

Mounting File Systems

How to access your files from anywhere.

Introduction

All file systems available on our cluster that you have access to can be accessed on your local computer by mounting a specified area using the SMB protocol (or the alternative CIFS). The following shares can be mounted locally:

File System	Server Address	Share
<code>\$HOME</code>	<code>dss.hpc.uni-oldenburg.de</code>	<code>home</code>
<code>\$WORK</code>	<code>dss.hpc.uni-oldenburg.de</code>	<code>work</code>
<code>\$DATA</code>	<code>smb.uni-oldenburg.de</code>	<code>hpc_data</code>
<code>\$OFFSITE</code>	<code>smb.uni-oldenburg.de</code>	<code>hpc_offsite</code>
<code>\$GROUP</code>	<code>smb.uni-oldenburg.de</code>	<code><groupname></code>
<code>\$GROUPDSS</code>	<code>dss.hpc.uni-oldenburg.de</code>	<code><groupname></code>

For the `$GROUP` and `$GROUPDSS` directories, replace `<groupname>` with the name of your group directory on the cluster, typically in the form of `agsomenam`.

To mount any of these file systems, you must be connected to the campus network. Therefore, from outside the campus you need to establish a VPN connection first. Note, that if you are using a UOL guest account to access the HPC cluster you can only mount the directories with the server address `dss.hpc.uni-oldenburg.de` due to security reasons.

Mounting a File System to your local Computer

The mounting process differs depending on your operating system.

Mounting on Windows

On a Windows computer, you can mount the HPC cluster directories as network drives using the following steps:

1. Open the **File Explorer** and right-click on **This PC**.
2. Select **Map Network Drive**.
3. Choose a drive letter (e.g., **V:**).
4. Enter the network address in the form of **\\server-address\share**. Replace the server address and share with values from the table above.
For example, for **\$HOME**: **\\dss.hpc.uni-oldenburg.de\home**
5. Decide if you want to automatically **Reconnect at sign-in**. Disable if your computer is not always in the campus network.
6. If you're not using your university account to log in to your computer, check **Connect using different credentials**.
7. Click **Finish**.
8. When prompted, enter your username in the format **w2kroot\abcd1234** and your password.

Alternatively, you can use the command prompt:

1. Open Command Prompt (**cmd.exe**).
2. Use the command: **net use <drive letter> <network address> * /user:w2kroot\abcd1234**
For example: **net use V: \\dss.hpc.uni-oldenburg.de\home * /user:w2kroot\abcd1234**

Another alternative is to add a directory as a network location:

1. Open the **File Explorer** and right-click on **This PC**.
2. Select **Add a Network Location**.
3. Click **Next** and **Next** again to **Choose a custom network location**.
4. Enter the network address in the form of **\\server-address\share**. Replace the server address and share with values from the table above.
For example, for **\$HOME**: **\\dss.hpc.uni-oldenburg.de\home**
5. Enter a name for the network location, e.g. **ROSA HOME**, and click **Next**.

6. Click **Finish**.

The major difference between a network drive and a network location is that the network drive is assigned to drive letter.

If you encounter any issues, please contact hpcsupport@uol.de.

Mounting on Linux

On a Linux computer, you can mount the HPC cluster directories using the following command:

```
1 | sudo mount -t cifs -o vers=3.0,workgroup=W2KR00T,username=<user>,file
```

In the command above, you need to replace `<user>` with your HPC cluster username (e.g., `abcd1234`), `<linux_username>` and `<linux_group>` with your local Linux user and group names, the `//server-address/share` with the information for the desired HPC directory from the table above, and `<mount_point>` with a valid, empty directory on your system.

You can use the command `id` to find out the `uid` and `gid` of your local user:

```
1 | $ id
2 | uid=1000(johndoe) gid=1000(johndoe) groups=1000(johndoe)
```

(if you did not anything special when creating your local account `uid` and `gid` are often the same). When you mount a directory for the first time, you probably need to create a mount point e.g. with

```
1 | $ mkdir $HOME/ROSA_HOME
```

With this information, you can for example mount `$HOME` with:

```
1 | sudo mount -t cifs -o vers=3.0,workgroup=W2KR00T,username=abcd1234,fi
```

Alternatively, you can add entries to `/etc/fstab` (you must be `root` for that or use `sudo`). The entries should have the form:

```
1 | //server_address/share <mount_point> cifs vers=3.0,workgroup=W2KR00T,
```

or for the example for `$HOME`

```
1 | //dss.hpc.uni-oldenburg.de/home /home/johndoe/ROSA_HOME cifs vers=3.0
```

Then, to mount the directories, you can use the following command as a user without `root` - privileges:

```
1 | $ mount <mount_point>
```

or for the example with `$HOME`

```
1 | $ mount $HOME/ROSA_HOME
```

Note:

- ▶ The mount command without an entry in `/etc/fstab` requires root permissions, hence the need for `sudo`.
- ▶ To mount CIFS file systems under Linux, you may need to install additional packages. For Ubuntu, install `cifs-utils`.
- ▶ The file systems need to be remounted after each reboot or shutdown.
- ▶ If you encounter mount errors, try adding the `vers=3.0` option to the mount command or fstab entry (this is now already in the examples)

Temporary Mount of Any Cluster Directory for Linux

You can use `sshfs` to temporarily mount any directory from the cluster. First, install `sshfs`:

```
1 | $ sudo apt-get install sshfs
```

Create a mount point:

```
1 | $ mkdir myMountDir
```

Then mount the directory:


```
1 | $ sshfs abcd1234@rosa.hpc.uni-oldenburg.de:/path/to/cluster/directory
```


Mounting on MacOS

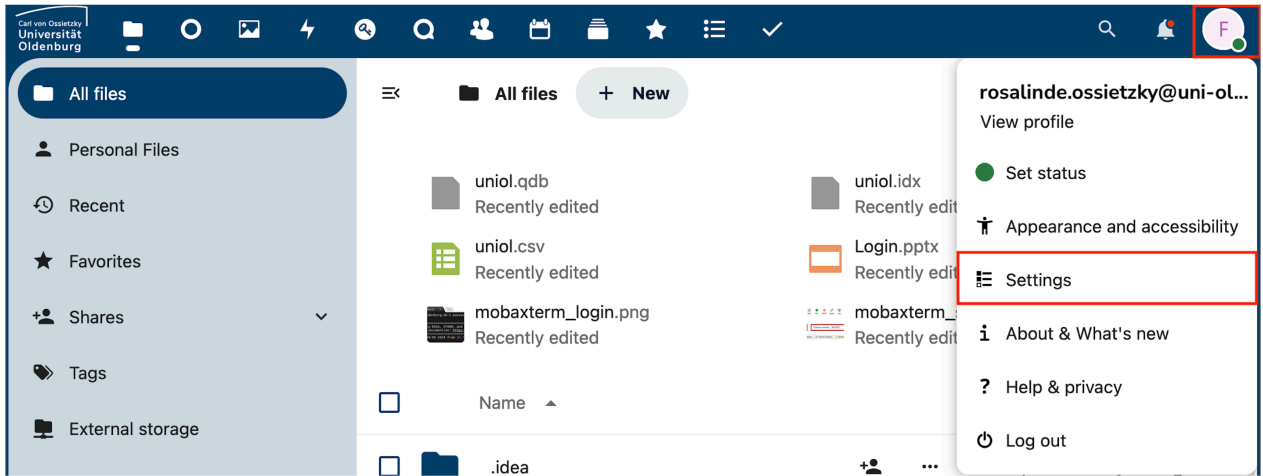
To mount directories on MacOS:

1. Open Finder or press Command + K.
2. Select "Go" and "Connect to Server".
3. Enter one of the following addresses:
 - ▶ `smb://dss.hpc.uni-oldenburg.de/home`
 - ▶ `smb://dss.hpc.uni-oldenburg.de/work`
 - ▶ `smb://smb.uni-oldenburg.de/hpc_data`
4. Enter your credentials when prompted.

Mounting a Directory on Nextcloud

You can also mount your HPC shares on Nextcloud for worldwide access through the universities [NextCloud web interface](#) . Follow these steps:

1. Activate your cloud at <https://cloud.uol.de>  if you haven't already.
2. Log in to your Nextcloud account and go to Settings.

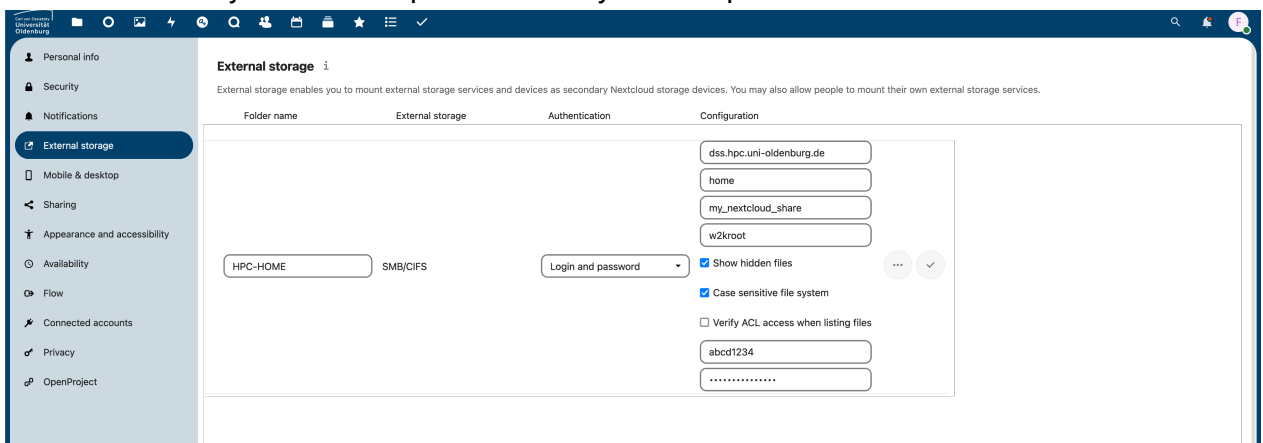


3. Navigate to "External storages" and select SMB / CIFS from the dropdown menu to add storage.

4. Fill in the fields as follows:






- ▶ Folder name: e.g., HPC_HOME for \$HOME
- ▶ Host: `smb.hpc.uni-oldenburg.de` for \$HOME and \$WORK, `smb.uni-oldenburg.de` for others
- ▶ Share: The name of the share (e.g., `hpc_home` for \$HOME)
- ▶ Remote subfolder: Optional, to mount a specific subfolder
- ▶ Domain: `w2kroot`
- ▶ User and Password: Your login credentials

5. Click the check symbol to complete and verify the setup.



Important: Always specify a subfolder in the share box when configuring HPC shares with Nextcloud to prevent overloading the file system!

Possible Shares to Connect with Nextcloud

Host	Share	Remote Subfolder	Domain
dss.hpc.uni-oldenburg.de 	home	folder on \$HOME to mount	w2kroot
dss.hpc.uni-oldenburg.de 	work	folder on \$WORK to mount	w2kroot
smb.uni-oldenburg.de 	hpc_data	folder on \$DATA to mount	w2kroot
smb.uni-oldenburg.de 	hpc_offsite	folder on \$OFFSITE to mount	w2kroot
smb.uni-oldenburg.de 	agyourgroup	folder on \$GROUP to mount	w2kroot

For example, if a user with the sign-in ID abcd1234 had folders called `my_nextcloud_share` on every share, the following paths would be accessible via Nextcloud:

- ▶ `/user/abcd1234/my_nextcloud_share`
- ▶ `/nfs/data/abcd1234/my_nextcloud_share`
- ▶ `/gss/work/abcd1234/my_nextcloud_share`
- ▶ `/nfs/group/agexample/my_nextcloud_share`
- ▶ `/nfs/offsite/user/abcd1234/my_nextcloud_share`

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