

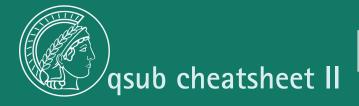


Central cluster communication and interaction is done with the pbs program family. This cheat sheet summarizes frequently used commands and options.

qsub (submit)

qstat (statistics)

```
submit a job description stored in jobfile:
                                                              get an overview for your jobs only:
  qsub jobfile
                                                                qstat [optional job id]
                                                              alternative output format (verbose):
submit a job containing a single command:
                                                                qstat -a [optional job id]
  echo "sleep 5m" | qsub
                                                              summarize all gueues (containing jobs from others):
request an interactive job (shell on worker node):
                                                                qstat -q
  qsub -I
                                                              list your running jobs:
submit a job with additional options (see page 3):
                                                                qstat -r
  qsub jobfile -N jobname -1 walltime=24:00:00
                                                                             qselect (selection)
request a node with 128 GB of ram:
                                                              list ids of your (running) jobs:
  qsub jobfile -1 mem=128gb
                                                                 qselect [optional -r]
request one node with 32 cpus:
                                                              list ids of jobs with name pattern <pattern>
                                                                qselect | grep <pattern>
  qsub jobfile -l nodes=1:ppn=32
```



delete (cancel) a job by id:



Post submission job interaction can be done with qalter. It is of course also possible to cancel jobs after submission.

qdel (deletion)

```
qdel <jobid>
delete all running jobs:
   qdel all

give the job 10 seconds to settle before being
(forcefully) killed:
   qdel -W 10 <jobid>

cancel all jobs with the name pattern <pattern>
   qselect | grep <pattern> | xargs -n1 qdel
```

unfortunately gdel cannot handle wildcards

therefor we have to assemble the list

ourselves and pass it to qdel

qalter (deletion)

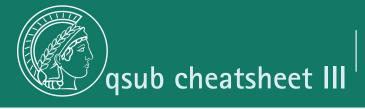
```
increase walltime (grace period) to some value:
    qalter -l walltime=48:00:00 <jobid>

increase priority value for a queued job:
    qalter -p <value between -1024:1023>

batch change memory requirement for all jobs:
    qselect | xargs -n1 qalter -l mem=4000mb

add job dependency to a job id:
    qalter -W depend=afterok:<1st-job> <2nd-job>

# will start execution for job2 only when job1
# finished succesfully
```





There is extensive documentation for all pbs commands in the form of a manual page. Run man <command> on the gridmaster and use PgUp/PgDown and "q" to navigate the manpages. The following summarizes useful qsub meta information and was taken from the *qsub* manpage. You can either use these parameters in the form #PBS -X value in your jobfile or as -X value directly with the qsub command.

#PBS -N job-name-\$variable

set the job name – useful when combined with subject or loop variable and project prefix

#PBS -1 walltime=24:00:00

set the expected running time for the job – will determine queue and thus job priority – Job will be killed after!

#PBS -I mem=10gb

request 10gb of memory for this job see *man pbs_resources* for more options

#PBS -d project/data/

set working directory for the job file (initial change dir)

#PBS -o /home/mpib/krause/logs

store job output file in custom directory, if destination exists and is a file, output will be added (not in order!) to the file – useful for q

#PBS -j oe

join error stream and output stream together in a single file

#PBS -o /dev/null

#PBS -e /dev/null

discard standard error and standard output streams entirely

#PBS -M krause[, nehls,thelen]

email address (list) used for notifications will be expanded to user@mpib-berlin.mpg.de

#PBS -m <str>

filter mail notification, where <str> either is a combination of ,a' ,b' and ,e' (signal on Abort, Begin, End) or a single ,n' to disable mail notification

#PBS -h

set a *hold* flag on this job this job can be released/started at a given point in time with grls <jobid>





Do you have any questions? Please contact us at:

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