

## BCPFS Device Manager Guide

**Preamble.** Measurement data (primary data) of multi-user devices should be stored on the BCP BioSupraMol file system (BCPFS). A hierarchically ordered rights management based on groups governs the access to the data. To avoid misdirected data storage, probably resulting in access violations and/or data loss, there are exclusive folders for each multi-user device installed on the BCP-storage. IT managers regulate the user's memberships in groups and the access to the specific device or group folders.

Device managers use the MI portal at <https://portal.mi.fu-berlin.de/> to register users to specific multi-user devices to control the access to the designated device folders on BCPFS, which must be used to save primary data of the respective measurements. The facility managers designate the device managers.

In this handout, device managers will learn how they can give users access to their specific device folders, where to find mounting/unmounting scripts for their device control machines (Windows), and how to solve mounting problems specifically occurring on Windows machines.

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### How to give users access a device folder

In order to access a device folder, the account must be in the respective `bsmol_<device>` group. Only the device manager can add accounts. The workgroup manager or user of a research lab must ask the facility manager to get access.

- Log in with your ZEDAT account at <https://portal.mi.fu-berlin.de>.
- Navigate to 'Gruppen'.
- Select the `bsmol_<device>` group from the list 'Gruppenmitgliedschaften'.
- Click 'Mitglieder hinzufügen' at the very bottom.
- Add the account.

Wait one hour until the account information has propagated to all servers. The ZEDAT account will then be ready to access the device folder. The account may already be ready after 10 minutes. If you try to use the account too early, however, the system will not yet see the changes and remember the old state for one hour.

### How to install the mount and unmount desktop icons

The scripts are available in `./bcpwinmount/` as a separate ZIP for each facility. Download the ZIP file for your facility and follow the instructions that are included in the ZIP file.

### Further information

Managers searching for detailed information will find them on the MI GITlab (<https://git.imp.fu-berlin.de/bcp/bcpfs-doc>)

## How to fix mount problems

It is a known issue that some Windows applications hold open file handles although they appear to have closed all files. The unmount scripts in `./bcpwinmount/` contain a check that refuses to unmount if there are open file handles to protect from possible data loss. If you always follow a strategy that avoids such hidden file handles, mount problems should never appear. Possible approaches:

- Always logoff when switching the user who mounts the microscope folder.
- Always close applications that may hold open file handles to BCPFS before unmounting.

If you experience mount problems, you can try several things.

If you suspect that the mount problem is due to open file handles, ask the user who had mounted BCPFS before to unmount again. Then close applications that may hold open file handles. Unmount and retry to mount as the desired user.

To identify applications that hold open file handles, use `handle.exe`, which is available from <https://live.sysinternals.com> and included in `bcpwinmount`, to list open file handles:

- `handle.exe bcp-storage01.imp.fu-berlin.de`

Then close the applications that hold the file handles.

In rare situations, it may be useful to forcefully close handles using `handle.exe -c <handle> -p <pid>` as an administrator. Be aware that this may cause data corruption if the application that holds the handle uses the old handle later.

See <https://technet.microsoft.com/en-us/library/2009.04.windowsconfidential.aspx> for a discussion.

A safe alternative is to logoff and logon again to clear the session cache. This approach has worked in all cases. However, it might not be applicable, because logoff is restricted on the microscope due to other constraints.

The following command, executed in a Windows Command Prompt (`cmd.exe`), drops all connections:

- `net use * /del`

Although this may help to resolve network problems in general, it is unclear in which specific situations it would be useful.