Storing data

Storage consists in placing digital data on appropriate devices, such as flash drives, hard drives, servers, etc. This implies anticipating and countering any risks of material loss of data or of loss of readability. Several devices and services may be used in complementary ways to ensure the secure storage of the data you collect or produce as part of your research.

There are four main categories of storage device :

- **local storage**: data stored directly on a computer ;
- **external local storage**: data stored on hard drives, flash drives, SD cards ;
- **cloud storage services**: for research, it is recommended that you use public infrastructure services (Huma-Num, CNRS, etc.) ;
- **institutional servers**: that is, servers run by higher education and research bodies.

Each of these devices has different characteristics. You need to choose the most appropriate device depending on the nature of the data and its usage, using devices in complementary ways if necessary.

Backup, which is associated with storage, refers to a procedure for duplicating digital content in order to safeguard it. It is a way of countering risks of data damage: malfunctioning or lost storage devices, unreadable data, etc.

To ensure greater data durability, the French Higher Education IT Centre CINES recommends the 3-2-1 back-up rule. This rule consists in :

- keeping 3 copies of any data
- on at least 2 different devices
- with 1 remote copy.

For example, for routine data used regularly, a first copy should be stored locally on a computer, with a backup on local external storage (a hard drive or flash drive), plus an additional copy on an institutional server.

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Tools

- Huma-Num Box : secure storage for large data sets and file manager for storing and sharing data sets
- ODS My Core : individual storage and backup, nomadism and secure sharing (for staff attached to a CNRS structure) (French)
- DoRANum, comparative table of different storage media (French)

Further information

- Fact sheet - Storage and archiving (French)