

Getting started on the Maxwell Cluster

General resources

The Maxwell cluster is composed of a Maxwell partition and resources which are contributed by various groups on the DESY campus.

The Maxwell partition is available for DESY members as well as external users of the Photon Science Facilities - under one condition: your application is suitable for high-performance computing. That could include

- multi-core MPI applications which can efficiently use most of the cores on a single or multiple nodes
- many-core applications requiring a very low-latency high-bandwidth network
- application with very high memory consumption
- photon science applications or simulations in need of GPU acceleration

Embarrassingly parallel applications like Monte-Carlo simulations are usually poor examples to utilize the resources effectively. We would advise to use the BIRD cluster instead.



If you think that the Maxwell cluster might help with your computational problems and your application is suited: just drop a message to maxwell.service@desy.de asking for the resource, **but please explain very briefly what kind of applications you intend to run.**

Please see: [Maxwell for everyone](#) for further information

Group resources

If that's not the case you might still be entitled to use dedicated parts of the Maxwell cluster:

- **members of FS:** see [Photon Science on Maxwell members](#)
- **External users of the PETRA3 and/or FLASH:** see [Maxwell for Photon Science users](#)
- **Members of the European XFEL:** see [Maxwell for European XFEL](#)
- **(External) users of the European XFEL:** see [Maxwell for European XFEL](#)
- **Members of CFEL DESY:** see [Maxwell for CFEL](#)
- **Members of the XFEL operating group:** see [Maxwell for XFEL](#)
- **Members of CSSB:** see [Maxwell for CSSB](#)
- **Group members for Petra4:** see [Maxwell for Petra4](#)
- **Members of CMS UHH or CMS DESY:** see [Maxwell for CMS](#)

Your group is not among the ones listed? You still could contribute your resources to the Maxwell cluster for the benefit of everyone on campus. Check the "Bringing resources to maxwell" pages for options.

Very first step

You first want to verify which resources you can already use, or whom to contact in case your missing a resource. There are various ways to do that, depending on the account type available software (e.g. FastX).

What always works: open a terminal (e.g. putty), ssh to bastion.desy.de (desy-ps-ext.desy.de for external photon science users) and run a small scriptlet called [my-resources](#):

my-resources

```
ssh bastion.desy.de
[~]$ my-resources
```

```
Resource  Access  URL
Comments
```

General Resources

```
desycloud  yes  https://desycloud.desy.de
afs        yes  /afs/desy.de/m/monlic
oracle     yes  https://it.desy.de
```

Compute Resources

```
bird      no  https://bird.desy.de      ask uco@desy.de for the batch
resource
maxwell   no  https://maxwell.desy.de   ask maxwell.service@desy.de for the maxwell
resource
exfel@maxwell no  https://maxwell.desy.de   please contact it-support@xfel.
eu
upex@maxwell no  https://maxwell.desy.de   please contact it-support@xfel.
eu
cfel@maxwell no  https://maxwell.desy.de   please contact CFEL DESY
admins
ps@maxwell no  https://maxwell.desy.de   please contact fs-ec@desy.
de
psx@maxwell no  https://maxwell.desy.de   please contact fs-ec@desy.
de
cssb@maxwell no  https://maxwell.desy.de   please contact it@cssb-hamburg.
de
petra4@maxwell no  https://maxwell.desy.de   please contact MPY
admins
xfel@maxwell no  https://maxwell.desy.de   please contact MPY
admins
```

Atlassian Tools

```
confluence yes  https://confluence.desy.de
jira       no  https://agira.desy.de      ask your group admins for jira
access
stash     no  https://stash.desy.de      ask your group admins for stash
access
bamboo    no  https://bamboo.desy.de     ask your group admins for bamboo
access
```

```
-----
Administrators: check http://www-it.desy.de/support/cgi-bin/admins
```

Home Directories

The HOME-Directory on Maxwell is /home/\$USER. /home is mounted on a cluster file system (GPFS). More important:



/home has a single daily snapshot. It's not in backup and will not be archived. The snapshots are located in /home/.snapshot!

/home has a hard quota of 20GB!

Make sure to transfer important data to suitable resources (e.g. group specific storage).

Don't use it for any data crucial for your group! Once your account expires the data will be removed and will not be recoverable!

Storage and Scratch

Everyone with access to the Maxwell cluster also has access to BeeGFS storage space. To create your BeeGFS directory under /beegfs/desy/user/\$USER just invoke the command *mk-beegfs* on one of the maxwell nodes. For more information on BeeGFS and other storage elements available please have a look at [Storage on Maxwell](#).

Kerberos & AFS

Slurm jobs **will NOT support AFS token or a Kerberos ticket!** It means jobs will not suffer from expiring tokens or tickets. It also means that you can't rely on their existence. If your jobs need access to AFS directories it might be favorable to set ACLs enabling token-free access - if possible.

Stay informed



Announcements about updates, maintenance and so on will be communicated via the maxwell-user@desy.de mailing list. maxwell users are automatically subscribed to the [mailing list](#).

We strongly recommend to [self-subscribe](#) to be informed about changes and downtimes even if you are using only group-specific resources. Self-subscriptions are moderated and might take a moment.

Acknowledging the Maxwell Cluster

If the Maxwell cluster was an important asset in your work resulting in a publication, we'd greatly appreciate your acknowledgment. There is currently no publication to refer to and feel free to formulate an acknowledgment in your favorite terms. An example could look like this: *This research was supported in part through the European XFEL and DESY funded Maxwell computational resources operated at Deutsches Elektronen-Synchrotron (DESY), Hamburg, Germany.* We would definitely like to see the publication! Please send references to publications to us, either to Frank Schluenzen or simply to the maxwell.service@desy.de. Have a look at the [list of contributed publications](#).

Next read:

[Maxwell for Everyone](#) and [Maxwell Storage](#)