2	LAN	<input type="text" value="-1"/>	<input type="text" value="0"/>
eth3	LAN	<input type="text" value="-1"/>	<input type="text" value="0"/>

Figure 65 – QoS Port Shaping settings

Item	Description
<b>Interface</b>	Identifies the interface type.
<b>Type</b>	Identifies the connection type.
<b>Shaping Rate</b>	The speed you would limit the port to in Kbps (Kilobits per second) after the burst size.
<b>Burst Size</b>	Burst size should be more than 10x MTU (>=15000 bytes)
<b>Apply/Save button</b>	Click to save and apply your changes

Figure 66 – Advanced – QoS – Port Shaping settings



**Note:** 1 byte = 8 bits

## Routing

The Default Gateway, Static Route, Policy Routing and Dynamic Route settings can be found in the Routing option of the Advanced menu.

### Default Gateway

Select your preferred WAN interface from the available options.

Use the arrow buttons to move the available Routed WAN Interfaces listed on the right to the group of required **Default Gateway Interfaces** in the list on the left.

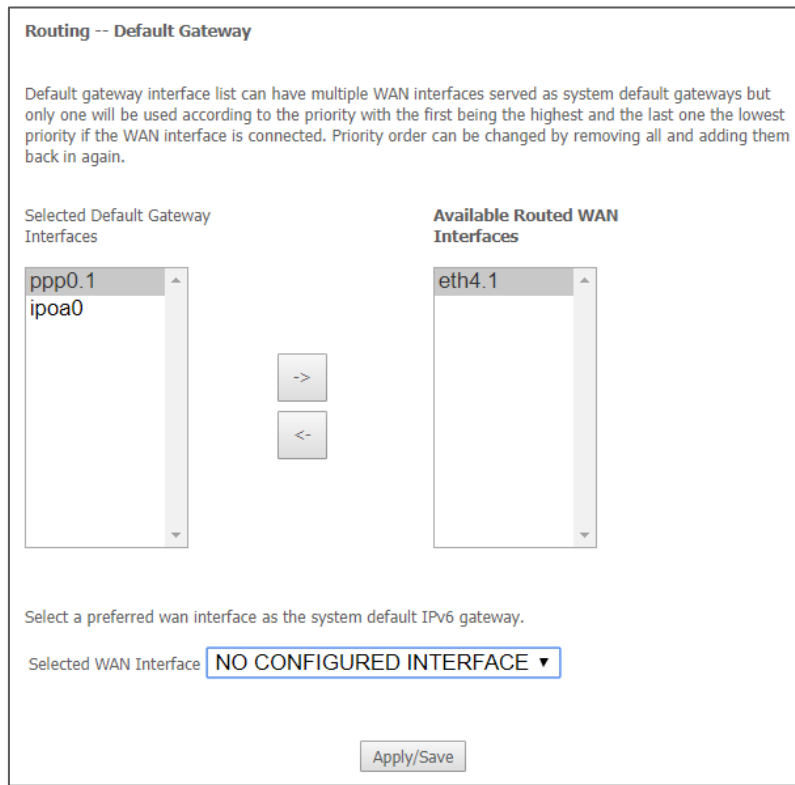


Figure 67 – Routing – Set Default Gateway

Use the arrow buttons to move the interfaces required as DNS Server interfaces to the left.

The interface highest on the list has the highest priority as a DNS server.

Click **Apply/Save** to commit your settings to the router.

## Static Route

The Static Route screen displays the configured static routes. Click the **Add** or **Remove** buttons to change settings.

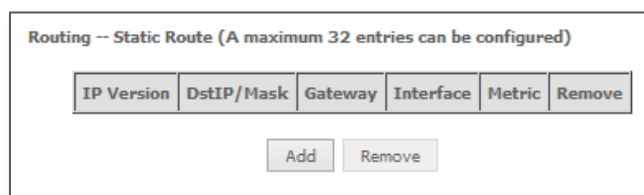
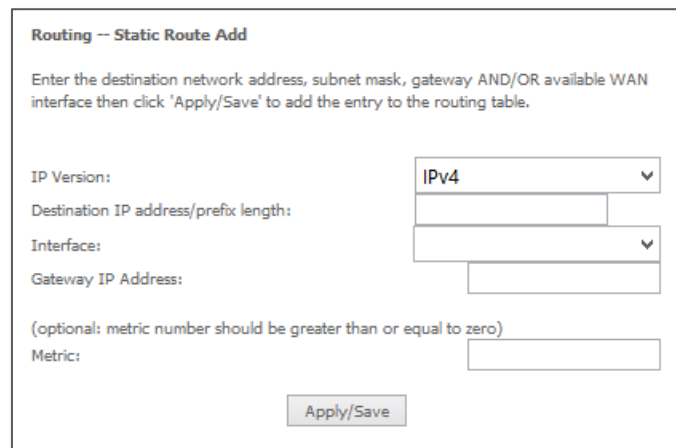


Figure 68 – Routing – Static Route list

To add a static route rule click the **Add** button. The following screen is displayed.



**Routing -- Static Route Add**

Enter the destination network address, subnet mask, gateway AND/OR available WAN interface then click 'Apply/Save' to add the entry to the routing table.

IP Version:

Destination IP address/prefix length:

Interface:

Gateway IP Address:

(optional: metric number should be greater than or equal to zero)

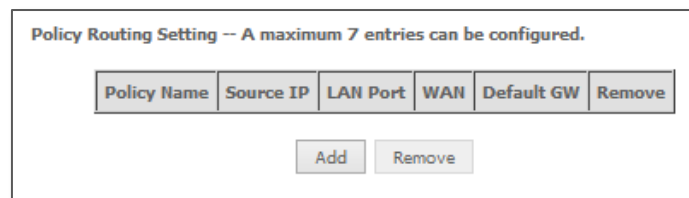
Metric:

Figure 69 – Routing – Static Route configuration

Select the **IP Version**, enter the **Destination Network Address**, select an **Interface**, and enter the **Gateway IP Address**. Optionally enter a number in the Metric field to set a priority for this route, the lower the number the higher the priority. Then click **Apply/Save** to add the entry to the routing table.

## Policy Routing

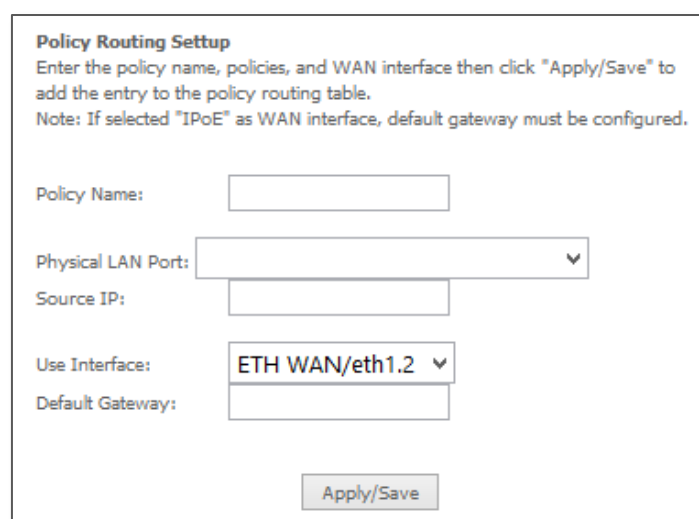
This function allows you to add policy rules to certain situations.



Policy Name	Source IP	LAN Port	WAN	Default GW	Remove
<div> <input type="button" value="Add"/> <input type="button" value="Remove"/> </div>					

Figure 70 – Routing – Policy Routing list

Click the **Add** button to add a policy rule. The following screen is displayed.



**Policy Routing Setup**

Enter the policy name, policies, and WAN interface then click "Apply/Save" to add the entry to the policy routing table.

Note: If selected "IPoE" as WAN interface, default gateway must be configured.

Policy Name:

Physical LAN Port:

Source IP:

Use Interface:

Default Gateway:

Figure 71 – Advanced – Routing – Policy Route configuration

Enter the details into the provided fields. The table below describes each field.

Field	Description
<b>Policy Name</b>	A user defined name for the policy route.
<b>Physical LAN Port</b>	The LAN port to be used for the policy.
<b>Source IP</b>	The IP address of the LAN device involved with the policy.
<b>Use Interface</b>	Select the Interface that the policy will employ.
<b>Default Gateway</b>	Enter the gateway address.

*Table 22 – Routing – Policy Route settings table*

## RIP

The Routing Information Protocol (RIP) allows routers to exchange network topology information. This information allows the automatic creation and updating of routing tables.

**Attention** – RIP cannot be selected for a WAN interface which is NAT enabled, such as PPPoE.



Go to **Basic Setup** and select **Ethernet WAN**, click **Next** and then select **IP over Ethernet (IPoE)**. The RIP option will now be available.

Routing -- RIP Configuration

**NOTE: RIP CANNOT BE CONFIGURED on the WAN interface which has NAT enabled (such as PPPoE).**

To activate RIP for the WAN Interface, select the desired RIP version and operation and place a check in the 'Enabled' checkbox. To stop RIP on the WAN Interface, uncheck the 'Enabled' checkbox. Click the 'Apply/Save' button to star/stop RIP and save the configuration.

Interface	Version	Operation	Enabled
ptm0.1	Both ▼	Passive ▼	<input checked="" type="checkbox"/>
eth4.1	Both ▼	Active ▼	<input checked="" type="checkbox"/>

Apply/Save

*Figure 72 – Routing – RIP list*

Item	Description
<b>Interface</b>	The network interface that the <b>RIP</b> settings apply to.
<b>Version</b>	<b>1</b> – Use RIPv1 to support classful routing. <b>2</b> – Use RIPv2 to support subnet information gathering and Classless Inter-Domain Routing. <b>Both</b> – RIP will use both RIPv1 & RIPv2, and will multicast and broadcast to all adjacent routers.
<b>Operation</b>	<b>Passive</b> – RIP will only respond to “Request Message” queries on the RIP enabled interface. <b>Active</b> – RIP will broadcast and respond to “Request Message” queries on the RIP enabled interface.
<b>Enabled</b>	Select <input checked="" type="checkbox"/> <b>Enabled</b> to activate the RIP routing service on the selected <b>Interface</b> .
<b>Apply/Save button</b>	Click the <b>Apply/Save</b> button to initiate the change.

*Table 23 – Routing – RIP settings*

## DNS

### DNS Server Configuration

A DNS server is a server that contains a database of hostnames and their associated public IP addresses.

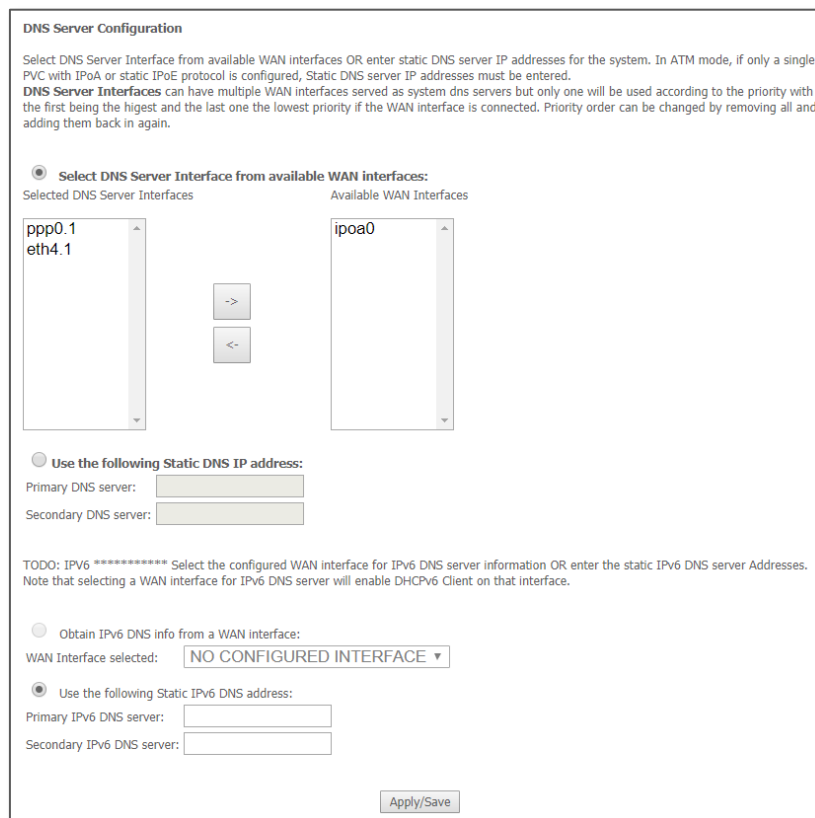
This server is used to resolve hostnames to a unique public IP address when requested.

When a user enters a URL e.g. [www.netcommwireless.com](http://www.netcommwireless.com) into their browser, your router is contacting the DNS server and requesting the webserver IP address.

Hostname URLs are easier for humans to understand and remember than IP address numbers. A host's IP addresses can change from time to time hence a DNS server is required to locate and translate a hostname.

DNS Servers can be used to block unwanted content, such as explicit material. By using a filtered DNS server, the hostname of these materials will not be resolved, allowing parental control to accessible content.

Parental Control DNS are available as a free service or customizable paid service. For example: OpenDNS FamilyShield, Norton ConnectSafe, Yandex.DNS, Comodo Secured, etc.



**DNS Server Configuration**

Select DNS Server Interface from available WAN interfaces OR enter static DNS server IP addresses for the system. In ATM mode, if only a single PVC with IPoA or static IPoE protocol is configured, Static DNS server IP addresses must be entered.

**DNS Server Interfaces** can have multiple WAN interfaces served as system dns servers but only one will be used according to the priority with the first being the highest and the last one the lowest priority if the WAN interface is connected. Priority order can be changed by removing all and adding them back in again.

☒ **Select DNS Server Interface from available WAN interfaces:**

Selected DNS Server Interfaces: ppp0.1, eth4.1

Available WAN Interfaces: ipoa0

☐ **Use the following Static DNS IP address:**

Primary DNS server:

Secondary DNS server:

TODD: IPv6 \*\*\*\*\* Select the configured WAN interface for IPv6 DNS server information OR enter the static IPv6 DNS server Addresses. Note that selecting a WAN interface for IPv6 DNS server will enable DHCPv6 Client on that interface.

☐ **Obtain IPv6 DNS info from a WAN interface:**

WAN Interface selected: NO CONFIGURED INTERFACE

☒ **Use the following Static IPv6 DNS address:**

Primary IPv6 DNS server:

Secondary IPv6 DNS server:

Apply/Save

Figure 73 – DNS Server Configuration

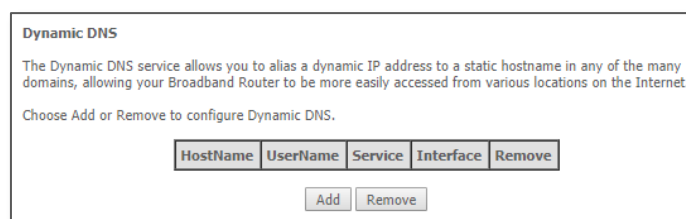
Field	Description
<b>DNS server via interface</b>	Use DNS server provided from your ISP automatically from the assigned interface.  Use the arrow to select the WAN interface to request DNS server, with the first being the highest priority.
<b>Static DNS IP Address</b>	Specify your own Primary and Secondary DNS server.

Field	Description
<b>IPv6 DNS info from WAN interface</b>	Use IPv6 DNS server provided from your ISP automatically from the assigned interface.
<b>Static IPv6 DNS IP Address</b>	Specify your own Primary and Secondary IPv6 DNS server.
<b>Apply/Save Button</b>	Click the <b>Apply/Save</b> button to initiate the change.

*Table 24 – Routing – RIP settings*

## Dynamic DNS

When you have an Internet plan that provides a dynamic IP address, that is, an address which is dynamically assigned and changes each time you connect, an easy way to provide a permanent address is to use a Dynamic DNS service. There are both free and paid DDNS services available.



**Dynamic DNS**

The Dynamic DNS service allows you to alias a dynamic IP address to a static hostname in any of the many domains, allowing your Broadband Router to be more easily accessed from various locations on the Internet.

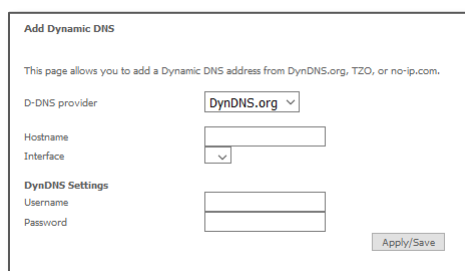
Choose Add or Remove to configure Dynamic DNS.

HostName	UserName	Service	Interface	Remove
<div> <input type="button" value="Add"/> <input type="button" value="Remove"/> </div>				

*Figure 74 – Dynamic DNS list*

To add a new Dynamic DNS profile, click the **Add** button. The Add Dynamic DNS screen is displayed.

- 1 From the D-DNS provider drop down list, select your Dynamic DNS provider.
- 2 In the **Hostname** field, enter the dynamic DNS hostname.
- 3 Use the **Interface** drop down list to select the interface that the service should operate on.
- 4 Enter the username and password for your dynamic DNS account.
- 5 Click **Apply/Save**.



**Add Dynamic DNS**

This page allows you to add a Dynamic DNS address from DynDNS.org, TZO, or no-ip.com.

D-DNS provider:

Hostname:

Interface:

DynDNS Settings

Username:

Password:

*Figure 75 – Add Dynamic DNS*

## DSL

This page allows you to modify the DSL modulation settings on the unit. By changing the settings, you can specify which DSL modulation that the modem will use.

Not all modulation types are support by your local DSLAM equipment, check with your ISP for supported modulation types.

### DSL Settings

Select the modulation below.

☒ G.Dmt Enabled
 ☒ 8a Enabled

☒ G.lite Enabled
 ☒ 8b Enabled

☒ T1.413 Enabled
 ☒ 8c Enabled

☒ ADSL2 Enabled
 ☒ 8d Enabled

☒ AnnexL Enabled
 ☒ 12a Enabled

☒ ADSL2+ Enabled
 ☒ 12b Enabled

☐ AnnexM Enabled
 ☒ 17a Enabled

☒ VDSL2 Enabled

Select the profile below.

☒ 8a Enabled
 ☒ 8b Enabled
 ☒ 8c Enabled
 ☒ 8d Enabled
 ☒ 12a Enabled
 ☒ 12b Enabled
 ☒ 17a Enabled

US0

☒ Enabled

Select the phone line pair below.

☒ Inner pair
 ☐ Outer pair

Capability

☒ Bitswap Enable
 ☒ SRA Enable

Apply/Save

Advanced Settings

Figure 76 – DSL settings page

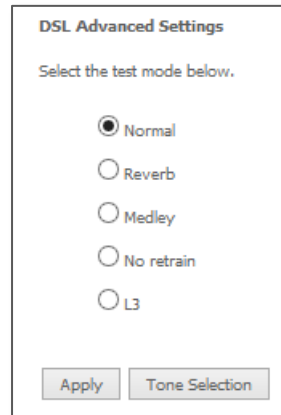
Field	Description
<b>Modulation</b>	A user defined name for the policy route.
<b>Profile</b>	The LAN port to be used for the policy.
<b>USO</b>	The IP address of the LAN device involved with the policy.
<b>Phone line type</b>	Select the Interface that the policy will employ.
<b>Capability</b>	Enter the gateway address.
<b>Apply/Save button</b>	Click the <b>Apply/Save</b> button to initiate the change.
<b>Advanced Settings button</b>	Allow configuration of the Modem state for diagnostic purposes.

Table 25 – DSL settings table

## DSL Advanced settings

For advanced DSL options press the **Advanced Settings** button.

The DSL advanced settings relate to test mode settings. The default selection is **Normal**.



The image shows a dialog box titled "DSL Advanced Settings". Inside, it says "Select the test mode below." and lists five radio button options: "Normal" (which is selected), "Reverb", "Medley", "No retrain", and "L3". At the bottom of the dialog are two buttons: "Apply" and "Tone Selection".

Figure 77 – DSL Advanced Settings page

Field	Description
<b>Normal</b>	Puts the modem in normal operation mode.
<b>Reverb</b>	Puts the modem in a test mode in which it only sends a Reverb signal.
<b>Medley</b>	Puts the modem in a test mode in which it only sends a Medley signal.
<b>No retrain</b>	In this mode, the modem will try to establish a connection as in normal mode, but once the connection is up it will not retrain if the signal is lost.
<b>L3</b>	Puts the modem in the Link state (Idle) at the start of the initialization procedure.
<b>Apply</b> button	Click the <b>Apply</b> button to initiate the change.
<b>Tone Selection</b> button	Allow selection of frequency band for data transfer.

Table 26 – DSL settings table

## ADSL Tone Settings

To alter the ADSL Tone Settings, click the **Tone Selection** button on the *DSL Advanced Settings* page.

The frequency band of ADSL is split up into 256 separate tones, each spaced 4.3125kHz apart. With each tone carrying separate data, the technique operates as if 256 separate routers were running in parallel. The tone range is from 0 to 31 for upstream traffic and from 32 to 255 for downstream traffic.



Figure 78 – ADSL Tone Settings page



**Warning** – Do not change these settings unless you are directed to by your Internet Service Provider.

## UPnP

Universal Plug and Play (UPnP) is a set of networking protocols that can allow networked devices, such as computers, printers, gaming console, WiFi access points and mobile phones to automatically detect each other's presence on the network and establish functional network services for data sharing, communications, and entertainment.

Enable UPnP to allow automatic port forwarding configuration detection for your UPnP devices.

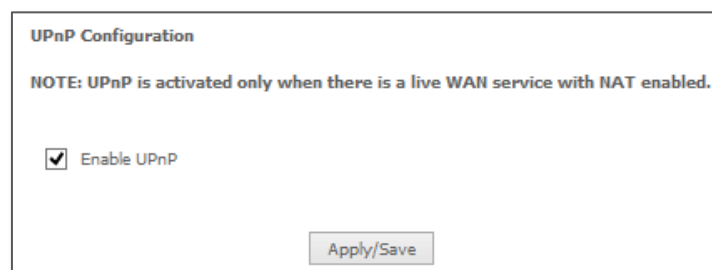


Figure 79 – UPnP activation page

## DNS Proxy

To enable DNS Proxy settings, select ☒ **Enable DNS Proxy** and then enter the **Host name of the Broadband Router** and **Domain name of the LAN network**, as in the example shown below. Click **Apply/Save** to continue.

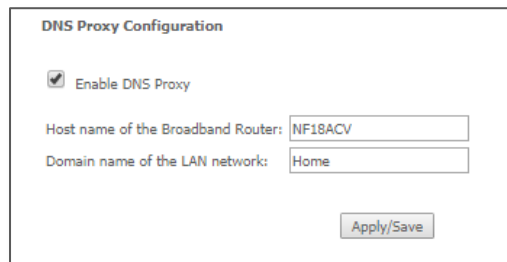


Figure 80 – DNS Proxy activation page

The Host name and Domain name are combined to form a unique label that is mapped to the router IP address. This can be used to access the user interface of the router with a local name rather than by using the router IP address. For example, you can access your router by entering `http://NF18ACV` into your web browser.

## DLNA

The DLNA page allows you to enable or disable and configure the digital media server. This means you can have digital media stored on an external USB hard drive connected to the NF18ACV and the router will make it accessible to other devices on your network.

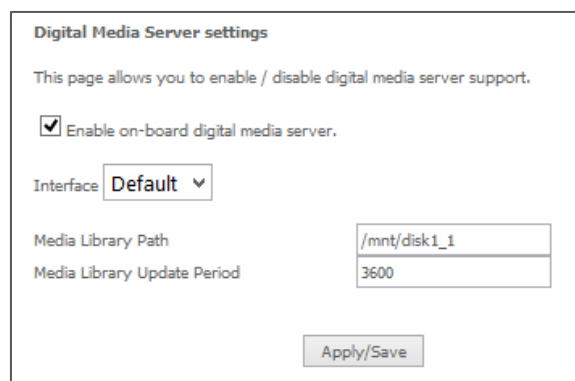


Figure 81 – DLNA setting page

Select ☒ **Enable on-board digital media server** and then use the drop down list to select the **Interface**. In the **Media Library Path** field, enter the path to the media and then enter a period between media library updates in seconds.

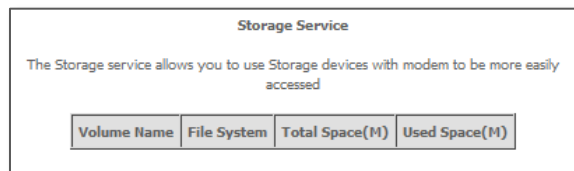
Click the **Apply/Save** button when you have finished.

## Storage Service

The Storage Service options enable you to manage attached USB Storage devices and create accounts to access the data stored on the attached USB device. Please note that the NF18ACV only supports SAMBA version 1.

### Storage Device Info

The storage device info page displays information about the attached USB Storage device.



**Storage Service**

The Storage service allows you to use Storage devices with modem to be more easily accessed

Volume Name	File System	Total Space(M)	Used Space(M)
-------------	-------------	----------------	---------------

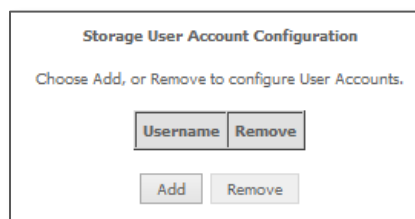
Figure 82 – Storage Device Info list

### User Accounts

User accounts are used to restrict access to the attached USB Storage device.

To delete a User account entry, click the **Remove** checkbox next to the selected account entry and click **Remove**.

Click **Add** to create a user account.



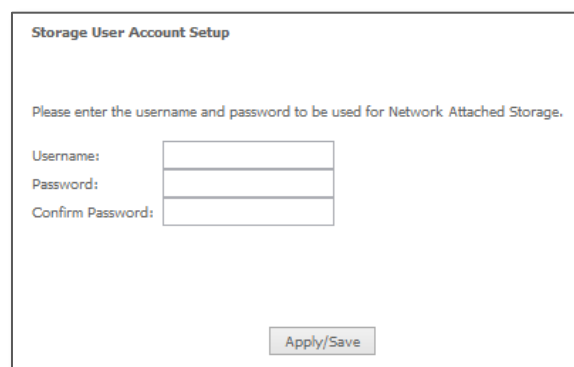
**Storage User Account Configuration**

Choose Add, or Remove to configure User Accounts.

Username	Remove

Figure 83 – Storage User Accounts list

Adding an account allows the creation of specific user accounts with a password to further control access permissions. To add an account, click the **Add** button and then enter the desired username and password for the account.



**Storage User Account Setup**

Please enter the username and password to be used for Network Attached Storage.

Username:

Password:

Confirm Password:

Figure 84 – Storage User Account Setup page

## Interface Grouping

Port Mapping allows you to create groups composed of the various interfaces available in your router. These groups then act as separate networks.

**Interface Grouping -- A maximum 16 entries can be configured**  
  
 Interface Grouping supports multiple ports to PVC and bridging groups. Each group will perform as an independent network. To support this feature, you must create mapping groups with appropriate LAN and WAN interfaces using the Add button. The Remove button will remove the grouping and add the ungrouped interfaces to the Default group. Only the default group has IP interface.

Group Name	Remove	WAN Interface	LAN Interfaces
Default		eth4.1 ptm0.2	eth0.0
			eth1.222
			eth1.786
			eth3.100
			eth3.200
			eth3.789
			wl0/5G
			wl1/2.4G
WorkGroup075	<input checked="" type="checkbox"/>	ppp0.1	eth1.0
			eth2.0
			eth3.0

*Figure 85 – Interface Grouping list*

Click **Add** to create an Interface group, see next section.

To delete an Interface group entry, click the ☒ checkbox next to the selected group entry and click the **Remove** button.

### Interface grouping Configuration

To create a new interface group:

1. Enter the Group name and the group name must be unique and select either 2. (dynamic) or 3. (static) below:
2. Select interfaces from the available interface list and add it to the grouped interface list using the arrow buttons to create the required mapping of the ports. **Note that these clients may obtain public IP addresses**
3. Click Save/Apply button to make the changes effective immediately.

Group Name:

WAN Interface used in the grouping ETH WAN/eth4.1

#### Grouped LAN Interfaces

#### Available LAN Interfaces

eth0.0  
eth1.0  
eth2.0  
eth3.0  
wlan0  
wlan1

->

<-

Figure 86 – Interface Grouping configuration

Enter a group name and then use the arrow buttons to select which interfaces you wish to group. Click **Apply/Save** to save the Interface grouping configuration settings.

## IP Tunnel

The IP Tunnelling feature allows you to configure tunnelling of traffic between IPv6 and IPv4 network using a tunnelling service.

### IPv6inIPv4

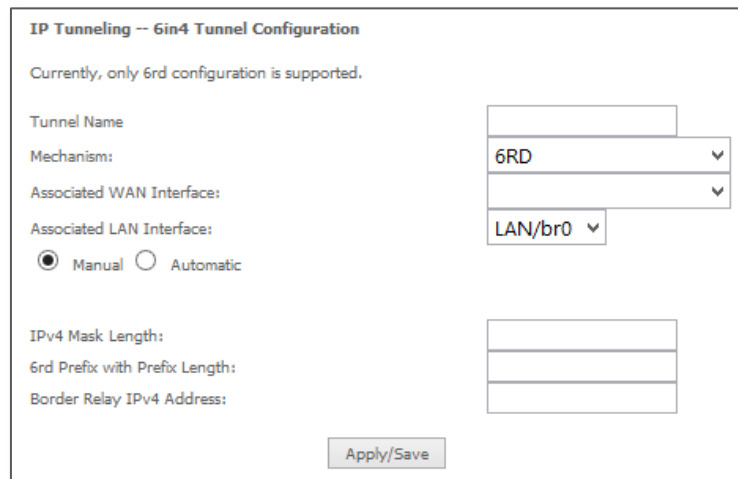
To use IPv6inIPv4 tunnelling service an active subscription to a tunnelling provider are required.

#### IP Tunneling -- 6in4 Tunnel Configuration

Name	WAN	LAN	Dynamic	IPv4 Mask Length	6rd Prefix	Border Relay Address	Remove
<div> <input type="button" value="Add"/> <input type="button" value="Remove"/> </div>							

Figure 87 – IPv6inIPv4 Tunnel list

Click the **Add** button to add a new tunnel.



**IP Tunneling -- 6in4 Tunnel Configuration**

Currently, only 6rd configuration is supported.

Tunnel Name:

Mechanism: **6RD** ▼

Associated WAN Interface:  ▼

Associated LAN Interface: **LAN/br0** ▼

☒ Manual ☐ Automatic

IPv4 Mask Length:

6rd Prefix with Prefix Length:

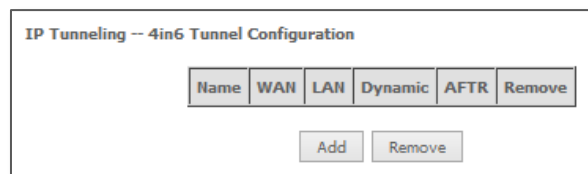
Border Relay IPv4 Address:

**Apply/Save**

Figure 88 – 6in4 Tunnel configuration

## IPv4inIPv6

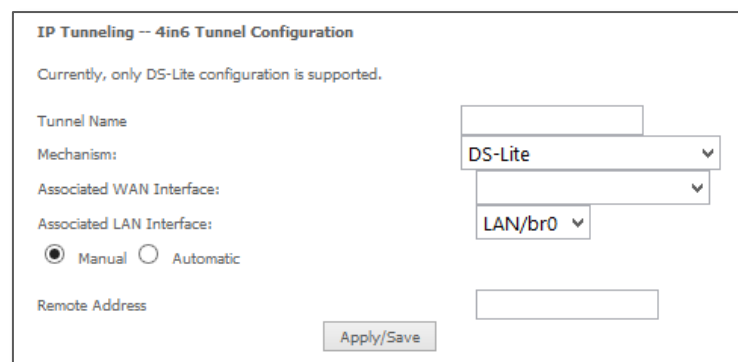
Your ISP must support the DS-Lite IPv4inIPv6 tunnelling service, to enable this feature



Name	WAN	LAN	Dynamic	AFTR	Remove
<div> <div>Add</div> <div>Remove</div> </div>					

Figure 89 – IPv4inIPv6 Tunnel list

Click the **Add** button to add a new tunnel.



**IP Tunneling -- 4in6 Tunnel Configuration**

Currently, only DS-Lite configuration is supported.

Tunnel Name:

Mechanism: **DS-Lite** ▼

Associated WAN Interface:  ▼

Associated LAN Interface: **LAN/br0** ▼

☒ Manual ☐ Automatic

Remote Address:

**Apply/Save**

Figure 90 – 4in6 Tunnel configuration

## Multicast (IGMP Configuration)

The Internet Group Management Protocol (IGMP) is a communications protocol used by hosts and adjacent routers on IP networks to establish multicast group memberships. IGMP is a protocol only used on the network between a host and the router. It allows a host to inform the router whenever that host needs to join or leave a particular multicast group. IGMP provides for more efficient allocation of resources when used with online gaming and video streaming.

Multicast Precedence: Disable lower value, higher priority  
Multicast Strict Grouping Enforcement: Disable

**IGMP Configuration**  
Enter IGMP protocol configuration fields if you want modify default values shown below.

Default Version:   
Query Interval (s):   
Query Response Interval (1/10s):   
Robustness Interval (1/10s):   
Robustness Value:   
Maximum Multicast Groups:   
Maximum Multicast Data Sources (for IGMPv3):   
Maximum Multicast Group Members:   
Fast Leave Enable: ☒

**MLD Configuration**  
Enter MLD protocol (IPv6 Multicast) configuration fields if you want modify default values shown below.

Default Version:   
Query Interval (s):   
Query Response Interval (1/10s):   
Last Member Query Interval (1/10s):   
Robustness Value:   
Maximum Multicast Groups:   
Maximum Multicast Data Sources (for mldv2):   
Maximum Multicast Group Members:   
Fast Leave Enable: ☒

Apply/Save

Figure 91 – Multicast

Field	Definition
<b>Default Version</b>	The version IGMP in use by the router.
<b>Query Interval</b>	The hosts on the segment report their group membership in response to the router's queries. The query interval timer is also used to define the amount of time a router will store particular IGMP state if it does not hear any reports on the group. The query interval is the time in seconds between queries sent from the router to IGMP hosts.
<b>Query Response Interval</b>	When a host receives the query packet, it starts counting to a random value, less the maximum response time. When this time expires, the host replies with a report, provided that no other host has responded yet. This accomplishes two purposes: a) Allows controlling the amount of IGMP reports sent during a time window. b) Engages the report suppression feature, which permits a host to suppress its own report and conserve bandwidth.

Field	Definition
<b>Last Member Query Interval</b>	IGMP uses this value when router hears IGMP Leave report. This means that at least one host wants to leave the group. After router receives the Leave report, it checks that the interface is not configured for IGMP Immediate Leave (single-host on the segment) and if not, it sends out an out-of-sequence query.
<b>Robustness Value</b>	The robustness variable is a way of indicating how susceptible the subnet is to lost packets. IGMP can recover from robustness variable minus 1 lost IGMP packets. You can also click the scroll arrows to select a new setting. The robustness variable should be set to a value of 2 or greater. The default robustness variable value is 2.
<b>Maximum Multicast Groups</b>	The maximum number of multicast groups that the router can control at any one time.
<b>Maximum Multicast Data Sources</b>	The maximum number of data sources a multicast group can have.
<b>Maximum Multicast Group Members</b>	The maximum number of hosts a multicast group can have.
<b>Fast Leave Enable</b>	With IGMP fast-leave processing, which means that the router immediately removes the interface attached to a receiver upon receiving a Leave Group message from an IGMP host.

Table 27 – Multicast settings table

## IPSec

Displays the IPSec tunnel connections.

**IPSec Tunnel Mode Connections**  
 Add, remove or enable/disable IPSec tunnel connections from this page.

Connection Name	Remote Gateway	Local Addresses	Remote Addresses	Remove	Edit
-----------------	----------------	-----------------	------------------	--------	------

Figure 92 – IPSec Tunnel Mode Connections list

**IPSec Settings**

IPSec Connection Name

new connection

IP Version:

IPv4

Tunnel Mode

ESP

Local Gateway Interface:

Select interface

Remote IPSec Gateway Address (IP or Domain)

0.0.0.0

Tunnel access from local IP addresses

Subnet

IP Address for VPN

0.0.0.0

Mask or Prefix Length

255.255.255.0

Tunnel access from remote IP addresses

Subnet

IP Address for VPN

0.0.0.0

Mask or Prefix Length

255.255.255.0

Key Exchange Method

Auto(IKE)

Authentication Method

Pre-Shared Key

Pre-Shared Key

key

Perfect Forward Secrecy

Disable

Advanced IKE Settings

Show Advanced Settings

Apply/Save

Figure 93 – IPSec configuration

Parameter	Definition
<b>IPSec Connection Name</b>	Enter a name to identify the IPSec tunnel.
<b>Tunnel Mode</b>	Select the applicable IPSec tunnel mode.
<b>Remote IPSec Gateway</b>	Enter the IP Address of the IPSec server to connect to.
<b>Tunnel access from Local</b>	Select which remote addresses local IPSec connections are able to access .
<b>IP Address from VPN</b>	Enter the IP Address to be used locally for the IPSec tunnel.
<b>Subnet mask for VPN</b>	Enter the subnet mask to be used locally for the IPSec tunnel.
<b>Tunnel Access from Remote</b>	Select which local addresses remote IPSec connections are able to access.
<b>IP Address for VPN</b>	Enter the IP Address to be used on the remote end for the IPSec tunnel.
<b>Subnet mask for VPN</b>	Enter the subnet mask to be used on the remote end for the IPSec tunnel.
<b>Key Exchange Method</b>	Select the type of IPSec exchange is to be used on the IPSec tunnel.
<b>Authentication Method</b>	Select the applicable authentication for the IPSec tunnel.
<b>Pre-Shared Key</b>	Enter the pre-shared key (if applicable) to grant access to the IPSec tunnel.
<b>Perfect Forward Secrecy</b>	Select to use Perfect Forward Secrecy during key exchange for the IPSec tunnel.
<b>Advanced IKE Settings</b>	Configure advanced IKE settings for the IPSec tunnel such as the encryption method or key life time.

*Table 28 – IPSeC settings table*

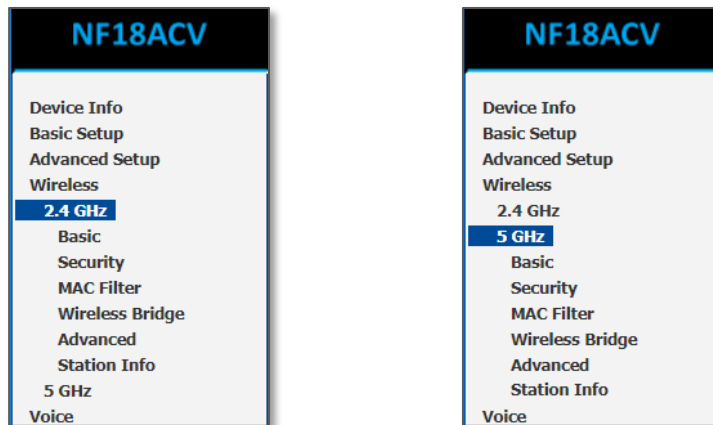
## Wireless

### WiFi 2.4GHz/WiFi 5GHz

The NF18ACV router allows you to maintain separate wireless settings for both 2.4GHz and 5GHz wireless services.

Select the service you will use (or both) and separately configure them using nearly identical configuration pages:

2.4 GHz Wireless Configuration pages      5 GHz Wireless Configuration pages



Only the **Advanced** configuration page contains settings that are different for 5GHz wireless services.

### Wireless – Basic

The Basic Wireless configuration page allows you to enable the wireless network and configure its basic settings.

**Wireless -- Basic**

This page allows you to configure basic features of the wireless LAN interface. You can enable or disable the wireless LAN interface, hide the network from active scans, set the wireless network name (also known as SSID) and restrict the channel set based on country requirements. Click 'Apply/Save' to configure the basic wireless options.

☒ Enable Wireless  
☐ Hide Access Point  
☐ Clients Isolation  
☐ Disable WMM Advertise  
☒ Enable Wireless Multicast Forwarding (WMF)

SSID:   
 BSSID:   
 Country:

Max Clients:

**Wireless - Guest/Virtual Access Points:**

Enabled	SSID	Hidden	Isolate Clients	Enable WMM Advertise	Enable WMF	Max Clients	BSSID
<input type="checkbox"/>	wl1_Guest1	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	16	N/A
<input type="checkbox"/>	wl1_Guest2	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	16	N/A
<input type="checkbox"/>	wl1_Guest3	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input checked="" type="checkbox"/>	16	N/A

Figure 94 – Wireless - Basic Configuration

The following parameters are available:

Parameter	Definition
<b>Enable Wireless</b>	Select <input checked="" type="checkbox"/> <b>Enable Wireless</b> to activate the wireless network function.
<b>Hide Access Point</b>	Select <input checked="" type="checkbox"/> to hide the wireless network when an SSID scan is performed.
<b>Clients Isolation</b>	Select <input checked="" type="checkbox"/> to prevent clients on the wireless network being able to access each other.
<b>Disable WMM Advertise</b>	Select <input checked="" type="checkbox"/> to prevent the NF18ACV advertising its WMM QoS function
<b>Enable Multicast Forwarding (WMF)</b>	Wireless Multicast Forwarding can reduce latency and improve throughput for wireless clients.
<b>Max Clients</b>	Enter the maximum number of wireless clients able to connect to the wireless network
<b>Wireless Guest / Virtual Access Points</b>	Select to enable a separate Wireless Guest network. For each Guest network enter the same options as are available in the top of this page for the main system wireless network.

*Table 29 – Basic Wireless settings table*

Click **Apply/Save** to save the new wireless configuration settings.

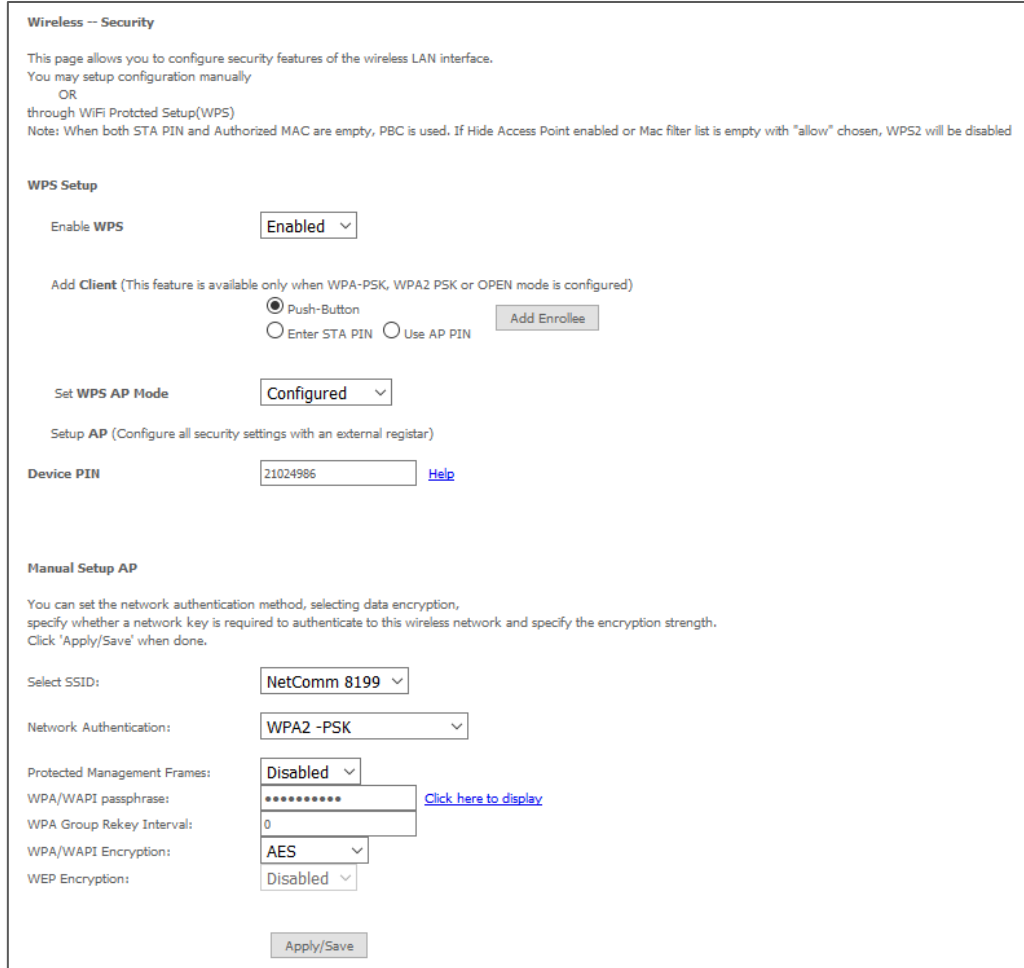


**Note** – Hiding the network may leads to potential connection problems, a non-broadcast network is not undetectable, and hiding a SSID is Security through obscurity

## Wireless – Security

The NF18ACV supports all encryptions within the 802.11 standard. The factory default is **WPA2-PSK**. The NF18ACV also supports: **WPA**, **WPA-PSK**, **WPA2** or **WPA2-PSK**

You can also select to disable WPS mode.



**Wireless -- Security**

This page allows you to configure security features of the wireless LAN interface.  
You may setup configuration manually  
OR  
through WiFi Protected Setup(WPS)  
Note: When both STA PIN and Authorized MAC are empty, PBC is used. If Hide Access Point enabled or Mac filter list is empty with "allow" chosen, WPS2 will be disabled

**WPS Setup**

Enable WPS: Enabled

Add Client (This feature is available only when WPA-PSK, WPA2 PSK or OPEN mode is configured)  
☒ Push-Button ☐ Enter STA PIN ☐ Use AP PIN Add Enrollee

Set WPS AP Mode: Configured

Setup AP (Configure all security settings with an external registrar)

Device PIN: 21024986 [Help](#)

**Manual Setup AP**

You can set the network authentication method, selecting data encryption, specify whether a network key is required to authenticate to this wireless network and specify the encryption strength. Click 'Apply/Save' when done.

Select SSID: NetComm 8199

Network Authentication: WPA2 -PSK

Protected Management Frames: Disabled

WPA/WAPI passphrase: \*\*\*\*\* [Click here to display](#)

WPA Group Rekey Interval: 0

WPA/WAPI Encryption: AES

WEP Encryption: Disabled

Apply/Save

Figure 95 – Wireless Security

The following parameters are available:

Parameter	Definition
<b>Enable WPS</b>	Select to enable or disable the WPS function of the NF18ACV.
<b>Select SSID</b>	Select the SSID to apply the security settings to.
<b>Network Authentication</b>	Select the Wireless security type to use with the wireless network. The default is <b>WPA2-PSK</b> . The NF18ACV also supports: <b>WPA</b> , <b>WPA-PSK</b> , <b>WPA2</b> , <b>WPA2-PSK</b>
<b>WPA/WAPI passphrase</b>	Enter the security key to use with the wireless network.
<b>WPA Group Rekey Interval</b>	Enter the group rekey interval. This should not need to change.
<b>WPA/WAPI Encryption</b>	Select the type of encryption to use on the wireless network.
<b>WEP Encryption</b>	Select to utilise WEP encryption on the wireless network connection.

Table 30 – Wireless security settings table



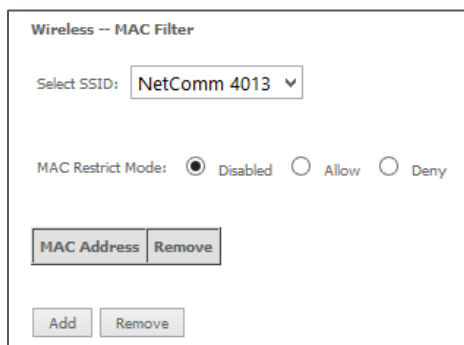
**Note** – WPA with TKIP and Open WEP are no longer considered secure. WPA2 with AES is the most secure option.

Mixed WPA2/WPA (TKIP+AES) will provide maximum compatibility with legacy devices

Click **Apply/Save** to save the new wireless security configuration settings.

## Wireless – MAC Filter

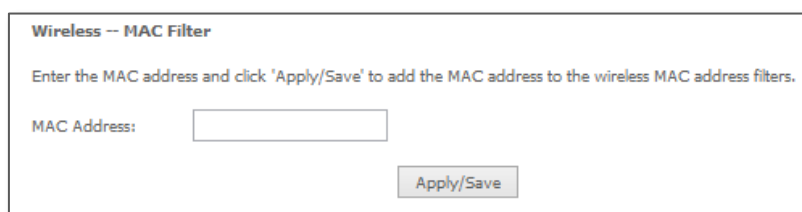
MAC Filter allows you to add or remove the MAC Address of devices which will be allowed or denied access to the wireless network. First use the **Select SSID** drop down list to select the wireless network you wish to configure, then select to either allow or deny access to the MAC addresses listed.



The screenshot shows the 'Wireless – MAC Filter' configuration window. At the top, there is a 'Select SSID:' dropdown menu with 'NetComm 4013' selected. Below this, the 'MAC Restrict Mode:' section has three radio buttons: 'Disabled' (which is selected), 'Allow', and 'Deny'. Underneath the radio buttons, there are two buttons labeled 'MAC Address' and 'Remove'. At the bottom of the window, there are two buttons labeled 'Add' and 'Remove'.

Figure 96 – Wireless – MAC Filter list

Click **Add** to add a MAC Address Filter.



The screenshot shows the 'Wireless – MAC Filter' configuration window. It contains a text box for 'MAC Address:' and an 'Apply/Save' button. Above the text box, there is a line of text: 'Enter the MAC address and click 'Apply/Save' to add the MAC address to the wireless MAC address filters.'

Figure 97 – Wireless – MAC Filter configuration

Enter the MAC Address to be filtered and click **Apply/Save** to save the new MAC Address filter settings.

To delete a MAC filter entry, click the Remove checkbox next to the selected filter entry and click Remove.

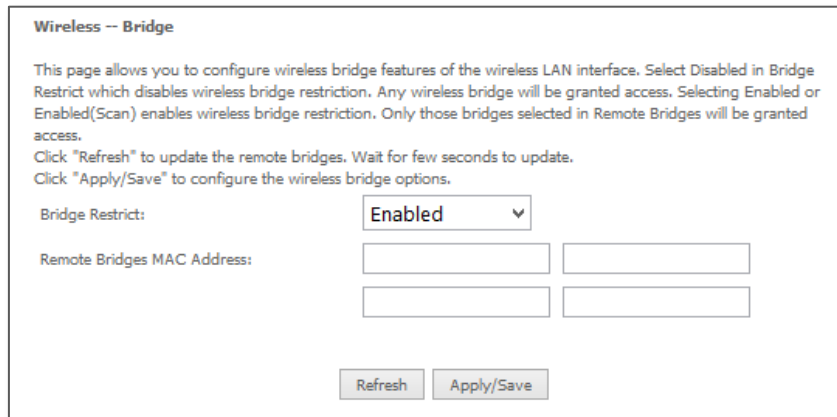
Enter MAC address in the format of aa:bb:cc:11:22:33



**Note** – While giving a wireless network some additional protection, MAC filtering can be circumvented by scanning a valid MAC and then spoofing one's own MAC into a validated one, using MAC Filtering may lead to a false sense of security.

## Wireless – Wireless Bridge (Wireless Distribution Service)

Wireless Bridge allows you to configure the router's access point as a Wireless Distribution Service.



The screenshot shows a web interface titled "Wireless -- Bridge". It contains a paragraph of instructions: "This page allows you to configure wireless bridge features of the wireless LAN interface. Select Disabled in Bridge Restrict which disables wireless bridge restriction. Any wireless bridge will be granted access. Selecting Enabled or Enabled(Scan) enables wireless bridge restriction. Only those bridges selected in Remote Bridges will be granted access. Click 'Refresh' to update the remote bridges. Wait for few seconds to update. Click 'Apply/Save' to configure the wireless bridge options." Below the text, there is a "Bridge Restrict:" label followed by a dropdown menu currently set to "Enabled". Underneath, the "Remote Bridges MAC Address:" label is followed by two rows of input fields, each row containing two text boxes. At the bottom of the form are two buttons: "Refresh" and "Apply/Save".

*Figure 98 – Wireless Bridge page*

Select the mode for the Wireless Access Point built into the NF18ACV. You can specify which wireless networks will be allowed to connect to the NF18ACV by using the **Bridge Restrict** option and then entering the applicable MAC Addresses of the other wireless access points.



**Note** – WPA/WPA2 encryption may not be compatible with other vendors, when operating in Wireless Bridge (WDS) mode.

Click **Apply/Save** to save the new wireless bridge configuration settings.

## Wireless – Advanced

Advanced Wireless allows you to configure detailed wireless network settings such as the band, channel, bandwidth, transmit power, and preamble settings.

**Wireless -- Advanced**  
 This page allows you to configure advanced features of the wireless LAN interface. You can select a particular channel on which to operate, force the transmission rate to a particular speed, set the fragmentation threshold, set the RTS threshold, set the wakeup interval for clients in power-save mode, set the beacon interval for the access point, set XPress mode and set whether short or long preambles are used. Click 'Apply/Save' to configure the advanced wireless options.

Channel: Auto ▾
 Current: 44

Auto Channel Timer(min): 15

802.11n/EWC: Auto ▾

Bandwidth: 80 MHz ▾
 Current: 80MHz

Control Sideband: Lower ▾
 Current: N/A

802.11n Rate: Auto ▾

802.11n Protection: Auto ▾

Support 802.11n Client Only: Off ▾

RIFS Advertisement: Off ▾

OBSS Co-Existence: Disable ▾

RX Chain Power Save: Enable ▾
 Power Save status: Low Power

RX Chain Power Save Quiet Time: 10

RX Chain Power Save PPS: 10

54g Rate: 6 Mbps ▾

Multicast Rate: Auto ▾

Basic Rate: Default ▾

Fragmentation Threshold: 2346

RTS Threshold: 2347

DTIM Interval: 1

Beacon Interval: 100

Global Max Clients: 16

XPress Technology: Enable ▾

Regulatory Mode: Disabled ▾

Pre-Network Radar Check: -1

In-Network Radar Check: -1

TPC Mitigation(db): 0(off) ▾

Transmit Power: 100% ▾

WMM(Wi-Fi Multimedia): Enabled ▾

WMM No Acknowledgement: Disabled ▾

WMM APSD: Enabled ▾

Beamforming Transmission (BFR): Disabled ▾

Beamforming Reception (BFE): Disabled ▾

Band Steering: Disabled ▾

Enable Traffic Scheduler: Disabled ▾

Airtime Fairness: Enabled ▾

Only available when  
802.11n/EWC = 'Auto'

5 GHz only

Apply/Save

Figure 99 – Wireless – Advanced configuration page

Click **Apply/Save** to save any changes to the wireless network settings configuration.

Parameter	Definition
<b>Channel</b>	<p>Select the appropriate channel to correspond with your network settings.</p> <p>All devices in your wireless network must use the same channel in order to work correctly.</p> <p>This router supports auto channelling functionality (default setting).</p> <p>The <b>Current:</b> channel number, together with the current level of detected interference, will be displayed on the right.</p>
<b>Auto Channel Timer(min)</b>	<p>Specifies the interval in minutes between searches for the best wireless channel during <b>Auto</b> channel detection.</p> <p>It is disabled when a specific <b>Channel</b> is selected rather than <b>Auto</b>.</p>
<b>802.11n/EWC</b>	<p>Select <b>802.11n/EWC (Enhanced Wireless Consortium)</b> functionality to be either: <b>Disabled</b> or <b>Auto</b></p> <p><b>Note</b> – When <b>Disabled</b> is selected the items in this table marked with ‘*’ will be removed from the page and will not be available.</p> <p>When <b>Auto</b> is selected, the following ten 802.11n settings marked with ‘*’ are enabled and displayed.</p>
<b>Bandwidth *</b>	<p>Select the bandwidth for the network: <b>20MHz</b>, <b>40MHz</b>, or <b>80MHz</b></p> <p>In high wireless activity/interference environment, reduce the bandwidth to <b>20MHz</b> for greater stability.</p> <p>The <b>Current:</b> bandwidth will be displayed on the right.</p>
<b>Control Sideband *</b>	<p>If you select <b>20MHz</b> in both bands you cannot select sideband and this drop down menu is disabled.</p> <p>When you select the <b>40MHz</b> bandwidth in both bands and manually select a channel, the following options will appear: <b>Lower</b> or <b>Upper</b></p> <p>When you select <b>Lower</b> as the control sideband, the channel is 1~7.</p> <p>When <b>Upper</b>, the channel is 5~11.</p> <p>The <b>Current:</b> control sideband (upper or lower) will be displayed on the right.</p>
<b>802.11n Rate *</b>	<p>Select the transmission rate for the network.</p> <p>The rate of data transmission should be set depending on the speed of your wireless network.</p> <p>You can select from a range of transmission speeds in the drop down menu, or you can select <b>Auto</b> to have the Router automatically use the fastest possible data rate and enable the <b>Auto-Fallback</b> feature.</p> <p><b>Auto-Fallback</b> will negotiate the best possible connection speed between the router and a wireless client.</p> <p>The default value is <b>Auto</b>.</p>
<b>802.11n Protection *</b>	<p>The 802.11n standards provide a protection method so 802.11b/g and 802.11n devices can co-exist in the same network without “speaking” at the same time.</p>
<b>Support 802.11n Client Only *</b>	<p>When <b>On</b> is selected, only stations that are configured in 802.11n mode are supported.</p> <p><b>Off</b> will enable support for clients that are not 802.11n.</p>
<b>RIFS Advertisement *</b>	<p>Reduced Interframe Space (RIFS) is a new feature introduced in 802.11n to improve efficiency.</p>

Parameter	Definition
<b>OBSS Co-Existence *</b>	<b>Enable</b> OBSS (Overlapping BSS) and the router automatically changes the channel width from 40Mhz to 20Mhz to avoid interference with other APs and then back to 40Mhz, if possible.
<b>RX Chain Power Save *</b>	When the <b>RX Chain Power Save</b> feature is enabled one of the receive chains will be turned off to save power. The current <b>Power Save status: (Full Power or Low Power)</b> will be displayed on the right.
<b>RX Chain Power Save Quiet Time *</b>	When <b>RX Chain Power Save</b> is enabled, set the number of seconds the packets per second must be below the value before the <b>RX Chain Power Save</b> feature activates itself.
<b>RX Chain Power Save PPS *</b>	When <b>RX Chain Power Save</b> is enabled, set the <b>RX Chain Power Save PPS</b> to the maximum number of packets per second that the WLAN interface should process for during <b>RX Chain Power Save Quiet Time</b> before the <b>RX Chain Power Save</b> feature activates itself.
<b>54g Rate</b>	Allows you to specify the maximum bandwidth of the 802.11g network.
<b>Multicast Rate</b>	Select the multicast transmission rate in Mbps for the network. The rate of data transmission should be set depending on the speed of your wireless network. Available settings are: <b>Auto, 6, 9, 12, 18, 24, 36, 48, 54</b> Select <b>Auto</b> to have the Router automatically use the fastest possible data rate and enable the <b>Auto-Fallback</b> feature. <b>Auto-Fallback</b> will negotiate the best possible connection speed between the Router and a wireless client. The default value is <b>Auto</b> .
<b>Basic Rate</b>	Select the basic transmission rate ability for the AP.
<b>Fragmentation Threshold</b>	Packets that are larger than this threshold are fragmented into multiple packets. Increase the fragmentation threshold if you encounter high packet error rates. Do not set the threshold too low, since this can result in reduced networking performance. The default setting is: 2346
<b>RTS Threshold</b>	The RTS Threshold is the minimum size in bytes for which the Request to Send/Clear to Send (RTS/CTS) channel contention mechanism is used. The router sends RTS frames to a particular receiving station and negotiates the sending of a data frame. After receiving an RTS, the wireless station responds with a Clear to Send (CTS) frame to acknowledge the right to begin transmission. The RTS Threshold value should remain at its default setting (which is the maximum value): 2347 In a network with significant radio interference or large number of wireless devices on the same channel, reducing the RTS Threshold might help in reducing frame loss.
<b>DTIM Interval</b>	A DTIM (Delivery Traffic Indication Message) is a countdown informing clients of the next window for listening to broadcast and multicast messages. Enter a value between 1 and 255 seconds for the DTIM interval between messages.
<b>Beacon Interval</b>	A beacon is a packet of information that is sent from a connected device to all other devices where it announces its availability and readiness.

Parameter	Definition
	<p>A beacon interval is the period of time (sent with the beacon) which will elapse before sending the beacon again.</p> <p>The beacon interval may be adjusted in milliseconds (ms).</p> <p>The default (100 ms) is recommended.</p>
<b>XPress Technology</b>	Select <b>Enable</b> to turn on this is special frame-bursting accelerating technology for IEEE802.11g. The default is <b>Enable</b> .
<b>54g Mode</b> (2.4 GHz and 802.11n/EWC disabled only)	For <b>54g mode</b> , you can select <b>Automatic</b> , <b>802.11g Performance</b> , or <b>802.11b Only</b> . This option is only visible when <b>802.11n mode</b> is set as <b>Disabled</b> .
<b>54g Protection</b> (2.4 GHz and 802.11n/EWC disabled only)	<p>When set to <b>Automatic</b>, the gateway will use RTS/CTS to improve the 802.11g performance in 802.11 mixed environments.</p> <p>When set to <b>Disabled</b>, the 802.11g performance will be maximized under most conditions while the other 802.11 modes (802.11b, etc.) will be secondary.</p> <p>This option is only visible when <b>802.11n mode</b> is set as <b>Disabled</b>.</p>
<b>Afterburner Technology</b> (Both 2.4 GHz and 5GHz when 802.11n/EWC disabled only)	Afterburner is a 125HSM (125 High Speed Mode) speed enhancement technology for 802.11g/b.
<b>Preamble Type</b> (2.4 GHz and 802.11n/EWC disabled only)	<p>If you are not using any 802.11b devices in your network, set the Preamble Type to <b>Short</b> for optimum performance.</p> <p>The <b>Long</b> Preamble type should be used when both 802.11g and 802.11b devices exist on your network.</p> <p>Preamble Type defines the length of the Cyclic Redundancy Check (CRC) block for communication between the gateway and wireless clients. The preamble consists of the Synchronization and Start Frame Delimiter (SFD) fields.</p> <p>The sync field is used to indicate the delivery of a frame to wireless stations, to measure frequency of the radio signal, to perform corrections if needed.</p> <p>The SFD at the end of the Preamble is used to mark the start of the frame.</p>
<b>Regulatory Mode</b> (5 GHz only)	<p>Select: <b>Disabled</b>, <b>802.11h</b> or <b>802.11d</b></p> <p>The default is <b>Disabled</b>.</p>
<b>Pre-Network Radar check</b> (5 GHz only)	<p>Available only in the 802.11h Regulatory Mode, see last setting.</p> <p>The default is: <b>-1</b></p>
<b>Pre-Network Radar check</b> (5 GHz only)	<p>Available only in the 802.11h Regulatory Mode, see last setting.</p> <p>The default is: <b>-1</b></p>
<b>TPC Migration (db)</b> (5 GHz only)	<p>Select: <b>0(off)</b>, <b>2</b>, <b>3</b> or <b>4</b></p> <p>The default is <b>0(off)</b></p>
<b>Transmit Power</b>	<p>Select: <b>20%</b>, <b>40%</b>, <b>60%</b>, <b>80%</b> or <b>100%</b></p> <p>The Power level sets the strength of the wireless signal that the gateway transmits. If you live in an area where your wireless signal could overlap with other wireless networks use a lower setting in order to reduce the amount of interference.</p> <p>The default setting is <b>100%</b>.</p>
<b>WMM (WiFi Multimedia)</b>	WMM (WiFi Multimedia) maintains the priority of audio, video and voice, over other applications which are less time critical by ensuring that data from applications that require better throughput and performance are inserted in queues with higher priority.

Parameter	Definition
	Select whether WMM is: <b>Auto</b> , <b>Disabled</b> or <b>Enabled</b> Before you disable WMM, you should understand that all QoS queues or traffic classes relate to wireless do not take effects.
<b>WMM No Acknowledgement</b>	This setting is only available when <b>WMM (WiFi Multimedia)</b> is set to <b>Auto</b> or <b>Enabled</b> . By default, the 'Ack Policy' for each access category is set to <b>Disabled</b> , meaning that an acknowledgement packet <u>is</u> returned for every packet received. This provides a more reliable transmission but increases traffic load, which decreases performance. Select <b>Enabled</b> to turn off the acknowledgement request. This can be useful for Voice transmissions where speed of transmission is important and packet loss is tolerable to a certain degree.
<b>WMM APSD</b>	This setting is only available when <b>WMM (WiFi Multimedia)</b> is set to <b>Auto</b> or <b>Enabled</b> . <b>WMM APSD</b> (Automatic Power Save Delivery) is an improvement to the 802.11e amendment adding advanced power management functionality to WMM. Select <b>Enabled</b> to ensure very low power consumption.
<b>Beamforming Transmission (BFR)</b>	Select <b>SU</b> (Single-User) <b>BFR</b> to concentrate the transmission signal at the gateway location. This results in a better signal and potentially better throughput.
<b>Beamforming Reception (BFE)</b>	Select <b>SU</b> (Single-User) <b>BFE</b> to concentrate the transmission signal at the gateway location.
<b>Band Steering</b>	Select <b>Enabled</b> to detect if the client has the ability to use two bands. When enabled, the less-congested 5GHz network is selected (by blocking the client's 2.4GHz network).
<b>Enable Traffic Scheduler</b>	Select <b>Enabled</b> to allow scheduling of traffic to improve efficiency and increase usable bandwidth for some types of packets by delaying other types.
<b>Airtime Fairness</b>	Select <b>Enabled</b> to allow the gateway to manage the receiving signal with other devices.

Table 31 -Wireless – Advanced configuration settings

## Wireless – Station Info

This page shows the MAC address of authenticated wireless stations that are connected to the NF18ACV and their status

**Wireless -- Authenticated Stations**

This page shows authenticated wireless stations and their status.

MAC	Associated	Authorized	SSID	Interface

Refresh

Figure 100 – Wireless – Station Info list

## Voice

This section explains how to configure the VoIP settings of the NF18ACV.

### VoIP Status

The Voice Status page displays the registration status of your SIP accounts and the total call time of each account.

Voice -- Voice Status

Account denial will display "Disabled", registered successfully will display "Up", and unregistered will display "Down".

SIP Account	Call Time	User Accounts	Registration Status	Hook Status	Call Status
1	0:00:00		Down	On Hook	Idle
2	0:00:00		Down	On Hook	Idle

Active call monitoring

Calling number	Called number	Source IP	Destination IP	Port used	Duration	Direction	Packets sent	Packets received	Packets lost
----------------	---------------	-----------	----------------	-----------	----------	-----------	--------------	------------------	--------------

Call history:

Index	Calling number	Called number	Source IP	Destination IP	Port used	Duration	Direction	Packets sent	Packets received	Packets lost	Timestamp
-------	----------------	---------------	-----------	----------------	-----------	----------	-----------	--------------	------------------	--------------	-----------

*Figure 101 – Voice Status page*

## SIP Basic Setting

The SIP Settings page is where you enter your VoIP service settings as supplied by your VoIP service provider (VSP). If you are unsure about a specific setting or have not been supplied information for a particular field, please contact your VoIP service provider to verify if this setting is needed or not.

**Voice -- SIP Basic Setting**

Bound Interface Name: Any\_WAN

Country : AUS - AUSTRALIA

SIP local port(1-65535): 5060

SIP domain name\*:  (Note: Please leave this field blank unless required by your service provider)

☐ Use SIP Proxy.

☐ Use SIP Outbound Proxy.

☐ Use SIP Registrar.

☐ Use SIP Proxy2.

☐ Use SIP Outbound Proxy2.

☐ Use SIP Registrar2.

SIP Account	1	2
Account Enabled	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Polarity Reverse Enable	<input type="checkbox"/>	<input type="checkbox"/>
Authentication name	<input type="text"/>	<input type="text"/>
Password	<input type="text"/>	<input type="text"/>
Cid Name	<input type="text"/>	<input type="text"/>
Cid Number	<input type="text"/>	<input type="text"/>

codec--line 1	ptime[ms]	priority	enable	codec--line 2	ptime[ms]	priority	enable
G711U	20	1 (1-100)	<input checked="" type="checkbox"/>	G711U	20	1 (1-100)	<input checked="" type="checkbox"/>
G711A	20	2 (1-100)	<input checked="" type="checkbox"/>	G711A	20	2 (1-100)	<input checked="" type="checkbox"/>
G723_63	20	3 (1-100)	<input checked="" type="checkbox"/>	G723_63	20	3 (1-100)	<input checked="" type="checkbox"/>
G726_24	20	4 (1-100)	<input checked="" type="checkbox"/>	G726_24	20	4 (1-100)	<input checked="" type="checkbox"/>
G726_32	20	5 (1-100)	<input checked="" type="checkbox"/>	G726_32	20	5 (1-100)	<input checked="" type="checkbox"/>
G726_16	20	6 (1-100)	<input checked="" type="checkbox"/>	G726_16	20	6 (1-100)	<input checked="" type="checkbox"/>
G726_40	20	7 (1-100)	<input checked="" type="checkbox"/>	G726_40	20	7 (1-100)	<input checked="" type="checkbox"/>
G722	20	8 (1-100)	<input checked="" type="checkbox"/>	G722	20	8 (1-100)	<input checked="" type="checkbox"/>

Apply

Figure 102 – SIP Basic Settings page

The individual fields shown above on the SIP Basic Settings page are explained in the following table.

Option	Definition
<b>Bound Interface Name</b>	Select the Interface that the VoIP account will use to make a connection to the VoIP Service Provider.
<b>SIP Local Port</b>	Set the SIP local port of the gateway, the default value is 5060. SIP local port is the SIP UA (user agent) port.
<b>SIP domain name</b>	Enter the SIP domain name or IP address of your VoIP Service Provider here.

Option	Definition
<b>Use SIP Proxy</b>	Select the checkbox of Use SIP Proxy, if your DSL router uses a SIP proxy. SIP proxy allows other parties to call DSL router through it. When it is selected, the following fields appear.
<b>SIP Proxy</b>	The IP address of the proxy.
<b>SIP Proxy port</b>	The port that this proxy is listening on. By default, the port value is 5060.
<b>Use SIP Outbound Proxy</b>	Some network service providers require the use of an outbound proxy. This is an additional proxy, through which all outgoing calls are directed. In some cases, the outbound proxy is placed alongside the firewall and it is the only way to let SIP traffic pass from the internal network to the Internet. When it is selected, the following fields appear.
<b>SIP Outbound Proxy</b>	The IP address of the outbound proxy.
<b>SIP Outbound Proxy port</b>	The port that the outbound proxy is listening on. By default, the port value is 5060.
<b>Use SIP Registrar</b>	Select this option if required by your VoIP Service Provider. Enter the SIP Proxy Domain Name and SIP Proxy Port which is typically 5060.
<b>SIP Registrar</b>	The IP address of the SIP registrar.
<b>SIP Registrar port</b>	The port that SIP registrar is listening on. By default, the port value is 5060.
<b>Account Enabled</b>	If it is unselected, the corresponding account is disabled, you cannot use it to initiate or accept any call.
<b>Polarity Reverse Enable</b>	Enable or disable this function.
<b>Authentication name</b>	Set the user name of authentication.
<b>Password</b>	Set the password of authentication.
<b>Cid Name</b>	User name. It is the Display Name.
<b>Cid Number</b>	Set the caller number. It must be a number of 0~9.
<b>ptime</b>	You can use it to set the packetization time (PT). The PT is the length of the digital voice segment that each packet holds. The default is 20 millisecond packets. If selecting 10 milliseconds, packets improve the voice quality. Because of the packet loss, less information is lost, but more loads on the network traffic.
<b>Priority</b>	The priority of codec is declined from up to down. Codecs define the method of relaying voice data. Different codecs have different characteristics, such as data compression and voice quality. For Example, G723 is a codec that uses compression, therefore, it is good for use where the bandwidth is limited but its voice quality is not good as other codecs, such as the G711. If you specify none of the codecs, using the default value showed in the above figure, the DSL router chooses the codec automatically.

*Table 32 – SIP settings table*

After entering your VoIP settings press the **Apply** button. Select **Management > Save/Reboot** and press the **Reboot** button. Once the router restarts if there is a valid internet connection and the VoIP account settings are valid the VoIP service will start.

## SIP Advanced

The SIP Advanced page allows you to configure settings that your VoIP service provider has enabled on your SIP account and if you have the appropriate call features and other functionality on your cordless or corded phone handsets.

Voice -- SIP Advanced Setting

Line	1	2
Call waiting	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Unconditionally Call forwarding number		
Busy Call forwarding number		
No Answer Call forwarding number		
Options Time	0	0
Forward unconditionally	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Forward on "busy"	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Forward on "no answer"	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
HWI	<input type="checkbox"/>	<input type="checkbox"/>
Anonymous call blocking	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Anonymous calling	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Anonymous calling mode	Display anonymous	Display anonymous
DND	<input type="checkbox"/>	<input type="checkbox"/>
Enable Call Return	<input type="checkbox"/>	<input type="checkbox"/>
Call Transfer	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Call conference	<input type="checkbox"/>	<input type="checkbox"/>
Warm Line	<input checked="" type="checkbox"/>	<input checked="" type="checkbox"/>
Warm Line URI		
Warm Line Delay Timer	10	10

==Fax Setting==

Fax Negotiate Mode:
Auto\_switch
Bypass Codec:
G711\_A

☐ Enable T38 redundancy support

☐ Enable vbd redundancy support

==Settings==

☒ Enable VAD support
VAD mode in signal:
None

☐ Enable RTP Flow Ctrl

☒ Enable Echo Cancellation

☐ Enable # To ASCII

==SIP Timer Setting==

Registration Expire Timeout:
3600

Session Expire Timeout:
1800

Min Session Expire Time:
90
(need >= 90s)

==Digitmap Setting==

000|1\*#|X[0-9\*|.##\*\*XX|\*#X[0-9\*|.##\*x[0-9\*|.##00[1-9]xx.t|014XXXXXXXX|016XXXXX  
XX|0192X|0198XXXXXXXX|0229479|XXXXXXXXXX|0500XXXXXXXX|11XX|123X|124XX|1251XX|1252XX  
X|1255X|1258XXX|1271X|130XXXXXXXX|1802XXX|189XX|1[8-9]XXXXXXXXX|  
[2-9]XXXXXXXX|13[1-9]XXX

Voip Dialplan Setting:

==Qos Setting==

DSCP for SIP:
DEFAULT (000000)

DSCP for RTP:
DEFAULT (000000)

==Payload Setting==

RFC2198 Payload Value:
125
(range 97~127)

Dtmf Relay setting:
InBand

==Call ID Setting==

Caller ID send Delay Time:
600
(range 500~1500ms)

Caller ID Message Type:
FSK\_MDMF

FSK modulation Mode:
BellcoreGen

==Transport Setting==

SIP Transport protocol:
UDP

==SIP Extends==

PRACK (100rel):
SUPPORTED

==Service Offer Setting==

Complementary business models:
Local model

Apply

Figure 103 – Voice- SIP Advanced settings

Option	Definition
<b>Line</b>	Displays the phone port you want to configure
<b>Call Waiting</b>	Select this option for your phone if your VoIP Service Provider has enabled Call Waiting on your SIP account.
<b>Unconditionally Call forwarding number</b>	Select this option if your VoIP Service Provider has enabled Call Forwarding on your SIP account and you wish to use this feature.
<b>Busy Call Forwarding Number</b>	Enter the phone number to forward a call to if it arrives while the line is busy.
<b>No Answer Call forwarding number</b>	Enter the phone number to forward a call to if the call is not answered.
<b>Forward On "busy"</b>	Select this option if your VoIP Service Provider has enabled Call Forwarding on your SIP account and you wish to use this feature.
<b>Forward On "No Answer"</b>	Select this option if your VoIP Service Provider has enabled Call Forwarding on your SIP account and you wish to use this feature.
<b>MWI (Message Waiting Indicator)</b>	Select this option if your VoIP Service Provider has enabled MWI (Message Waiting Indicator) on your SIP account and you wish to use this feature.
<b>Anonymous Call Blocking</b>	Select this option if your VoIP Service Provider has enabled Anonymous Call Blocking on your SIP account and you wish to use this feature.
<b>Anonymous Calling</b>	Select this option if your VoIP Service Provider has enabled Anonymous Calling on your SIP account and you wish to use this feature.
<b>Anonymous calling mode</b>	When set to Display anonymous, the modem hides your caller ID. When set to All anonymous, the modem hides both caller ID and the SIP URL of the originating call.
<b>DND (Do Not Disturb)</b>	Select this option if your VoIP Service Provider has enabled DND (Do Not Disturb) on your SIP account and you wish to use this feature.
<b>Enable T38 Redundancy Support</b>	Select this function if you wish to send or receive faxes via VoIP and have a fax machine capable of using the T38 fax over VoIP protocol.
<b>Enable VBD redundancy support</b>	Select this checkbox to use the feature.
<b>Enable VAD support</b>	Enables the Voice Activated Detection function of the modem. When enabled, no data is transmitted during periods of silence or low volume, reducing the data usage.
<b>Enable RTCP Flow Control</b>	Select this checkbox to use the feature.
<b>Enable Echo Cancellation</b>	Select this checkbox to use the feature.
<b>Enable # To ASCII</b>	Select this checkbox to use the feature.
<b>Enable Reinjection Function</b>	Select this checkbox to use the feature.
<b>RFC2198 Payload Value (range 97-127)</b>	Enter the RFC2198 payload value that the valid range is 96 ~ 127.
<b>Registration Expire Timeout</b>	Enter the registration expire timeout.
<b>Session Expire Time</b>	The interval of dialog refreshing time.
<b>Min Session Expire Time</b>	The minimum interval of dialog refreshing time.
<b>VoIP DialPlan Setting</b>	Set the VoIP dial plan. If user-dialed number matches it, the number is processed by the VoIP router immediately.

Option	Definition
<b>DSCP for SIP</b>	Set the DSCP QoS tagging for Session Initiation Protocol. You can select it from the drop-down list.
<b>DSCP for RTP</b>	Set the DSCP QoS tagging for Real-time Transport Protocol. You can select it from the drop-down list.
<b>Dtmf Relay Setting</b>	Set DTMF transmit method, which can be following values: SIP Info: Use SIP INFO message to transmit DTMF digits. RFC2833: Use RTP packet to encapsulate DTMF events, as specified in RFC 2833. InBand: DTMF events are mixed with user voice in RTP packet.
<b>SIP Transport Protocol</b>	Select the transport protocol to use for SIP signalling. Note that your SIP proxy and registrar will need to support the protocol you select.
<b>Enable Local Supplementary Service</b>	Select the checkbox to enable the supplementary service settings by the telephone set. If you deselect the checkbox, the supplementary service cannot be set by the telephone set.

*Table 33 – VoIP – Advanced – Service Provider settings*

## Configuring a VoIP dial plan

The router comes with a default dial plan suitable for use in Australia. The dial plan tells the router to dial a number immediately when a string of numbers entered on a connected handset matches a string in the dial plan. For example, the string 13[1-9]XXX allows the router to recognize six digit “13 numbers” allowing customers to call a business for the price of a local call anywhere in Australia. The reason it is configured as 13[1-9]XXX is because 13 numbers cannot begin with a 0 after the 13 while the last 3 digits may be any numeric digit.

You can configure the dial plan to match any string you like. Below are some rules for configuring a dial plan:

- Separate strings with a | (pipe) character.
- Use the letter X to define any single numeric digit.
- Use square brackets to specify ranges or subsets, for example:
  - [1-9] allows any digit from 1 to 9.
  - [247] allows either 2 or 4 or 7.
  - Combine ranges with other keys, for example, [247-9\*#] means 2 or 4 or 7 or 8 or 9 or \* or #.

## Dial plan syntax

Dial Plan Syntax		
To specify a...	Enter	Result
<b>New dial string</b>	(Pipe)	Separates dial strings
<b>Digit</b>	0 1 2 3 4 5 6 7 8 9	Identifies a specific digit (do not use #)
<b>Range</b>	[digit-digit]	Identifies any digit dialled that is included in the range
<b>Wild card</b>	X	X matches any single digit that is dialled
<b>Timer</b>	.t (dot t)	Indicates that an additional time out period of 4 seconds should take place before automatic dialling starts

*Table 34 – Dial Plan Syntax table*

## Dial plan example: Australia Dial Plan

```
000|[*#]X[0-9*]|*#X[0-9*]|00[1-9]XX.t|014XXXXXXX|016XXXXXXX|0192X|0198XXXXXXX|0[23478]XXXXXXXX|0500XXXXXX|11XX|123X|124XX|1251XX|1252XXX|1255X|1258XXX|1271X|130XXXXXXX|13[1-9]XXX|1802XXX|189XX|1[8-9]XXXXXXXX|[2-9]XXXXXXXX
```

000 = Australia Emergency Call Service

0011\*t = International number (After 0011 the router allows entry of arbitrary digits then and dials out after 4 seconds from the entry of the last digit.)(Note: Please ensure your VoIP provider supports international numbers for the country you are dialling.)

0[23478]XXXXXXXX = Landline numbers with area code 02,03,04,07,08 +XXXX XXXX and Mobile numbers with 04XXXXXXXX

1[8-9]XXXXXXXX = 1800 and 1900 free call numbers

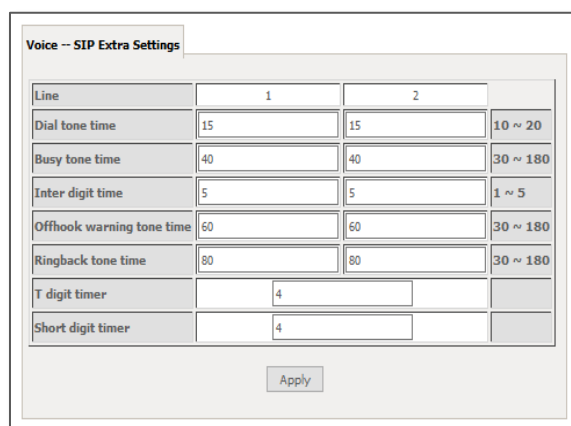
130XXXXXXX = 1300 business numbers

13[1-9]XXX = 13 business numbers

[2-9]XXXXXXX = Landline numbers without area code

## SIP Extra Setting

This page displays additional settings related to the SIP service.



Line	1	2	
Dial tone time	15	15	10 ~ 20
Busy tone time	40	40	30 ~ 180
Inter digit time	5	5	1 ~ 5
Offhook warning tone time	60	60	30 ~ 180
Ringback tone time	80	80	30 ~ 180
T digit timer	4		
Short digit timer	4		

Apply

Figure 104 – SIP Extra Setting page

Parameter	Definition
<b>Dial tone time</b>	Set the Dial tone duration.
<b>Busy tone time</b>	Set the Busy tone duration.
<b>Inter digit time</b>	Set the timing between digits. The valid range is 1 ~ 5.
<b>Off hook warning tone time</b>	Set the Off-hook warning tone duration.
<b>Ringback tone time</b>	Set the Ring back tone duration.

Table 35 – SIP Extra Settings table

## SIP Star Code Setting

The SIP Star Code Setting page provides you with the ability to configure the codes used to active and deactivate call features such as call forwarding and call waiting.

Please consult your VoIP provider if SIP Star Code is supported on SIP side.

Star Codes

Feature	Activate	Deactivate	Enable
Call Return	*69		<input checked="" type="checkbox"/>
Do Not Disturb	*78	*79	<input checked="" type="checkbox"/>
Anonymous Block	*77	*87	<input checked="" type="checkbox"/>
Call Transfer	#90		<input checked="" type="checkbox"/>
Call Transfer Conditionally	#91		<input checked="" type="checkbox"/>
Call Waiting		*70	<input checked="" type="checkbox"/>
Anonymous Call	*67	*82	<input checked="" type="checkbox"/>
Call Forward Unconditionally	*72	*92	<input checked="" type="checkbox"/>
Call Forward Busy	*74	*94	<input checked="" type="checkbox"/>
Call Forward No Answer	*75	*95	<input checked="" type="checkbox"/>
Call Forward		*73	<input checked="" type="checkbox"/>

Apply

Figure 105 – SIP Star Code Setting page

## SIP Debug Setting

This page allows you to configure various settings regarding the logging levels of the SIP service.

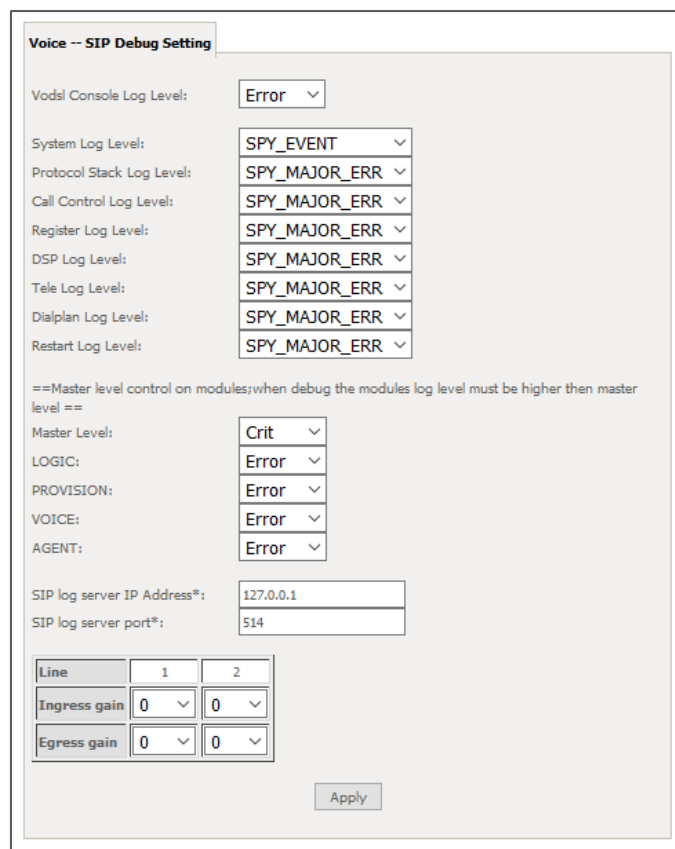


Figure 106 – SIP Debug Settings page

Option	Definition
<b>SIP Log Server IP Address</b>	Enter the Log Server IP address where the SIP Log data for the router will be sent to.
<b>SIP Log Server port</b>	Enter the port to be used for transmitting the SIP Log data.
<b>Ingress Gain</b>	Setting allow control of Speaker volume on handset.
<b>Egress Gain</b>	Settings allow control of Microphone volume on handset.

Table 36 – SIP Debug Settings table

## VoIP Functionality

This section describes how to use the VoIP function of the DSL router in more detail. Some features involve 2 or 3 parties. In that case, note that all 3 parties have to be successfully registered.

## Registering

Before using any VoIP functions, the DSL router has to register itself to a registrar. The DSL router also has to be configured with a proxy, which relays VoIP signalling to the next hop. In fact, many implementations integrate these two into one server, so in many case registrar and proxy refer to the same IP.

- 1 Select the right interface to use for registering, depending on where proxy/registrar resides. If use WAN link, ensure that it is already up.
- 2 Select the checkbox of **Use SIP Registrar**, and fill in the IP address and port with the right value.
- 3 Fill the extension information: **Authentication name**, **Password**, **Cid Name** and **Cid Number**.
- 4 Click **Apply** to take the settings into effect.
- 5 **TEL** indicator of VoIP service should be on, indicating that SIP client is successfully registered.

## Placing a Call

This section describes how to place a basic VoIP call.

- 1 Pick up the receiver on the phone.
- 2 Hear the dial-tone. Dial the extension of remote party.
- 3 To end the dialling, wait for digit timeout, or just press # immediately.
- 4 After the remote party answers the call, you are in voice connection.

## Anonymous call

Anonymous call does not send the caller ID to the remote party. This is useful if you do not want others know who you are. Check with your VoIP Provider if your service supports hidden caller ID.

- 1 Enable Anonymous calling in the Voice--SIP Advanced Setting web page.
- 2 Pick up the receiver on the phone.
- 3 Dial \*68 to enable anonymous call.
- 4 Hook on the receiver, and dial another extension as you like. Now your caller ID information is blocked.

## Do Not Disturb (DND)

If DND is enabled, all incoming calls are rejected. DND is useful if you do not want others to disturb you. Check with your VoIP Provider if your service supports DND.

- 1 Enable DND in the Voice--SIP Advanced Setting web page.
- 2 Pick up the receiver on the phone.
- 3 Dial \*78 to enable DND.
- 4 Hook on the phone. Now your phone rejects all incoming calls.
- 5 Hook off again to disable the DND.

## Call Return

For incoming calls, the DSL router remembers the number of calling party. Check with your VoIP Provider if your service supports Call returns. You cannot call return, if the caller has hidden caller ID.

- 1 Enable Call Return in the Voice--SIP Advanced Setting web page.
- 2 Press \*69 to return a call.
- 3 Now you can make the call as if you have dialled the whole number.

## Call Hold

Call hold enable you to put a call to a pending state, and pick it up in future. Check with your VoIP Provider if your service supports Call Hold.

- 1 Assuming you are in a voice connection, you can press **FLASH** to hold current call.
- 2 Now you can call another party, or press **FLASH** again to return to first call.

## Call Waiting

Call waiting allows third party to call in when you are in a voice connection. Check with your VoIP Provider if your service supports Call Waiting.

- 1 Enable Call waiting in the Voice--SIP Advanced Setting web page.
- 2 Pick up the phone attached to the DSL router.
- 3 Assuming you are in a voice connection. When another call comes in, the DSL router streams a call waiting tone to your phone, indicating another call is available.
- 4 Press FLASH to switch to this call and the initial call put to hold automatically.
- 5 Press FLASH multi-times to switch between these two calls back and forth.

## Blind Transfer

Blind transfer, transfers the current call to a third party blindly, regardless of whether the transfer is successfully or not. Check with your VoIP Provider if your service supports Call transfer.

- 1 Assume you have already been in a voice connection.
- 2 Press **FLASH** to hold the first party.
- 3 Dial **#90** + third party number.
- 4 Before the third party answering the call, hook on your phone.
- 5 Now the first party takes over the call and he is in connection with the third party.

## Consultative Transfer

Consultative transfer lets the third party answer the transferred call, and then hook on the transferring party. It's more gentle than blind transfer. Check with your VoIP Provider if your service supports Call Transfer.

- 1 Assume you have already been in a voice connection with a first party.

- 2 Press **FLASH** to hold the first party.
- 3 Dial **#91** + third party number.
- 4 After the third party answering the call, hook on your phone.
- 5 Now the first party takes over the call and he is in connection with the third party.

## Call Forwarding No Answer

If this feature enabled, incoming calls are forwarded to third party when you does answer them. It involves in two steps: setting the forwarding number and enable the feature. Check with your VoIP Provider if your service supports Call Forwarding.

- 1 Enable Forward on "no answer" in the Voice--SIP Advanced Setting web page.
- 2 When our phone does not answer the incoming call, the call is forwarded.

## Call Forwarding Busy

If this feature enabled, incoming calls will be forwarded to third party when you busy. It involves two steps: setting the forwarding number and enable the feature. Check with your VoIP Provider if your service supports Call Forwarding

- 1 Set Busy Call forwarding number and enable Forward on "busy" in the Voice--SIP Advanced Setting web page.
- 2 When our phone is busy, this call can be forwarded.

## Call Forwarding All

If this feature enabled, incoming calls are forwarded to third party without any reason. It involves in two steps: setting the forwarding number and enable the feature. Check with your VoIP Provider if your service supports Call Forwarding

- 1 Set Unconditionally Call forwarding number and Forward unconditionally in the Voice--SIP Advanced Setting web page.
- 2 All incoming calls are forwarded to the third party.

## Three-Way Conference

Three-way conference enables you to invite a third party to a call, and every person in the conference is able to hear others' voice. Check with your VoIP Provider if your service supports Conference call.

- 1 Assume you are in connection with a first party.
- 2 Press **FLASH** to put the first party on-hold.
- 3 Dial a third party.
- 4 After the third party answers the call, press **FLASH** again to invite the first party.
- 5 Now all three parties are in a three-way conference.

## T.38 Faxing

To make T.38 faxing, enable T.38 support on the Web. After that, connect a fax machine to a FXS port of the DSL router. Now you can use it as a normal phone, and it is able to send or receive fax to or from other fax machines on the VoIP network.

In the initial setup, faxing behaves like a normal call. After the DSL router detects the fax tone, it switch to T.38 mode, and use it as the transmit approach.

Check with your VoIP Provider if your service supports T.38 Faxing.

## Pass-Through Faxing

If T.38 support is disabled, faxing uses normal voice codec as its coding approach. Therefore, this mode is more like normal phone calls.

## Diagnostics

This page is used to test the connection to your local network, the connection to your DSL service provider, and the connection to your Internet service provider. You may diagnose the connection by clicking the **Test** button or click the **Test With OAM F4** button. If the test continues to fail, click **Help** and follow the troubleshooting procedures.



**Note** – Your Internet service provider must support diagnostics features in order for correct DSL diagnostics results.

### Diagnostics – Diagnostics

The Diagnostics menu provides feedback on the connection status of the device. The individual tests are listed below. If a test displays a fail status:

- 6 Click on the **Help** link and follow the troubleshooting procedures in the Help screen that appears.
- 6 Now click **Rerun Diagnostic Tests** at the bottom of the screen to re-test and confirm the error.
- 7 If the test continues to fail, contact Technical Support.

**Diagnostics**

The individual tests are listed below. If a test displays a fail status, click "Rerun Diagnostic Tests" at the bottom of this page to make sure the fail status is consistent. If the test continues to fail, click "Help" and follow the troubleshooting procedures.

**Test the connection to your local network**

eth0 Connection Test:	FAIL	<a href="#">Help</a>
eth2 Connection Test:	FAIL	<a href="#">Help</a>
eth3 Connection Test:	PASS	<a href="#">Help</a>
eth1 Connection Test:	FAIL	<a href="#">Help</a>
Wireless Connection Test:	PASS	<a href="#">Help</a>

Figure 107 – Diagnostics – Diagnostic tests

Field	Description
<b>LAN# Connection</b>	<b>PASS</b> – Indicates the Ethernet connection to your computer is connected to the LAN port of the router. <b>FAIL</b> – Indicates that the router does not detect the Ethernet interface of your computer.
<b>Wireless Connection Test</b>	<b>PASS</b> – Indicates that the wireless card is switched <b>ON</b> . <b>FAIL</b> – Indicates that the wireless card is switched <b>OFF</b> .

Table 37 – Diagnostic test result table

## Diagnostics – Ethernet OAM

The Ethernet OAM page provides administrators with operation, administration and management features.

**Ethernet Link OAM (802.3ah)**
☒ Enabled

WAN Interface:

OAM ID:  (positive integer)

☐ Auto Event

☐ Variable Retrieval

☐ Link Events

☐ Remote Loopback

☐ Active Mode

**Ethernet Service OAM (802.1ag / Y.1731)**
☒ Enabled
 ☒ 802.1ag
 ☐ Y.1731

WAN Interface:

MD Level:  [0-7]

MD Name:  [e.g. Broadcom]

MA ID:  [e.g. BRCM]

Local MEP ID:  [1-8191]

Local MEP VLAN ID:  [1-4094] (-1 means no VLAN tag)

☐ CCM Transmission

Remote MEP ID:  [1-8191] (-1 means no Remote MEP)

**Loopback and Linktrace Test**

Target MAC:  [e.g. 02:10:18:aa:bb:cc]

Linktrace TTL:  [1-255] (-1 means no max hop limit)

Loopback Result:	N/A			
Linktrace Result:	N/A			

Figure 108 – Diagnostics – Ethernet OAM

## Diagnostics – Ping

The ping test page lets you ping a remote IP address or hostname in order to test the connection.

**Ping Diagnostic**

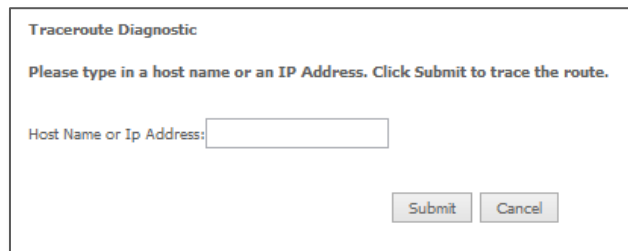
Please type in a host name or an IP Address. Click Submit to check the connection automatically.

Host Name or Ip Address:

Figure 109 – Ping IP address

## Diagnostics – Traceroute

The Traceroute page lets you perform a trace route to a remote IP address or host name, To ensure correct interface is used for routing.



Traceroute Diagnostic

Please type in a host name or an IP Address. Click Submit to trace the route.

Host Name or Ip Address:

*Figure 110 – Diagnostics – Traceroute page*

## Diagnostics – Start/Stop DSL

This page lets you stop or start the DSL service for troubleshooting purposes.



Your DSL connection is down. Verify that your Gateway is correctly connected to your phone line. If the problem persists, check your documentation.

---

**Start/Stop DSL**

This page enables you to start or stop your DSL line.

Your DSL connection is Down, it seems the phone line is not connected.

*Figure 111 – Diagnostics – Start/Stop DSL page*

## Management

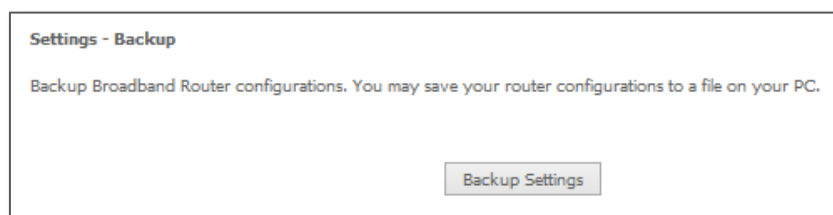
### Management – Settings

The Settings screens allow you to back up, retrieve and restore the default settings of your Router. It also provides a function for you to update your router's firmware.

#### Backup

The following screen appears when Backup is selected. Click the **Backup Settings** button to save the current configuration settings.

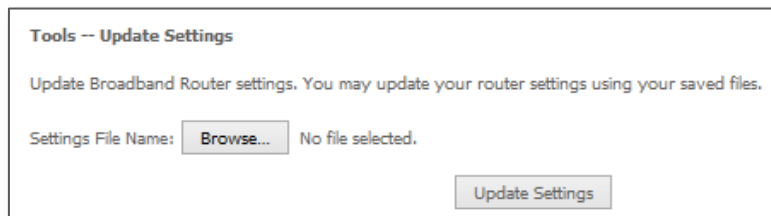
You will be prompted for the location to save the backup file to on your PC.



*Figure 112 – Settings – Backup page*

#### Update Settings

The following screen appears when selecting Update from the Settings submenu. By clicking on the Browse button, you can locate a previously saved filename as the configuration backup file. Click on the Update settings button to upload the selected file. Please allow up to 5 minutes for system updates and reboot.



*Figure 113 – Settings – Update Settings page*

#### Factory Reset

The following screen appears when selecting Factory Reset from the Settings submenu. By clicking on the Restore Default Settings button, you can restore your Routers default firmware settings. Restore system settings will reboot your Router, please allow up to 2 minutes for restore and reboot.

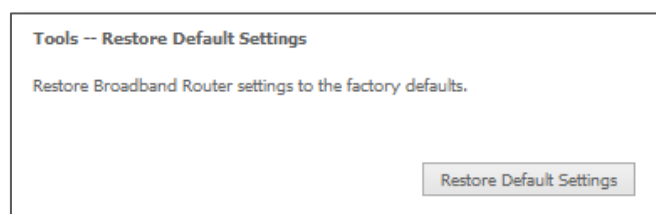


Figure 114 – Settings – Factory Reset page

## Management – System Log

The System log page allows you to view the log of the modem and configure the logging level also. To view the system log, click the **View System Log** button.

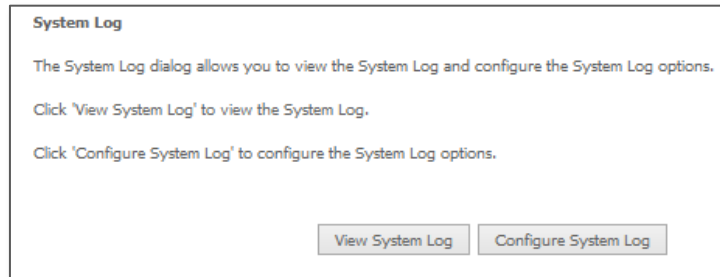


Figure 115 – Management – View System Log

To configure the system log, click the **Configure System Log** button. You can send system log to remote server via selecting both, or remote under “Mode” option.

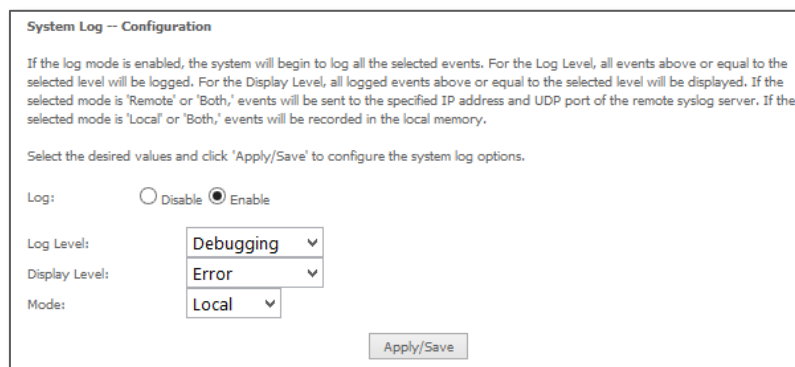


Figure 116 – Management – Configure System Log

## Management – Security Log

The Security log page allows you to view the log of the modem and also to configure the logging level. To view the Security log, click the **View Security Log** button.

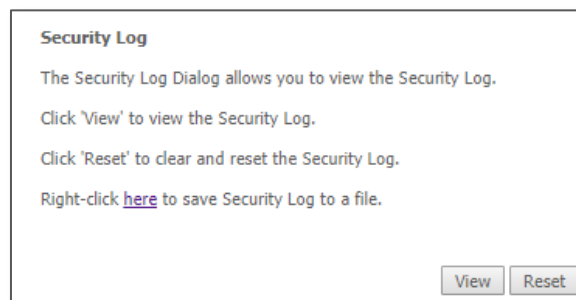


Figure 117 – Management – View Security Log

To view the Security log, click the **View** button. The Security log will open in a browser pop up window:

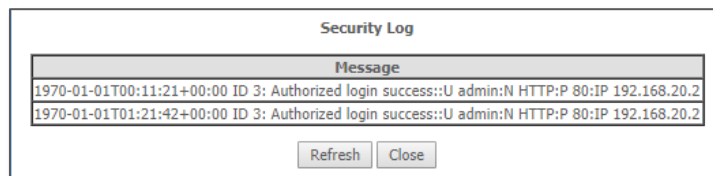
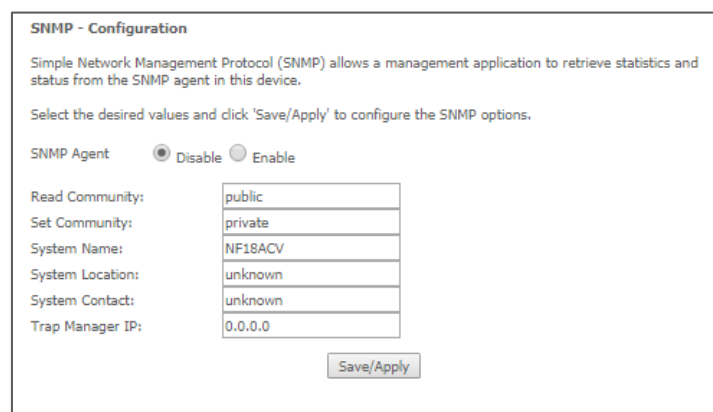


Figure 118 – Management – Download Security Log

You can also click the [here](#) link to save the Security Log to a downloadable file.

## Management – SNMP Agent

The Simple Network Management Protocol (SNMP) allows a network administrator to monitor a network by retrieving settings on remote network devices. To do this, the administrator typically runs an SNMP management station program such as MIB browser on a local host to obtain information from the SNMP agent, in this case the NF18ACV (if SNMP is enabled). An SNMP 'community' performs the function of authenticating SNMP traffic. A 'community name' acts as a password that is typically shared among SNMP agents and managers.



**SNMP - Configuration**

Simple Network Management Protocol (SNMP) allows a management application to retrieve statistics and status from the SNMP agent in this device.

Select the desired values and click 'Save/Apply' to configure the SNMP options.

SNMP Agent: ☒ Disable ☐ Enable

Read Community: public

Set Community: private

System Name: NF18ACV

System Location: unknown

System Contact: unknown

Trap Manager IP: 0.0.0.0

Save/Apply

Figure 119 – Management – Enable SNMP Agent

## Management – TR-069 Client

TR-069 enables provisioning, auto-configuration or diagnostics to be automatically performed on your router if supported by your Internet Service Provider (ISP).

**TR-069 client - Configuration**

WAN Management Protocol (TR-069) allows a Auto-Configuration Server (ACS) to perform auto-configuration, provision, collection, and diagnostics to this device.

Select the desired values and click 'Apply/Save' to configure the TR-069 client options.

☒ Enable WAN Management Protocol (TR-069).

Inform ☒ Disable ☐ Enable

Inform Interval:

ACS URL:

ACS Username:

ACS Password:

WAN Interface used by TR-069 client: Any\_WAN ▾

Display SOAP messages on serial console ☒ Disable ☐ Enable

☐ Connection Request Authentication

Apply/Save
Get RPC Methods

Figure 120 – Management – Enable TR-069 Client

Field	Description
<b>Inform</b>	Set to enable to TR-069 client inform session initialization.
<b>Inform interval</b>	Time in seconds that inform session data is sent to the Auto-Configuration Server (ACS).
<b>ACS URL</b>	The address where the ACS server is located.
<b>ACS User Name</b>	The user name to access the ACS server.
<b>ACS Password</b>	The password to access the ACS server.
<b>WAN Interface used by TR-069 Client</b>	The interface connection used to send and receive data to the ACS server.

Table 38 – TR-069 Client settings table

## Management – Internet Time

The tools on this page allow you to use the Network Time Protocol (NTP) to configure specific time servers to synchronise time, set local time zones, etc. for the modem. The time servers are correct to within a few milliseconds of Coordinated Universal Time (UTC).

**Time settings**

This page allows you to the modem's time configuration.

☒ Automatically synchronize with Internet time servers

First NTP time server: Other ▾

Second NTP time server: Other ▾

Third NTP time server: None ▾

Fourth NTP time server: None ▾

Fifth NTP time server: None ▾

Current Router Time: Thu Jan 1 00:03:57 1970

Time zone offset: (GMT+10:00) Canberra, Melbourne, Sydney ▾

☒ Enable Daylight Saving Time




Apply/Save

*Figure 121 – Management – Internet Time Settings*

Drop down to select existing time server to use, or select **“Other”** to manually enter time server. Click the **“Apply/Save”** button to initiate the change.

## Management – Access Control

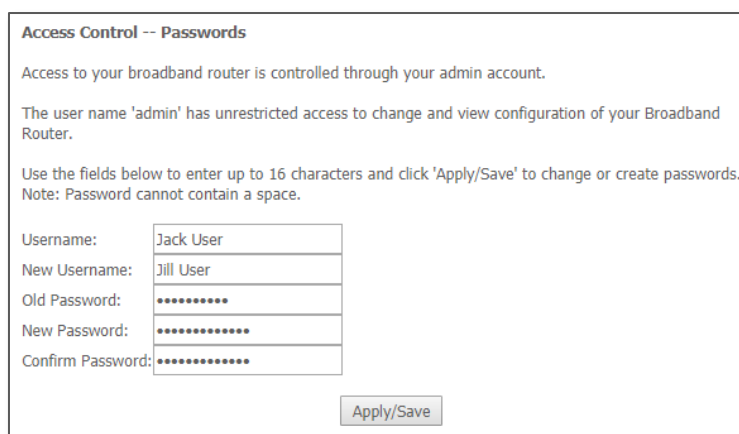
The Access Control option found in the Management drop down menu configures access related parameters in the following three areas:

-  Passwords
-  Access list
-  Services Control

Access Control is used to control local and remote management settings for your router.

### Passwords

The Passwords option configures your account access password for your modem. Use the fields illustrated in the screen below to change or create your password. Passwords must be 16 characters or less with no spaces. Click the **Apply/Save** button after making any changes to continue.



**Access Control -- Passwords**

Access to your broadband router is controlled through your admin account.

The user name 'admin' has unrestricted access to change and view configuration of your Broadband Router.

Use the fields below to enter up to 16 characters and click 'Apply/Save' to change or create passwords.  
Note: Password cannot contain a space.

Username:	Jack User
New Username:	Jill User
Old Password:	*****
New Password:	*****
Confirm Password:	*****

*Figure 122 – Access Control – Passwords*

### Access List

When this facility is enabled, only those IP addresses in the list can access local management services on the device.

This is used to restrict management access from the internet to the specified IP address.

**Access Control -- IP Address** The IP Address Access Control mode, if enabled, permits access to local management services from IP addresses contained in the Access Control List. If the Access Control mode is disabled, the system will not validate IP addresses for incoming packets. The services are the system applications listed in the Service Control List.

Access Control Mode: ☐ Disable ☒ Enable

IP Address	Subnet Mask	Remove
123.123.123.123	255.255.255.255	<input type="checkbox"/>

Figure 123 – Access Control – IP Address Access List

To add a device to the list click the **Add** button and then enter its IP Address and Subnet Mask using CIDR slash notation:

123.123.123.123/32

To permanently delete an IP Address from the list, select ☒ in the **Remove** column and then click the **Remove** button.

## Services Control

The Service Control List (SCL) allows you to enable or disable your Local Area Network (LAN) or Wide Area Network (WAN) services by ticking the checkbox as illustrated below and specifying the service port assign to the service.

The following access services are available: FTP, HTTP, ICMP, SAMBA, SNMP, SSH, TELNET, and TFTP.

Click the **Apply/Save** button after making any changes to continue.



**Note** – You should change your default password, before enabling a WAN service.

**Access Control -- Services**

Services access control list (SCL) enable or disable the running services.

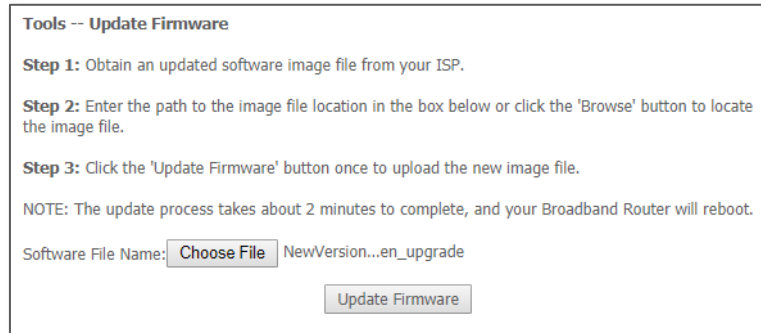
Services	LAN	LAN Port	WAN	Port
HTTP	<input checked="" type="checkbox"/> enable	80	<input type="checkbox"/> enable	80
TELNET	<input checked="" type="checkbox"/> enable	23	<input type="checkbox"/> enable	23
SSH	<input checked="" type="checkbox"/> enable	22	<input type="checkbox"/> enable	22
FTP	<input checked="" type="checkbox"/> enable	21	<input type="checkbox"/> enable	21
TFTP	<input checked="" type="checkbox"/> enable	69	<input type="checkbox"/> enable	69
ICMP	<input checked="" type="checkbox"/> enable	0	<input type="checkbox"/> enable	0
SNMP	<input checked="" type="checkbox"/> enable	161	<input type="checkbox"/> enable	161
SAMBA	<input checked="" type="checkbox"/> enable	445	<input type="checkbox"/> enable	445

Figure 124 – Service Control List (SCL)

## Management – Update Firmware

The following screen appears when selecting the **Update Firmware** option from the **Management** menu. By following this screen's steps, you can update your modem's firmware. Manual device upgrades from a locally stored file can also be performed using the following screen.

- 1 Obtain an updated software image file from: <http://support.netcommwireless.com/>
- 2 Click the **Choose File** button to locate the image file.
- 3 Click the **Update Firmware** button once to upload and install the file.



**Tools -- Update Firmware**

**Step 1:** Obtain an updated software image file from your ISP.

**Step 2:** Enter the path to the image file location in the box below or click the 'Browse' button to locate the image file.

**Step 3:** Click the 'Update Firmware' button once to upload the new image file.

NOTE: The update process takes about 2 minutes to complete, and your Broadband Router will reboot.

Software File Name:  NewVersion...en\_upgrade

*Figure 125 – Update Firmware page*

## Management – Reboot

This option reboots the NF18ACV. Please allow up to 5 minutes for device to reboot.



Click the button below to reboot the router.

*Figure 126 – Reboot button*



**Note 1.** – It may be necessary to reconfigure your TCP/IP settings to adjust for the new configuration. For example, if you disable the Dynamic Host Configuration Protocol (DHCP) server you will need to apply Static IP settings to your Network interface card (NIC).



**Note 2.** – If you lose all access to your web user interface, simply press and hold the reset button on the rear panel for 10 seconds to restore default settings

## Additional Product Information

### Establishing a wireless connection

#### Windows 7

- 1 Open the Network and Sharing Center (Start > Control Panel > Network and Sharing center).
- 2 Click on "Change Adapter settings" on the left-hand side.
- 3 Right-click on "Wireless Network Connection" and select "Connect / Disconnect".
- 4 Select the wireless network listed on your included wireless security card and click Connect.
- 5 Enter the network key (refer to the included wireless security card for the default wireless network key).
- 6 You may then see a window that asks you to "Select a location for the 'wireless' network". Please select the "Home" location.
- 7 You may then see a window prompting you to setup a "HomeGroup". Click "Cancel" on this.
- 8 You can verify your wireless connection by clicking the "Wireless Signal" indicator in your system tray.
- 9 After clicking on this, you should see an entry matching the SSID of your NF18ACV with "Connected" next to it.

#### Windows 8/8.1/10

- 1 Open the Network and Sharing Centre (Click on Start, Type "Network and Sharing Centre")
- 2 Click on "Change adapter settings" on the left hand column.
- 3 Right-click on Wireless Network Adaptor and select "Connect / Disconnect".
- 4 Select the wireless network listed on your included wireless security card and click Connect.
- 5 Enter the network key (refer to the included wireless security card for the default wireless network key).
- 6 You can verify your wireless connection by clicking the "Wireless Signal" indicator in your system tray.
- 7 After clicking on this, you should see an entry matching the SSID of your NF18ACV with "Connected" under it.

#### Mac OSX 10.6

- 1 Click on the Airport icon on the top right menu.
- 2 Select the wireless network listed on your included wireless security card and click Connect.
- 3 On the new window, select "Show Password", type in the network key (*refer to the included wireless security card for the default wireless network key*) in the Password field and then click on OK.
- 4 To check the connection, click on the Airport icon and there should be a tick on the wireless network name.



**Note** – For other operating systems, or if you use a wireless adaptor utility to configure your wireless connection, please consult the operating system documentation for instructions on establishing a wireless connection.

## Troubleshooting

### Using the indicator lights (LEDs) to Diagnose Problems

The LEDs are useful in diagnosing the possible cause of a variety of problems.

#### Power LED

The Power LED does not light up.

Step	Corrective Action
1	Make sure that the NF18ACV power adaptor is connected to the device and plugged in to an appropriate power source. Use only the supplied power adaptor.
2	Check that the NF18ACV and the power source are both turned on and device is receiving sufficient power.
3	Turn the NF18ACV off and on.
4	If the error persists, you may have a hardware problem. In this case, you should contact technical support.

*Table 39 – Power LED trouble shooting table*

#### Web Configuration

I cannot access the web configuration pages.

Step	Corrective Action
1	Check that you have enabled remote administration access. If you have configured an inbound packet filter, ensure your computer's IP address matches it.
2	Your computer's and the NF18ACV's IP addresses must be on the same subnet for LAN access. You can check the subnet in use by the router on the Network Setup page.
3	If you have changed the devices IP address, then enter the new one as the URL you enter into the address bar of your web browser.
4	If you are still not able to access the web configuration pages, reset the router to the factory default settings by pressing the reset button for 3 seconds and then releasing it. When the Power LED begins to blink, the defaults have been restored and the NF18ACV restarts. Navigate to 192.168.20.1 in your web browser and enter "admin" (without the quotes) as the username and password.

*Table 40 – Web Configuration – no access trouble shooting table*

The web configuration does not display properly.

Step	Corrective Action
1	Delete the temporary web files and log in again. In Internet Explorer, click <b>Tools, Internet Options</b> and then click the <b>Delete Files...</b> button. When a <i>Delete Files</i> window displays, select <b>Delete all offline content</b> and click <b>OK</b> .  <b>Note</b> – Steps may vary depending on the version of your Internet browser.

*Table 41 – Web Configuration – no display trouble shooting table*

## Login Username and Password

I forgot my login username and/or password.

Step	Corrective Action
1	Press and hold the Reset button for 10 seconds, and then release it. When the Power LED begins to blink, the defaults have been restored and the NF18ACV restarts.  You can now login with the factory default username and password “admin” (without the quotes)
2	It is highly recommended to change the default username and password. Make sure you store the username and password in a safe place.

*Table 42 – Login Username and Password trouble shooting table*

## WLAN Interface

I cannot access the NF18ACV from the WLAN or ping any computer on the WLAN.

Step	Corrective Action
1	Check the WiFi LED on the front of the unit and verify the WLAN is enabled as per the LED Indicator section.
2	If you are using a static IP address for the WLAN connection, make sure that the IP address and the subnet mask of the NF18ACV and your computer(s) are on the same subnet. You can check the routers configuration from the Network Setup page.

*Table 43 – WLAN Interface trouble shooting table*

## Appendix: Quality of Service setup example

The following Quality of Service (QoS) settings offer a basic setup example, setting up 2 devices connecting to an NF18ACV router, one with the highest priority for data and the other with the lowest priority for data. All other data packet traffic through the router assumes a default best effort setting.

Quality of Service refers to the reservation of bandwidth resources on the NF18ACV router to provide different priorities to different applications, users or data flows or to guarantee a certain level of performance to a data flow.

In this implementation, QoS employs DSCP (Differentiated Services Code Point), a computer networking architecture that specifies a simple, scalable and coarse-grained mechanism for classifying and managing network traffic.

This example guide sets up QoS with two devices (PC and laptop) connecting via Ethernet cable to an NF18ACV router. One device (PC) is assigned high priority traffic while the other device (laptop) is assigned a low priority. Before Quality of Service can be implemented, the first step involves reserving an IP address for each device, identified by their unique MAC addresses.

## Reserving IP addresses

So that QoS settings, custom NAT settings, and parental control settings can be managed for each device, it is necessary to reserve an IP address for each of the devices connecting to the NF18ACV.

Reserved IP addresses are not required to be within the DHCP server range, however they are required to be with-in the LAN subnet range:

- 1 Navigate to <http://192.168.20.1> in a web browser.
- 2 When prompted, enter admin as both the username and password.
- 3 Select **Advanced Setup > LAN**

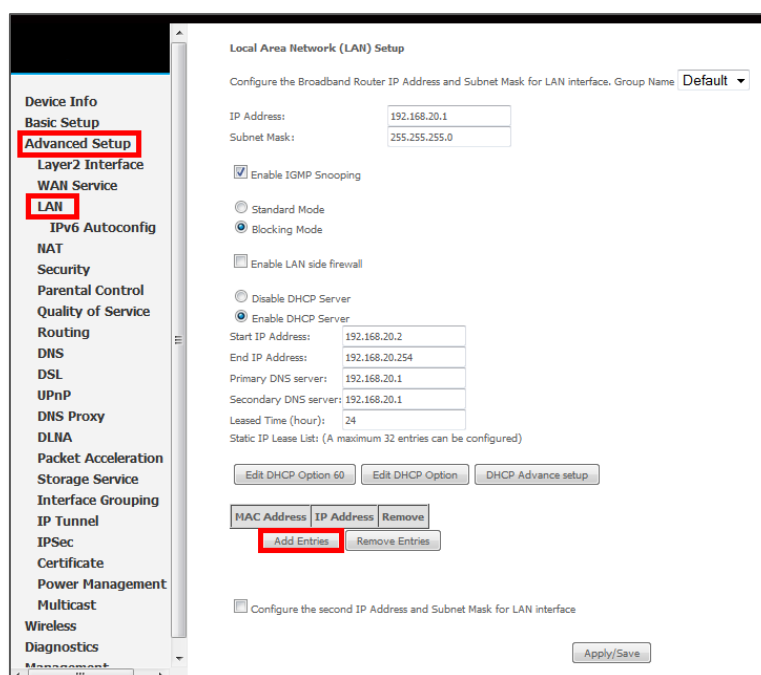
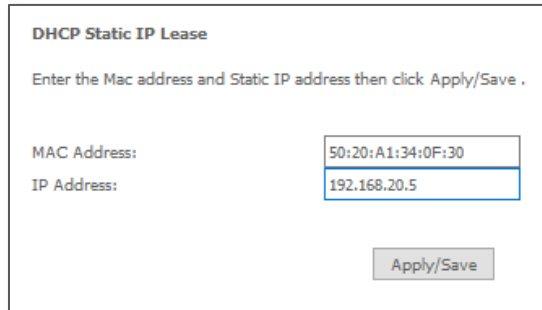


Figure 127 – Advanced Setup > LAN page

- 4 Click the **Add Entries** button.
- 5 Enter the MAC address of the computer/device you are connecting to the router. The MAC address is a 12 character set of numbers and letters (A-F), where every 2 characters separated by a colon (:).
- 6 Enter the IP address of the computer/device. This is the local address in the range of 192.168.20.x where x = a number between 2 and 254.



**DHCP Static IP Lease**

Enter the Mac address and Static IP address then click Apply/Save .

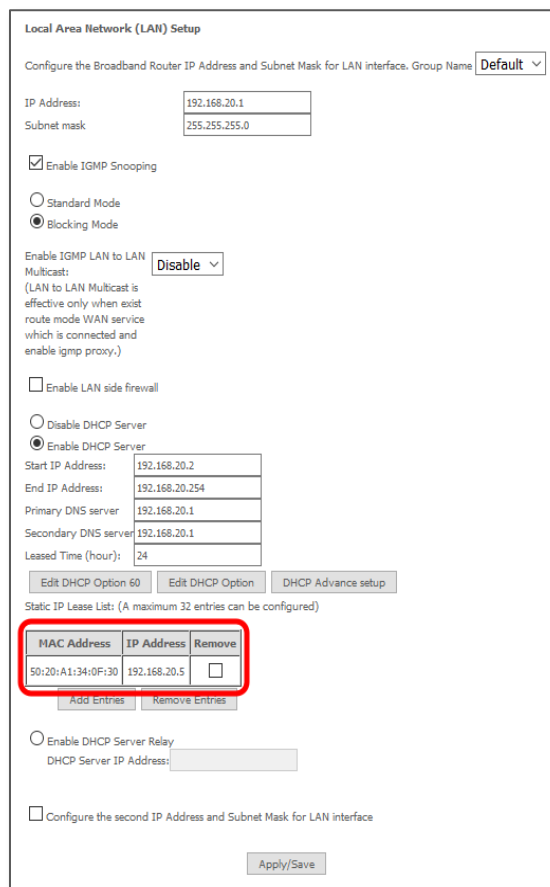
MAC Address: 50:20:A1:34:0F:30

IP Address: 192.168.20.5

Apply/Save

Figure 128 – DHCP Static IP Lease details

- 7 Click the **Apply/Save** button.
- 8 Complete steps 4 through 7 for each device connected to the NF18ACV router. Each entry will be listed in the Static IP Lease List as shown below.



**Local Area Network (LAN) Setup**

Configure the Broadband Router IP Address and Subnet Mask for LAN interface. Group Name: Default

IP Address: 192.168.20.1

Subnet mask: 255.255.255.0

☒ Enable IGMP Snooping

☐ Standard Mode

☒ Blocking Mode

Enable IGMP LAN to LAN Multicast: Disable

(LAN to LAN Multicast is effective only when exist route mode WAN service which is connected and enable igmp proxy.)

☐ Enable LAN side firewall

☐ Disable DHCP Server

☒ Enable DHCP Server

Start IP Address: 192.168.20.2

End IP Address: 192.168.20.254

Primary DNS server: 192.168.20.1

Secondary DNS server: 192.168.20.1

Leased Time (hour): 24

Edit DHCP Option 50 Edit DHCP Option DHCP Advance setup

Static IP Lease List: (A maximum 32 entries can be configured)

MAC Address	IP Address	Remove
50:20:A1:34:0F:30	192.168.20.5	<input type="checkbox"/>

Add Entries Remove Entries

☐ Enable DHCP Server Relay

DHCP Server IP Address:

☐ Configure the second IP Address and Subnet Mask for LAN interface

Apply/Save

Figure 129 – LAN Setup

## QoS Configuration Settings

- 1 Select Advanced Setup > Quality of Service

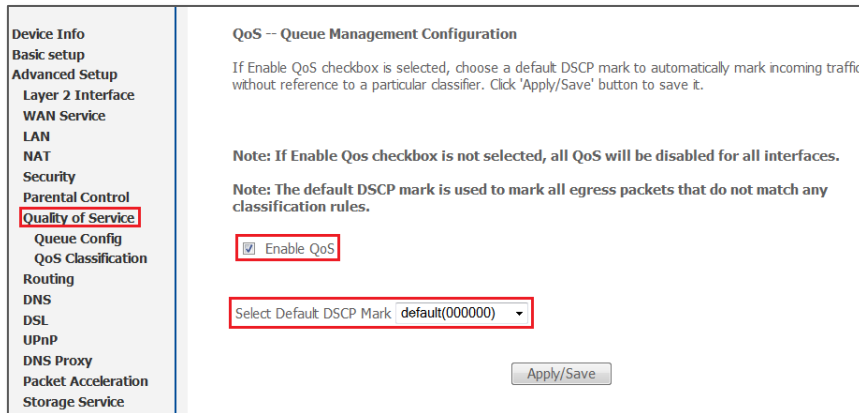
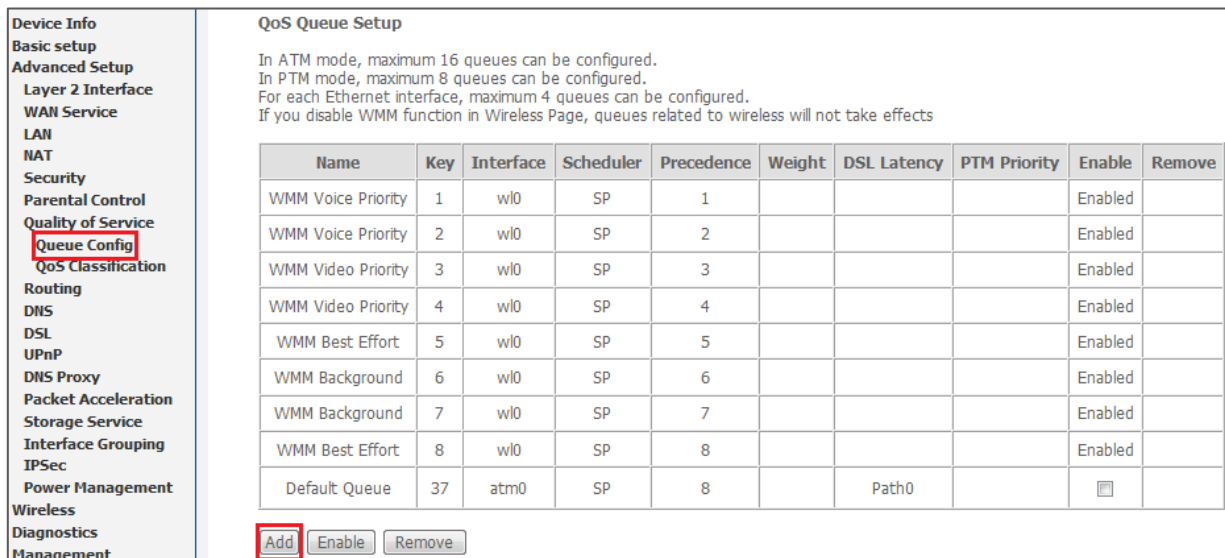


Figure 130 – QoS – Queue Management Configuration

- 2 Select the **Enable QoS** option.
- 3 Select the **Default DSCP Mark** as **default(000000)**.
- 4 Click the **Apply/Save** button.

## High Priority QoS Queue Configuration

- 1 Select **Advanced > Quality of Service > Queue Config**.



Name	Key	Interface	Scheduler	Precedence	Weight	DSL Latency	PTM Priority	Enable	Remove
WMM Voice Priority	1	wl0	SP	1				Enabled	
WMM Voice Priority	2	wl0	SP	2				Enabled	
WMM Video Priority	3	wl0	SP	3				Enabled	
WMM Video Priority	4	wl0	SP	4				Enabled	
WMM Best Effort	5	wl0	SP	5				Enabled	
WMM Background	6	wl0	SP	6				Enabled	
WMM Background	7	wl0	SP	7				Enabled	
WMM Best Effort	8	wl0	SP	8				Enabled	
Default Queue	37	atm0	SP	8		Path0		<input type="checkbox"/>	

Figure 131 – QoS – Queue List

- 2 Click the **Add** button.

<b>Device Info</b> <b>Basic setup</b> <b>Advanced Setup</b> Layer 2 Interface WAN Service LAN NAT Security Parental Control Quality of Service Queue Config QoS Classification Routing DNS DSL UPnP DNS Proxy Packet Acceleration Storage Service Interface Grouping IPSec	<b>QoS Queue Configuration</b>  <p>This screen allows you to configure a QoS queue and assign it to a specific layer2 interface. The scheduler algorithm is defined by the layer2 interface.  <b>Note: For SP scheduling, queues assigned to the same layer2 interface shall have unique precedence. Lower precedence value implies higher priority for this queue relative to others</b>          Click 'Apply/Save' to save and activate the queue.</p> <p>Name: <input type="text" value="PC1HighPriority"/></p> <p>Enable: <input type="button" value="Enable"/></p> <p>Interface: <input type="text" value="atm0(0_0_100)SP"/></p> <p>Precedence: <input type="text" value="1"/></p> <p>DSL Latency: <input type="text" value="Path0"/></p> <p style="text-align: right;"><input type="button" value="Apply/Save"/></p>
--	--

Figure 132 – QoS – Queue Configuration 1

- 3 Enter a name of 15 characters or less to reflect the device that will have high priority QoS, e.g. PC1HighPriority.
- 4 Set the Enable option to **Enable**.
- 5 Set the Interface (Australian customers use **atm0(0\_8\_35)**, NZ customers use **atm0(0\_0\_100)**).
- 6 Enter a **Precedence**. For the highest priority, set it to **1**. For the lowest priority use **3**.
- 7 Set the **DSL Latency** as **Path0**.
- 8 Click the **Save/Apply** button.

## Low Priority QoS Queue Configuration

- 1 Select **Advanced > Quality of Service > Queue Config**.
- 2 Click the **Add** button.

<b>Device Info</b> <b>Basic setup</b> <b>Advanced Setup</b> Layer 2 Interface WAN Service LAN NAT Security Parental Control Quality of Service Queue Config QoS Classification Routing DNS DSL UPnP DNS Proxy Packet Acceleration Storage Service Interface Grouping IPSec	<b>QoS Queue Configuration</b>  <p>This screen allows you to configure a QoS queue and assign it to a specific layer2 interface. The scheduler algorithm is defined by the layer2 interface.  <b>Note: For SP scheduling, queues assigned to the same layer2 interface shall have unique precedence. Lower precedence value implies higher priority for this queue relative to others</b>          Click 'Apply/Save' to save and activate the queue.</p> <p>Name: <input type="text" value="PC2LowPriority"/></p> <p>Enable: <input type="button" value="Enable"/></p> <p>Interface: <input type="text" value="atm0(0_0_100)SP"/></p> <p>Precedence: <input type="text" value="3"/></p> <p>DSL Latency: <input type="text" value="Path0"/></p> <p style="text-align: right;"><input type="button" value="Apply/Save"/></p>
--	---

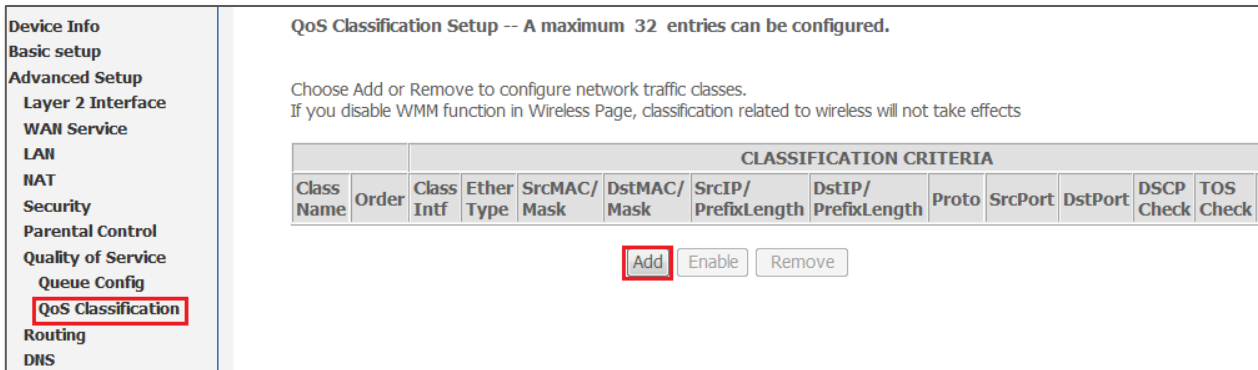
Figure 133 – QoS – Queue Configuration 2

- 3 Enter a name of 15 characters or less to reflect the device that will have low priority QoS e.g. PC2LowPriority.
- 4 Set the Enable option to **Enable**.

- 5 Set the Interface (Australian customers use **atm0(0\_8\_35)**, NZ customers use **atm0(0)0)100)**).
- 6 Enter a **Precedence**. For the lowest priority, set it to **3**. For the highest priority use **1**.
- 7 Set the **DSL Latency** as **Path0**.
- 8 Click the **Save/Apply** button.

## High Priority QoS Classification

- 1 Select **Advanced Setup > Quality of Service > QoS Classification**.



Device Info  
Basic setup  
Advanced Setup  
Layer 2 Interface  
WAN Service  
LAN  
NAT  
Security  
Parental Control  
Quality of Service  
Queue Config  
**QoS Classification**  
Routing  
DNS

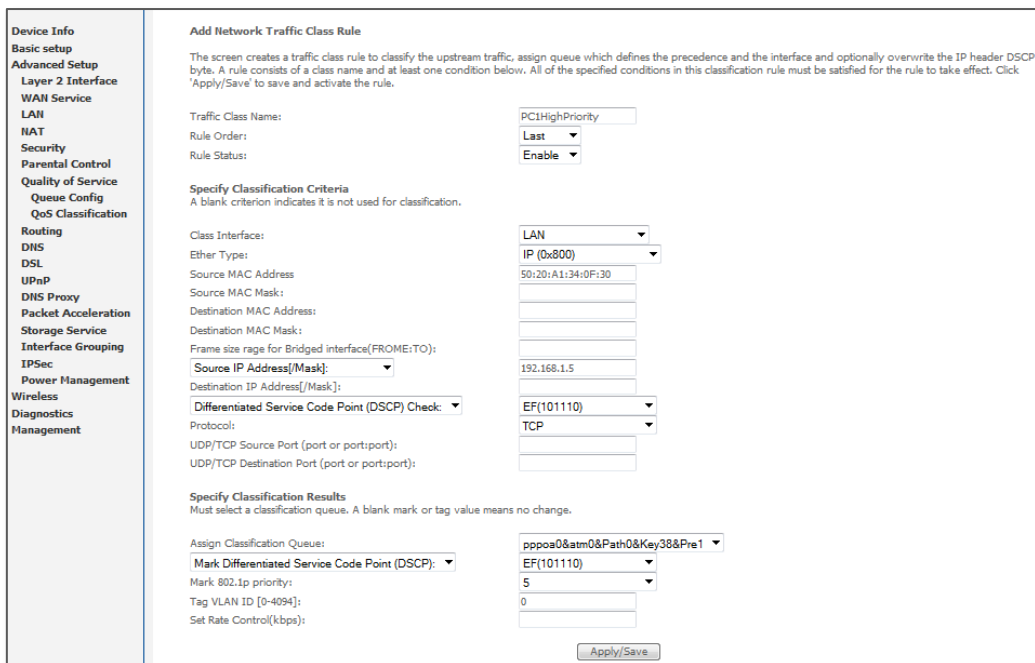
**QoS Classification Setup -- A maximum 32 entries can be configured.**

Choose Add or Remove to configure network traffic classes.  
If you disable WMM function in Wireless Page, classification related to wireless will not take effects

CLASSIFICATION CRITERIA												
Class Name	Order	Class Intf	Ether Type	SrcMAC/Mask	DstMAC/Mask	SrcIP/PrefixLength	DstIP/PrefixLength	Proto	SrcPort	DstPort	DSCP Check	TOS Check
<div> <input type="button" value="Add"/> <input type="button" value="Enable"/> <input type="button" value="Remove"/> </div>												

Figure 134 – QoS Classification configuration

- 2 Click the **Add** button.



Device Info  
Basic setup  
Advanced Setup  
Layer 2 Interface  
WAN Service  
LAN  
NAT  
Security  
Parental Control  
Quality of Service  
Queue Config  
QoS Classification  
Routing  
DNS  
UPnP  
DNS Proxy  
Packet Acceleration  
Storage Service  
Interface Grouping  
IPSec  
Power Management  
Wireless  
Diagnostics  
Management

**Add Network Traffic Class Rule**

The screen creates a traffic class rule to classify the upstream traffic, assign queue which defines the precedence and the interface and optionally overwrite the IP header DSCP byte. A rule consists of a class name and at least one condition below. All of the specified conditions in this classification rule must be satisfied for the rule to take effect. Click 'Apply/Save' to save and activate the rule.

Traffic Class Name:

Rule Order:

Rule Status:

**Specify Classification Criteria**  
A blank criterion indicates it is not used for classification.

Class Interface:

Ether Type:

Source MAC Address:

Source MAC Mask:

Destination MAC Address:

Destination MAC Mask:

Frame size range for Bridged interface(FROM:TO):

Source IP Address/Mask:

Destination IP Address/Mask:

Differentiated Service Code Point (DSCP) Check:

Protocol:

UDP/TCP Source Port (port or port:port):

UDP/TCP Destination Port (port or port:port):

**Specify Classification Results**  
Must select a classification queue. A blank mark or tag value means no change.

Assign Classification Queue:

Mark Differentiated Service Code Point (DSCP):

Mark 802.1p priority:

Tag VLAN ID [0-4094]:

Set Rate Control(kbps):

Figure 135 – Configure Network Traffic Class Rule

- 3 Enter a **Traffic Class Name** reflecting the High Priority QoS rule, e.g. **PC1HighPriority**.
- 4 Leave the **Rule Order** as **Last**.
- 5 Set the **Rule Status** to **Enable**.

- 6 Set the **Class Interface** according to how the device connects to the router. In the example above, **LAN** is selected. Other options are **Wireless**, **Local** and **USB**.
- 7 Set the **Ether Type** to **IP(0x800)**. Other options include ARP(0x8086), Ipv6(0x86DD), PPPoE\_DISC(0x8863), 8865(0x8865), 8866(0x8866), 8021Q(0x8100).
- 8 Enter the **Source MAC Address** of the device, the unique 12 character signature with every 2 characters separated by a colon(:), that you previously entered to reserve the device's IP address.
- 9 Enter the **Source IP Address** of the device that you previously entered into the Static IP Lease List, in the range of 192.168.1.x In the example above the IP address is 192.168.1.5.
- 10 Enter a **Destination MAC Address** if the connection is to a single device. This is useful for VPN connections. If you wish the destination MAC address to be any address leave the field blank.
- 11 Enter a **Destination IP Address** if the connection is to a single device. This is useful for VPN connections. If you wish the destination IP address to be any address leave the field blank.
- 12 Enter a **Destination Subnet Mask** if you have entered a Destination MAC address and Destination IP address. This would normally be 255.255.255.0 unless your system administrator advises otherwise. If you have not entered a Destination MAC or IP address leave the field blank.
- 13 Set the **Differentiated Service Code Point (DSCP)** Check to **EF(101110)**.
- 14 Set the **Protocol** to **TCP**. Other options include UDP, ICMP or IGMP.
- 15 Set "**Assign Classification Queue**" to Priority 1 (in the example above pppoa0&atm0&Path0&Key38&Pre1). Other options or priority 2 and 3. Priority 1 gives the highest priority with priority 3 being the lowest.
- 16 Set **Mark Differentiated Service Code Point (DSCP)** as **EF(101110)**.
- 17 Set **Mark 802.1p Priority** as **5**. In the scale 0-7, 0 is best effort, 6 and 7 are reserved for networking performance so set 5 as the highest priority.
- 18 Click the **Apply/Save** button.

## Low Priority QoS Classification

- 1 Select **Advanced Setup > Quality of Service > QoS Classification**.
- 2 Click the **Add** button.

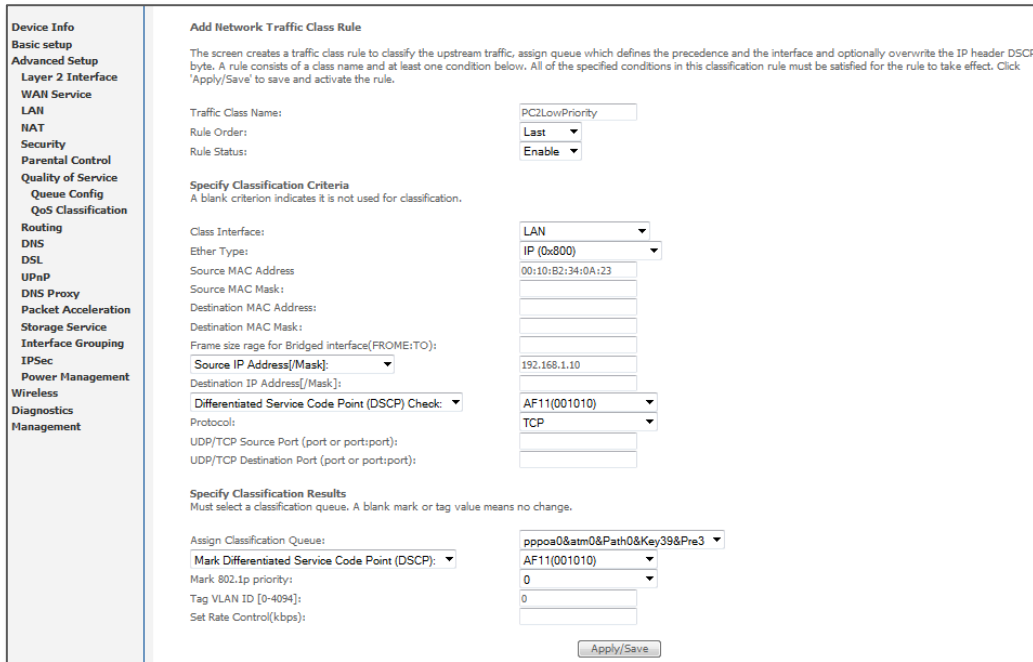


Figure 136 – QoS Network Traffic Class Rule configuration

- 3 Enter a **Traffic Class Name** reflecting the High Priority QoS rule; e.g. **PC2LowPriority**.
- 4 Leave the **Rule Order** as **Last**.
- 5 Set the **Rule Status** to **Enable**.
- 6 Set the **Class Interface** according to how the device connects to the router. In the example above **LAN** is selected. Other options are **Wireless**, **Local** and **USB**.
- 7 Set the **Ether Type** to **IP(0x800)**. Other options include **ARP(0x8086)**, **Ipv6(0x86DD)**, **PPPoE\_DISC(0x8863)**, **8865(0x8865)**, **8866(0x8866)**, **8021Q(0x8100)**.
- 8 Enter the **Source MAC Address** of the device, the unique 12 character signature with every 2 characters separated by a colon(:), that you previously entered to reserve the device's IP address.
- 9 Enter the **Source IP Address** of the device that you previously entered into the Static IP Lease List, in the range of 192.168.1.x. In the example above the IP address is 192.168.1.10.
- 10 Enter a **Destination MAC Address** if the connection is to a single device. This is useful for VPN connections. If you wish the destination MAC address to be any address leave the field blank.
- 11 Enter a **Destination IP Address** if the connection is to a single device. This is useful for VPN connections. If you wish the destination IP address to be any address leave the field blank.
- 12 Enter a **Destination Subnet Mask** if you have entered a Destination MAC address and Destination IP address. This would normally be 255.255.255.0 unless your system administrator advises otherwise. If you have not entered a Destination MAC or IP address leave the field blank.
- 13 Set the **Differentiated Service Code Point (DSCP) Check** to **AF11(001010)**.
- 14 Set the **Protocol** to **TCP**. Other options include **UDP**, **ICMP** or **IGMP**.
- 15 Set "**Assign Classification Queue**" to Priority 3 (in the example above pppoa0&atm0&Path0&Key39&Pre3). Other options are priority 1 and 2. Priority 1 gives the highest priority with priority 3 being the lowest.
- 16 Set **Mark Differentiated Service Code Point (DSCP)** as **AF11(001010)**.
- 17 Set **Mark 802.1p Priority** as **0**. In the scale 0-7, 0 is best effort, 6 and 7 are reserved for networking performance so set 0 as the lowest priority.

- 18 Click the **Apply/Save** button.
- 19 You now have 2 Quality of Service rules implemented for 2 devices connecting to the NF18ACV router.

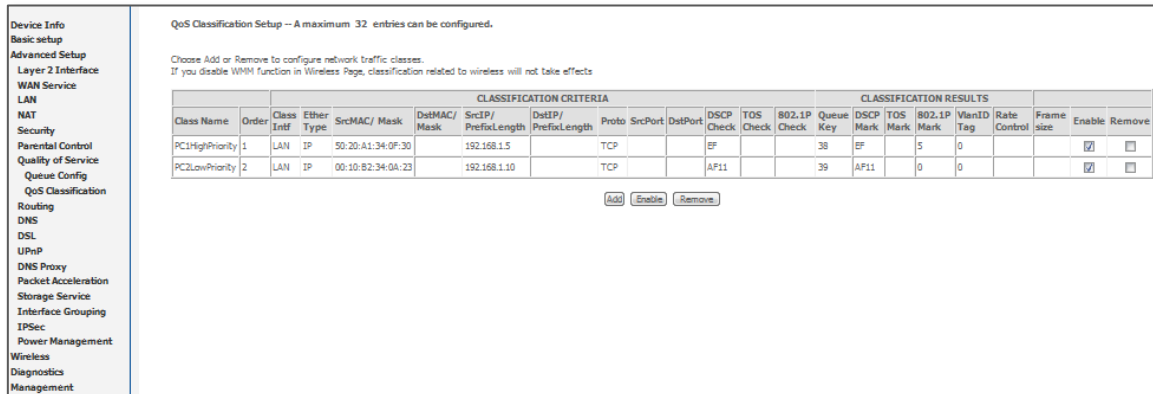


Figure 137 – QoS Classification setup page

- 20 Select **Management > Reboot**. Click the **Reboot** button to restart the router and save the new settings.
- 21 To test your Quality of Service settings try running speed-tests (<http://speedtest.net>) on both PCs/devices **simultaneously**.

## Limiting the upstream rate

- 1 By default, a QoS queue is created when a WAN interface is created but it is disabled by default. On the QoS Queue page, enable the queue for the appropriate WAN interface.

Default Queue	33	atm0	1	8/WRR/1	Path0					<input checked="" type="checkbox"/>	
---------------	----	------	---	---------	-------	--	--	--	--	-------------------------------------	--

Figure 138 – QoS Queue details

- 2 On the QoS Classification page, add a rule to limit the upstream rate, for example:
  - 🔗 Classification Criteria:
  - 🔗 Class Interface: LAN
  - 🔗 Ether type: IP
  - 🔗 Classification Results:
  - 🔗 Class Queue: the queue that was enabled in Step 1
  - 🔗 Set rate-limit: set according to your preference

### Add Network Traffic Class Rule

This screen creates a traffic class rule to classify the ingress traffic into a priority queue and optionally mark the DSCP or Ethernet priority of the packet. Click 'Apply/Save' to save and activate the rule.

Traffic Class Name:   
Rule Order:   
Rule Status:

**Specify Classification Criteria** (A blank criterion indicates it is not used for classification.)

Class Interface:   
Ether Type:   
Source MAC Address:   
Source MAC Mask:   
Destination MAC Address:   
Destination MAC Mask:   
Source IP Address[/Mask]:   
Destination IP Address[/Mask]:   
Differentiated Service Code Point (DSCP) Check:   
Protocol:

**Specify Classification Results** (A blank value indicates no operation.)

Specify Class Queue (Required):

- Packets classified into a queue that exit through an interface for which the queue is not specified to exist, will instead egress to the default queue on the interface.

Mark Differentiated Service Code Point (DSCP):

Mark 802.1p priority:

- Class non-vlan packets egress to a non-vlan interface will be tagged with VID 0 and the class rule p-bits.  
- Class vlan packets egress to a non-vlan interface will have the packet p-bits re-marked by the class rule p-bits. No additional vlan tag is added.  
- Class non-vlan packets egress to a vlan interface will be tagged with the interface VID and the class rule p-bits.  
- Class vlan packets egress to a vlan interface will be additionally tagged with the packet VID, and the class rule p-bits.

Set Rate Limit:  [Kbits/s]

Figure 139 – Network Traffic Class Rule

- Click **Apply/Save**.

## Limiting the downstream rate

- Navigate to the **QoS Queue Configuration** page to add a queue for the LAN interface, for example:

### QoS Queue Configuration

This screen allows you to configure a QoS queue and add it to a selected layer2 interface.

Name:   
Enable:   
Interface:

Figure 140 – QoS Queue Configuration

- On the QoS Classification page, add a rule to limit the downstream rate, for example:
  - Classification Criteria:
  - Class Interface: the appropriate WAN interface
  - Classification Results:

- Class Queue: the queue that was created on Step 1
- Set rate-limit: set according to your preference

**Add Network Traffic Class Rule**

This screen creates a traffic class rule to classify the ingress traffic into a priority queue and optionally mark the DSCP or Ethernet priority of the packet.  
Click 'Apply/Save' to save and activate the rule.

Traffic Class Name:

Rule Order:

Rule Status:

**Specify Classification Criteria** (A blank criterion indicates it is not used for classification.)

Class Interface:

Ether Type:

Source MAC Address:

Source MAC Mask:

Destination MAC Address:

Destination MAC Mask:

**Specify Classification Results** (A blank value indicates no operation.)

Specify Class Queue (Required):

- Packets classified into a queue that exit through an interface for which the queue is not specified to exist, will instead egress to the default queue on the interface.

Mark 802.1p priority:

- Class non-vlan packets egress to a non-vlan interface will be tagged with VID 0 and the class rule p-bits.  
- Class vlan packets egress to a non-vlan interface will have the packet p-bits re-marked by the class rule p-bits. No additional vlan tag is added.  
- Class non-vlan packets egress to a vlan interface will be tagged with the interface VID and the class rule p-bits.  
- Class vlan packets egress to a vlan interface will be additionally tagged with the packet VID, and the class rule p-bits.

Set Rate Limit:  [Kbits/s]

Figure 141 – Network Traffic class Rule

## 2 Click **Apply/ Save**

The QoS Classification table looks like this:

QoS Classification Setup -- maximum 32 rules can be configured.

To add a rule, click the **Add** button.

To remove rules, check their remove-checkboxes, then click the **Remove** button.

The **Enable** button will scan through every rules in the table. Rules with enable-checkbox checked will be enabled. Rules with enable-checkbox un-checked will be disabled.

The enable-checkbox also shows status of the rule after page reload.

If you disable WMM function in Wireless Page, classification related to wireless will not take effects

		CLASSIFICATION CRITERIA												CLASSIFICATION RESULTS						
Class Name	Order	Class Interface	Ethernet Type	Source MAC/Mask	Destination MAC/Mask	Source IP/Prefix Length	Destination IP/Prefix Length	Protocol	Source Port	Destination Port	DSCP Check	TC Check	802.1P Check	Queue Key	DSCP Mark	TC Mark	802.1P Mark	Rate Limit(kbps)	Enable	Remove
Upstream	1	LAN	IP											33				800	<input type="checkbox"/>	<input type="checkbox"/>
Downstream	2	atm0.1												35				100	<input checked="" type="checkbox"/>	<input type="checkbox"/>

Add

Enable

Remove

Figure 142 – QoS Classification list

## Table of Figures

Figure 1 – NF18ACV router rear view .....	15
Figure 2 – NF18ACV router side view .....	16
Figure 3 – NF18ACV router – Select Basic Setup .....	21
Figure 4 – NF18ACV router – Select ADSL as WAN connection type .....	21
Figure 5 – Select PPPoE as WAN mode .....	22
Figure 6 – Enter PPPoE User ID and Password .....	22
Figure 7 – NF18ACV router – Select VDSL as WAN connection type .....	22
Figure 8 – Select WAN mode for VDSL connection .....	23
Figure 9 – Select VLAN option for VDSL connection .....	23
Figure 10 – VDSL connection – Enter User ID and Password .....	23
Figure 11 – NF18ACV router – Select Ethernet WAN as WAN connection type .....	24
Figure 12 – Select WAN mode for Ethernet WAN connection .....	24
Figure 13 – Select VLAN option for PPPoE .....	25
Figure 14 – Ethernet WAN connection – Enter User ID and Password .....	25
Figure 15 – IP over Ethernet (IPoE) -- VLAN Setup .....	25
Figure 16 – IP over Ethernet (IPoE) – Static or Auto IP Address.....	25
Figure 17 – WAN Setup Summary .....	26
Figure 18 – NF18ACV route – Device Info summary page.....	27
Figure 19 – NF18ACV router – WAN Info list .....	28
Figure 20 – Device Info – Statistics -- LAN display .....	29
Figure 21 – Device Info – Statistics – WAN Service display .....	29
Figure 22 – Device Info – Statistics -- xTM display .....	30
Figure 23 – NF18ACV router .....	31
Figure 24 – Device Info -- Route list .....	32
Figure 25 – Device Info -- ARP list.....	32
Figure 26 – Device Info -- DHCP Leases list .....	32
Figure 27 – Device Info – CPU & Memory display.....	33
Figure 28 – DSL ATM Interface list.....	34
Figure 29 – ATM PVC Configuration page .....	35
Figure 30 – DSL PTM Interface list.....	35
Figure 31 – PTM Configuration page.....	36
Figure 32 – ETH WAN interface list WAN Service.....	36
Figure 33 – NF18ACV router .....	37
Figure 34 – WAN Service – Select layer 2 interface .....	37
Figure 35 – WAN Service – Select WAN Service Type.....	38
Figure 36 – Enter PPP over Ethernet details.....	38
Figure 37 – Enter IP over Ethernet details.....	39
Figure 38 – Enter PPP over Ethernet NAT Translation settings.....	39
Figure 39 – Enter PPP over Ethernet details.....	40
Figure 40 – LAN setup -- IPv4 Autoconfig settings .....	40
Figure 41 – Enter DHCP Static IP Addresses .....	41
Figure 42 – IPv6 LAN Auto Configuration page .....	42
Figure 43 – Specify a LAN port for VLAN tagging .....	43
Figure 44 – NAT -- Virtual Server list .....	44
Figure 45 – NAT -- Virtual Server Configuration page.....	44
Figure 46 – NAT -- Port Triggering list .....	45
Figure 47 – NAT -- Port Trigger Configuration page.....	46
Figure 48 – NAT – DMZ Host settings.....	47
Figure 49 – NAT – Application Layer Gateway (ALG) settings .....	47
Figure 50 – IP Filtering List .....	48
Figure 51 –Outgoing IP Filter settings .....	48
Figure 52 – Incoming IP Filter settings .....	49

Figure 53 – Security – MAC Filter list .....	50
Figure 54 – Security – MAC Filter settings .....	50
Figure 55 – Advanced – Parental Control – Time Restriction .....	51
Figure 56 – Advanced – Parental Control – Add Time Restriction .....	51
Figure 57 – Advanced – Parental Control – URL Filter .....	52
Figure 58 – Advanced – Parental Control – Add URL Filter .....	52
Figure 59 – Advanced – Enable QoS .....	53
Figure 60 – Advanced – QoS Queue Setup .....	53
Figure 61 – Advanced – QoS – Add QoS Queue .....	54
Figure 62 – Advanced – QoS – WLAN Queue .....	54
Figure 63 – Advanced – QoS Classification list .....	55
Figure 64 – Advanced – QoS – Network Traffic Class settings .....	55
Figure 65 – QoS Port Shaping settings .....	56
Figure 66 – Advanced – QoS – Port Shaping settings .....	56
Figure 67 – Routing – Set Default Gateway .....	57
Figure 68 – Routing – Static Route list .....	57
Figure 69 – Routing – Static Route configuration .....	58
Figure 70 – Routing – Policy Routing list .....	58
Figure 71 – Advanced – Routing – Policy Route configuration .....	58
Figure 72 – Routing – RIP list .....	59
Figure 73 – DNS Server Configuration .....	60
Figure 74 – Dynamic DNS list .....	61
Figure 75 – Add Dynamic DNS .....	61
Figure 76 – DSL settings page .....	62
Figure 77 – DSL Advanced Settings page .....	63
Figure 78 – ADSL Tone Settings page .....	64
Figure 79 – UPnP activation page .....	64
Figure 80 – DNS Proxy activation page .....	65
Figure 81 – DLNA setting page .....	65
Figure 82 – Storage Device Info list .....	66
Figure 83 – Storage User Accounts list .....	66
Figure 84 – Storage User Account Setup page .....	66
Figure 85 – Interface Grouping list .....	67
Figure 86 – Interface Grouping configuration .....	68
Figure 87 – IPv6inIPv4 Tunnel list .....	68
Figure 88 – 6in4 Tunnel configuration .....	69
Figure 89 – IPv4inIPv6 Tunnel list .....	69
Figure 90 – 4in6 Tunnel configuration .....	69
Figure 91 – Multicast .....	70
Figure 92 – IPSec Tunnel Mode Connections list .....	71
Figure 93 – IPSec configuration .....	72
Figure 94 – Wireless - Basic Configuration .....	74
Figure 95 – Wireless Security .....	76
Figure 96 – Wireless – MAC Filter list .....	77
Figure 97 – Wireless – MAC Filter configuration .....	77
Figure 98 – Wireless Bridge page .....	78
Figure 99 – Wireless – Advanced configuration page .....	79
Figure 100 – Wireless – Station Info list .....	83
Figure 101 – Voice Status page .....	84
Figure 102 – SIP Basic Settings page .....	85
Figure 103 – Voice- SIP Advanced settings .....	87
Figure 104 – SIP Extra Setting page .....	90
Figure 105 – SIP Star Code Setting page .....	91
Figure 106 – SIP Debug Settings page .....	92
Figure 107 – Diagnostics – Diagnostic tests .....	97
Figure 108 – Diagnostics – Ethernet OAM .....	98

Figure 109 – Ping IP address .....	98
Figure 110 – Diagnostics – Traceroute page.....	99
Figure 111 – Diagnostics – Start/Stop DSL page.....	99
Figure 112 – Settings – Backup page.....	100
Figure 113 – Settings – Update Settings page .....	100
Figure 114 – Settings – Factory Reset page .....	101
Figure 115 – Management – View System Log.....	101
Figure 116 – Management – Configure System Log .....	101
Figure 117 – Management – View Security Log .....	101
Figure 118 – Management – Download Security Log .....	102
Figure 119 – Management – Enable SNMP Agent .....	102
Figure 120 – Management – Enable TR-069 Client .....	103
Figure 121 – Management – Internet Time Settings .....	104
Figure 122 – Access Control – Passwords .....	104
Figure 123 – Access Control – IP Address Access List .....	105
Figure 124 – Service Control List (SCL) .....	105
Figure 125 – Update Firmware page .....	106
Figure 126 – Reboot button .....	106
Figure 127 – Advanced Setup > LAN page .....	110
Figure 128 – DHCP Static IP Lease details .....	111
Figure 129 – LAN Setup .....	111
Figure 130 – QoS – Queue Management Configuration.....	112
Figure 131 – QoS – Queue List .....	112
Figure 132 – QoS – Queue Configuration 1 .....	113
Figure 133 – QoS – Queue Configuration 2 .....	113
Figure 134 – QoS Classification configuration .....	114
Figure 135 – Configure Network Traffic Class Rule .....	114
Figure 136 – QoS Network Traffic Class Rule configuration .....	116
Figure 137 – QoS Classification setup page .....	117
Figure 138 – QoS Queue details .....	117
Figure 139 – Network Traffic Class Rule.....	118
Figure 140 – QoS Queue Configuration .....	118
Figure 141 – Network Traffic class Rule .....	119
Figure 142 – QoS Classification list.....	119

## Table of Tables

Table 1 – LED indicator table .....	14
Table 2 – Physical dimensions and weigh table .....	14
Table 3 – LAN (Management) table .....	14
Table 4 – Wireless (WIFI) table .....	14
Table 5 – NF18ACV WEB Interface Access table .....	14
Table 6 – Rear interface table .....	15
Table 7 – Side interface table .....	16
Table 8 – Device Info summary table .....	27
Table 9 – WAN Info table .....	28
Table 10 – Statistics -- LAN display table .....	29
Table 11 – Statistics – WAN Service table .....	30
Table 12 – Statistics – xTM settings table .....	30
Table 13 – DSL ATM Interface Configuration settings table .....	35
Table 14 – IPv4 Autoconfig settings table .....	41
Table 15 – IPv6 LAN Auto Configuration settings .....	43
Table 16 – NAT -- Virtual Server settings table .....	45
Table 17 – NAT -- Port Trigger Configuration settings .....	46
Table 18 – Outgoing IP Filter settings table .....	48
Table 19 – Incoming IP Filter settings table .....	49
Table 20 – Advanced – Parental Control – Add Time Restriction Settings .....	51
Table 21 – Advanced – Parental Control – Add URL Restriction Settings .....	52
Table 22 – Routing – Policy Route settings table .....	59
Table 23 – Routing – RIP settings .....	59
Table 24 – Routing – RIP settings .....	61
Table 25 – DSL settings table .....	62
Table 26 – DSL settings table .....	63
Table 27 – Multicast settings table .....	71
Table 28 – IPSeC settings table .....	73
Table 29 – Basic Wireless settings table .....	75
Table 30 – Wireless security settings table .....	76
Table 31 -Wireless – Advanced configuration settings .....	83
Table 32 – SIP settings table .....	86
Table 33 – VoIP – Advanced – Service Provider settings .....	89
Table 34 – Dial Plan Syntax table .....	89
Table 35 – SIP Extra Settings table .....	90
Table 36 – SIP Debug Settings table .....	92
Table 37 – Diagnostic test result table .....	97
Table 38 – TR-069 Client settings table .....	103
Table 39 – Power LED trouble shooting table .....	108
Table 40 – Web Configuration – no access trouble shooting table .....	108
Table 41 – Web Configuration – no display trouble shooting table .....	108
Table 42 – Login Username and Password trouble shooting table .....	109
Table 43 – WLAN Interface trouble shooting table .....	109

## 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 (ACN 002490486) (NetComm Wireless Limited) (or its licensors). This Manual does not transfer any right, title or interest in NetComm Wireless Limited'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, NetComm Wireless and NetComm Wireless Limited are 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:
  - i Change the direction or relocate the receiving antenna.
  - ii Increase the separation between this equipment and the receiver.
  - iii Connect the equipment to an alternate power outlet on a different power circuit from that to which the receiver/TV is connected.
  - iv 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. 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 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 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 date by registering online via the NetComm Wireless web site at [www.netcommwireless.com](http://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 Consumer Protection Laws Section above).

Subject to your rights and remedies under applicable Consumer Protection Laws which cannot be excluded (see the [Consumer Protection Laws](#) Section 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 and any other reasonable requirements of NetComm including producing such evidence of purchase as NetComm may require;
- 4 the cost of transporting product to and from NetComm'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'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 the [Consumer Protection Laws](#) Section 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'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'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.

## Contact

Address: NETCOMM WIRELESS LIMITED Head Office

PO Box 1200, Lane Cove NSW 2066 Australia

Phone: +61(0)2 9424 2070

Fax: +61(0)2 9424 2010

Email: [sales@netcommwireless.com](mailto:sales@netcommwireless.com) [techsupport@netcommwireless.com](mailto:techsupport@netcommwireless.com)