

A quick guide to the lion-xm linux cluster

Lion-xm: useful if you want to utilize several machines to do your computation. For example: large simulation studies that are easily parallelized, Monte Carlo computations, etc.

Some advantages:

(1) Avoid having to worry about details regarding which machines to send your jobs to. A level of abstraction: you only have to specify what you want done and lion-xm will automatically ‘queue’ the job to the appropriate processor and keep track of what happens to the job.

(2) No one can log on to the processor you are using and slow down your work (this happens on our local machines). The lion-xm queue system will do something sensible to deal with prioritization of jobs for multiple users.

(3) If you learn how to write scripts (using python or perl), you can send many jobs to many processors automatically, without having to know anything about processor names etc.

(4) Using lots of processors can really save you time. Obviously parallelizable job sent to 10 processors can reduce your computing time to one-tenth!

(5) The department has already paid for this service so it is free! However, there are limits on how much time you get to use the cluster so use the cluster judiciously.

Step 1: Obtain a lion-xm account. This can be done by emailing lion-xm administrators Jason Holmes (jholmes@psu.edu) or Vijay K.Agarwala (vijay@psu.edu)

Step 2: From Linux machine use secure shell login: `ssh -l username lionxm.aset.psu.edu`. Typically user name and password=PSU user name and password

Step 3: If you need to copy files to and from lion-xm. Example of copying to lionxm (if you are already on the lionxm machine):

```
scp myname@stat.psu.edu:computing/Rprograms/myprogram.R .
```

Step 4: Create a job script: this is a file where you will provide commands for lion-xm to execute. Simply edit an example of the lion-xm script from the website (provided below).

Step 5: Use `qsub` scriptname to run the script, `qstat` to check the status of the job and `qdel` to delete a job.

Everything you need to know (including most of the notes above) is at: <http://gears.aset.psu.edu/hpc/guides/lionxm/>