



ADSL Modem

ADSL

PLUS 4 Wireless

Ethernet/USB ADSL Modem with Integrated Router plus 11Mbps Wireless

11Mbps WIRELESS
10/100 4-Port Switch
Active Security (SPI) Firewall



User Guide

NB1300PLUS4W

NetComm™ Broadband Solutions



Legal & Regulatory Information Copyright Information

This manual is copyright. Apart from any fair dealing for the purposes of private study, research, criticism or review, as permitted under the Copyright Act, no part 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 Limited. NetComm Limited accepts no liability or responsibility, for consequences arising from the use of this product.

NetComm Limited reserves the right to change the specifications and operating details of this product without notice.

NetComm is a registered trademark of NetComm Limited.

All other trademarks are acknowledged the property of their respective owners.

Customer Information

ACA (Australian Communications Authority) requires you to be aware of the following information and warnings:

- (1) This unit shall be connected to the Telecommunication Network through a line cord which meets the requirements of the ACA TS008 Standard.
- (2) This equipment has been tested and found to comply with the Standards for C-Tick and or A-Tick as set by the ACA . These standards are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio noise and, if not installed and used in accordance with the instructions detailed within this manual, may cause interference to radio communications. However, there is no guarantee that interference will not occur with the installation of this product in your home or office. If this equipment does cause some degree of interference to radio or television reception, which can be determined by turning the equipment off and on, we encourage the user to try to correct the interference by one or more of the following measures:
 - Change the direction or relocate the receiving antenna.
 - Increase the separation between this equipment and the receiver.
 - Connect the equipment to an alternate power outlet on a different power circuit from that to which the receiver/TV is connected.
 - Consult an experienced radio/TV technician for help.
- (3) 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. Failure to do so may cause damage to this product, fire or result in personal injury.

*Note: It is recommend that you **enable** wireless encryption before joining the NB1300Plus4Wireless to your network or the Internet. You are responsible for the security of your computers and network.*

Overview	5
Package Contents	5
Connecting your NB1300Plus4Wireless	6
Do I need a Micro filter?	8
LED Indicators	9
Using Easy Config	10
Factory Defaults	12
Resetting to factory defaults	12
Configuration Types	13
ADSL Modem - Ethernet Configuration (Not recommended for Wireless use)	14
ADSL Modem - USB Configuration (Not recommended for Wireless use)	19
ADSL Gateway Router - Ethernet Configuration	24
ADSL Gateway Router - USB Configuration	30
Macintosh OS X USB Configuration	35
Setting up your Wireless LAN	38
Introduction to Setting up your WLAN	38
WLAN Basic Information	38
Planning a Wireless Network	40
Configuring Client Adapters	44
Configuring the Firewall	46
Service Filtering	46
Configuring Groups	47
Firewall Databases	47
Configuring Policies	48
Advanced Configuration for your NB1300Plus4 Wireless	49
How to make changes	49
Multiple Virtual Circuits	49
USB or Ethernet?	49
Main Menu - (Simple)	50
Basic Menu	51
Status	52
Router	53
ADSL	54
PPP	55
Main Menu - (Advanced)	56
Advanced	56
One Page Setup	56
Hide Advanced settings	56
Administration	57
WAN	57
LAN/DHCP	60
DNS	61
NAT	62
Port Forwarding	64

Wireless	65
ADSL Configuration	66
RIP Configuration	67
Diagnostic Test	68
Route Table	69
MAC Filtering	70
Security	71
Admin Password	71
User Password	72
Misc Configuration	73
System Log	75
Code Update	77
Status	78
Router	78
ADSL	79
LAN	80
WAN	81
ATM	82
TCP Connections	83
Learned MAC Table	84
PPP	85
Save Settings and Reboot	86
 Appendix A - Connection Instructions	 87
Connect your NB1300Plus4 Wireless ADSL Modem via Ethernet	87
Connect your NB1300Plus4 Wireless ADSL Modem via USB	88
Macintosh OS X USB Configuration	89
 Appendix B - Trouble Shooting	 92
General Modem Operation	92
Web Based Interface	93
Internet / ISP Connection	94
Testing your TCP/IP Network Using a Ping Utility	96
 Appendix C - Glossary	 98
 Appendix D - Frequently Asked Questions	 101
What is DHCP?	101
What is NAT?	101
What is Port Forwarding?	102
How do you set up Firewalling correctly on a router?	103
What is QoS and why should I use it?	104
 Appendix E - Cable Connections	 105
 Appendix F - Registering your NetComm Product	 108
Contact Information	108
Legal & Regulatory Information Copyright Information	109
Product Warranty	110
Limitations of Warranty	111

Package Contents

The following items should be contained in your NB1300Plus4Wireless ADSL Modem Router Package:

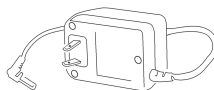
- ☐ One ADSL ModemPlus4 Port Switch Wireless (NB1300+4W)



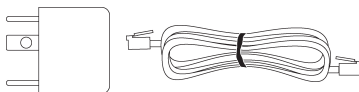
- ☐ Package Contents Note and a User Guide



- ☐ Power Adaptor (9VAC/800mA)



- ☐ Telephone Line Cable (RJ11) and 605 to RJ11 Adaptor



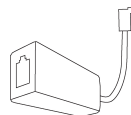
- ☐ Ethernet Network Cable (RJ45)



- ☐ USB Cable



- ☐ Microfilter



- ☐ NetComm Communications CD-ROM



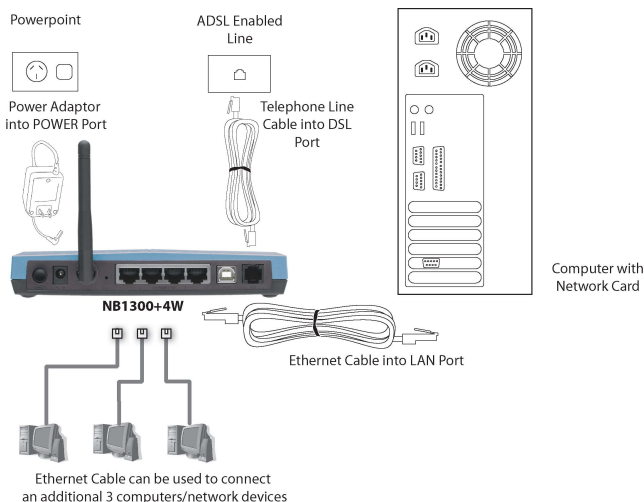
Check the contents of your package and, if any parts are missing or damaged, please contact your Dealer.

Connecting your NB1300Plus4Wireless

The NB1300Plus4Wireless can be connected via a USB cable or an Ethernet cable or both. The reason for this is that the USB connection is simply an ethernet simulation, as far as your computer is concerned the USB connection is an Ethernet connection, hence DHCP and other protocols will work the same as for Ethernet.

Connecting your NB1300Plus4Wireless ADSL Modem via Ethernet

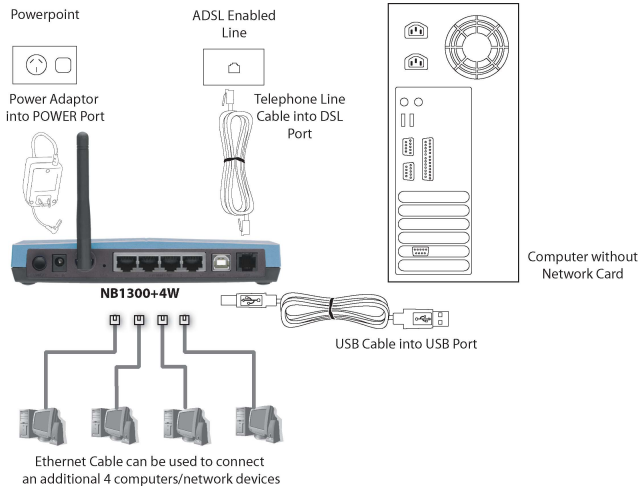
1. Connect your NB1300Plus4Wireless to either a computer directly or a network hub or switch using cat5 ethernet cables. You need to ensure you are using the correct type of ethernet cable - i.e. straight through or crossover.



2. Connect the power pack to the NB1300Plus4Wireless ADSL Modem and switch on the power switch.
3. Ensure that the connected port has a LAN led light on the NB1300Plus4Wireless.
4. Ensure that the computer you intend to use has an IP address in the same subnet as the NB1300Plus4Wireless ADSL Modem. (e.g. the NB1300Plus4Wireless's default IP is 192.168.1.1 - your computer should be on 192.168.1.100 or similar.) If you have DHCP enabled on your computer, the NB1300Plus4Wireless will assign your computer a suitable IP address.
5. Ensure that your computer has a LAN link light.
6. Connect one end of the ADSL phone line to the NB1300Plus4Wireless ADSL Modem and the other end to the wall socket.
7. Additional network devices or computers can be connected to the remaining LAN ports.

Connecting your NB1300Plus4Wireless ADSL Modem via USB

1. Connect the power pack to the NB1300Plus4Wireless ADSL Modem and switch on the power switch.



2. Install the USB driver (Windows 98/Me/2000/XP only - for Macintosh refer to the Macintosh Configuration section.)

When you install the USB driver on your computer it creates a Virtual Ethernet Adapter, which can be configured in the same way as a Network Interface card with DHCP or static IP address. To install the USB driver please follow the steps below;

- a. Boot your machine into Windows 98/Me/2000/XP.
 - b. Insert your NetComm NB1300Plus4Wireless CD-ROM into your CD-ROM drive.
 - c. Select "Install drivers" from the screen which will automatically appear. If the screen does not appear, browse the CD-ROM and double-click on the "autorun.exe" file.
 - d. Plug power up to your NB1300Plus4Wireless and switch ON.
 - e. Plug a USB cable from the back of the unit into a spare USB socket on your computer.
 - f. The Windows "Add New Hardware Wizard" should appear. Click Next to continue.
 - g. Ensure the option "Search for the best driver..." is chosen and click Next.
 - h. When prompted where you would like to look for the drivers choose "Specify location" and untick any other boxes. Then click the browse button to select the CD-ROM drive which you inserted you NetComm CD-ROM into. Then choose the "USBdriver" folder.
3. Connect one end of the ADSL phone line to the NB1300Plus4Wireless ADSL Modem and the other end to the wall socket.
 4. In addition to using the USB connection, you may connect up to 4 additional network devices or computers.

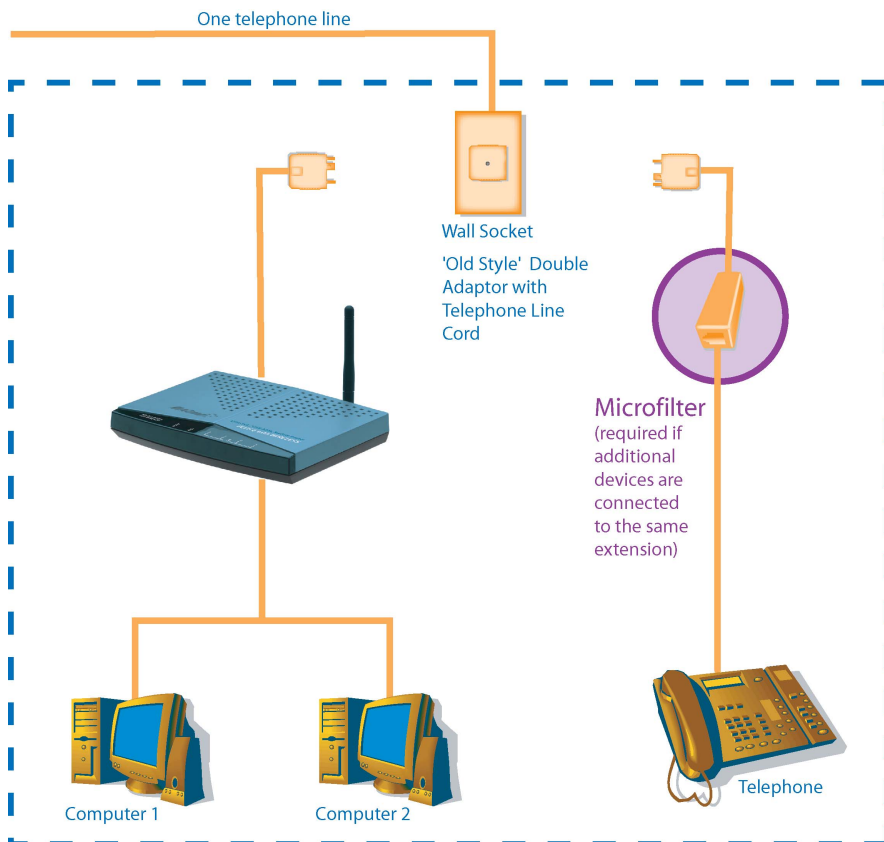
Do I need a Micro filter?

Micro filters are used to prevent common telephone equipment, such as phones, answering machines and fax machines, from interfering with your ADSL service. If your ADSL enabled phone line is being used with any other equipment other than your ADSL Modem then you will need to use one Micro filter for each phone device.

Splitters may be installed when your ADSL line is installed or when your current phone line is upgraded to ADSL. If your telephone line is already split you will not need to use a Microfilter - check with your ADSL service provider if you are unsure.

Each micro filter is connected in-line with your telephone or fax machine so that all signals pass through it. Telephones and/or facsimiles in other rooms that are using the same extension will also require Microfilters. The following diagram gives an example of connecting your ADSL Modem/Router using a Microfilter.

A suitable Microfilter can be purchased from NetComm or your Service Provider, if required.





The LED Indicators are located on the front of the unit, they are green in colour. The meanings are as follows:

Label	Meaning	Status	Indicates:
PWR	Power	On	Power is on
		Off	Power is off
		Flashing	Unit is powered up correctly when pulsing steadily. ON or OFF during reboot or when unit switched OFF. If ON or OFF permanently then there is an error. Try powering unit OFF then ON after a minute.
LNK	WAN Link	Flashing	Link being attempted by router and when receiving or sending data on the WAN port (ADSL line)
		On	Link established
		Off	No link
WLAN	Wireless LAN	Flashing	Check Wireless device.
LAN 1/2/3/4	LAN Port 1/2/3/4	Flashing	Flashes when data is being sent or received on the LAN connection
		On	Indicates a link to your LAN or Network card is active
		Off	Indicates no link to LAN

Using Easy Config

Loading an ISP profile into your NB1300Plus4Wireless

NetComm's Easy Config software is supplied to help you to configure your NB1300Plus4Wireless for a quick connection to the Internet. You can use one of the default profiles provided or you can use a profile that is provided by your Internet Service Provider (e.g. via Email, floppy disk or CD-ROM).

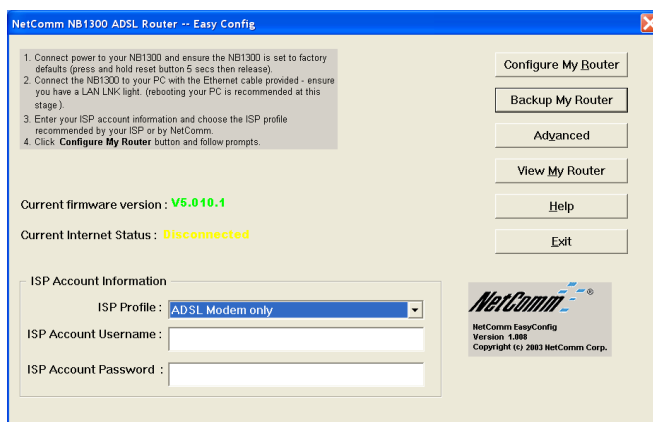
A number of examples are supplied in the next section to assist you in selecting the appropriate connection configuration to connect your NB1300Plus4Wireless to your Network or Computer.

Note: Before continuing you must connect your ADSL Modem. Refer to the sections on Connecting your ADSL Modem via Ethernet or via USB for instructions.

1. Switch your router ON and wait for the 'RDY' light to start pulsing.
2. Reset your router to factory defaults by using a pen to depress the reset button on the back of the unit. Ensure you depress the button for 5 seconds.

Note: Refer to the section on resetting your NB1300Plus4Wireless for more information.

3. Start your Windows PC and connect your router to your computer as per the Quick Start Guide. This can be done either via Ethernet or USB. Refer to the sections on connecting your ADSL Modem via Ethernet or via USB for instructions.
4. Launch NetComm's Easy Config software (Double click EzCf.exe or launch.bat) from the CD-ROM or from your downloaded copy. Note: The ISP profile you wish to load into your NB1300Plus4Wireless should be in the same directory as the EzCf.exe file)



5. Choose your ISP Profile from the drop down box.
6. Type in your ISP User Name in full as given by your ISP.
7. Type in your ISP Password as supplied by your ISP.

Note: Your password characters will be represented by stars.

8. Click the Configure My Router button and follow the on-screen prompts. The software will ask you to ensure your router is powered on, click OK to continue.
9. When prompted you should power off your router and then power it back on again. You can close Easy Config at this point by clicking the Exit button.

Note: It may also be beneficial to reboot your computer but this is usually not required.

10. Once your NB1300Plus4Wireless has booted (RDY light pulses) wait one minute and you should now be able to connect to the Internet. You can run Easy Config again just to check your connection status.

Factory Defaults

The following table lists the Factory Defaults of your NB1300Plus4Wireless ADSL Modem:

Field	Setting Details
LAN IP address:	192.168.1.1
LAN Subnet Mask:	255.255.255.0
DHCP Server:	Enabled
User Name:	admin
Password:	password
Main Function:	Router (Bridge Disabled)
WAN connection type:	PPPoE LLC
VPI:	8
VCI:	35
SSID:	Wireless
Channel Number:	9

Note: These defaults may change with firmware updates and factory changes, please consult the NetComm website to check for the latest defaults.

Resetting to factory defaults

If you forget your passwords, lock out HTTP or FTP access or simply can't remember what IP address you have set the NB1300Plus4Wireless on you will probably need to perform a factory defaults reset.

To perform a factory defaults reset you must have physical access to the unit then follow these steps;

1. Make sure the NB1300Plus4Wireless is powered on and the RDY light is flashing.
2. Locate the Reset button hole on the back of the unit.
3. Gently press in and hold the button for 5 seconds with a suitably thin appliance (E.g. straightened paper clip) seconds after release the RDY light will turn off.
4. Watch the RDY light and wait for it to stabilise and start pulsing again (in approximately 1 minute).

Note: Do not switch off or press reset again until the NB1300Plus4Wireless has completed its reset and the RDY light is flashing.

5. Your router should now be set to factory defaults (192.168.1.1, 'admin' & 'password')

Configuration Types

This section is supplied to help you connect your NB1300Plus4 ADSL Modem quickly to your network or Windows computer. The following are the most common configurations for using your NB1300Plus4 Wireless ADSL Modem.

■ ADSL Modem - Ethernet (Not recommended for Wireless use)

This is when you plug the modem directly into the Ethernet port of a computer and then run Internet connection software (often supplied by your ISP) on the computer to establish a connection to the Internet. This method means that the computer connected to the Ethernet port of the NB1300Plus4 Wireless is exposed to the Internet and is given a public IP address.

■ ADSL Modem - USB (Not recommended for Wireless use)

This is when you plug the modem directly into the USB port of just one computer. You then must run Internet connection software (often supplied by your ISP) on the computer to establish a connection to the Internet. This method means that the computer connected to the USB port of the NB1300Plus4 Wireless is exposed to the Internet and is given a public IP address.

Note: Using a Modem (bridge) configuration will render the Wireless Access Point function of your NB1300plus4Wireless virtually useless

■ ADSL Gateway Router - Ethernet

This is when the NB1300Plus4 Wireless is connected to your network switch or hub and shares the Internet connection to all computers on the network. The NB1300Plus4 Wireless will log on to your ISP on behalf of your computers and it will shield your computers from direct Internet attack by using Network address Translation (NAT).

■ ADSL Gateway Router - USB

If you do not have an Ethernet port on your computer you can use your USB port like an Ethernet port to connect to the NB1300Plus4 Wireless. This "simulated" Ethernet port is only for connecting to the NB1300Plus4 Wireless and is only available for Windows 98SE, Windows 2000, Windows XP and machintosh OSX.. The NB1300Plus4 Wireless will log on to your ISP on behalf of your computer and it will shield your computer from Internet attack by using NAT.

Refer to the instructions in one of the following sections for the configuration you wish to use. If you wish to configure the NB1300Plus4 Wireless in a different way to the examples shown, please consult a Network Specialist and the Advanced Configuration section for more information.

*Note: If the NB1300Plus4 Wireless has already been used, we strongly recommend you reset and flush all settings of the unit by pressing and holding the RESET button on the rear of the modem for 10 seconds. Wait for the **RDY** light to begin pulsing before continuing.*

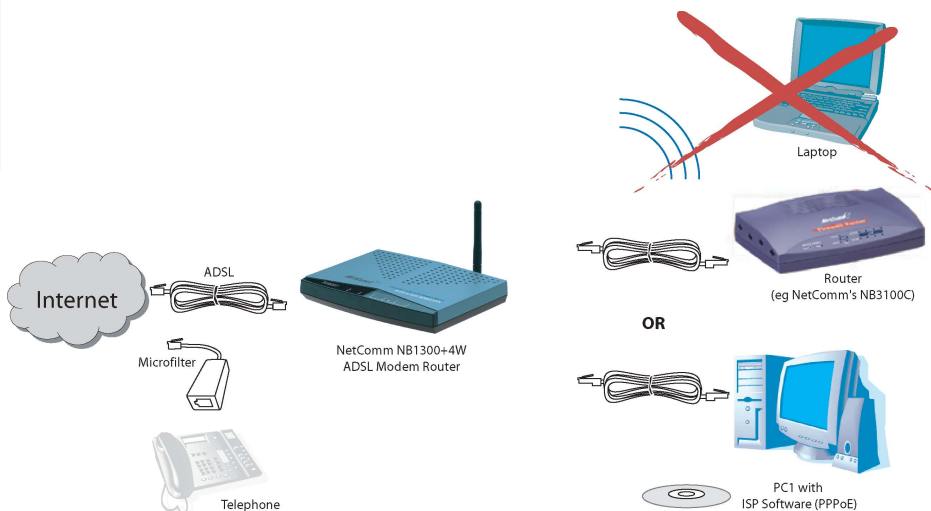
*We also recommend you change your router's password and enable wireless encryption (WEP) from the factory default **before** connecting it to a network or the Internet. Refer to the "Admin Password" section in the "Security" Menu.*

ADSL Modem - Ethernet Configuration (Not recommended for Wireless use)

Note: Using a Modem (bridge) configuration will render the Wireless Access Point function of your NB1300plus4Wireless virtually useless. This configuration is NOT recommended for wireless use

Use this configuration if you:

- Have been told to use the “ADSL Modem” Easy Config Profile, or
- Want to connect this device to another router, or
- Want to use your ISP’s software to log on to the Internet directly (not sharing) and your computer will use a Public IP address, and
- DO NOT need the NB1300Plus4 Wireless to share your Internet service (You can still use windows ICS to share your Internet Service), and
- Do not require your computer to be protected (via NAT) from the Internet, e.g. you may be running Personal firewall software or a Secondary router.



ADSL modem (Transparent Bridge) - This is when you plug the modem directly into the Ethernet port of a computer and then run Internet connection software (often supplied by your ISP) on the computer to establish a connection to the Internet. This method means that the computer connected to the Ethernet port of the NB1300Plus4 Wireless is exposed to the Internet and is given a public IP address.

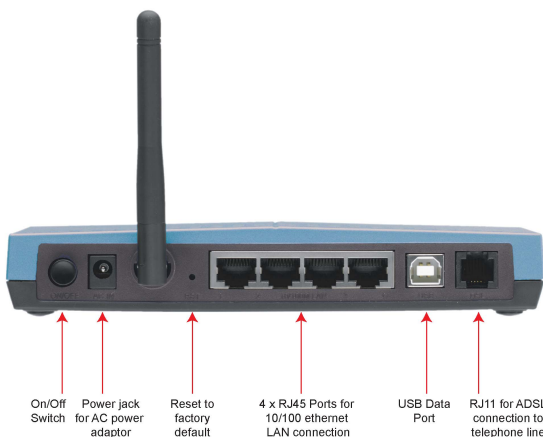
Before continuing, ensure you have the following items and information ready:

- A computer with a Network Interface Card installed or a router (such as the NetComm NB3100 Compact).
- An Ethernet network cable.
- A telephone line with ADSL service enabled.
- User Name, Password, VPI, VCI, encapsulation and DNS server settings for your ADSL account (ask your ISP if unsure). These are not needed for the NB1300Plus4 Wireless, but are required for the computer or router that it will be connected to.

Note: The following procedure presumes your NB1300Plus4 Wireless is set to a factory default IP address 192.168.1.1.

Step 1: Connecting your computer to the NB1300Plus4 Wireless

Note: This unit should only be connected to the Telecommunications Network through a line cord which meets the requirements of ACA TS008.



- a. Using an ethernet network cable, connect an Ethernet port of the NB1300Plus4 Wireless into the Ethernet port of the computer you wish to use to configure the unit.
- b. Connect the power and switch the NB1300Plus4 Wireless on.
- c. Ensure the LAN link on the NB1300Plus4 Wireless is active.
- d. Configure your Computer to use any IP address in the range of 192.168.1.2 to 192.168.1.254.
- e. Additional network devices may be connected to the remaining ethernet ports.

Note: When the NB1300Plus4 Wireless is used in Bridge mode it is a fairly passive device and most Internet configuration required (such as User Name, Password, etc.) is done on the computer or another router.

Step 2: Configuring the NB1300Plus4 Wireless

After connecting all the ADSL Router cables you can either configure your NB1300Plus4 Wireless using the Easy Config software provided or complete the following manual configuration instructions:

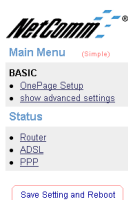
- Power on the ADSL Router and launch a web browser, such as Internet Explorer or Netscape Navigator, browse to the address <http://192.168.1.1>.
- Enter the correct user name and password to access the Configuration tool. The default user name and password are as below.

User Name : admin

Password : password

*Note: You must click the **Submit** button on every page that you make changes on and when you have made all your changes click the **Save Setting and Reboot** button from the bottom of the menu.*

- Click on the **One Page Setup** link under the **Basic** menu.



OnePage Configuration

LAN
IP Address:
Subnet Mask:

WAN
Service Name:
Username:
Password:
Disconnect Timeout: seconds (Max:32767)

WAN Type:

VC Settings
VPI:
VCI:
Static IP Address:
Subnet Mask:
Default Gateway:

BRIDGE
mode:

Status : Not Connected

You must click the 'Submit' button and then 'Save setting and Reboot' button to commit changes.

You will need to Change your WAN and VC settings as provided by your ISP. The following lists an example of the most common ISP settings used in Australia. The fields that require changing from the default settings are highlighted.

Field	Setting Details
Service name:	Blank ❖
User Name:	Blank ❖
Password:	Blank ❖
Disconnect timeout:	0 ❖
Mode/Wan Connection Type:	1483 Bridged IP LLC
VPI:	8 ❖
VCI:	35 ❖
Static IP Address:	192.168.241.101 ❖
Subnet Mask:	255.255.255.0 ❖
Default Gateway:	0.0.0.0 ❖
Bridge mode:	Enabled

❖ **Default Setting.** Although in most cases you will not be required to alter these default settings for your NB1300Plus4 Wireless, your ISP may identify specific settings to enable connection to their service. Please refer to your ISP or Network Administrator for further information.

- Click **Submit** and then click the **Save Setting and Reboot** button from the bottom of the menu. Wait for the configuration to complete.

Step 3: Configuring your Computer/Router to use the NB1300Plus4 Wireless

ISP Software Method

Install software on your computer (usually provided by your ISP) and enter a User Name and Password. This software usually adds a PPP service to your computer.

Please refer to your ISP for more information on how to configure your software to work with the NB1300Plus4 Wireless ADSL Modem when used as a bridge.

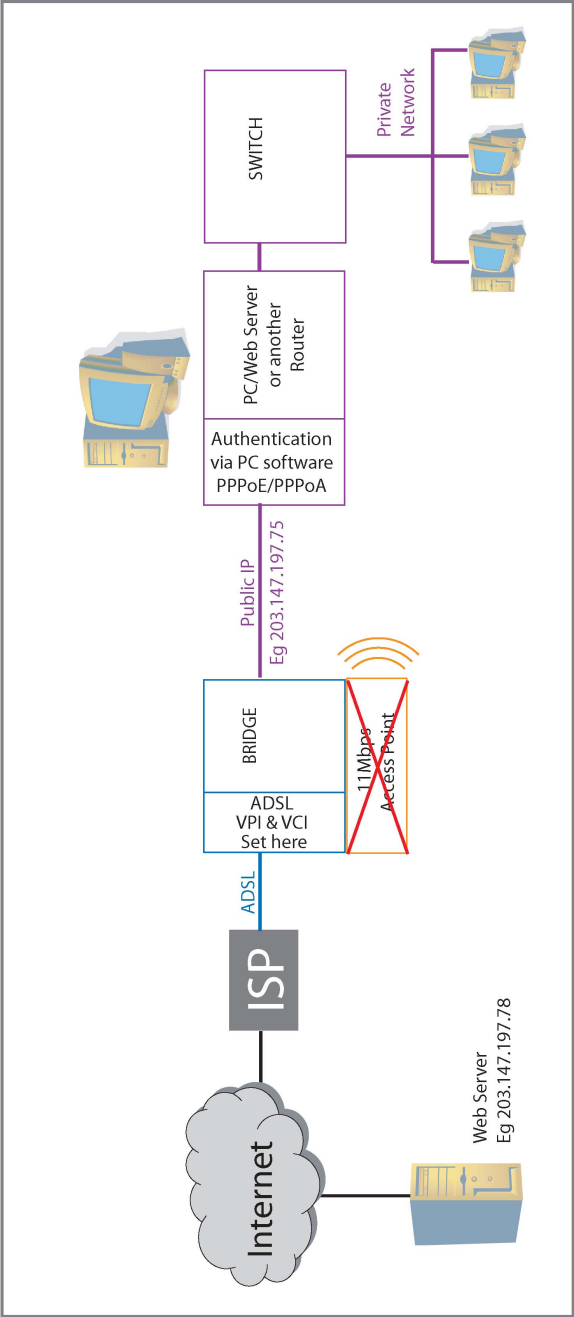
Second Router Method

If you are using a *second* router in conjunction with the NB1300Plus4 Wireless as a Bridge, you should unplug the NB1300Plus4 Wireless from the computer and plug the NB1300Plus4 Wireless into WAN port of the secondary router. Consult the second router's documentation for information on how to configure your user name and password.

Note: Depending on the second router, you may need to use a "straight through" UTP cable instead of a "crossover" UTP cable to join the NB1300Plus4 Wireless to the WAN port of the other router.

Operational Diagram for ADSL Modem Configuration

ADSL Modem - Ethernet



In Bridge mode, the Router is performing the following functions:

- Packets are forwarded
- MAC Address is sometimes passed on
- Media conversion only - not Routing
- Transparent Bridge (aka ADSL Modem)
- Authentication by third party device/software/server/firewall etc

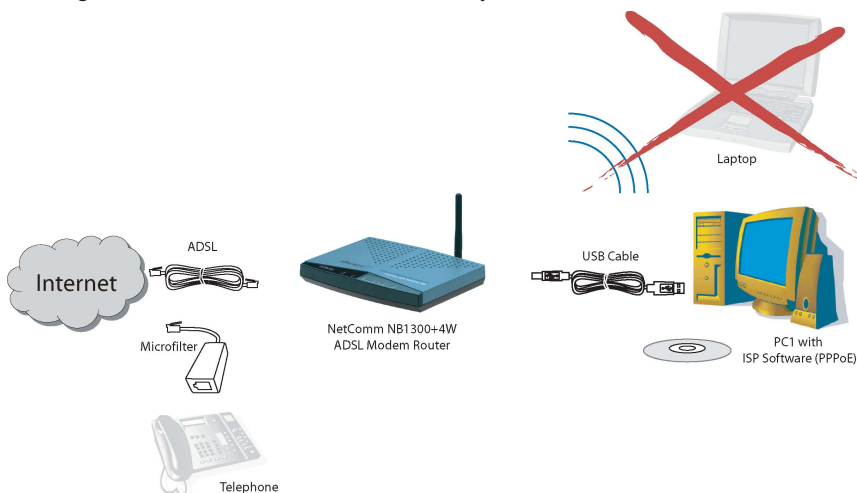
- Ethernet
- ADSL
- Wireless

ADSL Modem - USB Configuration (Not recommended for Wireless use)

Note: Using a Modem (bridge) configuration will render the Wireless Access Point function of your NB1300plus4Wireless virtually useless. This configuration is NOT recommended for wireless use

Use this configuration if you:

- Have been told to use the “ADSL Modem” Easy Config Profile, or
- Want to connect this device to another router, or
- Want to use your ISP’s software to log on to the Internet directly (not sharing) and your computer will use a Public IP address, and
- DO NOT need the NB1300Plus4 Wireless to share your Internet service (You can still use windows ICS to share your Internet Service), and
- Do not require your computer to be protected (via NAT) from the Internet, e.g you may be running Personal firewall software or a Secondary router.



ADSL modem (Transparent Bridge) to be connected to a router - This is when you plug the modem directly into the USB port of just one computer. You then must run Internet connection software (often supplied by your ISP) on the computer to establish a connection to the Internet. This method means that the computer connected to the USB port of the NB1300Plus4 Wireless is exposed to the Internet and is given a public IP address.

Note: In this configuration you should not use the 4 port switch.

Before continuing, ensure you have the following items and information ready:

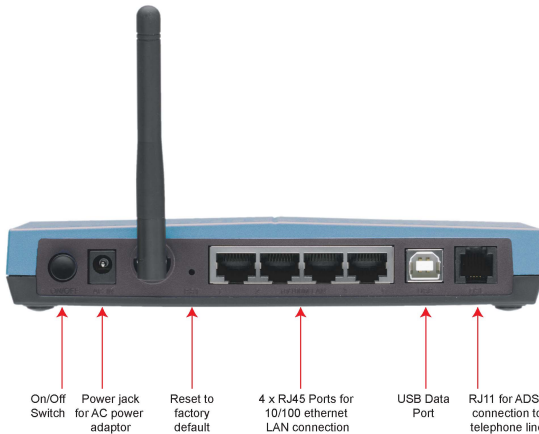
- A computer with a free USB port.
- A USB cable.
- A telephone line with ADSL service enabled.

- User Name, Password, VPI, VCI, encapsulation and DNS server settings for your ADSL account (ask your ISP if unsure). These are not needed for the NB1300Plus4 Wireless, but are required for the computer or router that it will be connected to.

Note: The following procedure presumes your NB1300Plus4 Wireless is set to a factory default IP address 192.168.1.1.

Step 1: Connecting your computer to the NB1300Plus4 Wireless

Note: This unit should only be connected to the Telecommunications Network through a line cord which meets the requirements of ACA TS008.



- Place the CD-ROM provided into your CD-ROM drive.
- Connect the USB cable from the NB1300Plus4 Wireless into a spare USB port on your computer. If you are using Macintosh OSX, please refer to the Macintosh USB Configuration section.
- Windows will detect the new hardware and launch a New hardware Wizard. When prompted to search for drivers choose "Specify location".
- Browse the drive letter of your CD-ROM drive and locate the "USB driver" folder. E.g. **D:\USB driver** where D: is the drive letter of your CD-ROM.
- Continue with the driver search by clicking **OK** and the Found Hardware Wizard will locate the USB driver and prompt you to install it.
- Once the driver is installed, it is configurable as a regular Ethernet adapter and will be set to automatically accept an IP address from the NB1300Plus4 Wireless. You can manually set its IP address to any free address in the range of 192.168.1.2 –254 as required.

Note: When the NB1300Plus4 Wireless is used in Bridge mode it is a fairly passive device and most Internet configuration required (such as User Name, Password, etc.) is done on the computer or another router.

Step 2: Configuring the NB1300Plus4 Wireless

After connecting all the ADSL Router cables you can either configure your NB1300Plus4 Wireless using the Easy Config software provided or complete the following manual configuration instructions:

- Power on the ADSL Router and launch a web browser, such as Internet Explorer or Netscape Navigator, browse to the address <http://192.168.1.1>.
- Enter the correct user name and password to access the Configuration tool. The default user name and password are as below.

User Name : admin

Password : password

*Note: You must click the **Submit** button on every page that you make changes on and when you have made all your changes click the **Save Setting and Reboot** button from the bottom of the menu.*

- Click on the **One Page Setup** link under the **Basic** menu.



OnePage Configuration

LAN

IP Address:

Subnet Mask:

WAN

Service Name:

Username:

Password:

Disconnect Timeout: seconds (Max:32767)

WAN Type:

VC Settings

VPI:

VCI:

Static IP Address:

Subnet Mask:

Default Gateway:

BRIDGE

mode:

Status : Not Connected

You must click the 'Submit' button and then 'Save setting and Reboot' button to commit changes.

You will need to Change your WAN and VC settings as provided by your ISP. The following lists an example of the most common ISP settings used in Australia. The fields that require changing from the default settings are highlighted.

Field	Setting Details
Service name:	Blank ❖
User Name:	Blank ❖
Password:	Blank ❖
Disconnect timeout:	0 ❖
Mode/Wan Connection Type:	1483 Bridged IP LLC
VPI:	8 ❖
VCI:	35 ❖
Static IP Address:	192.168.241.101 ❖
Subnet Mask:	255.255.255.0 ❖
Default Gateway:	0.0.0.0 ❖
Bridge mode:	Enabled

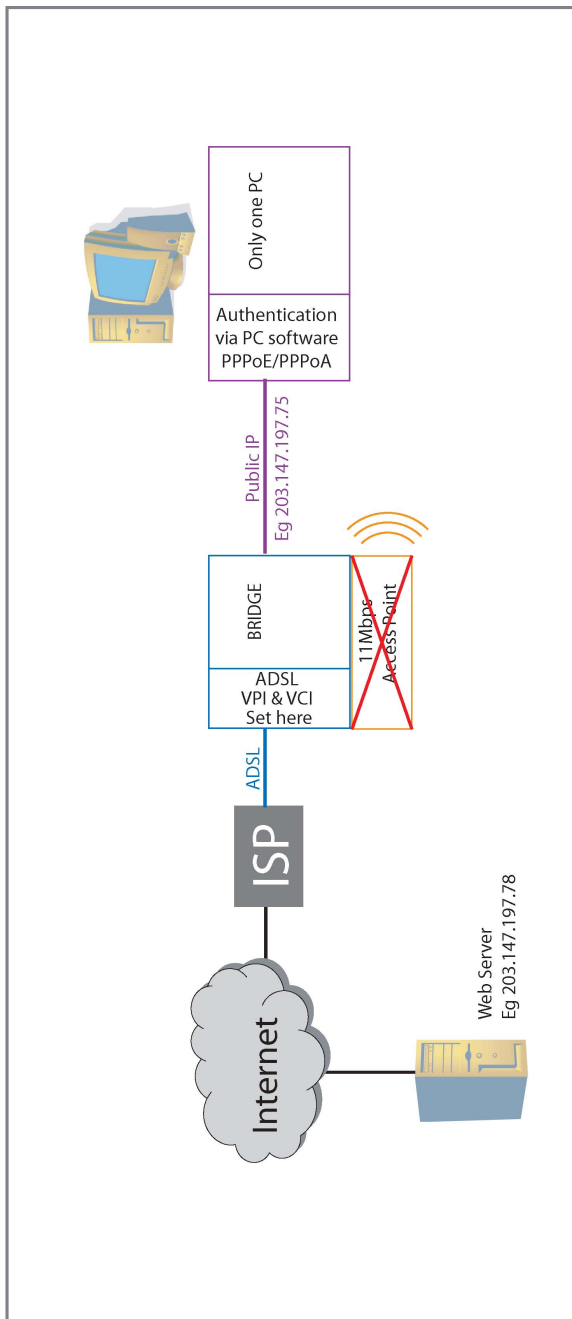
❖ **Default Setting.** Although in most cases you will not be required to alter these default settings for your NB1300Plus4 Wireless, your ISP may identify specific settings to enable connection to their service. Please refer to your ISP or Network Administrator for further information.

- Click **Submit** and then click the **Save Setting and Reboot** button from the bottom of the menu. Wait for the configuration to complete.

Step 3: Configuring your Computer/Router to use the NB1300Plus4 Wireless

Install software on your computer (usually provided by your ISP) and enter a User Name and Password. This software usually adds a PPP service to your computer.

Please refer to your ISP for more information on how to configure your software to work with the NB1300Plus4 Wireless ADSL Modem when used as a bridge.



In Bridge mode, the Router is performing the following functions:

- Packets are forwarded
- MAC Address is sometimes passed on
- Media conversion only - not Routing
- Transparent Bridge (aka ADSL Modem)
- Authentication by third party device/software/server/firewall etc

Ethernet

ADSL

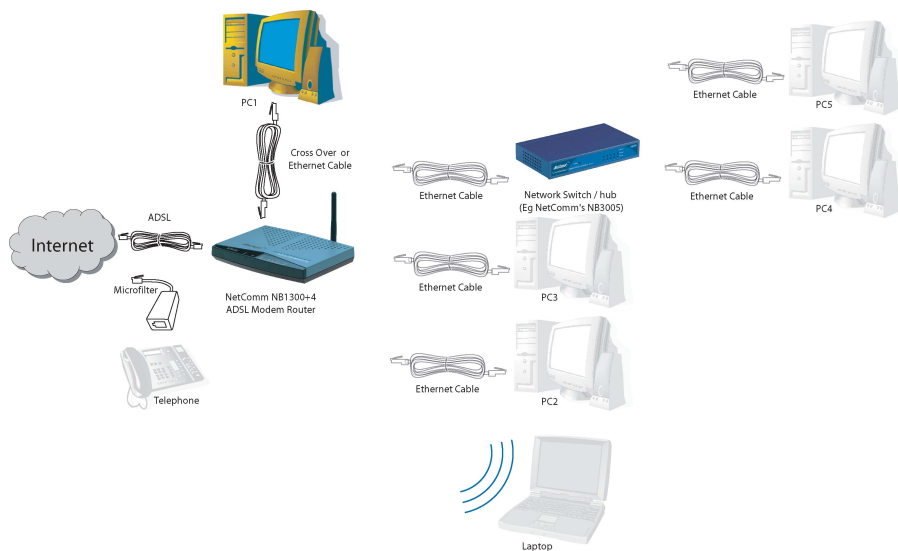
Wireless

ADSL Modem - USB

ADSL Gateway Router - Ethernet Configuration

Use this configuration if you:

- Have been told to use Easy Config “ISP Profile 1, 2, 3, 5 or 6”, or
- Were told by your ISP to use this Configuration with another Easy Config profile, or
- Have at least one computer with an Ethernet Networking socket, and / or
- Want to share your Internet Service with more than one computer.
- Want your computers to be protected by the NB1300Plus4 Wireless (via NAT and Firewall).
- You want your computers to use Private IP addresses.



Ethernet Gateway (performing Network Address Port Translation) - This is when the NB1300Plus4 Wireless is connected to your network switch or hub and shares the Internet connection to all computers on the network. The NB1300Plus4 Wireless will log on to your ISP on behalf of your computers and it will shield your computers from direct Internet attack by using Network Address Translation (NAT).

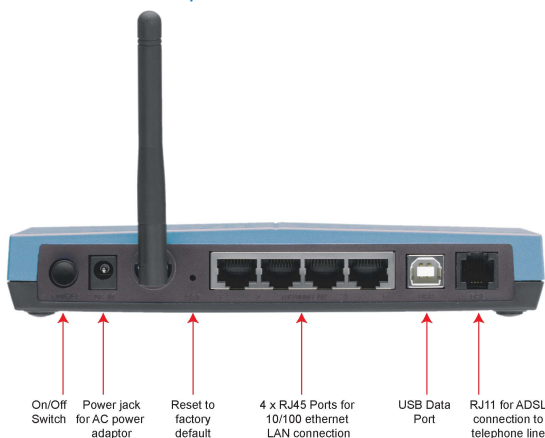
Before continuing, ensure you have the following items and information ready:

- A Windows 98, ME, NT, 2000 or XP client machine with a Network Interface Card installed.
- An Ethernet cable.
- A telephone line with ADSL service enabled.
- User Name, Password, VPI, VCI, encapsulation and DNS server settings for your ADSL account (ask your ISP if unsure) .

Note: The following procedure presumes your NB1300Plus4 Wireless is set to a factory default IP address 192.168.1.1.

Step 1: Connecting your computer to the NB1300Plus4 Wireless

Note: This unit should only be connected to the Telecommunications Network through a line cord which meets the requirements of ACA TS008.



- a. Connect your NB1300Plus4 Wireless to either a computer directly or a network hub or switch using cat5 ethernet cables. You need to ensure you are using the correct type of ethernet cable - i.e. straight through or crossover.
- b. Connect one end of the ADSL phone line to the NB1300Plus4 Wireless ADSL Modem and the other end to the wall socket.
- c. Connect the power pack to the NB1300Plus4 Wireless ADSL Modem and switch on the power switch.
- d. Ensure that there is a LAN link light on the NB1300Plus4 Wireless.
- e. Ensure that the computer you intend to use has an IP address in the same subnet as the NB1300Plus4 Wireless ADSL Modem. (e.g. the NB1300Plus4 Wireless's default IP is 192.168.1.1 - your computer should be on 192.168.1.100 or similar.) If you have DHCP enabled on your computer, the NB1300Plus4 Wireless will assign your computer a suitable IP address.
- f. Ensure that your computer has a LAN link light.

Step 2: Configuring the NB1300Plus4 Wireless

After connecting all the ADSL Router cables you can either configure your NB1300Plus4 Wireless using the Easy Config software provided or complete the following manual configuration instructions:

- After connecting all the ADSL Router cables, powering on the ADSL Router, and launching a web browser, such as Internet Explorer or Netscape Navigator, browse to the address <http://192.168.1.1>.
- Enter the correct user name and password to access the Configuration tool. The default user name and password are as below.

User Name : admin

Password : password

*Note: You must click the **Submit** button on every page that you make changes on and when you have made all your changes click the **Save Setting and Reboot** button from the bottom of the menu.*

- Click on the **One Page Setup** link under the **Basic** menu. You do not need to change the LAN settings unless you need the NB1300Plus4 Wireless to work with an existing network on a subnet other than 192.168.1.x.



Main Menu (Simple)

BASIC

- OnePage Setup
- show advanced settings

Status

- Router
- ADSL
- PPP

Save Setting and Reboot

OnePage Configuration

LAN

IP Address: 192.168.1.1
Subnet Mask: 255.255.255.0

WAN

Service Name:
Username:
Password:
Disconnect Timeout: 0 seconds (Max:32767)

WAN Type: PPPoE LLC

VC Settings

VPI: 0
VCI: 35
Static IP Address: 192.168.241.101
Subnet Mask: 255.255.255.0
Default Gateway: 0.0.0.0

BRIDGE

mode: Disabled

Status : Not Connected

Connect Disconnect

Submit Reset

You must click the 'Submit' button and then 'Save setting and Reboot' button to commit changes.

You will need to Change your WAN and VC settings as provided by your ISP. The following lists an example of the most common ISP settings used in Australia. The only fields that require changing from the default settings are highlighted.

Field	Setting Details
Service name:	Any name to describe your ISP
User Name:	Your ISP will provide a case sensitive User Name in a format similar to your email address. Contact your ISP for details
Password:	Enter your Password as supplied by your Service Provider (characters are usually all lower case)
Disconnect timeout:	0 ❖
Mode/Wan Connection Type:	PPPoE LLC or PPPoA (Your ISP should advise which WAN Type)
VPI:	8 ❖
VCI:	35 ❖
Static IP Address:	192.168.241.101 ❖
Subnet Mask:	255.255.255.0 ❖
Default Gateway:	0.0.0.0 ❖
Bridge mode:	Disabled ❖

❖ **Default Setting.** Although in most cases you will not be required to alter these default settings for your NB1300Plus4 Wireless, your ISP may identify specific settings to enable connection to their service. Please refer to your ISP or Network Administrator for further information.

- Click **Submit** and then click the **Save Setting and Reboot** button from the bottom of the menu. Wait for the configuration to complete.

Standard configuration of your NetComm NB1300Plus4 Wireless ADSL Modem is now complete. You should be able to access the Internet through the unit, when it is set to be your gateway on your computer/s. Refer to Step 3 for more information.

Step 3: Configuring your Computer to use the NB1300Plus4 Wireless

To use the NB1300Plus4 Wireless ADSL Modem to access the Internet, your computer must have an IP Address that is in the same LAN subnet as the NB1300Plus4 Wireless ADSL Router and use the NB1300Plus4 Wireless ADSL Router's IP address as its gateway. The easiest way to do this is to ensure that your computer is set to use DHCP, and all of the required configuration will be performed by the NB1300Plus4 Wireless.

Most applications call for the Primary and Secondary DNS server entries to be made on each computer. These can be automatically assigned by another DHCP server or by enabling the DHCP server on the NB1300Plus4 Wireless ADSL Modem, and entering the DNS values in the DNS section of the NB1300Plus4 Wireless.

The following example shows how a computer could be set up when the NB1300Plus4 Wireless ADSL Modem is configured with no DHCP service for this example. The NB1300Plus4 Wireless ADSL Modem would be set to a LAN IP Address (Gateway) of 192.168.1.1 with a Subnet Mask of 255.255.255.0

Open the **Control Panel** and double click on the **Network** icon. Scroll down to select **TCP/IP-> Ethernet Card** and click on the **Properties** button.

Internet Protocol (TCP/IP) Properties

General

You can get IP settings assigned automatically if your network supports this capability. Otherwise, you need to ask your network administrator for the appropriate IP settings.

☐ Obtain an IP address automatically

☒ Use the following IP address:

IP address: 192 . 168 . 1 . 2

Subnet mask: 255 . 255 . 255 . 0

Default gateway: 192 . 168 . 1 . 1

☐ Obtain DNS server address automatically

☒ Use the following DNS server addresses:

Preferred DNS server: 61 . 9 . 192 . 14

Alternate DNS server: 61 . 9 . 192 . 15

Advanced...

OK Cancel

Your DNS numbers are specific to your ISP and should be notified along with your User Name and Password.

Note: When using Internet Explorer as a web browser, click on the "Tools" menu and select "Internet Options". Select the "Connections" tab and click on the "LAN Settings" button. Tick the "Automatically detect settings" checkbox and make sure the "Use a Proxy server" checkbox is unchecked.

Local Area Network (LAN) Settings

Automatic configuration

Automatic configuration may override manual settings. To ensure the use of manual settings, disable automatic configuration.

☒ Automatically detect settings

☐ Use automatic configuration script

Address:

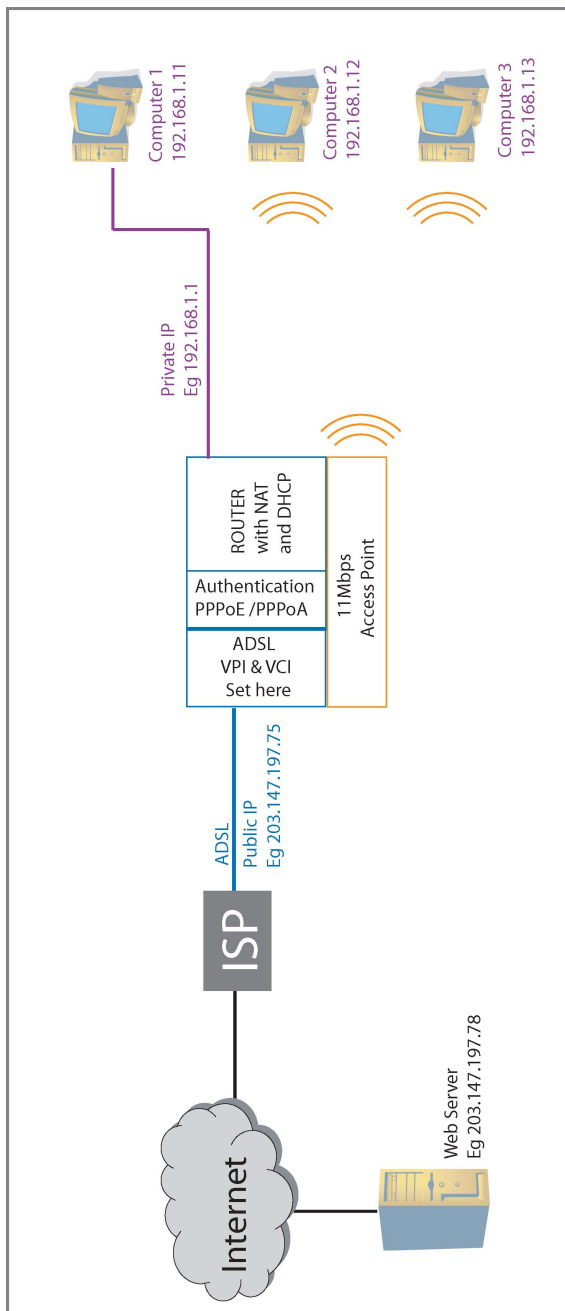
Proxy server

☐ Use a proxy server

Address: Port: Advanced...

☐ Bypass proxy server for local addresses

OK Cancel



In Router mode, the Router is performing the following functions:

- Packet headers are disassembled and reassembled
- MAC Address doesn't cross router
- Media conversion (ADSL - Ethernet) and Logical conversion (Public IP - Private IP)
- Authentication **and** NAT sharing

— Ethernet

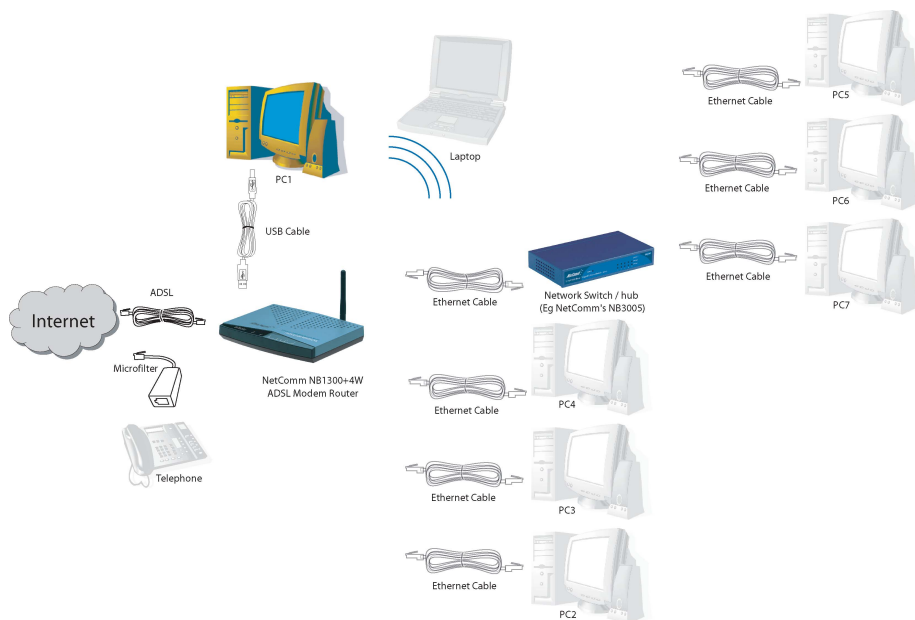
— ADSL

— Wireless

ADSL Gateway Router - USB Configuration

Use this configuration if you:

- Have been told to use Easy Config “ISP Profile 1, 2, 3, 5 or 6”, or
- Were told by your ISP to use this Configuration with another Easy Config profile.
- Wish to use the NB1300Plus4 Wireless with a computer that does not have an Ethernet socket. This computer will use a Private IP address and will be protected from the Internet by the NB1300Plus4 Wireless (via NAT).
- Already use the NB1300Plus4 Wireless with an Ethernet network but wish to connect a Computer that does not have an Ethernet socket. (You do not need to reconfigure the NB1300Plus4 Wireless please refer to the “Connecting your NB1300Plus4 Wireless via USB cable” section in this guide)



USB Gateway Configuration (Multiple public IPs to Multiple internal IPs) - If you do not have an Ethernet port on your computer you can use your USB port like an Ethernet port to connect to the NB1300Plus4 Wireless. This "simulated" Ethernet port is only for connecting to the NB1300Plus4 Wireless and is only available for Windows 98SE, Windows 2000, Windows XP and machintosh OSX.. The NB1300Plus4 Wireless will log on to your ISP on behalf of your computer and it will shield your computer from Internet attack by using NAT.

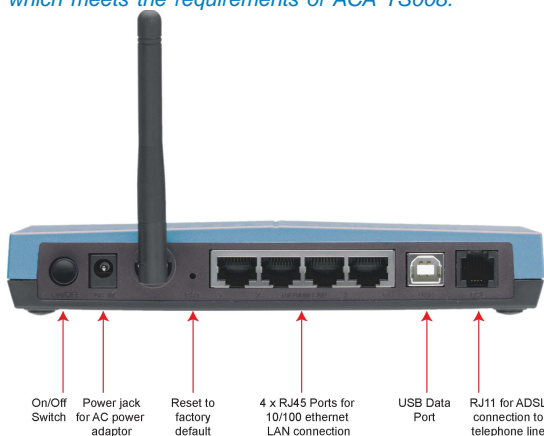
Before continuing, ensure you have the following items and information ready:

- A Windows 98SE, ME, 2000 or XP client machine with a free USB port.
- A USB cable.
- A telephone line with ADSL service enabled.
- User Name, Password, VPI, VCI, encapsulation and DNS server settings for your ADSL account (ask your ISP if unsure).

Note: Please be aware that connection via USB is only supported in Windows 98SE, Windows Me, Windows 2000 and Windows XP. For Windows 95, NT, Linux and Macintosh you should use the Ethernet port of your NB1300Plus4 Wireless.

Step 1: Connecting your computer to the NB1300Plus4 Wireless

Note: This unit should only be connected to the Telecommunications Network through a line cord which meets the requirements of ACA TS008.



- a. Place the CD-ROM provided into your CD-ROM drive.
- b. Connect the USB cable from the NB1300Plus4 Wireless into a spare USB port on your computer. If you are using Macintosh OSX, please refer to the Macintosh Installation section.
- c. Windows will detect the new hardware and launch a New hardware Wizard. When prompted to search for drivers choose "Specify location".
- d. Browse the drive letter of your CD-ROM drive and locate the "USB driver" folder. E.g. **D:\USB driver** where D: is the drive letter of your CD-ROM.
- e. Continue with the driver search by clicking **OK** and the Found Hardware Wizard will locate the USB driver and prompt you to install it.
- f. Once the driver is installed, it is configurable as a regular Ethernet adapter and will be set to automatically accept an IP address from the NB1300Plus4 Wireless. You can manually set its IP address to any free address in the range of 192.168.1.2 –254 as required.

Note: You may be asked if you wish to continue without a digital signature if so choose YES to continue. This request may occur up to four (4) times depending on your operating system.

Step 2: Configuring the NB1300Plus4 Wireless

After connecting all the ADSL Router cables you can either configure your NB1300Plus4 Wireless using the Easy Config software provided or complete the following manual configuration instructions:

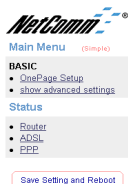
- Power on the ADSL Router and launch a web browser, such as Internet Explorer or Netscape Navigator, browse to the address `http://192.168.1.1`.
- Enter the correct user name and password to access the Configuration tool. The default user name and password are as below.

User Name : admin

Password : password

*Note: You must click the **Submit** button on every page that you make changes on and when you have made all your changes click the **Save Setting and Reboot** button from the bottom of the menu.*

- Click on the **One Page Setup** link under the **Basic** menu. You do not need to change the LAN settings unless you need the NB1300Plus4 Wireless to work with an existing network on a subnet other than 192.168.1.x.



OnePage Configuration

LAN

IP Address:
Subnet Mask:

WAN

Service Name:
Username:
Password:
Disconnect Timeout: seconds (Max:32767)

WAN Type

VC Settings

VPI:
VCI:
Static IP Address:
Subnet Mask:
Default Gateway:

BRIDGE

mode:

Status : Not Connected

You must click the 'Submit' button and then 'Save setting and Reboot' button to commit changes.

You will need to Change your WAN and VC settings as provided by your ISP. The following lists an example of the most common ISP settings used in Australia. The fields that require changing from the default settings are highlighted.

Field	Setting Details
Service name:	Any name to describe your ISP.
User Name:	Your ISP will provide a case sensitive User Name in a format similar to your email address. Contact your ISP for details.
Password:	Enter your Password as supplied by your Service Provider (characters are usually all lower case).
Disconnect timeout:	0 ❖
Mode/Wan Connection Type:	PPPoE LLC or PPPoA
VPI:	8 ❖
VCI:	35 ❖
Static IP Address:	192.168.241.101❖
Subnet Mask:	255.255.255.0❖
Default Gateway:	0.0.0.0 ❖
Bridge mode:	Disabled ❖

❖ **Default Setting.** *Although in most cases you will not be required to alter these default settings for your NB1300Plus4 Wireless, your ISP may identify specific settings to enable connection to their service. Please refer to your ISP or Network Administrator for further information.*

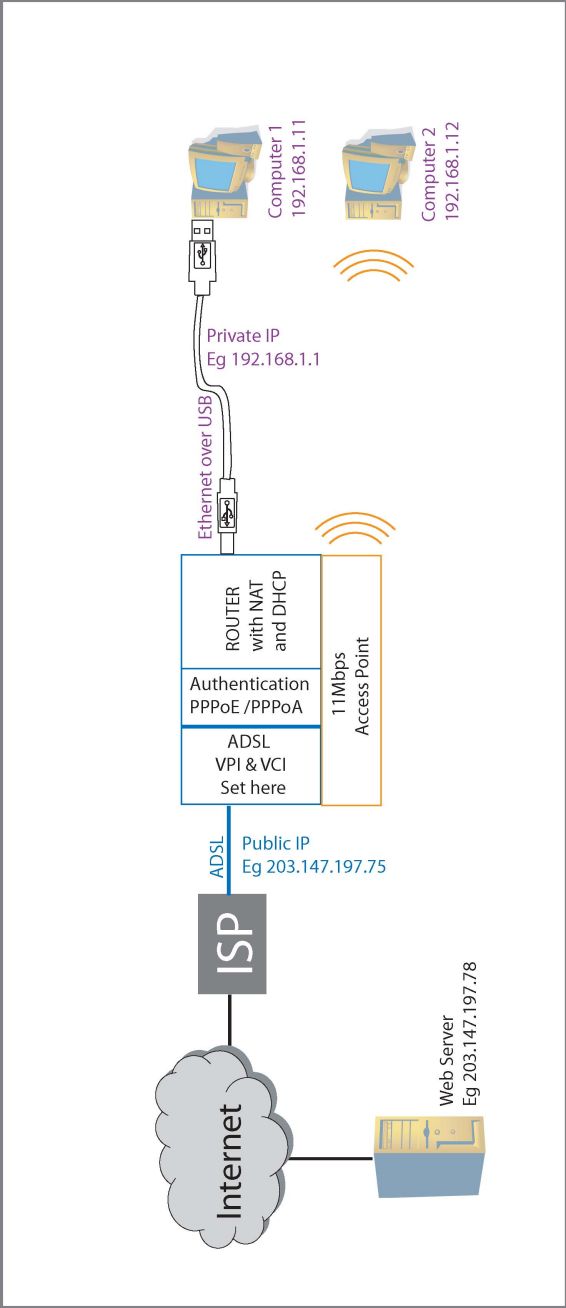
- d. Click **Submit** and then click the **Save Setting and Reboot** button from the bottom of the menu. Wait for the configuration to complete.

Step 3: Configuring your Computer to use the NB1300Plus4 Wireless

Most applications call for the Primary and Secondary DNS server entries to be made on each computer. These can be automatically assigned by another DHCP server or by enabling the DHCP server on the NB1300Plus4 Wireless ADSL Modem, and entering the DNS values in the DNS section of the NB1300Plus4 Wireless.

Operational Diagram for USB Gateway Configuration

ADSL Gateway Router - USB



In Router mode, the Router is performing the following functions:

- Packet headers are disassembled and reassembled
- MAC Address doesn't cross router
- Media conversion (ADSL - Ethernet) and Logical conversion (Public IP - Private IP)
- Authentication **and** NAT sharing

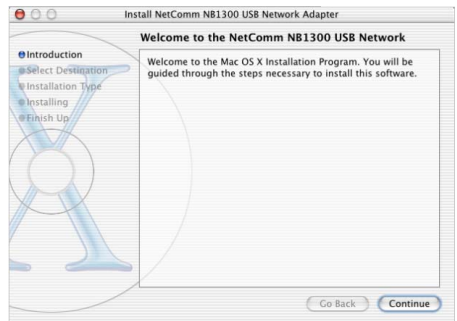
- Ethernet
- ADSL
- Wireless

Macintosh OS X USB Configuration

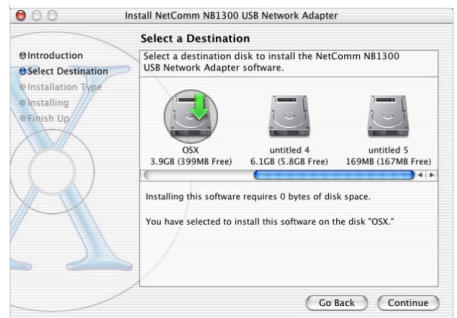
1. Close any running applications.
2. Execute the Install_USB_ADSL.pkg program.
3. OS X will then request you enter the passphrase for a user that has administration access to the computer. Enter the details and click on OK.



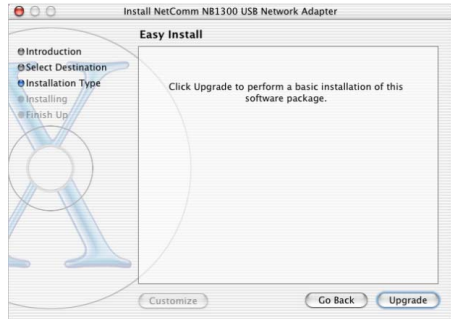
4. Click on Continue.



5. Select the drive that contains OS X and then click on Continue.



6. Click on Upgrade or Install to continue.

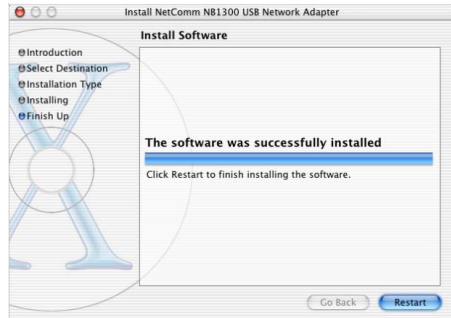


7. Installation of this software requires that you restart your computer when installation is complete. Click on Continue Installation to continue.



8. Click on Restart.

9. Connect the USB cable from the NB1300 into a spare SUB port on your computer.



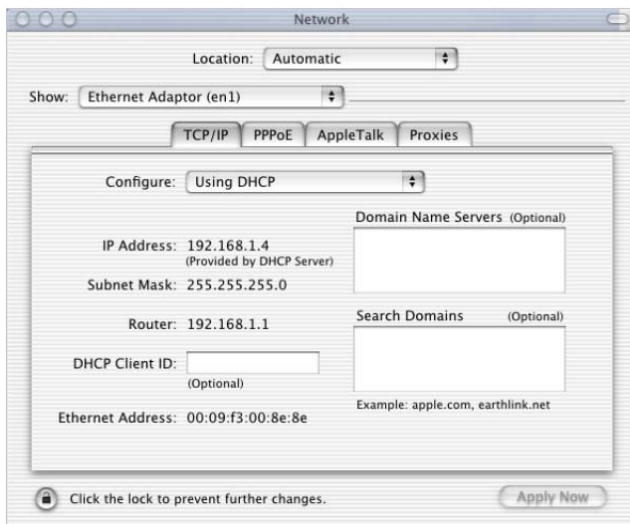
10. Open System Preferences from the Dock.



11. Click on Network to display this window. Click on OK.



12. Select the Ethernet Adaptor (en1) from the Show box. Select the TCP/IP tab and select Using DHCP.



13. Click on Apply Now. Close the Network window and System Preferences.

Setting up your Wireless LAN

Introduction to Setting up your WLAN

The IEEE 802.11b standard is the most widely used standard for wireless LANs today. A wireless LAN (WLAN) is a wireless computer network that transmits data using radio signals instead of cables. WLAN technology is commonly used in home, small office and large corporate networks. WLAN devices have a high degree of mobility and flexibility that allow networks to be quickly set up or dismantled and allow them to roam freely throughout the network.

Wireless LAN users can use the same network applications used on an Ethernet LAN. 802.11b adapter cards used on laptop and desktop computers support the same protocols as Ethernet adapter cards. For most users, there is no functional difference between computers attached to a wired Ethernet LAN or a mobile 802.11b workstation except that hardware is not physically attached to the network. For most networks however, it may be desirable for mobile network devices to be able to link to the wired Ethernet LAN to use shared resources such as servers, printers or an Internet connection. This product unites Ethernet and 802.11b/g wireless private networks with an Internet connection. The Wireless USB 2.0 Network Adapter supports data rates of up to 54 Mbps for wireless operation when used in conjunction with other IEEE 802.11 b/g compatible devices.

WLAN technology provides users with many convenient and cost saving features:

Mobility:	WLAN provide LAN users with access to real-time information anywhere in their organization, without being limited to the wired connection.
Easy Installation:	Installing this device is easy for novice and expert users alike, eliminating the need for network cables in walls and ceilings.
Scalability:	WLAN can be configured in a variety of topologies to adapt to specific applications and installations. Configurations are easily changed and range from peer-to-peer networks suitable for a small number of users, to full infrastructure networks of thousands of users roaming over an extensive area.

WLAN Basic Information

Some basic understanding of 802.11b/g wireless technology and terminology is useful when you are setting up the router or any wireless access point. If you are not familiar with wireless networks please take a few minutes to learn the basics.

Transmitting Radio Signals

WLAN devices use electromagnetic waves within a broad, unlicensed range of the radio spectrum to transmit and receive radio signals. When a wireless access point is present, it becomes a base for other WLAN devices in its broadcast range. WLAN nodes transmit digital data using FM (frequency modulation) radio signals. WLAN devices generate a carrier wave and modulate this signal using various techniques. In this way, digital data can then be superimposed onto the carrier signal. This radio signal carries data to WLAN devices within range of the transmitting device. The antennae of WLAN devices listen for and receive the signal, which in turn is then altered and the transmitted data extracted and sent to your computer.

Range

Range should not be a problem in most homes or small offices. If you experience low or no signal strength in some areas, consider positioning the device in a location between the WLAN devices maintaining a roughly equal straight-line distance to all devices that need to access the Router through the wireless interface. Adding more 802.11b/g Wireless Network Adapters to rooms where the signal is weak can improve signal strength.

Wireless LAN Modes

Wireless LANs can be configured in one of two ways:

Ad-hoc Networking

Also known as a peer-to-peer network, an ad-hoc network is one that allows all workstations and computers in the network to act as servers to all other users on the network. Users on the network can share files, print to a shared printer, and access the Internet with a shared modem. However, with ad-hoc networking, users can only communicate with other wireless LAN computers that are in the wireless LAN workgroup, and are within range.

Infrastructure Networking

Infrastructure networking differs from ad-hoc networking in that it includes an access point. Unlike the ad-hoc structure where users on the LAN contend the shared bandwidth, on an infrastructure network the access point can manage the bandwidth to maximize bandwidth utilization.

Additionally, the access point enables users on a wireless LAN to access an existing wired network, allowing wireless users to take advantage of the wired networks resources, such as Internet, email, file transfer, and printer sharing.

Infrastructure networking has the following advantages over ad-hoc networking:

- Extended range: each wireless LAN computer within the range of the access point can communicate with other wireless LAN computers within range of the access point.

- Roaming: the access point enables a wireless LAN computer to move through a building and still be connected to the LAN.
- Wired to wireless LAN connectivity: the access point bridges the gap between wireless LANs and their wired counterparts.

Planning a Wireless Network

Infrastructure or Adhoc mode

Use Adhoc mode if you wish to join several wireless clients to each other in a small area and you do not need these devices to access your Internet connection or other “wired services”. Remember if you include a Wireless Access Point (AP) in your network you must use Infrastructure mode to work with it.

When connecting to an Adhoc network you must know the following parameters in order to configure your Client Adapter correctly to join the Adhoc network;

- Network Name (SSID)
- Network Channel
- Encryption type (none, 64bit WEP, 128bit WEP, WPA)
- Encryption keys (only if encryption is enabled)

Example of Adhoc Networking

Client Adapter 1
Mode = Adhoc
SSID = “Hyperion”
Channel = 5

Client Adapter 2
Mode = Adhoc
SSID = “Hyperion”
Channel = 5

Client Adapter 3
Mode = Adhoc
SSID = “Hyperion”
Channel = 5

Use Infrastructure mode if you wish to join several wireless clients together over a wider area as well as offer them access to “wired services” (such as a LAN with Network printers or Servers). An Infrastructure requires the use of one or more Access Points (AP's) to be installed. NetComm Wireless Routers operate as Access Points and are a great way of sharing your Internet connection wirelessly.

Note: Access Points can only operate in Infrastructure mode. Adhoc networks are often temporarily setup between two or more Wireless clients to share files at a conference etc.

When connecting to an Infrastructure network you must know the following parameters in order to configure your Client Adapter correctly to join the Infrastructure network;

- Network Name (SSID)
- Encryption type (none, 64bit WEP, 128bit WEP, WPA)
- Encryption keys (only if encryption is enabled)

Example of Infrastructure Networking

Access Point 1
SSID = "Kelewan"
Channel = 1

Access Point 2
SSID = "Kelewan"
Channel = 12

Client Adapter 4
Mode = Infrastructure
SSID = "Kelewan"

Client Adapter 6
Mode = Infrastructure
SSID = "Kelewan"

Client Adapter 5
Mode = Infrastructure
SSID = "Kelewan"

Client Adapter 7
Mode = Infrastructure
SSID = "Kelewan"

Client Adapter 5
Mode = Infrastructure
SSID = "Kelewan"

Client Adapter 8
Mode = Infrastructure
SSID = "Kelewan"

Positioning of AP & Client Adapters

Generally Adhoc networks work across shorter ranges than Infrastructure networks because there is no Access point (which naturally acts as a repeater station – extending range). Both types of Wireless LANs (WLAN's) work best when the signal is unobstructed by metal or other thick structures containing metal. When positioning Wireless devices remember the following guide lines;

- Access Points should be located in the center of their intended coverage area
- An AP with an Omni antenna transmits in a 3 dimensional sphere out from the antenna
- Where possible the AP should be placed in the ceiling, this gives best overall range because it reduces obstructions.
- A wall that is 30cm thick becomes 42cm thick on a 45 degree diagonal. Therefore the signal will be depleted even more when the direct line of sight between two Wireless devices passes diagonally through an interfering wall.
- Avoid placing AP or Client Adapters near strong interference created by other devices such as cordless phones, microwaves etc.
- Perform a full site survey at the four corners on the fringe of your network to determine if there are any other wireless networks present and what channels they are using.
- Avoid using Channels that are adjacent to one another (e.g. Use Channels 1, 6 & 13 when using three AP's in the same area)

- For maximum range keep AP's and Client Adapters away from metal structures or conductive materials (such as people, cubicle framing, window frames, computers, lights, phones, speakers)

Channels, SSID & Roaming

In an Adhoc Network each device must be told what channel to use in addition to the Network name (SSID). Infrastructure mode works differently because the access point tells the Client Adapter what channel to use, all the Client adapter needs to know to find the network is the SSID.

When you first setup your Wireless network you should perform a site survey using the NetComm Wireless utility that comes with your Client Adapter. When you know what channels are currently being used make a list of the Channels that are not being used and choose a channel that is the most numerically distant from the all of the 'used' channels.

Then choose a Network name (SSID) that is suitable to identify your wireless network.

Note: For security it is best not to use an SSID that describes; You, Your Wireless Product, Your Company, Your location or the services available.

Roaming is a way of running an Infrastructure Wireless Network in an area that needs more than one AP to obtain complete coverage. Roaming works by using the same SSID for each access point but by placing them on different channels and with their fringe radio coverage slightly overlapping. When a Client adapter comes into range of an AP with the correct SSID it will associate with the AP and join the network, if the Client Adapter moves out of range of the first AP and into range of another AP (with the same SSID) then the Client Adapter will change channel to suit the new AP and maintain connection to the same Wireless network.

Wireless Encryption & Security

Adhoc networks and Infrastructure networks can both use Wireless encryption to keep their data secure and prevent unauthorised associations. Infrastructure networks also have a few extra security measures that allow you to make your wireless network more secure than an Adhoc network The most common Wireless Network Security features are;

- Effective range / Radio partitioning
- SSID
- Broadcast Beacon Disabling
- MAC address filtering
- Encryption (WEP, WPA-Psk)
- Third party Authentication (WPA-Radius / 802.11i / 802.11x EAP TLS Certificates etc)

Effective Range

When planning your wireless network it is best to position your Access Points and Client Adapters away from the perimeter of your property where possible. Obviously the first goal is to ensure reception to all areas but remember that the more your wireless emissions leak outside the property the more likely unauthorised access can be obtained without entering the property.

SSID

The SSID is in a way a simplified security, although it may be easily found by a site survey but whoever finds it may not know who it belongs to. Best practice is to keep it secret where possible and ensure it does not describe You, Your Wireless Product, Your Company, Your location or the services available.

Broadcast Beacon Disabling

Some Access Points allow you to disable the Broadcast Beacon to make the Wireless Network harder to find. However this does hide the network more from the 'casual browser' it is not a way of protecting your data as it travels in the air or a way of preventing unauthorised access.

MAC Address Filtering

In most Access Points it is possible to only allow Wireless Clients with known MAC addresses to associate with the Access Point. Your Access Point will maintain an "Authorised MAC Address table" where you must enter the MAC address of each Wireless Client Adapter you want to allow to access the AP.

MAC address filtering does not prevent unauthorised interception of your data as it travels through the air. MAC addresses can also be intercepted and cloned (or spoofed) so that an unauthorised Wireless Client Adapter could be made to pretend to be an authorised Client Adapter and gain access to the network. MAC filtering has the advantage of not adding any overheads to the packet and therefore maintains maximum throughput.

Encryption

Wired Equivalent Privacy (WEP) is available in 64 bit and 128 bit standards and is configured using a key of Hexadecimal characters to encrypt your data before it is transmitted. This maintains the integrity and privacy of your data, however your WEP key can be determined if enough data is 'sniffed' as it passes between Access Point and Client adapters. Because the WEP key is common to every Client adapter on the network it is also necessary to change the keys in every client adapter in order to recover from a stolen key situation.

WiFi Protected Access (WPA) builds upon the WEP method but has two alternate methods these are;

- WPA – PSK
- WPA – RADIUS

WPA – PSK uses a Pre-Shared Key similar to WEP but it has an improved system that prevents the keys from being determined by ‘sniffing’. WPA – PSK offers the small scale simplicity of WEP but with increased security that prevents ‘Key cracking’

WPA – RADIUS uses a RADIUS server to provide centralised and a per client key management system. Because RADIUS servers are already used in large scale networks it provides a scalable and manageable solution to large companies.

Both forms of WPA will prevent your data being readable if it is intercepted by ‘sniffing’ and it will prevent unauthorised associations on your wireless network.

Third party Authentication 802.11x / 802.11i

These are standards and draft standards often used similar to WPA that incorporate alternative methods of authentication including Certificates and Biotechnologies (such as thumb printing etc).

Configuring Client Adapters

Mode (Adhoc or Infrastructure)

When configuring your Wireless Client adapter you must first determine if you are connecting to an Adhoc Network or an Infrastructure network. Choose the appropriate mode for your network and apply the changes.

SSID

In Adhoc mode or Infrastructure mode set this to be the same for every Client Adapter (and matching the AP if in Infrastructure mode).

Note: Most Client adapters allow you to set the SSID as “ANY”, which tells the Client Adapter to associate with the first wireless network it finds, regardless of the SSID.

Channel

The Channel does not need to be specified when using Infrastructure mode as it will change to suit the access point. In Adhoc mode you must ensure that all Client Adapters you want to join the network are configured to use the same channel.

Encryption

When using WEP the Keys should be common to all Client adapters and Access Points, you must also specify which key (1, 2, 3 or 4) is currently being used.

If using other Encryption such as WPA – PSK you should ensure that encryption is setup correctly between your AP and Client Adapters.

WPA – RADIUS this encryption is too complicated to explain here but if compulsory to join the network it must be configured correctly before you can associate with the network.

Note: If a Wireless Network has encryption enabled you will not be assigned an IP address or be able to associate with the Network until you have encryption configured correctly.

IP Addresses

It is important to note that Wireless Networks operate similar to Wired Networks. Usually Broadcast protocols such as DHCP will work across them seamlessly; therefore if you have a DHCP server available on your network it should be able to dynamically assign an IP address to any clients. Your IP address setting should be considered closely if you are running an Adhoc network because you are less likely to be running a DHCP server.

Windows defaults for DHCP clients usually fall back to the Automatic Private IP Address (APIPA) scheme when no DHCP server is available, this means that your Adhoc devices will end up with an IP address in the range 169.xxx.xxx.xxx. This is fine for setting up a temporary network but for something more permanent you may wish to assign static IP addresses to each client device.

File Sharing over Wireless

Once you have your Wireless device connected you may wish to access to files on a server or another Client. This can be done in several ways depending on your Network operating system and architecture. The simplest example for Windows users is to use 'mapped network drives' remember to do this you must either map the drive via an IP address (e.g. \\10.0.2.10\sharename) or use full UNC path names to your network drives.

Network Printing, Email and Web browsing over Wireless

All these services should work automatically over your wireless network the same as if you were connected to the wired network. If these services are not working you should check that you can ping via your wireless network and that the IP Address, Subnet mask and Gateway are correct for your wireless network (generally the same as for the wired network).

Configuring the Firewall

The NB1300Plus4W has an inbuilt firewall. A firewall is a device which prevents unauthorized users from gaining access to your computer network. This tutorial will show you how to configure the advanced options of this firewall. Configuration of these options is only recommended for advanced users. The NB1300plus4W defaults include a moderate level of security and usually the firewall will only require further configuration if a higher or lower security level is required.

Note: You can click on the [Firewall link](#) at the top of the page to return to the main firewall configuration screen at any time.

Protection Policy - allows you to enable the firewall to check for different types of unauthorized access - when you've finished with this page, click on Submit.

Hacker Log - allows you to manage logging preferences for the firewall.

Syslog event - section allows you to determine which events are logged.

Syslog Operation - section allows you to determine the properties of the log, and where you want to send the logs to. You can send them via email, or you can send them to a computer on your LAN. Note that if you choose to send the logs to a computer on your LAN, that computer must be running a suitable Syslog application.

When you've finished configuring these options, click on "submit".

Service Filtering

The service filtering setting allows you to filter incoming connections from your external network. Checking the box will block incoming traffic for that protocol. When you've finished, click on Submit to save the settings.

Remember if you've changed any settings, you must save them to flash by clicking on Save Firewall Configuration at the bottom of the Firewall Configuration screen. Then you'll need to press Save Settings and Reboot on the side menu, then clicking "Save & Reboot" in the next page displayed.

Configuring Groups

The NB1300Plus4W's inbuilt firewall works by using groups and policies. Groups are used to define certain settings. These settings are used when creating firewall rules, or policies.

Firewall Databases

The IP Group section allows you to add IP address information to the group database. You can add a single IP, an IP range and a Subnet range. In this example, we are adding an IP entry named "mailserver" with an IP address of 192.168.1.137. Note that if you are adding single IPs, it must be entered in both the IP address 1 and 2 fields. Click on Add/Modify to add the entry to the database.

Once you've finished adding or modifying entries to this section, click on the firewall link at the top of the screen to return to the main firewall configuration screen.

The Service Group is used to set port information to the group database. As you can see, the most common ports have already been entered into the database. To add new entries, simply enter their relevant details into the input fields near the bottom of the screen. In this example, we are adding a "PPTP" port, which uses the TCP protocol and port number 1723. You'll need to click on the Add/Modify button to add it to the database.

The Time Window Group allows you to create periods of time which can be used in a firewall policy. To add a new entry, simply give it a name and then specify the time period using the drop down box. In this example, we are creating an entry called "Monday9to5" which is the time period of 9am to 5pm on Monday.

The FTP Group is a pre-defined group used to filter certain FTP commands. The example shown is an entry called DenyMKD, where the MKD command is selected, and the action is set to deny. Also, make sure you click on the "Add modify entry" button to save the entry to the group database.

The SMTP Group pre-defined group used to filter certain SMTP commands. In this example, we are creating an entry called "allow all" which has all the commands selected and the action is set to allow. You'll need to click on "Add modify entry" button to save the entry.

The HTTP group allows you to block either URLs, keywords in a URL or certain special applications in that URL. In this example, we are creating a "DenyYahoo" entry, which will block access to the www.yahoo.com.au website.

Remember if you've added or changed any entries, you must save them to flash by clicking on Save Firewall Configuration at the bottom of the Firewall Configuration screen. Then you'll need to press Save Settings and Reboot on the side menu, then clicking "Save & Reboot".

Configuring Policies

Once you've created entries in the NB1300Plus4W's group databases, it is time to create a policy. A policy is a firewall rule which governs data passing through the firewall. You can create an inbound policy - a policy for data coming in from the internet or an outbound policy which is a policy for data going out to the internet.

To create an inbound policy, click on the inbound policy link under the "Inbound /Outbound policies" heading. You will now be presented with an Adding New Policy screen.

Firstly, you can specify whether the rule applies to a certain IP, IP range or any IP. You can also specify a range created in the IP Group if you've done so by using the "DB" drop down box. This must be done for both the Source IP and the Destination IP,

Secondly you can specify which ports this rule applies to. You can either specify the ports manually, or use a group database rule if you've created one previously.

Now, select the Transport Protocol, which can be TCP, UDP or both. You can also enable reverse NAT if you wish. Also select whether this rule applies an Allow or Deny action.

The next sections (Time window, ftp content, SMTP content, http content) refer directly to group databases. If you haven't created any rules under the relevant group database, you will not be able to use these sections. Select the relevant rules using the drop down box.

Once you've finished click on "Add Modify inbound policy" to add the rule to the database. You should now see it listed under the Inbound Policy screen. To create more rules, you will need to click on the "Add" button.

The Outbound Policy screen is essentially the same, other than it deals with outgoing connections rather than incoming connections. You can modify policies in either screen by clicking on "edit" for the rule you wish to modify.

Remember if you've added changed any entries, you must save them to flash by clicking on Save Firewall Configuration at the bottom of the Firewall Configuration screen. Then you'll need to press Save Settings and Reboot on the side menu, then clicking "Save & Reboot".

Advanced Configuration for your NB1300Plus4 Wireless

How to make changes

The NB1300Plus4 Wireless utilises a Web based interface for configuration, this means that you do not need to load drivers (unless using USB) and configuration is always performed via a Web browser (such as Internet Explorer or Netscape Navigator).

For each configuration page there is a Submit button to store the changes for that page before you move on to the next page. Once you have made and submitted all your required changes you must click the Save Settings and Reboot button.

Clicking this button will permanently store all your changes and implement them by performing a reboot. Please wait up to 30 seconds for your router to reboot and resynchronize the ADSL link (Showtime). The Reboot process is complete when the RDY light starts pulsing steadily again.

Note: DO NOT power the unit off or press the reset button again during the reboot process

Multiple Virtual Circuits

The NB1300Plus4 Wireless is capable of being configured to maintain multiple virtual circuits – that is multiple routed connections or PPP sessions down the same ADSL copper cable. Most ADSL connections will only support one PPP session please confirm your line's / accounts capabilities with your ISP. All configurations made in the one-page setup are made to Virtual Circuit Zero (VC0). You can configure the other VCs individually by opening the Advanced WAN page and selecting which VC you want to edit at the bottom of the page then pressing the Submit button. All fields on that page will be presented in terms of the Virtual Circuit number just chosen.

USB or Ethernet?

The NB1300Plus4 Wireless can be connected via a USB cable or an Ethernet cable or both. The reason for this is that the USB connection is simply an ethernet simulation, as far as your computer is concerned the USB connection is an Ethernet connection, hence DHCP and other protocols will work the same as for Ethernet.

1. After connecting all the ADSL Router cables, powering on the ADSL Router, and launching a web browser, such as Internet Explorer or Netscape Navigator, browse to the address <http://192.168.1.1>.
2. Enter the correct user name and password to access the Configuration tool. The default user name and password are as below.

User Name : admin

Password : password

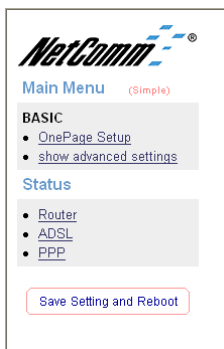


*Note: You must click the **Submit** button on every page that you make changes on and when you have made all your changes click the **Save Setting and Reboot** button*

The configuration page is split into two sections, Simple mode (default) and Advanced mode. When you log into the router it will be in simple mode. This provides enough configuration for the majority of connections.

Main Menu - (Simple)

The following is displayed in the left hand panel when you first log into the NB1300Plus4 Wireless:



Basic Menu

One Page Setup

The One Page setup page is designed to make the most commonly required configuration fields available all in one place. For most installations you will only need to use the one-page setup to configure the unit. One-Page setup fields all apply to Virtual Circuit zero only (see section on Multiple Virtual Circuits in this manual for more information).



LAN:

This the Local Area Network IP address of the NB1300Plus4 Wireless, by default this is set to 192.168.1.1 this can be changed to reflect your network requirements, i.e. 172.16.1.1 or 10.0.0.1

For simple networks it is suggested that the default addresses be used.

WAN:

This is the field that you configure your ISP details, enter the details provided by your ISP into these fields:

Service name - This is the name you wish to call the connection, it is recommended that you use your ISP's name to avoid confusion at a later date. For example if you use Ozemail as your ISP then enter 'OzEmail' in the service field. Your ISP does NOT set this field.

Username - This is the Username provided by your ISP. Please check with your ISP as to the format to use, some ISPs use your full Username (i.e. user@ISP.com.au) and some just use the username only.

Password - This is the password provided by your ISP for your Internet connection. It is usually only required for connection types that use PPP.

Disconnect timeout - If no activity is recorded on the network the NB1300Plus4 Wireless will disconnect the line after this many seconds, the maximum is 32767 seconds (about 10 hours).

WAN Type: This is the connection type set by your ISP, you can select from the following options:

- o PPPoA VC-Mux
- o PPPoA LLC
- o 1483 Bridged IP LLC or VC-Mux (For Transparent bridge also enable Bridge mode)
- o 1483 Routed IP LLC or VC-Mux
- o Classical IP over ATM
- o PPPoE - VC-Mux, LLC, None

If your connection is not working with the suggested configuration try using one of the other settings.

VC Settings:

These are the settings for the line itself, these are supplied by your ISP.

- ☐ VPI - usually 8 unless specified otherwise by your ISP
- ☐ VCI - usually 35 unless specified otherwise by your ISP
- ☐ Static IP Address - 0.0.0.0 or 192.168.241.101 unless specified by your ISP
- ☐ Subnet mask - 255.255.255.0 unless specified by your ISP.
- ☐ Default Gateway - 0.0.0.0 unless specified by your ISP.

Bridge:

Enabling bridge mode will place the unit into Transparent bridge mode (like a Ethernet ADSL modem). To use this mode you should select “enable” for Bridge mode at the bottom of the OnePage setup. Also, set your WAN type to a Bridging option (e.g RFC 1482 Bridge using LLC).

Show Advanced Settings

Select this option to display the advanced settings of the NB1300Plus4 Wireless (See further for details of Advanced settings)

Advanced configurations should only be used if you are familiar with the operation of your network and ISP settings or if you are directed to do so by NetComm support or your ISP.

Status

The status pages show what the status is of current connections and settings, this section describes what fields are displayed. See 'Main Menu - advanced' for details on how to change these settings.

The Router page shows the firmware versions and WAN and LAN interface status.

The screenshot displays the NetComm Router's Home Page. On the left is a sidebar with the NetComm logo, a 'Main Menu (Simple)' link, and sections for 'BASIC' (OnePage Setup, show advanced settings) and 'Status' (Router, ADSL, PPP). A 'Save Setting and Reboot' button is at the bottom of the sidebar. The main content area has a light blue background and is titled 'Home Page'. It shows 'Firmware Version: ETHADSL_USB_110502_REL10_8' and 'Customer Software Version: V5.010.1b'. Below this is a 'WAN' section with a table of interface information. Further down is a 'LAN' section with another table of interface information. At the bottom, it shows 'Total Number of Lan Interfaces: 1' and 'Number of ethernet devices connected to the DHCP server: 1', followed by a table of connected devices. The status of Ethernet and USB links is also shown.

Home Page

Firmware Version: ETHADSL_USB_110502_REL10_8
Customer Software Version: V5.010.1b

WAN

IP Address	Subnet Mask	MAC Address
203.100.234.244	255.255.255.0	00:09:F3:01:43:87

LAN

IP Address	Subnet Mask	MAC Address
192.168.2.1	255.255.255.0	00:09:F3:01:43:86

Total Number of Lan Interfaces: 1

Number of ethernet devices connected to the DHCP server: 1

	IP Address	MAC Address
1	192.168.2.9	00:10:60:59:C6:0C

Ethernet Link Status: UP
USB Link Status: DOWN

Firmware Version: This field displays the NetComm firmware version number on the router.

Customer Software Version: This field displays the software interface version on the router. Firmware updates can be downloaded from the NetComm website when available.

WAN:

These fields display the current IP address, Subnet Mask and MAC address for the WAN (ADSL) interface. This address is supplied by your ISP either automatically or using a static assigned address.

LAN:

These fields display the IP address, Subnet Mask and MAC address for the LAN interface.

Number of Ethernet Devices Connected to the DHCP Server: This field displays the number of DHCP clients connected to the NB1300Plus4 Wireless. It also shows the IP address and MAC address of the attached DHCP clients.

ADSL

The ADSL Status page shows the ADSL physical layer status.



ADSL STATUS

Showtime: Firmware Version: 3.2.4

Line State: SHOWTIME

Modulation: G.dmt

Annex Mode: ANNEX_A

Startup Attempts: 1

Max Tx Power: -38 dBm/Hz

CO Vendor: ALCATEL_NETWORK

Elapsed Time: 0 days 0 hours 54 minutes 22 seconds

	Downstream	Upstream	
SNR Margin	32.4	24.0	dB
Line Attenuation	44.0	26.5	dB
Errored Seconds	0	0	
Loss of Signal	0	0	
Loss of Frame	0	0	
CRC Errors	0	0	
Data Rate	1536	256	kbps
Latency	FAST	FAST	

ADSL Line Status: This field displays the ADSL connection process and status.

ADSL Modulation: This field displays the ADSL modulation status for G.dmt or T1.413.

ADSL Annex Mode: This field displays the ADSL annex modes for Annex A or Annex B.

ADSL Startup Attempts: This field displays the ADSL connection attempts after loss of showtime.

Elapsed Time: This field displays the time of the modem has been in operation.

SNR Margin: Amount of increased noise that can be tolerated while maintaining the designed BER (bit error rate). The SNR Margin is set by Central Office DSLAM. If the SNR Margin is increased, bit error rate performance will improve, but the data rate will decrease. Conversely, if the SNR Margin is decreased, bit error rate performance will decrease, but the data rate will increase.

Line Attenuation: Attenuation is the decrease in magnitude of the ADSL line signal between the transmitter (Central Office DSLAM) and the receiver (Client ADSL Modem), measured in dB. It is measured by calculating the difference in dB between the signal power level received at the Client ADSL modem and the reference signal power level transmitted from the Central Office DSLAM.

Errored Seconds: The error during Showtime (ADSL link), whenever, a given sec contains CRC error, that second will be declared error second.

Loss of Signal: This field displays the count of event of ADSL signal loss.

Loss of Frame: This field displays the count of event of ADSL frame loss.

CRC Errors: This field displays the number of transmit data frames containing CRC errors.

Data Rate: This field displays the ADSL data rate.

Latency: This field displays the latency modes for fast or interleave.

The PPP Status page shows the status of PPP for each PPP interface. See PPP:

PPP

#	Connection Name	Interface	Mode	Status	Pkts Sent	Pkts Rcvd	Bytes Sent	Bytes Rcvd
1	PPPoPvc 0	Pvc 0	PPPoE	Connected	7056	10000	904006	5436513

If a * appears under Mode column, you need to [check the WAN configuration](#) to make sure the VC has the correct encapsulation.

Connection #

These fields display the following information on each PPP interface:

- Connection Name (user defined)
- Interface (PVC)
- Mode (PPPoE or PPPoA)
- Status (Connected or Not Connected)
- Packets Sent
- Packets Received
- Bytes Sent
- Byte Received.

Connect and Disconnect: Each PPP session can be individually controlled, simply enter the desired connection number into the 'Connection #' field and select either connect or disconnect from the drop down menu and click on the 'Execute' button.

Main Menu - (Advanced)

Advanced



Main Menu (Advanced)

BASIC

- [OnePage Setup](#)
- [hide advanced settings](#)

ADMINISTRATION

- [WAN](#)
- [LAN](#)
- [DNS](#)
- [NAT](#)
- [Port Forwarding](#)
- [ADSL Configuration](#)
- [RIP Configuration](#)
- [SNMP Configuration](#)
- [Diagnostic Test](#)
- [Route Table](#)
- [MAC Filtering](#)

SECURITY

- [Admin Password](#)
- [User Password](#)
- [Misc Configuration](#)
- [System Log](#)
- [Code Update](#)

Status

- [Router](#)
- [ADSL](#)
- [LAN](#)
- [WAN](#)
- [ATM](#)
- [TCP connections](#)
- [Learned MAC Table](#)
- [PPP Status](#)

[Save Setting and Reboot](#)

One Page Setup

See 'Main menu - Simple' for full details of the One Page Setup.

Hide Advanced settings

Select this option to hide the advanced settings of the NB1300Plus4 Wireless. Pressing this will display the Simple settings.


Administration

The links under the Administration column are associated to the pages that represent the configurations of system and interfaces.

Note: When the configurations are changed, please go to the Save Settings page to save the new setting and reboot the board.

WAN

The WAN configuration page allows the user to set the configuration for the WAN/ADSL ports.



Main Menu (Advanced)

- BASIC
 - OnePage Setup
 - hide advanced settings
- ADMINISTRATION
 - WAN
 - LAN
 - DNS
 - NAT
 - Port Forwarding
 - ADSL Configuration
 - RIP Configuration
 - SNMP Configuration
 - Diagnostic Test
 - Route Table
 - MAC Filtering
- SECURITY
 - Admin Password
 - User Password
 - Mac Configuration
 - System Log
 - Code Update
- Status
 - Router
 - ADSL
 - LAN
 - WAN
 - ATM
 - TCP connections
 - Learned MAC Table
 - PPP Status

Save Setting and Reboot

WAN Configuration (Pvc 0)

Change Adapter

Virtual Circuit: Enabled Bridge: Disabled IGMP: Disabled Encapsulation: PPPoE LLC	Static IP Settings IP Address: 192.168.241.101 Subnet Mask: 255.255.255.0 Gateway: 0.0.0.0
ATM VPI: 8 VCI: 35 Service Category: UBR Bandwidth: 0 kbps	PPP Advanced PPP configuration Service Name: Username: eticket@dsl.pacific.net.au Password: Disconnect Timeout: 0 seconds (Max: 32767) MRU: 1492 MTU: 1492 MSS: 1432 Authentication: Auto Automatic Reconnect: <input checked="" type="checkbox"/>
DHCP Client Disabled Host Name:	
MAC Spoofing Disabled Mac Address: 00:00:00:00:00:00	

Submit Reset

Settings need to be saved to Flash and the system needs to be rebooted for changes to take effect.

Per VC Settings/Change Adapter: Under Per VC Setting, it provides the configurations for VPI/VCI, Static IP Address Subnet Mask, and Gateway. The Static IP Address, Subnet Mask and Gateway are used for Static IP configuration. Current NetComm firmware supports eight PVCs. To switch between the PVCs, please choose one of the virtual circuit numbers and click on the Submit button to switch over.

Note: For newer firmware you click on the Change Adapter button and select the VC you wish to View/Edit.

MAC Spoofing: MAC Spoofing is developed to solve the scenario when the ISP only recognizes one MAC address. Copy the ISP-recognized MAC address here.

ATM:

Service Category: UBR and CBR are supported from the ATM.

Bandwidth: Bandwidth setting takes effect only when the CBR is selected. The maximum available bandwidth is from the upstream data rate of ADSL status page.

Encapsulation: Bridge IGMP

IGMP relay/proxy specification and environment: Support IGMP proxy/relay function for ADSL modem, based on the following requirement and case:

- On CO side, there must be at least one IGMP querier (router) present. IGMP querier will send IGMP query packet. The ADSL modem is responsible to relay these IGMP query to Ethernet.
- End-user multicast application device send IGMP report while receiving IGMP query or being activated by user, the ADSL modem should be responsible to proxy (that is, change source IP to ADSL modem's WAN IP) the IGMP report to ADSL WAN side, include all PVCs. The same case is for IGMP leave packet.
- Not necessary to relay multicast routing between two ADSL PVCs or two interfaces in LAN side.
- Special purpose multicast packet (such as RIP 2 packet) should run without interference.

Note: Before the IGMP mode is enabled; please go to the Miscellaneous Configuration page to enable the IGMP proxy. Otherwise, the IGMP selection will not be valid.

Q: Where can I download the free software to test IGMP.

A: Please go to this link <http://manimac.itd.nrl.navy.mil/MGEN/>.

PPP: The current release supports multiple PPP sessions per PVC. The PPP configuration in the WAN configuration page is for the first PPP session for each PVC. The predefined PPP Account Name (Account ID) is "Simple PPP Account 0" for PVC0 and predefined PPP Connection Name is "Simple PPP Session 0" for PVC0. For the other PVC X, the predefined account name and connection name will be Simple PPP Account X and Simple PPP Session X. X is the PVC number from 1 to 7.

It can support up to total of 16 PPP sessions, and each PVC can support up to 8 PPP sessions. The multiple PPP sessions may be configured with any combination over 8 PVCs. For the multiple PPP sessions, please go to PPP Configuration page (Section 6.3).

Service Name: The service name of PPP is required by some ISPs. If the ISP does not provide the Service Name, please leave it blank.

Disconnect Timeout: The Disconnect Timeout allows the user to set the specific period of time to disconnect from the ISP. The default is 0, which means never disconnect from the ISP.

DHCP Client: Use Table 6-1 to configure a valid setting for each PVC.

MRU: Maximum Receive Unit indicates the peer of PPP connection the maximum size of the PPP information field this device can be received. The default value is 1492 and is used in the beginning of the PPP negotiation. In the normal negotiation, the peer will accept this MRU and will not send packet with information field larger than this value.

MTU: Maximum Transmission Unit indicates the network stack of any packet is larger than this value will be fragmented before the transmission. During the PPP negotiation, the peer of the PPP connection will indicate its MRU and will be accepted. The actual MTU of the PPP connection will be set to the smaller one of MTU and the peer's MRU. The default is value 1492.

MSS: Maximum Segment Size is the largest size of data that TCP will send in a single IP packet. When a connection is established between a LAN client and a host in the WAN side, the LAN client and the WAN host will indicate their MSS during the TCP connection handshake. The default value is 1432.

Automatic Reconnect: When it is checked, it will maintain the PPP connection all the time. If the ISP shut down the PPP connection, it will automatically reconnect PPP session.

Authentication: When AUTO option is chosen, the PAP mode will run first then CHAP. If you are having connection problems with PPPoA or PPPoE connections it is recommended that you try forcing either PAP or CHAP modes.

Host name: Required by some ISPs. If the ISP does not provide the Host name, please leave it blank.

Q1: If the PPP is disconnected after the Disconnect Timeout and how can I reconnect it?

A: You have to go to the PPP Status under Admin Privileged column, choose the correct PVC and Connect option, and then click Execute to restart a new PPP session.

Alternatively you can click the CONNECT button at the bottom of the OnePage setup.

When should I change my MTU settings?

MTU settings should be changed to suit your ISP's recommendations if you are experiencing the following symptoms;

- General emails send but emails with attachments fail
- Can achieve a connection but some web pages won't load or can't download files.
- Windows Update starts but fails to complete.
- Your ISP recommends you change the setting.

What should I change my MTU settings to?

MTU settings should be set to 1492 to start with, if you still have problems try lowering them to 1456, 1400 or even as low as 750 to see if the problem improves. Your ISP is the best person to contact to find out what MTU setting to use.

Note: MTU above 1492 is likely to cause problems and is not likely to improve data throughput.

LAN/DHCP

The LAN configuration page allows you to set the configuration for the LAN port.



The screenshot shows the NetComm LAN Configuration page. On the left is a sidebar menu with sections: Main Menu (Advanced), BASIC (OnePage Setup, Hide advanced settings), ADMINISTRATION (WAN, LAN, DNS, NAT, Port Forwarding, ADSL Configuration, RIP Configuration, SNMP Configuration, Diagnostic Test, Route Table, MAC Filtering), SECURITY (Admin Password, User Password, Misc Configuration, System Log, Code Update), and Status (Router, ADSL, LAN, WAN, ATM, TCP connections, Learned MAC Table, PPP Status). A 'Save Setting and Reboot' button is at the bottom of the sidebar. The main content area is titled 'LAN Configuration' and contains the following settings:

- IP Address:** 192.168.2.1
- Subnet Mask:** 255.255.255.0
- DHCP Server:** Enabled
- DHCP address pool selection:** System Allocated
- User Defined Start Address:** 192.168.1.100
- User Defined End Address:** 192.168.1.149
- DHCP Gateway Selection:** Automatic
- User Defined Gateway Address:** (empty field)
- Lease Time:** 3 days 0 hours 0 minutes 0 seconds
- User Mode:** Multi-User

Below these settings is a link for 'Ethernet Mode Setting' and two buttons: 'Submit' and 'Reset'. A note at the bottom states: 'Settings need to be saved to Flash and the system needs to be rebooted for changes to take effect.'

LAN IP Address & Subnet Mask: The default is 192.168.1.1 and 255.255.255.0 you can change it to another private IP address, such as 172.168.0.1, and 255.255.255.0. - For most configurations it is recommended to leave it as default.

DHCP Server: System Allocated: The DHCP address pool is based on LAN port IP address plus 12 IP addresses. For example, the LAN IP address is 192.168.1.1; the DHCP address pool is at the range of 192.168.1.2 to 192.168.1.14.

User Defined: The DHCP address pool is at the range of User Defined Start Address and User Defined End Address. The maximum pool size can be 253 IP addresses: 255 total IP addresses - 1 broadcast address - 1 LAN port IP address.

DHCP Gateway Selection: The default setting for the DHCP Gateway Selection is "Automatic". The user can select the "User Defined" to specify "User Defined Gateway Address". The DHCP server will issue the "User Defined Gateway Address" to the LAN DHCP clients.

Lease time: The Lease time is the amount of time of a network user will be allowed to connect with DHCP server. If all fields are 0, the allocated IP addresses will be effective forever.

User mode: Under the Single User mode, the DHCP server only allocates one IP address to local PC. Under the Multiple User mode, the DHCP server allocates the IP addresses specified by the DHCP address pool.

Ethernet Mode Setting: The Ethernet Mode configuration page allows the user to set the LAN port into Auto Sense, 100 Mbps Full Duplex, 100 Mbps Half Duplex, 10 Mbps Full Duplex or 10 Mbps Half Duplex.

The DNS Configuration page allows you to set the configuration of DNS proxy.

The NetComm firmware supports DNS proxy. For the DHCP requests from local PCs, the DHCP server will set the LAN port IP as the default DNS server. Thus, all DNS query messages will come into LAN port first. The DNS proxy on the ADSL modem recorded the available DNS servers, and forward DNS query messages to one of DNS server.

NetComm™

Main Menu (Advanced)

BASIC

- OnePage Setup
- hide advanced settings

ADMINISTRATION

- WAN
- LAN
- DNS
- NAT
- Port Forwarding
- ADSL Configuration
- RIP Configuration
- SNMP Configuration
- Diagnostic Test
- Route Table
- MAC Filtering

SECURITY

- Admin Password
- User Password
- Misc Configuration
- System Log
- Code Update

Status

- Router
- ADSL
- LAN
- WAN
- ATM
- TCP connections
- Learned MAC Table
- PPP Status

Save Setting and Reboot

DNS Configuration

DNS Proxy Selection: Use Auto Discovered DNS Servers Only

User Configuration:

Preferred DNS Server: 0.0.0.0

Alternate DNS Server: 0.0.0.0

Submit Reset

Settings need to be saved to Flash and the system needs to be rebooted for the changes to take effect.

Disable DNS Proxy: The LAN port does not process the DNS query message. For the DHCP requests from local PCs, the DHCP server will set the user-configured preferred DNS server or alternate DNS server whichever is available as the DNS server. Then all DNS query messages will be directly sent to the DNS servers.

Use Auto Discovered DNS Servers Only: The DNS proxy will store the DNS server IP addresses obtained from DHCP client or PPP into the table. And all DNS query messages will be sent to one of the dynamically obtained DNS servers.

Use User Configured DNS Servers Only: The DNS proxy will use the user-configured preferred DNS server and alternate DNS server. And all DNS query message will be sent to one of DNS servers. Enter the DNS IP in the Preferred DNS Server and Alternate DNS Server fields.

Auto Discovery + User Configured: The DNS proxy's table has all the IP addresses of dynamically obtained and user configured DNS servers.

User Configuration: Place your primary and secondary DNS addresses here.

NAT

The NAT Configuration page allows the user to set the configuration for the Network Address Translation. The default setting is Dynamic NAPT. It provides dynamic

Network Address Translation capability between LAN and multiple WAN connections, the LAN traffic is routed to appropriate WAN connections based on the destination IP addresses and Route Table. This eliminates the need for the static NAT session configuration between multiple LAN clients and multiple WAN connections.

When the Dynamic NAPT is chosen, there is no need to configure the NAT Session and NAT Session Name Configuration.

The NAT option only maps single WAN IP address to the local PC IP address. It is peer to-peer mapping. (1x1) For each WAN interface, only one local PC IP address can be associated with each WAN interface. Click the link Session Name Configuration to add the session name for WAN interface.

The NAPT option maps the single WAN IP addresses to many local PCs IP addresses. (1xN). It is the multiple-mapping mechanism. For each WAN Interface, more than one local PC can be associated with one WAN Interface. Click the link Session Name Configuration to add the session name for WAN interface.

Session Name: This field allows the user to enter his/her own session Name to distinguish different NAT session for different interfaces among different PPP sessions and different PVCs.

Interface: This field allows the user to choose specific WAN Interface (PVC or PPP Session) for NAT Session.

NAT Session Name Status: This table displays at the bottom of this page to show all the NAT Session Names with its WAN Interface.

Number of NAT Configurations: This field displays the total number of NAT Sessions Name is entered.

Click the link *Go back to NAT Configuration* to return to the NAT configuration page. Select the NAT option. Select the Session Name and assign the PC IP address, and choose the Add action. Click the Submit button and go to the Save Settings to save this configuration.

NAT allows only one entry (User IP) per session.

NAPT allows many entries (User IPs) per session.

Session Name: This field allows the user to select the session from the configured NAT Session Name Configuration.

User's IP: This field allows the user to assign the IP address to map the corresponding NAT/NAPT sessions.

Session Name Status will be displayed at the middle of this page to show the corresponding Session Name with its IP address.

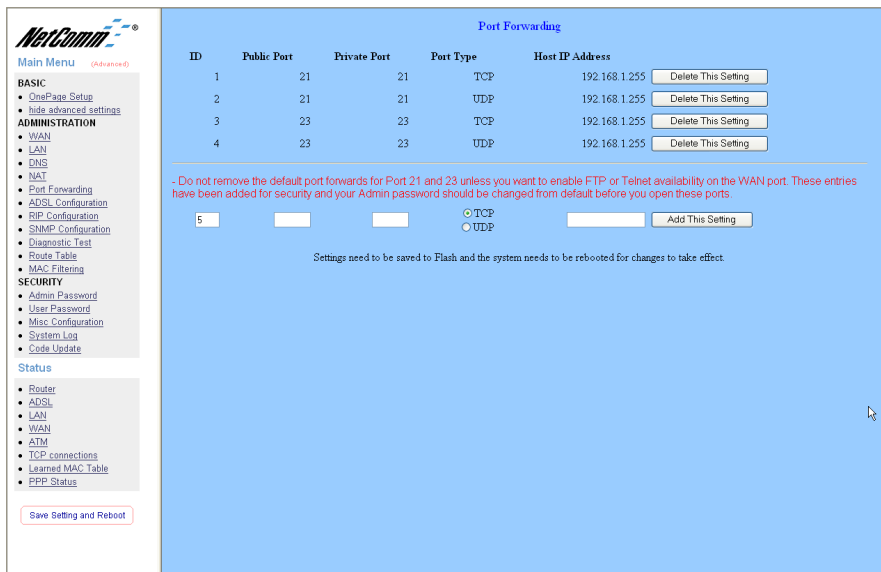
Number of NAT Configurations: This field displays the total number of NAT Sessions is entered.

Available Sessions Status will be displayed at the end of this page to show all the Session Names with its WAN Interface.

Number of Session: This field displays the total number of NAT Sessions Name is entered.

Port Forwarding

The Port Forwarding Configuration page allows the user to set the configuration for Port Forwarding. By default all UDP/TCP ports are protected from intrusion. If any specific local PCs need to be mapped to the UDP/TCP port on WAN side, please input the mappings here.



Port Forwarding

ID	Public Port	Private Port	Port Type	Host IP Address	
1	21	21	TCP	192.168.1.255	Delete This Setting
2	21	21	UDP	192.168.1.255	Delete This Setting
3	23	23	TCP	192.168.1.255	Delete This Setting
4	23	23	UDP	192.168.1.255	Delete This Setting

☐ TCP
☐ UDP

Add This Setting

Settings need to be saved to Flash and the system needs to be rebooted for changes to take effect.

Save Setting and Reboot

Public Port: This field allows the user to enter the port number of the Public Network.

Private Port: This field allows the user to enter the port number of the Private Network.

Note: In most cases, the private port number is same as public port number.

Host IP Address: This field allows the user to enter the private network IP address for the particular server.

Well Known Ports:

Port	Protocol
21	FTP
23	Telnet
25	SMTP
43	Whois
53	DNS
69	TFTP
70	Gopher
79	Finger
80	HTTP
110	POP3
115	SFTP
161	SNMP
162	SNMP traps

Wireless

The NB1300Plus4Wireless can support wireless connections to your Network. Any PC equipped with an IEEE802.11b wireless network adaptor can be configured to connect to your network.

Wireless

Please configure your wireless setting here.

SSID

Channel

Security ☒ Enable Encryption ☐ Disable Encryption

Key Length ☒ 64 bit ☐ 128 bit

(5 bytes for 64 bit or 13 bytes for 128 bit)

Key 1

Key 2

Key 3

Key 4

SSID: This is the name of the Wireless LAN. All devices in the same Wireless LAN should have the same SSID.

Channel: The channel used by the Wireless LAN. All devices in the same Wireless LAN should use the same channel.

Security: Enable or Disable Wireless encryption.

Key Length: You can select the key length for the encryption key; either 64bit or 128bit.

Key 1 to Key 4: The key used to encrypt data transmitted in the wireless network.

Note: If you make any changes, click the Submit button to save them.

ADSL Configuration

The ADSL Configuration page allows the user to set the configuration for ADSL protocols.



Trellis: This field allows the user to enable or disable the Trellis Code. By default, it is always enabled.

Handshake Protocol: This field allows the user to select the ADSL handshake protocol.

Wiring Selection: This field allows the user to enter the wiring selection for the RJ-11.

Tip/Rip is the default for the board without the inner/outer pair relay

Bit Swapping: This field allows the user to enable or disable the upstream bit swapping.

RIP Configuration

The RIP Per Interface Configuration page allows the user to set the configuration for each Interface (PVCs, PPP Sessions, USB and LAN).

NetComm Main Menu (Advanced)

BASIC

- OnePage Setup
- hide advanced settings

ADMINISTRATION

- WAN
- LAN
- DNS
- NAT
- Port Forwarding
- ADSL Configuration
- RIP Configuration
- SNMP Configuration
- Diagnostic Test
- Route Table
- MAC Filtering

SECURITY

- Admin Password
- User Password
- Mac Configuration
- System Log
- Code Update

Status

- Router
- ADSL
- LAN
- WAN
- ATM
- TCP connections
- Learned MAC Table
- PPP Status

Save Setting and Reboot

RIP System Wide Configuration

RIP: Disabled

Border Gateway: Enabled

Supply Interval: 30 Seconds

Expire Timeout: 180 Seconds

Garbage Timeout: 120 Seconds

[Advanced Configuration](#)

Submit Reset

Settings need to be saved to Flash and the system needs to be rebooted for changes to take effect.

Interface: This field allows the user to choose the Interface (PVCs, PPP Sessions, USB and LAN), for the RIP to be configured.

Enable: This field allows the user to Enable (Yes) or Disable (No) the specified interface for RIP.

Supplier: This field allows the user to select the Supplier Mode (RIP Transmit).

- ☐ Disabled: The supplier transmit is disabled.
- ☐ V1 BC: The supplier transmits in RIPv1 Broadcast.
- ☐ V2 BC: The supplier transmits in RIPv2 Broadcast.
- ☐ V2 MC: The supplier transmits in RIPv2 Multicast.

Listener: This field allows the user to select the Listener Mode (RIP Receive)

- ☐ V1: The listener receives the RIPv1 only.
- ☐ V2: The listener receives the RIPv2 only.
- ☐ V1+V2: This listener receives the both RIPv1 and RIPv2.

Supplier and Listener are based on section 4.1 "Compatibility Switch" in RFC 1723.

Current RIP Settings: This field displays the each interface's RIP status.

Diagnostic Test

The Diagnostic Test page shows the test results for the connectivity of the physical layer and protocol layer for both LAN and WAN sides.

The screenshot shows the NetComm Diagnostic Test page. On the left is a navigation menu with categories: BASIC, ADMINISTRATION, SECURITY, Status, and a Save Setting and Reboot button. The main content area is titled 'Diagnostic Test: Test Complete' and lists various tests and their results:

Test Name	Result	Help Link
Checking LAN Connection	PASS	HELP
Testing Ethernet LAN connection	PASS	HELP
Checking ADSL Connection	PASS	HELP
Testing ADSL Synchronization	PASS	HELP
Checking Circuit 0 for Network Connection	PASS	HELP
Test ATM OAM Segment Loop Back	PASS	HELP
Test ATM OAM End-to-End Loop Back	PASS	HELP
Test Ethernet connect to ATM	PASS	HELP
Test PPPoEvc 0 PPPOE connection	PASS	HELP
Test PPPoPvc 0 PPP layer connection	PASS	HELP
Test PPPoPvc 0 IP connect to PPP	PASS	HELP
Testing Internet Connection	PASS	HELP
Ping default gateway 203.9.190.190	PASS	HELP
Ping primary DNS 61.8.0.113	PASS	HELP
Query DNS for www.netcomm.com.au	PASS	HELP
Ping www.netcomm.com.au	PASS	HELP

Testing Ethernet LAN Connection: This test checks the Ethernet LAN interface connection.

Testing ADSL Synchronization: This test checks the ADSL showtime. If this test returns FAIL, all other tests will be skipped.

Test ATM OAM Segment Loop Back: This test sends ATM OAM F5 Segment loop-back request cells to the CO. This test will pass if response cell is received. Some service providers might not support this test. If this test fails consistently and the ADSL modem does not seem to be working, make sure the VPI and VCI are configured correctly.

Test ATM OAM End-to-End Loop Back: This test sends ATM OAM F5 End to End loop-back request cells to the CO. This test will pass if response cell is received. Some service providers might not support this test. If this test return FAIL consistently and the ADSL modem does not seem to be working, make sure the VPI and VCI are configured correctly.

Test Ethernet Connect to ATM: This test checks the ATM AAL5 module is loaded correctly.

Test PPPoE Connection: This test checks the PPPOE connection.

Test PPP Layer Connection: This test checks the PPP authentication.


Test IP Connect to PPP: This test checks a valid IP address assigned from the service provider. Please note that on some ADSL services this test may fail despite the fact that you have connected correctly.

Ping Primary DNS: This test checks the primary DNS can be reached through ping request. For example, Query DNS for www.netcomm.com.au
This performs a quick connectivity test to the NetComm website.

Note: on some ADSL services this test may fail despite you have connected correctly.

Route Table

The Route Table page displays routing table and allows the user to manually enter the routing entry. The routing table will display the routing status of Destination, Netmask, Gateway, and Interface. The interface br0 means the USB interface; lo0 means the loopback interface; and ppp1 means the PPP interface. The Gateway is the learned Gateway



Main Menu (Advanced)

- BASIC
 - OnePage Setup
 - hide advanced settings
- ADMINISTRATION
 - WAN
 - LAN
 - DNS
 - NAT
 - Port Forwarding
 - ADSL Configuration
 - RIP Configuration
 - SNMP Configuration
 - Diagnostic Test
 - Route Table
 - MAC Filtering
- SECURITY
 - Admin Password
 - User Password
 - Misc Configuration
 - System Log
 - Code Update

Status

- Router
- ADSL
- LAN
- WAN
- ATM
- TCP connections
- Learned MAC Table
- PPP Status

Save Setting and Reboot

Route Table

Destination	Netmask	Gateway	Interface
0.0.0.0	0.0.0.0	203.9.190.190	ppp1
192.168.2.0	255.255.255.0	192.168.2.1	br0
127.0.0.1	255.0.0.0	127.0.0.1	lo0
203.9.190.190	255.255.255.255	203.100.234.244	ppp1

System Default Gateway Configuration

☐ None
☒ Auto
☐ Select Interface Ip Ethernet 0
☐ Specify IP

Route Configuration

Destination	Netmask	Gateway
<input type="text"/>	<input type="text"/>	<input checked="" type="radio"/> Specify IP <input type="text"/> <input type="radio"/> Select Interface Ip Ethernet 0

Note: Save changes to flash to restore on power up.

Manually Configured Routes

#	Destination	Netmask	Gateway
---	-------------	---------	---------

MAC Filtering

The MAC Filtering configuration page allows the user to set the configuration of IP filtering. Enable and disable MAC filtering by selecting the 'Yes' or 'No' radio buttons.

Bridge Filtering

Enable Bridge Filtering: ☐ Yes ☐ No

ID	Src MAC*	Dest MAC*	Type**
1			<input checked="" type="radio"/> Block <input type="radio"/> Forward Add

* MAC address. Should look like 000002fa6fab.
 ** Ethernet type. Should look like a3ff.

[Save Setting and Reboot](#)

Source MAC: When the bridge filtering is enabled, enter the Source MAC address, select Block and click Add. Then all incoming WAN and LAN Ethernet packets matched with this source MAC address will be filtered out. If the Forward is selected, then the packets will be forwarded to the destination PC.

Destination MAC: When the bridge filtering is enabled, enter the Destination MAC address, select Block and click Add. Then all incoming WAN and LAN Ethernet packets matched with this destination MAC address will be filtered out. If the Forward is selected, then the packets will be forwarded to the destination PC.

Type: Enter the hexadecimal number for the Ethernet type field in Ethernet_II packets. For example, 0800 is for IP protocol.

0800 - IP Protocol

A5FF - Ethernet

Security

Admin Password

The Admin Password Configuration page allows the user to set the password for administrator.

The Admin password is the same as the FTP password and must be at least 8-characters long for the FTP function to work.

NetComm™
Main Menu (Advanced)

BASIC

- OnePage Setup
- Hide advanced settings

ADMINISTRATION

- WAN
- LAN
- DNS
- NAT
- Port Forwarding
- ADSL Configuration
- RIP Configuration
- SNMP Configuration
- Diagnostic Test
- Route Table
- MAC Filtering

SECURITY

- Admin Password
- User Password
- Misc Configuration
- System Log
- Code Update

Status

- Router
- ADSL
- LAN
- WAN
- ATM
- TCP connections
- Learned MAC Table
- PPP Status

Save Setting and Reboot

Admin Password Configuration

For FTP to work, the password for Admin should be at least 8 characters. Do not use ' ' or ' ' in the password.

Admin Password

Retype Password

Submit Reset

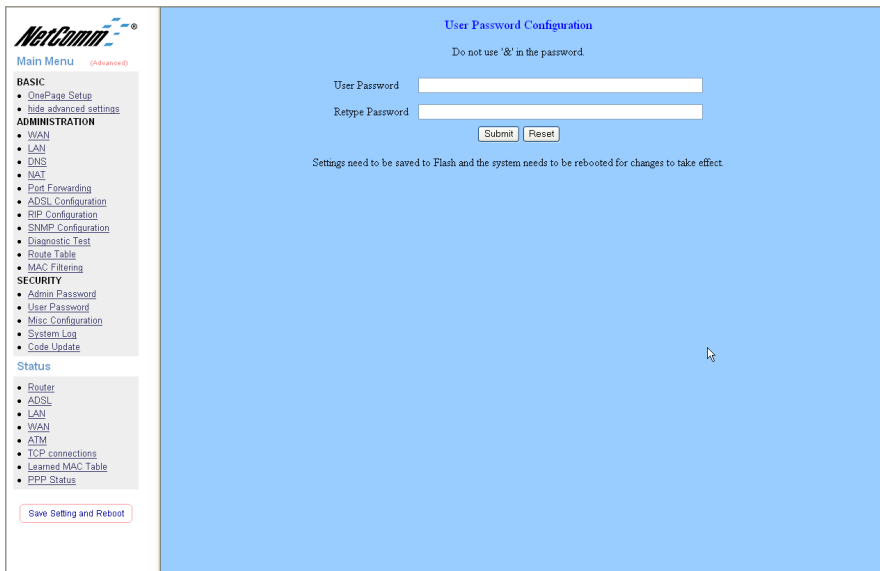
Settings need to be saved to Flash and the system needs to be rebooted for changes to take effect.


User Name: admin

Password (default): password

User Password

The User Password Configuration page allows the Admin user to set the password for the general user. When logged in as a general user you can view the basic status of the NB1300Plus4 Wireless but you can not make critical changes to the unit.





Main Menu (Advanced)

BASIC

- OnePage Setup
- hide advanced settings

ADMINISTRATION

- WAN
- LAN
- DNS
- NAT
- Port Forwarding
- ADSL Configuration
- RIP Configuration
- SNMP Configuration
- Diagnostic Test
- Route Table
- MAC Filtering

SECURITY

- Admin Password
- User Password
- Misc Configuration
- System Log
- Code Update

Status

- Router
- ADSL
- LAN
- WAN
- ATM
- TCP connections
- Learned MAC Table
- PPP Status

Save Setting and Reboot

User Password Configuration

Do not use '&' in the password.

User Password

Retype Password

Submit Reset

Settings need to be saved to Flash and the system needs to be rebooted for changes to take effect.

User Name: admin

Password (default): password

Misc Configuration

The Miscellaneous Configuration allows the user to set all the miscellaneous configurations.

HTTP Server Access: This field allows the user to configure the Web pages can be accessed from.

All: When this field is checked, it allows both WAN and LAN access to the Web pages.

Restricted LAN: This field allows the Web pages access from LAN side.

Restricted WAN Specified IP & Subnet Mask: This field allows the Web access from WAN side with a specify IP and subnet mask.

HTTP Server Port: This field allows the user to specify the port of the Web access.

For example, when it is changed to 1001, the HTTP server address for the LAN/WAN access is http://192.168.1.1:1001.

FTP server: This field allows the user to enable or disable the FTP connection. If you want FTP access from the WAN side you must ensure there are no port forwards for port 21.

TFTP server: This field allows the user to enable or disable the TFTP connection.

DMZ: A DMZ (De-Militarized Zone) is added between a protected network and an external network, in order to provide an additional layer of security. When there is a suspected packet coming from WAN, the firewall will forward this packet to the DMZ host.

DMZ Host IP: The IP address of the DMZ host at LAN side.

DHCP Relay: If it is enabled, the DHCP requests from local PCs will forward to the DHCP server runs on the WAN side of a network. To have this function working properly, please disable the NAT to run on router mode only, disable the DHCP server on the LAN port, and make sure the routing table has the correct routing entry.

DHCP Target IP: The DHCP server runs on WAN side.

IGMP Proxy: Here is the global setting for IGMP Proxy. If it is enabled, then the enabled IGMP Proxy on WAN PVCs will be working. Otherwise, no WAN PVC can have IGMP Proxy working on it.

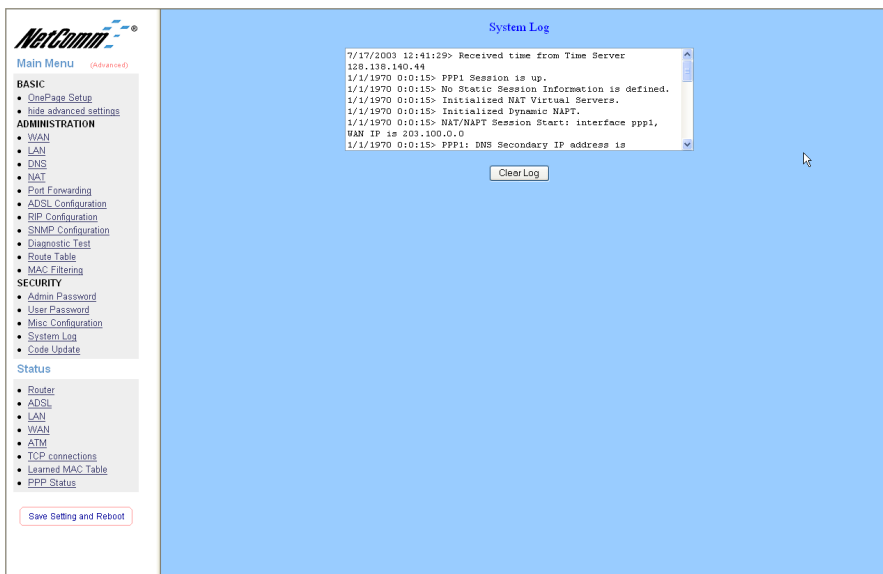
PPP connect on WAN access: If it is enabled, the PPP session will be automatically established when there is a packet wants to go out the WAN.

PPP Half Bridge: When the PPP Half Bridge is enabled, only one PC is able to access the Internet, and the DHCP server will duplicate the WAN IP address from the ISP to the local client PC. Only the PC with the WAN IP address can access the Internet. This function should only be used if one computer will be allowed to connect to the internet (E.G a Software firewall computer or Proxy server)

Q: What is the difference between PPP connect on WAN access and the Automatic Reconnect?

A: Some ISPs terminated the PPP session due to the inactivity. For the PPP connect on WAN access, the PPP will be automatically reconnected when an URL is entered in the browser (packet interested in going out the WAN). For the Automatic Reconnect, it will reconnect the PPP session whenever it is terminated by ISP.

The System Log page shows the events triggered by the system.



To clear the System Log simply click on the 'Clear Log' button.

To save the System Log, right click in the Log field and select "Select All" then right click again and select "Copy" then paste it to your text editor (Notepad is good).

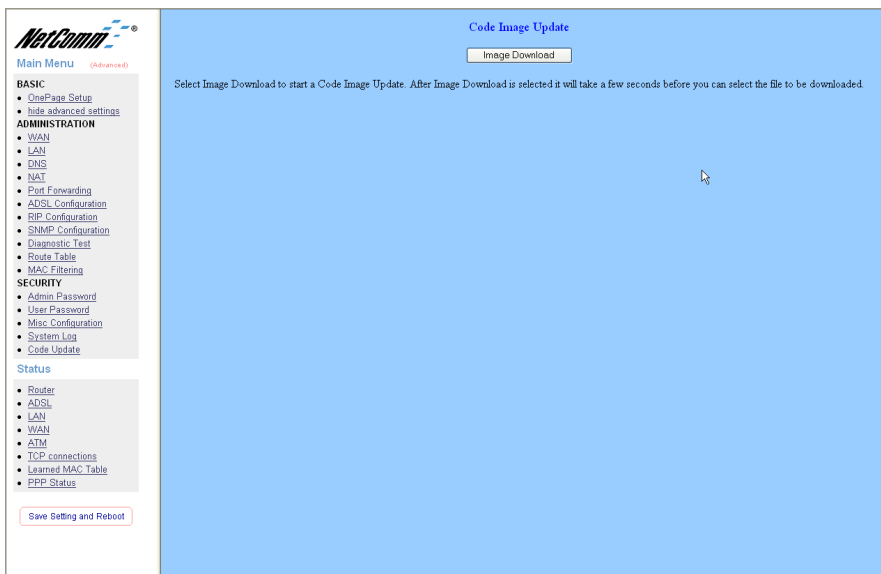
The System Log records:

- DSL Layer
 - DSL Link detected
 - DSL Link connected
 - DSL Link disconnected
- ATM Layer
 - ATM detected
 - ATM connected
 - ATM disconnected
 - ATM setting up VPI/VCI
- PPP Layer
 - PPP authenticated
 - PPP invalid user name or password
 - PPP unable to connect with PPP server

- IP Layer
 - IP protocol up
 - PPP IP address
 - PPP Gateway IP address PPP DNS Primary IP address
 - PPP DSN Secondary IP address

Code Update

The Code Update page allows the user to upload new firmware to the NB1300Plus4 Wireless.



To upload new firmware:

1. Download the latest firmware image from the NetComm website
2. Save the file to your Desktop or other location
3. Select the Browse button and locate the file saved in step 2
4. Click on the Update button to start the process
5. Once the upgrade has been completed the router will need to reboot.

Status

Router

The Router page shows the firmware versions and WAN and LAN interface status.



The screenshot shows the NetComm router's status page. On the left is a navigation menu with sections: BASIC (OnePage Setup, Hide advanced settings), ADMINISTRATION (WAN, LAN, DNS, NAT, Port Forwarding, ADSL Configuration, RIP Configuration, SNMP Configuration, Diagnostic Test, Route Table, MAC Filtering), SECURITY (Admin Password, User Password, Misc Configuration, System Log, Code Update), and Status (Router, ADSL, LAN, WAN, ATM, TCP connections, Learned MAC Table, PPP Status). A 'Save Setting and Reboot' button is at the bottom of the menu. The main content area has a blue header 'Home Page' with 'Firmware Version: ETHADSL_USB_110502_REL10_S' and 'Customer Software Version: V5 010.1b'. Below is a 'WAN' section with a table of interface information. This is followed by a 'LAN' section with another table. Below the LAN table, it shows 'Total Number of Lan Interfaces: 1' and 'Number of ethernet devices connected to the DHCP server: 1'. At the bottom, it displays 'Ethernet Link Status: UP' and 'USB Link Status: DOWN'.

IP Address	Subnet Mask	MAC Address
203.100.234.244	255.255.255.0	00:09:F3:01:43:87

IP Address	Subnet Mask	MAC Address
192.168.2.1	255.255.255.0	00:09:F3:01:43:86

	IP Address	MAC Address
1	192.168.2.9	00:10:60:59:C6:0C

Firmware Version: This field displays the NetComm firmware version number.

Showtime Firmware Version: This field displays the NetComm firmware version number.

Graphical Interface Version: This field displays the Graphical User Interface version.

WAN: These fields display the IP address, Subnet Mask and MAC address for the WAN (ADSL) interface.

LAN: These fields display the IP address, Subnet Mask and MAC address for the LAN interface.

Number of Ethernet Devices Connected to the DHCP Server: This field displays the number of DHCP clients connected to the NB1300Plus4 Wireless.

The ADSL Status page shows the ADSL physical layer status.

ADSL STATUS

Showtime Firmware Version: 3.24

Line State: SHOWTIME

Modulation: G.dmt

Annex Mode: ANNEX_A

Startup Attempts: 1

Max Tx Power: -38 dBm/Hz

CO Vendor: ALCATEL_NETWORK

Elapsed Time: 0 days 1 hours 0 minutes 5 seconds

	Downstream	Upstream	
SNR Margin	32.6	24.0	dB
Line Attenuation	44.0	26.5	dB
Errored Seconds	0	0	
Loss of Signal	0	0	
Loss of Frame	0	0	
CRC Errors	0	0	
Data Rate	1536	256	kbps
Latency	FAST	FAST	

Navigation Menu:

- Main Menu (Advanced)
- BASIC
 - OnePage Setup
 - hide advanced settings
- ADMINISTRATION
 - WAN
 - LAN
 - DNS
 - NAT
 - Port Forwarding
 - ADSL Configuration
 - IP Configuration
 - SNMP Configuration
 - Diagnostic Test
 - Route Table
 - MAC Filtering
- SECURITY
 - Admin Password
 - User Password
 - Misc Configuration
 - System Log
 - Code Update
- Status
 - Router
 - ADSL
 - LAN
 - WAN
 - ATM
 - TCP connections
 - Learned MAC Table
 - PPP Status

[Save Setting and Reboot](#)

ADSL Line Status: This field displays the ADSL connection process and status.

ADSL Modulation: This field displays the ADSL modulation status for G.dmt or T1.413.

ADSL Annex Mode: This field displays the ADSL annex modes for Annex A or Annex B.

ADSL Startup Attempts: This field displays the ADSL connection attempts after loss of showtime.

Elapsed Time: This field displays the time of the modem has been in operation.

SNR Margin: Amount of increased noise that can be tolerated while maintaining the designed BER (bit error rate). The SNR Margin is set by Central Office DSLAM. If the SNR Margin is increased, bit error rate performance will improve, but the data rate will decrease. Conversely, if the SNR Margin is decreased, bit error rate performance will decrease, but the data rate will increase.

Line Attenuation: Attenuation is the decrease in magnitude of the ADSL line signal between the transmitter (Central Office DSLAM) and the receiver (Client ADSL Modem), measured in dB. It is measured by calculating the difference in dB between the signal power level received at the Client ADSL modem and the reference signal power level transmitted from the Central Office DSLAM.

Errored Seconds: The error during Showtime (ADSL link), whenever, a given sec contains CRC error, that second will be declared error second.

Loss of Signal: This field displays the count of event of ADSL signal loss.

Loss of Frame: This field displays the count of event of ADSL frame loss.


CRC Errors: This field displays the number of transmit data frames containing CRC errors.

Data Rate: This field displays the ADSL data rate.

Latency: This field displays the latency modes for fast or interleave.

LAN

The LAN page shows the information and status of LAN port, DHCP client table, Ethernet link and USB link.


Main Menu (Advanced)

BASIC

- OnePage Setup
- Hide advanced settings

ADMINISTRATION

- WAN
- LAN
- DNS
- NAT
- Port Forwarding
- ADSL Configuration
- RIP Configuration
- SNMP Configuration
- Diagnostic Test
- Route Table
- MAC Filtering

SECURITY

- Admin Password
- User Password
- Misc. Configuration
- System Log
- Code Update

Status

- Router
- ADSL
- LAN
- WAN
- ATM
 - TCP connections
- Learned MAC Table
- PPP Status

Save Setting and Reboot

LAN

Number of ethernet devices connected to the DHCP server: 1

	IP Address	MAC Address
1	192.168.2.9	00:10:60:59:C6:0C

Ethernet Link Status: UP

USB Link Status: DOWN

- LAN:** These fields display the IP address, Subnet Mask and MAC address for the LAN interface.
- Number of Ethernet Devices Connected to the DHCP Server:**These fields display the number of connections to the DHCP server as well as the DHCP client table with the assigned IP addresses and MAC addresses.
- Ethernet Link Status:** This field displays the link up or down for the Ethernet.
- USB Link Status:** This field displays the link up or down for the USB.

The WAN Status page shows the information and status of WAN PVCs.

NetComm

WAN

Main Menu (Advanced)

BASIC

- OnePage Setup
- Hide advanced settings

ADMINISTRATION

- WAN
- LAN
- DNS
- NAT
- Port Forwarding
- ADSL Configuration
- RIP Configuration
- SNMP Configuration
- Diagnostic Test
- Route Table
- MAC Filtering

SECURITY

- Admin Password
- User Password
- Misc Configuration
- System Log
- Code Update

Status

- Router
- ADSL
- LAN
- WAN
- ATM
- TCP connections
- Learned MAC Table
- PPP Status

[Save Setting and Reboot](#)

IP Address	Subnet Mask	MAC Address
203.100.0.0	255.255.255.0	00:09:F3:01:43:87

Virtual Circuit: 0

[Release](#) [Execute](#)

WAN: These fields display the IP address, Subnet Mask and MAC address for the WAN (ADSL) interface. Use the Virtual Circuit selection to selection different PVC for status display.

DHCP Release & Renew: This field allows the user to release and renew the WAN IP address in the WAN DHCP Client Enabled (dynamic) mode.

ATM

The ATM Status page shows all the statistics information of ATM cells.


Main Menu (Advanced)

BASIC

- [OnePage Setup](#)
- [Hide advanced settings](#)

ADMINISTRATION

- [WAN](#)
- [LAN](#)
- [DNS](#)
- [NAT](#)
- [Port Forwarding](#)
- [ADSL Configuration](#)
- [RIP Configuration](#)
- [SNMP Configuration](#)
- [Diagnostic Test](#)
- [Route Table](#)
- [MAC Filtering](#)

SECURITY

- [Admin Password](#)
- [User Password](#)
- [Misc Configuration](#)
- [System Log](#)
- [Code Update](#)

Status

- [Router](#)
- [ADSL](#)
- [LAN](#)
- [WAN](#)
- [ATM](#)
- [TCP connections](#)
- [Learned MAC Table](#)
- [PPP Status](#)

Save Setting and Reboot

ATM STATUS

Reset Counters

Tx Bytes	1345935
Rx Bytes	6643497
Tx Cells	25395
Rx Cells	125349
Rx HEC Errors	0
Tx Mgmt Cells	4
Rx Mgmt Cells	2
Tx CLP0 Cells	25395
Rx CLP0 Cells	125347
Tx CLP1 Cells	0
Rx CLP1 Cells	2
Rx Errors	0
Tx Errors	0
Rx Misrouted Cells	0



Main Menu (Advanced)

BASIC

- OnePage Setup
- hide advanced settings

ADMINISTRATION

- WAN
- LAN
- DNS
- NAT
- Port Forwarding
- ADSL Configuration
- RIP Configuration
- SNMP Configuration
- Diagnostic Test
- Route Table
- MAC Filtering

SECURITY

- Admin Password
- User Password
- Mac Configuration
- System Log
- Code Update

Status

- Router
- ADSL
- LAN
- WAN
- ATM
- TCP connections
- Learned MAC Table
- PPP Status

Save Setting and Reboot

ATM STATUS


Reset Counters

Tx Bytes	1345935
Ex Bytes	6643497
Tx Cells	25395
Ex Cells	125349
Ex HEC Errors	0
Tx Mgmt Cells	4
Ex Mgmt Cells	2
Tx CLP0 Cells	25395
Ex CLP0 Cells	125347
Tx CLP1 Cells	0
Ex CLP1 Cells	2
Ex Errors	0
Tx Errors	0
Ex Misrouted Cells	0

TCP Status: The TCP Status page shows the statistics for all TCP connections.

Learned MAC Table

The Learned MAC Table page shows the current learned Bridge MAC table.


Main Menu (Advanced)

BASIC

- OnePage Setup
- hide advanced settings

ADMINISTRATION

- VLAN
- LAN
- DNS
- NAT
- Port Forwarding
- ADSL Configuration
- RIP Configuration
- SNMP Configuration
- Diagnostics Test
- Route Table
- MAC Filtering

SECURITY

- Admin Password
- User Password
- Mac Configuration
- System Log
- Code Update

Status

- Router
- ADSL
- LAN
- VLAN
- ATM
- TCP connections
- Learned MAC Table
- PPP Status

Save Setting and Reboot

Bridge MAC Table

MAC Address	Expiration
00:10:60:59:C6:0C	98
00:20:ED:5F:45:8B	100

Aging Timeout: 100 Seconds

SubmitReset

Aging Timeout: This field allows the user to enter the update period for the MAC table.

The PPP Status page shows the status of PPP for each PPP interface.

NetComm (Advanced)

Main Menu

- BASIC**
 - OnePage Setup
 - Hide advanced settings
- ADMINISTRATION**
 - WAN
 - LAN
 - DNS
 - NAT
 - Port Forwarding
 - ADSL Configuration
 - RIP Configuration
 - SNMP Configuration
 - Diagnostic Test
 - Route Table
 - MAC Filtering
- SECURITY**
 - Admin Password
 - User Password
 - Misc Configuration
 - System Log
 - Code Update
- Status**
 - Router
 - ADSL
 - LAN
 - WAN
 - ATM
 - TCP connections
 - Learned MAC Table
 - PPP Status

[Save Setting and Reboot](#)

PPP

#	Connection Name	Interface	Mode	Status	Pkts Sent	Pkts Rcvd	Bytes Sent	Bytes Rcvd
1	PPPoEvc 0	Pvc 0	PPPoE	Connected	7175	10097	915185	5441895

If a * appears under Mode column, you need to [check the WAN configuration](#) to make sure the VC has the correct encapsulation.

Connection #

PPP: These fields display the following information on each PPP interface:

- Connection Name (user defined)
- Interface (PVC)
- Mode (PPPoE or PPPoA)
- Status (Connected or Not Connected)
- Packets Sent
- Packets Received
- Bytes Sent
- Byte Received.

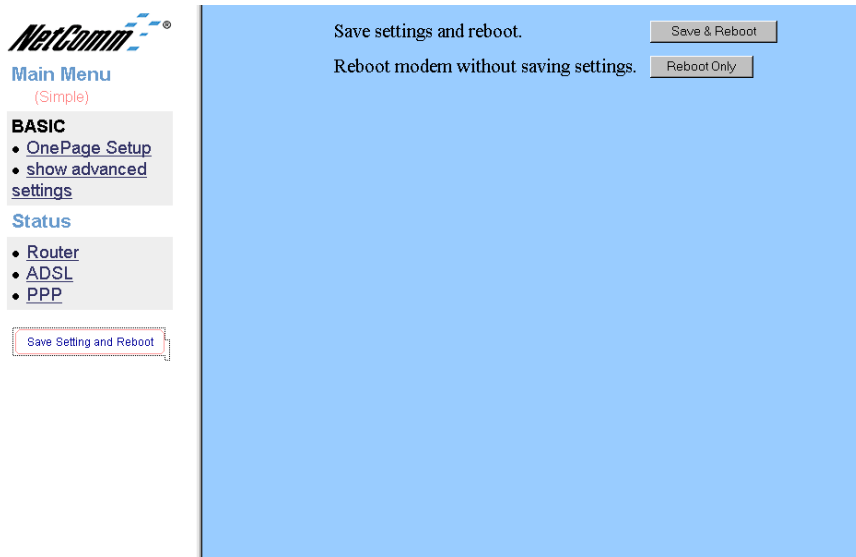
Connect and Disconnect: This field allows the user to manually connect/disconnect the PPP connection for each PPP interface. In another word, each PPP session can be connected and disconnected individually.

Save Settings and Reboot

The Save Settings and Reboot button allows the user to save the new configuration to the flash and reboot the system.

After making changes on any of the configuration pages, click the “Submit” button at the bottom of the page to save the changes.

When you have finished making all the changes required in all pages, the new settings need to be saved into the flash, so it is necessary to go to the Save Settings page to save and reboot the system for the changes to be taken effect. After the Save and Reboot, you will be returned to the onepage setup.

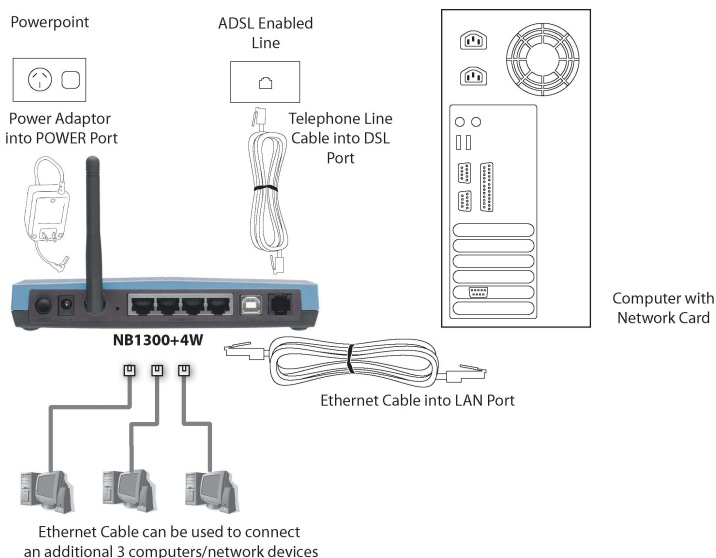


*Note: **DO NOT** power the unit off or press the reset button again during the reboot process.*

Appendix A - Connection Instructions

Connect your NB1300Plus4 Wireless ADSL Modem via Ethernet

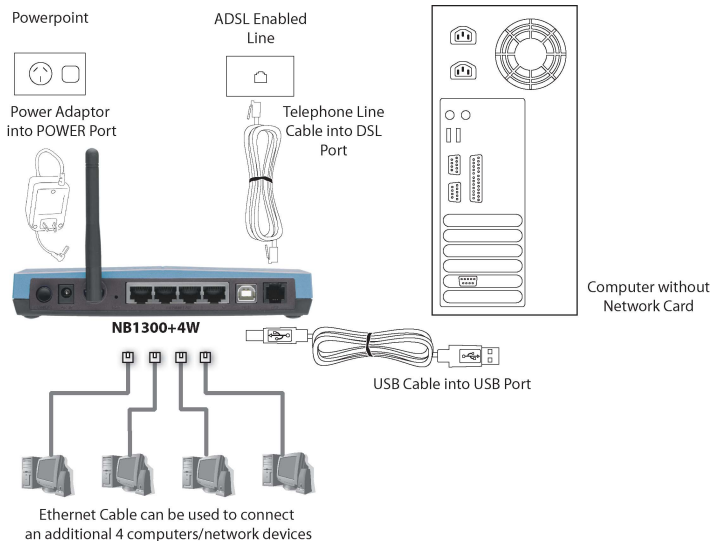
1. Connect your NB1300Plus4 Wireless to either a computer directly or a network hub or switch using cat5 ethernet cables. You need to ensure you are using the correct type of ethernet cable - i.e. straight through or crossover.



2. Connect the power pack to the NB1300Plus4 Wireless ADSL Modem and switch on the power switch.
3. Ensure that the connected port has a LAN led light on the NB1300Plus4 Wireless.
4. Ensure that the computer you intend to use has an IP address in the same subnet as the NB1300Plus4 Wireless ADSL Modem. (e.g. the NB1300Plus4 Wireless's default IP is 192.168.1.1 - your computer should be on 192.168.1.100 or similar.) If you have DHCP enabled on your computer, the NB1300Plus4 Wireless will assign your computer a suitable IP address.
5. Ensure that your computer has a LAN link light.
6. Connect one end of the ADSL phone line to the NB1300Plus4 Wireless ADSL Modem and the other end to the wall socket.
7. Additional network devices or computers can be connected to the remaining LAN ports.

Connect your NB1300Plus4 Wireless ADSL Modem via USB

1. Connect the power pack to the NB1300Plus4 Wireless ADSL Modem and switch on the power switch.



2. Install the USB driver (Windows 98/Me/2000/XP only, for Macintosh installation see appendix.)

When you install the USB driver on your computer it creates a Virtual Ethernet Adapter, which can be configured in the same way as a Network Interface card with DHCP or static IP address. To install the USB driver please follow the steps below;

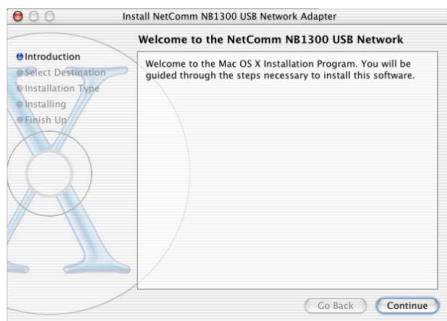
- a. Boot your machine into Windows 98/Me/2000/XP.
 - b. Insert your NetComm NB1300Plus4Wireless CD-ROM into your CD-ROM drive.
 - c. Select "Install drivers" from the screen which will automatically appear. If the screen does not appear, browse the CD-ROM and double-click on the "autorun.exe" file.
 - d. Plug power up to your NB1300Plus4Wireless and switch ON.
 - e. Plug a USB cable from the back of the unit into a spare USB socket on your computer.
 - f. The Windows "Add New Hardware Wizard" should appear. Click Next to continue.
 - g. Ensure the option "Search for the best driver...." is chosen and click Next.
 - h. When prompted where you would like to look for the drivers choose "Specify location" and untick any other boxes. Then click the browse button to select the CD-ROM drive which you inserted you NetComm CD-ROM into. Then choose the 'USBdriver' folder.
3. Connect one end of the ADSL phone line to the NB1300Plus4 Wireless ADSL Modem and the other end to the wall socket.
 4. In addition to using the USB connection, you may connect up to 4 additional network devices or computers.

Macintosh OS X USB Configuration

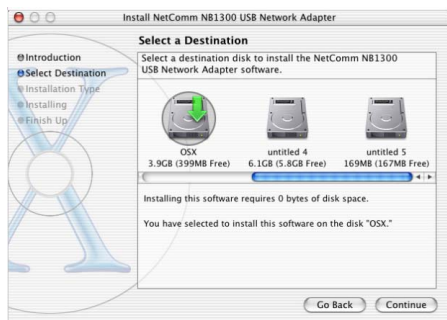
1. Close any running applications.
2. Execute the Install_USB_ADSL.pkg program.
3. OS X will then request you enter the passphrase for a user that has administration access to the computer. Enter the details and click on OK.



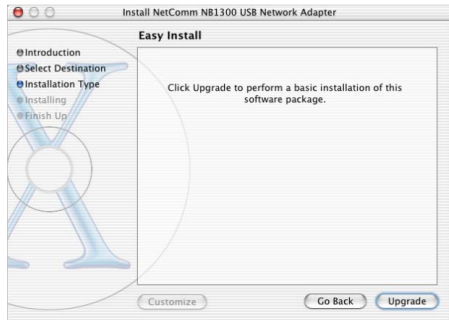
4. Click on Continue.



5. Select the drive that contains OS X and then click on Continue.



6. Click on Upgrade or Install to continue.

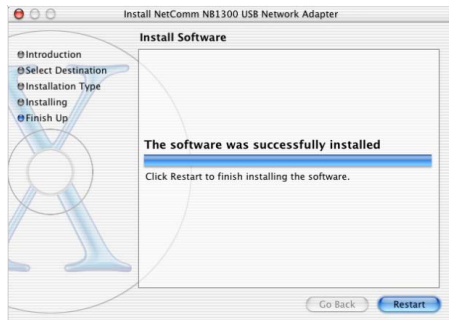


7. Installation of this software requires that you restart your computer when installation is complete. Click on Continue Installation to continue.



8. Click on Restart.

9. Connect the USB cable from the NB1300 into a spare SUB port on your computer.



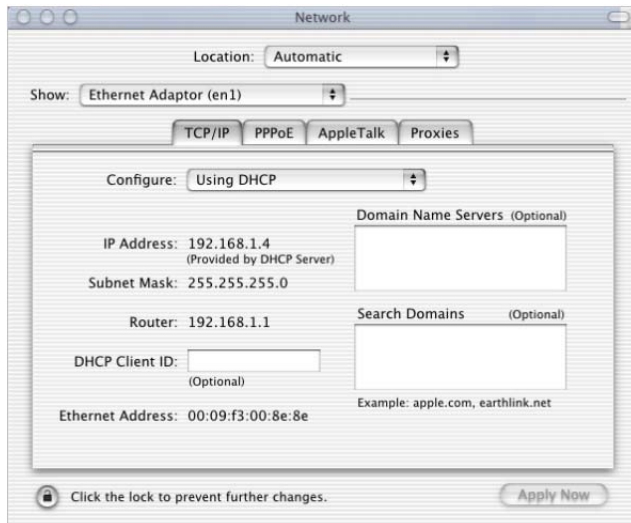
10. Open System Preferences from the Dock.



11. Click on Network to display this window. Click on OK.



12. Select the Ethernet Adaptor (en1) from the Show box. Select the TCP/IP tab and select Using DHCP.



13. Click on Apply Now. Close the Network window and System Preferences.

Appendix B - Trouble Shooting

The following section gives details about troubleshooting issues for your NB1300Plus4 Wireless ADSL Modem. Problems are divided into different areas to assist you in finding the appropriate solution.

General Modem Operation

Before continuing, refer to the correct power up sequence to verify that your NB1300Plus4 Wireless ADSL Modem is operating.

Correct power up sequence

After you turn on your NB1300Plus4 Wireless ADSL Modem, the following sequence should occur:

1. When power is first applied, verify that both the Power LED and Ready LED are on.
2. The RDY LED will turn off after 5 seconds.
3. After approximately 10 seconds, verify that:
 - The RDY LED will flash which indicates that the modem is ready for use.
 - The LAN LED will only light when a ethernet cable is connected and a successful LAN connection is made.

If any of these conditions does not occur, refer to the appropriate section below.

PWR LED Not On

If the PWR and other LEDs are off when your ADSL modem is turned on:

- Make sure that the power cord is properly connected to your ADSL Modem and that the power supply adapter is also properly connected to a functioning power outlet.
- Check that you are using the 12 V AC power adapter supplied by NetComm for this product.

If the error persists, you have a hardware problem and should contact NetComm technical support.

Resetting the NB1300Plus4 Wireless ADSL Modem

To restore the factory default configuration settings without knowing the administration password or IP address, you must use the Default Reset button on the rear panel of the ADSL Modem.

1. Press and hold the Default Reset button for about 10 seconds.
2. Release the Default Reset button and wait for the Modem to reboot (which will take approximately one minute).
3. Once the RDY and WAN LEDs are flashing, the unit has finished rebooting and the factory defaults have been restored. Do not power off the modem or press reset again until these LEDs are flashing.

Web Based Interface

If you are unable to access the NB1300Plus4 Wireless ADSL Modem's Web Based Interface from a computer on your local network, check the following:

- Check the Ethernet connection between your computer and your NetComm ADSL Modem.
- Make sure your computer's IP address is on the same subnet as your ADSL Modem. If you are using the recommended addressing scheme, your computer's address should be in the range of 192.168.1.1 to 192.168.1.254.

Note: If your computer's IP address is shown as 169.254.x.x: Recent versions of Windows and MacOS will generate and assign an IP address if the computer cannot reach a DHCP server. These auto-generated addresses are in the range of 169.254.x.x. If your IP address is in this range, check the connection from the computer to your ADSL Modem and reboot your computer.

- If your ADSL Modem's IP address has been changed and you don't know the current IP address, reset your ADSL Modem's configuration to factory defaults. This will set the ADSL Modem's IP address to 192.168.1.1.
- Make sure your browser has Java, JavaScript, or ActiveX enabled. If you are using Internet Explorer, click Refresh to be sure the Java applet is loaded.
- Try quitting the browser and launching it again.
- Make sure you are using the correct login information. The factory default login name is admin and the password is password. Make sure that **Caps Lock** is off when entering this information.

If your ADSL Modem does not save changes you have made in the Web Based Interface, check the following:

- When entering configuration settings, be sure to click the **Submit** button before moving to another menu or tab, or else your changes will be lost.
- Once all of the changes are made, click the **save settings** button to save your settings. The unit will then automatically reboot itself. Once completed, your modem is ready for use.

Click the **Refresh** or **Reload** button in your Web browser. The changes may have occurred, but the Web browser may be caching the old configuration settings. In this case clear your web browser cache and refresh again.

Internet / ISP Connection

ADSL link

If your ADSL Modem is unable to access the Internet, you should first determine whether you have an ADSL link with the service provider. The state of this connection is indicated with the WAN LED.

WAN LED is Yellow

If your WAN LED is yellow, then you have a good ADSL connection. You can be confident that the service provider has connected you line correctly and that your wiring is correct.

WAN LED is Blinking

If your WAN LED is blinking then your ADSL Modem is attempting to make an ADSL connection with the service provider. The LED should stop blinking and stay on within two minutes.

If the WAN LED does not stay on, disconnect all telephones on the line. If this solves the problem, reconnect the telephones one at a time, being careful to use a microfilter on each telephone. If the microfilters are connected correctly, you should be able to connect all your telephones.

If disconnecting telephones does not return the WAN LED to yellow, there may be a problem with your wiring. If the telephone company has tested the ADSL signal at your Network Interface Device (NID), then you may have poor quality wiring in your house.

Obtaining a WAN IP Address

If your ADSL Modem is unable to access the internet, and your WAN LED is yellow or blinking, you should determine whether your ADSL Modem is able to obtain a WAN IP address from the ISP.

Unless you have been assigned a static IP address, your ADSL Modem must request an IP address from the ISP. You can determine whether the request was successful using the browser interface.

To check the WAN IP address from the browser interface:

1. Launch your browser and select an external site such as www.netcomm.com.au
2. Access the Main Menu of the ADSL Modem's configuration at <http://192.168.1.1>
3. Under the **Router** menu, check that an IP address is shown for the WAN Port. If nothing is shown, your ADSL Modem has not obtained an IP address from your ISP.

If your ADSL Modem is unable to obtain an IP address from the ISP, the problem may be one of the following:

- Your ISP may require a login program.
- Ask your ISP whether they require PPP over Ethernet (PPPoE) or PPP over ATM (PPPoA) login.
- If you have selected a login program, you may have incorrectly set the Service Name, User Name and Password. See "PPPoE or PPPoA", below.

- Your ISP may check for your computer's host name. Assign the computer Host Name of your ISP account to your ADSL Modem in the browser-based Setup Wizard.
- Your ISP only allows one MAC address to connect to Internet, and may check for your computer's MAC address. In this case, inform your ISP that you have bought a new network device, and ask them to use your ADSL Modem's MAC address.

PPPoE or PPPoA

The PPPoE or PPPoA connection can be debugged as follows:

1. Access the Main Menu of the ADSL Modem's configuration at <http://192.168.1.1>.
2. Under the **PPP** menu you can view the PPP configuration settings depending on your connection type.
3. If the PPP menu shows the PPP connection type as connected, the connection is up and working.
4. If there is no PPP connection listed in the menu, check your connection settings in the main menu.

If you cannot connect after several minutes, you may be using an incorrect Service Name, User Name or Password. There also may be a provisioning problem with your ISP.

Internet Browsing

If your ADSL Modem can obtain an IP address but your computer is unable to load any web pages from the Internet:

- Your computer may not recognize any DNS server addresses.

A DNS server is a host on the Internet that translates Internet names (such as www addresses) to numeric IP addresses. Typically your ISP will provide the addresses of one or two DNS servers for your use. If you entered a DNS address during the modem's configuration, reboot your computer and verify the DNS address. Alternatively, you may configure your computer manually with DNS addresses, as explained in your operating system documentation.

- Your computer may not have the ADSL Modem configured as its TCP/IP gateway.

If your computer obtains its information from the Modem by DHCP, reboot your computer and verify the modem's address.

Testing your TCP/IP Network Using a Ping Utility

Most TCP/IP terminal devices and ADSL Modems contain a ping utility that sends an echo request packet to a designated device. The device then responds with an echo reply. Troubleshooting a TCP/IP network is made very easy by using the ping utility in your computer.

Testing the LAN Path to Your ADSL Modem

You can ping the ADSL Modem from your computer to verify that the LAN path to your modem is working.

To ping the modem from a computer running Windows 95 or later:

1. From the Windows toolbar, click the Start button and select Run.
2. In the field provided, type Ping followed by the IP address of the ADSL Modem, as in this example:

```
ping 192.168.1.1
```

3. Click OK.

You should see a message like this one:

```
Pinging <IP address> with 32 bytes of data
```

If the path is working, you see this message:

```
Reply from < IP address >: bytes=32 time=xx ms
```

```
TTL=xxx
```

If the path is not working, you see this message:

```
Request timed out
```

If the path is not functioning correctly, you could have one of the following problems:

- Wrong physical connections
 - Make sure the LAN LED is on.
 - Check that the corresponding Link LEDs are on for your network interface card and for any hub ports that are connected to your computer and ADSL Modem.
- Wrong network configuration
 - Verify that the Ethernet card driver software and TCP/IP software are both installed and configured on your computer or workstation.
 - Verify that the IP address for your ADSL Modem and your computer are correct and that the addresses are on the same subnet.

Testing the Path from Your Computer to a Remote Device

After verifying that the LAN path works correctly, test the path from your computer to a remote device.

From the Windows run menu, type:

```
PING -n 10 <IP address>
```

where <IP address> is the IP address of a remote device such as your ISP's DNS server.

If the path is functioning correctly, replies as in the previous section are displayed. If you do not receive replies:

- Check that your computer has the IP address of your ADSL Modem listed as the default gateway. If the IP configuration of your computer is assigned by DHCP, this information will not be visible in your computer's Network Control Panel. Go to the **Run...** window and run **winipcfg**. Verify that the IP address of your ADSL Modem is listed as the default gateway.
- Check to see that the network address of your computer (the portion of the IP address specified by the netmask) is different from the network address of the remote device.

Appendix C - Glossary

ADSL:	Asymmetric Digital Subscriber Line (ADSL), as its name indicates, is an asymmetrical data transmission technology with higher traffic rate downstream and lower traffic rate upstream. ADSL technology satisfies the bandwidth requirements of applications which demand asymmetric traffic, such as web surfing, file downloads, and telecommuting.
Bandwidth:	The amount of data that can be transmitted in a fixed amount of time.
DHCP:	Dynamic Host Configuration Protocol (DHCP) is a protocol for assigning dynamic IP Addresses to devices on a network. Dynamic Addressing means that a device can have a different IP Address each time it connects to the network.
DNS:	Domain Name Server (DNS), translates domain names into IP Addresses. To help us recognize and remember domain names they are alphabetic in form, however, the Internet actually runs on numbered IP Addresses. DNS servers translate domain names into their respective IP Addresses.
Ethernet:	One of the most common Local Area Network (LAN) standards. Ethernet uses a bus topology which supports a data transfer rate of 10 or 100 Mbps.
DMZ:	In computer networks, a DMZ (demilitarized zone) is a computer host or small network inserted as a "neutral zone" between a company's private network and the outside public network. It prevents outside users from getting direct access to a server that has company data. A DMZ is an optional and more secure approach to a firewall and effectively acts as a proxy server as well.
Domain Name:	A name that identifies one or more IP Addresses. For example, the domain name microsoft.com represents about a dozen IP Addresses. Domain names are used in URLs to identify particular Web pages. For example, in the URL http://www.pcwebopedia.com/index.html , the domain name is pcwebopedia.com.
Firewall:	A security system used to enforce an access control policy between an organisation's networks and the Internet.
Gateway:	A gateway is a network point that acts as an entrance to another network.
IPSec:	Internet Protocol Security is a security standard for network transmission, which is often used for VPN connections. It provides authentication and packet encryption over the Internet.

LAN:	Local Area Network (LAN) is a computer network that spans a relatively small area. A system of LANs connected is called a wide area network (WAN).
MAC Address:	Media Access Control Address (MAC) is a hardware address that uniquely identifies each node of a network.
NAT:	Network Address Translation (NAT) is a routing protocol that allows global IP Addresses to be translated into multiple private IP Addresses for use on internal LAN networks. The explosion in the use of the Internet has created a critical problem for the Internet Assigned Numbers Authority (IANA) which is in charge of assigning IP Addresses to Internet users, ISPs etc. NAT is a technology that has been introduced to help maximize the utilization of assigned IANA and global IP Addresses.
PAP/CHAP:	Password Authentication Protocol and Challenge Handshake Authentication Protocol (PAP/CHAP). Most ISPs use either one for user identification. If your ISP doesn't support these two protocols, contact them for an authentication script.
PCI:	Peripheral Component Interconnect (PCI) is a specification introduced by Intel Corporation that defines a local bus system that allows up to 10 PCI-compliant expansion cards to be installed in the computer.
PPP:	Short for Point-to-Point Protocol, a communications protocol for transmitting information over standard telephone lines between devices from different manufacturers.
PPPoE:	Short for PPP over Ethernet, relying on two widely accepted standards, Ethernet and the Point-to-Point Protocol. PPPoE is a communications protocol for transmitting information over the Ethernet between devices from different manufacturers.
Router:	An Internet device that routes requests for information to other routers until the information's location is found and the data can be transmitted back to the origin of the request.
TCP/IP:	Short for Transmission Control Protocol and Internet Protocol, the suite of communications protocols that enable hosts on the Internet to connect and exchange streams of data.
MRU:	Maximum Receive Unit indicates the peer of PPP connection the maximum size of the PPP information field this device can be received. The default value is 1492 and is used in the beginning of the PPP negotiation. In the normal negotiation, the peer will accept this MRU and will not send packet with information field larger than this value.

MTU:	Maximum Transmission Unit indicates the network stack of any packet is larger than this value will be fragmented before the transmission. During the PPP negotiation, the peer of the PPP connection will indicate its MRU and will be accepted. The actual MTU of the PPP connection will be set to the smaller one of MTU and the peer's MRU. The default is value 1492.
MSS:	Maximum Segment Size is the largest size of data that TCP will send in a single IP packet. When a connection is established between a LAN client and a host in the WAN side, the LAN client and the WAN host will indicate their MSS during the TCP connection handshake. The default value is 1432.
UBR:	Short for Unspecified bit rate.
WAN:	Wide Area Network. A System of LANs connected by telephone lines and/or radio waves.

Appendix D - Frequently Asked Questions

What is DHCP?

DHCP is used to assign IP addresses and other routing information automatically to each computer on the Network (including Wireless Networks and the Internet). You can manually assign an IP address on each machine, but this involves having physical access to each machine. DHCP is a great advantage when dealing with larger networks and for people who do not necessarily want to know about IP addresses in order to use their computer.

There are three main things that a DHCP Server (Often a Router or Home Gateway) assigns each Client computer in the network, these are;

- IP Address
- Subnet Mask
- Default Gateway (Router)

You need an IP address and Subnet Mask correctly assigned to your computer so it can communicate with other local computers and devices (on the same network). You need the correct Default Gateway assigned so that your computer knows which device to contact to get access outside of the local network (e.g. the Internet)

Most ADSL Routers or Gateways have DHCP Servers built into them and they are usually pre-configured with the most commonly suitable settings. These settings reflect on other default settings in the Router itself. For example, the Default Gateway IP address which is broadcast to each client computer is usually the same as the IP address of the router itself. The most common settings for a DHCP server in NetComm's Routers are as below;

Router's IP address:	192.168.1.1
DHCP Pool Start IP:	192.168.1.100
DHCP Pool End IP:	192.168.1.149
DHCP Subnet mask:	255.255.255.0
Default Gateway IP:	192.168.1.1

Note: Sometimes only the Start IP is given and you specify that the DHCP server should hand out a certain number of IP addresses (leases).

What is NAT?

NAT (Network Address Translation) is what we rely upon to share our Internet connection with more than one computer. Because it is not safe or practical to assign every computer in the world with a Public (Internet) IP address, we cluster computers together and share access to the Internet via NAT.

NAPT (Network Address Port Translation) takes advantage of the TCP/IP protocol ability to use many thousands of 'Ports' that exist on each IP address. Instead of using a unique Public IP address to represent every computer on your internal (Private) network, Dynamic NAPT will automatically choose a different port on the Public IP address to represent each internal computer.

- NAT is designed to share one Public IP address with many Private IP addresses.
- Most common NAT is actually Dynamic NAPT - "Dynamic Network Address Port Translation".
- 'Dyn NAPT' chooses random ports on the WAN to allow communication with the LAN.
- Dyn NAPT by its nature is a kind of passive firewall. It hides internal computers but does not react to an attack.

NAT is enabled by default in most Home / SMB routers as 99% of their intended use is in this mode of operation.

What is Port Forwarding?

Port Forwarding (sometimes called Virtual Server) is used to overcome the restrictions of NAT. Most Internet services are linked to a specific port (e.g. FTP = port 21, WEB/HTTP = port 80), so you can make reservations in your NAT table that fix an external (public) port to an Internal (Private) IP address (Computer). These reservations are called 'Port Forwards' and they mean that any inbound Internet request to open that port will be forwarded to the IP address specified. The advantage of port forwards is that they allow you to host Web servers, Game servers and run more specialised Internet applications (P2P programs) through your NAT Router / Firewall.

To configure Port forwarding in most routers you need to know the following information:

- The Public Port or ports to forward this is a number between 1 and 65535
- The Protocol used (usually TCP or UDP, sometimes both)
- The Internal IP address of the computer that is running the Service (e.g. Web service)
- The Private Port number that the service is running on (often the same as the Public port, not always req'd)

For example, if you are using a NetComm NB1300 ADSL router and you use a simple web server (port 80) such as Abyss Web server (<http://www.aprelum.com>) on your Computer with an IP address of 192.168.1.10;

Then your Port forward rule for this might look like;

Public port: 80

Private port: 80

Protocol: TCP (or both)

Private IP: 192.168.1.10

Note: Port forwards should only point to computers with statically assigned IP addresses, otherwise the data might get directed to the right IP address but the wrong computer. If you want to be able to launch your Special Internet Application from any computer or IP address you should use the Universal Plug and Play (UPnP) or "Port Triggering" (sometimes known as "Special Application") functions of your router if it has them.

Most P2P programs allow the default ports to be changed. Some other handy port forwards to know are:

Edonkey 2000

TCP port 4661 to connect to the server.

TCP port 4662 to connect to other clients.

UDP port 4665 to send messages to servers other than the one you are connected to.

Bit Torrent

TCP/UDP port 6881 to allow client to client connections (primary)

Note: Ports 6882 - 6889 are tried if 6881 doesn't work so you may want to forward those as well.

MSN messenger

TCP/UDP port 6901 to allow incoming voice from computer to computer

UDP ports 6801, 6901, 2001 - 2120 to allow VoIP phone to Computer communication

TCP ports 6891 - 6900 to allow file transfers via MSN messenger.

Note: For general messaging it is usually not necessary to make port forward rules in order to use MSN messenger over a Router.

Note: The "File transfer" ports suggested are so that you can perform 10 file transfer operations at a time. If you open only one of these ports (for example, if you only open port 6891), you can only transfer one file at a time.

How do you set up Firewalling correctly on a router?

Most NetComm Active Firewall devices have a very simple enable / disable option that make it very easy for the end user to choose how much security they need or to test if the firewall is blocking access.

- Active Firewall is one that uses Denial of Service (DoS) and or Stateful Packet Inspection (SPI)
- Denial of Service (DoS) prevention will selectively ignore packets fitting a certain criteria after it learns that its an attack. This is to prevent some one flooding your connection to prevent data flowing in or out of it.
- Stateful packet inspection, SPI examines the packet to see if it is legitimate before forwarding it on.

What is QoS and why should I use it?

Quality of Service (QoS) examines packet information such as the destination and source port to determine what services the data being transmitted pertains to. Once the service type is identified, it can be referenced in a small database which contains groups of services with the allocated bandwidth / priority they are allowed. In this way your mission critical services (e.g. VoIP = ports 1720 - 1723) can be given priority over less important services (e.g. Web browsing = port 80).

Appendix E - Cable Connections

This cable information is provided for your reference only. Please ensure you only connect the appropriate cable into the correct socket on either this product or your computer.

If you are unsure about which cable to use or which socket to connect it to, please refer to the hardware installation section in this manual. If you are still not sure about cable connections, please contact a professional computer technician or NetComm for further advice.

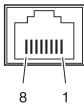
RJ-45 Network Ports

RJ-45 Network Ports can connect any networking devices that use a standard LAN interface, such as a Hub/Switch Hub or Router. Use unshielded twisted-pair (UTP) or shield twisted-pair (STP) cable to connect the networking device to the RJ-45 Ethernet port. Depending on the type of connection, 10Mbps or 100Mbps, use the following Ethernet cable, as prescribed.

10Mbps: Use EIA/TIA-568-100-Category 3, 4 or 5 cable.

100Mbps: Use EIA/TIA-568-100-Category 5 cable.

Note: *To prevent loss of signal, make sure that the length of any twisted-pair connection does not exceed 100 metres.*



RJ-45 Connector Pin Assignment	Normal Assignment
1	Input Receive Data +
2	Input Receive Data -
3	Output Transmit Data +
6	Output Transmit Data -
4,5,7,8	Not used

Figure 1

Twisted pair cables

Figures 1 and 2 illustrate the use of straight-through and crossover twisted pair cables along with the connector.



Figure 2

Straight and crossover cable configuration

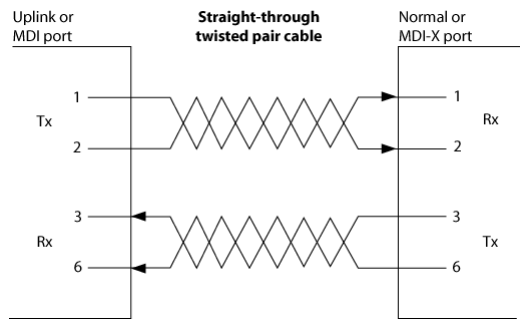


Figure 3

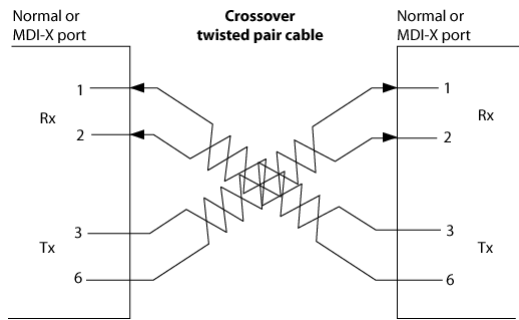


Figure 4

RJ11 connector and cable

An RJ-11 connector is the small, modular plug used for most analog telephones. It has six pin slots in the head, but usually only two or four of them are used.

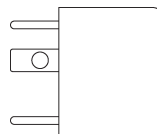


RJ-11 Connector Pin Assignment	Normal Assignment
1	Signal Ground
2	CTS
3	RXD
4	TXD
5	+5 Volts In
6	Signal Ground

Figure 5

605 to RJ-11 adaptor

The 605 to RJ-11 adaptor is provided to comply with the older 610 Telstra wall socket. The 605 to RJ-11 adapter may be used to convert the supplied RJ-11 cable, if the older connection is required.



USB cable

A typical USB cord has an "A" connection ("upstream" to plug into the computer) and a "B" connection ("downstream" to plug into the device).

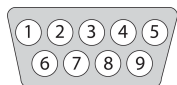


By using different connectors on the upstream and downstream ends, cable connection is simplified. The "B" connection will fit into the "B" socket of any USB device. Similarly, any "A" connector can be plugged into any "A" socket, such as on a computer.

If it is a new device, the operating system auto-detects it and asks for the driver disk. If the device has already been installed, the computer activates it and starts talking to it. USB devices can be connected and disconnected at any time.

9 Pin (RS-232) Serial Cable

A 9 Pin (RS-232) Serial Cable may be used to connect to a serial console terminal or a PC running a terminal emulation program, such as Hyper Terminal.



Male Connector

Pin No	Name	Notes/Description No.
1	DCD	Data Carrier Detect
2	RD	Receive Data (a.k.a RxD, Rx)
3	TD	Transmit Data (a.k.a TxD, Tx)
4	DTR	Data Terminal Ready
5	SGND	Ground
6	DSR	Data Set Ready
7	RTS	Request To Send
8	CTS	Clear To Send
9	RI	Ring Indicator

Appendix F - Registering your NetComm Product

All NetComm Limited (“NetComm”) products have a standard 12 month warranty from date of purchase against defects in manufacturing and that the products will operate in accordance with the specifications outlined in the User Guide. However some products have an extended warranty option (please refer to packaging). To be eligible for the extended warranty you must supply the requested warranty information to NetComm within 30 days of the original purchase by registering on-line via the NetComm web site at:

www.netcomm.com.au

Contact Information

If you have any technical difficulties with your product, please do not hesitate to contact NetComm’s Customer Support Department.

Email: support@netcomm.com.au

Fax: (+612) 9424-2010

Web: www.netcomm.com.au

Legal & Regulatory Information Copyright Information

This manual is copyright. Apart from any fair dealing for the purposes of private study, research, criticism or review, as permitted under the Copyright Act, no part 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 Limited. NetComm Limited accepts no liability or responsibility, for consequences arising from the use of this product.

NetComm Limited reserves the right to change the specifications and operating details of this product without notice.

NetComm is a registered trademark of NetComm Limited.

All other trademarks are acknowledged the property of their respective owners.

Customer Information

ACA (Australian Communications Authority) requires you to be aware of the following information and warnings:

- (1) This unit shall be connected to the Telecommunication Network through a line cord which meets the requirements of the ACA TS008 Standard.
- (2) This equipment has been tested and found to comply with the Standards for C-Tick and or A-Tick as set by the ACA . These standards are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio noise and, if not installed and used in accordance with the instructions detailed within this manual, may cause interference to radio communications. However, there is no guarantee that interference will not occur with the installation of this product in your home or office. If this equipment does cause some degree of interference to radio or television reception, which can be determined by turning the equipment off and on, we encourage the user to try to correct the interference by one or more of the following measures:
 - Change the direction or relocate the receiving antenna.
 - Increase the separation between this equipment and the receiver.
 - Connect the equipment to an alternate power outlet on a different power circuit from that to which the receiver/TV is connected.
 - Consult an experienced radio/TV technician for help.
- (3) 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. Failure to do so may cause damage to this product, fire or result in personal injury.

Product Warranty

The warranty is granted on the following conditions:

1. This warranty extends to the original purchaser (you) and is not transferable;
2. This 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; and,
5. NetComm does not have any liability or responsibility under this 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.
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 recommends that you enable these features to enhance your security.

The warranty is automatically voided if:

1. You, or someone else, use the product, or attempts to use it, other than as specified by NetComm;
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; and,
6. The serial number has been defaced or altered in any way or if the serial number plate has been removed.

Limitations of Warranty

The Trade Practices Act 1974 and corresponding State and Territory Fair Trading Acts or legalisation of another Government ("the relevant acts") in certain circumstances imply mandatory conditions and warranties which cannot be excluded. This warranty is in addition to and not in replacement for such conditions and warranties.

To the extent permitted by the Relevant Acts, in relation to your product and any other materials provided with the product ("the Goods") the liability of NetComm under the Relevant Acts is limited at the option of NetComm to:

- Replacement of the Goods; or
- Repair of the Goods; or
- Payment of the cost of replacing the Goods; or
- Payment of the cost of having the Goods repaired.

All NetComm ACN 002 490 486 products have a standard 12 months warranty from date of purchase. However some products have an extended warranty option (refer to packaging). To be eligible for the extended warranty you must supply the requested warranty information to NetComm within 30 days of the original purchase by registering on-line via the NetComm web site at www.netcomm.com.au.

NetComm reserves the right to request proof of purchase upon any warranty claim.

Connect and configure in just 4 clicks

The NB1300 Plus4 Wireless incorporates an Advanced Security Firewall, ADSL modem, Router, 4-port switch and 11Mbps Wireless Access Point into one simple unit. Using the NB1300 Plus 4 Wireless you can be browsing the Internet, checking email and playing online games at the same time over one ADSL connection.

KEY FEATURES

Ethernet/USB ADSL Modem with Integrated Router

Built-in 11Mbps Wireless Access Point (Supports 46 & 128Bit WEP)

4-Port 10/100 Ethernet Switch and single USB port – usable simultaneously

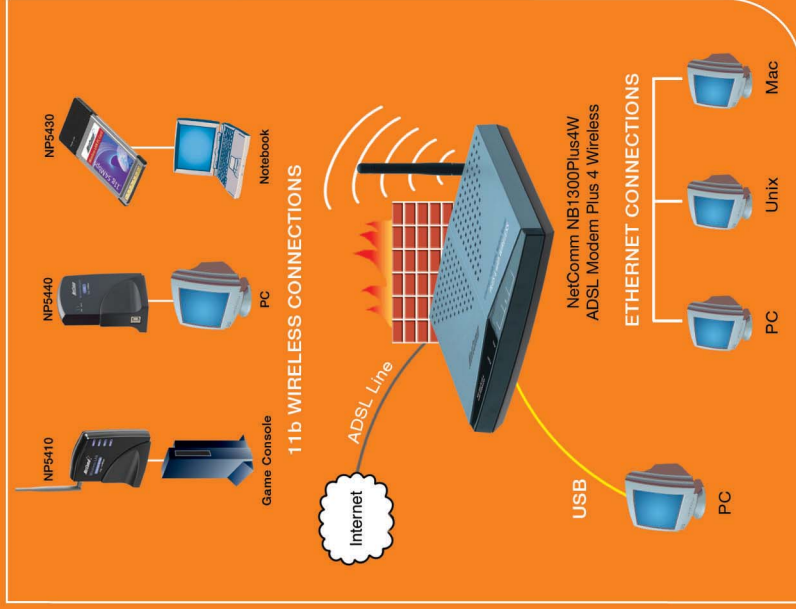
Advanced Security Firewall (SPI/DoS) to protect your computers from Internet attack

Supports most Australian ISPs (PPPoE /PPPoA / IPoA / RFC 1483 / PAP / CHAP)

VPN Passthrough support

Compatible with PC, Mac & other TCP/IP Operating systems

*USB is only supported in Windows® 98/ME/2000/XP and Mac OSX



NetComm™