

# Cluster System Cheat Sheet

Scientific Computing Group

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## 1 Introduction

This document is a quick reference for the cluster system. We've collected here the most often used commands and the most often needed information in a short form which you can keep handy when working on the cluster system.

## 2 Accessing the cluster system

[http://www.luis.uni-hannover.de/scientific\\_computing\\_doku.html](http://www.luis.uni-hannover.de/scientific_computing_doku.html)

### 2.1 Login Nodes

`login.cluster.uni-hannover.de`

### 2.2 Transfer Node

`transfer.cluster.uni-hannover.de`

### 2.3 Batch system

An example batch script:

```

1  #!/bin/bash -login
2  #PBS -N mysimulation
3  #PBS -M ich@meine.email.adresse.de
4  #PBS -j oe
5  #PBS -l nodes=1:ppn=2
6  #PBS -l walltime=00:10:00
7  #PBS -l mem=3gb
8  # show which computer the job ran on
9  echo "Job ran on:" $(hostname)
10 # load the relevant modules
11 module load icc
12 # change to working directory
13 cd $BIGWORK/mydir
14 # run the simulation
15 ./my_simulation

```

### 2.4 Batch system commands

- Put jobs into the queue  
\$ qsub <options> <jobscript\_name>
- Interactive batch jobs  
\$ qsub -I -X (opens a shell on a compute node)

- Show all jobs  
\$ qstat -a
- Show all jobs (alternative output)  
\$ showq
- Show all jobs with node information  
\$ qstat -n
- Show full information for a given job  
\$ qstat -f <jobid>
- Delete a job from the queue  
\$ qdel <jobid>

### 2.5 Queues & Partitions

#### Queues

#PBS -q <queuname>

all for jobs with up to 256 GB of memory  
 helena for jobs with up to 1 TB of memory  
 test for test jobs up to 6 cores

#### Partitions

tane 96 nodes, 12 cores, 48 GB  
 taurus 54 nodes, 12 cores, 48 GB  
 puresmp 9 nodes, 24 cores, 256 GB  
 smp 18 nodes, 24 or 32 cores, 256 GB

only on <cluster>:

#PBS -W x=PARTITION:<cluster>

not on SMP:

#PBS -W x=PARTITION:tane:taurus

## 3 The Modules Environment

<http://www.luis.uni-hannover.de/modules.html>

### 3.1 Commands

- Initialise the modules environment (if necessary)  
source /usr/share/Modules/init/bash
- Show all available modules  
\$ module avail
- Load one or more modules  
\$ module load <modulname> <...>

- Unload a module  
\$ module unload <modulname>
- Show all currently loaded modules  
\$ module list
- Show information about a given module  
\$ module show <modulname>

## 4 Linux Commands

man <command>: Display help for <command>

ls: List directory contents

cd <directory>: Change directory

rm <file>: Delete file

mkdir <directory>: Create directory

passwd: Change password

## 5 Online Resources

Prefix: <http://www.luis.uni-hannover.de>

- [.../scientific\\_computing.html](http://www.luis.uni-hannover.de/scientific_computing.html)
- [.../scientific\\_computing\\_doku.html](http://www.luis.uni-hannover.de/scientific_computing_doku.html)
- [.../batchsystem.html](http://www.luis.uni-hannover.de/batchsystem.html)
- [.../modules.html](http://www.luis.uni-hannover.de/modules.html)

## 6 Contact Information

General Help: [cluster-help@luis.uni-hannover.de](mailto:cluster-help@luis.uni-hannover.de)

→Any cluster related matter, questions, problems

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