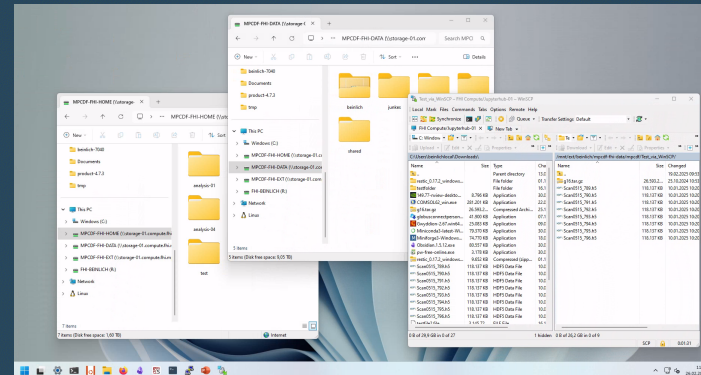




STORAGE-01

FIRST STEPS USING THE STORAGE SYSTEM

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PP&B Computer Support Group
Fritz-Haber-Institut der Max-Planck-Gesellschaft





STORAGE SPACES ON THE COMPUTE SERVERS

HOME DIRECTORY

`/home/myusername` or `/mnt/home/myserver/myusername`

Your personal folder *individual to every Machine*

- Config files
- Python Environments
- Local Scripts & Modules

~ Windows: `C:\Users\myusername`



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DATA DIRECTORY

`/mnt/data/myusername`

Your data folder *identical on every machine*

- Data files
- Universal Scripts & Modules (*Identical on every machine*)

~ Windows Network Share, e.g. : `R:\`

HOME and DATA directories are backed up & snapshotted



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LOCAL DIRECTORY

`/mnt/local/myusername`

Your local **NVME based** scratch folder

- For anything that needs fast IO
- Temporary files during computations
- For remote File Caches

~ Windows, e.g.: `C:\Local\myusername`



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- For anything that needs fast IO
- Temporary files during computations
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~ Windows, e.g.: `C:\Local\myusername`

EXT DIRECTORY

`/mnt/ext/myusername` or `/mnt/ext/someproject`

Your extension *for huge amounts of data*

- Large project / user based file archives
- Automatic Upload from FHI S3 possible

~ Group drives on Windows. **Only available on request**

LOCAL directories are not backed up snapshotted



STORAGE SPACES ON THE COMPUTE SERVERS

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~ Group drives on Windows. **Only available on request**

LOCAL directories are not backed up snapshotted

ACCESS

via SMB: **HOME, DATA, EXT**

via SFTP: *Everything*

Only from FHI Network / VPN



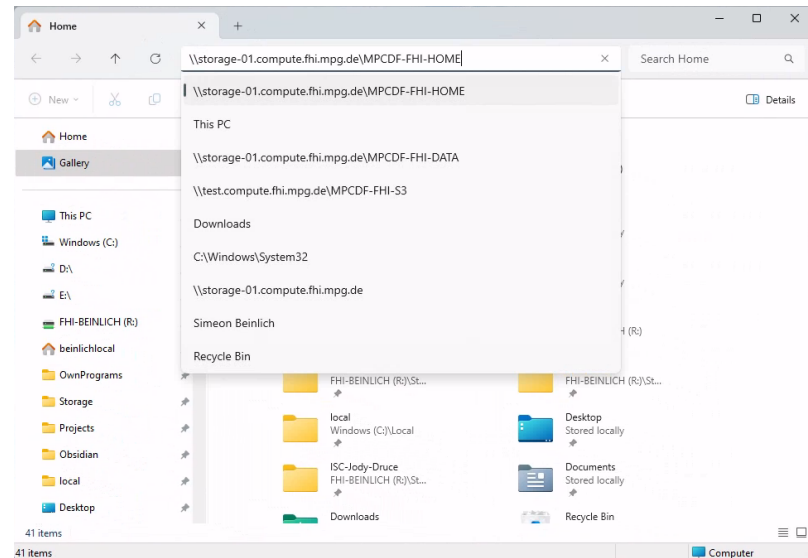
STORAGE ACCESS VIA SMB

WINDOWS

TEMPORARY ACCESS

Recommended if only temporary in the FHI Network

- Enter `\\storage-01.compute.fhi.mpg.de\MPCDF-FHI-HOME` into your **Windows Explorer** address bar.
 - `MPCDF-FHI-DATA` for data
 - `MPCDF-FHI-EXT` for ext





STORAGE ACCESS VIA SMB

WINDOWS

TEMPORARY ACCESS

Recommended if only temporary in the FHI Network

- Enter `\\storage-01.compute.fhi.mpg.de\MPCDF-FHI-HOME` into your **Windows Explorer** address bar.
 - `MPCDF-FHI-DATA` for data
 - `MPCDF-FHI-EXT` for ext
- Log in using the credentials:
 - **username:** `WORKGROUP\myusername`
 - **password:** `mypassword`

The screenshot shows a Windows Security dialog box titled "Enter network credentials". It prompts the user to enter credentials to connect to the storage-01.compute.fhi.mpg.de. The dialog includes fields for "User name" (containing WORKGRPOUP\myusername) and "Password" (masked with dots). Below these fields, it shows "Domain: WORKGRPOUP" and a checkbox for "Remember my credentials". A red error message states "The username or password is incorrect." Below the error message, there is a "More choices" section with a key icon and the text "WORKGROUP\beinlich". At the bottom, there is a button labeled "Use a different account" and two buttons labeled "OK" and "Cancel".



STORAGE ACCESS VIA SMB

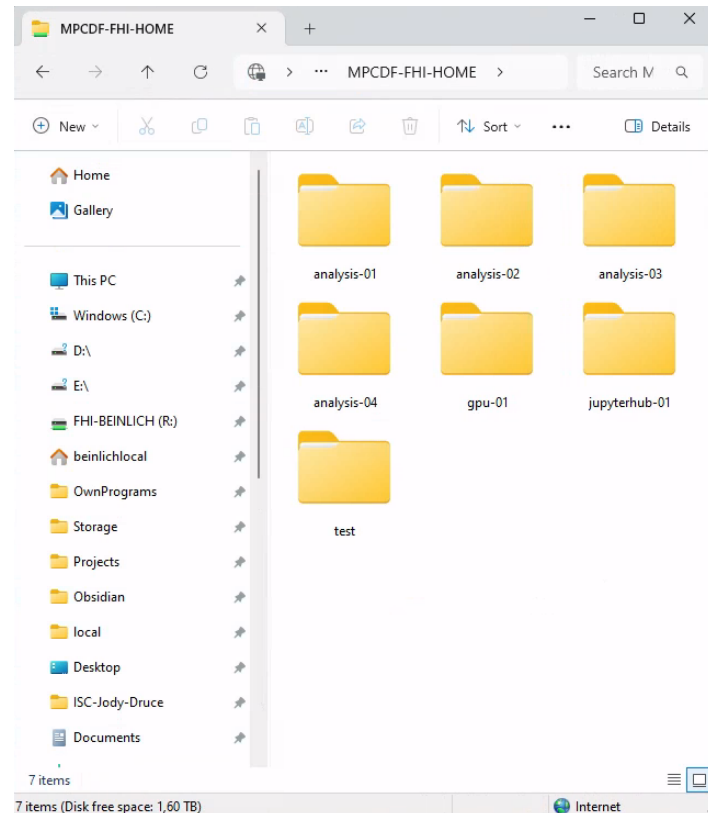
WINDOWS

TEMPORARY ACCESS

Recommended if only temporary in the FHI Network

- Enter `\\storage-01.compute.fhi.mpg.de\MPCDF-FHI-HOME` into your **Windows Explorer** address bar.
 - `MPCDF-FHI-DATA` for data
 - `MPCDF-FHI-EXT` for ext
- Log in using the credentials:
 - **username:** `WORKGROUP\myusername`
 - **password:** `mypassword`

*You can now browse your **home** / **data** / **ext** directories and use them as normal.*





STORAGE ACCESS VIA SMB

WINDOWS

TEMPORARY ACCESS

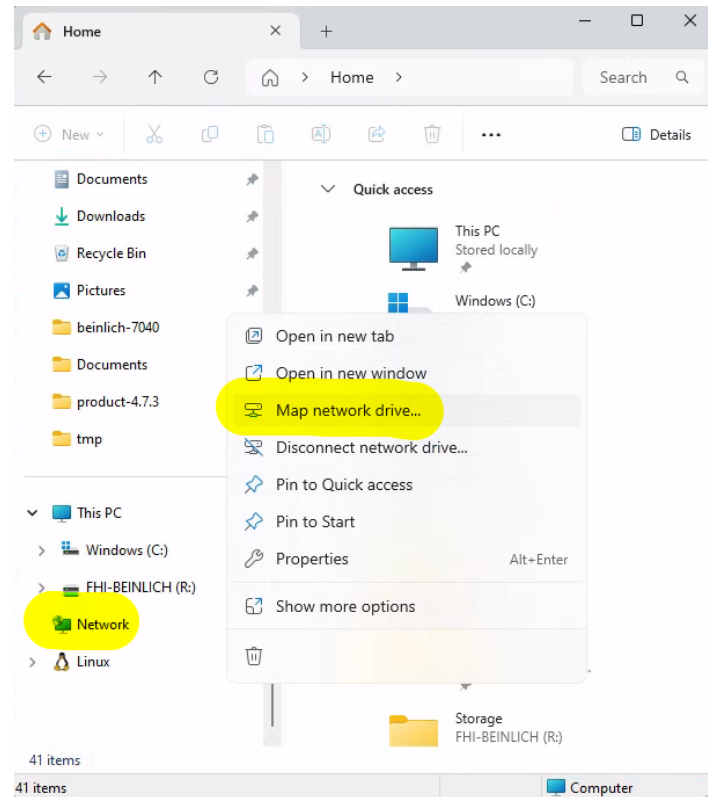
Recommended if only temporary in the FHI Network

PERMANENT ACCESS

Recommended if connected via LAN

You can also assign a drive letter (similar to FHI `R: \`):

- Right Click **Network** > **Map network drive**





STORAGE ACCESS VIA SMB

WINDOWS

TEMPORARY ACCESS

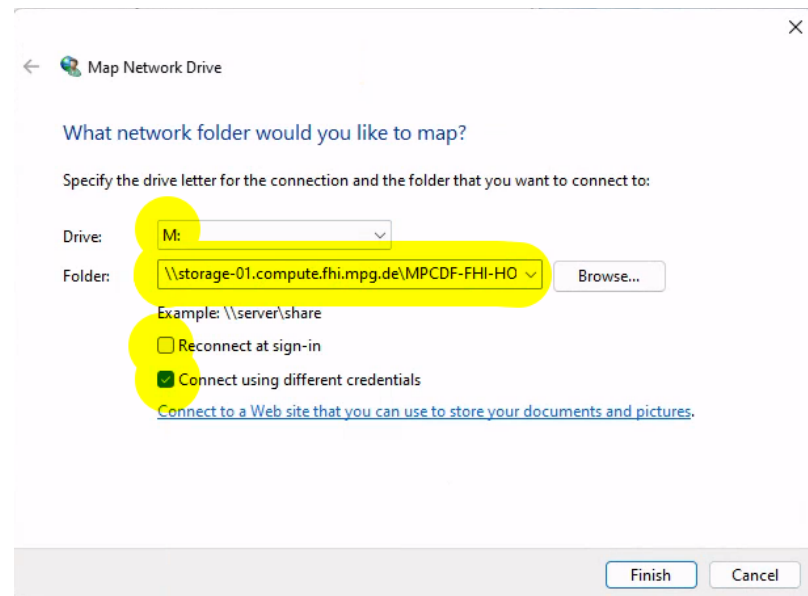
Recommended if only temporary in the FHI Network

PERMANENT ACCESS

Recommended if connected via LAN

You can also assign a drive letter (similar to FHI **R: **):

- Right Click **Network** > **Map network drive**
- Select a drive letter, e.g. **M: **
- Enter **\\storage-01.compute.fhi.mpg.de\MPCDF-FHI-HOME** into your **Windows Explorer** address bar.
 - **MPCDF-FHI-DATA** for data
 - **MPCDF-FHI-EXT** for ext





STORAGE ACCESS VIA SMB

WINDOWS

TEMPORARY ACCESS

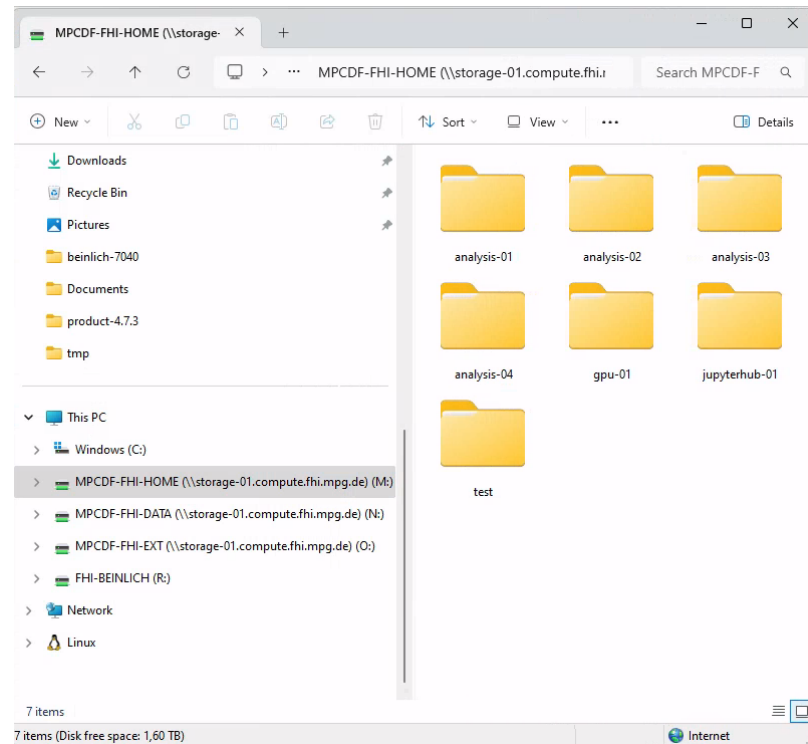
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You can also assign a drive letter (similar to FHI **R: **):

- Right Click **Network** > **Map network drive**
- Select a drive letter, e.g. **M: **
- Enter **\\storage-01.compute.fhi.mpg.de\MPCDF-FHI-HOME** into your **Windows Explorer** address bar.
 - **MPCDF-FHI-DATA** for data
 - **MPCDF-FHI-EXT** for ext
- Log in using the credentials:
 - **username:** WORKGROUP\myusername
 - **password:** mypassword



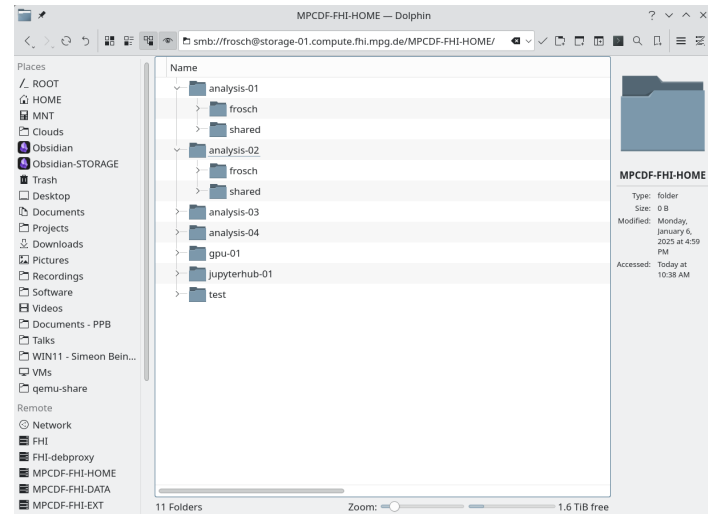


STORAGE ACCESS VIA SMB

LINUX / UNIX - FILE EXPLORER

Some File Explorers, e.g. MacOS Finder or Ubuntu Nautilus, require to open a **Connect to server** menu

- Enter `smb://storage-01.compute.fhi.mpg.de/MPCDF-FHI-HOME` into the address bar.
 - `MPCDF-FHI-DATA` for data
 - `MPCDF-FHI-EXT` for ext
- Log in using the credentials:
 - **username:** `WORKGROUP\myusername`
 - **password:** `mypassword`





STORAGE ACCESS VIA SMB

LINUX / UNIX - TERMINAL

Mount via CIFS. Similar commands for `MPCDF-FHI-DATA` or `MPCDF-FHI-EXT`!

Linux - FSTAB *

- add an entry to the `/etc/fstab` file:

```
//storage-01.compute.fhi.mpg.de/MPCDF-FHI-HOME /some/local/path cifs -o  
username=<MYUSERNAME>,domain=WORKGROUP noauto,user 0 0
```

and mount it via `mount /some/local/path`.

Linux - CLI *

```
sudo mount -t cifs -o username=<MYUSERNAME>,uid=`id -u`,gid=`id -g` //storage-01.compute.fhi.mpg.de/MPCDF-  
FHI-HOME /some/local/path
```

MacOS - CLI *

```
mount -t smbfs //WORKGROUP;<MYUSERNAME>@storage-01.compute.fhi.mpg.de/MPCDF-FHI-HOME /some/local/path
```

**Replace `<MYUSERNAME>` with your username!*



STORAGE ACCESS VIA SFTP

Transfer Files between two locations

- Usable for any computer that is reachable via SSH.
(e.g. STORAGE-01, ANALYSIS-0X, JUPYTERHUB-01, ...)
- Transfer / manage files
(Cut, Copy, Paste, Delete)
- Synchronize Files & Folders

WINDOWS WINSCP

Open WinSCP. Click **New Tab** -> **New Site**



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WINDOWS WINSCP

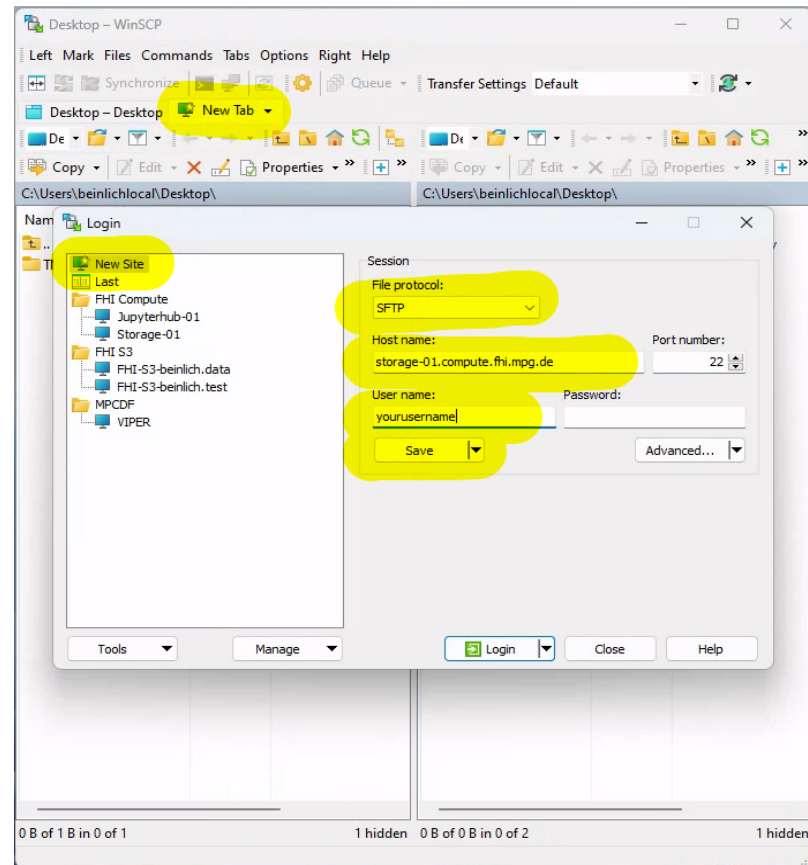
Open WinSCP. Click **New Tab** -> **New Site**

- Choose: File protocol: **SFTP**
- Hostname: **storage-01.compute.fhi.mpg.de**
- Port: **22**
- User name: **your-compute-username**
- Leave Password empty

Click **Save**, give it a descriptive name and click **OK**.

Confirm to trust the host (1st time only).

Enter your password: **yourpassword**.





STORAGE ACCESS VIA SFTP

WINDOWS WINSCP

BROWSE LOCAL AND REMOTE FILES

Local Files: Left Column

Remote Files: Right Column

- HOME directories

`/mnt/home/your-server/your-username`

- DATA directories

`/mnt/data/your-username`

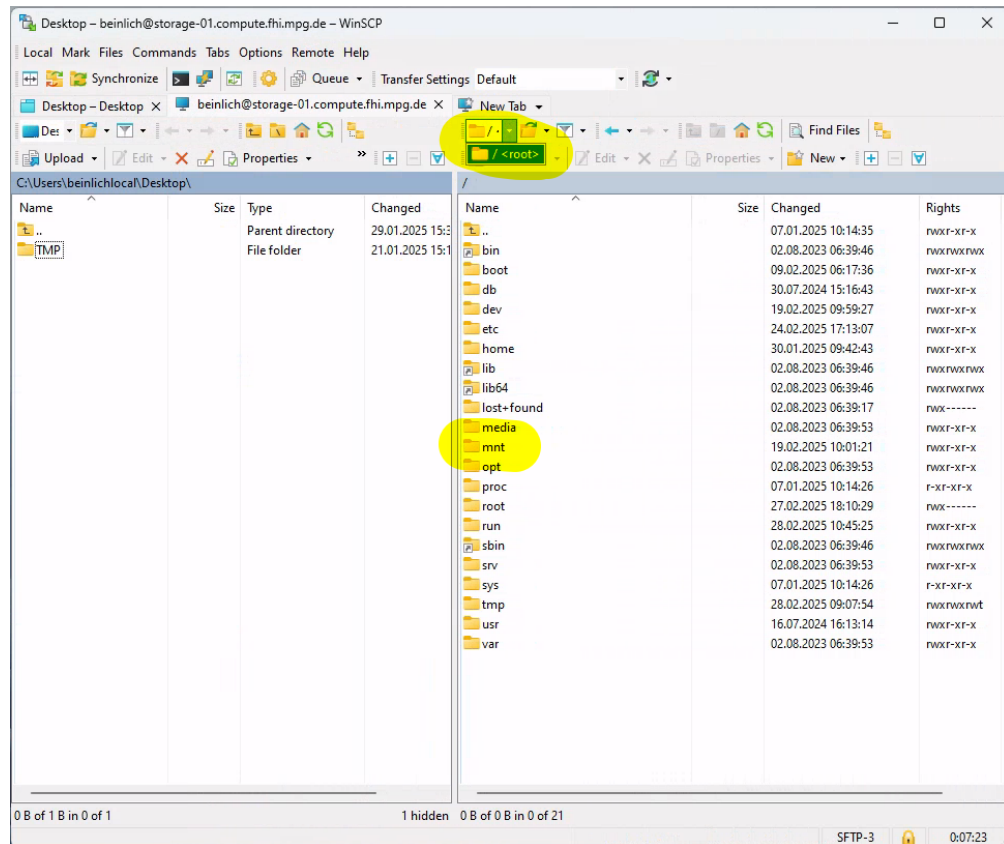
- EXT directories

`/mnt/ext/your-username`

e.g. `/mnt/data/beinlich`

PS: WinSCP displays the underlying path:

`/mnt/volumes/data-02/data/beinlich`





STORAGE ACCESS VIA SFTP

WINDOWS WINSCP

BROWSE LOCAL AND REMOTE FILES

Local Files: Left Column

Remote Files: Right Column

- **HOME** directories

`/mnt/home/your-server/your-username`

- **DATA** directories

`/mnt/data/your-username`

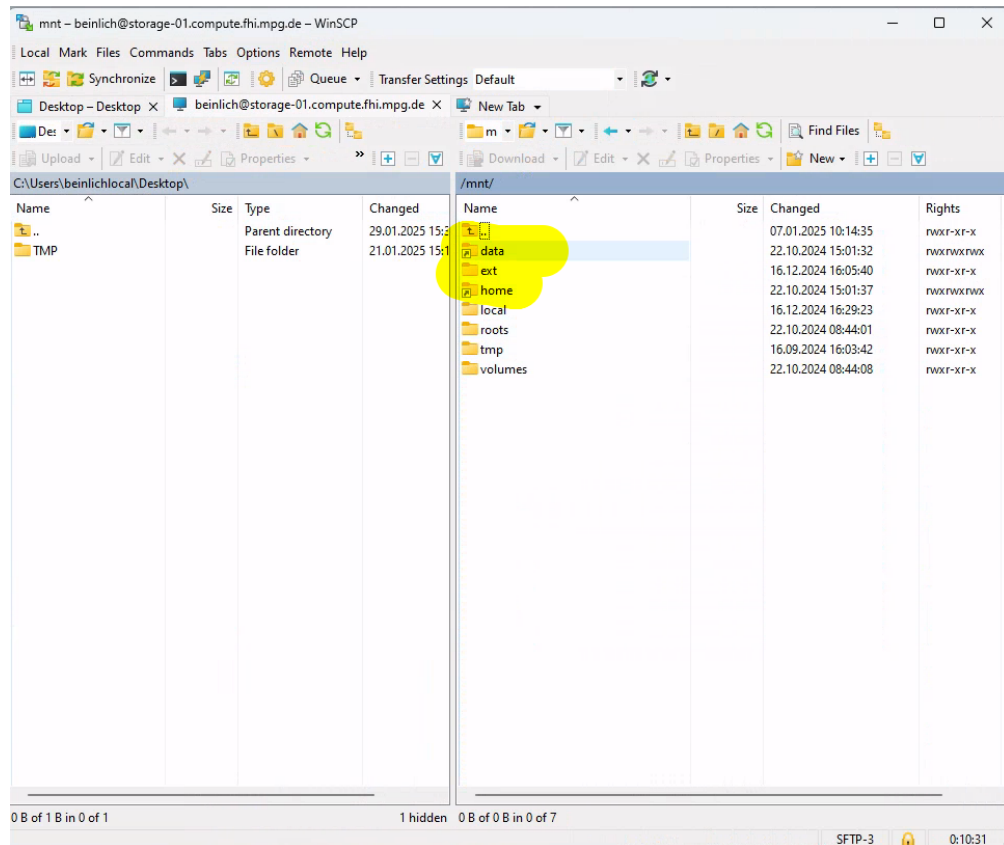
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`/mnt/home/your-server/your-username`

- DATA directories

`/mnt/data/your-username`

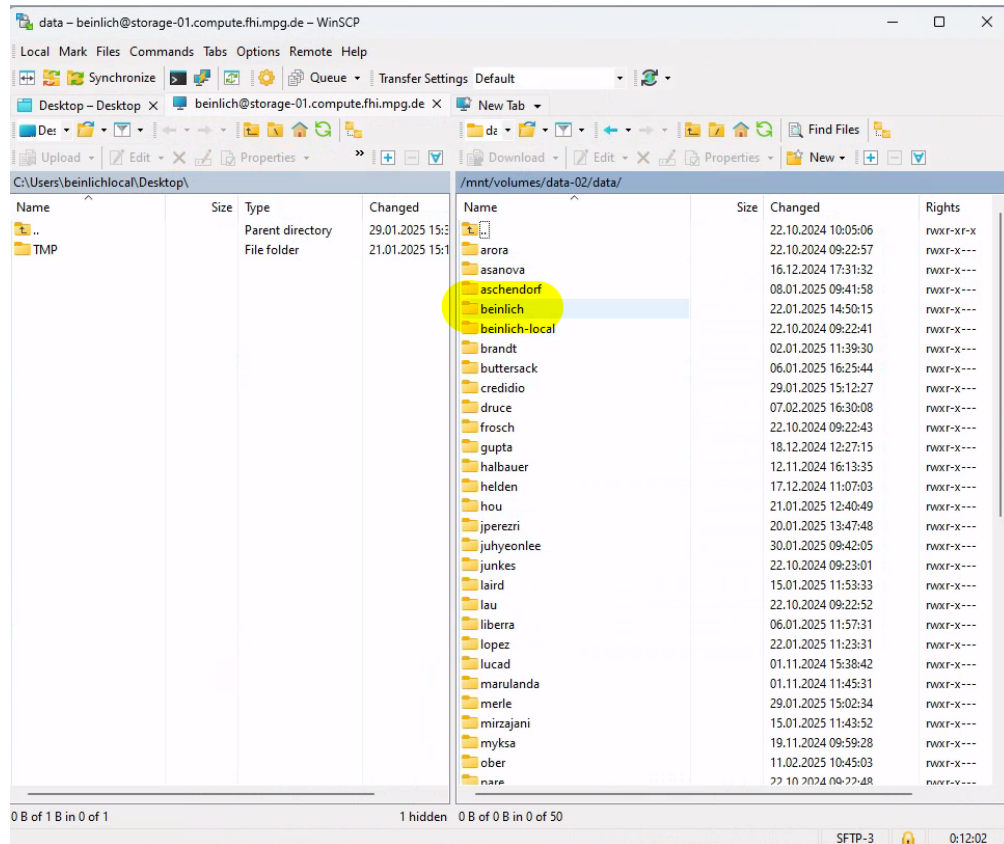
- EXT directories

`/mnt/ext/your-username`

e.g. `/mnt/data/beinlich`

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STORAGE ACCESS VIA SFTP

WINDOWS WINSCP

BROWSE LOCAL AND REMOTE FILES

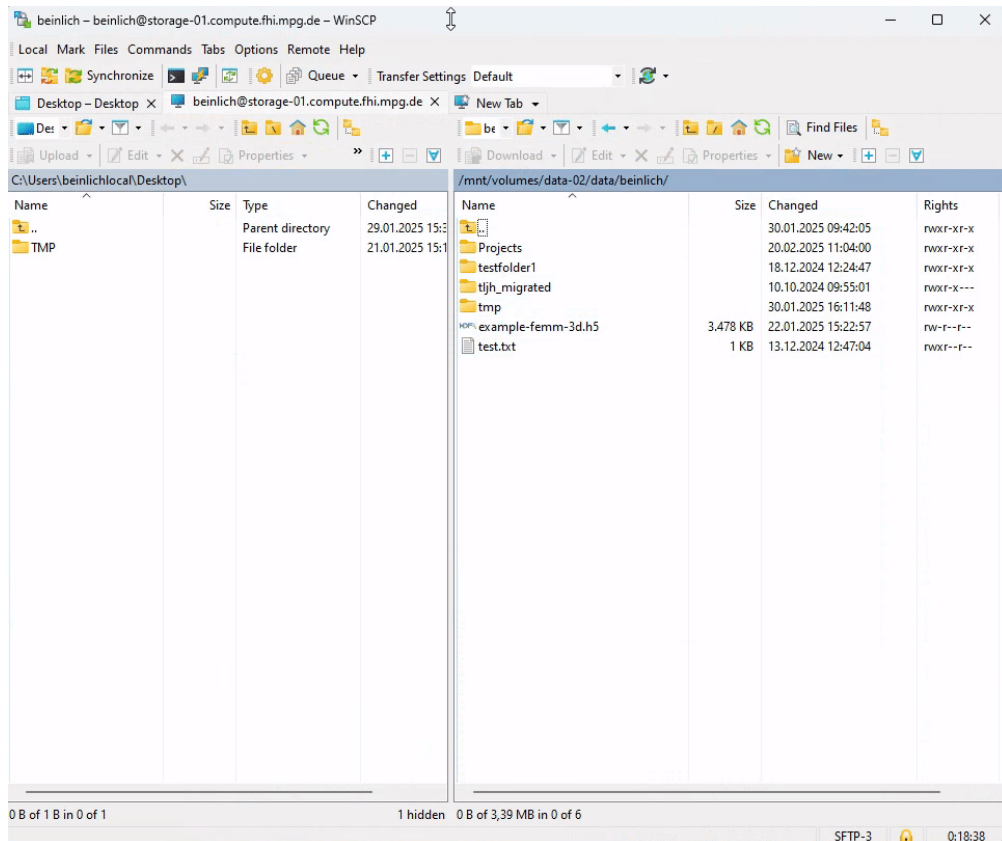
Local Files: Left Column

Remote Files: Right Column

COPY FILES

- Drag & Drop
- Copy Paste

Context menu **Right Click** or **Ctrl+C** + **Ctrl+V**





STORAGE ACCESS VIA SFTP

WINDOWS WINSCP

BROWSE LOCAL AND REMOTE FILES

Local Files: Left Column

Remote Files: Right Column

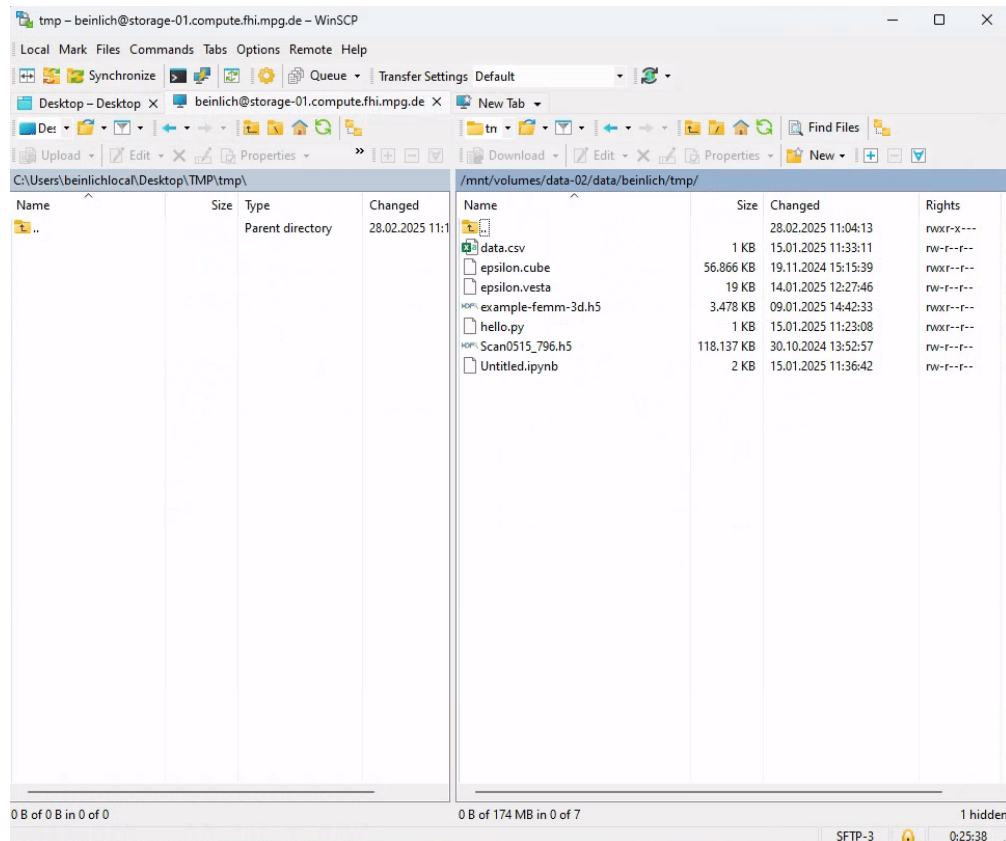
COPY FILES

- Drag & Drop
- Copy Paste

Context menu **Right Click** or **Ctrl+C** + **Ctrl+V**

SYNCHRONIZE FILES

- Select **Commands** > **Synchronize**
 - Choose direction:
 - **both** (bi.-directional),
 - **to remote** or **to local**
 - Check **Synchronize** and **Preview Changes**
 - Click **OK**
- Check the Operations and click **OK**.



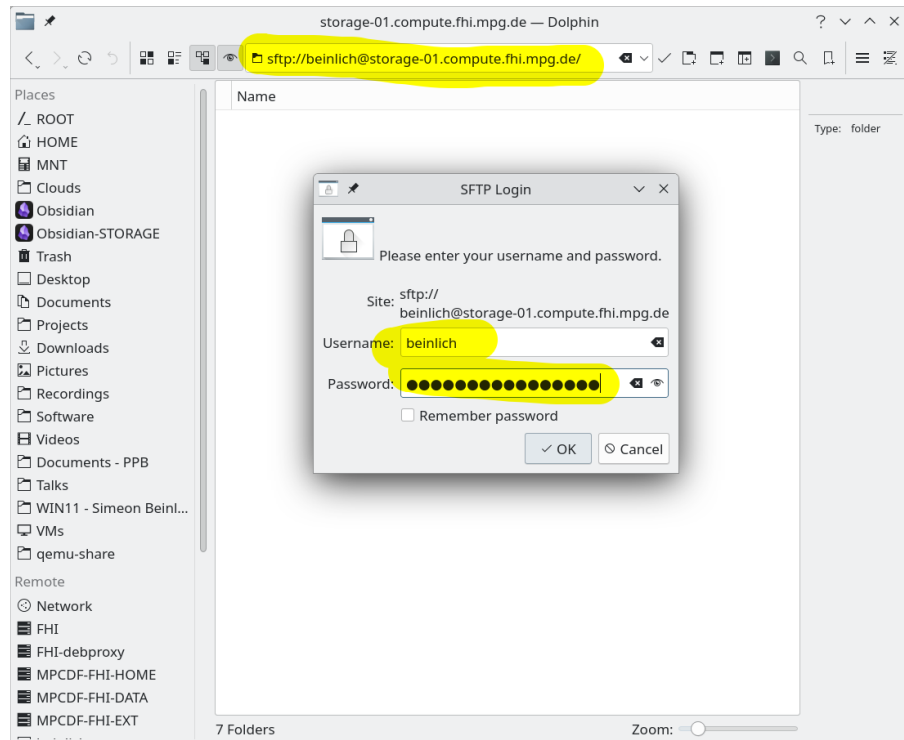


STORAGE ACCESS VIA SFTP

LINUX - FILE EXPLORER

Some File Explorers, e.g. Ubuntu Nautilus, require to open a **Connect to server** menu

- Enter `sftp://storage-01.compute.fhi.mpg.de/` into the address bar.
- Log in using the credentials:
 - **username:** myusername
 - **password:** mypassword





STORAGE ACCESS VIA SFTP

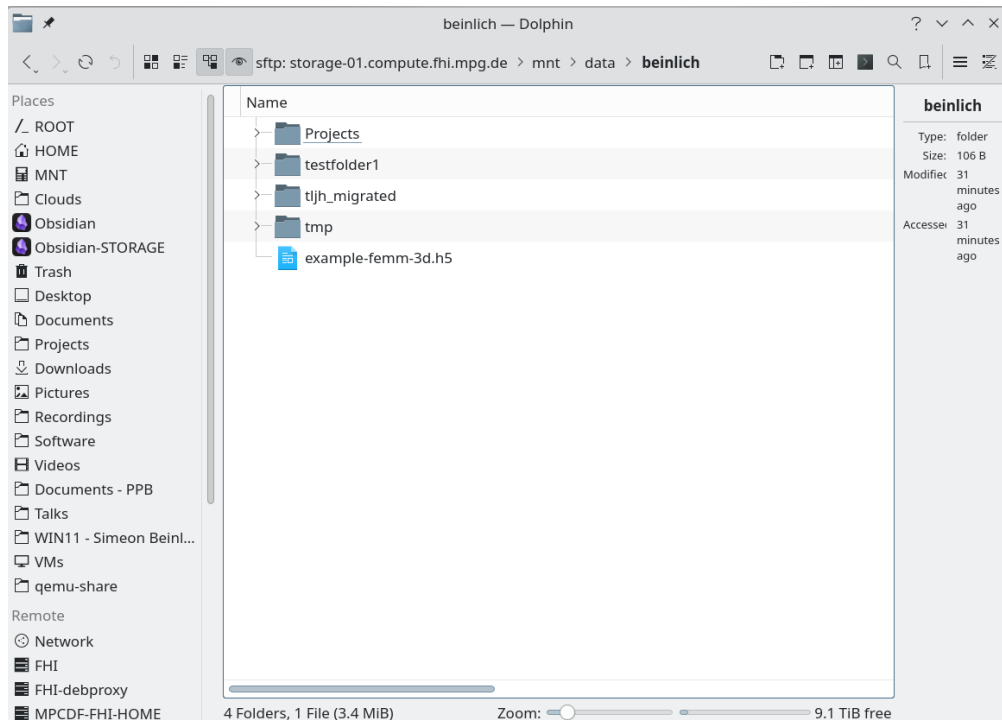
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- Enter `sftp://storage-01.compute.fhi.mpg.de/` into the address bar.
- Log in using the credentials:
 - **username:** `myusername`
 - **password:** `mypassword`

You can then browse your files:

- **HOME** directories
`/mnt/home/your-server/your-username`
- **DATA** directories
`/mnt/data/your-username`
- **EXT** directories
`/mnt/ext/your-username`





STORAGE ACCESS VIA SFTP

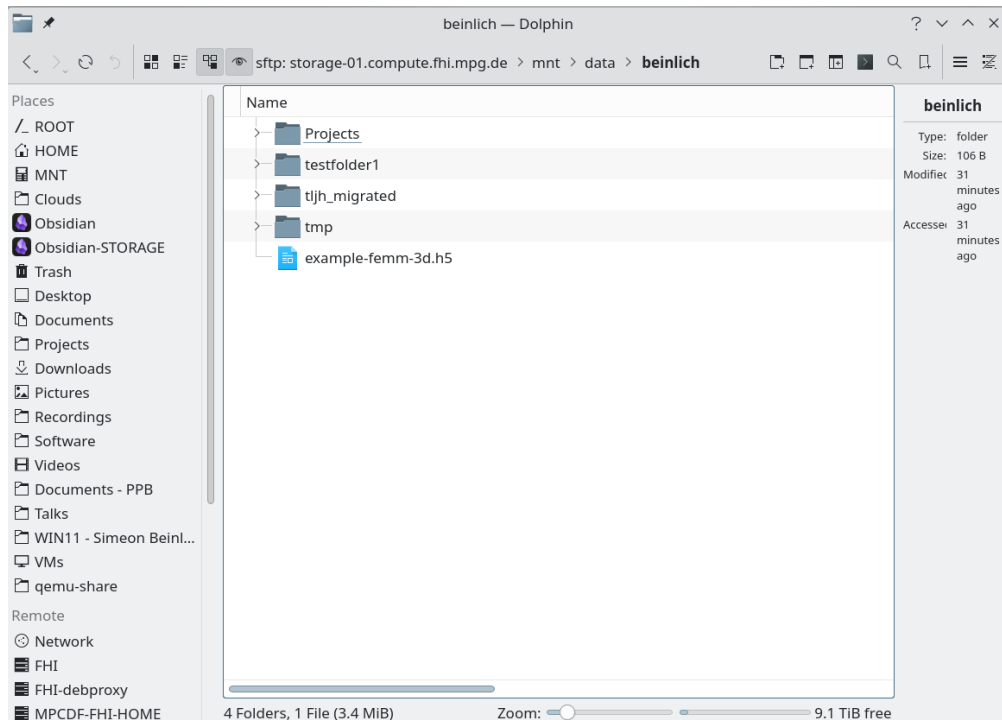
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`/mnt/data/your-username`
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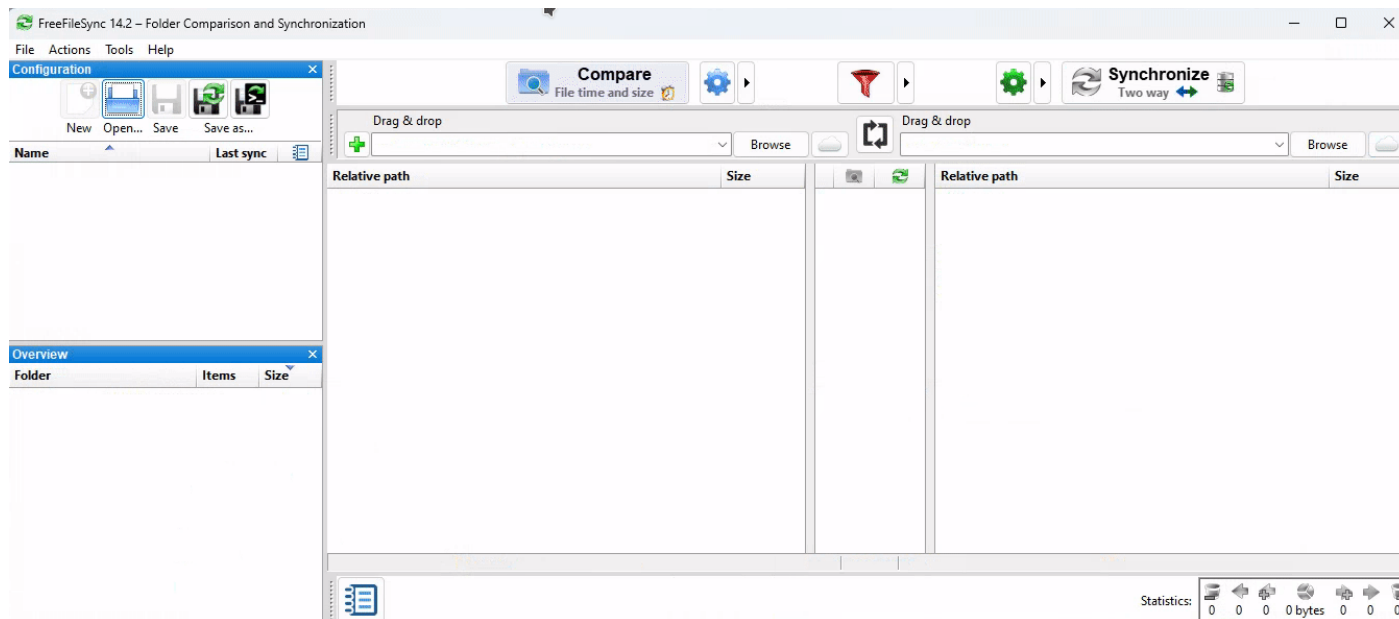
MacOS Finder does not provide SFTP connections, use a third party SFTP client to connect instead.



STORAGE ACCESS VIA SFTP

LINUX, MACOS, WINDOWS: FREE-FILE-SYNC

FreeFileSync is an easy to use Open Source File Synchronization Program, that is supported on all Operating Systems.



It supports bi- and one-directional transfers, mirrors, versioning, filtering and more.



FURTHER TOPICS & LINKS

MORE TRAINING MATERIAL

Visit root.compute.fhi.mpg.de/training

PPB WIKI | HPC

General Information.

FHI GITLAB | HPC DOCUMENTATION

Jupyterhub Wiki | Virtual Desktop Wiki | Storage Wiki

Questions, issues, needing help?

Please mail: beinlich@fhi.mpg.de

or call: +49 30 8431 5270