



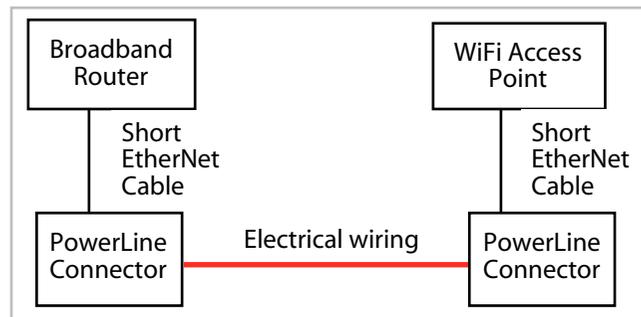
PowerLine

Extending your wireless network

WiFi network technology is generally wonderful, but it has its limitations, the most obvious one being distance. Locating your wifi access point (usually built into your broadband router) in a place which gives you good signal strength throughout your home or office can be difficult.

Conventional wifi range extenders bring their own problems of compatibility, configuration and bandwidth consumption. A range extender that connects to the broadband router wirelessly can use up to half of the network's bandwidth, reducing the speed of your network by around 50%. The solution to this issue is to connect the two devices with an Ethernet cable, which is not always convenient.

An alternative technology, PowerLine, is now becoming established. This enables a network to be extended by using the existing mains power cables in the building. Two units are required, one at each "end" of the network. One is connected to the router with a cable, and the other is connected to another wifi access point, network switch or computer. Alternatively, the second unit can have a built-in wifi access point. This is a very efficient, tidy, and cost effective way of extending the range of a network.



Wifi Assist

Getting through your mobile data allowance faster than you thought? Apple, bless their cotton socks, have realised that it is not always possible to get a good wifi signal, and that in some areas a 4G cellular network connection will give a faster connection to the internet than some ADSL broadband connections. As a result they have introduced in recent versions of iOS for 4G compatible phones a technology called wifi assist. What this does is look at the speed of the two connections available for the iPhone or iPad (wifi and cellular) and use whichever one is the fastest. Great. Until you realise that if your device is regularly using your cellular (mobile) connection when you thought it was using your wifi connection, your usage of the data allowance in your mobile plan will increase significantly. Fortunately, there is a way to turn this technology off so that whenever you are in range of a wifi connection that your device can use, it will use it no matter what the speed. To turn it off go into Settings, then Mobile, and then scroll right down to the bottom (past the long list of applications) to Wi-Fi Assist and turn it off.

Away from the desk...

A different view of Rangitoto...from Motutapu.



Getting to Grips with...Memory and Disk usage

The difference between RAM and disk, what they do and the impact they have on how you use your Mac is one of the issues that confuses many people. So, here I will try to explain...by travelling back in time.

RAM (Random Access Memory)

Cast your minds back to the 1970's and the days of the cassette, which was used for loading programs and games into the early consumer computers. Even further back, we had punch cards which were used to give the instructions to the computer. Both the tapes and the cards held data which was read into the computer's memory. Only then, did it have some data to work with and instructions for manipulating that data. This memory is what has developed into the RAM in the Mac which you use today. When you first startup your Mac it reads the operating system data into memory. Then, when you open a document it reads the appropriate application and document into memory. As a result, the amount of RAM you have affects the number of documents and applications which you can have open *at the same time*. This is why sometimes having more RAM can enable your Mac to go faster.

Disk and disk usage

In place of punch cards and cassette tapes we now have hard disk drives (HDD) and solid state drives (SSD). Floppy disks, CD's and DVD's which were also used for the same purpose have come and gone. The

USB drive (or memory stick) has become the ubiquitous removable media. The HDD or SSD in your Mac is where all your software (operating system and applications) and data (documents, music, pictures, etc) is stored, ready to be read into RAM when you need it.

What if I don't have enough RAM?

Back in the old days of last century, if you ran out of RAM you would get a message on your screen and you wouldn't be able to do what you wanted to do until you quit some other applications or closed some documents or both. One of the big features that came along with Mac OSX when Apple launched it in 2000 was properly implemented virtual memory. This enables your Mac to use part of the disk drive as temporary memory. It "pages out" data from RAM into a file on the drive to make space in RAM for the next task that you want to do. However, as RAM runs about 100 times faster than a HDD, your Mac will slow down when this starts to happen (as opposed to you getting a message that you have run out of RAM). Installing more RAM, thus not slowing down your Mac in these circumstances, alleviates the problem.

This issue has changed in the last few years with Apple using more and more SSD's in Macs. SSD's are basically a bunch of RAM chips, so paging out no longer has the same performance impact. But, from

the computers' perspective, an SSD is still a drive and not RAM.

What if I don't have enough disk space?

This is where things can get very problematic because if you have filled your drive with lots of music, pictures and videos the computer no longer has space to write the temporary files to the drive that it needs in order to operate. It may just stop. It may just overwrite your data. It may throw a hissy fit.

The rule of thumb is always to keep 10% of your drive free. To do this the first thing to do is find out how big your drive is. From the  menu choose About this Mac, then click on the Storage tab. Underneath the



icon for your drive it will indicate the size of the drive (in Gigabytes) and the type (SATA is a HDD and Flash is a SSD). You will also see usage information. An easy way to keep track of how much free space you have on your drive is to open a Finder window and from the View menu choose Show Status Bar. This will then display in any Finder window the amount of space left on your drive.

11 items, 274.58 GB available

Next issue... The Dock