

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 equivalents

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

User Commands	SGE	SLURM
Interactive login	qlogin	<code>srun --pty bash</code> or <code>srun (-p "partition name"--time=4:0:0 --pty bash</code> For a quick dev node, just 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
<u>GUI</u>	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]]

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SGE	SLURM
qstat	squeue

qstat -u username qstat -f	squeue -u username squeue -al
qsub qsub -N jobname qsub -m beas qsub -M SUNetID@stanford.edu qsub -l h_rt=24:00:00 qsub -pe dmp4 16 qsub -l mem=4G qsub -P projectname qsub -o filename qsub -e filename qsub -l scratch_free=20G	sbatch sbatch -J jobname sbatch --mail-type=ALL sbatch --mail-user=SUNetID@stanford.edu sbatch -t 24:00:00 sbatch -p node -n 16 sbatch --mem=4000 sbatch -A projectname sbatch -o filename sbatch -e filename sbatch --tmp=20480
# Interactive run, one core	# Interactive run, one core
qrsh -l h_rt=8:00:00	salloc -t 8:00:00 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
```

```
#
```

```
#
```

```
#$ -N test
```

```
#$ -j y
```

```
#$ -o test.output
```

```
#$ -cwd
```

```
#$ -M SUNetID@stanford.edu
```

```
#$ -m bea
```

```
#!/bin/bash -l
```

```
# NOTE the -l flag!
```

```
#
```

```
#SBATCH -J test
```

```
#SBATCH -o test.output
```

```
#SBATCH -e test.output
```

```
# Default in slurm
```

```
#SBATCH --mail-user SUNetID@stanford.edu
```

```
#SBATCH --mail-type=ALL
```

<pre># Request 5 hours run time #\$ -l h_rt=5:0:0 #\$ -P your_project_id_here # #\$ -l mem=4G # <call your app here></pre>	<pre># Request 5 hours run time #SBATCH -t 5:0:0 #SBATCH -A your_project_id_here #SBATCH --mem=4000 #SBATCH -p normal # NOTE: if you want more mem consider the hns node # it has 1.5 TB RAM use "-p hns" <call your app here></pre>

Comparison of some parallel environments set by sge and slurm

SGE	SLURM
\$JOB_ID	\$SLURM_JOB_ID
\$NSLOTS	\$SLURM_NPROCS