Wilson Cluster Decommissioning and You! - Fermigrid

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Where to login

- For IF experiments (nova, dune, mu2e, etc.):
  - Use experiment interactive nodes. Usually <experiment>gpvm01-xx. e.g. novagpvm01
  - For AD people, accelaigpvm01, marsaccelgpvm01 are two possibilities (if you're not sure which, contact Jason St. John or Tia Miceli). Else, EAF.

- For EAF users:
  - Select appropriate notebook (FIFE, DUNE, and Generic work), open Terminal
  - See EAF slides for more details

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Jobsub_lite

- Software for batch/grid job submission and monitoring
- Client-only, installed on experiment interactive nodes and EAF
- jobsub_lite takes user command, converts it to HTCondor (batch system) submission file (Job Definition File), and submits job to grid
- More info on jobsub_lite:

  https://fifewiki.fnal.gov/wiki/Getting_started_with_jobsub_lite

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jobsub_submit

```
$ jobsub_submit -G fermilab file:///usr/bin/printenv
 Attempting to get token from https://fermicloud543.fnal.gov:8200 ... failed
 Attempting kerberos auth with https://fermicloud543.fnal.gov:8200 ... succeeded
 Attempting to get token from https://fermicloud543.fnal.gov:8200 ... failed
 Attempting OIDC authentication with https://fermicloud543.fnal.gov:8200

 Complete the authentication at:
    https://cilogon.org/device/?user_code=<code>
 No web open command defined, please copy/paste the above to any web browser
 Waiting for response in web browser

 Storing vault token in /tmp/vt_u10610
 Storing bearer token in /tmp/bt_token_fermilab_Analysis_10610
 Submitting job(s).
 1 job(s) submitted to cluster 57106734.
 Use job id 57106734.0@jobsub01.fnal.gov to retrieve output
```

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jobsub_submit, explained

```
$ jobsub_submit -G nova -N 100 --tar-file-name
dropbox:///local/path/to/my/tarball.tar file:///path/to/myscript script_arg1
script_arg2
```

- *-G* required to designate "group" (usually the experiment you're on, or accel for AD folks)
- *-N 100*: Submit cluster of 100 jobs with these parameters
- *--tar-file-name* designates a tarball to send to the grid job. See https://fifewiki.fnal.gov/wiki/File_Transfers_in_jobsub_lite for more details on uploading files to grid jobs
- The *file://* URI is used to designate the executable the job should run. It supports both absolute and relative paths
- For full list of jobsub_submit options, see https://github.com/fermitools/jobsub_lite/wiki#jobsub_submit

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First-time authentication

- First job submission: jobsub will prompt user to authenticate with CILogon to obtain proper token

```
Attempting OIDC authentication with https://htvaultprod.fnal.gov:8200


Complete the authentication at:

        https://cilogon.org/device/?user_code=_redacted_user_code
No web open command defined, please copy/paste the above to any web browser
Waiting for response in web browser
```
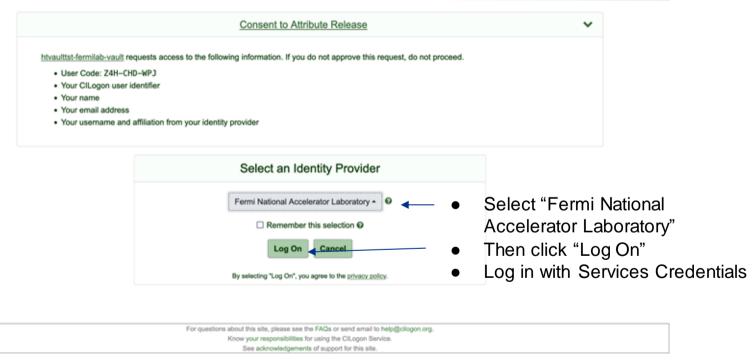
- Will need to copy/paste that link into browser
- Authenticate with SERVICES username/password

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First-time authentication, continued

- Select "Fermi National Accelerator Laboratory"
- Then click "Log On"
- Log in with Services Credentials

Manage jobs

- jobsub_q: see your jobs (e.g. `jobsub_q -G nova --user=me`)
- Also, jobsub_hold, jobsub_release, jobsub_rm, etc. See https://fifewiki.fnal.gov/wiki/Getting_started_with_jobsub_lite#Managing_Jobs

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jobsub_q

```
$ jobsub_q –G fermilab


JOBSUBJOBID                             OWNER           SUBMITTED          RUNTIME   ST
PRIO    SIZE   COMMAND
57106962.0@jobsub01.fnal.gov            sbhat           11/30 14:59   0+06:00:10 C    0
1953.1 simple.sh
57106973.0@jobsub01.fnal.gov            sbhat           12/01 13:48   0+06:00:27 R    0
        0.0 simple.sh


$ jobsub_q –G fermilab 57106973.0@jobsub01.fnal.gov
JOBSUBJOBID                             OWNER           SUBMITTED          RUNTIME   ST
PRIO    SIZE   COMMAND
57106973.0@jobsub01.fnal.gov            sbhat           12/01 13:48   0+06:00:27 R    0
        0.0 simple.sh
```

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Viewing logs/monitoring jobs - Landscape

- https://fifemon.fnal.gov
  - From here, can click "Help" to get good overview of our monitoring
  - Best dashboards:
    - User Batch Details (look at my running jobs)
    - User Batch History (look at my completed jobs)
    - Job Cluster Summary (look at a specific job)
      - Has link to your cluster's sandbox, where job script, stdout, and stderr are available

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File Transfer Inside Grid Jobs

- *ifdh* commands to transfer files into/out of jobs
  - e.g.: ifdh cp /grid/job/path/to/file /pnfs/nova/scratch/users/me/file
  - ifdh cp –D /pnfs/dune/persistent/users/me/directory /local/parent_dir
  - Can read/write from/to several /pnfs locations
- Most experiments/roles do not have `storage.modify` scope
  - cannot overwrite or remove files from jobs
- Many /cvmfs mountpoints available inside jobs
- In job script, do
  - . /cvmfs/fermilab.opensciencegrid.org/products/common/etc/setups.sh
  - setup ifdhc
  - Then use ifdh commands
- For more details, see https://cdcvs.fnal.gov/redmine/projects/ifdhc/wiki/Ifdh_commands

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How to get your current data to interactive nodes

- Wilson Cluster IO node: wcio.fnal.gov
  - Use to transfer data/files from Lustre to /nashome (home dir)
  - Currently /exp areas not mounted on wcio.fnal.gov - under discussion

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Resources

- Github repo for jobsub_lite:
  https://github.com/fermitools/jobsub_lite
- Getting Started with jobsub_lite:
  https://fifewiki.fnal.gov/wiki/Getting_started_with_jobsub_lite
- IFDH Commands:
  https://cdcvs.fnal.gov/redmine/projects/ifdhc/wiki/Ifdh_commands

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