LSF commands

These are the most important LSF user commands:

bsub	Submit a batch job to the LSF system
bkill	Kill a running job
bjobs	See the status of jobs in the LSF queue
bpeek	Access the output and error files of a job
bhist	History of one or more LSF jobs
bqueues	Information about LSF batch queues
bacct	Accounting statistics about finished jobs
bhist	Historical information about jobs
bhosts	Batch hosts status and resources
bhpart	Information about host partitions and Fairshare shares
bresume	Resumes one or more suspended jobs
bstop	Suspends unfinished jobs
lsid	Displays the current LSF version number, the cluster name, and the master host name
lsload	Displays load information for host

Bsub command usage

BSUB -option value

#BSUB -c 100	which means a per process time limit of 100 CPU minutes.
#BSUB -q SMP1	Job queue; See the list of available queues
#BSUB -c 100	Time limit for the job (specified in [hour:]minutes)
#BSUB -F 100	File Size Limit for each process within the batch job (in Kb)
#BSUB -M 64000	Memory Size Limit for the whole job (in Kb)
#BSUB -S 128000	Stack segment size limit for each process in the batch job
#BSUB -D 64000	Data segment size limit for each process within the batch job
#BSUB -o filename	redirect stdout to the file filename.
#BSUB -e filename	redirect stderr to the file filename
#BSUB -J jobname	name of the job

Job Submission

bsub < jobfile. ** By default, the job output is sent by mail.*

Each LSF job runs in a queue. If you don't give LSF a queue name, your job will go to the default <normal> queue.

Each LSF job will be dispatched to a server. If you don't specify the server, LSF will choose one for you. To find the name of the server and the current status of the job, use the bjobs command:

```
[root@hpchead ~]$ bjobs 103
JOBID  USER    STAT   QUEUE      FROM_HOST   EXEC_HOST   JOB_NAME   SUBMIT_TIME
103    avakhni  DONE   normal       hpchead       hpchead       hostname      Jun  7 11:38
```

This was a job consisting of only one command, so it ran very quickly. It's status (STAT) is DONE, which means it completed successfully. If a job returns anything other than a normal completion code, its status will be EXIT.

otherwise, LSF will chose an execution host with the same architecture as the submission host. If more than one server meets that criterion, LSF will choose the most powerful host with the lightest load.

LSF output/error logs

By default, LSF will send you email containing the standard output (stdout) and standard error (stderr) from your job, as well as some basic information about the execution of the job. If your program produces additional output files, they are separate and are not included in this email.

To save your job's output in a file instead of receiving it in email, use the -o option on the *bsub* command:

bsub -o my_output job01

You can also put stdout and stderr in different files if you wish:

bsub -o my_out -e my_err job01

To make it easier to keep track of the output from multiple runs of the same program, you can use the special %J variable in your file names. LSF will substitute the job number for the %J variable:

bsub -o out.%J –e err.%J job01

Submit job at specific time:

To force your job to begin at a specific time, use the -b option on the *bsub* command:

bsub -b 11:00 job01 * Tells LSF to start your job at 11:00 a.m. If the current time is after 11:00 a.m., the job will be held until the next day.

bsub -b 2:15:23:15 * Tells LSF to start the job at 11:15 p.m. on February 15.

Submit job to specific host:

If you want your job to run on a specific host, use the -m option

bsub -m node15 job01

Submit interactive Job:

Job submitted to the *batch* queue run in the background, but sometimes you need to run a job in interactively in the foreground. To do this you need to request the *interactive* queue explicitly and also use the -Ip (interactive pseudo terminal) option.

Here is a simple example:

```
bsub  -Ip uname -a
Job <107> is submitted to default queue <normal>.
<<Waiting for dispatch ...>>
<<Starting on hpchead>>
Linux hpchead.american.edu 2.6.18-194.el5 #1 SMP Tue Mar 16 21:52:39 EDT 2010
x86_64 x86_64 x86_64 GNU/Linux
```

Note: When you run an interactive job, LSF does not send you email.
Examples of programs that are often run in the interactive queue include SAS, Stata, and Mathematica.

Following the job progress

With the command **bjobs**, you can examine the progress of all batch jobs. It is most frequently invoked as

bjobs -u all

```
[root@hpchead ~]$ bjobs -u all
JOBID   USER    STAT  QUEUE      FROM_HOST   EXEC_HOST   JOB_NAME   SUBMIT_TIME
104     avakhni PEND  normal     hpchead                 hostname   Jun  7 11:45
107     avakhni PEND  normal     hpchead                 uname -a   Jun  7 11:52
```

With the command bpeek, you can inspect the output file of a specific batch job.