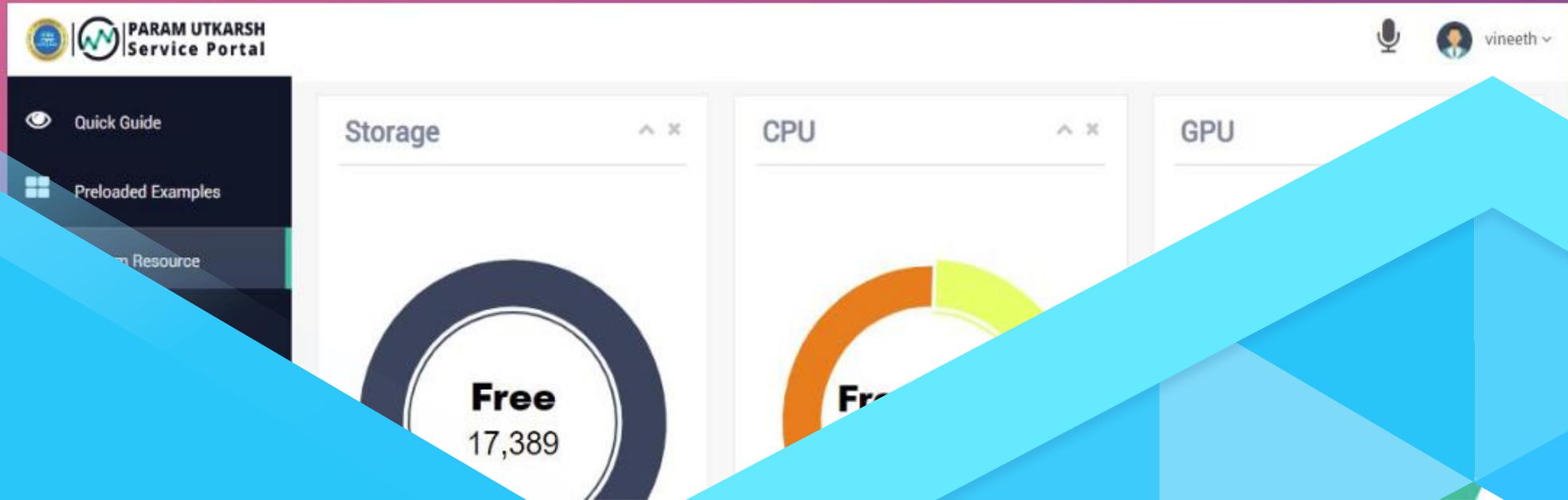


One Portal. Multiple Services



SANTHOSH J



प्रगत संगणन विकास केंद्र
CENTRE FOR DEVELOPMENT OF ADVANCED COMPUTING

HPC Dashboard

Making HPC simple

High Performance Computing (HPC)

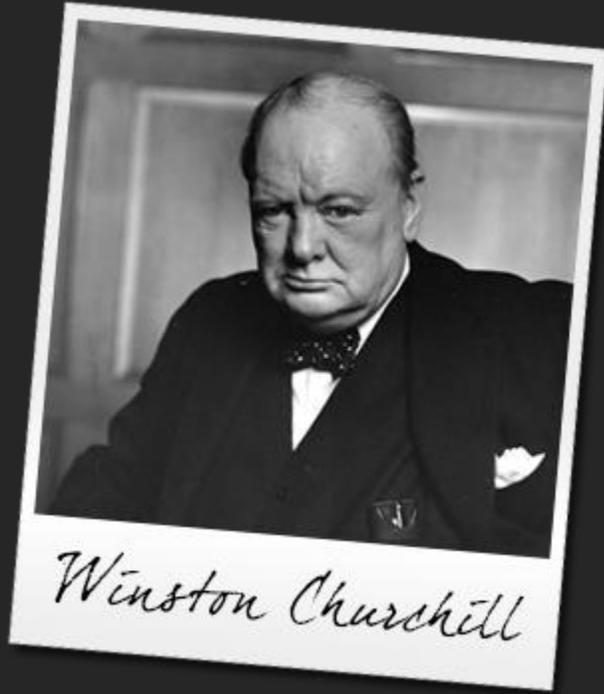


High-performance computing (HPC) supercomputers provide unprecedented computing power for diverse range of scientific applications.

HPC is the use of parallel processing for running advanced application programs efficiently, reliably and quickly.

HPC Applications...





“Out of intense Complexities,
Intense Simplicities emerge”

28th March 2023

Understanding complex
HPC environment

Multiple endpoints making it difficult
for user to find & use

Time to Solution

HPC management is
inherently complex

Being continuously connected is
becoming important in HPC.

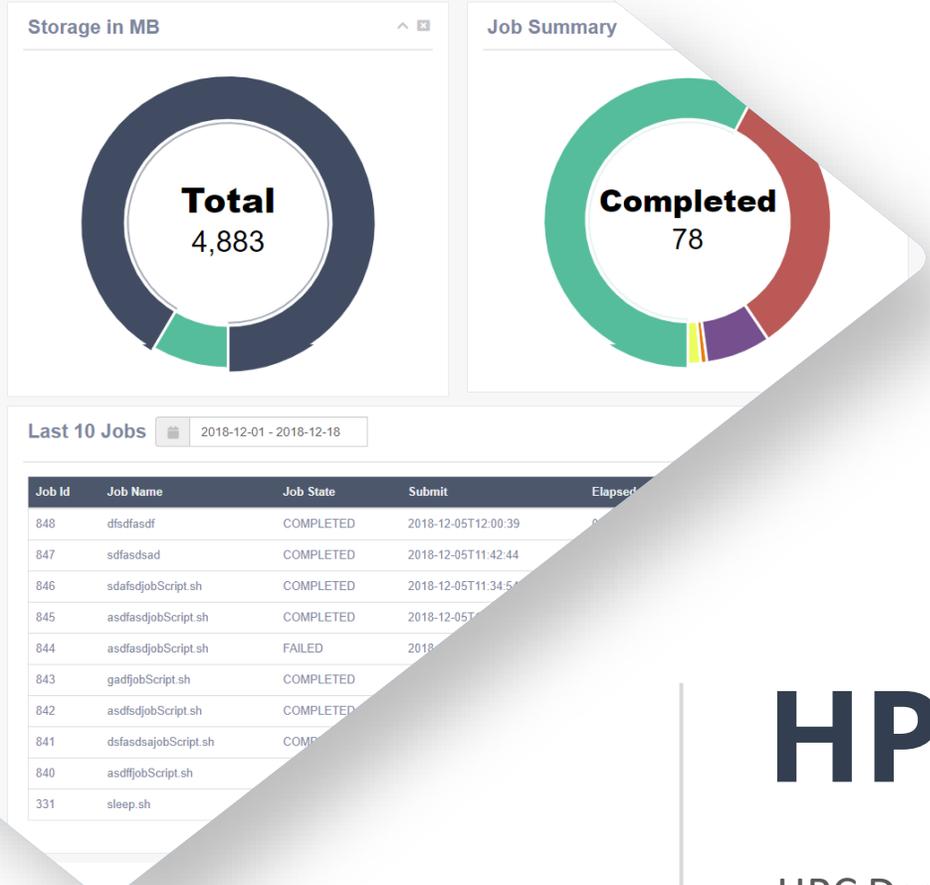
End-users have a deep
scientific knowledge in
their domains but not
necessarily in HPC

Making HPC Simple & Smarter

>>

HPC Dashboard

3



About

HPC Dashboard

HPC Dashboard hides the complexities of high performance computing (HPC). It has a rich, easy to use interface for end-users and administrators, designed to increase productivity through its visual web-interface, powerful job submission and management feature, remote visualization, accounting & reporting, secure web console, file manager, administration panel and other workload functions



Before & After



- For a user, HPC is a big learning curve
 - No single point of access
 - HPC Administration is time consuming & painful.
 - Visualization of large data sets is expensive.
 - Most HPC portals are not mobile friendly
- HPC Dashboard simplifies the user's access to HPC resources and hides all the complexities.
 - HPC Dashboard provides a unified interface to access all services in HPC.
 - An easy to use interface allows administrators to manage HPC resources remotely.
 - Integrated remote visualization allows exploration of huge data sets directly within HPC Dashboard.
 - Responsive design & use of Progressive Web App technologies allow users to access HPC on the go using any device, from anywhere and at any time.

- Personalized Dashboard**
- Mad Libs Job submission**
- Interactive Voice Assistant**
- Secured Web Console**
- Advanced File manager**

Features & Innovations

Progressive Web App

- Remote Visualization**
- Resource Administration**
- Single Sign-On**
- Accounting & Reporting**
- Integrated Help Desk**



Cost Benefit

Save time

With HPC Dashboard, it's easy to submit Jobs and manage data, thanks to powerful GUI with smart & simplified interface

Improves Productivity

Researchers can focus on their problems and not get bogged down by complex IT tasks

Low Cost

Spend more on infrastructure & spend less for managing it!

One tool for all needs

Consolidate access to applications and extract more value from your software investments.

Conclusion



Worldwide HPC revenue expected to reach over \$49.9 billion by 2027



“There is an entirely new class of users who do not know they are using HPC. We call it ‘implicit HPC.’” – Raj Hasrah, VP & GM



DA, DL, ML and HPC requirements tend to converge



We anticipate that current HPC portals will soon evolve to address all of these domains



HPC Dashboard is a step towards it!





Screenshots



Home FAQs **LOGIN**

One Portal. Multiple Services

PARAM UTKARSH Service Portal (PUSP) is a unified interface to access services offered in PARAM UTKARSH. It also provides a bird's eye view of various functionalities and services of the PARAM UTKARSH HPC ecosystem, job submission interface with ready-to-use application templates, self-explanatory and intuitive UI helping end-user with ease-of-use experience.



Features

MORE POWER

- Customizable Dashboard**
Provides instant visibility into cluster's health status and resource availability.
- Job Execution**
Simplified & yet powerful job submission interface allows user to submit jobs using a conversationally styled interface.
- Ready to use Application templates**
The user can use the readily available HPC application templates such as Blast, Star-ccm+, Gromacs and Gaussian-Linda for faster job submission.
- Resource Reservation**
Reserve Nodes for dedicated usage of resources to your job submission.
- Secured remote console**
Provides Command Line Interface to HPC Cluster
- Interactive voice assistant**
That offers faster and easier access to various features of dashboard
- Advanced File Manager**
For extensive file management operations, just like pro FTP tools.
- Automatic code parallelizer**
Allows users to convert their sequential code to parallel code with a click of a button.
- Remote visualization**
Integrated remote visualization allows exploration of huge data sets directly within the dashboard.

Friendly and Helpful Support

Ask any question, send a screenshot of your problem and our caring experts will answer or solve your inquiries as quickly as possible





Screenshots

Login

Features

Below are the features of version 1.0.

- Interactive Voice Assistant
- Mad Libs Job Submission
- Remote Visualization
- Resource Administration
- Single Sign-on
- Advanced File Manager
- Secure Web console
- Accounting & Reporting
- Personalized Dashboard
- Integrated Help desk

Sign In

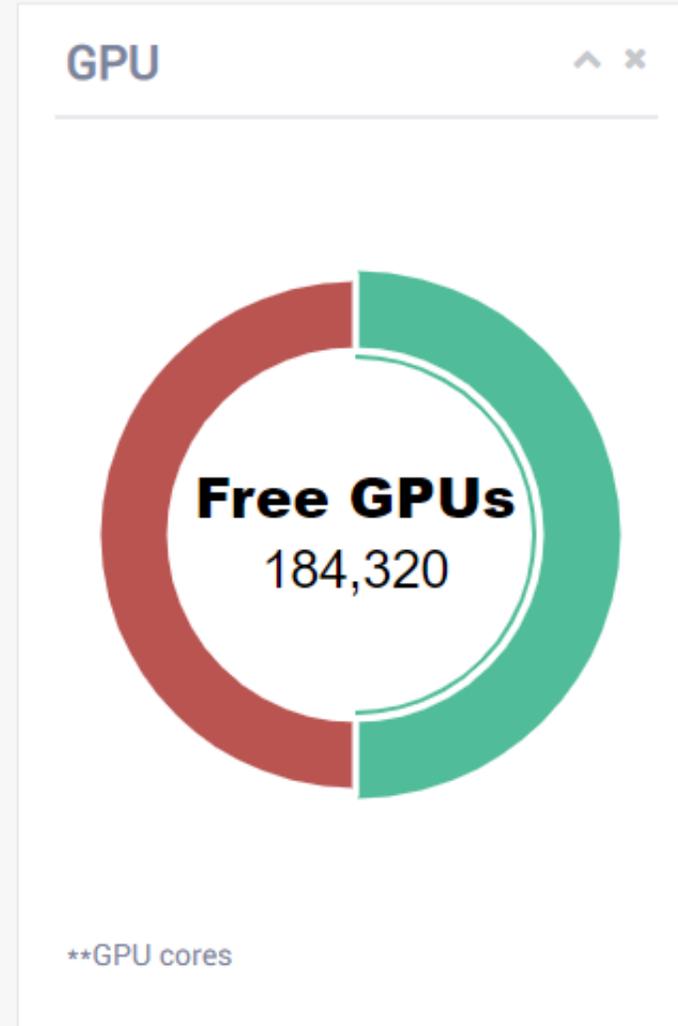
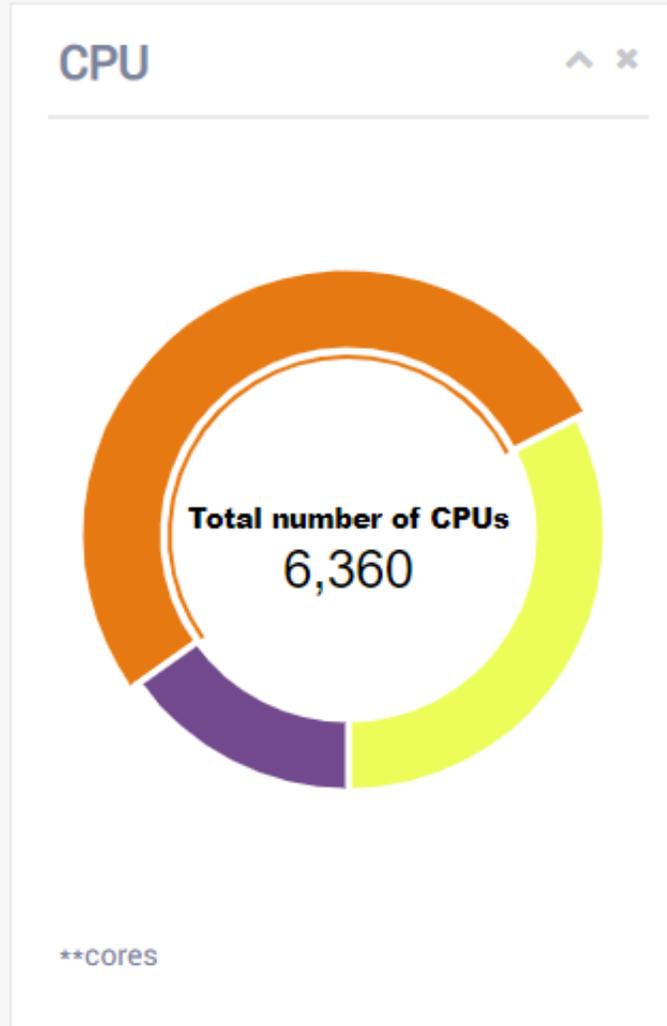
 I'm not a robot

LOGIN

Screenshots



- Quick Guide
- Preloaded Examples
- System Resource
- File Manager
- Software Tools
 - Parallel Dev Env
 - Automatic Parallelizer
 - Console
- Job Management
 - Job Submission
 - User Job Status



Screenshots



- Quick Guide
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 - Applications
 - Visualization
- Reservation
- FAQs
- Report Bugs
- Contact Us

Filemanager

35 Directories

42 Files

8MB Files Size

- New dir
- New file
- Upload
- Move
- Delete
- Rename
- Chmod
- Download
- Zip
- Unzip
- Search

All	Name	Type	Size	Perms	Mod Time	Actions
	Up ..					
<input type="checkbox"/>	Public	Directory	4096	drwxr-xr-x	2022-11-23 10:35:49	
<input type="checkbox"/>	.ssh	Directory	4096	drwx-----	2022-10-17 14:13:19	
<input type="checkbox"/>	Downloads	Directory	4096	drwxr-xr-x	2022-11-23 11:42:26	
<input type="checkbox"/>	Documents	Directory	4096	drwxr-xr-x	2022-03-30 10:21:39	
<input checked="" type="checkbox"/>	openfoamico	Directory	4096	drwxrwxr-x	2022-11-07 14:52:08	
<input type="checkbox"/>	SantOpenFoam	Directory	4096	drwxrwxr-x	2022-11-03 10:05:03	
<input type="checkbox"/>	Desktop	Directory	4096	drwxr-xr-x	2022-10-17 12:51:23	
<input type="checkbox"/>	.config	Directory	4096	drwxrwxr-x	2022-10-11 17:50:32	
<input type="checkbox"/>	openfoamico1	Directory	4096	drwxrwxr-x	2022-11-07 14:54:55	
<input type="checkbox"/>	Santhosh1	Directory	4096	drwxrwxr-x	2022-11-11 14:16:57	
<input type="checkbox"/>	santhosh	Directory	4096	drwxrwxr-x	2022-08-23 12:00:27	
<input type="checkbox"/>	Music	Directory	4096	drwxr-xr-x	2022-03-30 10:21:39	
<input type="checkbox"/>	.cache	Directory	4096	drwxrwxr-x	2022-10-17 16:00:55	
<input type="checkbox"/>	jobInfo	Directory	12288	drwxr-xr-x	2022-11-11 14:19:50	
<input type="checkbox"/>	.VESTA	Directory	4096	drwxrwxr-x	2022-10-17 15:02:19	
<input type="checkbox"/>	ondemand	Directory	4096	drwxr-xr-x	2022-10-17 12:19:42	





Screenshots



Remote console

Connected (encrypted) to: mgmt01:10 (santhoshj) Send CtrlAltDel

```
[santhoshj@login01 ~]$
```

28th March 2023

Screenshots

Mad Libs Job Submission

I'd like to submit Parallel job with 2 no. of process using exec from Cluster caco3_water-1.restart

→ Submit

Advanced Job Submission

Application Template

Generic Molecular Modeling NAS Benchmark BT

Job Name

Job Type

Parallel Hybrid Hybrid MPI Sequential

Resource selection (Partition: Queue and Node info)

No. of Process

Reserved Resources

Not Reserved Advanced Reserved Resources

Wall time (Hours:Minutes)

Executable

Cluster From desktop

Overall Job Status

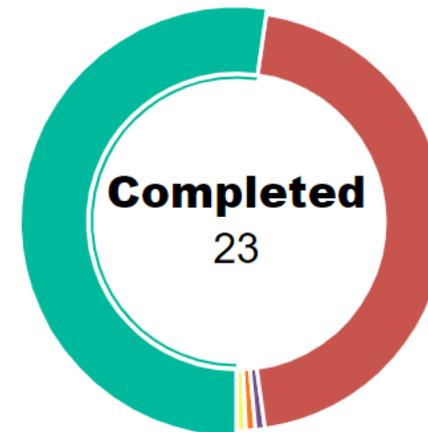
2022-11-01 - 2022-11-30



Click for more details of the job

Job Id	Job Name	Submit	Download
Data is not available			

Job Summary





Screenshots



Applications

CP2K



OpenFOAM

OpenFOAM

CP2K Template

Job Name

No. of Cores

CP2K Version

Input files

No file chosen Download a sample input file
[Click for Input file](#)

Arguments

Reserved Resources

Not Reserved Advanced Reserved Resources

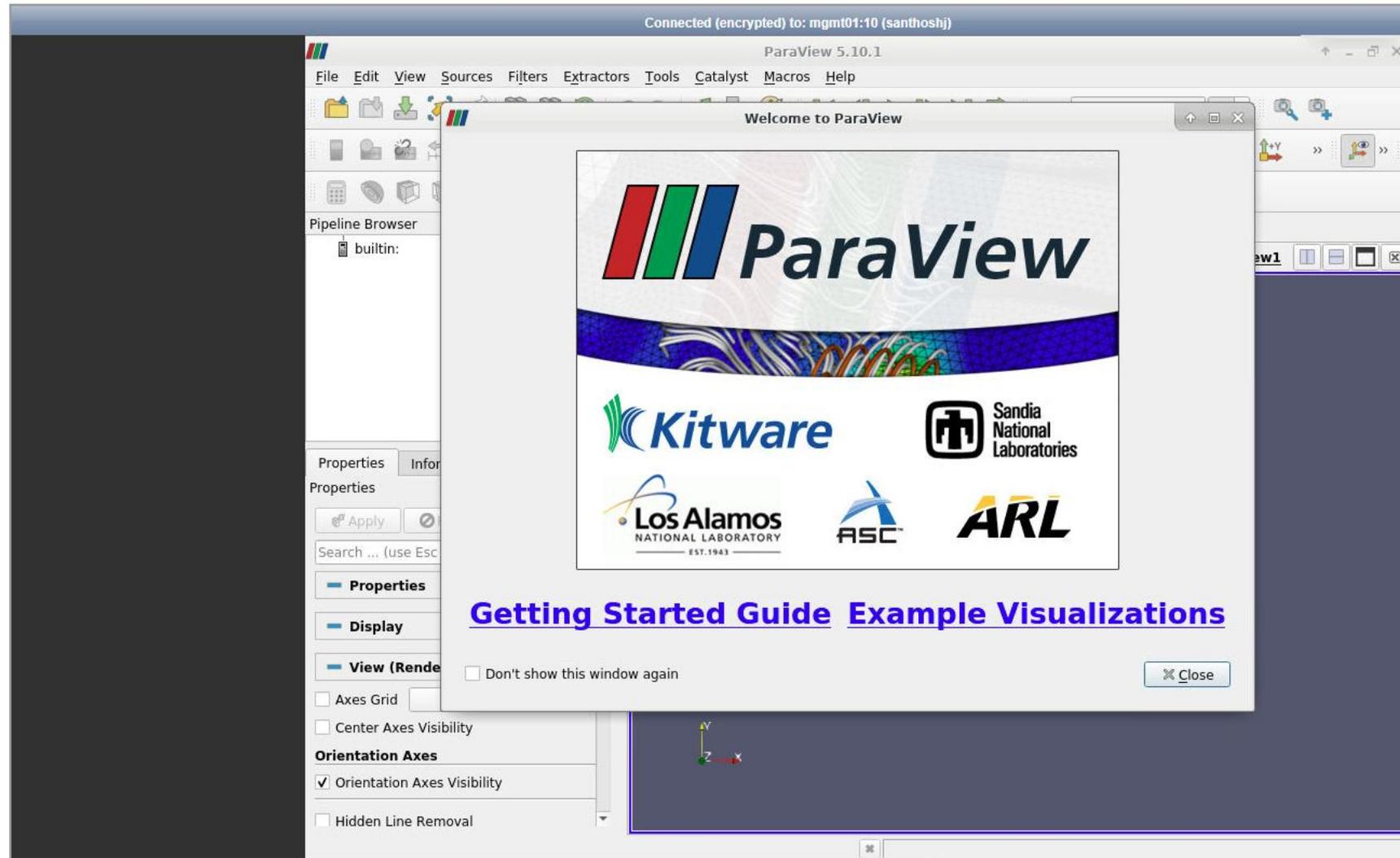
Resource selection (Partition: Queue and Node info)

Wall time (Hours:Minutes)

Screenshots

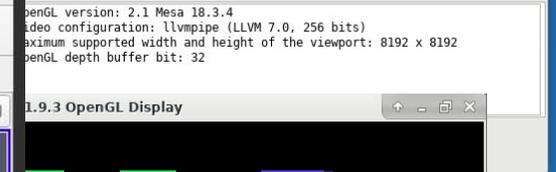


Visualization



VESTA

Visualization for Electronic and Structural Analysis



Computational Biophysics Group
Macromolecular Modeling and Bioinformatics
at Urbana-Champaign
Cohen, J., Cohen, A., Dalke, P., Grayson,
Harty, W., Humphrey, B., Israelowitz, S., Izrailev,
Korris, J., Saam, J., Stone, J., Ulrich, K., Vandivort