# SGE to SLURM conversion

Sun Grid Engine (SGE) and **SLURM** job scheduler concepts are quite similar. Below is a table of some common SGE commands and their SLURM equivalent. **Any questions? Contact us.**

Also check out **Getting started with SLURM** on the Sherlock pages.

Some common commands and flags in SGE and SLURM with their respective equivalents:

| **User Commands** | **SGE** | **SLURM** |
|---|---|---|
| **Interactive login** | qlogin | `srun --pty bash or srun (-p "partition name"--time=4:0:0 --pty bash For a quick dev node, ju st run "sdev"` |
| **Job submission** | qsub [script_file] | sbatch [script_file] |
| **Job deletion** | qdel [job_id] | scancel [job_id] |
| **Job status by job** | qstat -u * [-j job_id] | squeue [job_id] |
| **Job status by user** | qstat [-u user_name] | squeue -u [user_name] |
| **Job hold** | qhold [job_id] | scontrol hold [job_id] |
| **Job release** | qrls [job_id] | scontrol release [job_id] |
| **Queue list** | qconf -sql | squeue |
| **List nodes** | qhost | sinfo -N OR scontrol show nodes |
| **Cluster status** | qhost -q | sinfo |
| **GUI** | qmon | sview |
| | | |
| **Environmental** | | |
| **Job ID** | $JOB_ID | $SLURM_JOBID |
| **Submit directory** | $SGE_O_WORKDIR | $SLURM_SUBMIT_DIR |
| **Submit host** | $SGE_O_HOST | $SLURM_SUBMIT_HOST |
| **Node list** | $PE_HOSTFILE | $SLURM_JOB_NODELIST |
| **Job Array Index** | $SGE_TASK_ID | $SLURM_ARRAY_TASK_ID |
| | | |
| **Job Specification** | | |
| **Script directive** | #$ | #SBATCH |
| **queue** | -q [queue] | -p [queue] |
| **count of nodes** | N/A | -N [min[-max]] |
| **CPU count** | -pe [PE] [count] | -n [count] |

| | | |
|---|---|---|
| **Wall clock limit** | -l h_rt=[seconds] | -t [min] OR -t [days-hh:mm:ss] |
| **Standard out file** | -o [file_name] | -o [file_name] |
| **Standard error file** | -e [file_name] | e [file_name] |
| **Combine STDOUT & STDERR files** | -j yes | (use -o without -e) |
| **Copy environment** | -V | --export=[ALL \| NONE \| variables] |
| **Event notification** | -m abe | --mail-type=[events] |
| **send notification email** | -M [address] | --mail-user=[address] |
| **Job name** | -N [name] | --job-name=[name] |
| **Restart job** | -r [yes\|no] | --requeue OR --no-requeue (NOTE: configurable default) |
| **Set working directory** | -wd [directory] | --workdir=[dir_name] |
| **Resource sharing** | -l exclusive | --exclusive OR--shared |
| **Memory size** | -l mem_free=[memory] [K\|M\|G] | --mem=[mem][M\|G\|T] OR --mem-per-cpu= [mem][M\|G\|T] |
| **Charge to an account** | -A [account] | --account=[account] |
| **Tasks per node** | (Fixed allocation_rule in PE) | --tasks-per-node=[count] |
| | | --cpus-per-task=[count] |
| **Job dependancy** | -hold_jid [job_id \| job_name] | --depend=[state:job_id] |
| **Job project** | -P [name] | --wckey=[name] |
| **Job host preference** | -q [queue]@[node] OR -q [queue]@@[hostgroup] | --nodelist=[nodes] AND/OR --exclude= [nodes] |
| **Quality of service** | | --qos=[name] |
| **Job arrays** | -t [array_spec] | --array=[array_spec] (Slurm version 2.6+) |
| **Generic Resources** | -l [resource]=[value] | --gres=[resource_spec] |
| **Lincenses** | -l [license]=[count] | --licenses=[license_spec] |
| **Begin Time** | -a [YYMMDDhhmm] | --begin=YYYY-MM-DD[THH:MM[:SS]] |

| **SGE** | **SLURM** |
|---|---|
| qstat<br><br>qstat -u username<br>qstat -f | squeue<br><br>squeue -u username<br>squeue -al |

| qsub | sbatch |
| --- | --- |
| qsub -N jobname<br>qsub -l h_rt=24:00:00<br>qsub -pe dmp4 16<br>qsub -l mem=4G<br>qsub -o filename<br>qsub -e filename<br>qsub -l scratch_free=20G | sbatch -J jobname<br>sbatch -t 24:00:00<br>sbatch -p node -n 16<br><br><br><br>sbatch --mem=4000<br>sbatch -o filename<br>sbatch -e filename |
| # Interactive run, one core | # Interactive run, one core |
| qrsh -l h_rt=8:00:00 | salloc -t 8:00:00<br>interactive -p core -n 1 -t 8:00:00 |
| qdel | scancel |

| **SGE for a single-core application** | **SLURM for a single-core application** |
| --- | --- |
| `#!/bin/bash`<br>`#`<br>`#`<br>`#$ -N test`<br>`#$ -j y`<br>`#$ -o test.output`<br>`#$ -cwd`<br>`#$ -M $USER@stanford.edu`<br>`#$ -m bea`<br>`# Request 5 hours run time`<br>`#$ -l h_rt=5:0:0`<br>`#$ -P your_project_id_here`<br>`#`<br>`#$ -l mem=4G`<br>`#`<br><br>`<call your app here>` | `#!/bin/bash -l`<br>`# NOTE the -l flag!`<br>`#`<br>`#SBATCH -J test`<br>`#SBATCH -o test."%j".out`<br>`#SBATCH -e test."%j".err`<br>`# Default in slurm`<br>`#SBATCH --mail-user $USER@stanford.edu`<br>`#SBATCH --mail-type=ALL`<br>`# Request 5 hours run time`<br>`#SBATCH -t 5:0:0`<br>`#SBATCH --mem=4000`<br>`#SBATCH -p normal`<br><br><br>`<load modules, call your app here>` |
| | |

Comparison of some parallel environments set by sge and slurm

| **SGE** | **SLURM** |
| --- | --- |
| $JOB_ID | $SLURM_JOB_ID |
| $NSLOTS | $SLURM_NPROCS |


## Contact Us

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