

# ComputingResourcesUserGuide

## Brief Guide to Computing Resources at FLASH

### Introduction

As explained in the [User overview](#) page the data recorded at FLASH is stored in an internal DAQ format (.raw) which is converted with a few minutes delay to easily accessible HDF5 ([The FLASH HDF5 structure](#)) files which are the basis for data analysis. These files are stored on the [ASAP3 File System](#) which is accessible from DESYs [Maxwell Cluster](#) which is recommended to be used for the analysis by users. A library provided by FLASH ([BeamtimeDaqAccess](#)) allows efficient access to the recorded data in the HDF5 files. In addition the HDF5 files are accessible from the beamline computers and via a web interface: [Gamma Portal](#)

### Access to the Maxwell cluster

The [Maxwell Cluster](#) is a powerful farm of inter-connected PC nodes running Scientific GNU/Linux. **To access the cluster you need a DESY AFS computing account or a so called scientific account (PSX).**

#### PSX account

The scientific (internally called: PSX) account is a "real" account that is needed to be able to log into DESY computers (mainly used for Maxwell). This is different from the [DOOR](#) account that you need for administrative purposes to be registered for the experiment, do safety training etc.

To get a PSX account please talk to your local contact well before the beamtime. The local contact will take care of the paper work and send you more instructions.

- Scientific account (PSX) users instead go to [desy-ps-cpu.desy.de](#). To connect to the Maxwell cluster from outside the DESY network -- eduroam or the DESY guest network are considered to be outside -- then you can SSH tunnel your connection through [desy-ps-ext.desy.de](#) or more conveniently directly use the [remote login](#) to [max-display.desy.de](#).
- If you have a default DESY AFS (DESY employees) account login to [max-fsc.desy.de](#) using your personal account. (From outside of DESY network tunnel through [bastion.desy.de](#) or use the [remote login](#) to [max-display.desy.de](#).)

#### login with functional accounts

**Note:** Please, always do use your personal account to work on the Maxwell cluster or any central DESY computing resources. Don't use the functional accounts like vuvfuser or bl1 user. Using functional accounts on shared resources causes many difficult to predict problems, even if it might appear to work for you in the beginning. Also, **never** try to login to `bastion`, `desy-ps-ext`, or `max-display` using one of the functional accounts.

### Maxwell cluster

The extensive documentation can be found at [Maxwell Cluster](#)

In particular we want to mention the option [JupyterHub on Maxwell](#), available [Software](#), for more advanced computing demands [Running Jobs on Maxwell](#).