Walkabout Pack II

User
Manual
and
Operating
Instructions

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Please Read

Due to complex host set-ups or local/environmental influences, any wireless network can suffer drop-outs, interference or connectivity issues that would compromise the effectiveness of the system. XTA have taken every possible step to ensure a fast, stable connection within a capable system/environment, but instability caused by external issues is beyond our control.

Introduction

XTA have spent a considerable period of time searching for a reliable, straightforward solution to creating a wireless system that can interface with our units. The obvious choice of standard network is to utilise the 'Ethernet' system as utilised by computer and control systems worldwide.

We have developed a new version of **AudioCore** to work with local area networks (LANs) and wireless local area networks (WLANs) using the TCP/IP protocol. This system means there is no need for COM port redirection software or to use external USB to serial converters. These can prove troublesome, especially with laptops.

We have found that the Netgear WG511T Wi-Fi card provides greatly extended range and improved stability, over and above any WLAN systems built into laptops or tablet PCs (such as those featuring 'Centrino' processors).

The solution for the connection to the serial port on our processors is catered for by the DiGi WiSP WLAN to Serial converter. This device is small, stable, and easy to set up. The setup of the WiSP is though a web interface so requires no special software, although a small utility program is supplied to check that the device is available and reconfigure it if necessary.

Contents of the kit

1: DIGI WiSP Wi-Fi to Serial Converter;
2: Power supply for WiSP;
3: Netgear Wi-Fi card;
4: Adapter cable for direct RS485 connection.

Also included, but not shown:
XTA Walkabout PC Set-up CD;
Netgear driver CD;
DIGI support CD

Important Note

Before you begin installing the Netgear wireless card or the WiSP interface, please make sure you have the latest version of software in your unit(s).

Unit Type/Program Name	Earliest Compatible Version
4 Series	V1.50
DP226	V3.60
DP224	V2.60
DP6i	V2.3
AudioCore	V8.00

This software and the loader program are available from our website at www.xta.co.uk and is also included on the XTA WiSP set-up disk supplied with this kit.
Note: This system, operating on TCP/IP, is only designed to control the 4 Series, DP226, DP224, and _DP6i_. Inclusion of older units (DP100/200/202) will impair performance and is not recommended.

Upgrading unit software

Note that this procedure can only be done one unit at a time – it is recommended that the unit being updated is disconnected from any RS485 network until the procedure is complete.

Connect the unit to upgrade to a spare COM (serial) port on your PC or laptop. The serial cable must be a "one-to-one" cable and NOT a null modem cable. This is because a null modem cable has "transmit" and "receive" wires swapped, and so will not work. It is also possible to upgrade through an appropriate USB to RS232 converter, if your computer does not have serial ports. The software cannot be updated via RS485.

Make sure the unit's interface is set up as Master[1] on RS232 and ID1, and that the baud rate is the same as that chosen in the loader program (default is 38400). In the case of a **DP6i**, set the interface to ⚏⚏. Plug the other end of the serial lead into the RS232 port on the unit.

Run the loader program from the 'Software' folder on the CD called "Load226.exe".
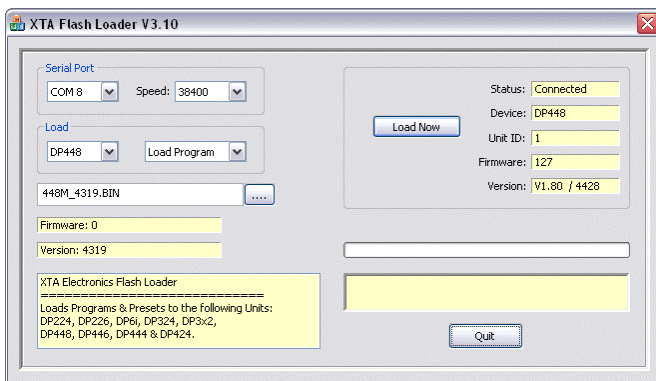
Select the correct COM port and baud rate, and press the 'CONNECT' button. If all is well, the loader will display details of the connected unit.

At this point, press the "…" button beside the "File" text box, and choose the correct bin file (selection will have been automatically limited to software for the unit type detected).

<u>Do not switch off the unit during this procedure or attempt to run other software on the computer. If the upgrade is interrupted, the unit will become inoperable and may have to be returned to the factory.</u>

Finally press the 'Load Now' button (which previously said 'CONNECT'), and the unit will display

<div align="center">

REMOTE LOAD
Block nnnn of 2048

</div>

The number nnnn will count up in sync with the number on the loader software and, when complete, the unit will reboot and display the new version number and the message

<div align="center">

New Software Loaded

</div>

In the case of the **DP6i**, the unit will reboot and flash n5 ("new software") to show that the update has been successful.

The entire process will take less than two minutes.

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[1] "Master" setting only on DP224/6/6i

Set up the Netgear card first: Install the Netgear driver for the WG511T using the supplied Netgear driver disk **BEFORE** plugging the card into your PC or laptop. Follow the instructions on screen. Now plug the card in – Windows should recognise it and load the drivers as required. If, after installation, Windows then asks to load drivers itself, or reports new hardware found, it is now safe to follow these instructions. If a warning is displayed select 'Continue Anyway'.

Set up the WiSP converter: There are no drivers required for the WiSP. All that needs to be done is to plug it into your 4 Series, DP226, DP224, or ***DP6i***, using either an RS485 connection or RS232 connection, and plug in the power supply. **The settings for the WiSP have been pre-programmed by XTA at the factory and should not need changing.**

The WiSP can directly output serial data in either RS232 or RS485 modes.

In RS232 mode, the module must be connected directly to the FIRST unit in the chain, in the same way as if it was a direct wired connection from a PC or laptop. A standard RS232 lead, wired 1-1 (NOT A NULL MODEM CABLE!) is used to plug the WiSP into the unit. **The RS232 cable should be no longer than 25 feet, or about 7 metres.** The switch settings on the back of the WiSP need to be set as shown below:

RS232 Mode
Switch 1 ON (UP)
Switch 2 – 4 OFF (DOWN)

For RS485 operation, use the adapter cable supplied in the kit and connect a standard mic cable to this from the first unit in the chain. The **total** cable length for the RS485 system may be up to 1000 metres (which includes cables between units). The switch settings on the back of the WiSP need to be set as shown below:
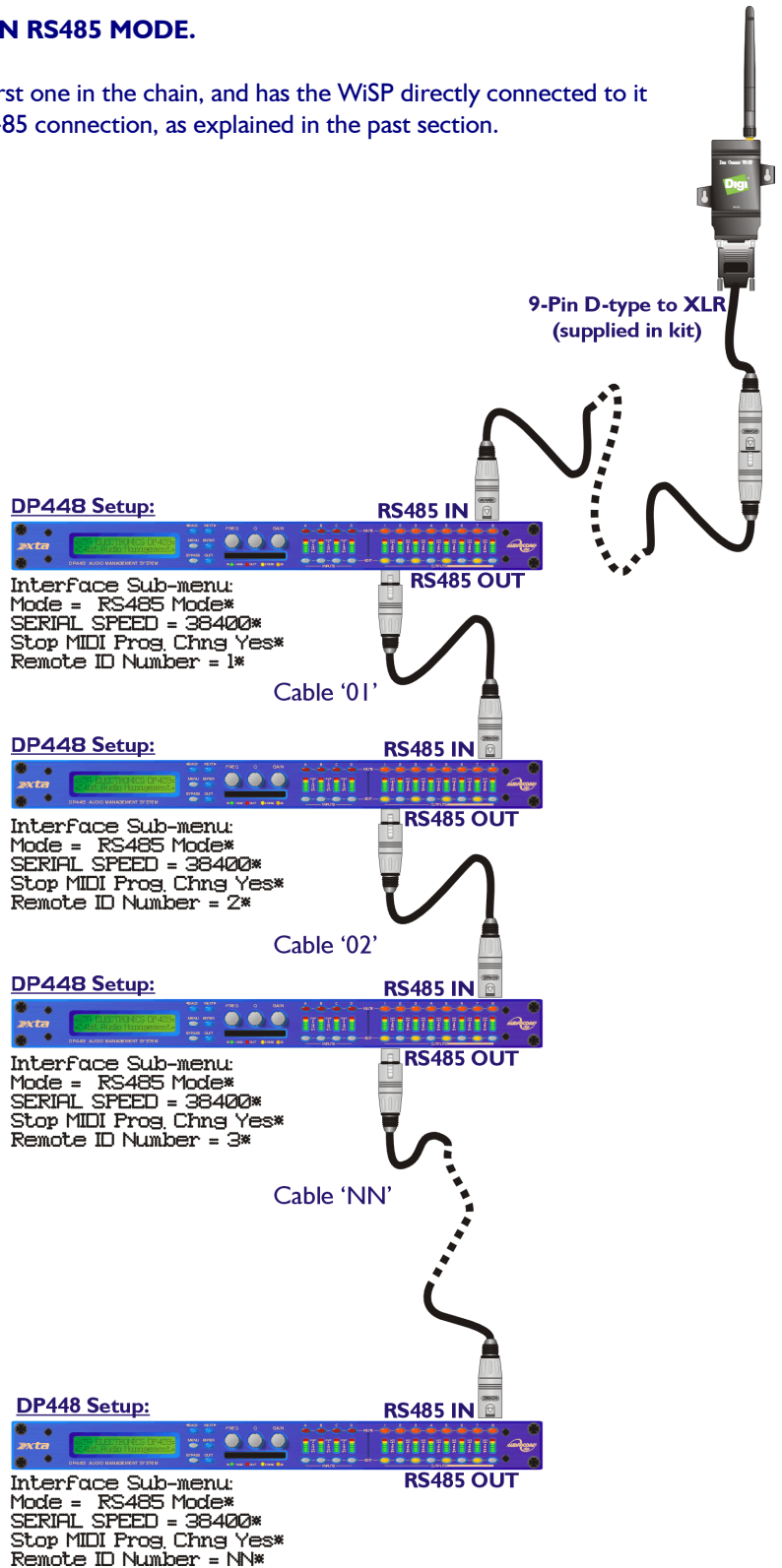
RS485 Mode
Switch 1 OFF (DOWN)
Switch 2 OFF (DOWN)
Switch 3 ON(UP)
Switch 4 OFF (DOWN)

DIP Switches
RS485 Mode

DIP Switches
RS232 Mode
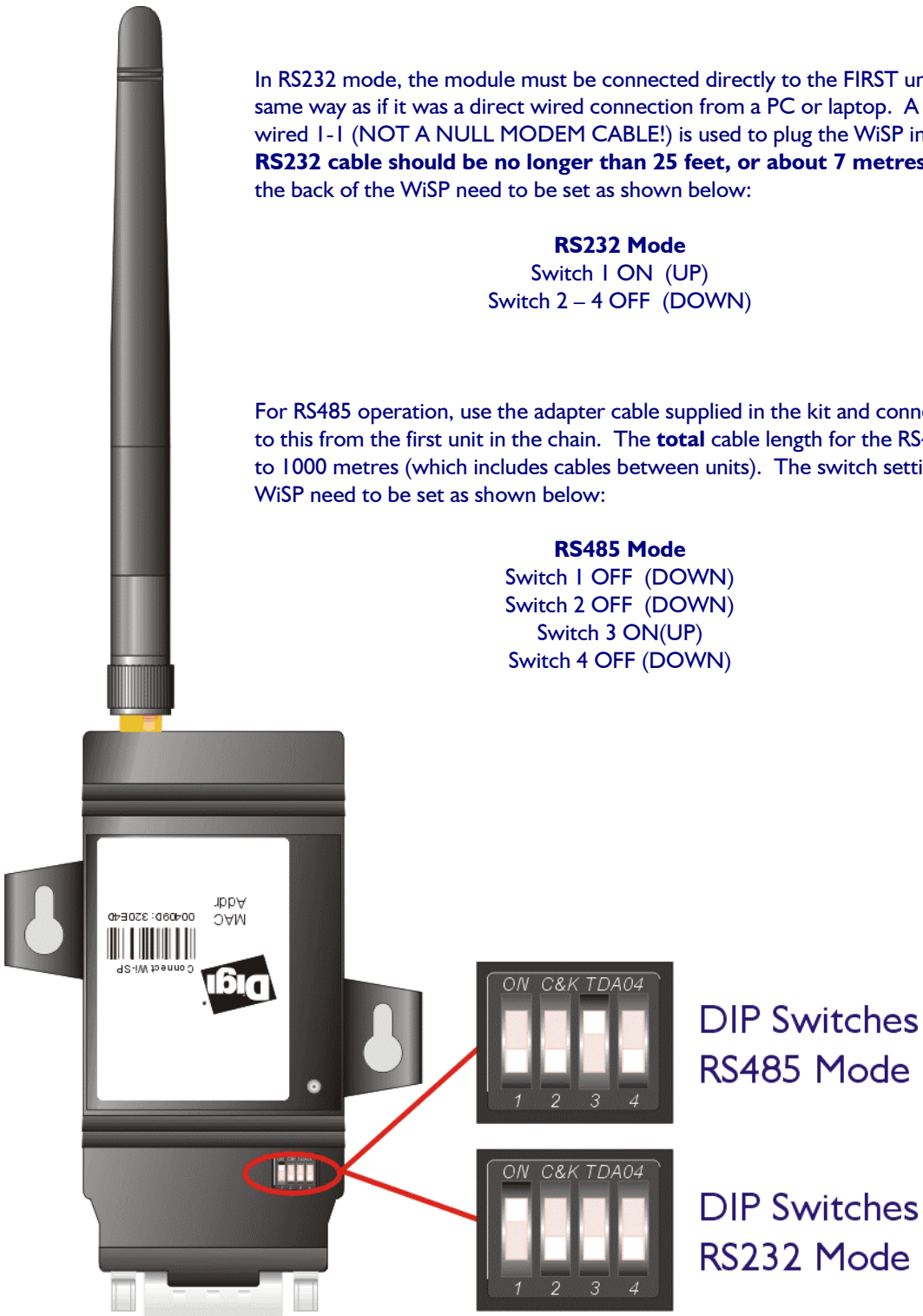
BY DEFAULT THE WiSP IS SET TO WORK IN RS485 MODE.

Set up the Master unit: The Master unit is the first one in the chain, and has the WiSP directly connected to it
This may be either an RS232 connection or an RS485 connection, as explained in the past section.
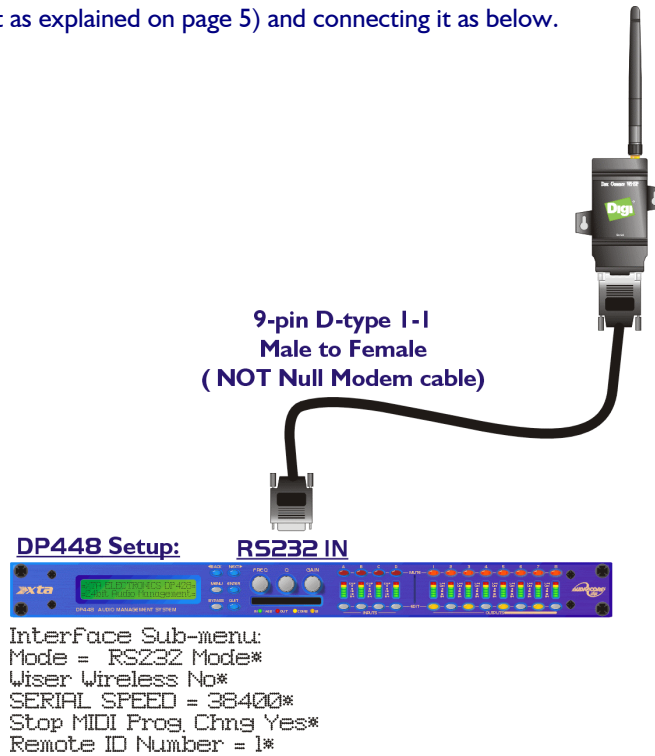
RS485 connection (recommended)

9-Pin D-type to XLR
(supplied in kit)

DP448 Setup:

RS485 IN

Interface Sub-menu:
Mode = RS485 Mode*
SERIAL SPEED = 38400*
Stop MIDI Prog. Chng Yes*
Remote ID Number = 1*

RS485 OUT

Cable '01'

DP448 Setup:

RS485 IN

Interface Sub-menu:
Mode = RS485 Mode*
SERIAL SPEED = 38400*
Stop MIDI Prog. Chng Yes*
Remote ID Number = 2*

RS485 OUT

Cable '02'

DP448 Setup:

RS485 IN

Interface Sub-menu:
Mode = RS485 Mode*
SERIAL SPEED = 38400*
Stop MIDI Prog. Chng Yes*
Remote ID Number = 3*

RS485 OUT

Cable 'NN'

DP448 Setup:

RS485 IN

Interface Sub-menu:
Mode = RS485 Mode*
SERIAL SPEED = 38400*
Stop MIDI Prog. Chng Yes*
Remote ID Number = NN*

RS485 OUT

For 2 Series units, the first one should be **Master, RS485, 38400 baud and ID1**, and following units
Slave, RS485, 38400 baud, ID2 (increment ID for each connected unit).

For RS485 connections the *DP6i* units should be set to interface `06` with incremental IDs.

Warning: The 4 Series by default are set to 115200 baud and this must be changed to 38400 for the system to work. On
an exclusive 4-Series network the baud rate can be increased to 115200, but the WiSP will need to be reconfigured.
Please see Appendix 1 for details of how to do this.

RS232 connection

Alternatively, the WiSP may be set to RS232 mode
(by changing the DIP switches on it as explained on page 5) and connecting it as below.

9-pin D-type 1-1
Male to Female
(NOT Null Modem cable)

DP448 Setup: RS232 IN

Interface Sub-menu:
Mode = RS232 Mode*
Wiser Wireless No*
SERIAL SPEED = 38400*
Stop MIDI Prog. Chng Yes*
Remote ID Number = 1*

Other units on the network should be set up as
Slave, RS485, 38400 baud, ID2 (increment ID for each connected unit).
[4 Series Interface Menu]
Or…
Slave, RS485, 38400 baud, ID2 (increment ID for each connected unit).
[DP224/6 Interface Menu]

In the case of a **DP6i**, set the interface to **09**, which is the same as Master on RS232 at 38400 baud. For RS485 connections the **DP6i** units should be set to interface **06** with incremental IDs.

Warning: The 4 Series by default are set to 115200 baud and this must be changed to 38400 for the system to work. On an exclusive 4-Series network the baud rate can be increased to 115200, but the WiSP will need to be reconfigured. Please see Appendix 1 for details of how to do this.

Set the Netgear Card IP Address

Whilst Windows will automatically assign the Wi-Fi card an IP address, our experience has shown that this must be changed manually to ensure correct operation. Here's what to do…

From your Windows desktop, click **start**, then 'Control Panel' to display…
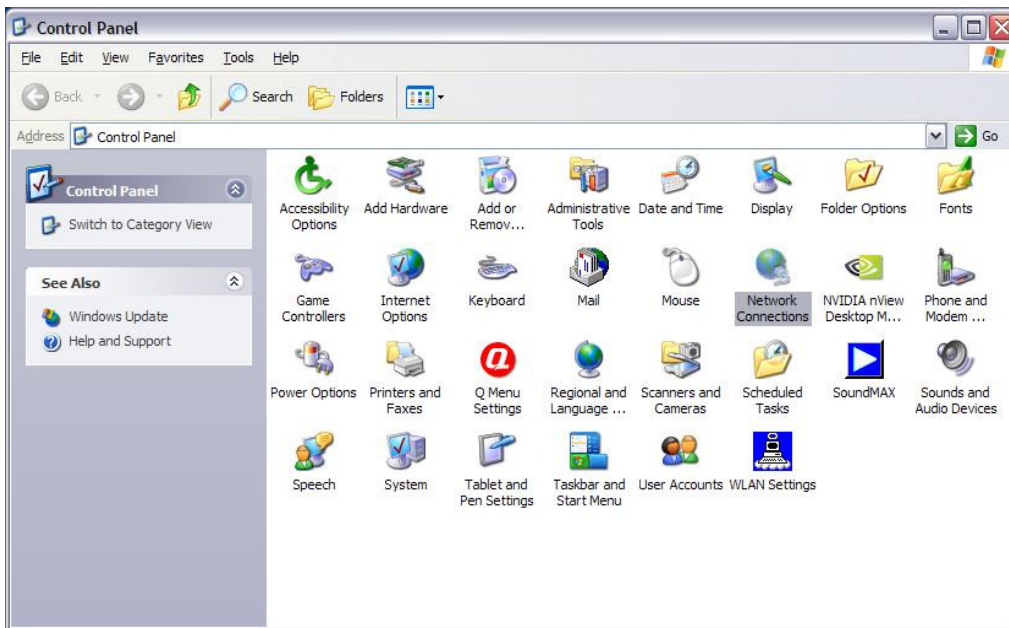
The 'Network Connections' icon is already highlighted here.

Double click on the 'Network Connections' icon to display the list of network connections in place on the computer.

In this list should be the network associated with the Netgear wireless card – it is highlighted here.
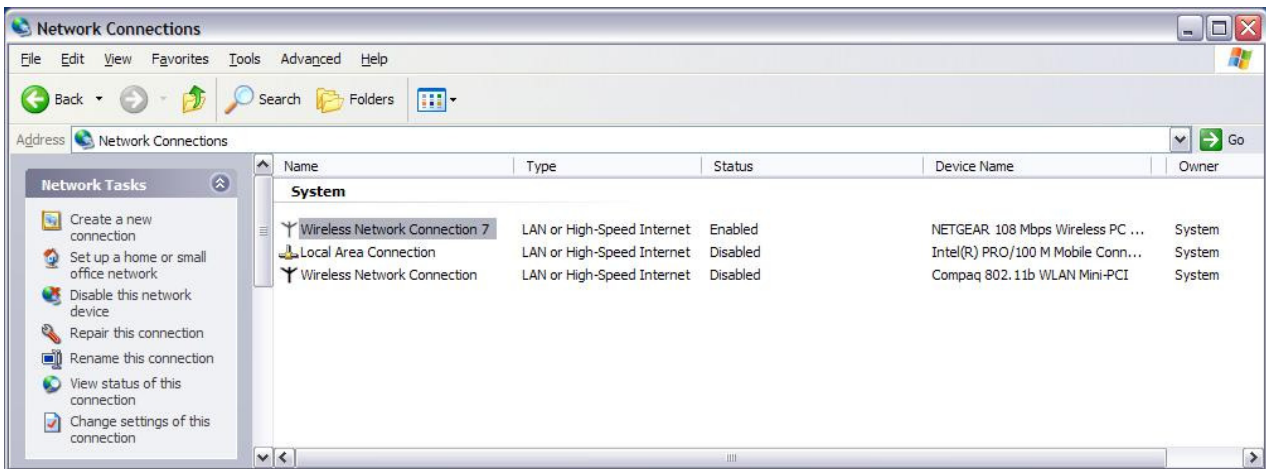
Make sure you change the settings on the Netgear Card – check the "Device Name" column for "Netgear 108 Mbps Wireless PC Card" as shown above. Right click on this and select 'Properties' to see how the card is set up – as shown on the next page…

The item listed (and highlighted) here that needs to be checked is the 'Internet Protocol' item – select it and then click on the 'Properties' button to reveal the window shown below, which gives access to the actual IP address etc. used by the Wi-Fi card.
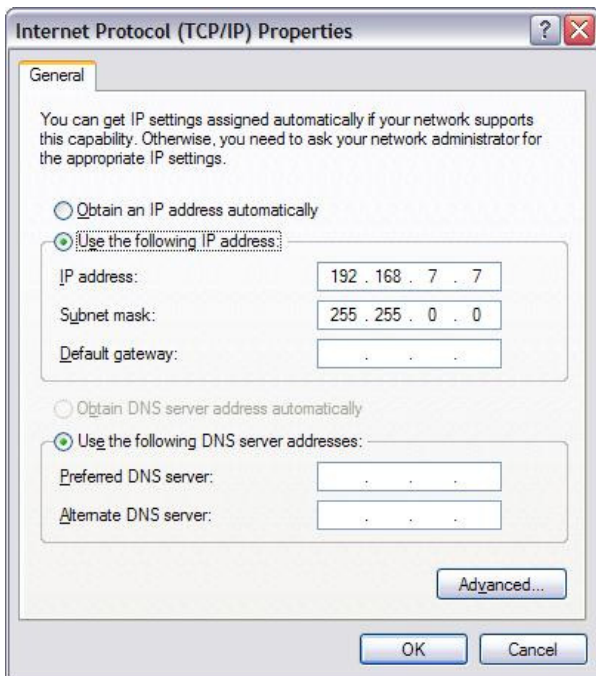
Make sure that 'Use the following IP address' is selected and the IP address is similar to that shown (i.e. starting with 192.168.). If it is an auto-allocated address (typically of the format 169.202.x.x), change it to one beginning 192.168, but NOT ending with 224.226 as that's the ADDRESS of the WiSP!

Set the 'Subnet Mask' to 255.255.0.0.

Do NOT change the Default Gateway setting (normally blank)!

Search for and Establish a Wireless Link to the WiSP

On your Windows desktop, double click on the Netgear Wi-Fi icon in the system tray beside the clock. This will display a window as below. Click onto the second tab on this window, 'Networks', to display…

Press the 'Scan' button and the card will try to find any available Wi-Fi networks in range.
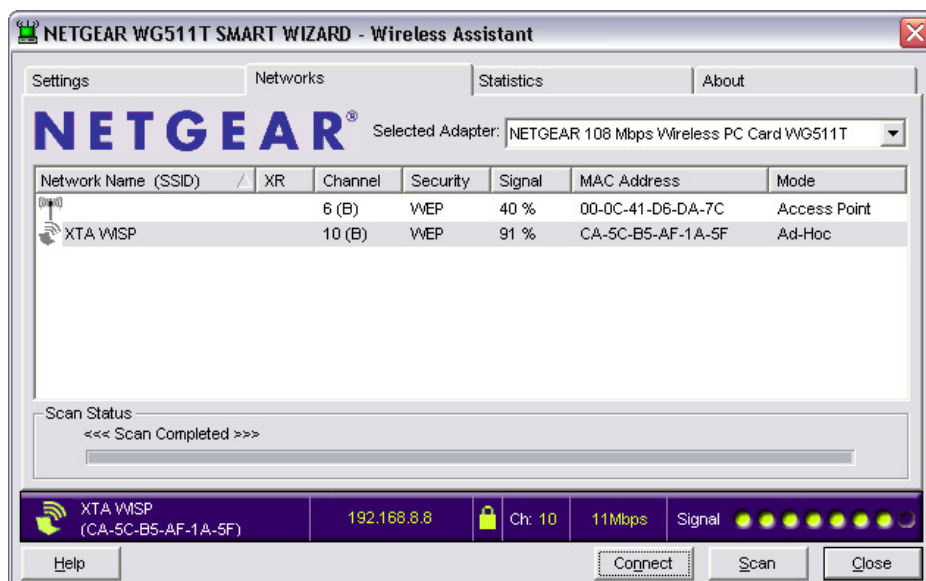
If all is working, the name of the network with the WiSP connected should appear – default is "XTA WISP". (All in capital letters!)

Assuming the network has now been found, click on it in the list (for example the one highlighted in grey in the above screen shot) and then the 'Connect' button. The first tab will be selected again automatically, with the blue bar at the bottom showing the signal strength, connection speed and network name.

Make sure the following parameters are set up:

Network Type is set to 'Adhoc';

Security settings are set with 'WEP Encryption' ticked, and the 'KEY1' (entered manually as to the left) is the matching key on the WiSP – default is 1234567890, with '64 bit' encryption selected.

If this has been established, but **AudioCore** still says it cannot connect to the port, check the WEP encryption and the KEY1 value entered – if these settings are incorrect, the connection can still be established (so the network name may appear), but no data can be exchanged (hence **AudioCore** cannot use the network).

NOTE: A common error when setting up the Netgear card settings is to accidentally select the "Create with Passphrase" button and enter the Key in the box associated with this, INSTEAD of the "Enter Key Manually" choice just below this. Make sure you've not done this, as **AudioCore** won't be able to find or control the units, even though the Netgear Card will find the WiSP.

If you change any networking settings, always go back and check that this setting has not been overwritten or changed – in certain circumstances if may be adjusted automatically causing the symptom described above..

Setting up **AudioCore** to work with the WiSP

You will need to install **AudioCore** version 8.00 or greater on the PC to be used with the wireless system.

Start **AudioCore** as normal and then choose the menu Remote ▶ TCP/IP. The window below will be displayed.
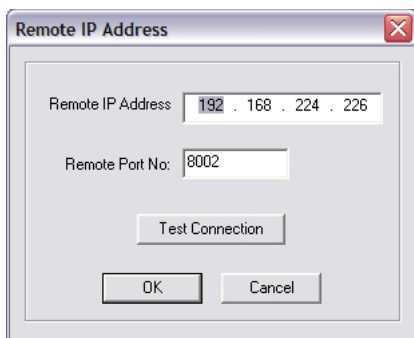
Pressing the "Test Connection" button should display a message saying "Connected to TCP/IP!" and the address/port number.

Assuming this works, you should now be able to go on-line, and use AudioCore as normal. Nothing concerned with the operation of AudioCore has changed – you will be able to upload and download as normal, and the real-time metering and status monitor will be working as before.

If things don't appear to be working, or an error message saying "Cannot connect to port…" appears, please refer to the trouble shooting section on page 13.

It may take a up to a couple of minutes for the WLAN card to associate with the WiSP after booting up the PC/Laptop. This is normal – the two LEDs on the Netgear card will flash independently until a connection is made, then they will begin to flash together.   Similarly, the green RX LED on the WiSP will flash at 1Hz until a wireless link is made; from which point it will be a steady light, with a flash every 5 seconds.

The preprogrammed WiSP setting are given below – note the IP Address must match the IP Address in **AudioCore**.

Parameter	Value
SSID	XTA WISP
TCP/IP Address	**192.168.224.226**
Subnet Mask	255.255.0.0
WEP Encryption	Yes (64 Bit)
WEP KEY1	1234567890
Default Channel	6

Tablet Features:

Some tablet PCs will have a feature whereby holding down the stylus acts like a right mouse click. You may want to turn this feature off, as scrolling can be difficult. Please refer to your specific tablet PC operating manual for details.

Connection Problems:

Try experimenting with the location of the PC relative to the WiSP – sometimes the case of the computer can shield the radio link. Also, try to ensure that the WiSP is not too close to the computer, or the radio link may saturate (overload). 6 feet (~2m) is a recommended minimum.

Check the Netgear and Windows Network icons in the system tray on the task bar – if there appears to be a problem, double click on the Netgear icon to display the Netgear Wireless interface. Please refer to page 10 for detailed instructions of how to check/re-establish a connection. Note that it can take anywhere between 1 to 3 minutes for a network link to become available again. This is outside XTA's control, so please be patient!

Moving radio links are more likely to lose connections than stationary ones, so if the link appears to be dropping out, try to minimise movement until the link is re-established.

Computer Problems:

Please ensure all power-saving features are disabled on your computer.
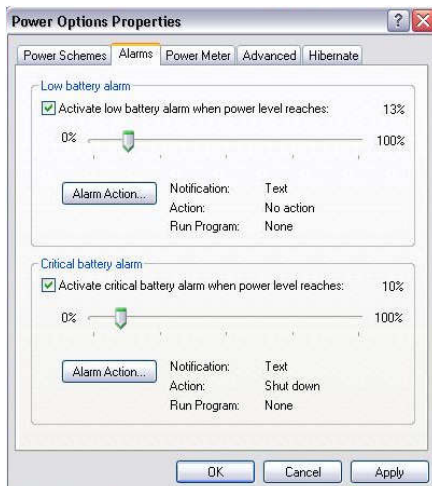
Access this via **start** ▶ Settings ▶Control Panel ▶ Power Options. Depending on the version of Windows you are using, select power as 'Always On', ensuring that the system never goes into stand-by.

Note that stand-by operation can also be enabled through the 'Alarms' tab (on a laptop/tablet, used for low battery situations). Set the 'Actions' to be either 'Do Nothing' or 'Shut Down'. There is a known problem with Windows concerning computers coming out of stand-by and subsequent communication with peripheral devices (i.e. the Netgear card).

The latest driver for the Netgear card is always available from www.netgear.com

AudioCorε:

AudioCorε will warn you if the radio link is lost during editing – this is to prevent accidental continuation of editing. The quickest way to go back on-line after this is to press the 'Refresh' button - this bypasses the need to scan for connected units etc.

Any changes to network or wireless settings may require **AudioCorε** or even Windows to be restarted.

Please ensure that any changes to your computer's network settings, the WiSP settings, or the connected XTA processors' interface setting take place with AudioCore OFF-LINE.

Firstly, check again to see if the Netgear card has been able to find anything – see page 10 for details.

If there are still connection problems, it might be worth checking to see what IP addresses are being used by any Ethernet devices connected to the computer. This is done through a 'DOS Prompt' window: Click Start, then 'Run' and type 'Command' in the list box.

This will open a 'DOS Prompt' window.
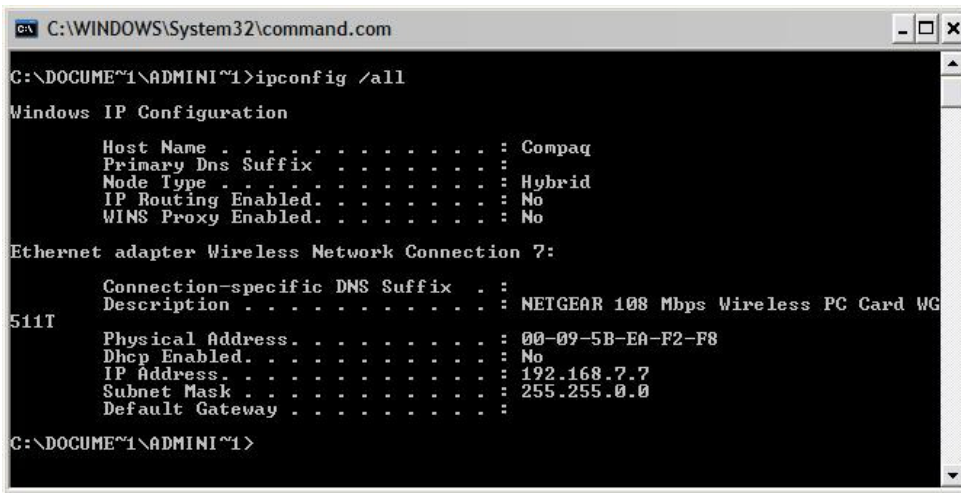
Within this window, type in

`ipconfig /all`

(with a space after the 'ipconfig' command). This will display information similar to that shown below:

As can be seen in this example, the Netgear card is set up on IP Address 192.168.7.7 and the Subnet Mask is set to 255.255.0.0

If this does not correspond to the settings input as described earlier in this section, review the settings and make sure that the check box labelled 'Use Windows to configure my wireless network settings is UNCHECKED.

This is the second tab available after clicking on the 'Properties' button as explained at the start of this section.

If this all seems OK, and the IP address is what it should be, it is worth checking at a low level to see if the WiSP can be located.
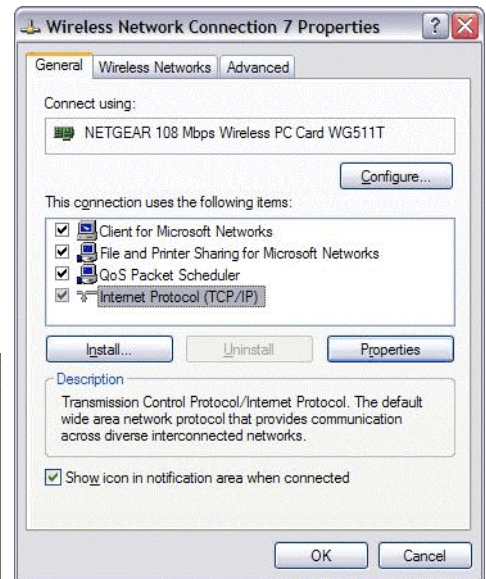
Open a 'DOS Prompt' window as before and type in

`ping 192.168.224.226`

(with a space after the 'ping' command) and press Enter.
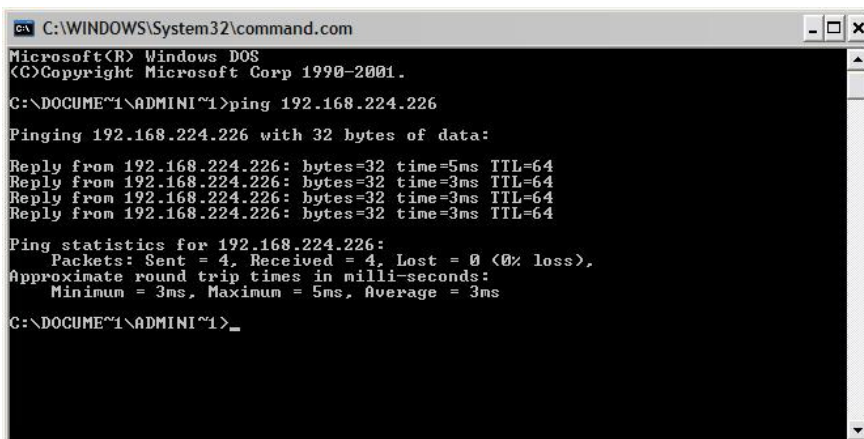
This will try to find the device in the network by sending a series of small bursts (or packets) of information addressed directly to the device, and will display the reply (if any). A *typical* outcome is shown here.

My laptop has Wi-Fi built in – can I use this?
The XTA Walkabout pack has been specifically designed for use with the supplied Netgear Wireless card. It is possible to configure an internal Wi-Fi system to communicate with the WiSP. XTA does not recommend this approach, and we cannot guarantee correct operation. However, if you wish to use the internal Wi-Fi, the required settings are on page 9 of this manual.

What sort of range can I expect with the system?
The standard 802.11b WLAN specification states that the approximate range available is 100m, in open space conditions, assuming good line of sight is available. This distance will be reduced by using the system indoors (through walls), and if there are large objects in the path.

Some of my units have not been updated to the latest software version – how will this affect the operation?
XTA strongly recommend that you perform the update as soon as possible – the system may work, but the speed of operation will be greatly reduced and, in some circumstances, the system may not work at all.

Can I control my XTA units with SIA's SMAART software, via the WiSP?
No. We believe that SIA's SMAART does not currently support communication to XTA units via TCP/IP protocol. Control can only be achieved via a hard-wired link using COM1 or 2, or a suitable MIDI interface.
However, it is possible to run SMAART and Audiocore at the same time, and resize the windows to allow the analysis to be viewed, while also adjusting parameters wirelessly through AudioCore.

How can I extend the range of my wireless connection?
A discussion about improving the available range of a wireless network is beyond the scope of this document. However, information on this topic can be found on Netgear's website at www.netgear.com in the 'Support' section.

Do you sell the WiSP unit separately?
XTA only sells the WiSP Wireless adapter as part of the Walkabout kit as this is the only way we can guarantee correct configuration. We cannot support technical enquiries regarding wireless operation unless we have first hand knowledge of the system.

What's your favourite colour?
XTA recommend blue, but this is at the user's discretion.

PLEASE DO NOT ADJUST ANY SETTINGS OF THE WiSP UNLESS EXPRESSLY MENTIONED IN THIS SECTION. FAILURE TO ADHERE TO THIS ADVICE MAY WELL RESULT IN LOSS OF CONNECITON AND THE RESETTING PROCEDURE FOR THE WiSP IS A COMPLICATED PROCEDURE!

Adjusting the baud rate is a simple procedure, but please follow the steps carefully and in order.
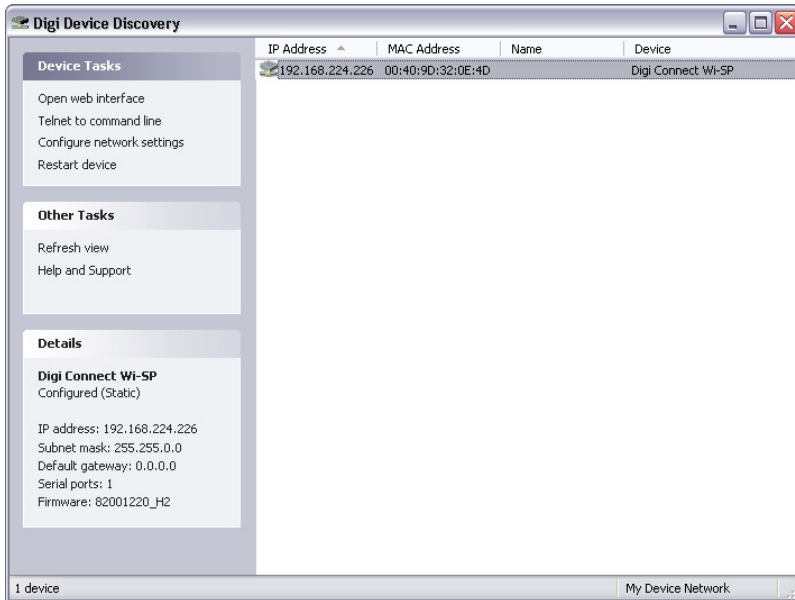
First, run the Digi Discovery tool on the XTA support CD. Assuming you have an established connection to begin with, the software should run and immediately find the WiSP, as shown here…

The WiSP is actually configured though a standard web browser, with all configuration settings and the web pages themselves, being sent back from the device. Clever eh?!

To open a connection to the WiSP, simply double click on it in the list (it is the only item shown above) or select it, and click on "Open web interface" from the choices of Device Tasks on the left hand side of the window.

This should open your web browser, and present a web page as shown below, asking for login details.
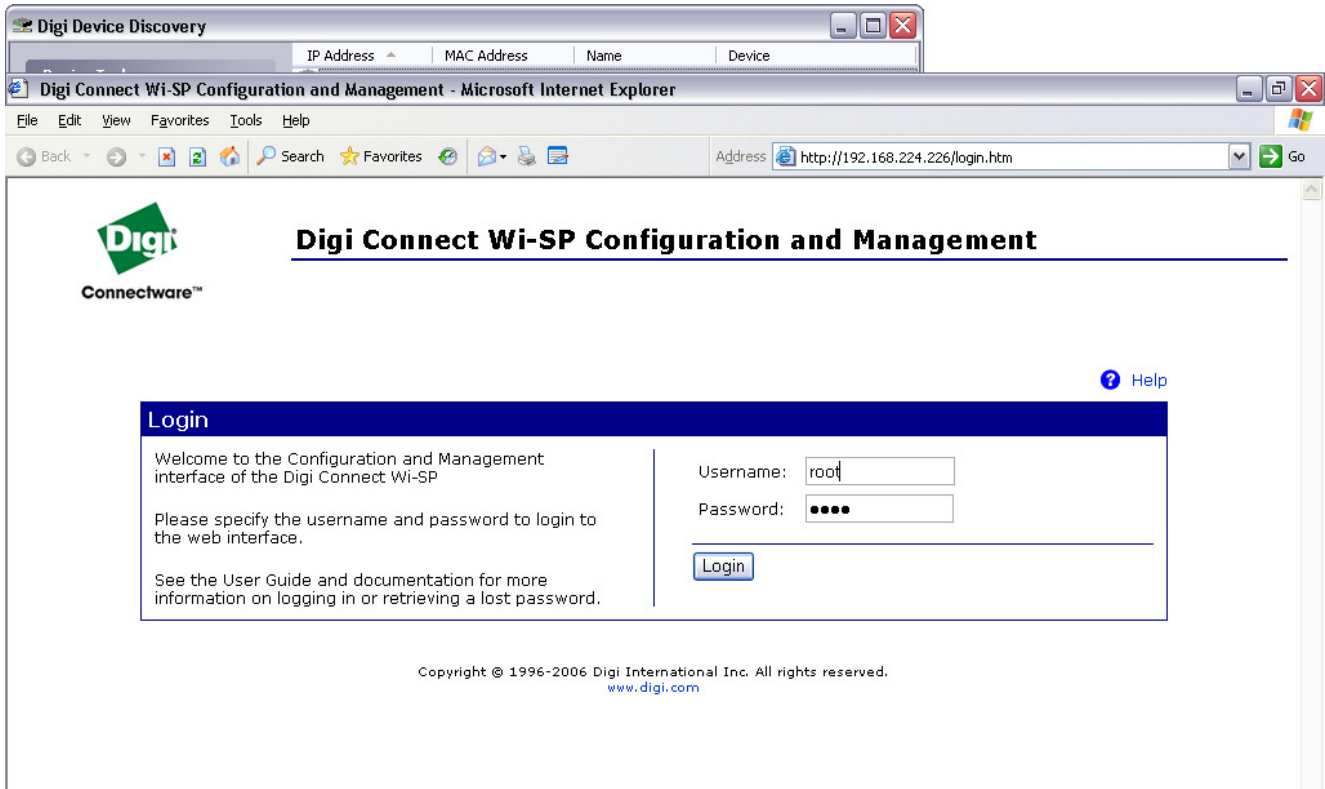
The login details are   **Username: root**
                              Password: dbps

The home page should load and a list of configuration sections is shown in a menu down the left hand side of the window:
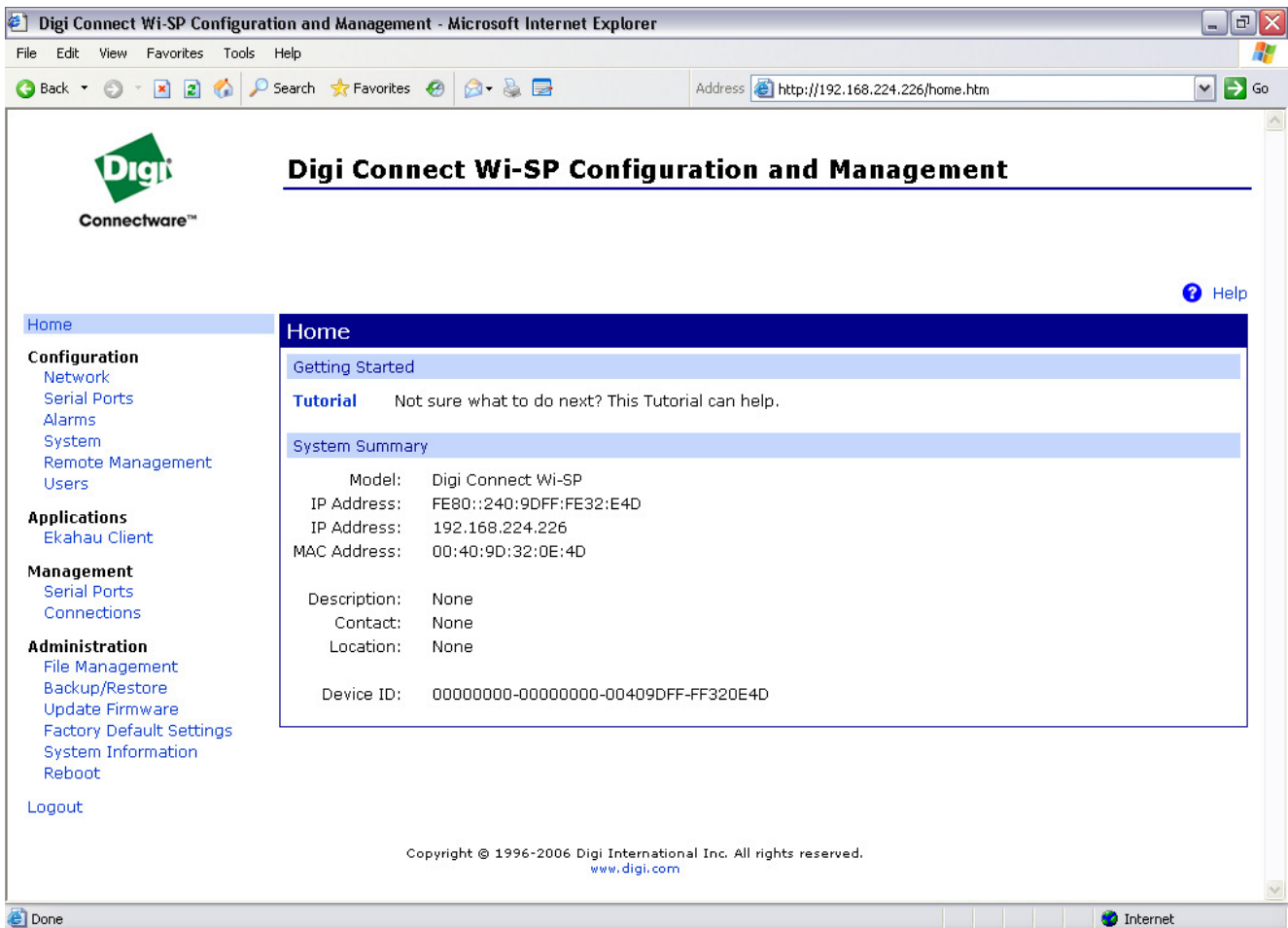
Click on the "Serial Ports" link under "Configuration" – this will display…
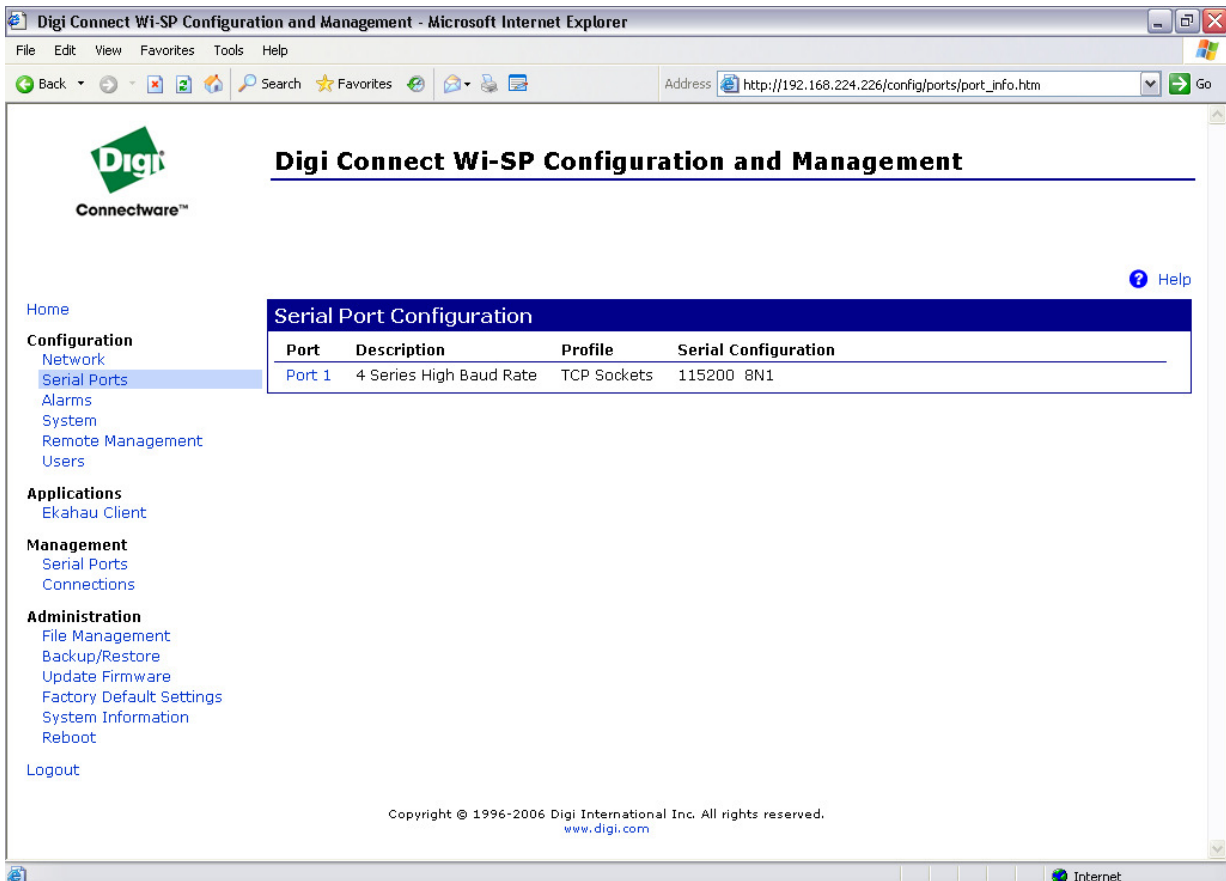
Click on the Port 1 link to open the configuration settings for this port. This will display…

Do NOT change any settings on this page! Scroll down the page and, at the bottom of it, you will see a link to "Basic Serial Settings". Click on this to get to the baud rate adjustment, as overleaf.
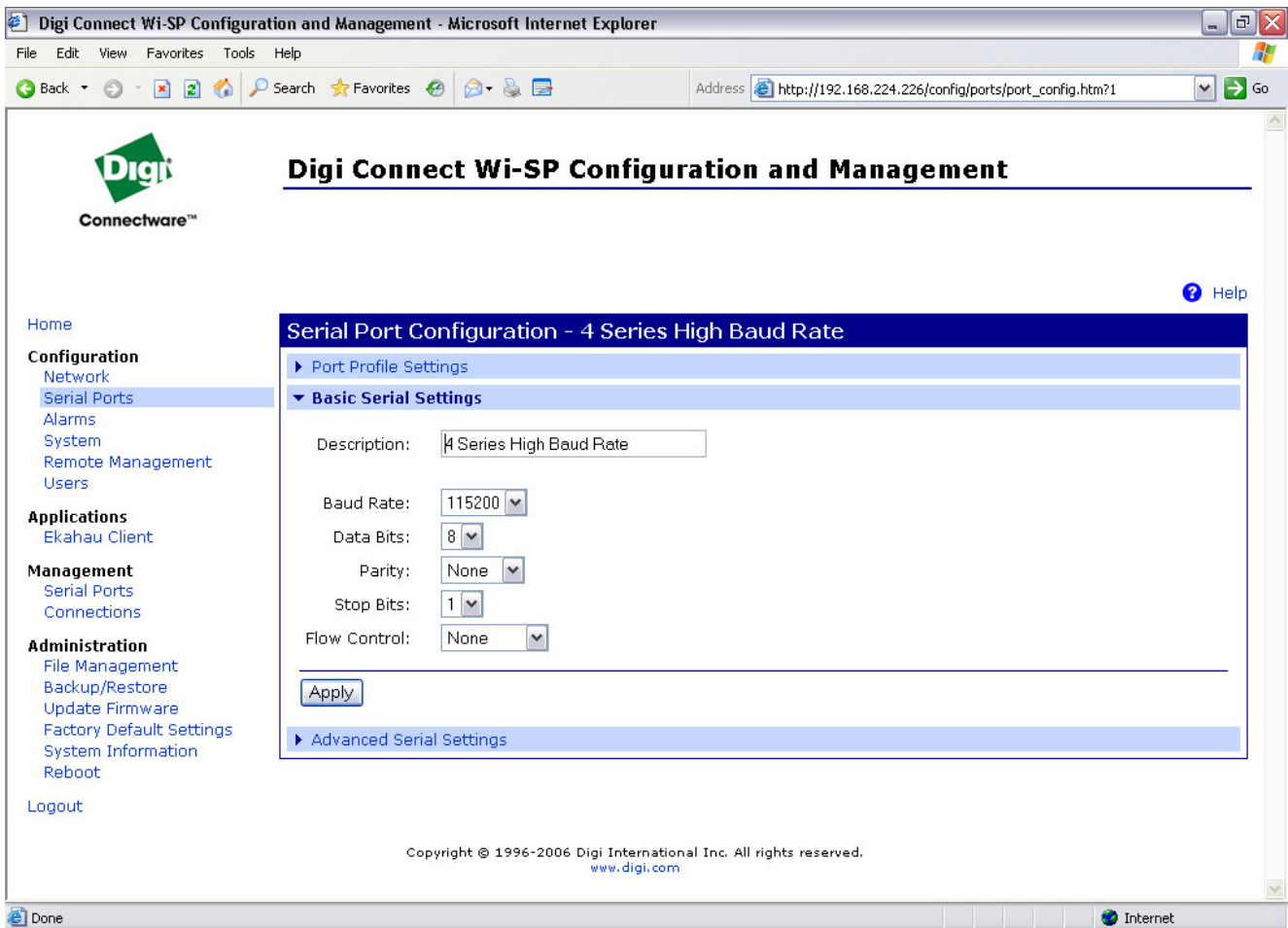
Change the baud rate in the drop down list to 115200 as shown and BE SURE TO PRESS APPLY!

Then logout and close your browser.

It is highly recommended that both the WiSP is restarted and your laptop. Disconnect the power from the WiSP for about 10 seconds then reconnect.

You should now be able to connect to an exclusive 4 series system at 115k baud.