Shared Computing Cluster Usage Cheat Sheet

Useful Links

RCS website	rcs.bu.edu
SCC OnDemand	scc-ondemand.bu.edu
email	help@scc.bu.edu
Software list	rcs.bu.edu/software
Examples	rcs.bu.edu/examples

module (software environment)

module avail	List available packages
module avail *matlab*	List available versions of *matlab*
module spider *matlab*	List available versions of *matlab*
module load *matlab*	Load module *matlab*
module show *matlab*	Show the content (env. variables) of a module
module unload *matlab*	Unload the module
module list	List all loaded modules
module purge	Unload all loaded modules
module avail -t 2>\& 1 | less	Pipe module list to *less* command

qrsh/qsh (submit an interactive job)

qrsh	Submit an interactive rsh session
qsh	Submit an interactive X-windows session
qrsh -pe omp 4 -P *project-name*	Interactive job example

qsub (submit a batch job)

-P *project-name*	Project name
-N *job-name*	Job name
-l h_rt=*hh:mm:ss*	Hard time limit
-m e	Send an email when the job ends
-m ea	Send an email when the job ends or is aborted
-M *my.email@gmail.com*	Use non-BU email address
-j y	Merge error and output files into a single file
-pe omp *N*	Request multiple cores (4, 8, 16, 28, 32)
-pe mpi_28_tasks_per_node *N*	MPI job (4, 16, or 28 cores per node)
-t 1-*N*	Submit N tasks
-l mem_per_core=*6G*	Request at least 6G of memory per core
-l gpus=1	Request a node with 1 GPU
-l gpu_c=3.5	Minimal GPU compute capability (3.5, 6.0, 7.0)
-hold_jid *joblist*	Setup job dependency list
-l buyin	Force the job to run only on a buyin node
-q *queue-name*	Force job to run only in a specific queue
-verify	Instead of submitting a job, print an info

qstat (get information about jobs)

qstat	List of all current jobs
qstat -u *user-id*	All current jobs submitted by the user *user-id*
qstat -s r	List of running jobs
qstat -s p	List of pending jobs (hw, hqw, Eqw...)
qstat -u *user-id* -r	Display the resources requested by the job
qstat -u *user-id* -ext	Extended info about the user's jobs
qstat -u *user-id* -s r -t	Display info about sub-tasks of parallel jobs
qstat -j *job-id*	Display job status
qstat -g c	Display the list of queues and load information
qstat -q *queue*	Display jobs running on a particular queue

qdel (delete job from the queue)

qdel *job-id*	Delete job *job-id*
qdel *job-id* -t 5-7	Delete tasks 5 through 7 for job *job-id*
qdel -u *user-id*	Delete all the jobs submitted by the user

qselect (list queues corresponding to selection criteria)

qselect -pe omp 16	list all nodes that can execute the job with selected resources
qselect -l mem_total=252G	list all large memory nodes
qselect -pe mpi16	list all the nodes that can run 16-slot mpi jobs
qselect -l gpus=1	list all the nodes with GPUs

qacct (past job information)

qacct -j *job-id*	Detailed report about job *job-id*
qacct -d 3 -o *user-id* -j	Detailed report about all jobs in the past 3 days
qacct -d 3 -o *user-id* -q *queue* -j	Detailed report about all user jobs on a *queue*
qacct -P *project-id*	Summary report for the project (current year usage)

User Guidelines
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15 min. CPU time on login nodes
12 hours - default wall clock time for a job
720 hours - wall clock time limit for a single-node job
48 hours - wall clock time limit for a GPU job
120 hours - wall clock time limit for mpi job running on multiple nodes
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acctool (account information)

acctool -b y	Balance summary of all the projects I belong to
acctool -u *user-id* -b y	Balance summary of all the projects *user-id* belongs to
acctool 06/18/20	Number of jobs and wallclock report for the day
acctool -d 2 06/18/20	Number of jobs and wallclock detailed report for the day
acctool -d 2 -t 5 06/18/20	Display detailed report for the top 5 jobs for the day
acctool -d 4 06/18/20	Most detailed report for all the jobs for a particular day
acctool -j *job-id* 06/18/20	Report for job with given job ID.

Connecting to the Shared Computing Cluster

`scc1, scc2, scc3(geo), scc4`	SCC login nodes
`ssh username@scc2.bu.edu`	Windows (in mobaXterm)
`ssh -Y username@scc2.bu.edu`	Mac
`ssh -X username@scc2.bu.edu`	Linux

quota (home directory space usage)

`quota`	Display my Home directory usage
`quota -s`	Display my Home directory usage in human-readable format
`quota` *user-id*	Display Home directory usage for the user

`du -hs .[^.]* *` show size of each sub-directory

Working with the Project Disc Space

`groups`	List all projects which I belong to
`cd /project/myproject`	Change directory to the /project directory
`cd /projectnb/myproject`	Change directory to the /projectnb directory
`cd /restricted/project/myproject`	Change directory to the /restricted/project directory (from scc4 only)
`cd /restricted/projectnb/myproject`	Change directory to the /restricted/projectnb directory (from scc4 only)

pquota (project space usage)

`pquota`	Quotas for the disk space for all the projects I belong to
`pquota -u` *project*	Disk space quota and usage for the project

Available editors and viewers

`emacs`	Text editor ("the extensible, customizable, self-documenting, real-time display editor")
`vi, vim, gvim`	Another popular text editor
`gedit`	GNOME notepad-like text editor
`nano`	GNU text editor with command-line interface
`evince`	pdf viewer
`display`	image viewer

Commands to transfer files and Popular FTP clients

Note: The following scp commands should be executed on the local machine.

`scp filename username@scc1.bu.edu:~`	Upload file from your local machine to your home directory on the SCC
`scp filename username@scc4.bu.edu:/project/myproject`	Upload file from your local machine to your specified project directory on the SCC
`scp username@scc4.bu.edu:/project/myproject/filename .`	Download file from your project directory on the SCC to the current directory on your local machine
`rsync filename username@scc1.bu.edu:~`	sync a file from your local machine with the file in your home directory on the SCC

`wget http://www.site.org/file` Download a file from a website

`Cyberduck`	Windows and MAC FTP client
`FileZilla`	Windows and MAC FTP client
`WinSCP`	Windows FTP client

`dos2unix filename` Convert file with DOS/MAC characters to UNIX/Linux format (execute on SCC)

Snapshots

`.snapshots/`*yymmdd*	Snapshots directory structure
`ls .snapshots/200805`	View the snapshot of the directory created on August 5th, 2020