
Wireless Networking FAQ

Frequently asked questions about
wireless networks and equipment



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What is a Wireless Network?

Wireless networking is one of several ways to connect the computers in your school. It creates a network by sending radio-frequency signals between your computers to share information, transmit and receive data over the air, through walls, ceilings, and even cement structures, without wired cabling.

Is it safe for pupils and staff?

The output power of wireless LAN systems is very low, much less than that of a hand-held cellular phone. Since radio waves fade rapidly over distance, very little exposure to RF energy is provided to those in the area of a wireless network system. Wireless networks must meet stringent government and industry regulations for safety. No adverse health affects have ever been attributed to wireless networks.

What are the advantages of wireless networks?

- Convenience. Being able to easily have connectivity wherever we are is convenient - You can use wireless for email, Web browsing, Home Directory access (data areas on the local server) and printing to local network printers.
- Mobility - No longer be restricted by access to a phone line or network point.
- PCs can be connected to a network where there is no data network cable for example in mobile class rooms, gym halls or listed building which restricts the deployment of regular network cabling.

Are there any disadvantages or limitations?

- Slow bandwidth causes problems with multimedia transmission - You should not use wireless for streaming audio/video, very large downloads or viewing extremely graphic-intensive Web sites.
- Limited number of connected PC's - Wireless access may be up to 11 megabits per second. This bandwidth, however, is shared among all users connected via wireless in a given area. This means that network speeds may be noticeably slower when many people are using wireless, and generally will not be as fast as wired Ethernet.
- Limited range of coverage

Do wireless networks save money?

Not necessarily – Depending on your building structure and business need wireless equipment can cost as much or more than standard CAT5 wire cabling.

Can I use wireless with my existing cabled network?

YES – Wireless networks should be seen as an addition or extension to your CAT5 cabled network and not a replacement. Typically your wireless access point (AP) that broadcasts the signal to which the wireless card in your computer talks to would need to be attached to a cabled network point. For permanent network connections, a wired network is always the faster and better solution.

Will I have to replace the computers and networking I already have?

ICT Service approved Wireless solutions are based on industry-approved open standards. What this means is that you can depend on compatibility with your current systems. Wireless networks can also be easily configured to work in perfect harmony with your existing wired networks. They offer a viable way to protect and extend the life of your technology investments.

What is a wireless access point (WAP)?

A wireless access point (AP) acts as a bridge between wireless stations and a wired network to allow communication between hosts on a wired and wireless network. Multiple WAPs also allow geographically disperse wireless networks to communicate via a wired backbone. WAPs support simultaneous communication between multiple wireless stations, i.e. more than one PC/laptop can talk to the WAP at a time.

What do I need to know about technical standards?

There are three wireless communication standards for use in wireless local area networks (WLANs) as defined by IEEE (Institute of Electrical and Electronic Engineers). These are IEEE 802.11a, 802.11b and 802.11g.

802.11b & g are the ICT Service recommended standards

There are three standards at the present time. They are referred to as A, B, and G

Wireless Standard	802.11B	802.11A	802.11G
Popularity	Widely adopted and available everywhere	New Technology	New Technology with rapid growth expected
Speed	Up to 11 Mbs	Up to 54 Mbs	Up to 54 Mbs
Relative Cost	Inexpensive	Relatively more Expensive	Relatively inexpensive
Frequency	More Crowded 2.4Ghz Band	Uncrowded 5Ghz band can co-exist with 2.4 Ghz Networks	More Crowded 2.4Ghz Band
Range	Typically up to 100 – 105 feet indoors	Shorter Range. Typically 25 – 75 feet	Typically up to 100 – 105 feet indoors
Public Access	The number of public “Hotspots” is growing rapidly	None at this time	Compatible with current B hotspots at 11Mbs.
Compatibility	Widest adoption	Incompatible with B or G	Interoperates with B at 11Mbs Incompatible with A .

What is WiFi?

WiFi is another name for the IEEE 802.11b wireless local area networking (WLAN) standard.

How secure are wireless networks?

Wireless networks can be as secure as a conventional networking as long as the right quality & specification equipment is used and it is set up and configured correctly. School data is of utmost importance and has to be secure at all times. Unfortunately a number of products on the market are inherently insecure. WEP (Wired Equivalent Privacy) is an easily cracked encryption scheme. Add this to the fact that a user's information is being broadcast (to the Access Point) and it is easy for hackers to view and decrypt this information. ICT Service approved Wireless technologies meet industry security standards to safeguard your school

Can I use wireless with my existing computers?

Yes, if a PCMCIA wireless card for laptops or a PCI wireless card for desktop computers can be fitted, your computer can be used with a wireless network.

Does a wireless card use a lot of power?

Yes - A laptop's batteries will deplete much faster while using wireless.

Where can I get more information?

ELH ICT Service, e-mail: ict.support@Cambridgeshire.gov.uk or visit <http://www.icttid.ccceducation.net> > [Wireless Networking Documents](#)

Additional information:

3COM [Case studies](http://www.3com.co.uk/solutions/education/): <http://www.3com.co.uk/solutions/education/>