

# CESNET Data Storage

## Introduction

Do not use shared filesystems at IT4Innovations as a backup for large amount of data or long-term archiving purposes.

The IT4Innovations does not provide storage capacity for data archiving. Academic staff and students of research institutions in the Czech Republic can use CESNET Storage service.

The CESNET Storage service can be used for research purposes, mainly by academic staff and students of research institutions in the Czech Republic.

User of data storage CESNET (DU) association can become organizations or an individual person who is either in the current employment relationship (employees) or the current study relationship (students) to a legal entity (organization) that meets the “Principles for access to CESNET Large infrastructure (Access Policy)”.

User may only use data storage CESNET for data transfer and storage which are associated with activities in science, research, development, the spread of education, culture and prosperity. In detail see “Acceptable Use Policy CESNET Large Infrastructure (Acceptable Use Policy, AUP)”.

The service is documented at <https://du.cesnet.cz/wiki/doku.php/en/start>. For special requirements please contact directly CESNET Storage Department via e-mail [du-support@cesnet.cz](mailto:du-support@cesnet.cz).

The procedure to obtain the CESNET access is quick and trouble-free.

(source <https://du.cesnet.cz/>)

## CESNET storage access

### Understanding Cesnet storage

It is very important to understand the Cesnet storage before uploading data. Please read <https://du.cesnet.cz/en/navody/home-migrace-plzen/start> first.

Once registered for CESNET Storage, you may access the storage in number of ways. We recommend the SSHFS and RSYNC methods.

### SSHFS Access

SSHFS: The storage will be mounted like a local hard drive

The SSHFS provides a very convenient way to access the CESNET Storage. The storage will be mounted onto a local directory, exposing the vast CESNET Storage as if it was a local removable harddrive. Files can be then copied in and out in a usual fashion.

First, create the mountpoint

```
$ mkdir cesnet
```

Mount the storage. Note that you can choose among the `ssh.du1.cesnet.cz` (Plzen), `ssh.du2.cesnet.cz` (Jihlava), `ssh.du3.cesnet.cz` (Brno) Mount `tier1_home` (**only 5120M !**):

```
$ sshfs username@ssh.du1.cesnet.cz:. cesnet/
```

For easy future access from Anselm, install your public key

```
$ cp .ssh/id_rsa.pub cesnet/.ssh/authorized_keys
```

Mount `tier1_cache_tape` for the Storage VO:

```
$ sshfs username@ssh.du1.cesnet.cz:/cache_tape/VO_storage/home/username cesnet/
```

View the archive, copy the files and directories in and out

```
$ ls cesnet/
```

```
$ cp -a mydir cesnet/.
```

```
$ cp cesnet/myfile .
```

Once done, please remember to unmount the storage

```
$ fusermount -u cesnet
```

## Rsync access

Rsync provides delta transfer for best performance, can resume interrupted transfers

Rsync is a fast and extraordinarily versatile file copying tool. It is famous for its delta-transfer algorithm, which reduces the amount of data sent over the network by sending only the differences between the source files and the existing files in the destination. Rsync is widely used for backups and mirroring and as an improved copy command for everyday use.

Rsync finds files that need to be transferred using a “quick check” algorithm (by default) that looks for files that have changed in size or in last-modified time. Any changes in the other preserved attributes (as requested by options) are made on the destination file directly when the quick check indicates that the file’s data does not need to be updated.

More about Rsync at [https://du.cesnet.cz/en/navody/rsync/start#pro\\_bezne\\_uzivatele](https://du.cesnet.cz/en/navody/rsync/start#pro_bezne_uzivatele)

Transfer large files to/from Cesnet storage, assuming membership in the Storage VO

```
$ rsync --progress datafile username@ssh.du1.cesnet.cz:VO_storage-cache_tape/.  
$ rsync --progress username@ssh.du1.cesnet.cz:VO_storage-cache_tape/datafile .
```

Transfer large directories to/from Cesnet storage, assuming membership in the Storage VO

```
$ rsync --progress -av datafolder username@ssh.du1.cesnet.cz:VO_storage-cache_tape/.  
$ rsync --progress -av username@ssh.du1.cesnet.cz:VO_storage-cache_tape/datafolder .
```

Transfer rates of about 28MB/s can be expected.