

Home Wi-Fi / range and security tips

This issue covers two topics that relate to Wi-Fi. The first is keeping your wireless network secure and the second is extending its range.

Keeping home Wi-Fi secure

Let's say the recent computer attacks that resulted in disruption to NHS computers made you more careful online. Let's also consider your home set up includes a broadband connection and a Wi-Fi router (like a BT home hub). Finally, let's imagine you have a number of connected devices, including PCs, a TV streaming box and tablet computers.

Even if you keep your PC up to date and never open unexpected attachments, there is still a significant risk. What if other devices on your network are vulnerable? What if your child's tablet computer is not running the latest patched software? How about your TV streaming box, surely that's nothing to worry about? And what about those guests you give your Wi-Fi password to?

In this scenario, it only takes one device to become compromised for all the others to be at risk. So, yes, the old TV streaming box is a risk, just like the visitor's computer. If any of them get infected with ransomware it could very easily spread to your own laptop and encrypt all your files. If that happens, you would need a non-connected backup or money to pay the ransom (assuming you wanted all your files back).

Network segmentation

The solution to the above problem is not just safer browsing habits. It's not just keeping your PC up to date. It's both of those things, but it's also putting 'risky' devices on their own part of the network. This network segmentation prevents the potentially vulnerable devices from infecting the important computers.

The most straightforward way to achieve segmentation is by using 'Guest Wi-Fi'. This feature makes a separate wireless hotspot for less important and visiting devices. For instance, your main wireless may be named 'myhome' whereas your guest wireless could be named 'myhomeguest'. The two networks would have separate passwords. Both would be provided with internet, but the devices on the guest network would not be able to access (or infect) your important devices on the 'myhome' network.

The problem with guest networks is that it's a feature not generally offered by the popular BT Home Hub or Smart Hub devices. If you are fortunate enough to have a Wi-Fi router that does have guest network support, then it's a simple matter to turn it on. Alternatively, you will need to buy a Wi-Fi access point like the

TP-LINK TL-WA901ND (approximately £40 on Amazon). Once connected to your original router (e.g. BT Smart Hub) you would disable the wireless on your original router and just configure the Wi-Fi on the new access point. Another type of device that could be added is a Mesh Wi-Fi System. This would also provide guest access and other benefits described below.

Extending Wi-Fi coverage

Many homes can suffer from dead spots where the wireless doesn't reach. There are several solutions to this problem ranging in cost and convenience:

- **Range extenders (often inexpensive but can be slow)**

These are usually plug socket devices with a couple of antennas. The NETGEAR Mini N300 is only £15 and will take existing Wi-Fi and boost the range. There is overhead in their use which can result in network slowdown. If you're only using the extended internet for email and browsing, it's a fine solution. Streaming video over a range extender is more hit and miss. Faster range extenders and ones with guest access are available at higher prices.

- **Replace your existing router (could be free if you are with BT)**

If you have an old router (like a BT Home Hub 3) you may be able to get a modern BT Smart Hub device at little or no cost. These newer models do tend to have faster and stronger wireless. As mentioned above though, the BT devices do not offer 'Guest Wi-Fi'.

- **Powerline adaptors (moderately priced)**

These devices plug into the mains 240V wiring and use that same wiring to transmit data. At least two devices are required. One is placed next to your router (and connected to it by a cable). The second (or further) devices are plugged into other three pin sockets elsewhere in the house. The Wi-Fi enabled versions will generate a wireless hotspot from their new location, thus extending the Wi-Fi. A very good and affordable kit is the devolo dLAN 500 Wi-Fi Powerline Network Kit Twin Pack at £45. It consists of one base unit and one Wi-Fi extender (supporting guest access). More units can be bought if needed. Again, faster adaptors are available for higher cost.

- **Mesh Wi-Fi Systems (most expensive)**

These are the newest solution to the problem. Such systems are presented as two or more similar plug-in units. An example is the 'BT Whole Home Wi-Fi' or the 'Google Wi-Fi'. One unit replaces (or supplements) your original router and

replaces the Wi-Fi hotspot at that location. Each further device is added around the house where the signal is weak. The devices are all interlinked to each other and provide a strong area of wireless coverage in the home. One big advantage of these systems is they all broadcast on the same network name and password. They are also easy to set up. Most of them also support guest Wi-Fi, meaning a Mesh System could be used as a solution to both the security problem of home Wi-Fi and the need for range extension. It is difficult to recommend one particular mesh system as new devices are being released (and updated) all the time. The Ubiquiti Amplifi (£369 for 3 units) and the Netgear Orbi AC3000 (£530 for 3 units) are generally considered the best. The £400 (for 3) Google Wi-Fi Mesh System is not the fastest, but is easy to configure. Finally, the BT Whole Home Wi-Fi is £300 for 3 units, but its lack of guest Wi-Fi is a serious shortcoming.

TAKE HOME EDITOR

- Guest Wi-Fi is a very good way to boost home network security, but additional hardware may be required.
- Many solutions for extending Wi-Fi exist. Powerline Wi-Fi extenders represent the best value for money whereas Wi-Fi Mesh Systems are the most straightforward to install but also the most expensive.

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