#### Office of Innovative Technology High Performance & Scientific Computing https://oit.utk.edu/hpsc

January 26, 2024



### **OIT HPSC Overview**

- **HPC** Resources
  - · ISAAC HPC clusters SLURM based
  - Secure Enclave VMs and an HPC cluster
  - Petabytes of Lustre parallel file systems
- Software and Services
  - 3rd party and open-source SW via modules
  - · Proposal budget and facilities doc support
  - Support faculty equipment purchases
  - · Open OnDemand with Rstudio and Jupyter
- · Workshops and Trainings

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# HPC Resources ISAAC

- Current Hardware: ISAAC clusters
  - ISAAC Legacy (formerly ACF) for open research
    - 6,480 cores (234 nodes), 2.7 PB petabytes lustre storage 1 large memory nodes (1 x 1TB)

  - ISAAC Next Generation (NG) for open research
  - 12,384 cores (210 nodes), 3.6 petabytes lustre storage
  - 15 GPU nodes with NVIDIA V100s (14) or A40 (1) 7 GPU nodes for **AI Tennessee Initiative\*** each with 4x NVIDIA H100
  - 7 large memory nodes (1.5 and 2 terabytes)
  - SAAC Secure Enclave for processing sensitive information
    2,848 cores (62 nodes), 1.3 PB Storage

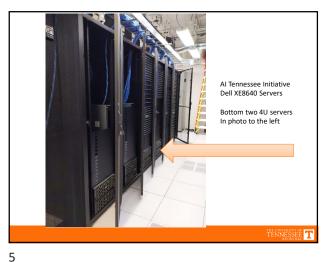
    - 1 GPU nodes: 2 x V100S
  - VMWare environment to provide virtual machines (Windows or Linux)
  - Access via Citrix Workspace remote client
- Software

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- See output of "module avail" on the login nodes
- Open OnDemand with Jupyter Notebook and Rstudio

New Racks for ISAAC NG cluster at KPB data center

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## Note about Sensitive Info

· We have webpage Guide to Sensitive Information in Research

https://oit.utk.edu/research/sensitive-info/

This is in the menu of every HPSC page on the OIT HPSC websites

#### Software

- Large collection of software installed on the clusters is available by doing "module avail" on the clusters
- Licensed Software
  - Abaqus commercial (2 GUI, 48 core + GPU)
  - Matlab commercial (2 licenses)
- Open OnDemand (similar to Google Colaboratory)
  - With Rstudio

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- With Jupyter notebooks
- With virtual desktop

#### Services

Help with issues via the OIT ticket system
 See this link in the HPSC webpage menu

Submit HPSC Service Request

Proposal support

https://oit.utk.edu/news/hpsc-research-proposal-support/



· HPSC maintains the University's Globus subscription

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# Coming Soon

- UT-StorR <u>UT Storage</u> resource for <u>Research</u>
  - Archival Storage Subsystem with LTO-9 tape robot library for up to 6 petabytes long term archival storage
  - Available late 1Q2023
  - · Capacity to expand
- Lustre Storage capacity of 800 terabytes as landing pad for the archival storage system

UT-StorR equipment has arrived late 2023





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## Web Pages with More Info

- All things HPSC: https://oit.utk.edu/hpsc
- Al Tennessee Initiative: https://oit.utk.edu/hpsc/ai-tennesseeinitiative-resources-and-access/
- Al products/services from OIT https://oit.utk.edu/ai
- Use of ISAAC clusters for academics https://oit.utk.edu/hpsc/academicresources/

## Web Pages with More Info

- Proposal Development: https://oit.utk.edu/news/hpsc-researchproposal-support/
- Investments https://oit.utk.edu/hpsc/overview/node-andstorage-investments/
- UT-StorR UT Storage resource for Research https://oit.utk.edu/hpsc/ut-storr

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