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

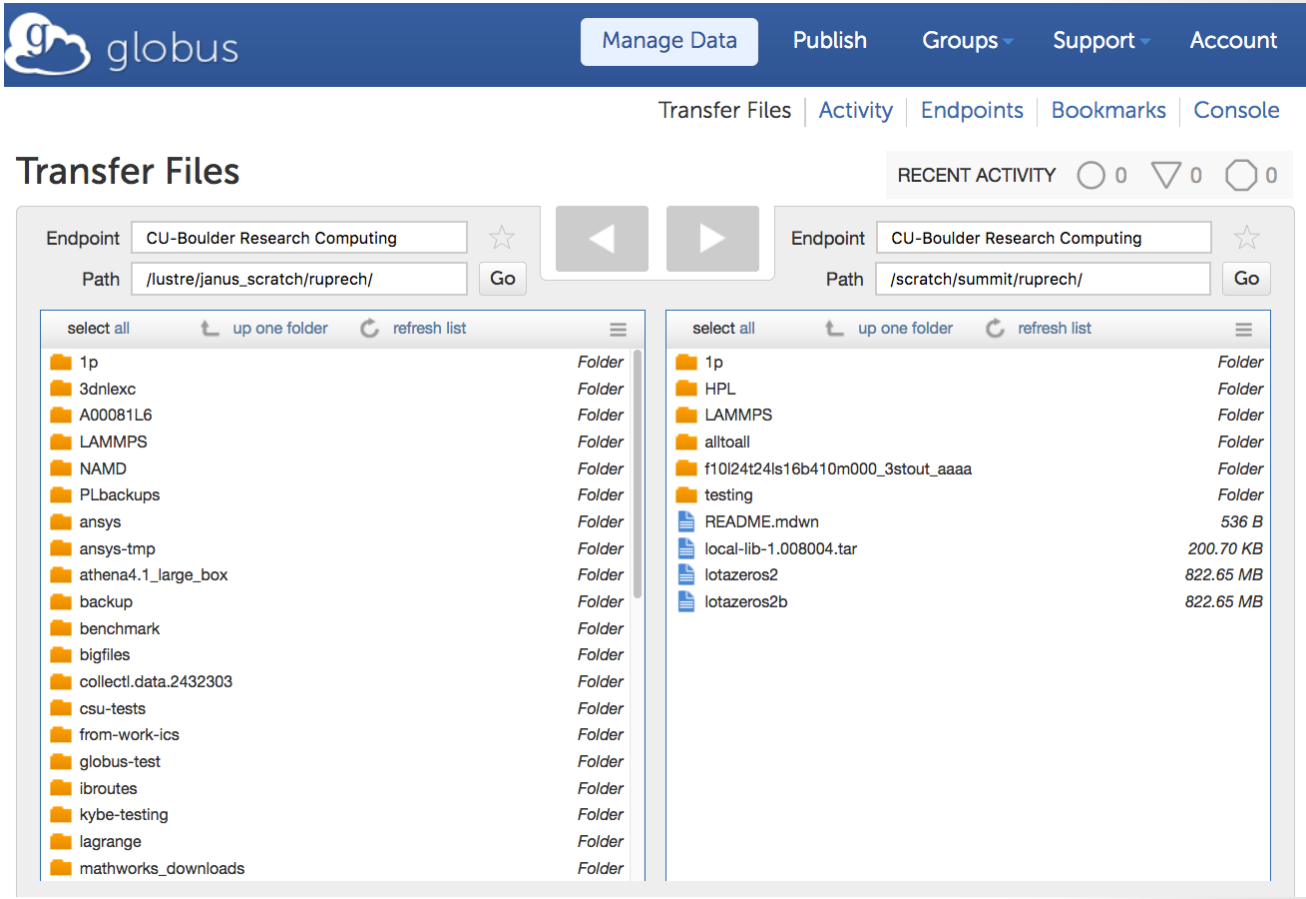
- Need an allocation? Plan to run on Summit?
- Make a request now!
- Email rc-help@colorado.edu
- “Hi, I’d like to receive a general allocation to run on Summit. My proposed usage is <describe your project in 2-3 sentences>”

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



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 Supercomputing!

- 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/RC_Access_Specific_Topics/How_Access_Summit