Why is swap needed?

* For every operating system, there is a dedicated amount of RAM available that makes the processing of a program possible. However, the amount of this RAM is limited which is why RAM cannot hold a bulk of data in it. Therefore, there should be a backup option available which can support RAM whenever it runs out of memory.
* This concept holds for the Windows operating system as well as for Linux. In Windows OS, whenever RAM has an insufficient amount of memory to hold a process, it borrows some amount of memory from the secondary storage. This borrowed memory is known as Virtual Memory. Similarly, whenever RAM runs out of memory in Linux, it borrows some memory from the secondary storage to store its inactive content.
* In this way, the RAM finds sufficient space to hold a new process within it. Here, the borrowed space from the hard disk is called Swap Memory. In this article, we will try to learn the concept of swap memory in detail.

There are several reasons why you would need swap.

* If your system has RAM less than 1 GB, you must use swap as most applications would exhaust the RAM soon.
* If your system uses resource heavy applications like video editors, it would be a good idea to use some swap space as your RAM may be exhausted here.
* If you use hibernation, then you must add swap because the content of the RAM will be written to the swap partition. This also means that the swap size should be at least the size of RAM.
* Avoid strange events like a program going nuts and eating RAM.

### Do you need swap if you have lots of RAM?

This is a good question indeed. If you have 32GB or 64 GB of RAM, chances are that your system would perhaps never use the entire RAM and hence it would never use the swap partition.

But will you take the chance? I am guessing if your system has 32GB of RAM, it should also be having a hard disk of 100s of GB. Allocating a couple of GB of swap won’t hurt. It will provide an extra layer of ‘stability’ if a faulty program starts misusing RAM.

### Can you use Linux without swap?

Yes, you can, especially if your system has plenty of RAM. But as explained in the previous section, a little bit of swap is always advisable.

### Types of Swap Memory:

Typically there are two different types of swap memory which are mentioned below:

* **Swap Partition-** This is the default type of swap memory which is in fact, a hard drive partition that is dedicated to swapping.
* **Swap File-** This is a self-created type of swap memory. Whenever there is no sufficient amount of space left in the hard drive to create a swap partition, a swap file is manually created for swapping the inactive contents of RAM into it.

### What should be the Ideal Frequency of Swapping?

Linux allows us to set the frequency of swapping on our own i.e. how frequently the process of swapping should take place. You can set the value of swapping between 0 and 100 depending upon your requirements. A low-frequency value of swapping means that the process of swapping will take place very rarely only when it is needed whereas a high-frequency value of swapping means that the swapping process will occur quite often. However, the default and recommended value of swapping frequency is 60.