

Long Term Data Storage Methods

[Hard Drives, SSDs, Flash Drives: How Long Will Your Storage Media Last?](#)

[SSD Lifespans: How Long Can You Trust Your Solid-State Drive? - Datarecovery.com](#)

[SSD Lifespan: How Long do Solid-State Drives Last? - N-able](#)

[How Long Do Solid State Drives Really Last?](#)

[How to Archive Your Data \(Virtually\) Forever](#)

[how long can an SSD store data without power? – Harddrive Talk](#)

[How Long Does an SSD Retain Data? Learn Now! | WhatsaByte](#)

[Do HDDs or SSDs Need 'Exercise'? The Rocket Yard Investigates.](#)

[How long will data stay valid for on a USB drive ? - Integral Memory.](#)

Summary:

For normal consumer type options for long term data storage, compact disk media (CD/DVD) would last the longest, several decades if archival quality and stored properly, but the equipment to read them may be difficult to find in the future.

Hard disk drives can retain data for decades when unpowered, but after about 10 years it might take a data recovery specialist to read them. Also they need to be run every couple of years to keep from seizing up and are susceptible to damage from dropping. Copying the data to another storage device while it is still readable and back to the hard disk drive will restore its data retention time. Most hard disk drives in use typically wear out within 6 years of average use.

USB flash drives or SD memory cards can retain data for about 10 years when unpowered if not re-written too many times before storage. Repowering will restore the ability to retain data for another 10 years. Memory cells have a limit of about 3000 re-writes before wearing out and the data retention time decreases with wear. Near the end of the wear limit they may not retain data for even a year. The electrical contacts can also wear out or break with heavy use.

Solid State Drives (SSD) have memory cell limitations like flash drives and SD memory cards, and can also be refreshed by repowering. In use they have about the same life as a hard disk drive, but are more likely to develop some unrecoverable data errors after about 4 years instead of wearing out.

Conclusion:

The best plan for reliable and secure long term data storage is to maintain at least 3 backups using at least 2 types of storage media (or cloud storage) and kept in at least two locations. Some storage methods will require periodic maintenance.