NUG Monthly Webinar – January 2015
Agenda

- 2015 System Availability Schedule – Elizabeth
- NUG 2015 – Feb 23-26, Berkeley/Oakland
- 2014 User Survey – Dave Turner
- NUGEX Elections
- Changes for the 2015 Allocation Year – Dave Turner
- System Updates
  - Edison – Zhengji Zhao/Tina Declerck
  - Hopper – Helen He
- New in MyNERSC – Jack Deslippe
- NERSC 24x7 Services – Elizabeth Bautista
Early AY15 Maintenance

- **Tuesday January 13**
  - AY15 begins
    - Please report any issues you are encountering

- **Jan 13 – Jan 16**
  - Edison DIMM replacement

- **Feb 3-4**
  - Quarterly Maintenance
    - Center-wide outage
    - Completely off network for a few hours
    - Hopper /scratch2 Lustre upgrade

- **Feb 18**
  - Hopper /scratch Lustre upgrade
    - Will be performed during Feb 3-4 Quarterly Maintenance

- **March**
  - Hopper OS upgrade
### Rough timeline of system activities

<table>
<thead>
<tr>
<th>System status</th>
<th>Date</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carver Retires</td>
<td>Sep. 30, 2015</td>
</tr>
<tr>
<td>Cori Phase 1 available to users</td>
<td>Sep. 2015</td>
</tr>
<tr>
<td>Edison goes down to move to CRT</td>
<td>Oct. 2015</td>
</tr>
<tr>
<td>Edison comes back up in CRT</td>
<td>Nov. 2015</td>
</tr>
<tr>
<td>Hopper Retires</td>
<td>Dec. 2015</td>
</tr>
<tr>
<td>Cori Phase 2 Delivered</td>
<td>June 2016</td>
</tr>
</tbody>
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**Key Points!!!**

- Compute early in the year!
- Large supply available in ~Sept. 2015 with Hopper, Cori Phase 1 and Edison online
- Dearth of computing around October when Edison goes down
NUG 2015

• Feb. 23-26, 2015
• Site: Berkeley/Oakland
• Monday, Feb. 23: New User Training
• Tuesday, Feb. 24: Science and Technology Day
• Thursday, Feb. 25: In-Depth Training
  – We’re trying something new!
  – Hack-a-thon: brief instruction and then hands-on optimization of your kernel or one of our examples, with an eye toward Cori
• Wednesday, Feb. 26: Business Meeting
2014 User Survey

• We need your help to reach survey participation goals!
• Have 400 responses, need 600
• Encourage your colleagues!
• Important for reporting to DOE and to help us serve you better.

https://www.nersc.gov/news-publications/publications-reports/user-surveys/2014/
New NUGEX Members

- 232 NERSC users voted to elect 8 new members
- Thanks to all retiring members, including long-time Chair Stephane Ethier

**Fusion**
Chris Holland, UCSD
David Green, ORNL

**High Energy Physics**
Ted Kisner, LBNL
Frank Tsung, UCLA
Zarija Lukic, LBNL

**Nuclear Physics**
Balint Joo, JLAB
Nicolas Schunck, LLNL

**At-Large**
James Amundson, FNAL
Allocation Year Rollover

• AY15 began Tuesday, January 13
  – AY14 ended 23:59:59 Monday, January 12
  – New allocations put in place at midnight
  – Running jobs unperturbed
    • Charges prorated to appropriate AY repo
      – Jobs associated with non-continuing repo get AY15 portion charged to a NERSC overhead repo

• Hopper queue charge factor increased
  – For “regular” charge class (debug, regular, thruput, ccm_queue, ccm_int, killable)
  – From 0.8 to 1.0
    • Had been reduced to 0.8 last August to balance workload with Edison

http://www.nersc.gov/users/announcements/allocation-year-rollover
Edison Update

- **DIMM Replacement (two phases)**
  - First phase: Sept 25-28, 2014 completed
  - Send phase: Jan 13-16, 2015 in progress

- **CDT 15.01 will be set to default**
  - cray-ccdb/1.0.5
  - cray-ga/5.3.0.1
  - cray-lgdb/2.4.0
  - cray-mpich/7.1.1
  - cray-mpich-abi/7.1.1
  - cray-petsc/3.5.2.1
  - cray-petsc-complex/3.5.2.1
  - cray-shmem/7.1.1

<table>
<thead>
<tr>
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<tr>
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Upcoming Maintenances for Hopper

• The previously announced Jan 27 Hopper /scratch2 file system upgrade will be postponed to Feb 3-4
  – In conjunction with the NERSC quarterly maintenance
  – All files on /scratch2 will be deleted
  – Users are encouraged to hold /scratch2 jobs ahead of time, then release them after necessary data are put back after maintenance

• The /scratch file system upgrade will be performed on Feb 18
  – Instead of originally announced Feb 10
  – All files on /scratch will be deleted

• The OS upgrade will be scheduled in March
  – New OS and new default Programming Environment Software
  – All applications need to be rebuilt
Batch Queue Changes on Hopper

- Started from beginning of AY15
- The relative queue priorities are adjusted
  - No more higher priorities for reg_med and reg_big
- Idle limits increased for some queues
  - reg_small, reg_long, and ccm_queue
- Details on Hopper Queue Configuration page
  - https://www.nersc.gov/users/computational-systems/hopper/running-jobs/queues-and-policies/
What’s New In MyNERSC
Queue Wait-Time Prediction

Queue Wait Times

Machine
- Edison

Days Back of Data to Query
- 14

What do you know about your job?
- Wall Time Required
  - .5 Hours

Average Queue Wait

Queue Time (Hours)

Nodes
Track the Backlog
Usage Summary

Repo Usage

Repo: als
Machine: Compute
Year: 2013

Repo Usage Over Time

Date
Feb '13 Mar '13 Apr '13 May '13 Jun '13 Jul '13 Aug '13 Sep '13 Oct '13 Nov '13 Dec '13 Jan '14

Usage (Hours)
0M 1M 2M 3M 4M 5M

Actual Usage  Ideal Usage
Benchmark Monitoring

Benchmarks Monitor

Hostname
Edison

Benchmark
IOR 1M MPIIO READ

Benchmark Performance over Time

Average: 28946.73
Std Dev: 9394.01
Variation: 34.85%
Center Summary

Center Overview

Current CPU-Core Usage Breakdown

Cores in Use by Office:
- Basic Energy Sciences: 54,712
- High Energy Physics: 33,884
- Biological & Environmental Research: 25,488
- Fusion Energy Sciences: 25,272
- Nuclear Physics: 18,832
- SBIR:

Cores in Use by Project Type:
- DOE Base: 109,584
- ScIDAC: 39,820
- ALCC project: 9,000
- Director Reserve project: 5,880
- SBIR project: 528

Cores in Use by Science Category:
- Materials Science: 37,712
- Fusion Energy: 25,800
- High Energy Physics: 23,688
- Climate Research: 21,552
- Chemistry: 15,086
- Astrophysics:

Storage Usage:
- Project: 4,566TB
- Scratch: 2,205TB
- DNA: 694TB
- Project B: 1,230TB
- Ed. Scratch 1: 843TB
- Ed. Scratch 2: 879TB

Top Jobs

- Structure and Reactions of Hadrons and Nuclei: Non-perturbative Solutions of Strongly Interacting Particles and Fields
  - Office: Nuclear Physics
  - Investigator: James P. Vary
  - Science Area: Nuclear Physics
  - Cores: 9,216 (Hopper)
  - Core Hours Used: 363,340.2

- Hydrodynamics and Nucleosynthesis of Supernovae and Compact Objects
  - Mergers
    - Office: Nuclear Physics
    - Investigator: Rodrigo Fernandez
    - Science Area: Astrophysics
    - Cores: 7,880 (Hopper)
    - Core Hours Used: 9,883.5

- Gyrokinetic Simulations of the Effect of Electron Heating on Particle and Electron Thermal Energy Transport in Magnetic Fusion Plasmas
  - Office: Fusion Energy Sciences
  - Investigator: Darin Ernst
  - Science Area: Fusion Energy
  - Cores: 6,144 (Hopper)
  - Core Hours Used: 9,171.3

- Turbulent Transport and Multiscale Gyrokinetic Simulation
  - Office: Fusion Energy Sciences
  - Investigator: Wei-Li W. Lee
  - Science Area: Fusion Energy
Did You Know?

On MyNERSC, you can:

• Plot the rank of your job over-time in the queue
• Hold, Release, Delete your jobs
• Download any of your files and upload new files. Including from HPSS
• Monitor the NERSC Filesystem Performance over time
• Subscribe to the NERSC Outages Via Google calendar
• Create and Manage Your Service Now Support Tickets
• View a History of All NERSC Outages and Announcements
• Change Your Default Repo and Default Shell
24x7 Services

NERSC
What Services Are Available 24x7

• Password reset:
  
  [https://nim.nersc.gov/forgotpass.php](https://nim.nersc.gov/forgotpass.php)
  
  – set up your security questions
  

  – Account support number 800-66NERSC or 510-486-6821
    
    • Operations 24x7 – they will remind you to go to the URL
    
    – If you are locked out, we will go through setting up your security questions
• **Attach Computer User Agreement to the account once it’s been approved by PI**
  - in case you need account activated right away
  - please do this ahead of time; approvals may not happen off hours
  - New users; verify if account is done w/ set up, locked out, walk through on how to log in the first time
  - Verify information they are seeing ie allocated hours in NIM, modules available, remind users where to find info ie on NERSC website

• **System status**
  - immediate reporting for status or diagnosis
  - job cannot be deleted
Any questions?
Thank you.