Creating a Hard Disk Partition

By Alan German

Many modern hard drives contain more than one disk partition. Everyone is familiar with the main disk partition which Windows displays as Drive C: However, not everyone realizes that the hard disk typically contains other partitions, e.g. reserved and recovery partitions, some of which Windows may keep hidden. Equally, not everyone is familiar with the techniques to create a new disk partition and what this might be used for.

For most of us, the hard disk in our computer will have a much bigger storage capacity than we really need such that there will be lots of free disk space. Similarly, most of the disk will be taken up with the single Windows partition (Drive C:). It's actually quite easy to split the Windows partition into two, retaining the largest portion for continuing use as Drive C: and creating a second partition that Windows will see as Drive D: (assuming that this drive letter isn't already in use, such as for a CD/DVD drive).

One use for such a second partition is as a dedicated data drive. The operating system (e.g. Windows 10) and all the installed applications (e.g. Microsoft Office) continue to reside on Drive C: while all of the user's personal data (text files, spreadsheets, digital photographs, music files, etc.) are moved onto the new data partition. All future disk activity relating to personal data (creating new files, updating old files) is carried out on Drive D: so that the operating system and applications remain completely separate from the user-developed data. This is readily facilitated by, for example, changing the default storage locations in software such as Microsoft Word and Excel to point to Drive D:

Having all of the user data in a single location provides the opportunity to organize the files and folders in a systematic manner (rather than leaving this task largely to Microsoft with their – in my view - bizarre scheme of Documents, Pictures, etc. pointers to actual disk folders). It also makes it very easy to back up all of the user data through disk imaging and/or file synchronization software.

So, how do we go about creating a new disk partition? For straightforward situations, Microsoft has a Disk Management tool that is fairly easy to use. To get started, assuming we are logged in to an administrator's account, we right-click on the Start menu button and select Disk Management. A window will open on the desktop and, after a few seconds, the partitions currently present on the computer's hard drive will be listed. For example, Figure 1 shows the initial state of a computer's disks. Note that Disk 0 is the main hard disk installed in the computer. Two existing disk partitions are displayed, Drive F: which is a reserved partition (System Reserved, 100 MB), and Drive C: which is used by Windows itself (232 GB). The display also tells us that Drive C: has 186 GB (80%) free space so, as indicated earlier, there is a lot of disk space available in which we can create a new partition.

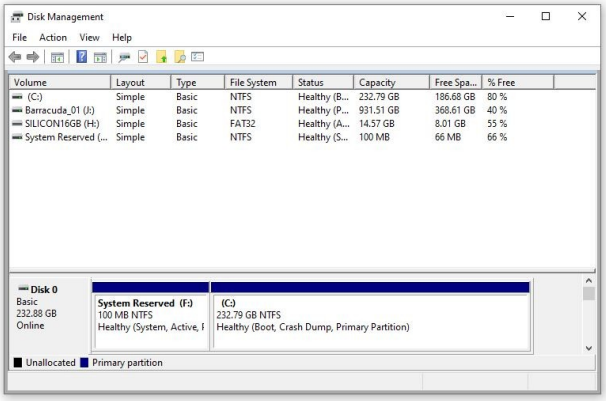

Figure 1. Initial Status of Disk Drives and Partitions

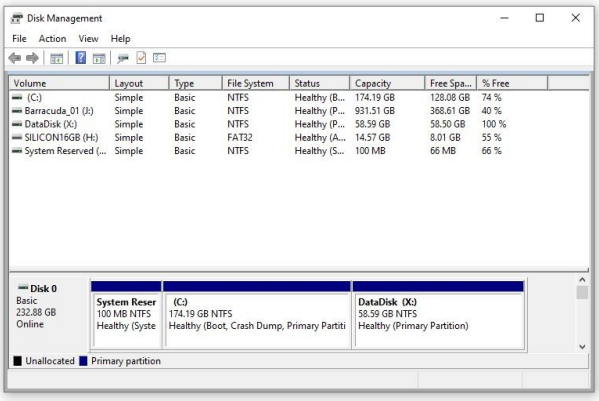

Figure 2. Final Set of Partitions (C: and X:) on Disk 0

Note that there are other disks associated with this particular computer. It has a second, 1 TB, hard drive (Barracuda_01) installed as Drive J: and a 16 GB flash drive (SILICON16GB) presenting as Drive H: For our present purposes, we will confine our discussion to the partitions on Disk 0.

To create a new disk partition, we need to undertake several steps. First we shrink Drive C: to create a segment of unallocated space from some of the available free space. Then, we make this unallocated space into a *Simple Volume* (Microsoft speak for a regular disk partition). Finally, we assign a drive letter and format the new drive.

All of these tasks are performed in the Disk Management utility. Firstly, we right-click inside the box that is labelled *(C:) 232.79 GB NTFS*. In the context menu that is now displayed, we select *Shrink Volume*. A subsequent dialogue box allows us to *Enter the amount of space to shrink in MB*. Rather than using the increase/decrease arrows, we can simply type 60000 into the box, indicating that we intend to create a 60 GB (approx.) partition. Pressing the *Shrink* button results in a new box being displayed after Drive C: this being labelled *58.59 GB Unallocated*. (Clearly, the size of the new partition can be set to use any other amount of the available free space. The trick is to find a reasonable balance between the two drives depending on the user's needs. However, nothing prevents the partitions being readjusted at a later time.)

We now right-click on this unallocated space and select *New Simple Volume* from the pop-up menu. This activates the *New Simple Volume Wizard* and a dialogue box allows us to choose an available drive letter, e.g. D: Should Drive D: be already in use, we can choose any of the other listed options, e.g. Drive X: A final dialogue box allows us to *Format the volume with the following settings*. The default parameters for the *File system* (NTFS) and *Allocation size unit* (Default) can be left untouched. In the *Volume label* text box, we can enter DataDisk, as the name Windows will use for our new partition. Finally, we can leave the box marked *Perform a quick format* checked.

The final window (Figure 2) indicates that Disk 0 has been re-partitioned such that Drive C: now has a storage capacity of 174.19 GB and our new disk partition, Drive X: (DataDisk), has been created with a size of 58.59 GB.

For those who would like a somewhat simpler way of doing things, MiniTool Partition Wizard Free Edition is a third-party utility that provides a number of disk management options, including moving, resizing, extending, merging and splitting partitions.

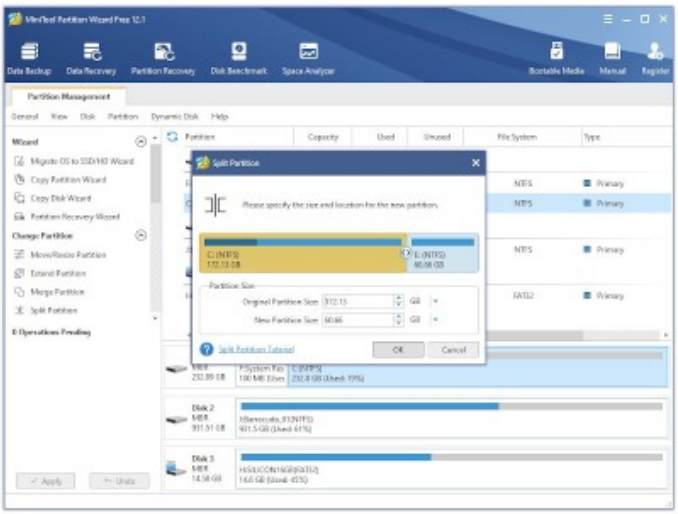

Figure 3. MiniTool Partition Wizard – Split Partition

Figure 3 shows the *Split Partition* task being run on our exemplar disk drive. In this case, Partition Wizard provides a dialogue box with a slider to allocate the amounts of disk space to the original partition (Drive C:) and the new partition (Drive E:). Simply moving the boundary to the left or right establishes the size of our new partition.

Partition Wizard creates a list of operations pending and displays how the disk partitions will appear as a result of the selected operations. The *Apply* button must be pressed in order to activate the tasks and modify the disk structure. Alternatively, the Undo button can be used to remove unwanted tasks.

Either of the disk management tools described can be used to create a new disk partition, assuming that the disk has sufficient free space available, and the process will normally proceed flawlessly. However, modifying the disk structure can potentially have an adverse impact on the files and folders stored on the disk so, as with any major changes to the system, it is wise to make a full disk image backup before proceeding to partition a disk.

Bottom Line

MiniTool Partition Wizard Free Edition (Freeware)
Version 12.1
MiniTool Software Ltd.
https://www.partitionwizard.com/free-partition-manager.html