Slurm Basics

The School of Management has implemented a new high performance cluster which now uses Slurm (Simple Linux Utility for Resource Management) to manage jobs. Slurm allows for the scheduling, monitoring, and load balancing of jobs submitted to the cluster.

Helpful Slurm Terms:

When getting started with Slurm, there may be some terms used that will be unfamiliar to you. Here are definitions to some of these terms for your reference:

- **job**: a program which has been boxed into an abstraction layer
- **node**: a single computational device, generally a server
- **partition**: a set of compute nodes, grouped logically
- **task**: processor resource

Partitions:

Partitions group nodes into logical sets. Each partition is considered a job queue, and will have constraints such as size limit, time limit, and users who are permitted to use it. Here is the list of partitions on the HPC cluster:

- **normal**: standard partition for non-GPU jobs, no time limit
- **compute**: for CPU intensive jobs, five day time limit
- **day**: one day time limit
- **interactive**: for interactive jobs, six hour time limit
- **week**: one week time limit
- **mpi**: for jobs that utilize Message Passing Interface for parallel computing
- **bigmem**: for applications that require a great deal of memory
- **gpu**: for compute jobs that will use the NVIDIA GPUs, two day time limit

Commands:

Here is a list of the most commonly used commands used to control your Slurm jobs:

- `squeue`: show a list of jobs currently running on the cluster
- `squeue -u <username>`: lists all the jobs you currently have running on the cluster
- `squeue --partition=<partition_name>`: lists all jobs running on a specific partition
- `sinfo`: shows the status of partitions, availability, time limits, number of nodes, and the state of nodes
- `srun`: launch an interactive job
- `sbatch <slurm_script.slurm>`: launches a batch script
- `scancel <job_number>`: cancels a job, the job number can be found by running squeue
- `scontrol show job <job_number>`: gives detailed information regarding the status of a running job