

Broadband and Home Networking: Part 3. The World of Wireless Networking

Wireless networking has some great advantages for the home, as the name implies it doesn't involve training cables everywhere. More and more equipment for home use either comes with wireless connectivity already present, or can easily be upgraded to use it. It's easier to add new equipment as well, as you don't need to check you have a free connection for a wired installation.

But the downsides are that it is harder to set up and maintain, and that maintenance has to include security. So, if you can use wired Ethernet or HomePlug networking, don't get carried away with the wireless hype.

As technology has developed, a number of Wireless Networking Standards have been introduced, so, what do all the letters mean?

http://www.broadbandbuyer.co.uk/default_ShopGroup.asp?ShopGroupID=8

You have to make sure that your PC(s) and access hardware use the same standards, or they won't talk to each other. I'll talk mainly about Wireless G, as it's the fastest established technology. Some older home equipment may be Wireless B, but most G equipment is backward compatible with B. You'll see Wireless-N mentioned, but the standard is still in draft form, so equipment you buy now, may turn out not to work with equipment built to the finalised standard.

If you need to add wireless network connectivity to an existing PC or laptop, you can buy wireless network cards to install, or USB wireless network adaptors,

PCI cards are cheap for desktop PCs, but you do have to open up your PC to install one

<http://www.broadbandbuyer.co.uk/Shop/ShopSearch.asp?CategoryID=59>

If you don't want to open your PC, you can buy a USB adaptor:

<http://www.broadbandbuyer.co.uk/Shop/ShopSearch.asp?CategoryID=121>

These will also work just as well with laptops

PCMCIA (Cardbus) cards for your laptops fit in to a slot in the side:

<http://www.broadbandbuyer.co.uk/Shop/ShopSearch.asp?CategoryID=58>

Newer laptops have Express card slots, which aren't the same as Cardbus and aren't compatible. There aren't many Express card Wi-Fi adaptors available yet, but as most modern laptops have wireless networking built in,

that probably isn't a great problem. But it's worth knowing that there is a difference between Cardbus and Express.

<http://www.expresscard.org/web/site/qa.jsp#13>

One good thing to look for on a laptop is an Intel Centrino sticker, part of the Centrino brand promoted by Intel for laptops is that they all have Wi-Fi built in, as part of the standard.

Once you have your PC sorted out, you'll need something at the other end to connect to your broadband connection. Like wired networking, what you need to buy will very much depend on what you have already.

Now. Let's go and look at the modem connections. If it only has an USB connection, you will have to buy another one, but you can save money by buying a box which combines the functions of the modem with some of the others you'll need.

After reading some of the next paragraphs, you may come back to this one as the easiest way forward, as it does everything in one box, with minimum hassle.

<http://www.broadbandbuyer.co.uk/Shop/ShopSearch.asp?CategoryID=80>

If you have one Ethernet connection coming out of your modem you can buy a wireless access point, but you'll need to read the small print to ensure it also has a router built in (some do, some don't)

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If you have multiple Ethernet connections coming out of your modem, it almost certainly has a router built in already, so you need a wireless access point, but in this case, without a built in router (or one that can be disabled)

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Security

The big issue with wireless networking is security, as it's wireless and extends beyond the boundaries of your property, so if it's not secure other people can use it.

There are a number of different security concerns:

The main ones are that somebody can get in to your home network, with the following implications:

The first is neighbours can use your broadband connection. They'll get free connection, and will use your bandwidth. If your ISP finds out, they may even cut you off, if sharing a connection is not allowed under your contract.

If your broadband connection is used for illegal activities, you may be liable, at the least you may end up with an 'interesting' interview with the police.

If somebody can get in to your network, they could look at your confidential files, or steal your music, photos, or anything else interesting you have stored.

The one with the least implications I believe for the home user, is that even if somebody doesn't get in to your network, they can still listen in to the traffic, like any other wireless transmission. But, unless you work for GCHQ, and you notice a plain black van parked outside every night, it's probably not going to be a worry.

If you use a PC at home to link to work, and your employer uses a VPN (Virtual Private Network), it encrypts all the traffic, so can't be intercepted, however poorly your home network is set up.

I'm not going to cover how to set up wireless security in detail as it depends on your hardware.

But the key points are:

- Change the administration password on your network kit
- Use MAC address filtering to restrict the PCs which can connect
- Turn off SSID broadcasting (if somebody can't see your network, they may not try to get in to it)
- Turn on some sort of encryption WPA for preference, but WEP is better than nothing (This will depend on what your equipment supports)

There are plenty of guides on the web:

Here are a couple of examples:

<http://www.pcstats.com/articleview.cfm?articleID=1489>

http://www.practicallynetworked.com/support/wireless_secure.htm

The web sites for the suppliers of your equipment will have more specific guides.

In desperation, RTFM (**R**ead **T**he ***&%£** **M**anual) supplied with your network equipment.

Finally, it's always worth keeping at least one PC connected to the network by Ethernet cable if you can, as you can completely disable a wireless network by putting the wrong password in to the access point, which breaks the connection to all the wireless PCs, so you can't get back in to change it. If you don't have a cable connection to get to it, you'll have to press the reset

button on the back to take it back to the factory settings, then start setting it up again from scratch.