



## RAID is Not a Backup Solution

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There are some who believe a RAID array provides a backup solution. It does not. This article informs users about some of the common misconceptions about RAID, and how backing up using software is crucial in preventing data loss.

### A Definition of RAID

For those unfamiliar with the term **RAID**, here is how [Wikipedia](#) defines it:

In computing, the acronym RAID (Redundant Array of Inexpensive (or Independent) Drives (or Disks)) is an umbrella term for data storage schemes that divide and/or replicate data among multiple hard drives. Its benefits, varying by scheme, are increased data reliability and/or throughput...

...Fundamentally, RAID combines multiple hard disks into a single logical unit. There are two ways this can be done: in hardware and in software. Hardware combines the drives into a logical unit in dedicated hardware which then presents the drives as a single drive to the operating system. Software does this within the operating system and presents the drives as a single drive to the users of the system... RAID is typically used on servers but can be used on workstations...

In simpler terms: RAID enables the use of multiple drives (an **array** of drives) to increase drive performance and/or reliability. There are many types (**levels**) of RAID which can be implemented using software or hardware. Many modern motherboards include hardware RAID support.

## RAID 0 (Striped Set)

With two or more drives, and a motherboard that supports it, you can theoretically increase your drives performance by using RAID 0 (also called a **Striped Set**). This is the method where a file's data is scattered across all the drives. Although a striped set can increase performance, it also increases the chances of data loss (the more drives in the array, the higher the risk). This is because if just one of the drives fails, then all files will be lost.

With **RAID 0** the chances of data loss is increased. In this scenario using a backup solution is highly recommended.

## Other RAID levels, e.g. Mirrored Set

The other RAID levels, e.g. RAID 1 (**Mirrored Set**), decrease the chance of data loss. This is done by essentially duplicating data across the drives in the array. If a file becomes corrupted (or even lost) **due to drive failure**, then a copy of the file can be retrieved from another drive. This is all done automatically without user intervention.

The important point to note however is that although the chance of data loss due to drive failure is reduced, data loss due to viruses or user errors, e.g. overwriting a file or deleting it, is not. If a file is deleted or overwritten the RAID array cannot be used to retrieve it. The file is gone. When a file is deleted it is deleted from all the drives. When a file is overwritten it is overwritten on all the drives. This is why a RAID array is **not** a backup solution.

## Backup is still required with RAID

There is no doubt that RAID speeds up data access and/or makes access more reliable, but do not be lulled into a false sense of security. RAID may reduce the chance of losing data due to drive failure but it is no protection against losing your data due to other means, e.g. user error.

[Backup your important files today](#) and don't be fooled into thinking RAID is a backup solution.

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