Endeavour PBS Server and Queue Structure

When you submit jobs to Endeavour, you must keep in mind that Endeavour uses a different PBS server and different queues than those used by Pleiades.

PBS Server

The Pleiades front-end systems (PFEs) are the common front ends for submitting and managing your PBS jobs on either Pleiades or Endeavour. However, the two systems use different PBS servers, as follows:

- Pleiades server: pbspl1
- Endeavour server: pbspl4

The default PBS server is the Pleiades server, pbspl1. If you do not include a server name in your PBS commands (such as qsub, qstat, qalter and qdel), the pbspl1 server is assumed. To submit or manage Endeavour jobs you can either specify the Endeavour server in your PBS command line, or you can change your default server from pbspl1 to pbspl4.

Specify the Endeavour Server in the Command Line

You can explicitly add the server name pbspl4 to your command line. For example:

pfe*21*% qsub -q *queue_name*@pbspl4 *job_script*

2468.pbspl4.nas.nasa.gov

In the example above, a queue is specified. If you submit the job without specifying a queue, PBS will assign the job to an appropriate Endeavour queue. For example:

pfe*21*% qsub -q @pbspl4 *job_script* 2468.pbspl4.nas.nasa.gov

Additional examples of PBS command lines that specify the pbspl4 server:

pfe*21*% qstat -nu *username* @pbspl4

pfe*21*% qstat 2468.pbspl4@pbspl4

pfe*21*% qalter -lwalltime=2:00:00 2468.pbspl4@pbspl4

pfe*21*% qdel 2468.pbspl4@pbspl4

Change the Default Server to pbspl4

If your primary workload is on Endeavour, and you do not normally run jobs on Pleiades compute nodes, set the environment variable PBS_DEFAULT to pbspl4. This allows you to omit pbspl4 from your command lines. For example:

pfe*21*% setenv PBS_DEFAULT pbspl4

pfe*21*% qsub -q *queue_name job_script*

2468.pbspl4.nas.nasa.gov

To submit a job without specifying a queue:

pfe*21*% qsub *job_script*

2468.pbspl4.nas.nasa.gov

Additional examples of PBS command lines you can use after you set the PBS_DEFAULT environment variable to pbspl4:

pfe*21*% qstat -nu *username*

pfe*21*% qstat 2468

pfe*21*% qalter -lwalltime=2:00:00 2468

pfe*21*% qdel 2468

Queue Structure

Each Endeavour node contains 896 cores with six terabytes (TB) of memory.

To use these resources, submit PBS jobs to one of the Endeavour queues. Endeavour queue names begin with an "e_" prefix.

View the general queues for Endeavour by using the qstat command:

pfe*21*% qstat -Q @pbspl4

```
Queue    Ncpus/      Time/          State counts
name       max/def    max/def   jm T/Q/H/W/R/E/B pr
======== =====/=== ======/===== == ============= ==
e_normal    --/  8  08:00/01:00 -- 0/0/0/0/0/0/0  0
e_long      --/  8  72:00/36:00 -- 0/0/0/0/3/0/0  0
e_vlong     --/  8 600:00/24:00 -- 0/0/0/0/0/0/0  0
e_debug    128/  8  02:00/00:30 -- 0/0/0/0/0/0/0 15
```

Among the Endeavour queues, the higher-priority e_debug queue is the only one that has a limit on the maximum number of cores (128 cores) per job. If you want to use the e_debug queue, you must specify -q e_debug either in the qsub command line or inside the PBS script.

To view more information about each Endeavour queue:

pfe*21*% qstat -fQ *queue_name*@pbspl4

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https://www.nas.nasa.gov/hecc/support/kb/entry/425/