

# Providing Disk Space

An operating system is installed on an area of the hard disk drive called a “partition”. When Windows is the only installed operating system, its partition will normally occupy the entire hard drive. To install Linux in this situation there are three possible options:

- **Delete the Windows partition** – replacing it with Linux partitions that occupy the entire drive. This option will delete the Windows operating system along with all the applications and data files. It creates a dedicated Linux computer that will immediately start Linux when the PC gets switched on.
- **Reduce the Windows partition size** – so that it no longer occupies the entire drive, then create Linux partitions in the resulting free space. This option will retain the Windows operating system, applications and data files. It creates a “dual-boot” computer that allows the user to choose whether to start Linux or Windows whenever the PC gets switched on.
- **Add a second hard drive to the system** – this allows Linux partitions to occupy the entire second drive and retains the Windows operating system, applications and data files on the first drive. It too creates a dual-boot computer that allows the user to choose whether to start Linux or Windows whenever the PC gets switched on.



A **H**ard **D**isk **D**rive (HDD or simply “hard drive”) can be partitioned into one or more regions so that the operating system can manage each region separately.



Resizing partitions is a scary process where data loss can, and does, occur – even in expert hands. All contents of the partition must be backed up before attempting this operation.

The option to install an additional hard drive for Linux is a popular choice for many people as they have often upgraded their original hard drive to a larger one, and so have their original drive spare. It also has several benefits over the other options:

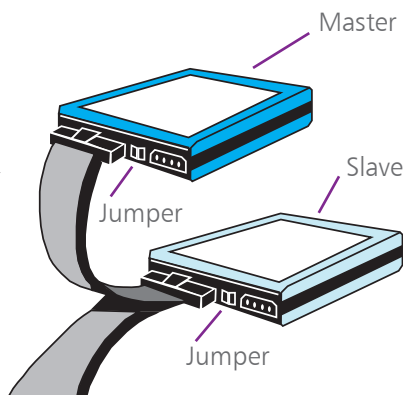
- The free space on the Windows drive is not reduced.
- It removes the risk of data loss through partition resizing.
- The familiar Windows operating system is retained.
- It distinctly separates the two operating systems.
- Drive failure would only disrupt one operating system.

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## Adding a Second Hard Drive

Older IDE (Integrated Drive Electronics) hard drives need to be configured as a master/slave relationship by setting “jumpers” on the hard drive. The drives can then be connected in tandem by a single ribbon cable.

Most modern PCs now have SATA hard drives that do not need a master/slave configuration. Providing you have a Windows drive installed, your PC will automatically recognize an additional drive as secondary:



If you are not comfortable working inside your PC case, a computer store should be pleased to undertake the fitting of a second drive for a modest fee.

- 1 Turn off your PC, open up the case and find the existing hard drive – located in a cage
- 2 Install an additional SATA drive in the cage, then follow the cable of the first drive to identify where it plugs into the motherboard – usually a connector marked “SATA”
- 3 Plug your new drive’s SATA cable into an adjacent SATA connector on the motherboard, and plug the other end into the new SATA drive itself
- 4 Attach a power cable from the PC’s power unit to the SATA drive, then close the case and turn on your PC
- 5 Right-click the Start button and choose **Disk Management** to see an “Initialize Disk” dialog appear
- 6 Click **OK** to initialize the new hard drive, then back in Disk Management, right-click on the new drive and choose **New Simple Volume** from the context menu
- 7 Repeatedly click **Next** in the “New Simple Volume Wizard” to format the drive and allocate it a drive letter



SATA (Serial Advanced Technology Attachment) is the standard for connecting devices to the PC’s motherboard.