



## **Tips for living with low-speed Broadband Internet**

The Bledlow-cum-Saunderton Parish Council Broadband Working Group is looking at a range of initiatives in an attempt to improve the broadband in the parish or provide alternative approaches wherever possible.

For those who can't immediately benefit from any of these schemes, or for people who choose to remain on their existing lower-speed broadband, the tips below may help you to get the best out of your current limited connection.

Note that the degree of improvement you might see from the adjustments described here will vary based on your specific circumstances.

This is naturally a technical subject so not everyone will feel comfortable to consider the changes suggested below, but you might be able to find a willing friend or relative to help.

*Please note that the hints and tips contained in this document have been provided by volunteers within the parish as an offer of help to their fellow residents. If you decide to take any action based on this document then you do so at your own risk and Bledlow-cum-Saunderton Parish Council cannot be held responsible for any unintended consequences.*

*Please do not make any changes that you do not fully understand.*

### **Taking control of your devices**

Modern electronic devices such as computers, tablets, phones, and games consoles can make excessive use of your limited internet connection without you being aware.

Many devices will attempt to download updates to applications, operating systems, game content and even movies in the background. It is obviously very important to keep your devices up-to-date and secure but it is useful to be in full control of when software updates are downloaded rather than these unexpectedly interrupting any video viewing, remote working, or Facetime calls.

If you feel that the speed you achieve varies throughout the day it is more likely that other devices in your house are downloading data without you being aware. If you think the speed gets worse in the evening, consider if it might be the phone or mobile device of someone



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coming home from work or school, connecting to the internet and updating all its applications.

Rather than automatically downloading updates in the background, each of your devices and computers can be configured only to notify you when updates are available so that you can then choose to download and install these at a convenient moment when you don't need your internet speed for other reasons. Perhaps consider updating mobile devices when you are able to connect to faster WiFi outside your home, for example at your place of work or another trusted network.

The configuration setting controlling this behaviour is slightly different on each type of device.

- ❖ On a modern *Apple Mac*, in the System Preferences, AppStore menu 'untick' the "Download newly available updates in the background" setting so that it will simply notify you when new updates are available.
- ❖ On a modern *iPhone* or *iPad* in "iTunes and App Store" unselect "Updates" in "Automatic Downloads"
- ❖ On *Windows 8* you can set your network connection to "metered" by right-clicking on a WiFi connection and selecting "metered".
- ❖ On *Windows 10* you can set your connection to "metered" in Start-Menu, Network & Internet, Wifi, Advanced Options.

After each of these changes your devices will just notify of any important updates rather than download them automatically. Please do remember to install these updates when you can as they often contain fixes for bugs and system security updates to protect you online.

For other devices you would be best to consult the help system, or search online for this topic.

## Know your limits

Speed test websites are useful in evaluating the performance of your broadband but they only show what the specific device running the test can achieve at that particular time and don't take into account other issues within your house.

The most useful piece of information to know about your connection is the "*Line Connection Rate or Speed*". This tells you the maximum speed that you can get from your broadband at any particular time.

Your modem/router (e.g. BT HomeHub) should have a webpage displaying this measure although the exact name used may vary. You should find details of how to connect to your



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modem's webpage on its underside or rear which will include a web address (e.g. <http://bthomehub.home>) and some login details.

For BT Home Hub units, you can see your Connection Speed in the *Troubleshooting->Helpdesk* page listed as "Data Rate".

If you check your connection speed and find the results from speed tests websites are significantly less than this figure, or find your speed varying, it's worth looking for unexpected usage within your house.

Likewise, if you do suspect problems with your connection it's useful to keep a track of this number and see how it varies throughout a week. If it's regularly less than expected or varying significantly then you will want to report this to your service provider and it would be useful to keep a detailed record of your connection speeds to present to any engineer who might investigate your issues.

If you have a BT line, you can check here (<http://www.dslchecker.bt.com/>) to see detail on what speed you might expect.

Generally, when using online speed test sites you may find the results vary as they test in slightly different ways. It's therefore worth comparing results from different sites such as [Speedtest.net](http://Speedtest.net), [speedof.me](http://speedof.me) and [fast.com](http://fast.com) or indeed the Parish Council's own broadband speed checker here <http://www.bledlow-cum-saundertonparishcouncil.org.uk/broadband/>

## Don't interrupt your connection

The length and quality of wiring to each house in the country is slightly different so your Internet Service Provider's equipment learns the quality of your line over time and adjusts your speed to minimise problems.

The longer you can leave your modem/router connected without interruptions, the more likely your connection speed may improve slightly over time.

If your modem/router is switched off or disconnected too often, this will be interpreted as line faults and your speed will be reduced.

*Advanced Tip:* If you do find you need to disconnect your modem/router a few times in a single day you are better to turn off the power or shut the device down from its web menu. In these cases, your modem will be able to send a 'dying breath' message to tell your service provider that it wasn't caused by a line error whereas if you just pull out the phone line it can look like a fault.

*Advanced Tip:* If you leave your device disconnected for more than 30 minutes then this normally won't count towards daily error counts (as a power cut is assumed) so it's better to



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do this wherever possible rather than immediately replugging your connection, especially if you are disconnecting and reconnecting many times in a single day.

*Advanced Tip:* In rare circumstances this automatic training doesn't work as expected and it results in your line speed being set too fast giving an unstable connection. On these occasions your Internet Service Provider may be able to slightly reduce your speed in return for better stability. The [Fine Tuning](#) section below describes how you could potentially adjust this yourself but most people will need their ISP to manage this for them.

### It's good to share?

If you only have limited broadband capacity it's likely that you will want to keep it to yourself and not share it with strangers.

Firstly, it's important to have your WiFi protected by a password otherwise people passing your house may be able to make use of your broadband connection and reduce your available speed.

This is equally important if you are using WiFi range extenders to cover remote areas of your house as these are often left unsecured even if your main WiFi is password protected.

BT offer a service called *BT WiFi* which allows customers to connect to other WiFi hotspots whilst away from home. This is achieved by allowing a proportion of your own WiFi to be shared with people who may be passing, even if your main WiFi is password protected. On low-speed ADSL lines, this only reserves around 0.5Mbps for public use but if you are a BT customer you may want to consider opting-out of this service, which you can do via the BT website, to keep all your bandwidth for yourself.

### Telephone wiring within your house

The internal phone wiring within many houses pre-date the invention of broadband and the quality of this wiring can adversely affect your speed.

You aren't allowed to modify the wiring leading up to your Master Socket but if you have extensions connected via the customer-accessible parts of this socket then you can make adjustments to these and to many of the other items described below.

The ideal connection scenario is that the phone line comes into your house to your Master Socket and your Modem/Router is connected immediately and as closely as possible to that socket with any phone extension wiring connected downstream of this. This will be discussed in more detail below.



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### Microfilters and Filtered Face Plates

All phones and modems need to effectively connect via 'micro-filters' to split your phone signal from the broadband data, however there are a few ways these can be arranged.

Many installations still use standalone microfilters which look like this and need to be connected to each and every phone socket:



If you are using these, it's worth remembering that they may not all be of equal quality and you may want to experiment with swapping these, especially the one connected to your modem/router.

Very new Master Sockets includes what is called a 'filtered faceplate' which effectively has an inbuilt microfilter and two sockets on the front - one for phones and one for your broadband. This delivers much better performance and an example is shown here:





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If you are having issues with your broadband and an engineer visits your house to try and improve the quality, it is worth asking if the master socket faceplate can be replaced with one of these new filtered faceplate versions. They can do this in a matter of minutes and usually at no cost.

### *iPlate or Broadband Accelerator*

For a short time a few years ago BT provided a device called a Broadband Accelerator or 'iPlate' which fitted within your master socket to improve your broadband speed. This worked well but has been superseded by fully filtered faceplates as pictured above and so isn't something that is worth considering now.

An example *iPlate* is shown here:



### *User-fitted Filtered Faceplates*

A filtered faceplate is by far the best arrangement giving the best speeds.

If you don't have one of these fitted by your service provider but you have a modern Master Socket where the faceplate is split across the middle horizontally you are allowed to remove the lower front section and can purchase and plug in a filtered faceplate to replace this.

Sockets that you can fit such a faceplate to look like this:



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And the new faceplate looks like this:



### *Summary*

There is a useful summary on the BT website describing the various sockets that you might have in your house

[http://bt.custhelp.com/app/answers/detail/a\\_id/40812/~/what-type-of-master-socket-have-i-got%3F](http://bt.custhelp.com/app/answers/detail/a_id/40812/~/what-type-of-master-socket-have-i-got%3F)



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### Good and Bad Wiring Scenarios

Telephone extension wiring in your house can adversely affect your broadband speed, even if sockets aren't currently being used.

It's possible to minimise the impact of this by adjusting how these are connected, such as ensuring that all extension wiring is connected after the microfilter or filtered faceplate that your modem is connected to. Many people avoid this issue altogether by using cordless phones which are good but some can occasionally interfere with the (2.4GHz) WiFi signal when in use.

Here's a list of some possible connection arrangements:

**BEST:** Modem/Router and cordless telephone plugged directly into master socket with a 'filtered faceplate'.

**BEST:** Modem/Router plugged directly into master socket with a 'filtered faceplate' and any telephone extension wiring plugged into the telephone socket of this.

**GOOD:** Modem/Router plugged into master socket using a filtered faceplate but with a long phone extension cable between Modem/Router and the master socket. *On these occasions it is better to extend the power to your router than extend the phone cable to your master socket.*

**GOOD:** Modem/Router plugged into master socket using microfilters and a Broadband Accelerator (iPlate).

**AVERAGE:** Modem/Router plugged into master socket using microfilters and no Broadband Accelerator (iPlate) or filtered faceplate.

**BAD:** Many phone extensions around the house with a microfilter used at each of them to connect a phone handset.

**BAD:** Modem/Router plugged into extension socket (rather than Master) using a microfilter.

**BAD:** Old unused phone extensions around the house of unknown quality.

**BAD:** A filtered faceplate in use, but with old phone extension wiring still connected upstream of this (appearing from the rear of your master socket).

### Wireless woes

If your internet performance appears to vary at random it's worth ruling out problems with network connections within your house.





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If you find your connection going 'dead' on occasions it's useful to see if you can connect to the status page of your modem/router during these moments. This isn't reliant on your broadband connection so is a good indication of whether the problem is inside your house or elsewhere.

Powerline Extenders can sometimes be responsible for occasional 'dropouts' in your network connection so, as above, if you seem to lose internet access sometimes while using these it's worth checking you can still make connections within your house.

It's relatively common to get interference from microwave ovens which operate on similar frequencies to WiFi, and some Bluetooth devices can also interfere with WiFi connections so you may want to narrow down any interference by methodically eliminating potential devices that could be causing this.

## A 2nd Line

One improvement that often gets overlooked is that you can have more than one phone/broadband line installed in your house.

Of course, this will incur additional charges from your service provider(s) but it could allow some speed to be dedicated for work usage (for example) without being affected by general family browsing and streaming.

*Advanced Tip:* Normally you would just keep these two lines separate and have different users connect to different WiFi networks but it is however possible to buy routers which can combine these two lines and make them look like a single connection.

Similarly some of these devices allow you to combine a 3G/4G mobile data connection and your broadband line to get a useful blend of a fast 4G connection (albeit with monthly data limits) and a potentially unlimited but slow ADSL connection. For business scenarios this can also provide resilience against one of these connections failing.

*Advances Tip:* By using one of these routers you can make multiple connections look like a single line but you would find that you still wouldn't get the combined speed when receiving a stream of data from a single source such as Netflix as they wouldn't know to split your data across two different paths. It is possible to create a true 'bonded' connection but this needs dedicated equipment and a specialist service provider who will merge your traffic on their systems to make you look like a single destination.

## *Advanced Tip: Not all routers are created equal*

Modem/routers supplied by your Internet Service Provider may not always give you the best results.



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The author of this guide personally replaced their supplied router with a £30 new unit which was selected to better match the equipment at the exchange/cabinet and got an improvement of around 1.5Mbps as a result. This also produced a more stable connection, running for months without a disconnection.

Picking a better router requires some investigation online to find a model that performs well on low-speed or long-distance connections and it would be useful to swap notes with your neighbours about their devices and experience.

### Advanced Tip: Get your priorities right

Many modern routers have “*Bandwidth Control*” or “*Quality of Service*” settings which allow you to choose which devices get priority when requesting data. For example, you could set the device you intend to use for TV/Film streaming to get top priority when it needs it.

Similarly you could assign internet phone traffic (VOIP) to have a top priority so that other usage doesn't affect your call quality when working from home.

If you do this, be aware that some routers cause a slight overall drop in performance when using this feature so you would need to check for this.

### Advanced Tip: Fine Tuning

Some modem/routers allow you to configure low level settings about how they connect to your exchange.

You may find it useful to adjust the *SNR Target* setting. This balances the likelihood of errors on your line against the speed you achieve. You'll find guides online describing this process.

If you can override your connection type you may find you get better performance using ADSL2 rather than ADSL2+ or plain ADSL.

## Conclusion

There are lots of tips here and if you don't understand them all don't worry! Start with the basic easy steps and you should see an improvement. The internet is a wonderful resource and full of useful information for further reading.