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Setting Up a BT Business Hub as a WiFi Access Point

A History Lesson



A couple of years ago, I was fortunate enough to be given a couple of new BT Business hubs (BT 2700HGV). I took them reckoning to maybe use them as switches on my network, then stuck them somewhere safe and forgot about them as I was in the middle of a degree. I rediscovered them a year later and offered one to a mate who is pretty clued up on computer stuff. A year after that, I rediscovered the remaining one, and decided to look into how I might use it. The hub can be used wirelessly, and although I think wireless is inherently insecure, if a friend visited with their laptop and wanted to work where I couldn't connect them with an ethernet cable, I would need to provide a wifi link.

Finding Information

I don't use BT as my ISP, so it had to work within my network as an access point. So where to find out how to do it? Like any other person, I googled for info. There wasn't much out there which is why I am writing this in the hope that some other might find this useful.

There is one site out there with some sketchy info on how this might be achieved, but his/her setup is a bit different from mine. However, without the article at [thewatertower](#) my efforts would have taken a lot longer. Many thanks to him/her.

How I Got It To Work

In The Beginning...the hardware



This is what I did to get a secure-ish wifi connection to the internet through my network for an old PC running XP Home.

I bought and installed a PCI wireless 54 Mbps ethernet card in the old PC and installed the drivers.

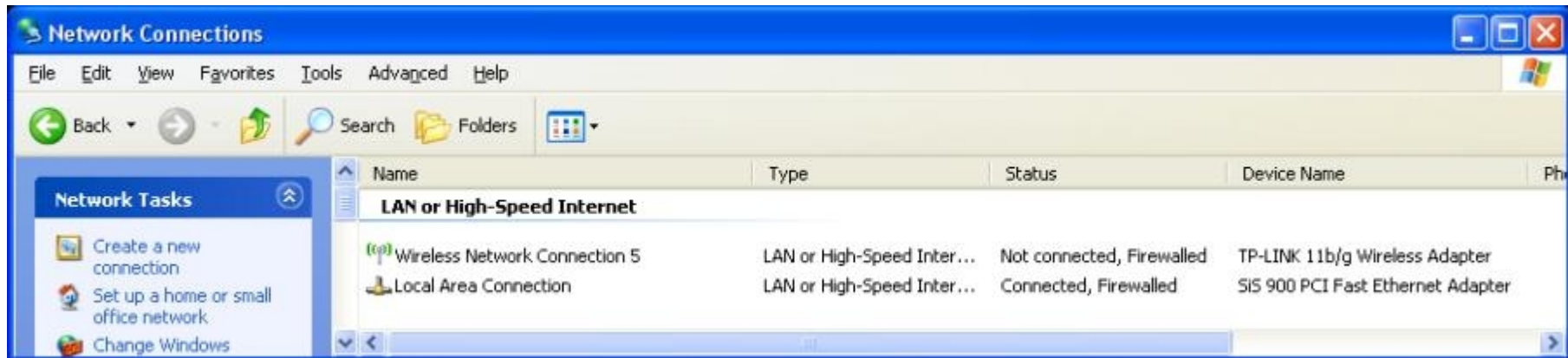
I powered up the BT hub and when the power light was steady I pressed the reset button at the back of the hub for 5 seconds to give it a reset to default values.

I gave the hub a minute or two just to settle down.

I connected an ethernet cable from the any one of the ethernet ports on the hub to the PC ethernet connection. The PC was not connected to any network at this point.

I went to the network connections (Start > Control Panel > Network connections) to see the current status of my connections.

The wireless was disconnected but the ethernet was OK.



If you look at the hub, the power and ethernet green lights should be on. The broadband will be flashing (annoyingly).



Into the Hub Interface...Setting Up a New DHCP Range and Hub Address

The default IP address of the hub is usually 192.168.1.254, but I checked by going to the command prompt and typing IPCONFIG /ALL.

```
C:\ Documents and Settings\Zoe>ipconfig /all

Windows IP Configuration

    Host Name . . . . . : bullet
    Primary Dns Suffix . . . . . :
    Mode Type . . . . . : Broadcast
    IP Routing Enabled. . . . . : No
    WINS Proxy Enabled. . . . . : No
    DNS Suffix Search List. . . . . : gateway.2wire.net

Ethernet adapter Local Area Connection:

    Connection-specific DNS Suffix . : gateway.2wire.net
    Description . . . . . : SiS 900 PCI Fast Ethernet Adapter
    Physical Address. . . . . : 0 -04
    Dhcp Enabled. . . . . : Yes
    Autoconfiguration Enabled . . . . : Yes
    IP Address. . . . . : 192.168.1.6
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.1.254
    DHCP Server . . . . . : 192.168.1.254
    DNS Servers . . . . . : 192.168.1.254
    Lease Obtained. . . . . : 11 July 2010 15:18:33
    Lease Expires . . . . . : 12 July 2010 15:18:33

Ethernet adapter Wireless Network Connection 5:

    Media State . . . . . : Media disconnected
    Description . . . . . : TP-LINK 11b/g Wireless Adapter
    Physical Address. . . . . : 0 -5A
```

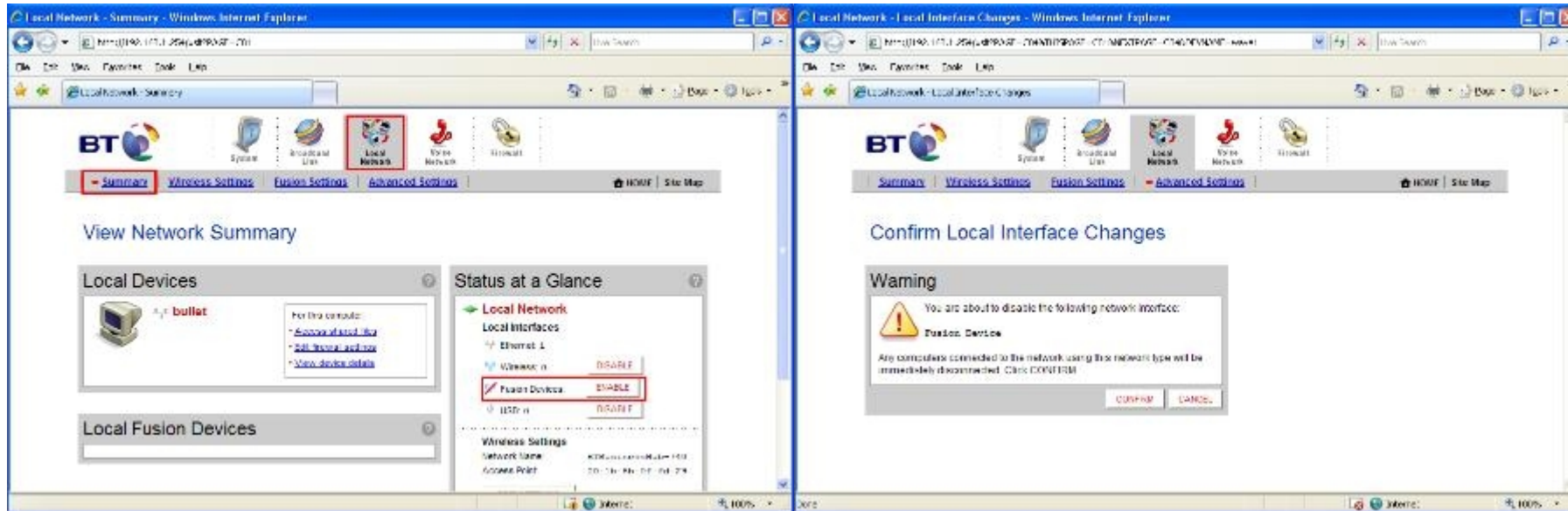
The address against the DHCP server was the address of the hub.

There are other ways of doing this but this worked for me.

The hub defaults to being a DHCP server for a network and if you have set up your PC to get its address automatically it will get its address from the hub. You do not in fact have to set up a new DHCP range, for later on you will be disabling the DHCP service from the hub, unless you want to use the hub as your DHCP server.

I then opened up a browser and typed in [HTTP://192.168.1.254](http://192.168.1.254) to get to the hub interface so that I could configure it to my needs.

I found the Fusion Devices confusing at first and also unnecessary so I switched it off by going to the Local Network tab and then to the Summary link (which was open by default). In the Status at a Glance section, I clicked on the button opposite the Fusion Devices to disable it.



I clicked the Local Network tab then the Advanced settings link on the web interface page.

I changed the settings to

Configure Manually

Router Address: 192.168.1.99

Enable DHCP

First Address: 192.168.1.1

Last Address: 192.168.1.90

[Summary](#)[Wireless Settings](#)[Fusion Settings](#)[- Advanced Settings](#)[HOME](#) | [Site Map](#)

Edit Advanced Local Network Settings

WARNING

⚠ Modifying the settings on this page can impact the ability of computers on the local network to access your broadband connection. Modifications may also affect broadband-enabled applications and services running on the local network.

Settings

Private Network

If you change the IP address range, you must renew the DHCP lease on all devices on the network.

- 192.168.1.0 / 255.255.255.0 (default)
- 172.16.0.0 / 255.255.0.0
- 10.0.0.0 / 255.255.0.0
- Configure manually

Router Address:

Subnet Mask:

Enable DHCP

First DHCP Address:

Last DHCP Address:

Current Settings

Private Network

Router Address: **192.168.1.99**

Subnet Mask: 255.255.255.0

DHCP Range: 192.168.1.1 - 192.168.1.90

Allocated: 1

Available: 89

Device List

bullet 192.168.1.6

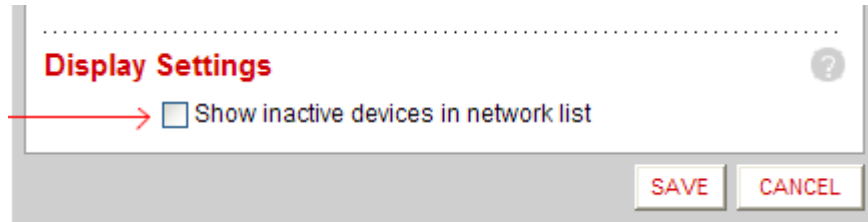
[EDIT ADDRESS ALLOCATION](#)

No, these are not my real settings but will work for you if you use them.

It doesn't matter what you stick in for range and router address but the router (hub) address must be outside your DHCP range.

At the bottom of the page is the Display Settings section.

I unchecked the 'Show inactive devices in network list' as I found it to be distracting later on.



I clicked SAVE at the bottom of the page.

First time around I forgot to do this and spent ages trying to see what I had done wrong.

I unplugged the ethernet cable then plugged it back in to be sure that the IP address the PC was getting was one that was inside the new DHCP range.

There are other ways you can do this, but this may be simplest. You can see the new computer address in the Device List if you reopen the Local Network > Advanced Settings.

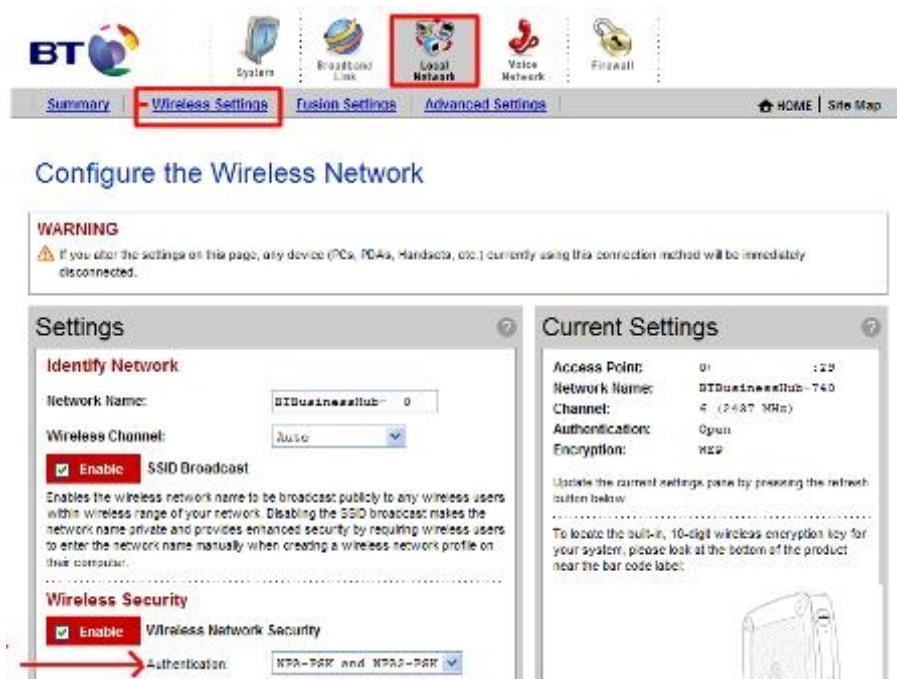
After doing this I had to close the browser window and reopen it with the new IP address; 192.168.1.99.

Setting up the Wireless Connection...Securing with WPA2

I then opened up the Wireless Settings link and went to the Wireless Security section.

I ticked the Enabled box then changed the authentication to WPA-PSK and WPA2-PSK.

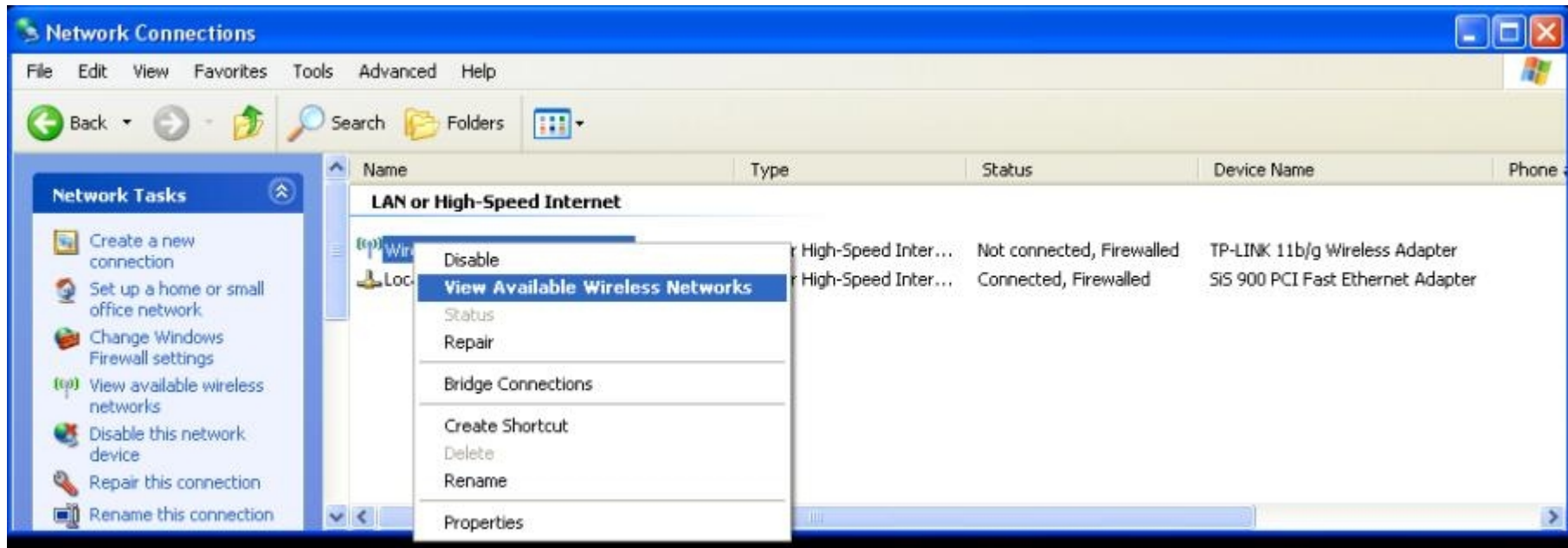
I selected the 'Use a custom pass phrase' option and typed in a pass phrase e.g. 'mycathasfur'.



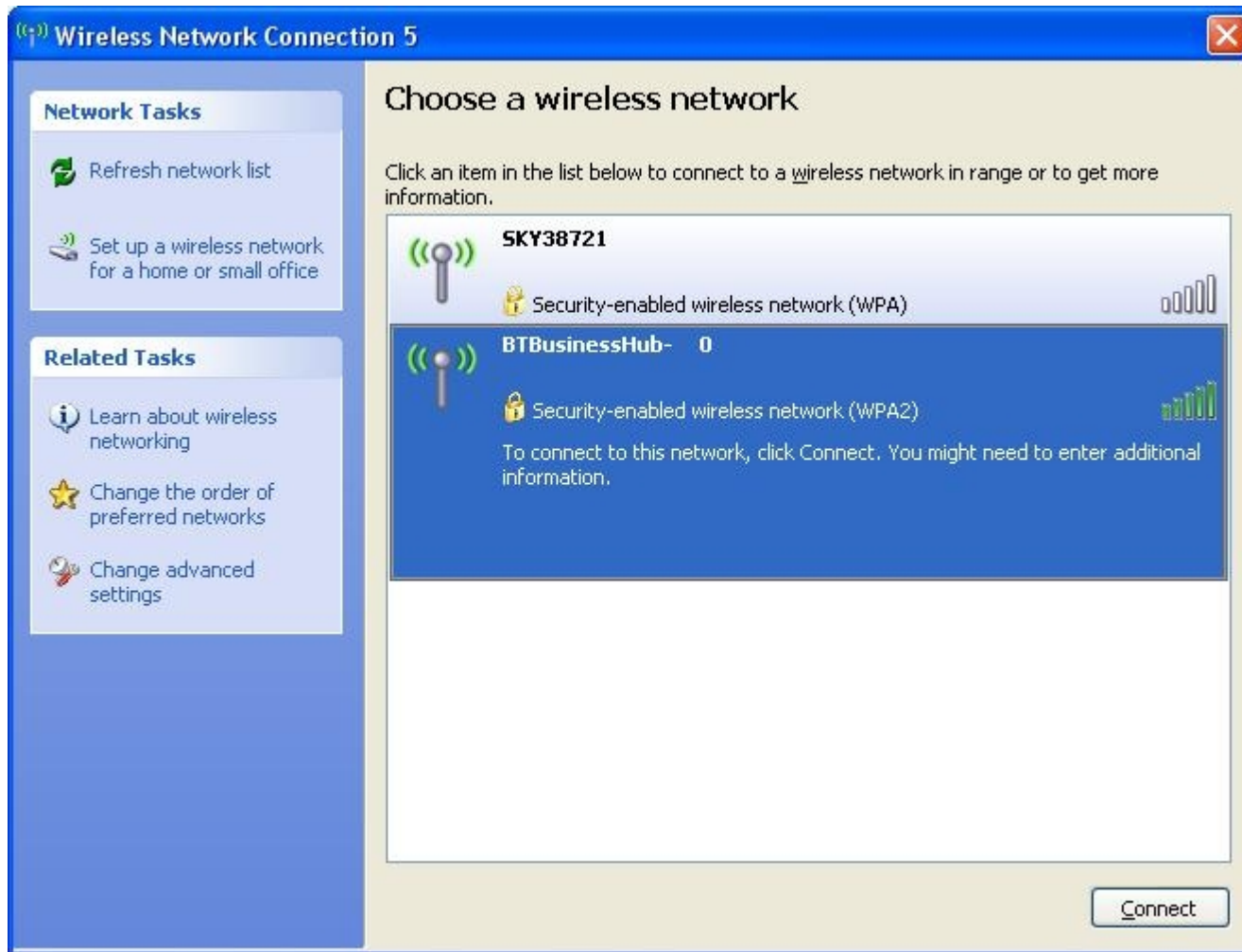
If you want secure, you have to go for WPA2. I have heard this can be partially cracked, but I reckon with a long complex password (63 random chars) this is effectively impossible even with state of the art heavy duty deciphering kit. If in doubt google 'WPA2' to see what the experts think. Password generator at [grc](http://grc.com) if you really want a good one! Save it to a USB pen and copy it in when you need it. I closed the browser.

Making the Wireless Connection

I went to Network Connections (Start > Control Panel > Network Connections and right clicked on the wireless icon. From the Drop down list I chose "View all wireless connections".



This brought up several possibilities including a SKY connection from a neighbour.



I then chose the BTBusinessHub-XXX connection and clicked the Connect button to connect. A pop-up asked for the encryption key (pass phrase). You have to input this twice.

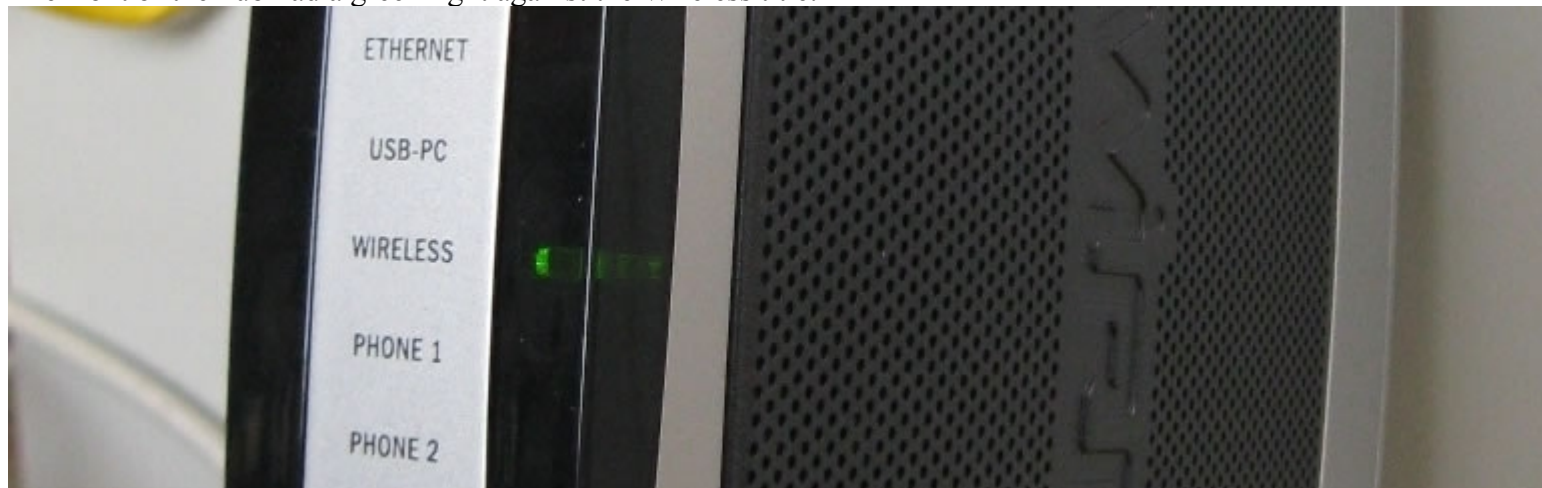


Click connect and that should be that.

In my case the little connection icon in the Notification area at the bottom right hand side had little green semi circles emanating from it. If I moused over it I got a pop up telling me the quality of the connection.



The front of the hub had a green light against the Wireless title.



Just to check the connection, I removed the ethernet cable, reopened the browser and typed in `HTTP://192.168.1.99` to connect to the interface again. The hub interface appeared once more which confirmed the wireless connection was working.

Setting up the Wireless Connection...Securing with MAC Filtering

I also wanted to use MAC filtering so that only computers I allow can connect wirelessly to the hub.

I went to the Edit MAC filtering section (in Local Network > Wireless Settings) then added the MAC address of the wireless network card and ticked the Enable box.

to enter the network name manually when creating a wireless network profile on their computer.

Wireless Security

Enable Wireless Network Security

Authentication:

Use default encryption key

Use custom pass phrase

Key:

MAC Filtering

Click on the button below to configure your MAC filtering settings

Additional Settings (defaults recommended)

Wireless Mode:

BT

Summary • **Wireless Settings** • Fusion Settings • Advanced Settings

HOME Site Map

Wireless MAC Filtering

Settings

Select Devices to be Allowed or Blocked

Select the devices (by listed name or MAC Address) that you want to block or allow onto your wireless network.

Note: Manually added devices will automatically appear in DLOCKED DEVICES if MAC filtering is enabled.

Click Here to Enable/Disable this Feature:

ENABLE

Tip: To discover new devices to be added, disable the MAC Filtering feature for one minute, then refresh this page. Once new devices are listed, re-enable the MAC Filtering feature and modify the list below.

ALLOWED DEVICES

no11et

BLOCKED DEVICES

--

DELETE DEVICE

Add New Mac Address to List Manually

Add MAC Address:

(Note: Use xx:xx:xx:xx:xx:xx format)

You can get this by opening a command prompt and typing ipconfig /all. The address is the wireless card NIC address in the list of stuff that appears. It is in the form xx-xx-xx-xx-xx-xx but should be entered as xx:xx:xx:xx:xx:xx.

```
C:\ Command Prompt
Ethernet adapter Wireless Network Connection 5:

    Connection-specific DNS Suffix  . : gateway.2wire.net
    Description . . . . . : TP-LINK 11b/g Wireless Adapter
    Physical Address. . . . . : 00-11-22-00-5A
    Dhcp Enabled. . . . . : Yes
    Autoconfiguration Enabled . . . . : Yes
    IP Address. . . . . : 192.168.1.1
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.1.99
    DHCP Server . . . . . : 192.168.1.99
    DNS Servers . . . . . : 192.168.1.99
    Lease Obtained. . . . . : 11 July 2010 16:25:52
    Lease Expires . . . . . : 12 July 2010 16:25:52
```

I entered it in the 'Add MAC Address' box and click 'Add To List'.

Wireless MAC Filtering

Settings

Select Devices to be Allowed or Blocked

Select the devices (by listed name or MAC Address) that you want to block or allow onto your wireless network.

Note : Manually added devices will automatically appear in BLOCKED DEVICES if MAC filtering is enabled.

Click Here to Enable/Disable this Feature :

ENABLE

Tip: To discover new devices to be added, disable the MAC Filtering feature for one minute, then refresh this page. Once new devices are listed, re-enable the MAC Filtering feature and modify the list below.

ALLOWED DEVICES		BLOCKED DEVICES								
<table border="1"><tr><td>bullet</td><td></td></tr><tr><td>0</td><td>:5A</td></tr></table>	bullet		0	:5A	<table border="1"><tr><td>>></td></tr><tr><td><<</td></tr></table> <table border="1"><tr><td>DELETE DEVICE</td></tr></table>	>>	<<	DELETE DEVICE	<table border="1"><tr><td></td></tr></table>	
bullet										
0	:5A									
>>										
<<										
DELETE DEVICE										

Add New Mac Address to List Manually

Add MAC Address:

(Note: Use xx:xx:xx:xx:xx:xx format)

I went back to the Wireless Security page and clicked SAVE (probably unnecessary).

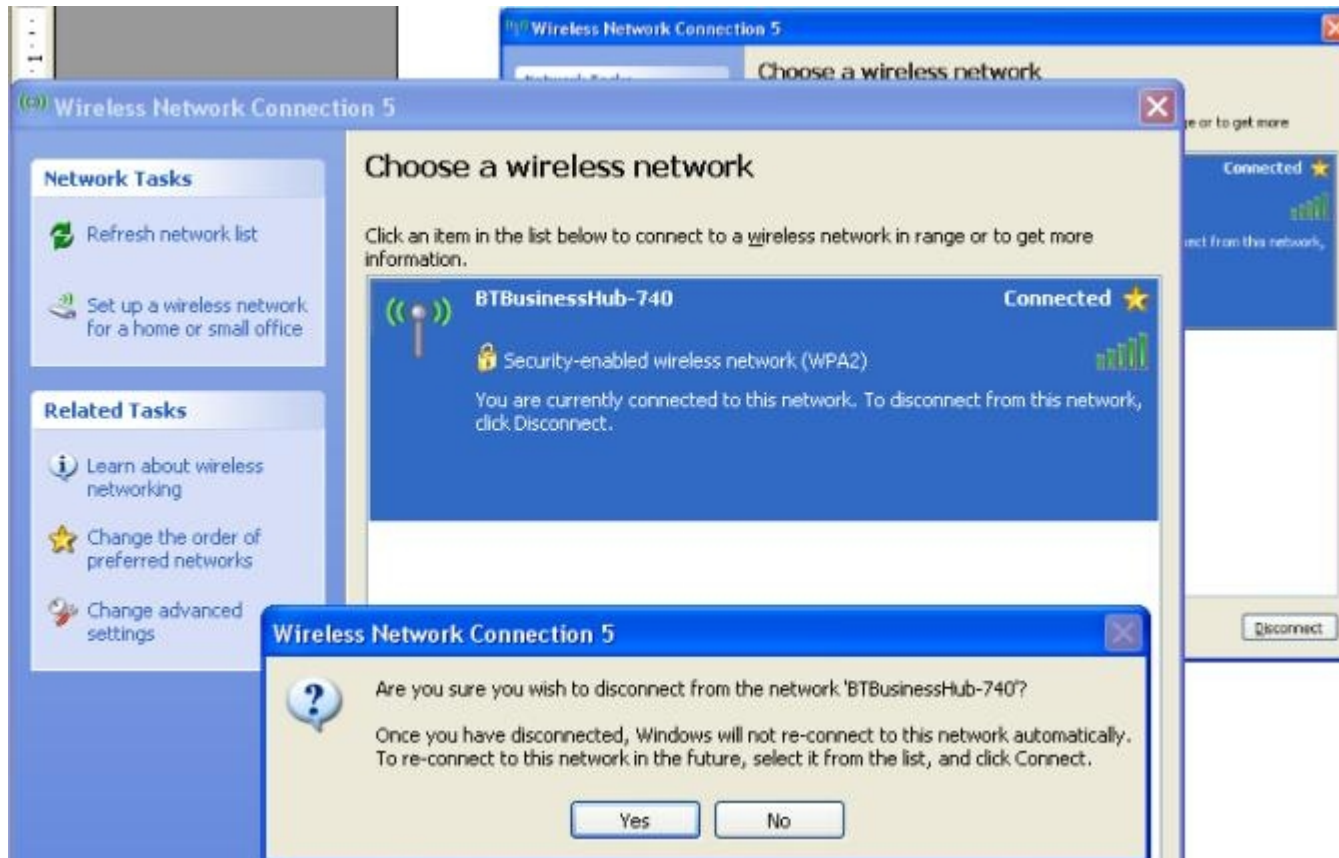
It may already be in the list as the connected computer name. In this case it's 'bullet'.

I removed the computer name in the allowed list after I had input the computer's MAC address.

I didn't need to do this but I wanted to check that I had understood the principle correctly.

At this point I closed the browser and returned to the Network settings in the PC, right clicking the wireless icon and choosing the 'View all wireless connections' option.

I selected the BTBusinessHub-XXX from the list and disconnected the link.



I then chose the BTBusinessHub-XXX connection (it should have 'security enabled wireless network (WPA2)) and clicked Connect. As before I had to enter the pass phrase.

This was just to check it was OK with the MAC address.

That done, I checked again for a connection by opening the browser then opening up the interface using the address <http://192.168.1.99>.

It worked.

Disabling the DHCP Service

Before I moved the hub, I had to return to the Local Network > Advanced settings and remove the DHCP server option since I already have a DHCP server on the network I was about to connect it to. That just involved unchecking the Enable DHCP server option.

Settings

Private Network ?

If you change the IP address range, you must renew the DHCP lease on all devices on the network.

192.168.1.0 / 255.255.255.0 (default)


172.16.0.0 / 255.255.0.0

10.0.0.0 / 255.255.0.0

Configure manually

Router Address:

Subnet Mask:

 Enable DHCP

First DHCP Address:

Last DHCP Address:

Default DHCP Pool

Current Settings

Private Network

Router Address: 192.168.1.99


Subnet Mask: 255.255.255.0

DHCP Range: 192.168.1.1 - 192.168.1.90

Allocated: 2

Available: 88

Device List

 bullet 192.168.1.1

[EDIT ADDRESS ALLOCATION](#)

Connecting the Hub to the Network

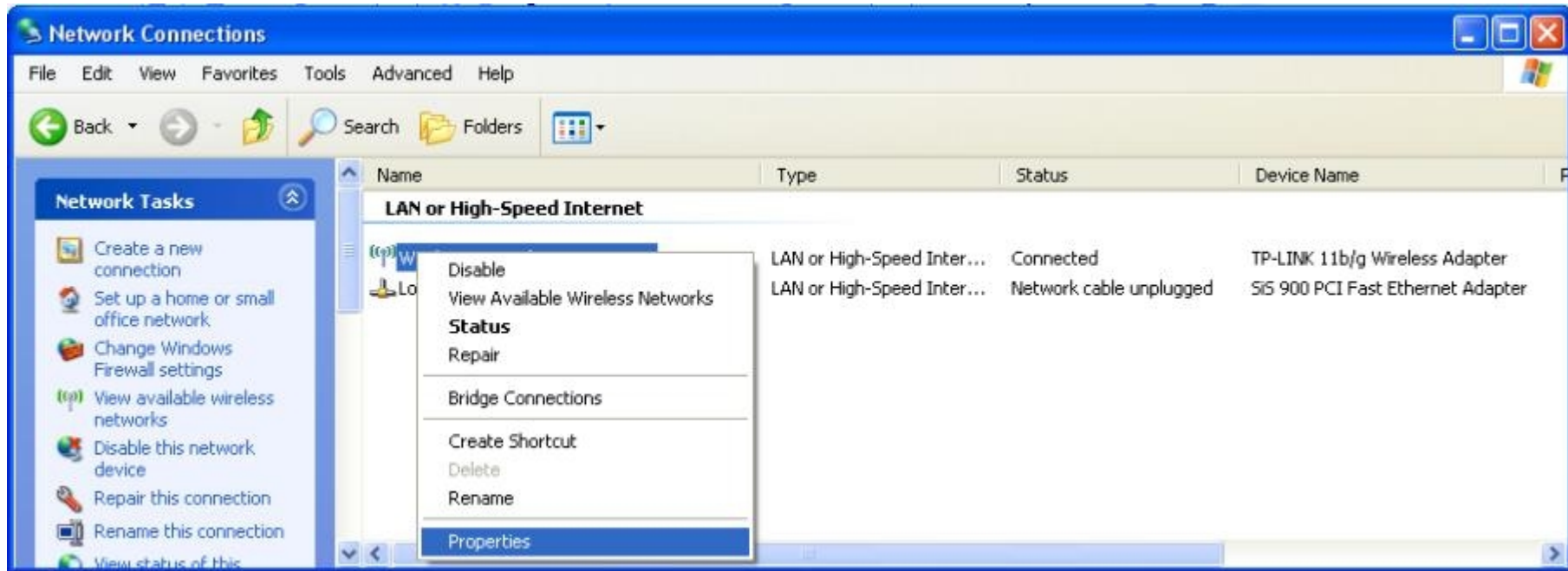
I wanted now to move the hub and connect to my main network and thus connect the old PC wirelessly to the Internet.

I will not go into detail, but first time this did not go well.

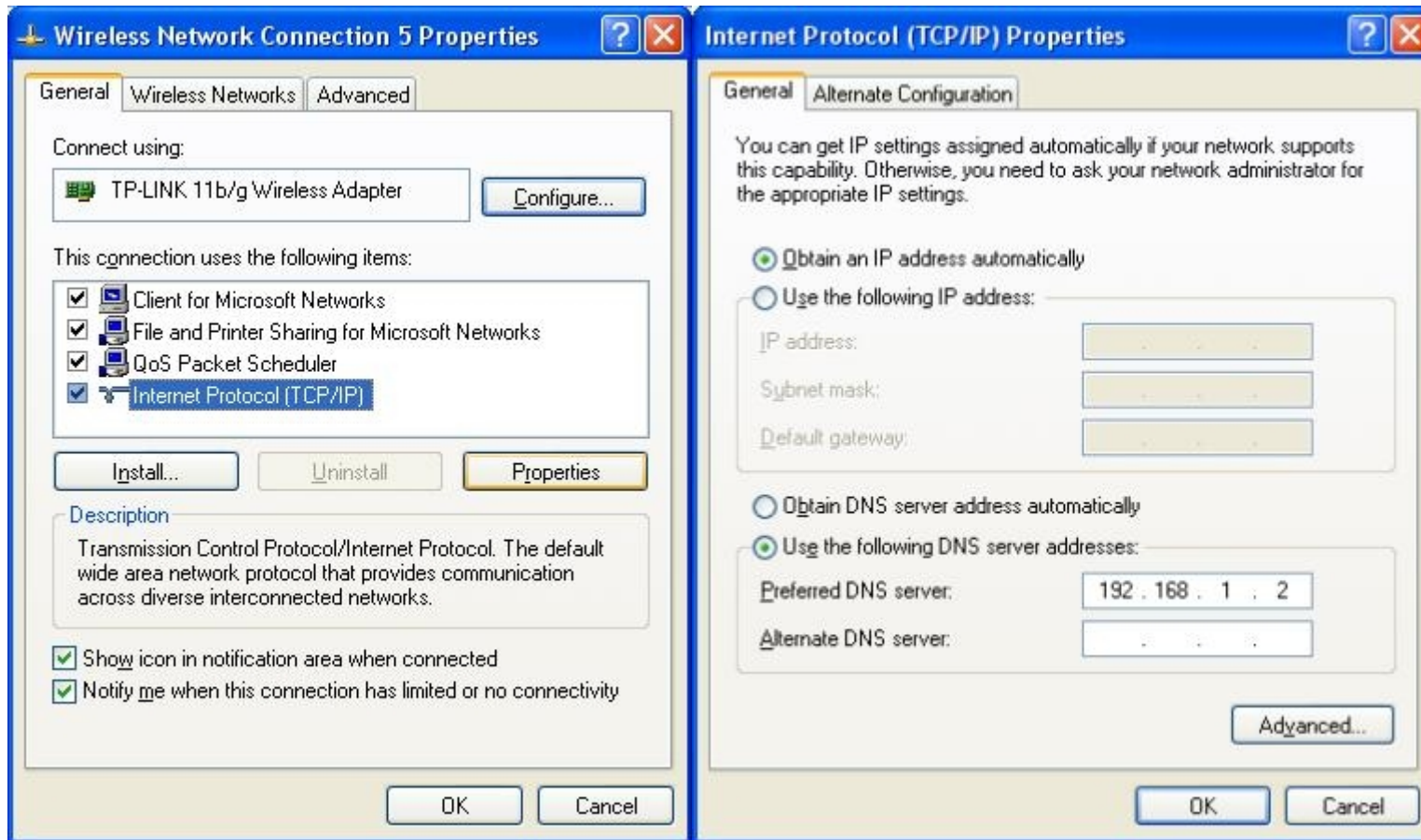
After much mucking about I found that I had to add additional configuration info to the old PC to get it to connect properly.

The reason for this was that I run a DNS server and a DHCP server on my network and the old PC wasn't seeing them properly.

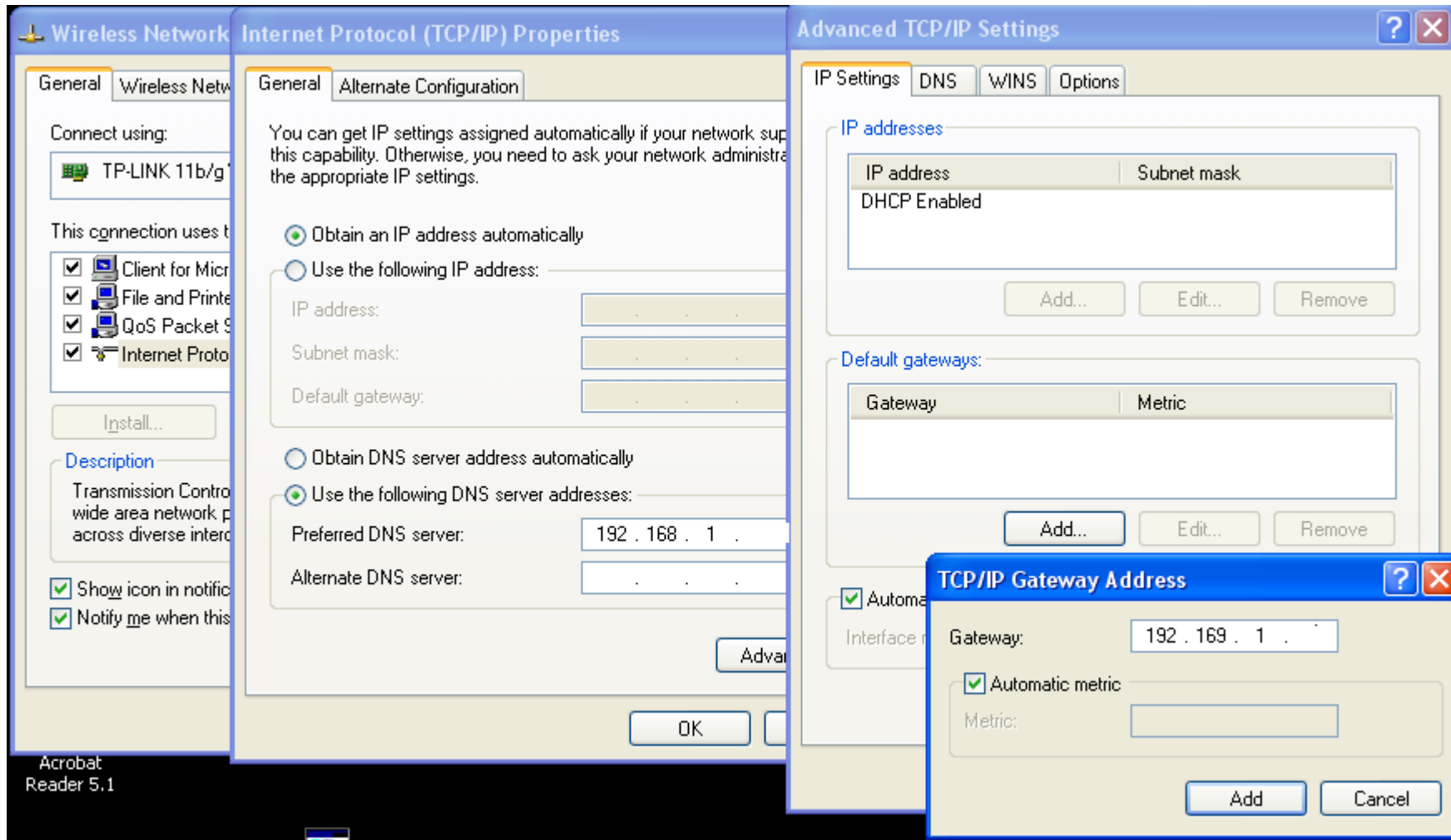
To configure these, I went back to the 'Network Connections' on the PC and right clicked the wireless connection selecting Properties from the drop down box.



On the Networking tab I chose Internet Protocol then Properties button.



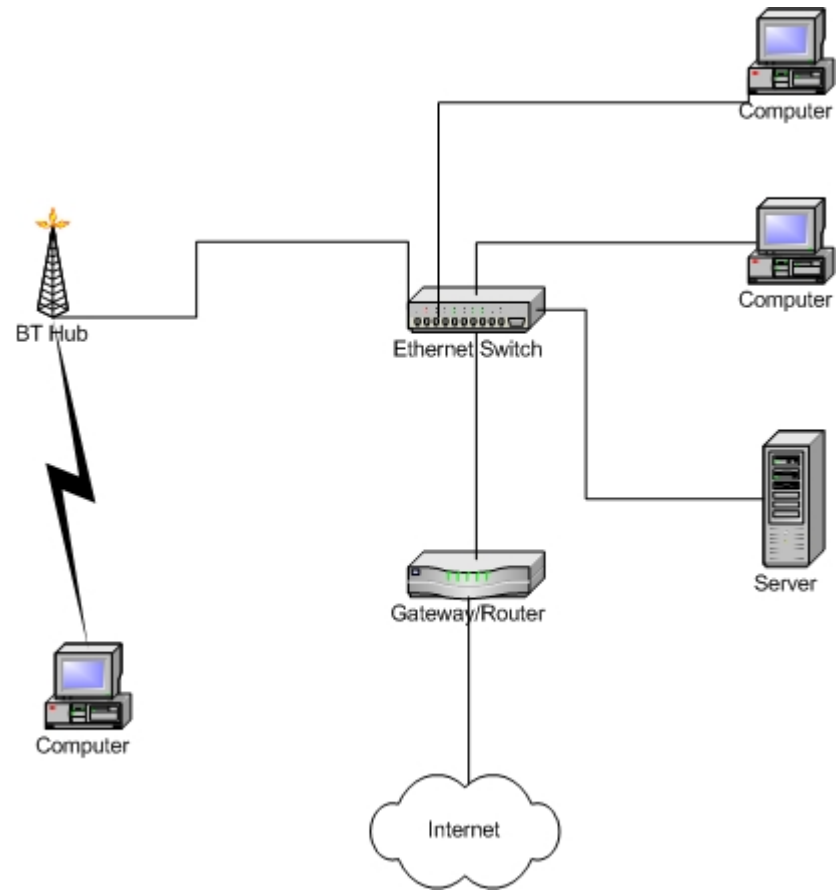
On the General tab I ticked 'Use the following DNS server' and entered the IP address 192.168.1.xxx of my network DNS server. I clicked the Advanced button and clicked the 'Add' button below the Default Gateway box. I added the IP address 192.168.1.xxx of my default gateway then clicked 'Add' the OK and OK again then Close and exited the Network Connections panel.



That cured the problem.

To check that this has worked, open a browser and insert an address in the address bar, e.g., www.google.com. This should connect you to the well known search engine's site.

My Network (greatly simplified)



Done and Dusted

And that is that for me. The PC reconnects every time I boot it up, so I don't have to stick in the pass phrase each time. This worked for me after a few experimental tries. The first time I gave up at 2.30am when nothing seemed to be going right. I got it, then messed around with it and it broke. What a friend calls the 'fiddle factor'. I haven't included all the fooling about I did to see what else would work. Not remembering to SAVE when you change settings can make life very puzzling.

If it all goes belly up, just hit the reset button on the back of the hub for 5 seconds and start again from scratch.

If you are really puzzled, mail me at buddha127@hotmail.com. I can't guarantee a solution, but I will try to assist if I can. Best make the subject BTHub or I may just bin it without reading. I get a lot of spam.

Bye the bye, if anyone can tell me what the button on the front of the hub with the key icon on it is for, I shall be grateful. It is not mentioned in any literature I have seen.

If I have missed out any steps then I apologise. Tell me about it and I shall fix this article.

Any useful comments and additions that may help others are welcome. I shall include them in this article.

I have connected it to XP (as above) and also a Windows7 laptop and it seems to work just fine.

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