



Installation & Configuration of SGE / GridEngine

The instructions below are general overviews for Debian/Ubuntu-based systems.

Master Server

The master server controls how, when, and where jobs are executed. It doesn't (necessarily) run jobs itself.

Installation

```
sudo apt-get install gridengine-master gridengine-qmon xfonts-100dpi xfonts-
```

Questions it will ask during installation:

1. Configure SGE automatically? **Yes**
2. SGE master hostname: Type the **full** domain name of the this computer. You can find that out by typing `host $(hostname -i)`. The last part of the output is the full domain name (minus the trailing dot).

Further reading:

- <http://www.socher.org/index.php/Main/HowToInstallSunGridEngineOnUbuntu>
- <https://scidom.wordpress.com/tag/parallel>
- <https://informatics.malariagen.net/2011/06/01/gridengine-the-ubuntu-debian-way>
- <http://arc.liv.ac.uk/SGE/howto/commontasks.html>

Configuration

You can then configure it using the `qconf` command (or graphically with Qmon). The command-line arguments for `qconf` follow general patterns. For example you can **add** something with `-a`,

The most important things to add/configure are **queues**, **execution server list**, **execution servers** (esp. if you're using GPUs), **parallel environments**, **complex configurations** (like GPUs), and **users**. Read the full man page for more details.

Man Pages

- `man qconf`: Overall configuration of master server
- `man queue_conf`: configuration of queue

Enabling GPUs

The basic setup for using GPUs within SGE/GridEngine is described [here](#).

Other possible setups are described below:

- <http://gridengine.org/pipermail/users/2012-May/003567.html>
- <https://stackoverflow.com/questions/10557816/scheduling-gpu-resources-using-the-sun-grid-engine-sge#14702046>
- <https://github.com/UCL/Grid-Engine-Prolog-Scripts>
- <https://github.com/HPCKP/GPU-Integration-for-GridEngine>

Email Notifications

Users might want email notifications in qsub by adding the `-M user@example.com` argument. You can install a simple SMTP server to allow this:

```
sudo apt-get install ssmtp
sudo chgrp mail /etc/ssmtp/ssmtp.conf
sudo chmod 640 /etc/ssmtp/ssmtp.conf
sudo usermod -a -G mail sgeadmin

# Now modify line: "mailhub=mail" to something like "mailhub=mail.yourdomain"
# If your company doesn't have an email server, follow the GMail instructions
sudo vi /etc/ssmtp/ssmtp.conf

# Now test it out, sending the test email to myemail@gmail.com
echo 'This is a test' | sudo -u sgeadmin mail -s 'Testing' myemail@gmail.com
```

Execution servers run the actual computing, outputting the results to whatever path was specified using `qsub -o ...` (or `#$ -o ...` in a script).

Installation

```
sudo apt-get install gridengine-exec
```

Questions it will ask during installation:

1. Configure SGE automatically? **Yes**
2. SGE master hostname: Type the **full** domain name of the master server

Add info about the execution server on the master server by typing `sudo qconf -ae host` . You can later modify it replacing `-ae` with `-me` .

Client

The clients submit jobs, typically using the `qsub` command, just as you could use `bash` or `sh` before a shell script. More info about using `qsub` is described in the [instructions for users](#).

Installation

```
sudo apt-get install gridengine-client
```

Questions it will ask during installation:

1. Configure SGE automatically? **Yes**
2. SGE master hostname: Type the **full** domain name of the master server

User Commands

SGE commands for normal users is described [here](#).