

Handout on infrastructure for the storage of research data at TUM

In close cooperation with the Leibniz Supercomputing Centre (LRZ), TUM offers different storage solutions depending on the purpose. When storing data, a basic distinction must be made between hot (unfinished) and cold (finished) data.

Storage solutions for hot (unfinished) data

For hot data, the storage solution depends on

- whether the data is to be used individually or shared,
- whether several people can work on the same file at the same time, and
- how large the storage requirement is.

LRZ provides different types of [cloud storages](#).

For individual use, TUM members receive a [personal LRZ Cloud Storage](#) (≠OneDrive; see below Microsoft 365). They will receive it as a person-specific Network Attached Storage (NAS) named after their [TUM ID \(e.g. no34yif\)](#) for a data volume of up to 400 GB per person. Regular backups are included and worldwide access of your data via web interface [WebDisk](#) (login with TUM credentials).

For shared use, among TUM Schools, institutes and projects, a shared [Institutional LRZ Cloud Storage](#) (as an institution-specific NAS) is available for a data volume of up to 100 TB per institution. Within each TUM School, the respective [Information Officer](#) is responsible for the allocation of storage space. Regular backups are included.

If sharing, collaborative editing and syncing of data is required, the LRZ recommends the online solution [Sync+Share](#). Each TUM member receives a storage space of 50 GB. Files can be accessed either directly in the [web interface](#) or via activated clients. In Sync+Share, files can be shared not only within TUM members, but also with external partners. Regular backups are included.

For storing and sharing large amounts of scientific data with a volume of TB to PB, the LRZ offers the [TUM Data Science Storage \(TUM-DSS\)](#). TUM members can apply for a storage space in the TUM-DSS via the [Information Officer](#) of their School. The data on TUM-DSS can be accessed from the whole LRZ computing ecosystem or via [Globus Online](#) and the associated client and be shared worldwide. Regular backups are optional.

Another possibility for the joint and simultaneous editing of documents and the storage of data is provided by the TUM-wide (LRZ-independent) license of [Microsoft 365](#). This software package is a combination of Office applications and an online service that allows access rights to be assigned directly to TUM users or to external partners via an editing link. The license includes Microsoft

OneDrive, Word, Excel, PowerPoint, OneNote, SharePoint and Teams. In OneDrive, 250 GB of storage space are allocated to each user. In SharePoint and Teams, each user has access to 100 GB.

When it comes to the joint development of research software, [LRZ GitLab](#) is a suitable solution. It is a web-based service for managing Git repositories.

Storage solutions for cold (finished) data

For archiving cold data, the storage solution depends on

- whether it shall be accessed by selected persons or will be made publicly available, and
- whether it comes from the TUM Data Science Storage or from NAS or another storage location.

For the backup and archiving of data from a computer or server in the Munich Science Network (MWN), TUM employees can use the [Backup & Archive](#) from LRZ. This solution is suitable for data volumes that range from MB to PB. The archiving period is 10 years – or longer upon request. To plan set up a digital archive, contact [LRZ-Servicedesk](#).

For archiving data from the LRZ Cloud Storage, sub-admins of the MWN-ADS (Munich Science Network Active Directory Services) can use the [ISAR \(Integrated Simple AR-chive\) Cloud Storage](#) for up to 100 TB. The data is archived for 10 years and then transferred to the LRZ Backup & Archive for a further 10 years. The authorization for the ISAR Cloud Storage must be requested via the IT support of the TUM or the LRZ, and the partial administrators of the MWN-ADS can access the storage space.

The [Data Science Archive \(DSA\)](#) is preferably used for archiving data from the Data Science Storage. The system offers a storage capacity of 260 PB. The planned archiving period is 10 years or longer. The archived data can be shared with external members. Apply for DSA as an archive option together with DSS project or apply separately by contacting [LRZ-Servicedesk](#).

The media and publications repository of the TUM [mediaTUM](#) is available to all TUM members for archiving and publishing digital documents like dissertation, doctoral thesis, journal publications and research data as well as the multimedia content used in research and teaching. Any amount of data can be stored and archived there for any length of time. Data archived in mediaTUM can either be made accessible to a limited group of people (e.g. a Chair) or to the public.

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