Computer Resource Team (CRT)

PSAAP-IV Kickoff Meeting

8/27/2025

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Agenda

- CRT Overview
  - What is the CRT
  - What the CRT can do for you
  - HPC customer support and problem tracking
  - Training
  - Documentation
  - Communications
  - Site visits
  - Allocations
  - LLNL PSAAP compute resources
- Getting accounts – SARAPE
- LLNL Site Status

What is the CRT?

- The **Computer Resource Team (CRT)** is the component of the PSAAP-IV program that connects center researchers with the High Performance Computing (HPC) resources required to perform their work.
- The CRT is comprised of representatives from NNSA Labs who are familiar with their Lab's computing resources, personnel and policies. The following individuals currently serve on the CRT:
  - Tim Fahey, LLNL *fahey2@llnl.gov*
  - Amanda Sena, SNL alsena1@sandia.gov

Our primary purpose is to provide assistance and guidance in all aspects related to the use of HPC resources located at LLNL, Sandia and LANL.

What can the CRT do for you?

- Assist with establishing computer accounts
- Assist with accessing compute resources
- Provide essential HPC user documentation
- Provide technical support in the use of HPC systems
- Conduct periodic telecons to keep PSAAP users up-to-date with account, access, policy, scheduling and technical news, and to address issues with HPC platform usage
- Interface with other individuals and groups within each lab, including management, networking, system administration, storage, customer support, etc., to facilitate the effective support of PSAAP users

What can the CRT do for you? (continued)

- Track and facilitate the resolution of problems reported to each Labs' customer support “hotline”
- Provide training opportunities
- Collect and distribute monthly machine usage statistics
- Schedule and support special/dedicated runs
- Maintain a balance of machine usage between the PSAAP centers (if needed)
- Visit PSAAP centers by request to discuss HPC resources, user issues and to offer technical consultation and/or training
- Showcase PSAAP research in the DOE research exhibit booth at the annual SC conference

HPC Customer Support and Problem Tracking

- All three labs offer HPC customer support via phone and email:
  - LLNL: Livermore Computing Hotline
    - 925-422-4531, M-F 8:00-12:00 and 1:00-4:45 Pacific Time
    - lc-hotline@llnl.gov, technical questions
    - lc-support@llnl.gov, account related questions
  - LANL: ICN Consulting Office
  - Sandia: HPC OneStop Service Desk
- Includes support for user accounting issues and for technical assistance.
- Most problems/questions are handled directly by the customer support staff on duty.

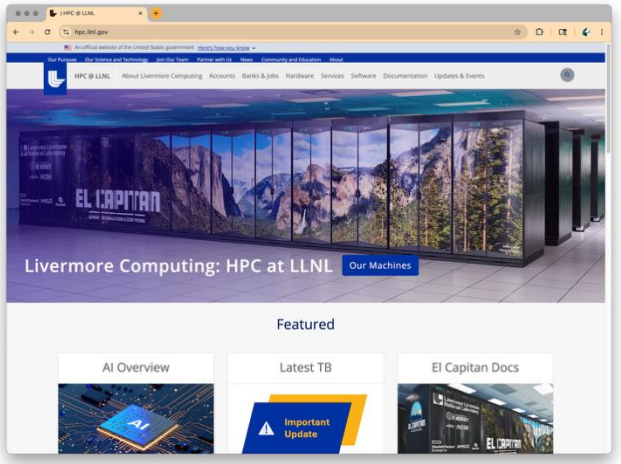
- More in-depth issues are assigned to Tier 2 local subject experts
- The labs also coordinate with hardware and software vendors for issues that require Tier 3 support (Totalview, AMD).

HPC Training

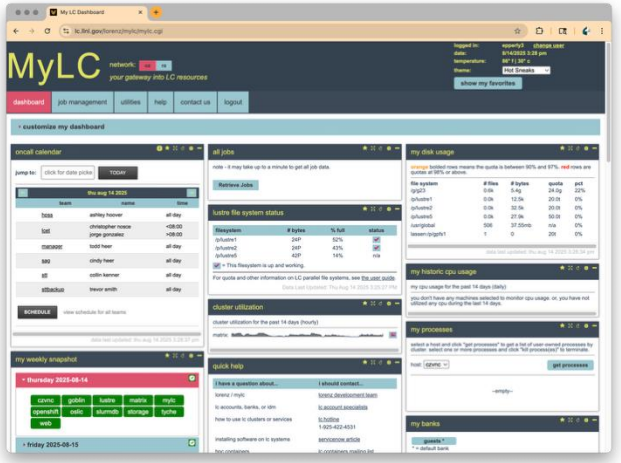
- Training is important – especially for new users
  - Online tutorials are available
  - Workshops conducted at the Labs are open to PSAAP center users
  - The CRT can deliver workshops/training at your center or virtually
  - The CRT can also assist with topic specific, customized workshops if that is of interest
- Topics include:
  - Getting started information
  - Compilers
  - Performance tools
  - Debuggers
  - Parallel programming (MPI, OpenMP, Pthreads…)
  - Batch schedulers (Slurm, Flux)
  - Machine architectures
  - Visualization tools and more

User Documentation

- Extensive user documentation is available online at https://hpc.llnl.gov. Recommended starting points:
  - https://hpc.llnl.gov/training/tutorials
  - https://hpcic.llnl.gov/tutorials



- Quick Start Guide for new PSAAP IV users can be found at: https://hpc.llnl.gov/livermore-computing-psaap-iv-quick-start-guide



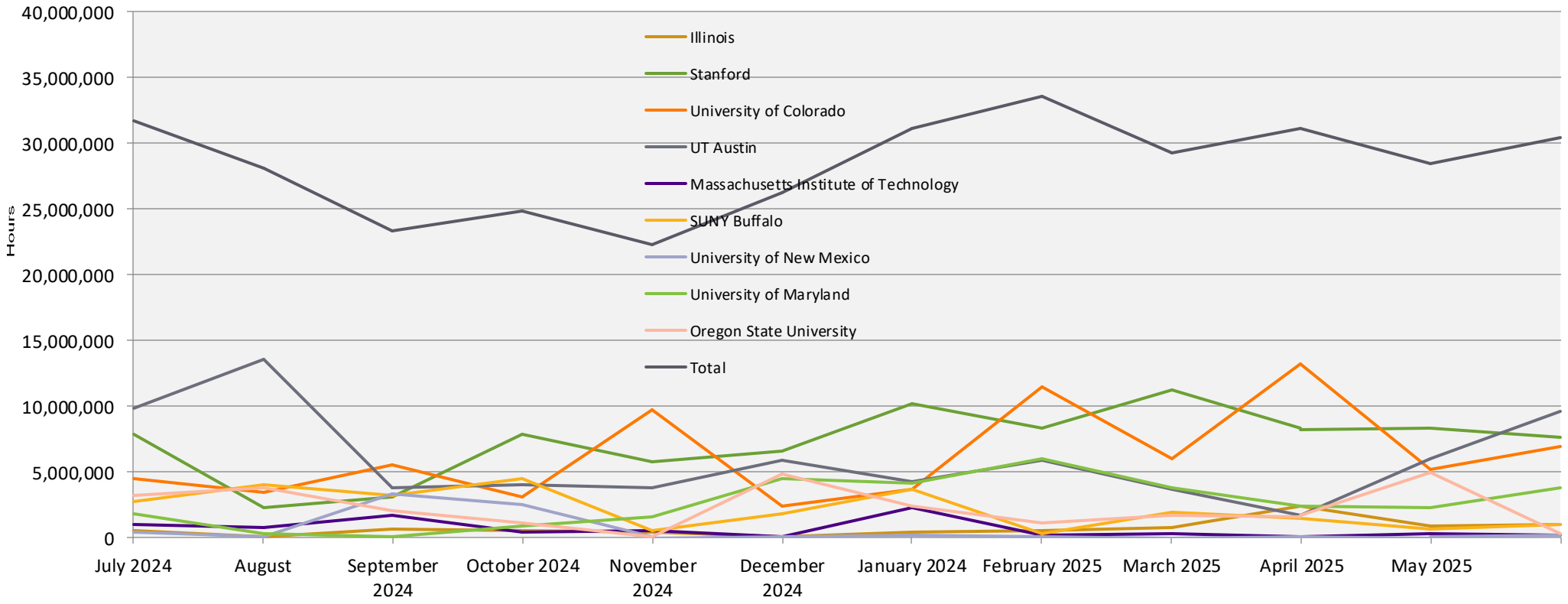
- https://mylc.llnl.gov for comprehensive view of user resources and systems status

Communications

- Monthly telecons
  - Forum for discussion/questions on user topics such as accounts, access, technical issues, machine schedules, etc.
  - Open to all PSAAP center users
  - Highly recommended to have a Point-of-Contact (POC) person with some technical/computing experience from each Center attend. We'll be in touch with each Center's PI to find out who this might be.
  - **Third Thursday of the month, 2:00PM EDT/11:00AM PDT**
    - First call was 8/21/2025;
- Email list—psaap-crt-llnl@llnl.gov
  - Telecon minutes and machine usage statistics are distributed via this list to all PSAAP Center PIs & POCs and various staff & managers within the Labs
  - Let us know if you want anyone else at your Center added to our list - initially it includes only your PI and POC

Usage stats

- Collected by each Lab's computing center and distributed with the telecon minutes
- Present both aggregate and detailed usage (down to the user level)



LLNL PSAAP Compute Resources

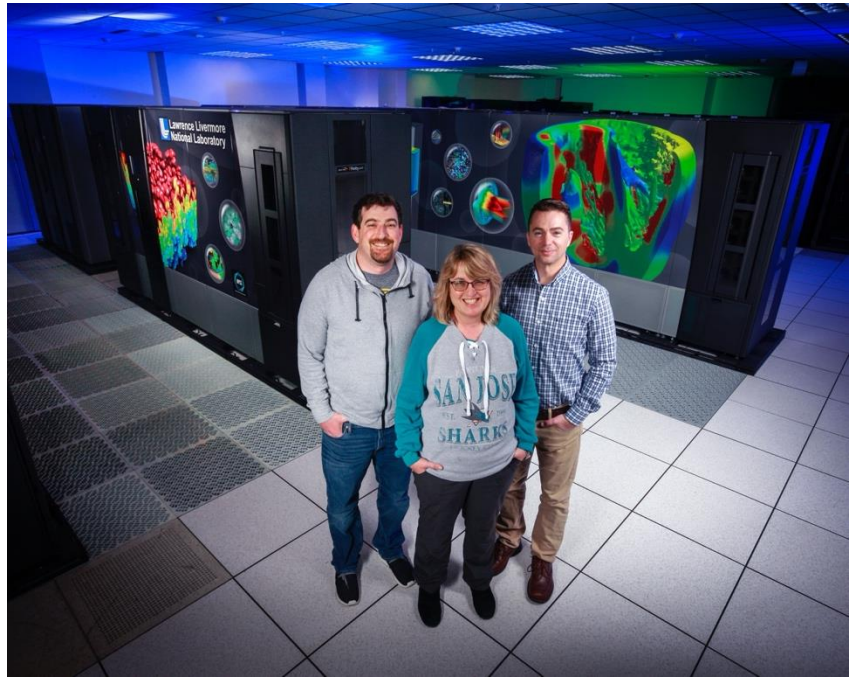
- **Dane**
  - Intel Sapphire Rapids architecture
  - 1544 nodes with 112 cores/node
  - 172,928 total cores
  - 256 GB memory per node; 382,976 TB total memory
  - Cornelis interconnect;
    ~100 Gb/sec pt2pt MPI
  - 10.7 petaflops peak
  - Details at https://hpc.llnl.gov/hardware/compute-platforms/dane

LLNL PSAAP Compute Resources

- **Tuolumne**
  - 4th Gen. AMD EPYC architecture
  - 1152 compute nodes with 64 cores each; 34,848 total cores
  - 4 AMD MI300A GPU's per node; 4608 total GPU's
  - 512 GB CPU-memory and 512 GB global (GPU) memory per node*
  - HPE Slingshot 11 interconnect
  - 288.9 petaflops peak
  - Details at https://hpc.llnl.gov/hardware/compute-platforms/tuolumne

LLNL PSAAP Compute Resources

- **HPSS Archival Storage**
  - Mounted from all unclassified production clusters
  - Users automatically get an HPSS account with their machine accounts
  - 300TB quota for FY2025
  - 154 PB total archive storage
  - 6 PB disk cache
- **Tioga**
  - AMD Trento CPU, AMD MI-250X GPU architecture
  - 32 nodes with 64 cores and 4 GPU's per node
- **Oslic**
  - 8 login, 12 batch nodes for data transfer between file systems and archival storage



LLNL PSAAP Compute Resources

PSAAP centers have allocations on two ASC-funded, Tri-lab production machines hosted at LLNL:

- **Dane:** 20,604,000 core hours/month
- **Tuolumne:** 5,134,000 core hours/month

		FY26 PSAAP Allocations						
		Percentage					Core Hours	
	PSAAP IV Centers	**Dane**	**Lassen**	**Tuolumne**		**Dane**	**Lassen**	**Tuolumne**
PSCs	Florida	2.0%		0.8%		2,472,000		616,000
	Michigan	2.0%		0.8%		2,472,000		616,000
	MIT (*)	2.4%	1.5%	0.9%		2,987,000	367,000	745,000
	Oregon State (*)	2.2%	1.3%	0.8%		2,678,000	329,000	667,000
	Virginia	2.0%		0.8%		2,472,000		616,000
FICs	Brown	0.6%		0.2%		773,000		193,000
	Michigan State	0.6%		0.2%		773,000		193,000
	UNM (*)	0.8%	0.5%	0.3%		979,000	120,000	244,000
	UCSD	0.6%		0.2%		773,000		193,000
	PSAAP III Centers							
MDCs	Colorado	0.7%	0.4%	0.3%		876,000	108,000	218,000
	Illinois	0.7%	0.4%	0.3%		876,000	108,000	218,000
	Stanford	0.7%	0.4%	0.3%		876,000	108,000	218,000
	UT Austin	0.7%	0.4%	0.3%		876,000	108,000	218,000
SDCs	SUNY Buffalo	0.4%	0.3%	0.2%		515,000	63,000	128,000
FICs	Maryland	0.2%	0.1%	0.1%		206,000	25,000	51,000
	(*) Continuing Centers							

Sandia National Laboratories

Exceptional service in the national interest

SARAPE Overview for PSAAP GPA's

Amanda Sena, CRT Lead/Project Manager

SAND2025-10414PE

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U.S. DEPARTMENT OF ENERGY

NNSA

SARAPE is an acronym for **S**ynchronized Account **R**equest **A**utomated **P**roc**E**ss. This is the method for Sandia staff to request accounts at LANL or LLNL.

This is also the method for Tri-Lab, KCNSC, NWC, and ASC University Alliance (PSAAP) sites to request remote access accounts at Sandia, LANL and LLNL.

To access from Sandia or from any of the participating sites, go to:

https://sarape.sandia.gov

How to login to SARAPE

Here, they will authenticate with your Yubikey.
Once they login , they can select from one of the three available options:

Complete the form then submit.

- Please keep in mind, Foreign nationals require additional processing time. Please send email upon submittal of request to sarape-help@sandia.gov to begin FNR process.

What happens next?

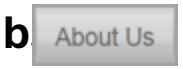
- GPA (SARAPE agent at requestor's site) signs off on the request and certifies name, clearance, email address, citizenship, justification, need to know.
  - If deny the request make sure to add the reason to the status tracking comment box.

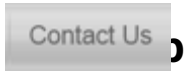
- HPA (SARAPE agent at resource site) submits the request through that site's internal process.
  - Sandia requires training to be completed before processing.
  - Other sites may have other training requirements

- Approval at the resource site.

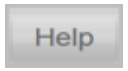
- YubiKey is sent to trusted agent at guest site.
  - This need to be a designated agent on site

Navigating the SARAPE Site

To find the complete list of participating sites, go to http://sarape.sandia.gov and click the **About Us tab** 

Click the **Contact Us** 

b to see the list of contacts for each participating site.

Click the **Help** 

b to see the site's FAQs, you might find the answer for the customer's question there.

If you need more help, contact sarape-help@sandia.gov

LLNL Status/News

- Allocations on Lassen and Dane
  - MSC's: 17%
  - SDC's: 10%
  - FIC's: 4%
- Dane Utilization at 126% of overall allocation in June 2025
- Lassen utilization at 121% of overall allocation in June 2025
- Lassen job limits: 256 nodes, 12 hour wall clock
- Dane job limits: 520 nodes, 24 hour wall clock
- *We can work with you if exceptions are needed*

LLNL Status/News

- Communications
  - psaap-crt-llnl listserv: contact me to add new individuals
  - https://hpc.llnl.gov/documentation/tutorials/livermore-computing-psaap-iv-quick-start-guide
  - lc-hotline@llnl.gov (consultants) and lc-support@llnl.gov (accounts) for assistance

LLNL Status/News

- Tuolumne status
- PSAAP-III → PSAAP-IV transition
  - All accounts will remain active provided VTS and training requirements
  - Retiring PSAAP-III bank allocations on Dane and Tuolumne reduced to 25% from 9/15 through 12/31. Further extensions past 12/31 dependent upon programmatic approval. Job throughput issues can be addressed by contacting fahey2@llnl.gov or lc-hotline@llnl.gov
  - PSAAP-IV allocations for the 6 new PSAAP-IV centers on Dane and Tuolumne will activate on 9/15

LLNL Status/News

- Training update
- SARAPE status
- Lassen status—retires 9/30/2025. The /p/gpfs1 file system will remain mounted on oslic until 11/3/2025
- Tuolumne User Experiences
- Globus Endpoint

We’re here to help!

Livermore Computing, circa 2024