

# How to Access Summit

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[www.rc.colorado.edu](http://www.rc.colorado.edu)

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

Slides:  
[https://github.com/ResearchComputing/Final\\_Tutorials/tree/master/access\\_summit](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](mailto: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](mailto: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', 'testing', and files like 'README.mdown', 'local-lib-1.008004.tar', 'lotazeros2', and 'lotazeros2b'. A 'RECENT ACTIVITY' section at the top right shows zero transfers.

# 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](mailto:rc-help@colorado.edu)

# Questions?

- Email [rc-help@colorado.edu](mailto: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/RC\\_Access\\_Specific\\_Topics/How\\_Access\\_Summit](https://github.com/ResearchComputing/Final_Tutorials/tree/master/RC_Access_Specific_Topics/How_Access_Summit)