

How to Access Summit

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Link to survey on this topic: <http://tinyurl.com/rcpresurvey>

Slides:
https://github.com/ResearchComputing/Final_Tutorials/tree/master/access_summit

Outline

- Allocations
- Storage spaces
- Modules
- Logging in
- Running jobs
- Re-compiling code if needed
- Steps to get access to Summit
 - What you NEED to do
 - What you SHOULD do
- Not covering how to get an account

Allocations

- If you have an account with RC, you don't need a new one
- However, you will need a new allocation to use Summit versus Janus
- Currently, to request an allocation please email rc-help@colorado.edu and ask for a General account
- In the future, we will have a place on our website to submit a more formal request
- Once you have some benchmarks, you will want to move to a proposal-request allocation

Allocations

- Need an allocation? Plan to run on Summit?
- Make a request now!
- Email rc-help@colorado.edu
- “Hi, I’d like to receive a general allocation to run on Summit. My proposed usage is <describe your project in 2-3 sentences>”

Storage Spaces

- Scratch will change
- /home and /projects will not
- /home and /projects are on a different system
- Scratch is mounted at /scratch/summit
- You WILL NEED TO transfer your data off Janus' scratch
- You WILL NOT NEED TO transfer your data from /home, /projects, or the PetaLibrary

How Can I Transfer My Data?

- There are a few ways:
- We recommend using Globus
 - <https://www.globus.org/>
- Other ways: cp, rsync

The screenshot displays the Globus web interface. At the top, there is a navigation bar with the Globus logo, a 'Manage Data' button, and links for 'Publish', 'Groups', 'Support', and 'Account'. Below this, a secondary navigation bar includes 'Transfer Files', 'Activity', 'Endpoints', 'Bookmarks', and 'Console'. The main content area is titled 'Transfer Files' and shows two side-by-side file explorer panels. Both panels are connected to the 'CU-Boulder Research Computing' endpoint. The left panel shows the path '/lustre/janus_scratch/ruprech/' and lists various folders such as '1p', '3dnlexc', 'A00081L6', 'LAMMPS', 'NAMD', 'PLbackups', 'ansys', 'ansys-tmp', 'athena4.1_large_box', 'backup', 'benchmark', 'bigfiles', 'collectl.data.2432303', 'csu-tests', 'from-work-ics', 'globus-test', 'ibroutes', 'kybe-testing', 'lagrange', and 'mathworks_downloads'. The right panel shows the path '/scratch/summit/ruprech/' and lists folders like '1p', 'HPL', 'LAMMPS', 'alltoall', 'f10l24t24ls16b410m000_3stout_aaaa', and 'testing', along with files 'README.mdown', 'local-lib-1.008004.tar', 'lotazeros2', and 'lotazeros2b' with their respective sizes. Above the right panel, there is a 'RECENT ACTIVITY' section with three circular icons and the number '0'.

Modules

- You must switch to the new modules system on Summit
 - Loading a module sets a user's environmental variables to enable access to the software package provided by that module
- In order to switch to the new modules, simply run the script `lmod.sh`, using this command:

```
/curc/tools/utils/switch_lmod.sh
```

- Must log out and back in for changes to take effect
- Note: Summit modules are not visible on the login nodes
 - Are on compile nodes

Logging in

- To login to RC resources:
 - The same command as before
`ssh login.rc.colorado.edu`
- Next, you must load up the slurm module on Summit
 - Otherwise you will be running on Janus
`ml slurm/summit`
- Then you can submit a job as before using sbatch

Using Slurm

- We are using the Slurm scheduling system on Summit
- In order for your jobs to run most quickly and efficiently and to meet your needs, you should specify certain flags
 - `--nodes`: number of nodes you need
 - `--ntasks-per-node`: Number of cores you need
 - `--time`: wall time
 - `--partition`: specifying a particular hardware configuration
 - `--qos`: Used to constrain or modify characteristics of a job
 - Time
 - These flags can be added in a bash script or on the command line

Submit Your First Job!

- Submit a slurm job with the following instructions:
 1. The job should run the Unix “hostname” command
 2. The job will be submitted from a bash script named `hostname_summit.sh`
 3. The job will run on 1 node
 4. We will request 1 minute wall time
 5. Run in the debug QOS
 6. Run on the Summit Haswell partition

Contents of Batch Script

Bash Script hostname_summit.sh:

```
#!/bin/bash
#SBATCH -N 1                # Number of requested nodes
#SBATCH --time=0:01:00      # Max walltime
#SBATCH --qos=debug         # Specify debug QOS
#SBATCH --partition=shas    # Specify Summit haswell nodes

hostname
```

Running the script

- Load up the slurm module

```
ml slurm/summit
```

- Submit the job:

```
sbatch hostname_summit.sh
```

- Check output:

```
cat slurm-####.out
```

Compiling Code

- You will need to recompile code on Summit that you compiled on Janus
- From an RC login node, ssh into a compile node

```
ssh scompile
```

What you NEED to do

- Request a new allocation
- Move your data off of scratch
- Recompile your code
- Update to the new module system
- Re-load all appropriate modules
 - Only if on login nodes
 - Not necessary if on compile nodes
- Learn how to login
 - Load up the correct slurm module

What you DON'T NEED to do

- Get a new account
- Move data off of /home or /projects

What you SHOULD do

- Understand the different flags used in running the slurm command
 - Partition
 - QOS
- Learn how to Parallel Program!
 - You will benefit greatly from Summit by doing this
 - Parallelization Workshop week of May 15
- Modify your workflow:
 - <https://www.rc.colorado.edu/support/user-guide/batch-queueing.html>

Still Stuck?

- Summit transition guide:
<https://www.rc.colorado.edu/news/summittransition>
 - Provides lots more help I didn't cover here
- Trainings!
 - New User Seminar!
<https://www.rc.colorado.edu/training/new-user-seminar>
 - Parallelization!
<https://www.rc.colorado.edu/training/parallelization>
 - Basics of Supercoming!
- Email rc-help@colorado.edu

Questions?

- Email rc-help@colorado.edu
- Twitter: CUBoulderRC
- Link to survey on this topic: <http://tinyurl.com/curc-survey16>
- Slides:
https://github.com/ResearchComputing/Final_Tutorials/tree/master/How_Access_Summit