

SubMIT: getting physics things done at MIT

Project overview

David Walter

23th January 2026

Workshop on Basic Computing Services in the Physics
Department - subMIT





Introduction

Our mission

- Provide basic computing services in the MIT physics department
- Enable easy access for newcomers to start their physics analysis
- Support advanced customization for experienced users
- Ensure sufficient and efficient computing resources through fair sharing

We do the maintenance such that you don't have to care about

- System configuration, upgrades, security
- Software installation and management
- Integration with external resources and services

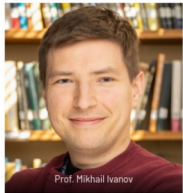
So you can focus on doing great physics



Project organization

Steering committee

- Oversight
- Funding



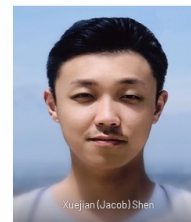
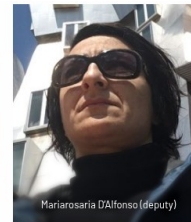
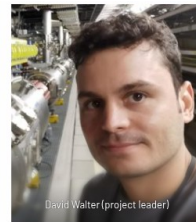
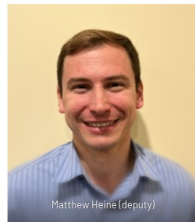
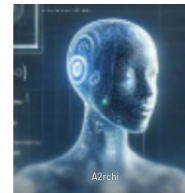
SubMIT Hosting team

- LNS computing integration



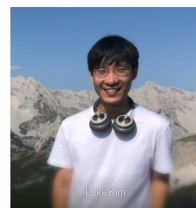
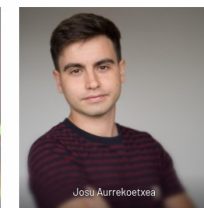
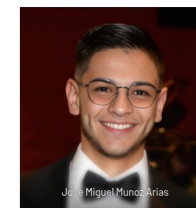
Project team

- Implementation
- Operation
- Maintenance
- Support



Users group

- Information flow between user community and project team
- Feedback
- Requests



Want to be part of it?

- [Contact us](#)

Resources



Local batch system

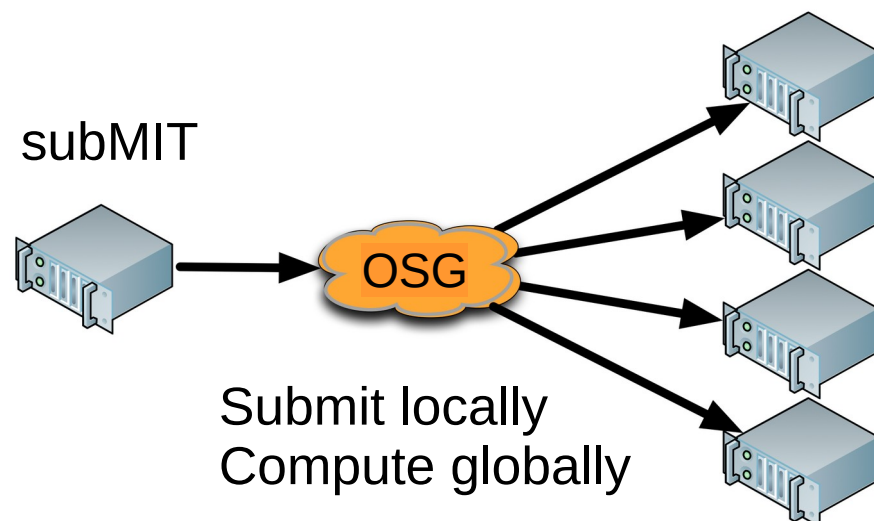
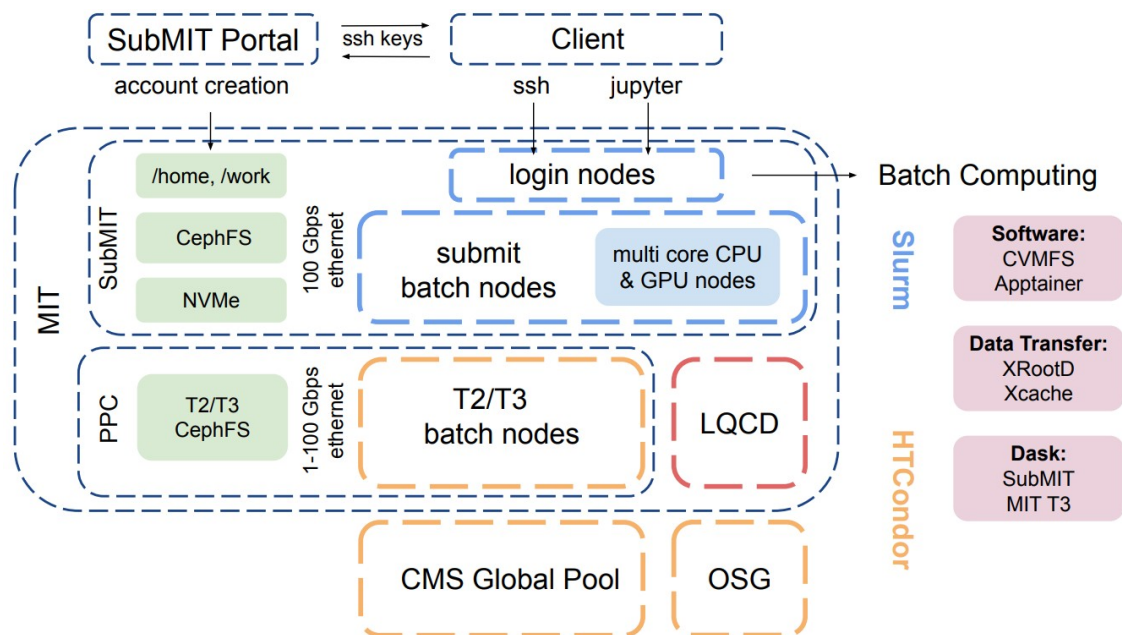
- ~2000 CPU cores; ~60GPUs
- Interactive SSH login pool
- Jupyterhub access

Convenient software environment

- Alma Linux 9 native
- Python, C++, Java, ...
- Containers (singularity/ podman)
- Virtual environments (Conda)

Access to larger external resources

- Open Science Grid (OSG)
- CMS Tier-2 and Tier-3



SubMIT overview



Website

- Overview and general information
- Account creation
- Events (like this today)
- Direct JupyterHub access
- A2rchi (chatbot)
- Documentation: User guide
- Monitoring systems

The screenshot shows the SubMIT website homepage. At the top left is the SubMIT logo and the text 'SubMIT Getting physics things done at MIT'. To the right is a navigation bar with links: 'Overview', 'News', 'Using SubMIT' (with a dropdown arrow), and 'About' (with a dropdown arrow). Below the navigation bar is a section titled 'Overview' with a paragraph: 'The SubMIT login pool is designed to let users login safely, prepare and test their research, and submit their jobs to the large computing resource of their choice. Check it out!'. Below this paragraph are three buttons: 'Get your SubMIT Account', 'SubMIT Users Guide', and 'Events'. Below these buttons is a section titled 'Access' with two buttons: 'ssh <user>@submit.mit.edu' and 'jupyterhub'. Below the 'Access' section is a section titled 'Status' with three buttons: 'Servers', 'Slurm queue', and 'Condor queue'.

SubMIT
Getting physics things done at MIT

Overview News Using SubMIT ▾ About ▾

Overview

The SubMIT login pool is designed to let users login safely, prepare and test their research, and submit their jobs to the large computing resource of their choice. Check it out!

Get your SubMIT Account SubMIT Users Guide Events

Access

ssh <user>@submit.mit.edu jupyterhub

Status

Servers Slurm queue Condor queue

SubMIT documentation



Website

- Overview and general information
- Account creation

subMIT v1 documentation » User's Guide - subMIT

User's Guide - subMIT

Contents:

- Introduction and creating an account
- **Getting started**
- Access to subMIT
- Best practices
- Available software
- Batch computing
- User quota and storage at SubMIT
- Monitoring at submit
- GPU resources
- Data backup
- Conda and its benefits beyond python
- OpenMPI on SubMIT
- Using Globus on SubMIT
- Acknowledging subMIT

[Back to the main subMIT webpage.](#)

Tutorials and Examples

Tutorials:

- Tutorial 0: Introduction to the UNIX terminal
- Tutorial 1: Common software packages (python, Julia, MATLAB)
- Tutorial 2: Batch Job (HTCondor and Slurm)
- Tutorial 3: Containers (Podman and Singularity)
- Tutorial 4: Source Control (Git/Github) with Visual Studio Code (VSCoDe)
- Tutorial 5: Debugging Fortran code with Visual Studio Code (VSCoDe)
- Tutorial 6: Introduction to Pytorch Lightning
- Tutorial 7: Introduction to Snakemake

Examples of scripts can be found on our [submit-examples](#) GitHub repository.

Videos

- [Fast Code / File Navigation in VSCoDe](#)
- [Debugging on SubMIT with VSCoDe](#)

cs things done at MIT

Overview News Using SubMIT ▾ About ▾

is designed to let users login safely, prepare and test their research, and submit computing resource of their choice. Check it out!

[Get your SubMIT Account](#) [SubMIT Users Guide](#) [Events](#)

Access

[@submit.mit.edu](#) [jupyterhub](#)

Status

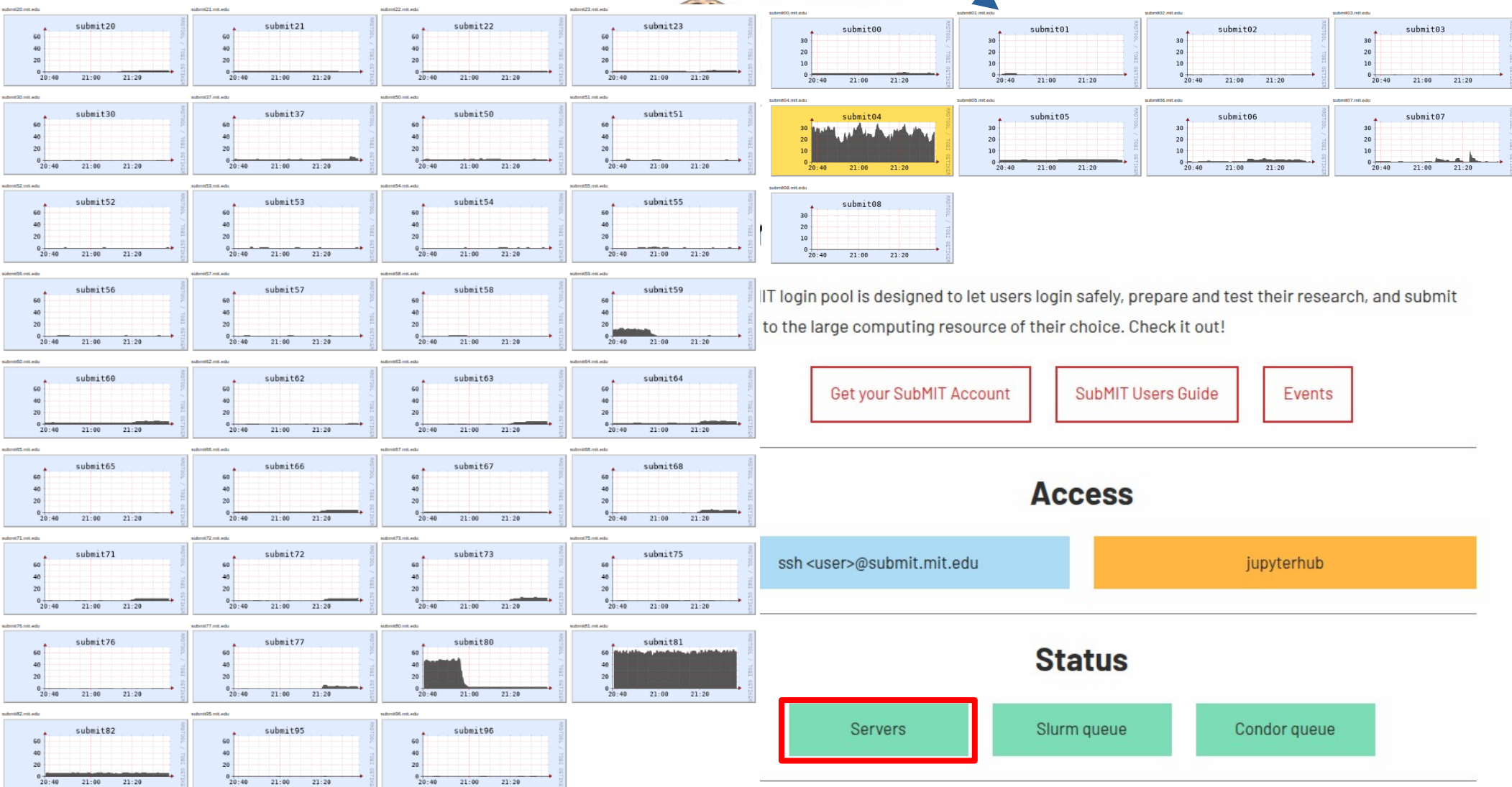
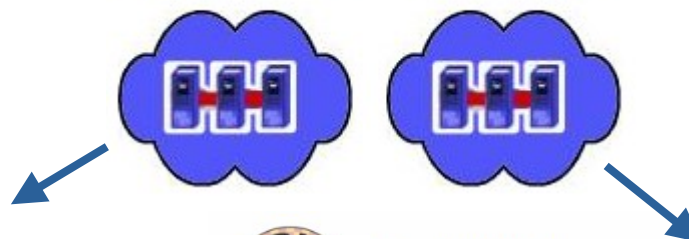
[Servers](#) [Slurm queue](#) [Condor queue](#)

SubMIT machines



Campus_Submits

Submits-Login



MIT login pool is designed to let users login safely, prepare and test their research, and submit to the large computing resource of their choice. Check it out!

[Get your SubMIT Account](#)

[SubMIT Users Guide](#)

[Events](#)

Access

`ssh <user>@submit.mit.edu`

[jupyterhub](#)

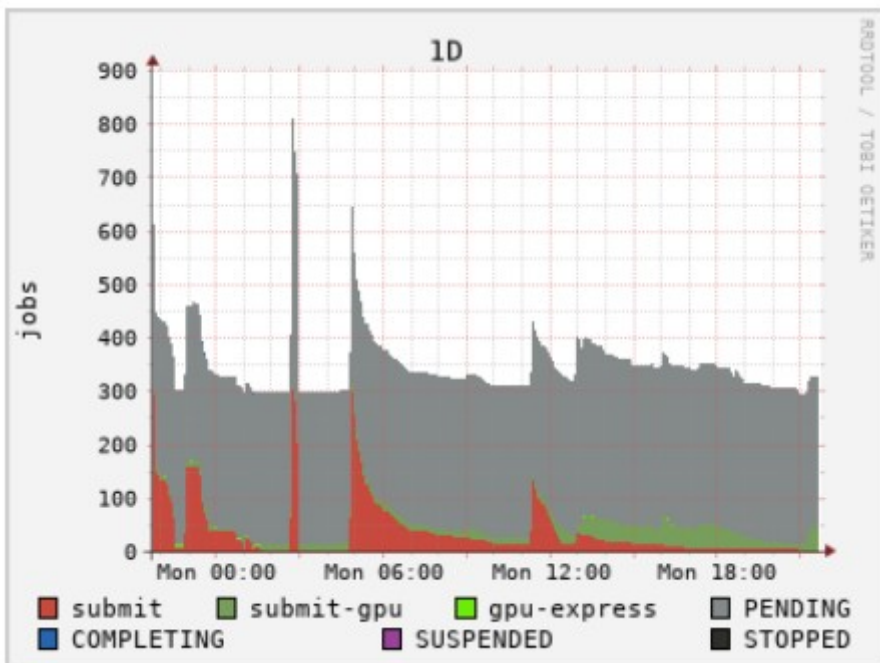
Status

[Servers](#)

[Slurm queue](#)

[Condor queue](#)

SubMIT monitoring



User	Pending	Completing	Suspended	Stopped	Running	MIT			Total
						submit	submit-gpu	submit-gpu-express	
hughhig	0	0	0	0	1	0	1	0	1
bmaier	0	0	0	0	3	0	3	0	3
abelley	0	0	0	0	0	0	0	0	0
dlee888	0	0	0	0	0	0	0	0	0
cris931	0	0	0	0	0	0	0	0	0
malw	0	0	0	0	0	0	0	0	0
karich	0	0	0	0	0	0	0	0	0
ebanigan	0	0	0	0	33	0	33	0	33
hiyasat	0	0	0	0	3	0	3	0	3
haoyun22	0	0	0	0	0	0	0	0	0
josemm	281	0	0	0	3	3	0	0	284
jeandp	0	0	0	0	1	1	0	0	1
ceballos	0	0	0	0	0	0	0	0	0
ahmed95	0	0	0	0	2	0	2	0	2
Total	281	0	0	0	46	4	42	0	327



SubMIT

Getting physics things done at MIT

[Overview](#)

[News](#)

[Using SubMIT](#) ▾

[About](#) ▾

Overview

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jupyterhub

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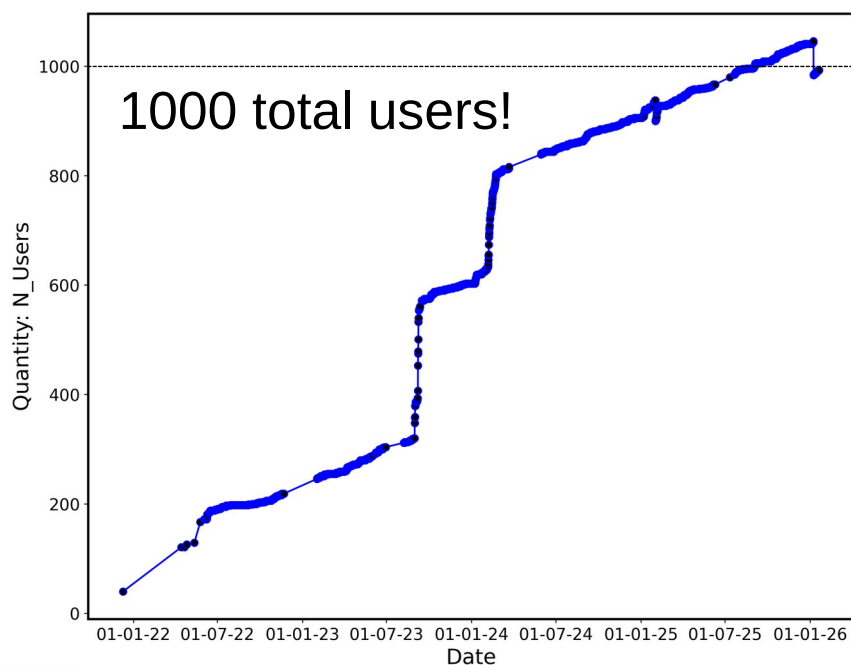
[Servers](#)

[Slurm queue](#)

[Condor queue](#)

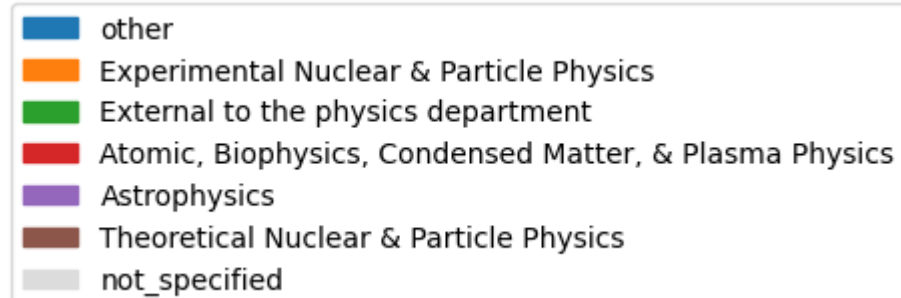
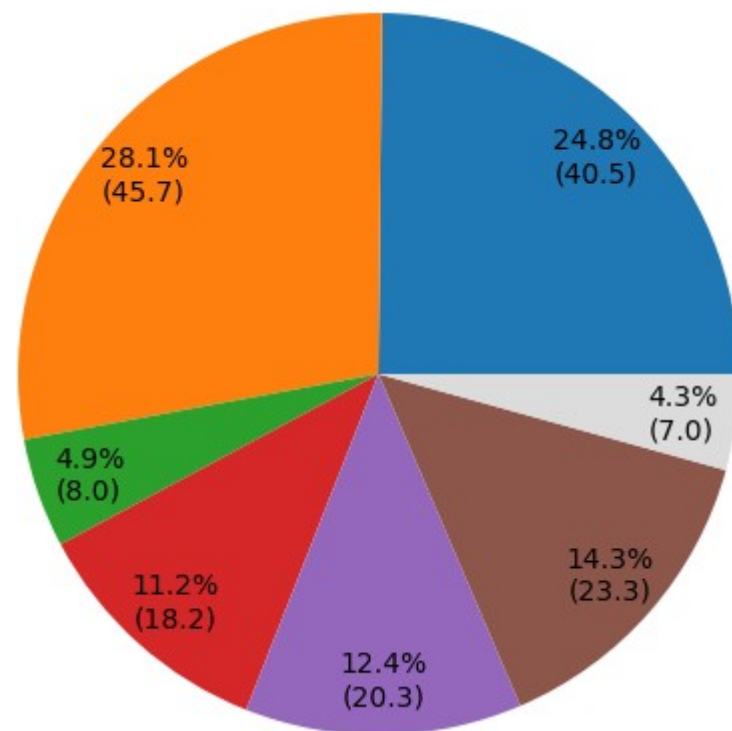


User base

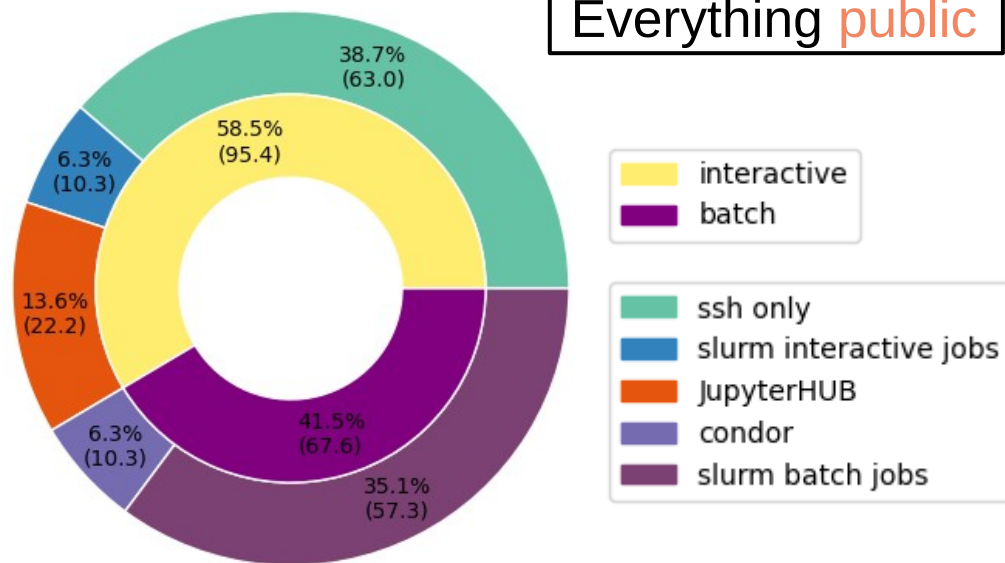


Active users of last 90 days (163)

- from different physics departments
- using subMIT in different ways



Everything public





User base

Everything public

Expert information

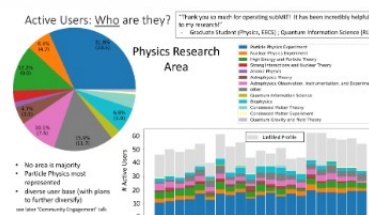
On SubMIT we want to provide full transparency while keeping privacy. On this page, interested users can find inside information of the system. Please get in touch if you find something missing.

User support



When users send us a mail to `submit-help@mit.edu` a ticket is created in our redmine system. Here you can find a meta data analysis of our tickets.

System metrics



Are wondering who are the people you share the system with? Have a look at our users, what career stage, center and department they are. You can also find the information from the poll you filled when creating the account. And which resources are used.

Backups



All home directories on SubMIT are daily backed up incrementally, and fully each weekend. Have a look if your home directory got backed up correctly and how much space it consumes!

More plots: [submit summary](#)



User support

User support is a key feature of the system

- Contact: submit-help@mit.edu
- Slack workspace: <https://mit-submit.slack.com/>
 - “help-desk” channel
- Personal office hours on demand

Beyond basic troubleshooting

- Help users make optimal use of the available resources
- Expert advice on designing/improving workflows
- Customize and evolve system configuration, accommodate user needs as appropriate

Voluntary (anonymous) [survey](#)

- Please tell us what you like or don't like



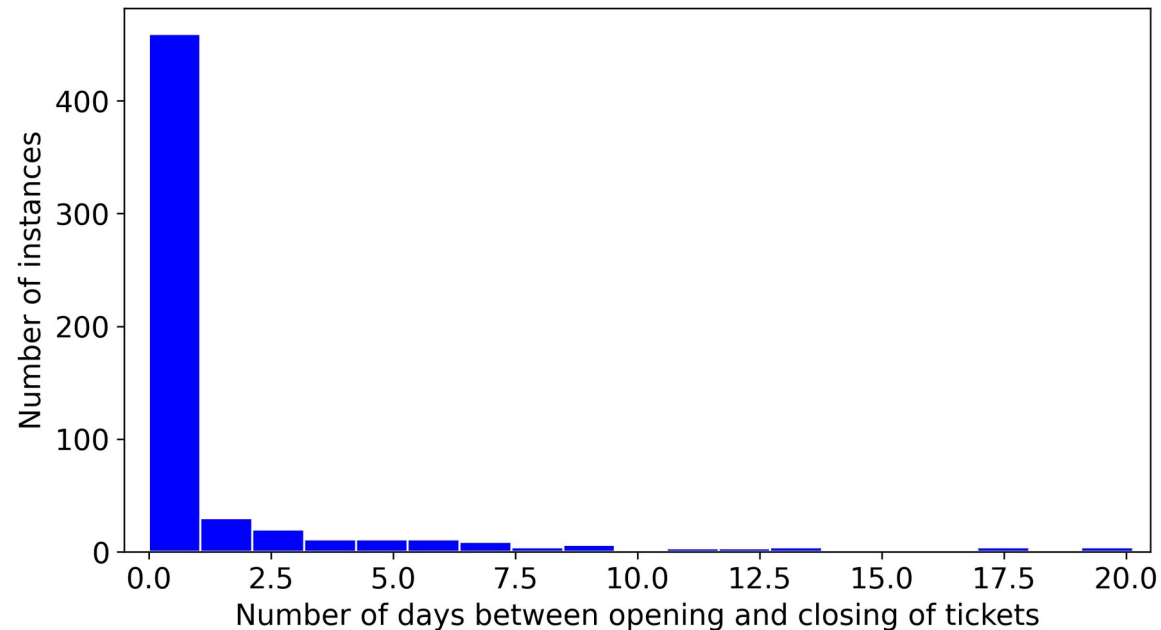
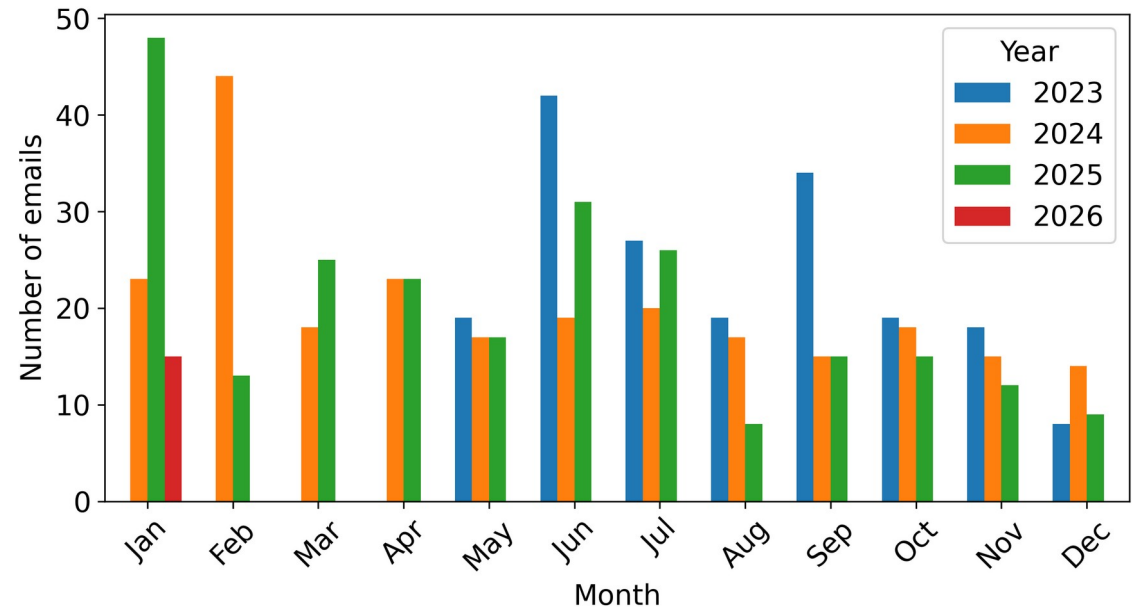
User support

Don't hesitate to contact us

- We receive about 1 email every other day

Year	Tickets
2023	186
2024	243
2025	242
2026	15 ...

- Usually answered within a day





Classroom usage

Introductory undergraduate courses: 8.01, 8.02

- Technology-Enabled Active Learning (TEAL)

Advanced courses, junior lab: 8.13, 8.14

Workshops/ Hackathons

- FCC month, Gaia Hackathon, ...

Resource reservation via slurm



Software distribution and robust usage for $O(100)$ students

- Kernel with customized python environment accessible through JupyterHub
- CVMFS for specialized programs or environments



Monthly user group meetings

Information flow between user community and project team

- Advertised and open to the broader community
- Tuesdays 10:00-11:00 EST
- Hybrid: Kolker room + Zoom

Topical presentations from

- Users and community members
- User group representatives
- Project team

Room for discussions and feedback

User	Talk
Josu Aurrekoetxea (02/11/2025)	Solving Einstein's Equations on the computer
Richard Nally (03/11/2025)	Computing Calabi-Yau Manifolds
Scott Hughes (04/22/2025)	Modeling gravitational waves using highly distributed parallel computing
Jean Du Plessis (06/03/2025)	Simulating heavy quarks in quark gluon plasma
Max Geier (07/01/2025)	Is attention all you need to solve the correlated electron problem?
Ivan Paus (09/16/2025)	A2rchi – An Open Source LLM Framework
Benedikt Maier (10/28/2025)	Multimodal training of jet taggers on subMIT



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Topical presentations from

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Room for discussions and feedback

Latest meeting:

- **October 28**

Contact us if you like to present!

- **submit-help@mit.edu**

SubMIT Users Meeting - operated by Physics Basic Computing Services



Tuesday Oct 28, 2025, 10:00 AM → 11:00 AM America/New_York

Duboc Room (4-331) (MIT)

Description The SubMIT analysis facility is for anyone in the Physics Department and is a set of servers that provide interactive access to substantial storage at high speeds, enabling sophisticated data analyses with very fast turnaround times. Additionally, it seamlessly integrates massive processing resources for large-scale tasks by connecting to a set of powerful batch processing systems.

More information about SubMIT: <https://submit.mit.edu/>

Zoom Link: <https://mit.zoom.us/j/95199329363>

10:00 AM → 10:05 AM	Refreshments	5m
10:05 AM → 10:20 AM	SubMIT Overview & News Speaker: Alexander Avdoshkin (Massachusetts Institute of Technology)  SubMIT.pdf	15m
10:20 AM → 10:30 AM	User Group Representatives Roundtable & Open Discussion Speakers: Amer Al-Hiyasat (MIT), Hans Moritz Guenther (Massachusetts Institute of Technology), Jordan Lang (Massachusetts Institute of Technology), Jose Miguel Munoz Arias (Massachusetts Institute of Technology), Josu Aurrekoetxea (Massachusetts Institute of Technology), Luke Kim (student@mit.edu)	10m
10:30 AM → 10:50 AM	Multimodal training of jet taggers on subMIT Dr Benedikt Maier was previously an MIT postdoc and is now an Eric and Wendy Schmidt AI in Science Postdoctoral Fellow at Imperial College London, leading the EPIGRAPHY network to advance deep learning solutions for real-time edge computing in particle physics experiments at the LHC. As co-convenor of the CMS Exotics physics group, he specializes in searches for new physics and dark matter, pioneering machine learning methods for both data analysis and large-scale computing. Dr Maier has played a pivotal role in managing vast data resources within the CMS collaboration's international computing grid. His achievements have earned him the CMS Young Researcher Prize, highlighting his sustained contributions at the intersection of high-energy physics and artificial intelligence. Speaker: Benedikt Maier (Massachusetts Institute of Technology)  SubMIT_Oct282025...	20m
10:50 AM → 11:00 AM	Followup Discussion	10m



News articles

New users automatically added to receive SubMIT news articles ~1 per week/month

- Keep updated about SubMIT



GPU Resources Update at SubMIT

by **Alexander Avdoshkin** – December 10, 2025

The GPU resources at SubMIT have recently been updated to increase overall capacity and an express queue has been introduced.

[Continue reading »](#)

Passing the magical 1000 users mark

by **Christoph Paus** – November 21, 2025

According to our records, SubMIT has passed the magical 1000 users mark on September 1, 2025. Users include everybody who

[Continue reading »](#)

Annual SubMIT review

by **Marianne Moore** – May 23, 2025

On May 22, SubMIT had its annual review where the project team presented to the steering committee a summary of

[Continue reading »](#)

News

Changes in the Project Team – Farewell, Qier and welcome Jan!

by **David Walter** – January 5, 2026

The new year begins with the farewell of a valued member of our project team: Zhangqier Wang (Qier), a founding

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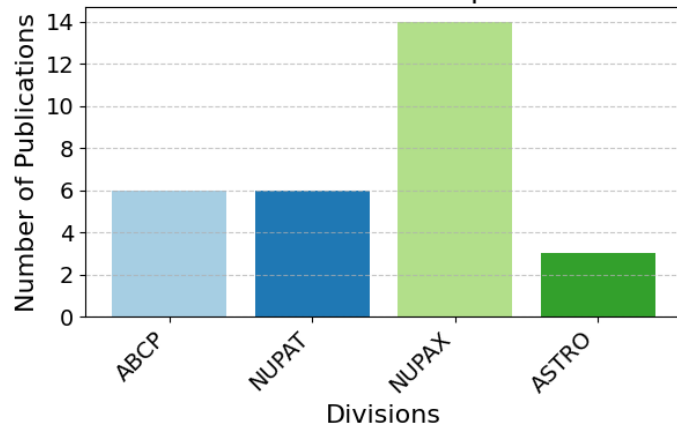
Publications using SubMIT



Increasing number of **publications** with significant use of SubMIT

- Let us know about your publication!

Number of Publications per Division



2024 (12)

- O. Kitouni, N. Nolte, V. Samuel Pérez-Díaz, et al.**, *From Neurons to Neutrons: A Case Study in Interpretability*, ICML, [DOI](#).
Division: Experimental Nuclear & Particle Physics | Center: IAIFI, LNS
- S. Abe, T. Araki, K. Chiba et al.**, *Search for Majorana Neutrinos with the Complete KamLAND-Zen Dataset*, [arXiv](#).
Division: Experimental Nuclear & Particle Physics | Center: LNS
- J. Du Plessis, Z. Janelidze, B. Wessels**, *A Primer on Chainmails: Structures for Point-free Connectivity*, [arXiv](#).
Division: Theoretical Nuclear & Particle Physics | Center: CTP
- B. Binks, H. Guenther**, *TESSILATOR: a one-stop shop for measuring TESS rotation periods*, MNRAS, 533, [DOI](#).
Division: Astrophysics | Center: MKI
- H. Guenther, P. Cheimetz, C. DeRoo et al.**, *Arcus X-ray telescope performance predictions and alignment requirements*, JATIS, 11, [DOI](#).
Division: Astrophysics | Center: MKI
- J. Han, E. Lake, S. Ro**, *Scaling and localization in multipole-conserving diffusion*, Phys. Rev. Lett., 132, 137102, [DOI](#).
Division: Atomic, Biophysics, Condensed Matter & Plasma Physics | Center: Physics of Living Systems
- M. Geier, F. Nathan**, *Self-correcting GKP qubit in a superconducting circuit with an oscillating voltage bias*, [arXiv](#).
Division: Theoretical Condensed Matter Physics | Center: CMT
- CMS Collaboration**, *Search for soft unclustered energy patterns in proton-proton collisions at 13 TeV*, Phys. Rev. Lett., 133, 191902, [DOI](#).
Division: Experimental Particle Physics | Center: LNS
- CMS Collaboration**, *High-precision measurement of the W boson mass with the CMS experiment at the LHC*, Submitted to Nature, [arXiv](#).
Division: Experimental Particle Physics | Center: LNS
- G. Billis, J. Michel, F. Tackmann**, *Drell-Yan q_T spectrum at $N^3\text{LL}'$ and approximate $N^4\text{LL}$ with SCETlib*, [arXiv](#).
Division: Theoretical Nuclear & Particle Physics | Center: CTP
- J. Villarreal, D. Winklehner, D. Koser and J. M Conrad**, *Neural networks as effective surrogate models of radio-frequency quadrupole particle accelerator simulations*, Mach. Learn.: Sci. Technol., 5, 025009, [DOI](#).
Division: Experimental Nuclear & Particle Physics | Center: PSFC
- J.R. Pybus, T. Kolar, B. Devkota et al.**, *Search for axion-like particles through nuclear Primakoff production using the GlueX detector*, Phys. Lett. B, 855, 138790, [DOI](#).
Division: Experimental Nuclear & Particle Physics | Center: LNS

2023 (4)

- H. Günther, P. Cheimets, E. Miller et al.**, *SPIE Proceedings Volume 12678, UV, X-Ray, and Gamma-Ray Space Instrumentation for Astronomy XXIII*, SPIE Proceedings, 12678, 126781D, [DOI](#).
Division: Astrophysics | Center: MKI
- S. Liu, J. Miné-Hattab, M. Villemeur et al.**, *In vivo tracking of functionally tagged Rad51 unveils a robust strategy of homology search*, Nature Structural & Molecular Biology, 30, 1582–1591, [DOI](#).
Division: Biophysics | Center: Physics of Living Systems
- CMS Collaboration**, *Search for direct production of a GeV scale resonance decaying to a pair of muons in proton-proton collisions at $\sqrt{s} = 13$ TeV*, JHEP, 070, [DOI](#).
Division: Experimental Particle Physics | Center: LNS
- CMS Collaboration**, *Measurement of $B_s^0 \rightarrow \mu^+ \mu^-$ decay properties and search for the $B^0 \rightarrow \mu^+ \mu^-$ decay in proton-proton collisions at $\sqrt{s} = 13$ TeV*, Phys. Lett. B, 842, 137955, [DOI](#).
Division: Experimental Particle Physics | Center: LNS

2025 (15 ...)

- A. Abouelkomsan, M. Geler, L. Fu**, *Topological Order in Deep State*, [arXiv](#).
Division: Theoretical Condensed Matter Physics | Center: CMT
- F. Abbasi, R. Nally, W. Taylor**, *Classifying Fibers and Bases in Toric Hypersurface Calabi-Yau Threefolds*, [arXiv](#).
Division: Theoretical Nuclear & Particle Physics | Center: CTP
- CMS Collaboration**, *Identification of low-momentum muons in the CMS detector using multivariate techniques in proton-proton collisions at $\sqrt{s} = 13.6$ TeV*, JINST 20, P04021, [DOI](#).
Division: Experimental Particle Physics | Center: LNS
- CMS Collaboration**, *Search for the rare decay $D^0 \rightarrow \mu^+ \mu^-$ in proton-proton collisions at $\sqrt{s} = 13.6$ TeV*, Phys. Rev. Lett. 135, 151803, [DOI](#).
Division: Experimental Particle Physics | Center: LNS
- D. Aglus, T. R. Slatyer**, *Boosting the cosmic 21-cm signal with exotic Lyman- α from dark matter*, [arXiv](#).
Division: Theoretical Nuclear & Particle Physics | Center: CTP
- A. Beraudo, J. F. Du Plessis, D. Pablos, K. Rajagopal**, *Heavy Quark Energy Loss in the Hybrid Model*, [arXiv](#).
Division: Theoretical Nuclear & Particle Physics | Center: CTP
- A. Belley, J. Munoz, R. Garcia Ruiz**, *Global Framework for Emulation of Nuclear Calculations*, [arXiv](#).
Division: Experimental Nuclear & Particle Physics | Center: LNS
- R. Abbott, D. C. Hackett, D. A. Pefkou, et al.**, *Lattice evidence that scalar glueballs are small*, [arXiv](#).
Division: Theoretical Nuclear & Particle Physics | Center: CTP
- F. E. Taylor**, *Determination of F_L at $x=Q^2/s$ with HERA data*, Phys. Rev. D 111, 052001, [DOI](#).
Division: Experimental Nuclear & Particle Physics | Center: LNS
- J. F. Du Plessis, D. Pablos, and K. Rajagopal**, *Holographic Heavy Quark Energy Loss in the Hybrid Model*, [arXiv](#).
Division: Theoretical Nuclear & Particle Physics | Center: CTP
- M. Geler, K. Nazaryan, T. Zaklama, and L. Fu**, *Is attention all you need to solve the correlated electron problem?* Phys. Rev. B, 112, 045119 [DOI](#).
Division: Theoretical Condensed Matter Physics | Center: CMT
- CMS Collaboration**, *Search for the Higgs boson decays to a ρ^0 , ϕ , or K^{*0} meson and a photon in proton-proton collisions at $\sqrt{s} = 13$ TeV*, Phys. Lett. B, 862, 139296, [DOI](#).
Division: Experimental Particle Physics | Center: LNS
- CMS Collaboration**, *Measurement of inclusive and differential cross sections for W^+W^- production in proton-proton collisions at $\sqrt{s} = 13.6$ TeV*, Phys. Lett. B, 861, 139231, [DOI](#).
Division: Experimental Particle Physics | Center: LNS
- M. Kim, A. Timmel, L. Ju et al.**, *Topological chiral superconductivity beyond pairing in Fermi-liquid*, Phys. Rev. B, 111, 014508, [DOI](#).
Division: Theoretical Condensed Matter Physics | Center: CMT
- J. Munoz, S. Udrescu, R. Garcia Ruiz**, *Discovering Nuclear Models from Symbolic Machine Learning*, Commun Phys 8, 101, [DOI](#).
Division: Experimental Nuclear & Particle Physics | Center: IAIFI, LNS



Publication about SubMIT

Detailed description about SubMIT on [arxiv](#)

- Citations very welcome!

SubMIT: A Physics Analysis Facility at MIT

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xuejian@mit.edu; david_w@mit.edu; wangzqe@mit.edu;

Abstract

The recently completed SubMIT platform is a small set of servers that provide interactive access to substantial data samples at high speeds, enabling sophisticated data analyses with very fast turnaround times. Additionally, it seamlessly integrates massive processing resources for large-scale tasks by connecting to a set of powerful batch processing systems. It serves as an ideal prototype for an Analysis Facility tailored to meet the demanding data and computational requirements anticipated during the High-Luminosity phase of the Large Hadron Collider. The key features that make this facility so powerful include highly optimized data access with a minimum of 100 Gbps networking per server, a large managed NVMe storage system, and a substantial spinning-disk Ceph file system. The platform integrates a diverse set of high multicore CPU machines for tasks benefiting from the multithreading and GPU resources for example for neural network training. SubMIT also provides and supports a flexible environment for users to manage their own software needs for example by using containers. This article describes the facility, its users, and a few complementary, generic and real-life analyses that are used to benchmark its various capabilities.

Keywords: Analysis facility, High-performance computing, SubMIT, High-energy physics, High-Luminosity LHC, Research infrastructure



Previous work

New/recovered hardware

- Recommissioning of ~10 servers with 4 Nvidia 1080 GPUs
- Included one server with 2 RTX 6000 and one with 4 Nvidia V100 GPUs
- Almost doubled CPUs available in Slurm to ~2000 cores
- Added additional storage space: HDD and NVME

Add software support: Dask gateway, OpenMPI, Globus, ...

Continuous software upgrades and maintenance

- Operating system (Alma linux 9), Ceph FS, Slurm, HTCondor, ...
- Re-configured slurm

Provided stable operations

- Improved alarm system to notify if services crash



Whats next

Ensure stable long term operations

- Establish software upgrade policy
- More complete alarm system to provide continuous operations

Exploration of new software

- Pixi, pelican, ...

Analyze user experience

- Understand frequent causes why jobs/ jupyterhub sessions/ ... fail
- Find cases of inefficient use of resources

→ Dedicated actions: Give recommendations, adapt system configuration, ...



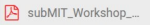

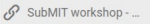
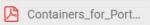
Implement user requests - please let us know what you need!

Today's Workshop



Indico agenda

- Overview of subMIT project, resources, software environment
- Hands-on tutorials
- User talks on research usage
- **Open coding & help desk session!**

9:00 AM	→ 9:05 AM	Refreshments	⌚ 5m	📍 26-414 (Kolker room)	🔗
9:05 AM	→ 9:10 AM	Introduction to the workshop Speaker: Christoph Paus (MIT)	⌚ 5m	📍 26-414 (Kolker room)	🔗
9:10 AM	→ 9:30 AM	SubMIT Project Overview Speaker: David Walter (Massachusetts Institute of Technology)	⌚ 20m	📍 26-414 (Kolker room)	🔗
9:30 AM	→ 9:50 AM	User contribution 1 Speaker: Sarah Geller (Massachusetts Institute of Technology)	⌚ 20m	📍 26-414 (Kolker room)	🔗
9:50 AM	→ 10:10 AM	Getting started on subMIT: How to interact with subMIT Speaker: Matthew Heine (Massachusetts Institute of Technology) 	⌚ 20m	📍 26-414 (Kolker room)	🔗
10:10 AM	→ 10:30 AM	A2rchi- An Open Source LLM Framework Speaker: Mariarosaria D'Alfonso (Massachusetts Institute of Technology) 	⌚ 20m	📍 26-414 (Kolker room)	🔗
10:30 AM	→ 10:45 AM	Coffee Break	⌚ 15m	📍 26-414 (Kolker room)	
10:45 AM	→ 11:05 AM	Virtual environment, conda, and best practices Speaker: Marianne Moore (MIT) 	⌚ 20m	📍 26-414 (Kolker room)	🔗
11:05 AM	→ 11:25 AM	Modeling dark matter signals in cosmic 21cm radiation Speaker: Tracy Slatyer (MIT Physics Department)	⌚ 20m	📍 26-414 (Kolker room)	🔗
11:25 AM	→ 11:45 AM	Tutorial: Containers for Portable Software Environments Speaker: Luca Lavezzo (MIT) 	⌚ 20m	📍 26-414 (Kolker room)	🔗
11:45 AM	→ 12:05 PM	CMS analyses using SubMIT Speaker: Guillermo Gomez-Ceballos	⌚ 20m	📍 26-414 (Kolker room)	🔗

12:05 PM	→ 1:35 PM	Lunch	⌚ 1h 30m		
1:35 PM	→ 1:55 PM	Tutorial: Batch Job / Workflow Management: HTCondor Speaker: Jan Eysermans (Massachusetts Institute of Technology)	⌚ 20m	📍 26-414 (Kolker room)	🔗
1:55 PM	→ 2:15 PM	Machine learning quantum states of matter about https://arxiv.org/abs/2512.01863 Speaker: Ahmed Abouelkomsan (Massachusetts Institute of Technology)	⌚ 20m	📍 26-414 (Kolker room)	🔗
2:15 PM	→ 2:35 PM	Hacking on SubMIT about the upcoming Gaia hackathon Speaker: Lina Necib (Physics Department)	⌚ 20m	📍 26-414 (Kolker room)	🔗
2:35 PM	→ 2:55 PM	Tutorial: Batch Job / Workflow Management: SLURM & Snakemake Speaker: Alexander Avdoshkin (MIT)	⌚ 20m	📍 26-414 (Kolker room)	🔗
2:55 PM	→ 3:10 PM	Coffee Break	⌚ 15m	📍 26-414 (Kolker room)	
3:10 PM	→ 3:30 PM	Custom software on SubMIT: OpenMPI and Globus Speaker: Xuejian(Jacob) Shen (Massachusetts Institute of Technology)	⌚ 20m	📍 26-414 (Kolker room)	🔗
3:30 PM	→ 4:10 PM	Hands on: Computing hackathon & help desk Bring your questions, problems, or ideas related to the analysis computing facility. In this interactive session, the team will provide one-on-one help with configuration issues, troubleshooting, workflow optimization, and practical demonstrations. You can also explore useful tools and tips in a hands-on setting.	⌚ 40m	📍 26-414 (Kolker room)	🔗
4:10 PM	→ 4:40 PM	Open Discussion & Closing Remarks	⌚ 30m	📍 26-414 (Kolker room)	🔗



Backup

Interactive use

Accessible through website:

- [jupyterhub](https://jupyterhub.com)



Select a job profile:

Slurm - Submit - 1 CPU, 2 GB

Start

Quick introduction:

- **Spawn server menu:**

- Slurm - Submit - 1 CPU, 2 GB: spawns a server on the "submit" Slurm partition, with 1 CPU, 2GB of memory.
- Slurm - Submit - 2 CPUs, 4 GB: spawns a server on the "submit" Slurm partition, with 2 CPUs, 4GB of memory.
- Slurm - Submit - 4 CPUs, 8 GB: spawns a server on the "submit" Slurm partition, with 4 CPUs, 8GB of memory.

```
Untitled3.ipynb
```

[1]: 2+2

[1]: 4

[]:

```
david_w@submit04:~
```

```
[david_w@submit04 ~]$ python
```

```
Python 3.9.18 (main, Jul 3 2024, 00:00:00)
```

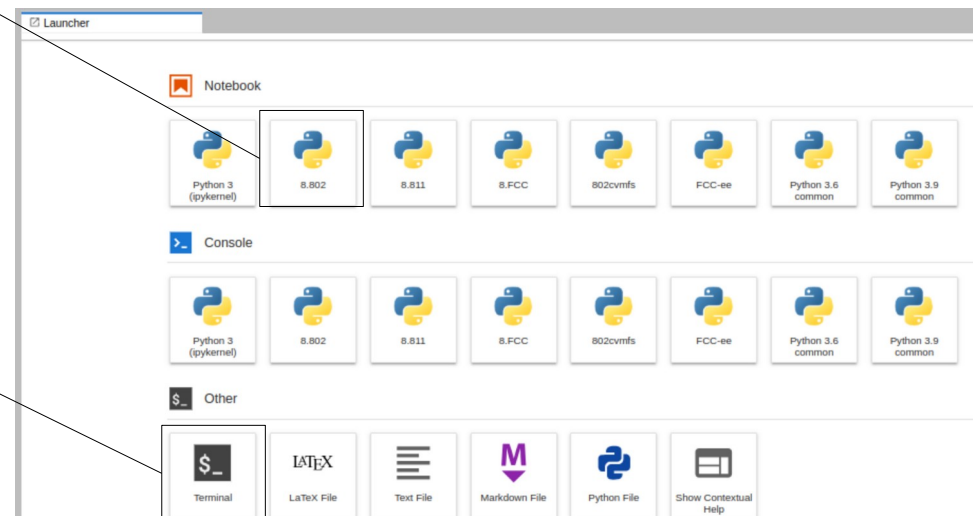
```
[GCC 11.4.1 20231218 (Red Hat 11.4.1-3)] on linux
```

```
Type "help", "copyright", "credits" or "license" for more
```

```
>>> 2+2
```

```
4
```

```
>>>
```



Documentation



User's guide

- How to interact with the system
- Recommendations
- Tutorials & examples

A2rchi (chatbot)

- Ragging of users guide
- Interactive user support
- Support ticket handling



subMIT v1 documentation » User's Guide - subMIT

User's Guide - subMIT

Contents:

- [User's guide – subMIT login pool](#)
- [Getting started](#)
- [Access to subMIT](#)
- [Best practices](#)
- [Available software](#)
- [Batch computing](#)
- [User quota and storage at submit](#)
- [Monitoring at submit](#)
- [GPU resources](#)
- [Data backup](#)
- [Conda and its benefits beyond python](#)
- [Acknowledging subMIT](#)

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Tutorials and Examples

Tutorials:

- [Tutorial 0: Introduction to the UNIX terminal](#)
- [Tutorial 1: Common software packages \(python, Julia, MATLAB\)](#)
- [Tutorial 2: Batch Job \(HTCondor and Slurm\)](#)
- [Tutorial 3: Containers \(Podman and Singularity\)](#)
- [Tutorial 4: Source Control \(Git/Github\) with Visual Studio Code \(VSCode\)](#)
- [Tutorial 5: Debugging Fortran code with Visual Studio Code \(VSCode\)](#)
- [Tutorial 6: Introduction to Pytorch Lightning](#)
- [Tutorial 7: Introduction to Snakemake](#)

Examples of scripts can be found on our [submit-examples GitHub repository](#).

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Quick search

A2rchi

Start a conversation and explore the power of A2rchi, specially trained on the SubMIT Cluster.
Your chat history will be displayed here.

By using this website, you agree to the [terms and conditions](#).

