

Setting up the NetComm NB5580W

ADSL 11g Wireless Integrated Modem Gateway



Table of Contents:

Introduction	3
Pre-setup	3
Configuring the NB5580w	3
NB5580w Security	5
Setting the administrator password	5
Setting up Wireless Security on the NB5580w	6
Connecting to the NB5580w Wirelessly	12

Introduction

This is a step-by-step guide providing instructions on how to configure the NB5580W with emphasis placed on the wireless aspects of the device.

Pre-setup

Before continuing ensure that you have the following available:

Checkpoint:	Status
ADSL line activated with ISP	
Request Static WAN IP address from your ISP	
Wireless site survey for placement of bridges / access points (if necessary)	
Cable to devices laid (if necessary)	
Security agreed upon	
Microfilter or splitter if required	

Configuring the NB5580w

1. Power on the NB5580w.
2. Connect your phone line (ADSL line) to the RJ11 port on the rear of the NB5580w.¹
3. Connect your PC using CAT5 to any LAN port on the rear of the 5580w:



Figure 1 - NB5580w (rear)

4. Open a web browser and access the NB5580w on <http://192.168.1.1>.
5. Default username / password is **admin / admin**.

¹ If a filter is required please refer to the NB550w's detailed manual for instructions:
http://www.netcomm.com.au/Support/DownloadProcess.php?FileName=YML686Rev1-NB5580_NB5580W%20Screen.zip&Category=Document

6. On the One Page Setup change the following:

Host Name: (Required by some ISPs)

Domain Name: (Required by some ISPs)

Time Zone: (GMT+10:00) Australia

Private IP Address (MAC Address: 00-60-64-04-20-35)

Device IP Address: 192.168.1.1

Subnet Mask: 255.255.255.0

Wireless (MAC Address: 00-01-36-09-4E-08)

☒ Enable ☐ Disable

SSID: wireless

SSID Broadcast: ☒ Allow ☐ Disallow

Channel: 9 (Domain: Europe / Australia)

Wireless Security: ☒ Mandatory ☐ Disable

VC Settings

VPI: 8

VCI: 35

Operation Mode: AUTO

ADSL Connection Type

Gateway using PPPoE

Select the Internet connection type you wish to use

☐ Fixed IP ☒ Dynamic IP

Service Name:

User Name:

Password:

☒ Connect on Demand: Max Idle Time 5 Min.

☐ Keep Alive: Redial Period 30 Sec.

Figure 2 - One Page Setup

- **SSID** (Service Set Identifier): This is the name of the wireless network broadcast to devices (max: 32 alphanumeric characters).
- **SSID Broadcast:** If disabled, devices will have to manually be setup to 'see' the wireless network. This means configuring every device to connect to the wireless network.²
- **Wireless Security:** It is suggested that you make this Mandatory (Options discussed later in this document).
- **ADSL Connection Type:** Select the connection type specified by your ISP. As mentioned above, request a static WAN IP address from your ISP if possible. This will make your life easier in terms of remotely administering the NB5580w and other devices on your LAN.
- **Keep Alive:** Select the radio button to keep your connection alive instead of connecting on demand.

² If all your devices are using Windows XP with Service Pack 2 you can save the wireless configuration onto a USB key and distribute the wireless network information to each machine saving you the hassle of manually going through the entire configuration.

7. Click **Apply**. NB5580w will reboot with your new settings loaded.
8. Ensure that you have synch with on your ADSL line (green light for ADSL link on front of NB5580w).
9. Check you have a connection to the Internet. If not, contact your ISP or NetComm to resolve this.

NB5580w Security

Setting the administrator password

It is a very good idea (in other words – crucial) to change the administrator password on the NB5580w as follows:

1. Login to NB5580w and access **Device Admin** page:

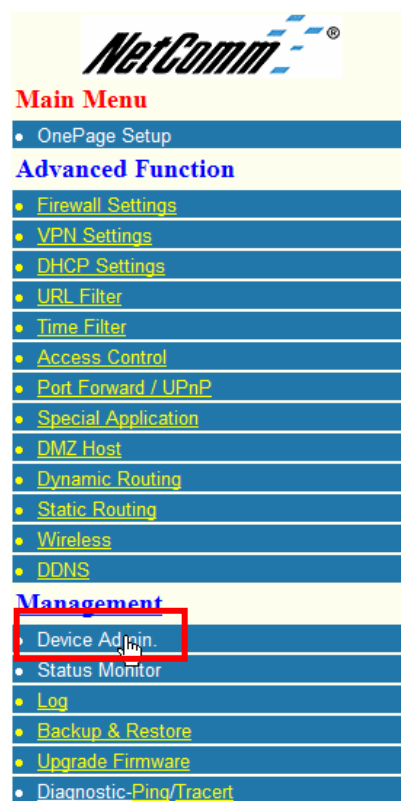


Figure 3 - Accessing Device Admin

2. Change the Administrator (admin) password:

The screenshot shows the 'Administrator Password' section of the web interface. It has a title 'Administrator Password' in red. Below it are two labels: 'Password Change:' and 'Password Confirm:'. Each label is followed by a text input field containing masked text (asterisks).

Figure 4 - Changing Admin username / password

Setting up Wireless Security on the NB5580w

The NB5580w offers the following wireless security features:

- a) WEP (Wired Equivalent Privacy).
- b) WPA-PSK (Pre-Shared Key).
- c) WPA-RADIUS (Remote Authentication Dial-In User Service).
- d) RADIUS.
- e) SSID Broadcast disabling.
- f) MAC address filtering.

Let's take a look at a few of these in more detail.

a) WEP

This is the most basic of wireless network security and is easily cracked by hackers. If you wish to protect your network I strongly advise you steer clear of WEP and choose one of the other options. More information on the vulnerabilities of WEP can be found here:

<http://www.wi-fiplanet.com/tutorials/article.php/1368661>.

If security is not the biggest issue and you would like to restrict the casual user from jumping onto your wireless network, then using WEP is the easiest option. The WEP encryption algorithm is available on most WICs (Wireless Interface Cards) used on notebooks and PDAs, whereas the more recent WPA and WPA2 are only available on newer cards.

Follow these steps to setup WEP encryption on the NB5580w:

1. Select Mandatory under the **Wireless** section on the One Page Setup page and click **Setting**:

The screenshot shows the 'Wireless' configuration page. On the left, there are labels for 'SSID:', 'SSID Broadcast:', 'Channel:', and 'Wireless Security:'. On the right, there are corresponding controls: a 'wireless' text box, 'Allow' and 'Disallow' radio buttons, a '9' dropdown for the channel, and a 'Mandatory' radio button which is selected and highlighted with a red box. Above the 'wireless' text box is a '(MAC Address: 00-01-36-09-4E-08)' label. Below the 'wireless' text box is a '(Domain: Europe / Australia)' label. At the bottom right, there is a 'Setting' button.

Figure 5 - Setting Wireless Security

2. Choose WEP from the dropdown menu:

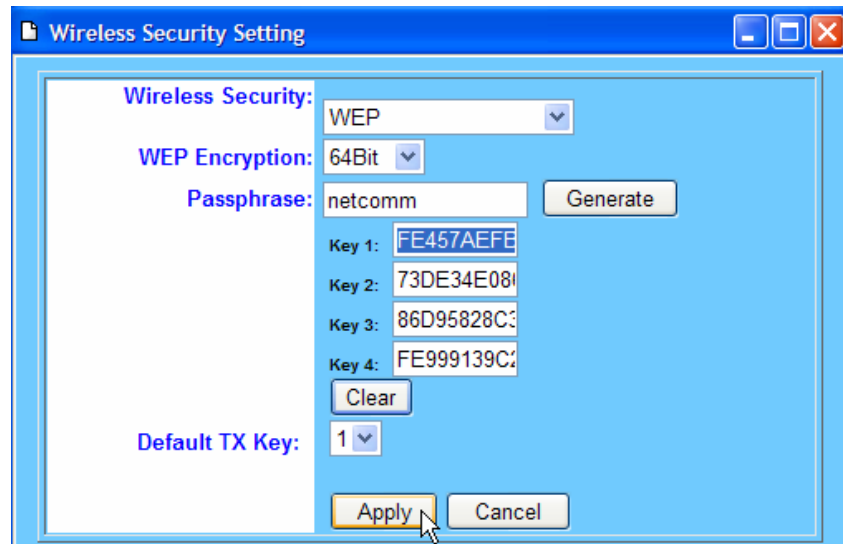


Figure 6 - WEP Security Setup

- Select the WEP Encryption strength (64/128-bit).
 - You can either enter your WEP key manually, or generate the key automatically using a passphrase. This makes your life easier if you misplace the key.
 - The default key is key 1. Change the key if desired. It is a good idea to copy the key you are planning to use for devices to connect to your wireless network.
 - Click Apply.
 - When returning to the One Page Setup you need click the Apply button for the changes to take effect. The NB5580w will restart.
3. Your wireless devices will now have to enter the copied WEP key you have setup on the NB5580w in order to connect to the network.

b) WPA-PSK (Wi-Fi Protected Access with a Pre-Shared Key)

This is a preferred choice of wireless encryption should you not have access to a RADIUS server on your network. WPA is the successor to WEP and stronger. WPA uses TKIP to change the encryption key dynamically. This makes a hacker's job far more difficult to break the key being used on the wireless network.

Follow these steps to setup WPA-PSK on the NB5580w:

1. Choose WPA Pre-Shared Key from the dropdown:

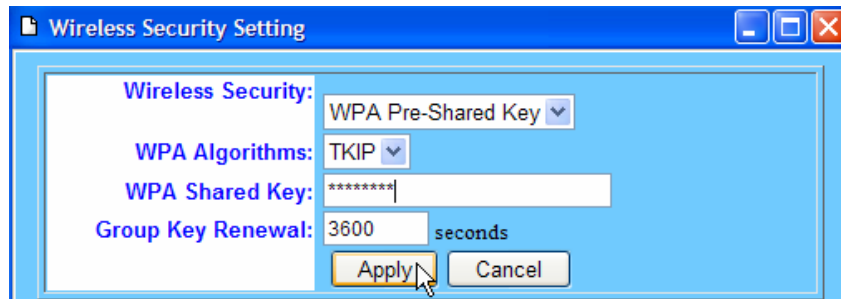


Figure 7 - WPA Pre-Shared Key Setup

2. WPA Shared Key above must be between 8 and 63 characters in length. I suggest you use a shared key with more than 16 characters.
3. Be sure to copy the WPA Shared Key as this will be used by your wireless devices to connect to your wireless network.³

c) WPA-RADIUS (Remote Authentication Dial-In User Service)

This is the strongest method of authenticating devices connecting to your wireless network. You will require a RADIUS server on your network in order to use this. Authentication is done in the RADIUS server using a variety of credential types including digital certificates, unique usernames and passwords, smart cards, or other forms of secure IDs. The NB5580w serves only to bridge the authentication traffic between the wireless and wired networks.

Follow these steps to setup WPA-RADIUS on the NB5580w:

1. Choose WPA Pre-Shared Key from the dropdown:

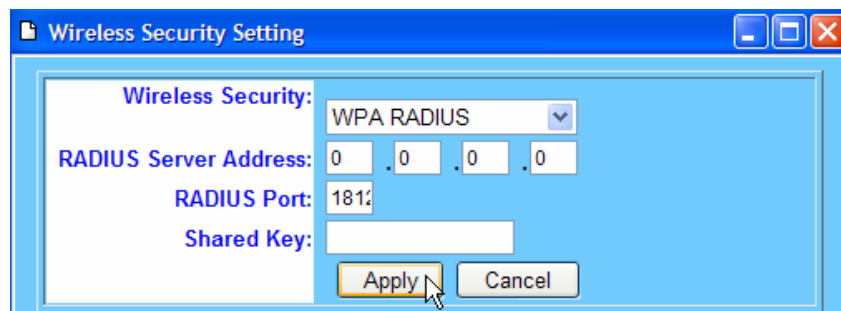


Figure 8 - WPA RADIUS Setup

2. Specify the address of the RADIUS server on your network.
3. Unless you have changed the port on your RADIUS server to communicate with the NB5580w, do not make any changes to the default value – 1812.

³ If your wireless NIC on your device does not support WPA-PSK, you can check with the manufacturer for a firmware upgrade. You cannot use devices with differing encryption standards on your network. This is a future development of wireless networks.

4. Set the Shared Key recognized by the NB5580w and the RADIUS server.

e) Disabling SSID Broadcast

Many wireless access points and routers routinely transmit the wireless network name (SSID). This feature serves a useful purpose for clients trying to find available wireless networks, but it also can help hackers break into wireless networks. To improve the security of your WLAN (wireless LAN), you should disable SSID broadcast.⁴

To set this up on the NB5580w, follow these steps:

1. Login to One Page Setup on the NB5580w using the web interface.
2. Disallow SSID broadcast:

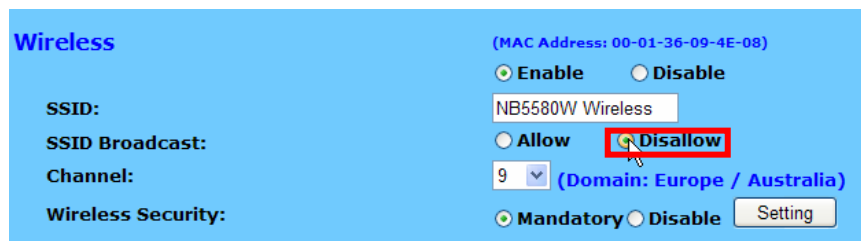


Figure 9 - Disallowing SSID broadcast

3. Click Apply at the bottom of the page.
4. Wireless devices attempting to connect with the NB5580w's wireless network will need to be configured manually as they will not 'see' the wireless network listed when scanning the airwaves.

f) MAC Address Filtering

Without MAC address filtering, any wireless client can join (authenticate with) a wireless network if they know the network name (also called the SSID) and perhaps a few other security parameters like encryption keys. When MAC address filtering is enabled the access point (AP) or router performs an additional check on a different parameter. Obviously the more checks that are made, the greater the likelihood of preventing network break-ins.⁵ Follow these steps to enable MAC address filtering on your NB5580w. Note, that any clients' MAC address not included in the filter will be unable to connect to the NB5580w.

1. Gather all the MAC addresses for the NICs (Network Interface Cards) of your wireless devices on your network that will be connecting with

⁴ Finding the name of your wireless network is fairly easy when using certain tools. It is not advised that you use this as your main defense against hackers. For further information regarding the insecurities of disabling SSID broadcast see http://www.symbol.com/products/wireless/broadcasting_ssid_.html

⁵ For further information about MAC address filtering see <http://compnetworking.about.com/cs/wirelessproducts/qt/macaddress.htm>

the NB5580w. In Windows, open a command prompt (Start → Run → cmd):

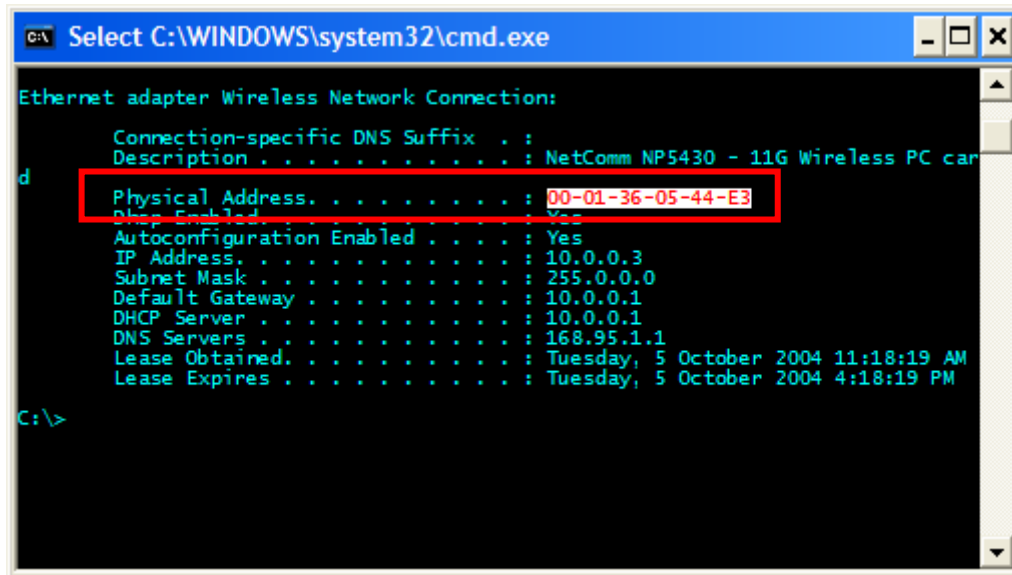


Figure 10 - Obtaining the MAC address of your NIC

2. You will see the Physical Address (MAC address) as highlighted in the screenshot above.
3. Login to the NB5580w's One Page Setup webpage and click on Wireless in the left navigation frame:

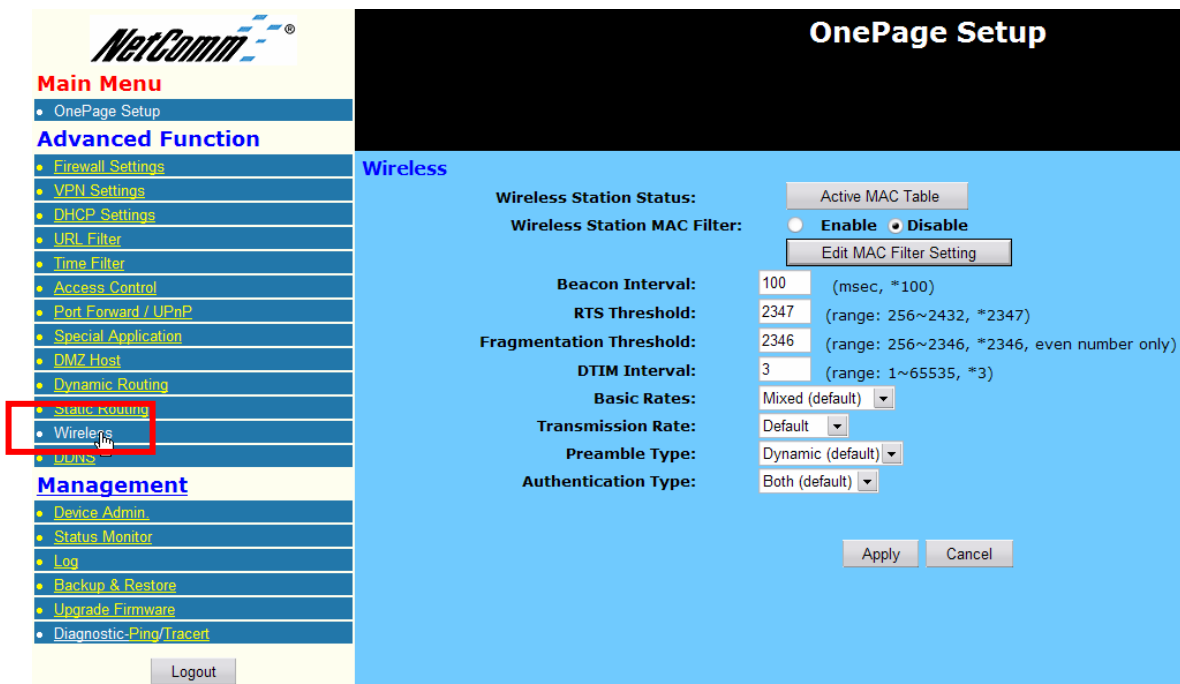


Figure 11 - MAC address filtering

- Click on the Edit MAC Filter Setting button and enter the MAC (Physical) addresses (without the hyphens) of the devices that are allowed to connect to the NB5580w. Once you have entered all the addresses, click Apply:

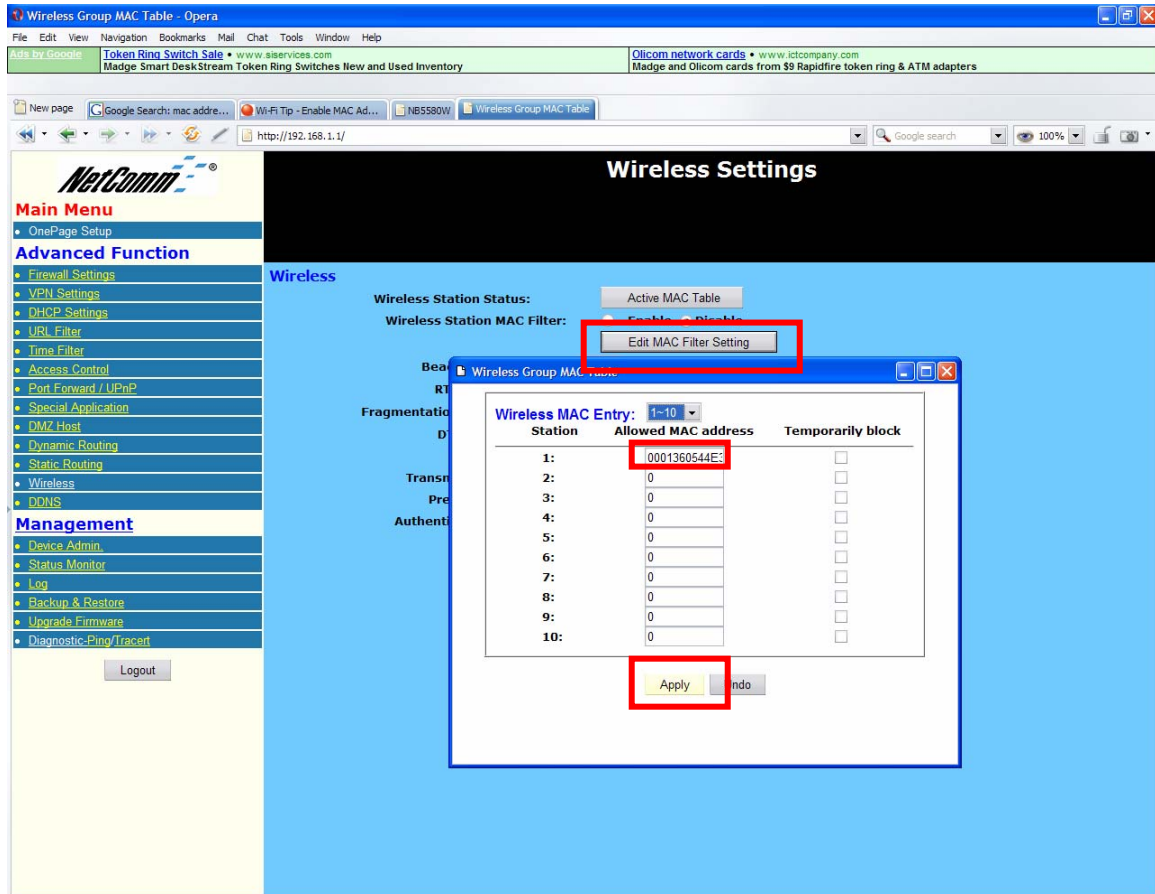


Figure 12 - Entering the MAC addresses

- Once you return to the Wireless Settings screen, select Enable and click Apply:

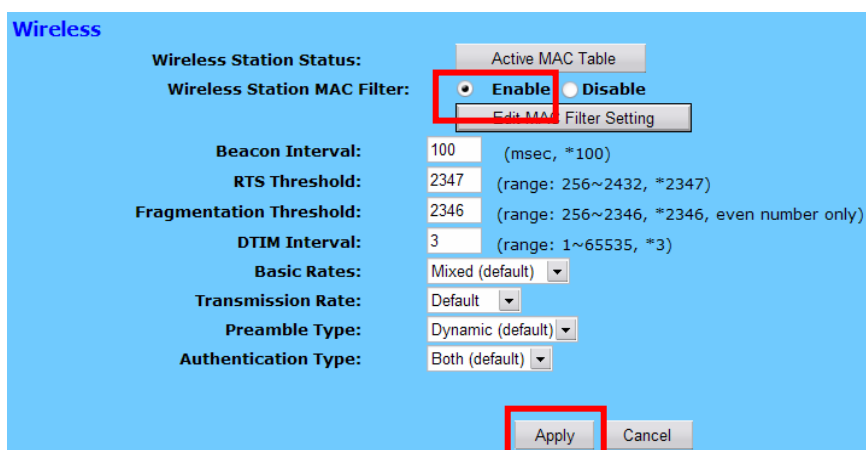


Figure 13 - Applying MAC Address Filter

6. NB5580w will reboot with effective settings.

Connecting to the NB5580w Wirelessly

In this demonstration I am using a Windows XP machine running Service Pack 2. For Windows 98, ME and 2k please refer to the NB5580w manual.

Connecting to an unsecured wireless network:

Follow these steps:

1. Open Network Connections (Start → Control Panel → Network Connections):

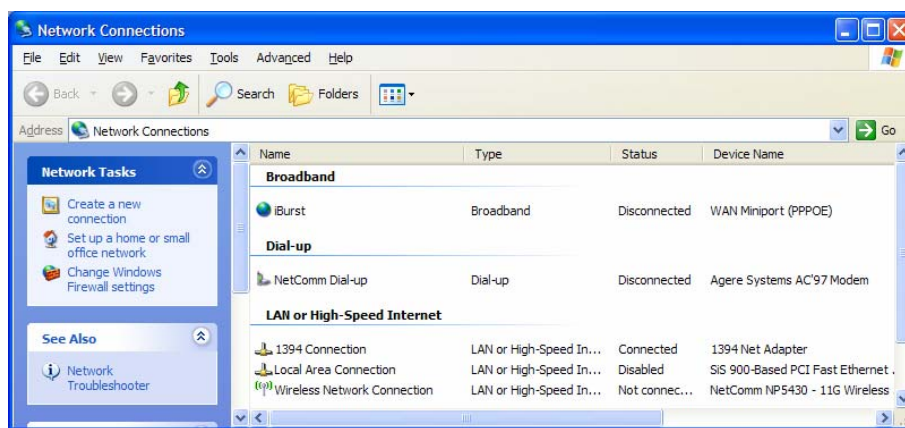


Figure 14 - Network Connections

2. Right-click on your Wireless Network Connection and select **View Available Wireless Networks**:

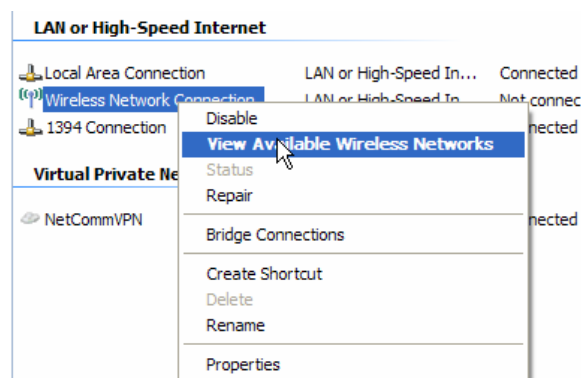


Figure 15 - Wireless Network Connection – View Available Networks

3. Select the wireless network you will to connect to and click **Connect**:

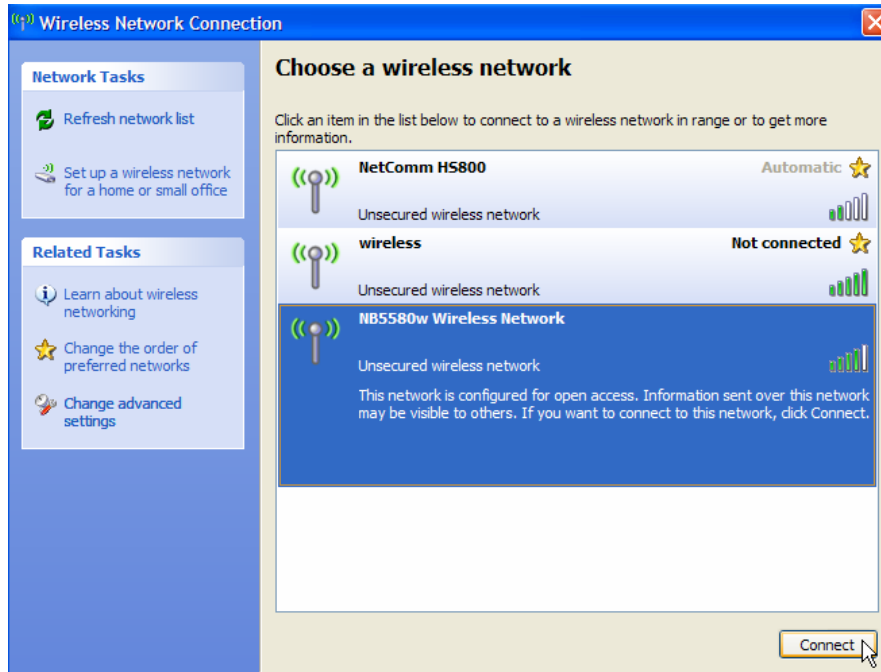


Figure 16 - Selecting your Wireless Network (No Security)

4. You will be warned that you are about to connect to an unsecured network:



Figure 17 - Warning connecting to an unsecured wireless network

5. Once you click on **Connect Anyway** you will be connected to the NB5580w Wireless network.

Connecting to a WEP secured wireless network:

1. Follow steps 1 and 2 in the previous section.
2. Select the WEP-secured wireless network from and click **Connect**:

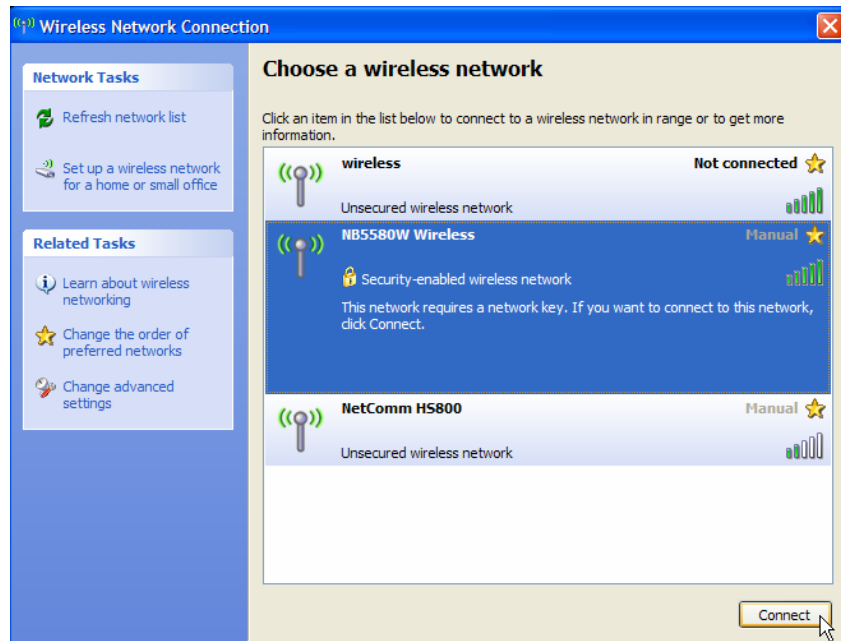


Figure 18 - Connecting to a secured wireless network

3. Enter the WEP key and click **Connect**:

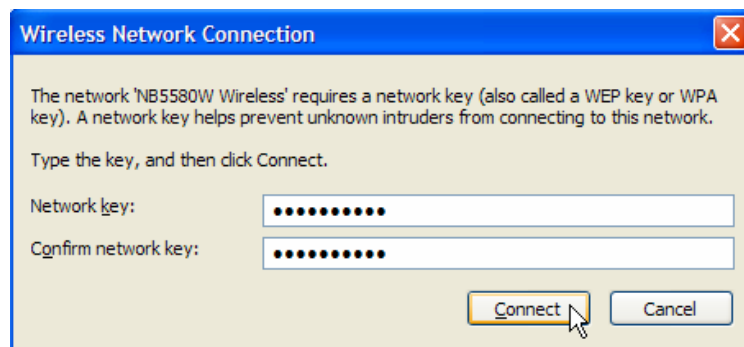


Figure 19 - Entering WEP key

4. Your wireless device will attempt to connect to the wireless network:

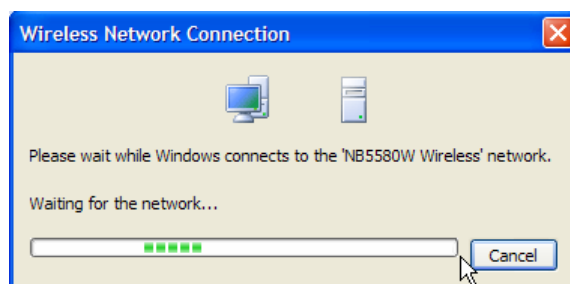


Figure 20 - Attempt to connect to wireless network

5. Once connected you are free to start using the wireless network.

Connecting to a WPA-PSK secured wireless network:

If the wireless network you wish to connect to is using WPA-PSK security you need to follow a few additional steps if your wireless NIC does not support WPA. Windows XP with Service Pack 2 provides support for WPA using the Windows OS so you can still use this stronger form of security.

To set WPA up on Windows XP follow these steps:

1. Access the Properties of your Wireless Connection:

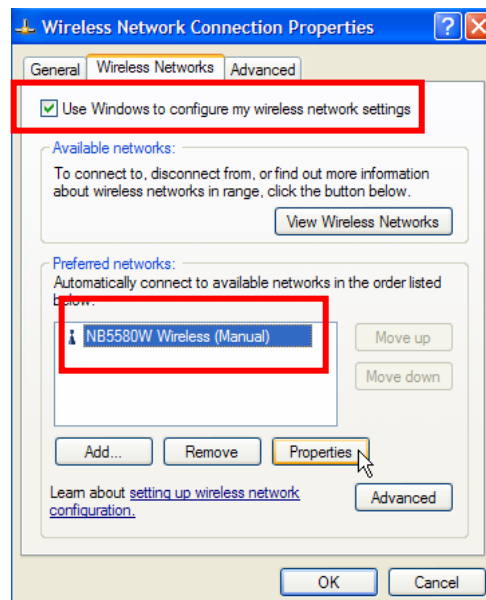


Figure 21 - Wireless Connection Properties (Wireless Networks Tab)

- Select the option to use Windows to configure your wireless network settings.
- Under **Preferred Networks** select the NB5580w network.
- Click **Properties**.

2. Select WPA-PSK as the type of network authentication and enter the WPA key:

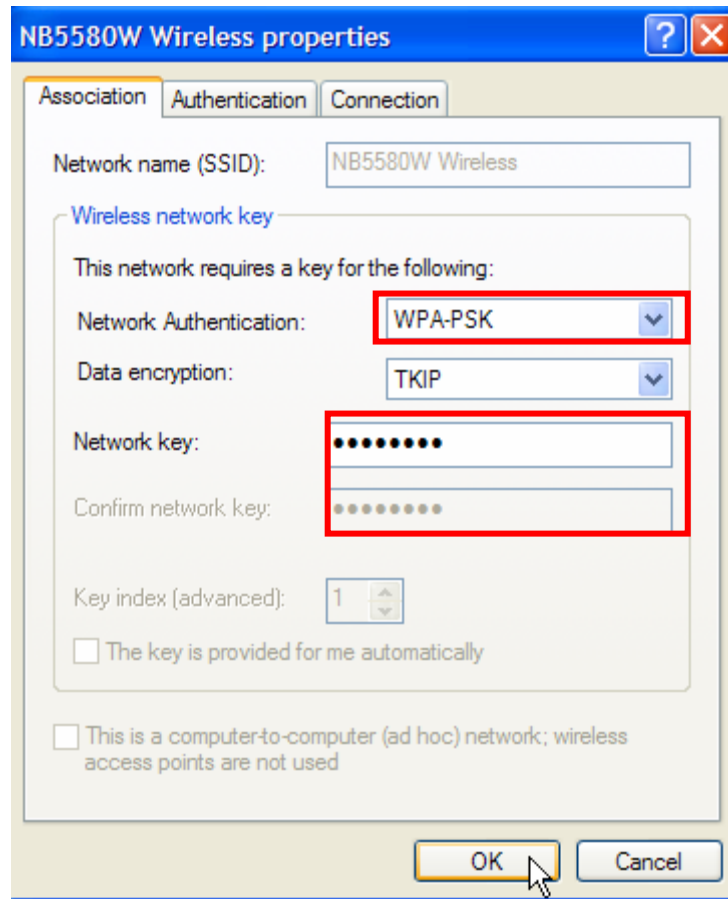


Figure 22 - Setting WPA on your Wireless NIC

3. Click OK.
4. View your wireless network (notice that the network is secured with WPA):

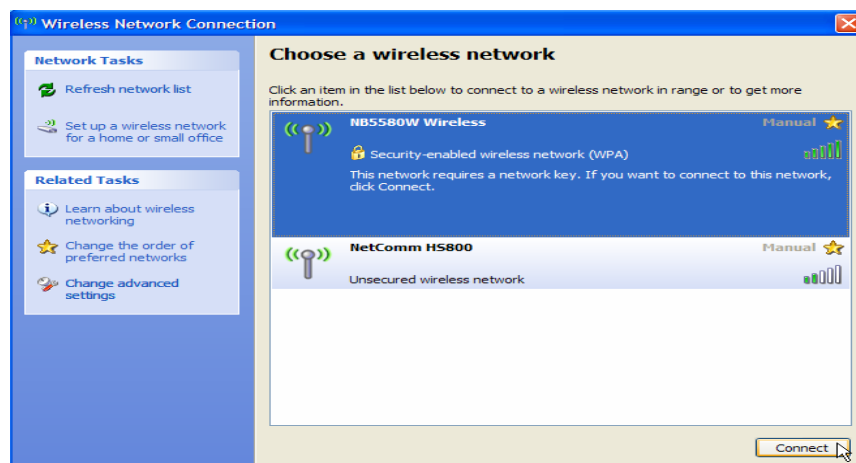


Figure 23 - Viewing a WPA secured Wireless Network

5. Click connect and enter your WPA key:

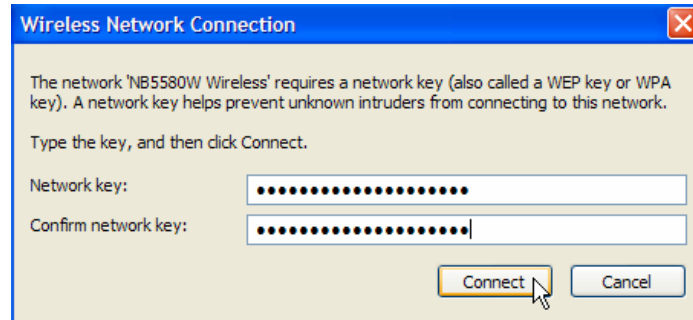


Figure 24 - Entering your WPA key

6. Once authenticated you will be connected to the wireless network.