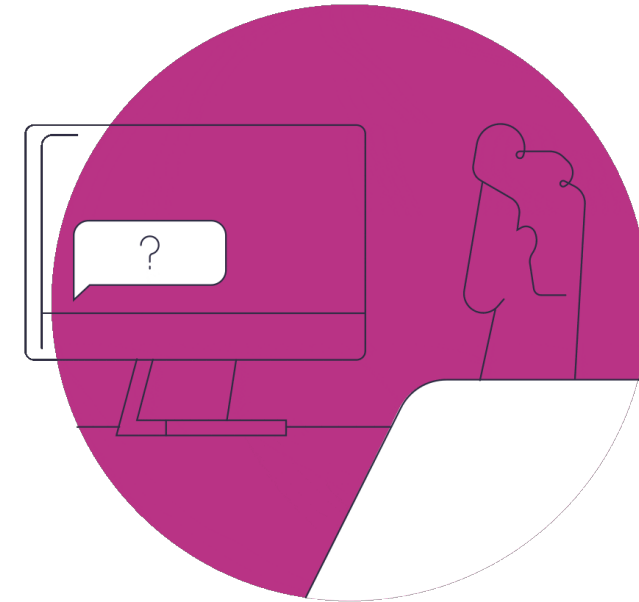
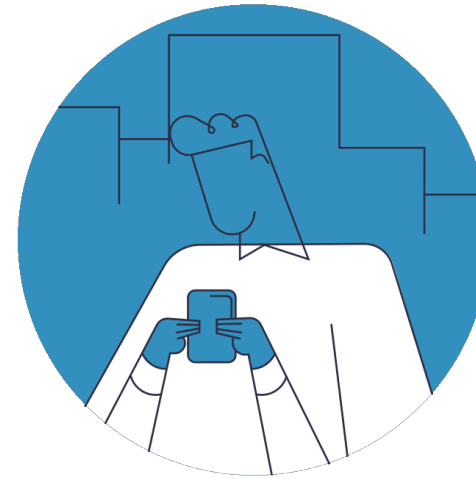


Gateways24 Tutorial

Matt Walton
Alan Chalker
Julie Ma



This work is supported by the National Science Foundation of the United States under the awards 1534949, 1835725, 2138286, 2303692, and 2411375

openondemand.org/gateways24

Tutorial Agenda

About Open OnDemand

Walkthrough

Customization

Engaging with the Project



Quick Survey

Go to

www.menti.com

Enter the code

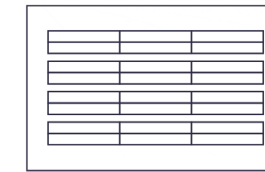
3595 1640



Or use QR code

Run Open OnDemand

Access your organization's supercomputers through the web to compute from anywhere, on any device.



Zero installation

Run Open OnDemand entirely in your browser. No client software installation required.

Easy to use

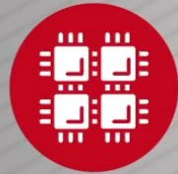
Start computing immediately. A simple interface makes Open OnDemand easy to learn and use.

Compatible with any device

Launch on any device with a browser—even a mobile phone or tablet.

openondemand.org/run

Any Device, Anywhere

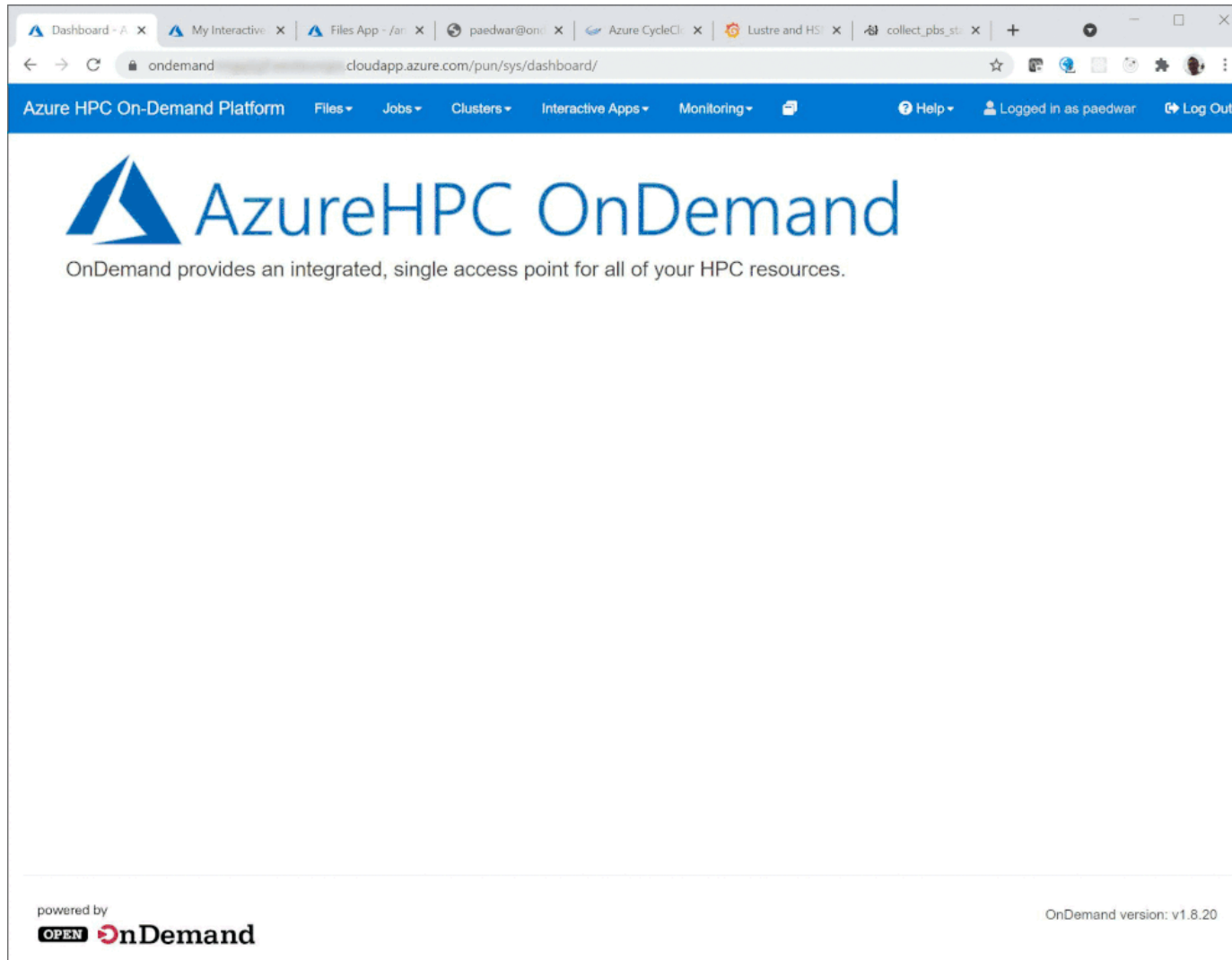


Ohio Supercomputer Center

An **OH·TECH** Consortium Member

openondemand.org/anydevice

Commercial Cloud



openondemand.org/aws



openondemand.org/azure



openondemand.org/gcp

NSF ACCESS



Hive



Rockfish



ACES &
FASTER



Anvil



Bridges-2 &
Neocortex



KyRIC



Delta



Ookami

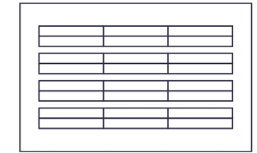
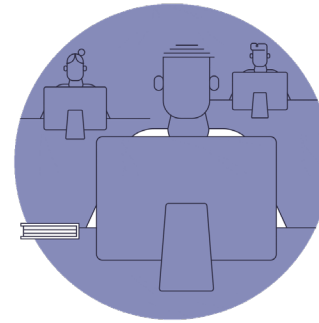


Expanse

openondemand.org/access

Install Open OnDemand

Administer remote web access to your supercomputers to transform the way users work and learn.



Low barrier to entry

Empower users of all skill levels by offering an alternative to command-line interface.

Free and open source

Install Open OnDemand for free, and gather knowledge from our large open-source community.

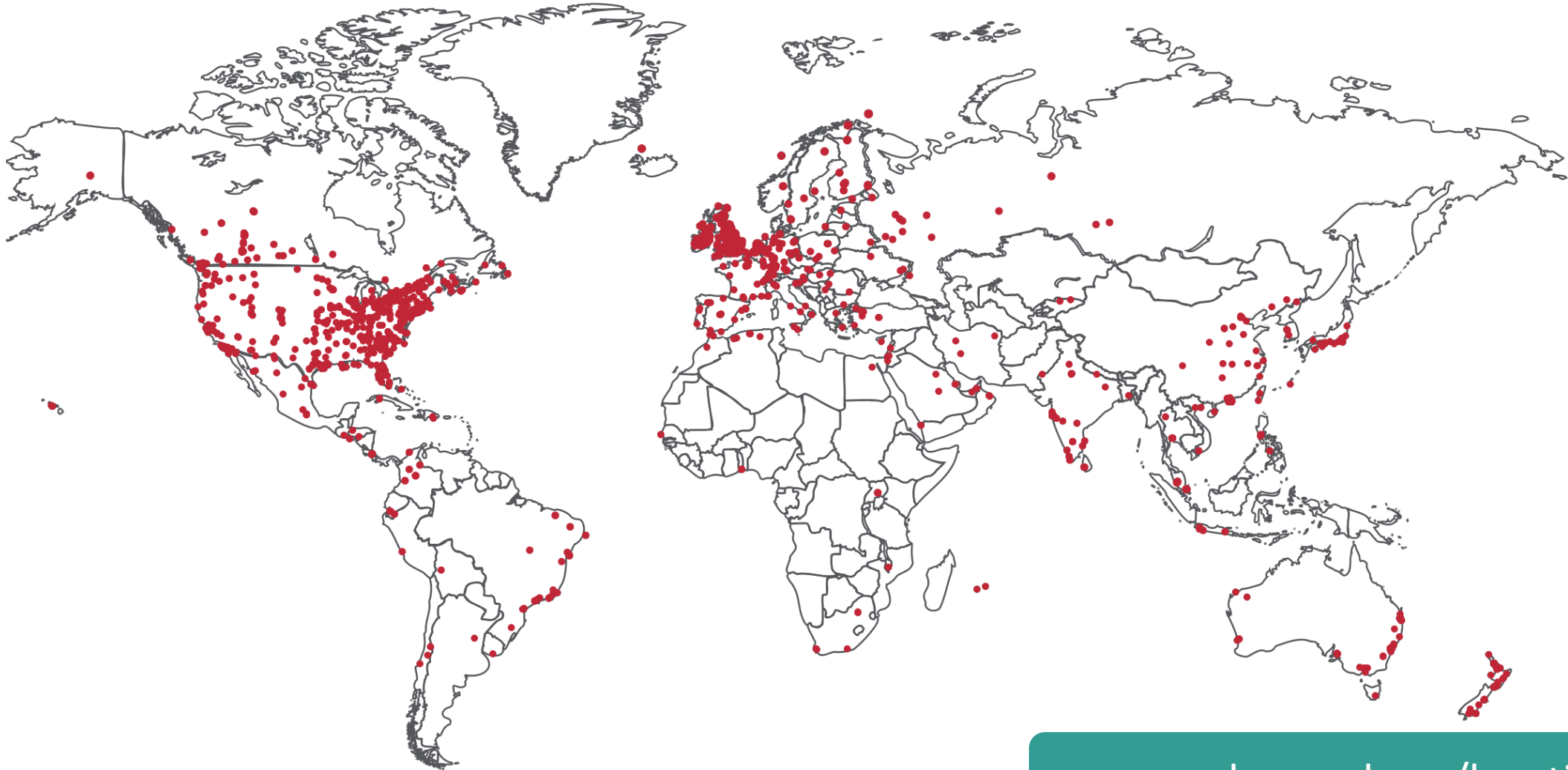
Configurable and flexible

Create and deploy your own applications to meet your users' unique needs.

openondemand.org/install

Deployed Worldwide

95 Countries | 1,646 Organizations



openondemand.org/locations

Example Deployments

Nonprofit / Research centers



International academia



Government



Minority-serving institutions



Private academia




















































Public academia



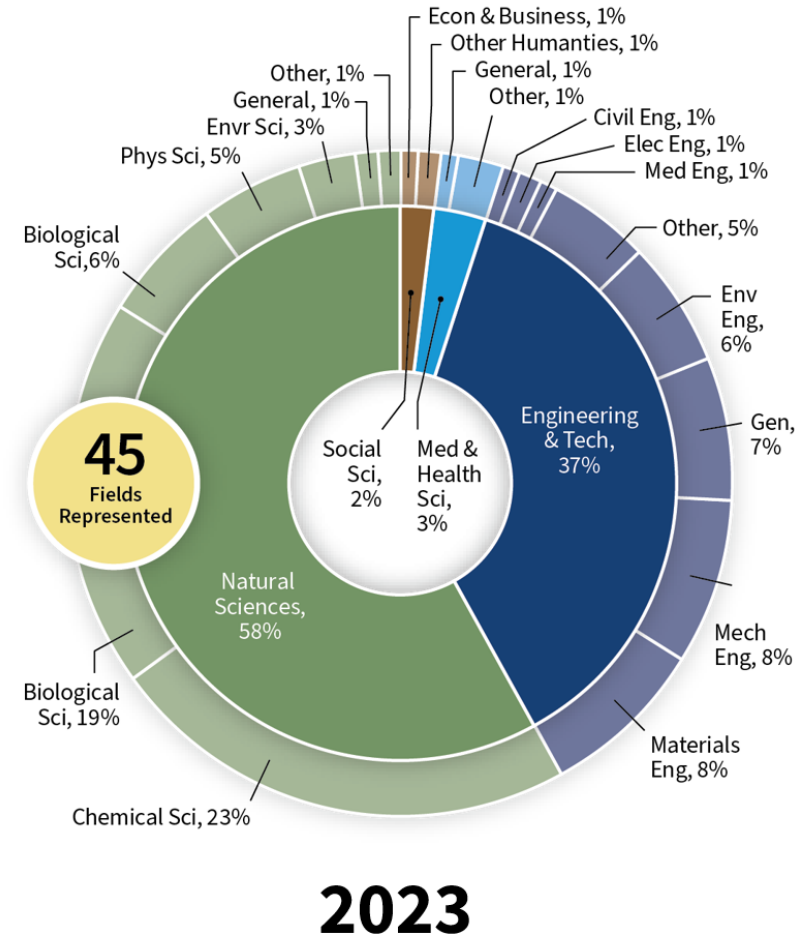
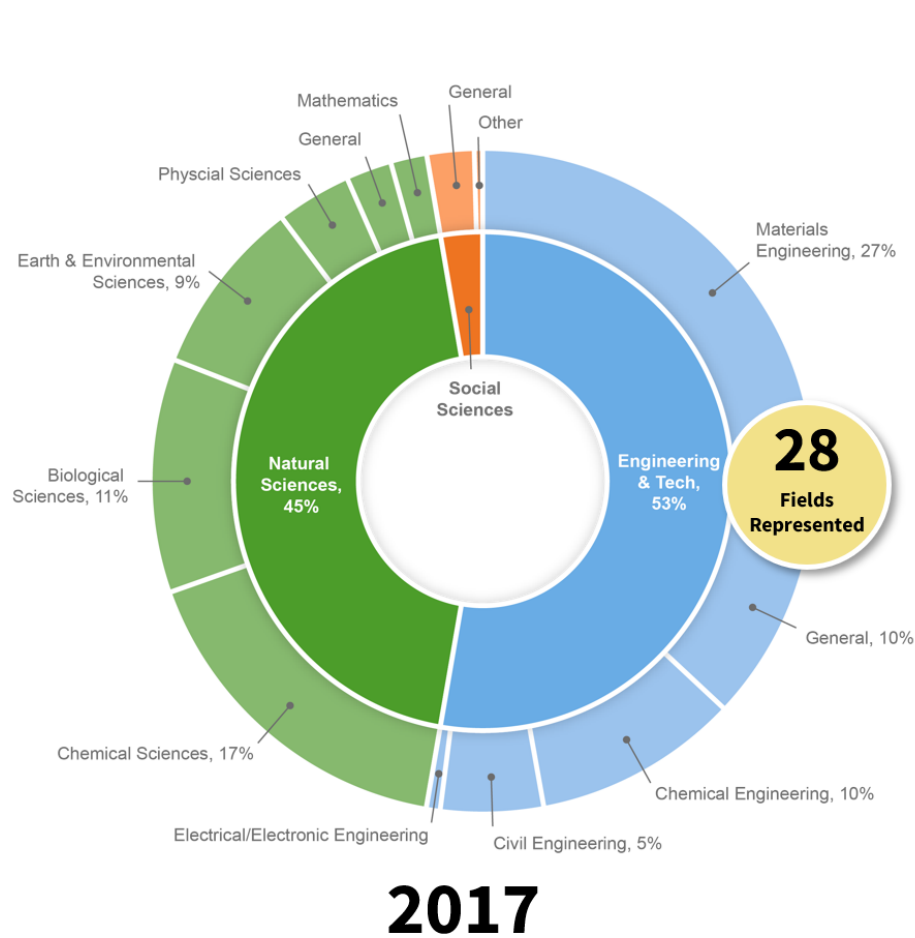
Industry



Enabled Utilities & Apps

 Abaqus	 AMDuProf	 ANSYS	 Arm	 BEAST 2	 MRIcron	 NetLogo	 Nsight Eclipse	 Octave	 OVITO
 Blender	 CHIMERA	 COMSOL	 Coot	 DeepLabCut	 ParaView	 PseudoFuN	 PSPP	 PyCharm	 PyMOL
 Eclipse	 Firefox	 Galaxy	 GaussView	 Grace	 QGIS	 RELION	 RStudio	 Schrodinger	 Shiny
 GSEA	 IDL	 jupyter	 LS-DYNA	 Lumerical	 Siril	 STAR-CCM+	 Stata	 TensorBoard	 Visit
 Maestro	 Mathematica	 MATLAB	 Maya	 Meshroom	 Visual Studio Code	 VMD	 WebMO	 XDMoD	

Impact at OSC



Digital Arts

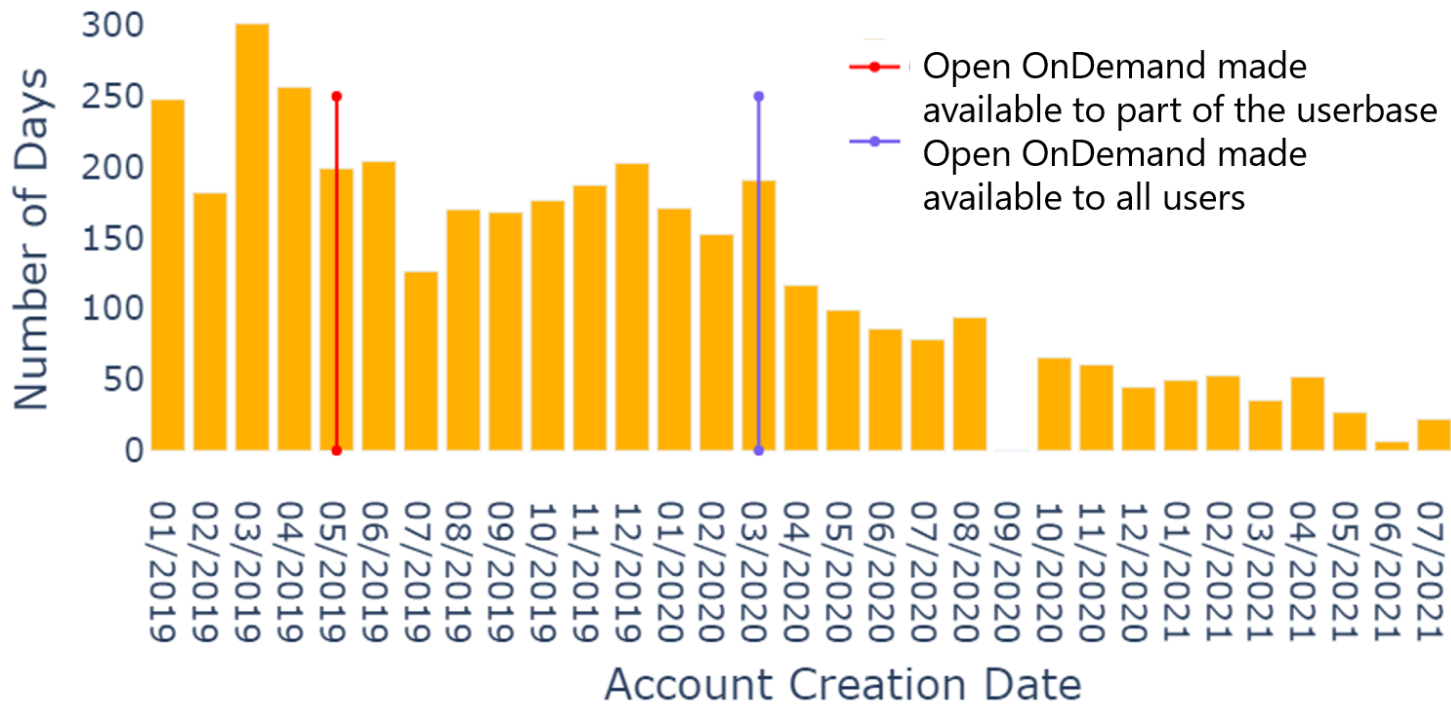


“OSC brought equity and accessibility to my students, allowing them to use top-of-the-line technologies in a safe environment from any device.”

— Basil Masri Zada,
Ohio University professor

Idaho National Lab

Average Number of Days Between Account Creation to First Job Submission



19 times shorter

In days between account creation and first job submission

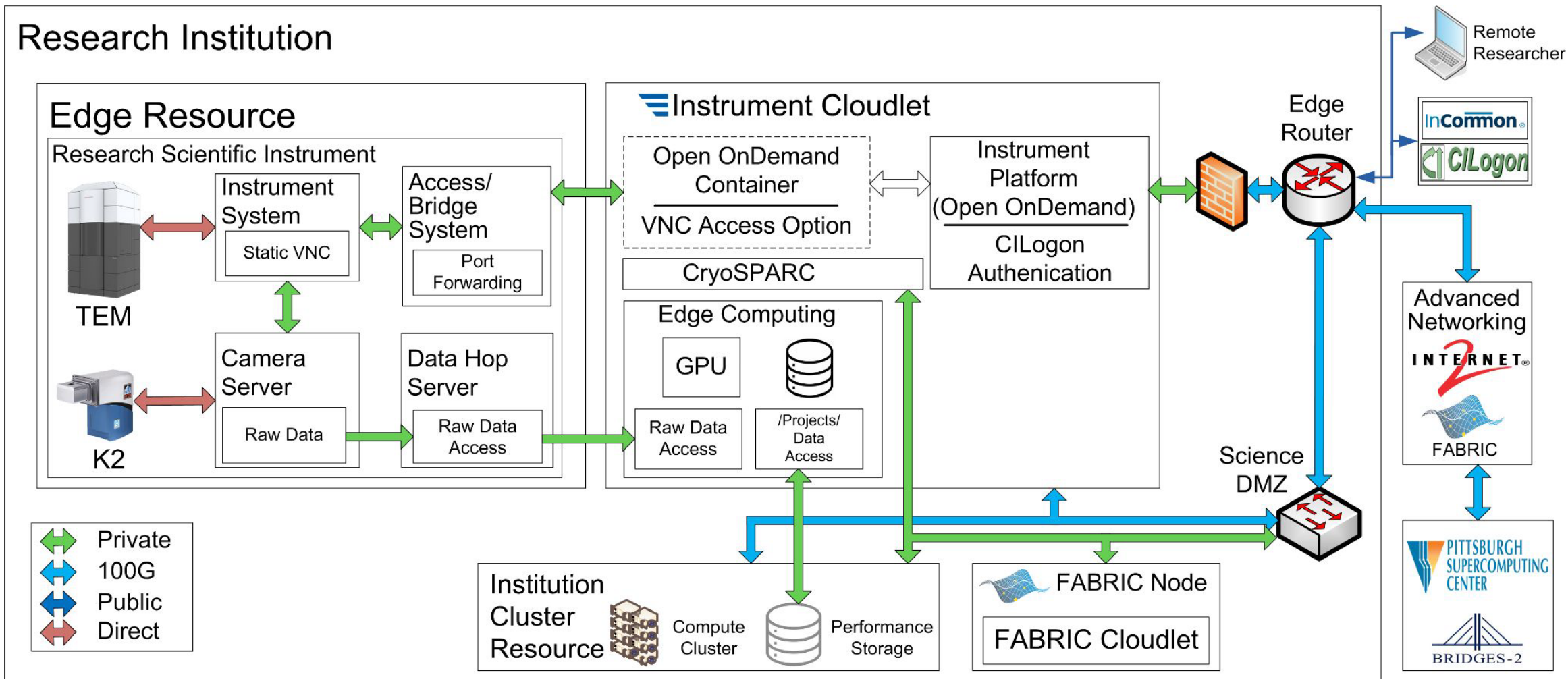
Classroom Computing



“When they log in to the OnDemand server through OSC on their iPads, they all see exactly the same thing. We can write laboratory exercises and write hints for homework problems and this helps them have a standardized environment and know what to expect when they use the tool.”

— Laura Kubatko, Ohio State professor

Remote Science



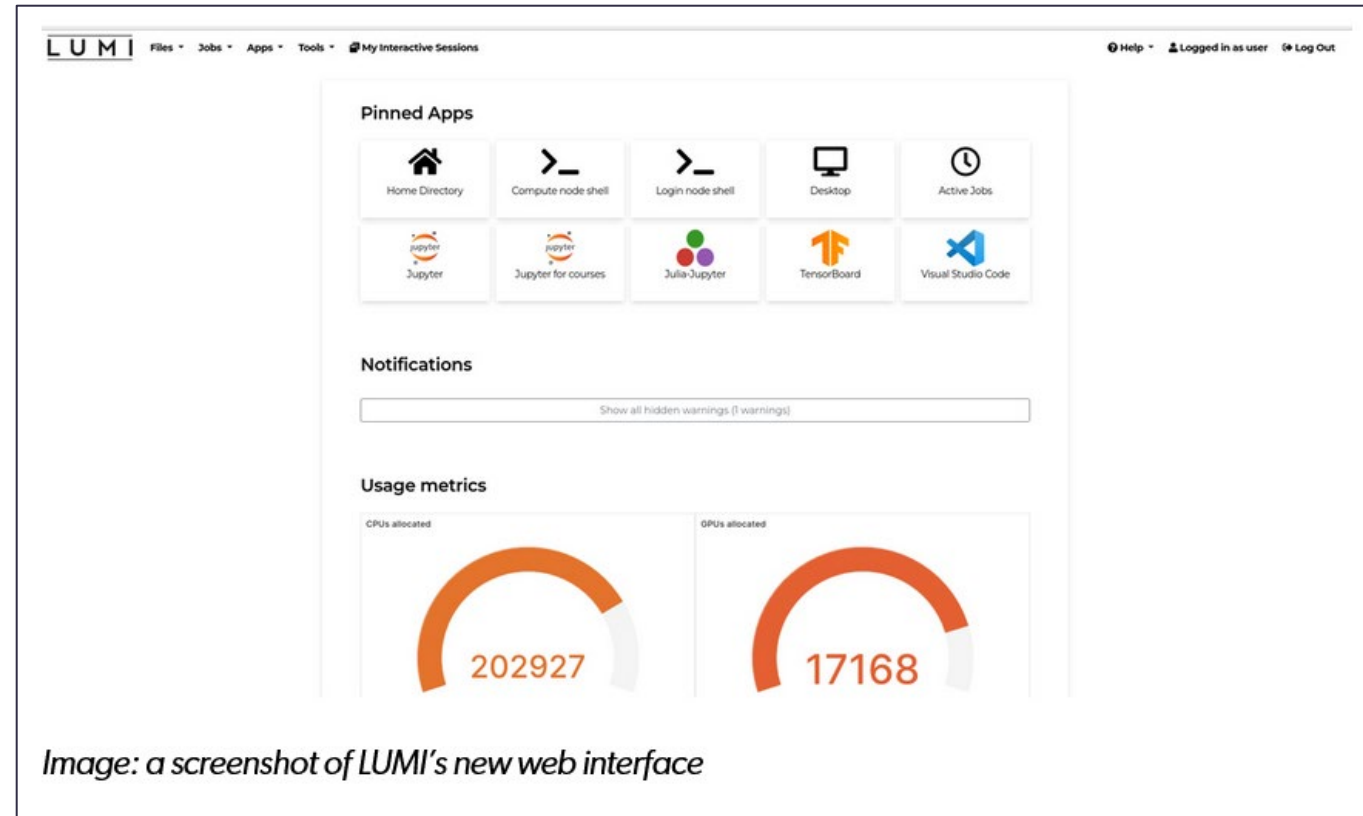
LUMI OnDemand

Introducing a new web interface for LUMI

9.11.2023

A new, easy-to-use web interface for LUMI has been launched at <https://www.lumi.csc.fi>, providing all the resources and power of the LUMI supercomputer with an easy-access web interface.

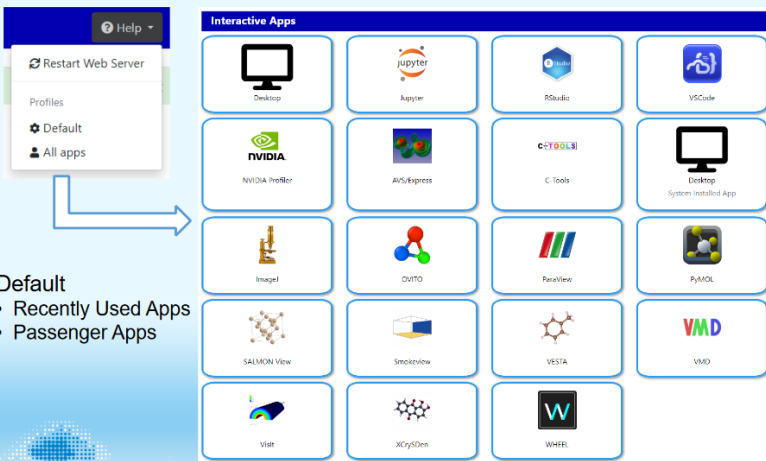
This new user interface offers something both for less experienced users as well as seasoned power users. The main features are its ability for users to easily launch interactive applications and connect to them seamlessly from the browser. Key highlights include a comprehensive Linux Desktop that offers a rich graphical environment for data visualization and analysis as well as Jupyter environments for Python and Julia. Additionally, users can launch custom containerized environments for, e.g., courses. It also includes VSCode for code development as well as Tensorboard for AI.



Riken Workshop

Some Visualization Applications (OnDemand)

Select "All apps" if "Batch Jobs" and "Interactive Apps" do not appear.

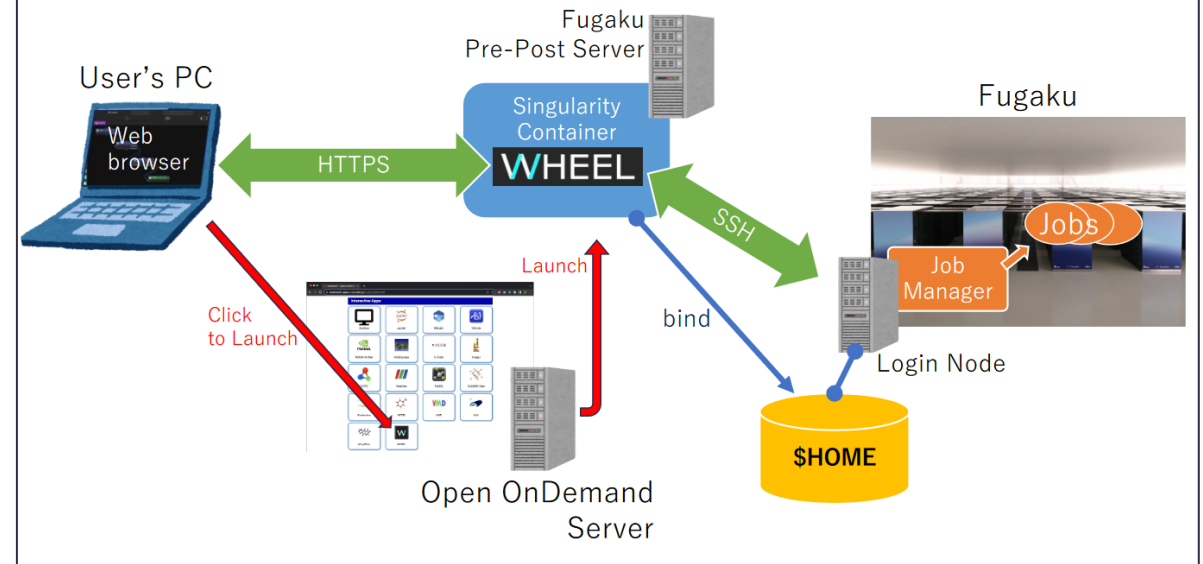


The screenshot shows the Open OnDemand application interface. On the left, there is a sidebar with a 'Help' menu and a 'Restart Web Server' button. Below that, there are 'Profiles' options: 'Default' and 'All apps'. The main area is titled 'Interactive Apps' and contains a grid of application icons. The icons include Desktop, Jupyter, RStudio, VSCode, NVIDIA, AVS/Express, C-Tools, Desktop System installed App, ImageJ, OVITO, ParaView, PyMOL, SALMON View, Smokeview, VESTA, VMD, VisIt, XCRYSDEN, and WHEEL.

- **General-Purpose**
 - AVS/Express (Non-OSS)
 - ParaView
 - VisIt
- **Domain Specific**
 - VMD
 - OVITO
 - PyMol
 - ...



On Fugaku Open OnDemand



Tutorial Agenda

~~About Open OnDemand~~

Walkthrough

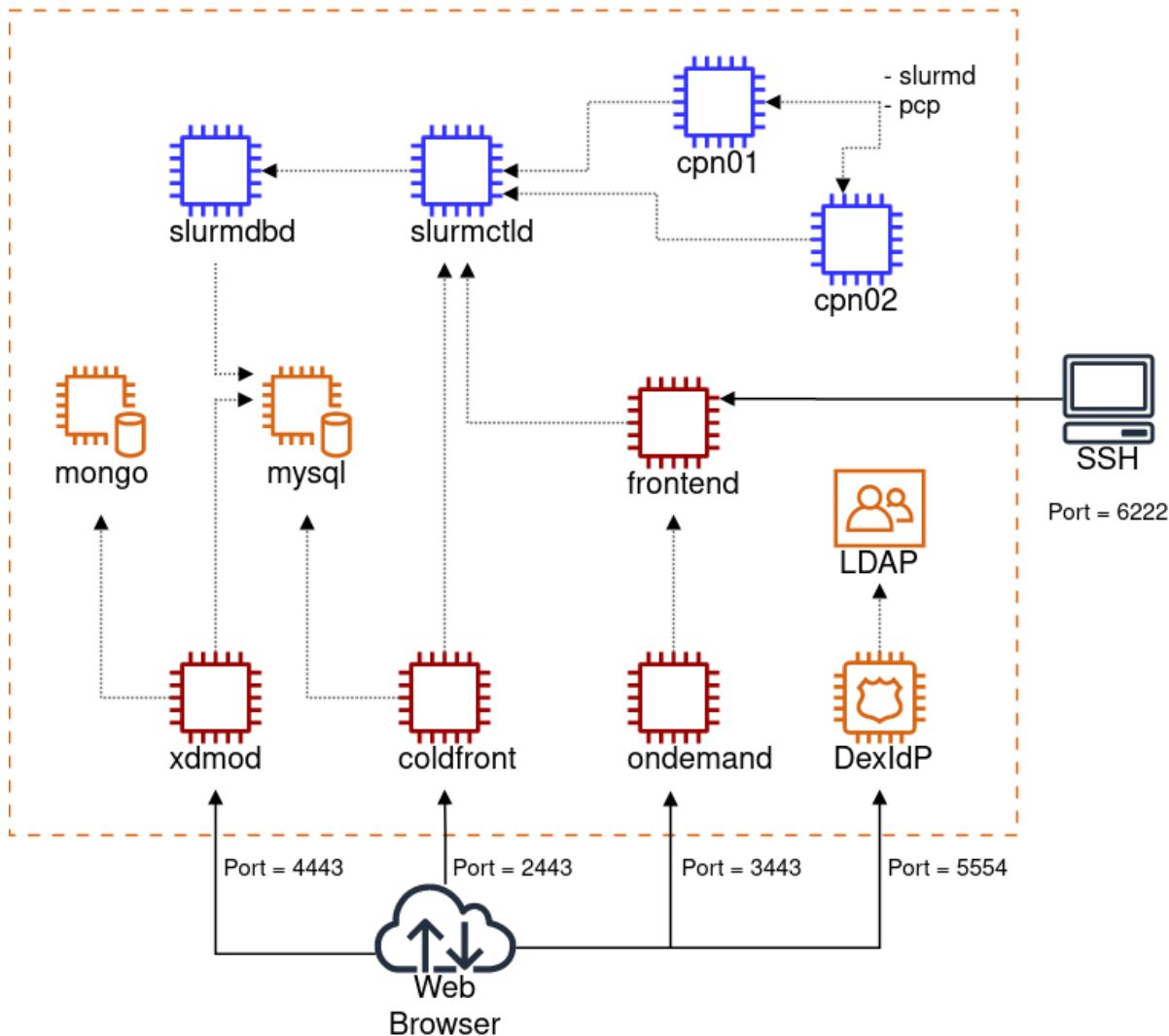
Customization

Engaging with the Project



Tutorial Infrastructure

HPC Toolset Containers



WARNING!!! DO NOT run these containers on production systems. The tutorial container images are configured with hard coded, insecure passwords.

Clone the repository at openondemand.org/tutorial

From a CLI, inside the cloned repository:

Build: `docker-compose build --no-cache`

Start: `docker-compose up`

Stop: `docker-compose down`

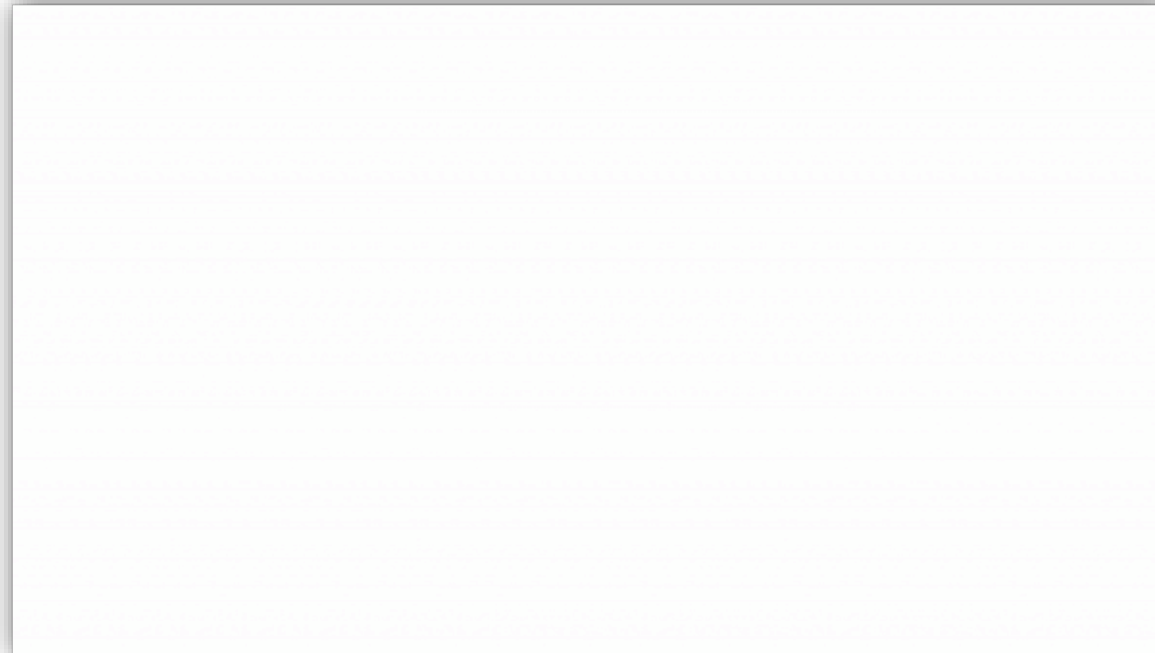
OnDemand should be available at `localhost:3443`

openondemand.org/tutorial

Log In

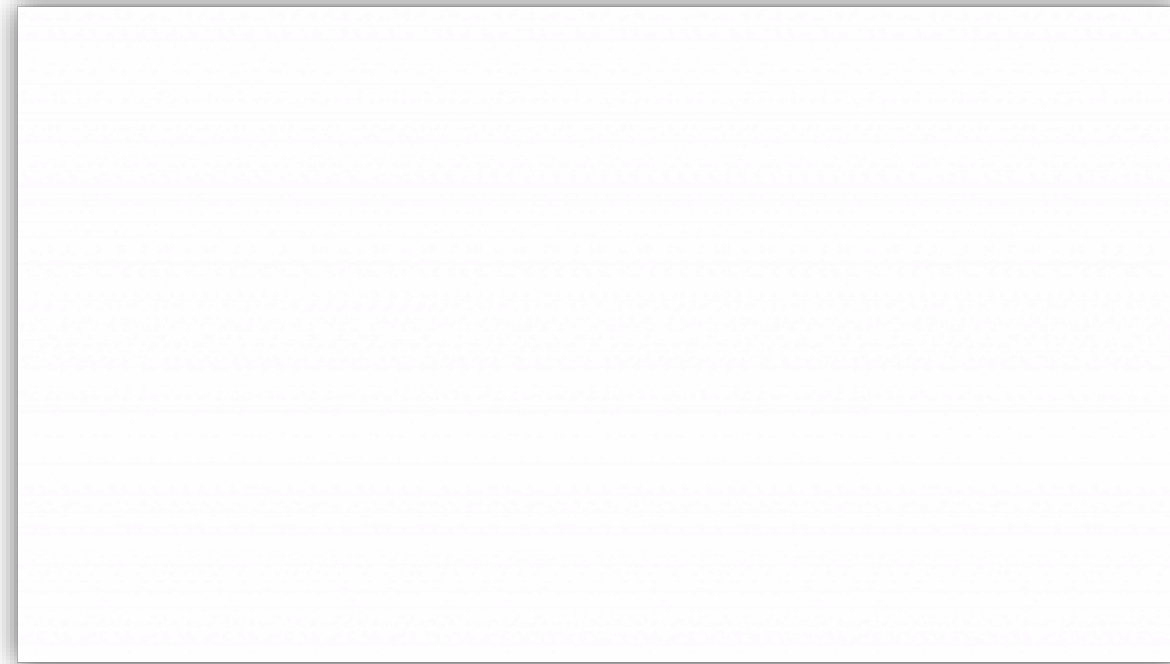
openondemand.org/tutorial

Log In



File Browser

File Browser



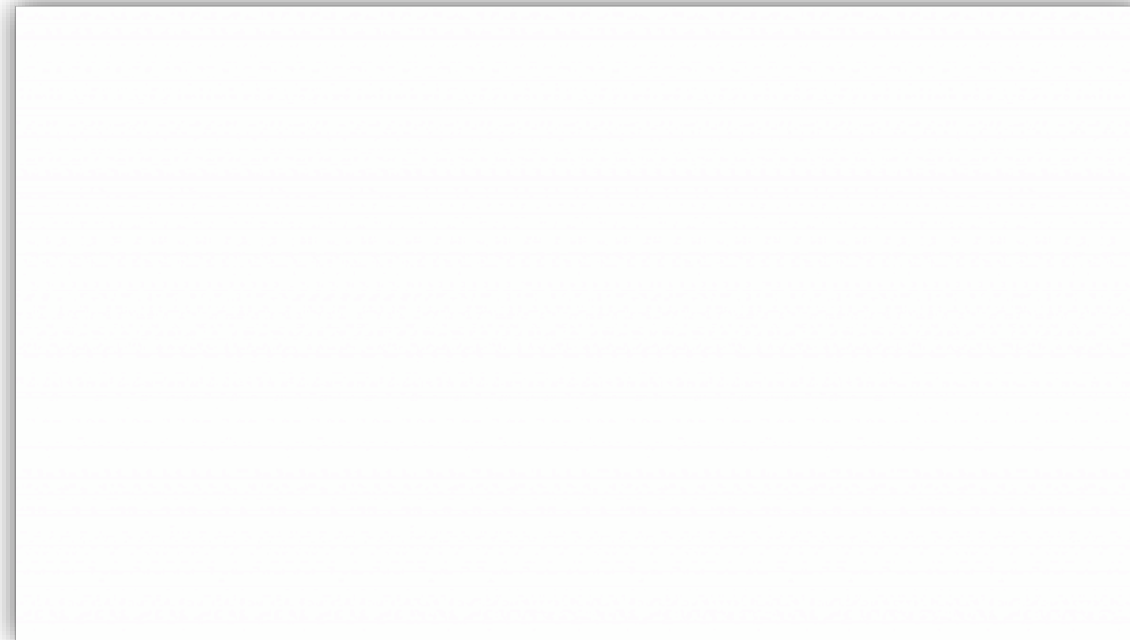
Globus Integration

Globus Integration



Example App: Shell

Example App: Shell



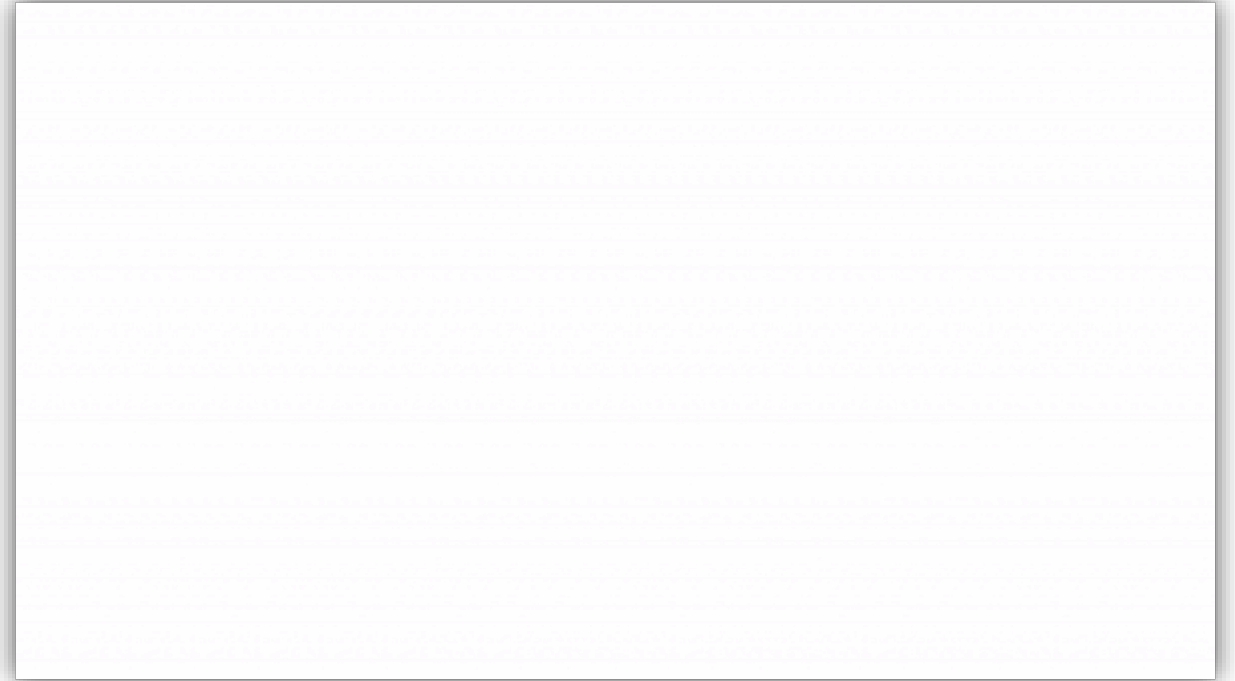
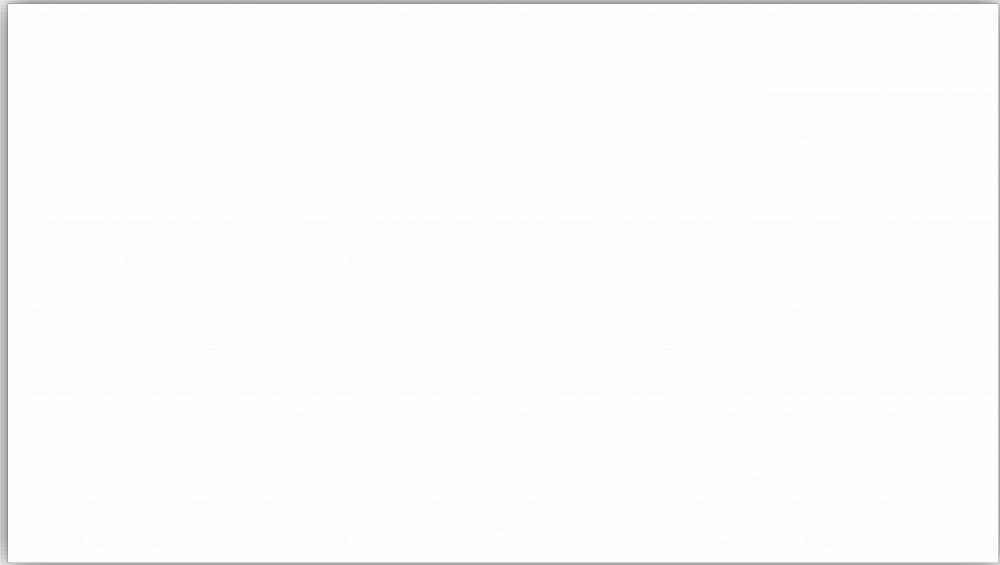
Example App: Virtual Desktop

Example App: Virtual Desktop



Example App: Jupyter

Example App: Jupyter



Tutorial Agenda

~~About Open OnDemand~~

~~Walkthrough~~

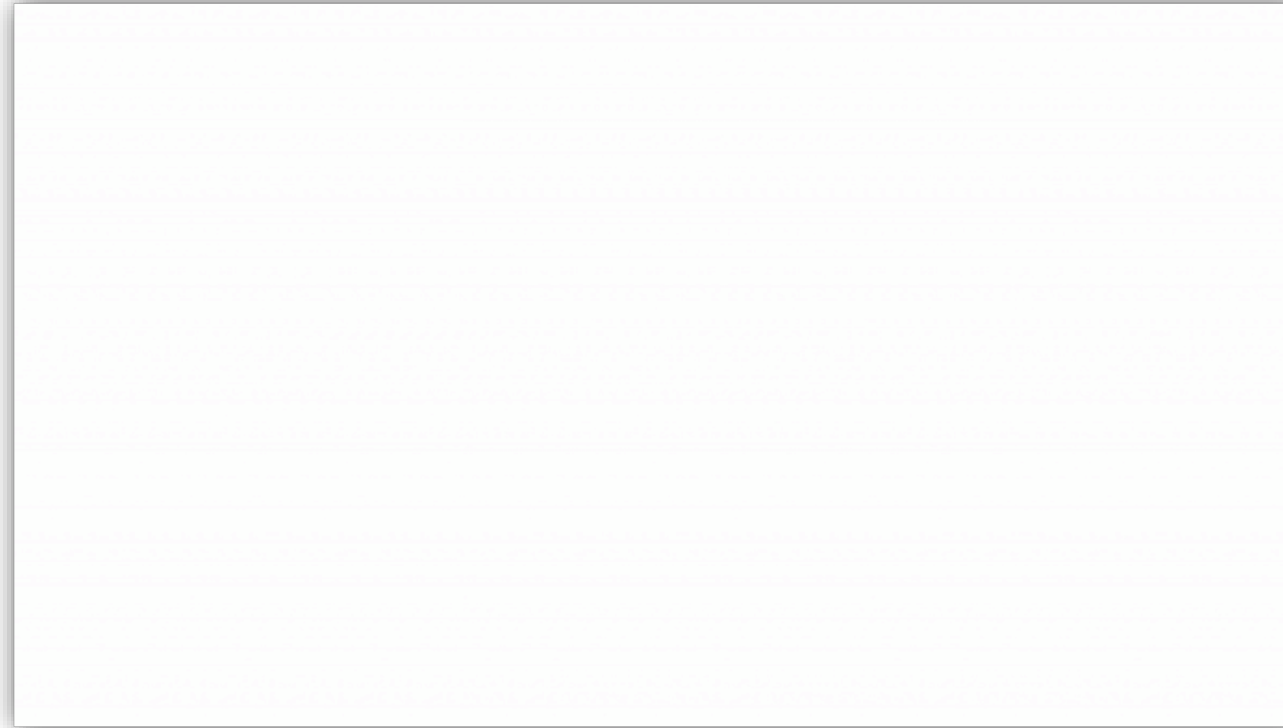
Customization

Engaging with the Project



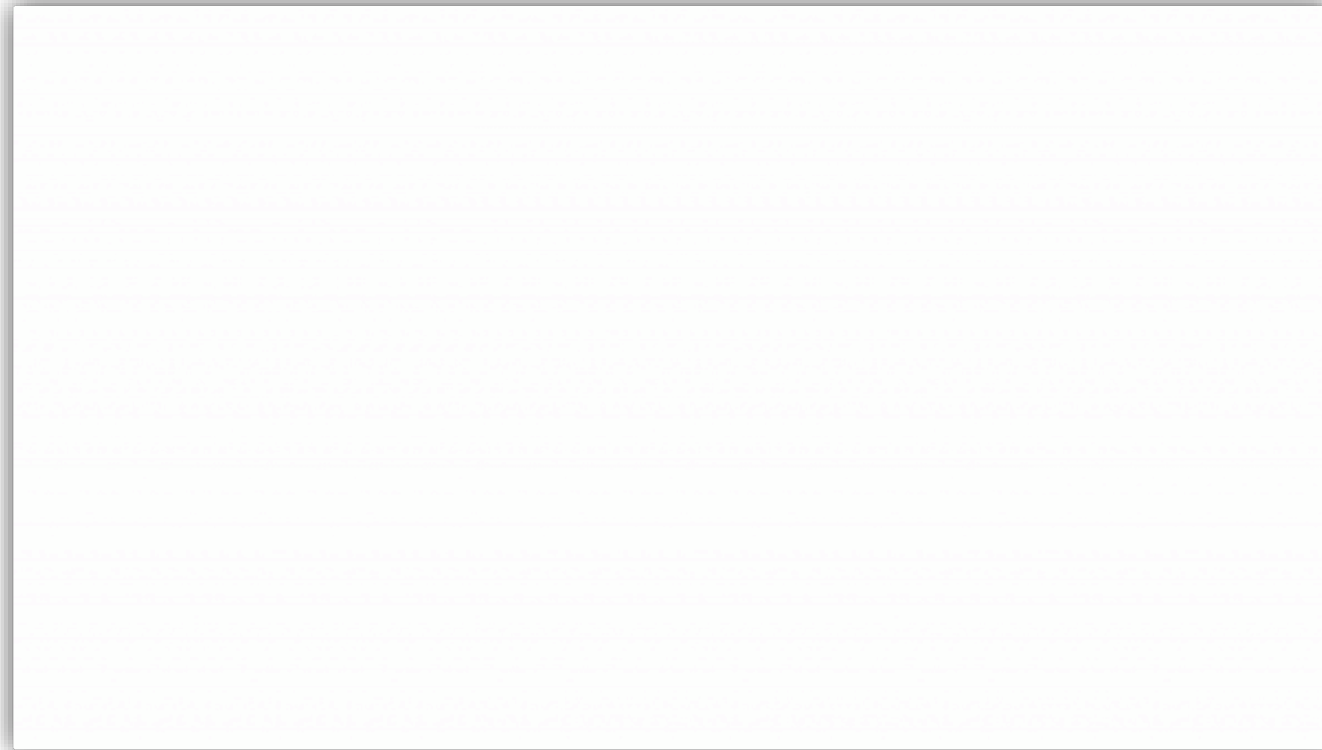
Profiles

Profiles

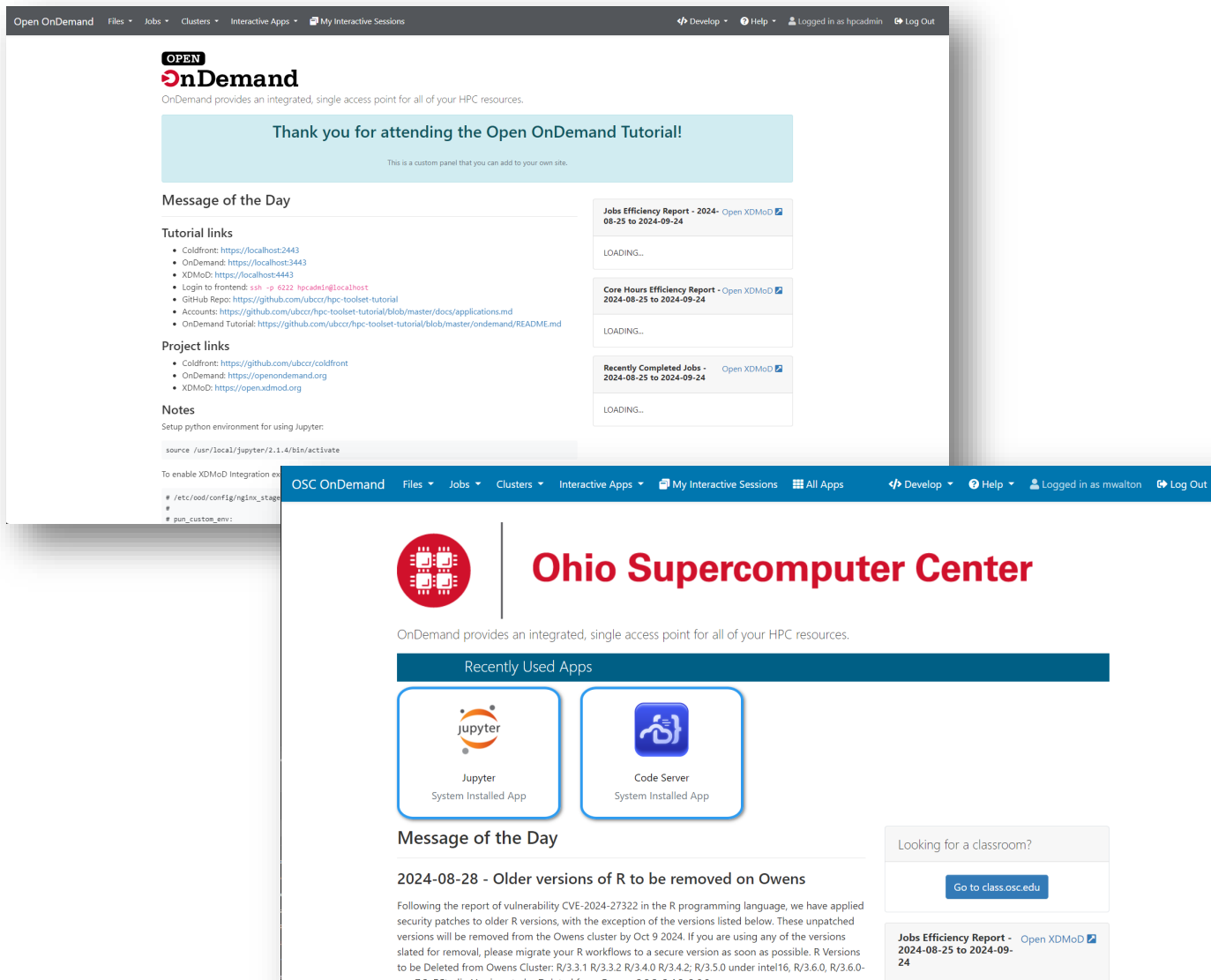


System Status

System Status



Customization



- Message of the Day
- Branding
- Navigation bar
- Upload/download limits
- OSC has integrated Grafana support (system status page)

Customization Example: Jupyter

OSC OnDemand | Files | Jobs | Clusters | Interactive Apps | My Interactive Sessions | All Apps | Develop | Help | Logged in as mwalton | Log Out

Home / My Interactive Sessions / Jupyter

Shared Apps

Interactive Apps

- Jupyter (tdockendorf)
- RStudio Server (tdockendorf)

Interactive Apps

Desktops

- Ascend Desktop
- Cardinal Desktop
- Owens Desktop
- Pitzer Desktop
- Lightweight Desktop

GUIs

- ANSYS Workbench
- Abaqus/CAE
- Blender
- COMSOL Multiphysics
- IQmol
- MATLAB

Jupyter version: v0.25.3

This app will launch a Jupyter server using Python on the Ascend, Owens or Pitzer clusters.

Cluster:

Project:

Mode

Jupyter Lab

Jupyter Notebook

Number of hours:

Node type:

- Standard Compute**
These are standard HPC machines. Owens has 648 of these nodes with 40 cores and 128 GB of memory. Pitzer has 224 of these nodes with 40 cores and 340 of these nodes with 48 cores. All pitzer nodes have 192 GB of RAM. Choosing "any" as the node type will decrease your wait time.
- GPU Enabled**
These are HPC machines with GPUs. Owens has 160 nodes with 1 NVIDIA Tesla P100 GPU and Pitzer has 74 nodes with 2 NVIDIA Tesla V100 GPUs. They have the same CPU and memory characteristics of standard compute. However, Pitzer's 40 core machines have 2 GPUs with 16 GB of RAM; and Pitzer's 48 core machines have 2 GPUs with 32 GB of RAM. Dense GPU types have 4 GPUs with 16 GB of RAM.

Classroom OnDemand | Apps | Files | Clusters | Interactive Apps | My Interactive Sessions | Help | Logged in as mwalton | Log Out

Home / My Interactive Sessions / Classroom Jupyter

Interactive Apps

Classrooms

- Classroom Jupyter
- Classroom RStudio
- Stable Diffusion

GUIs

- Blender

Servers

- Jupyter + Spark

Classroom Jupyter version: v0.6.4

This app will launch a Jupyter server for use in a classroom setting.

Use JupyterLab instead of Jupyter Notebook?

JupyterLab is the next generation of Jupyter, and is completely compatible with existing Jupyter Notebooks.

Size:

Larger sizes may not be applicable for your classroom. Instructors can request larger sizes.

- small** - less than 1 core & 2 GB of memory.
- medium** - 2 cores & 8 GB of memory.
- large** - 4 cores & 16 GB of memory.
- extra-large** - 8 cores & 32 GB of memory.

Hours:

Instructors can request longer times.

* The Classroom Jupyter session data for this session can be accessed under the `data root` directory.

powered by OnDemand

OnDemand version: 3.1.7

More Customization

The screenshot shows the Ohio Supercomputer Center OnDemand web interface. At the top, there is a navigation bar with the following items: OSC OnDemand, Files, Jobs, Clusters, Interactive Apps, My Interactive Sessions, All Apps, Develop, Help, Logged in as mwalton, and Log Out. The main header features the OSC logo (a red circle with a white grid pattern) and the text "Ohio Supercomputer Center". Below the header, a sub-header reads "OnDemand provides an integrated, single access point for all of your HPC resources." A section titled "Recently Used Apps" contains two cards: "Jupyter System Installed App" and "Code Server System Installed App". Below this is a "Message of the Day" section with two entries. The first entry, dated 2024-08-28, is titled "Older versions of R to be removed on Owens" and discusses a security vulnerability in the R programming language. The second entry, dated 2024-07-22, is titled "Change is Coming!" and mentions a major change to the current process clients. On the right side of the page, there are three widgets: "Looking for a classroom?" with a "Go to class.osc.edu" button; "Jobs Efficiency Report - 2024-08-26 to 2024-09-25" showing a bar chart with 0% efficient and 100% inefficient jobs, and 3 inefficient jobs out of 3 total jobs; and "Core Hours Efficiency Report - 2024-08-26 to" with an "Open XDMoD" link.

OSC OnDemand Files Jobs Clusters Interactive Apps My Interactive Sessions All Apps Develop Help Logged in as mwalton Log Out

Ohio Supercomputer Center

OnDemand provides an integrated, single access point for all of your HPC resources.

Recently Used Apps

- Jupyter System Installed App
- Code Server System Installed App

Message of the Day

2024-08-28 - Older versions of R to be removed on Owens

Following the report of vulnerability CVE-2024-27322 in the R programming language, we have applied security patches to older R versions, with the exception of the versions listed below. These unpatched versions will be removed from the Owens cluster by Oct 9 2024. If you are using any of the versions slated for removal, please migrate your R workflows to a secure version as soon as possible. R Versions to be Deleted from Owens Cluster: R/3.3.1 R/3.3.2 R/3.4.0 R/3.4.2; R/3.5.0 under intel16, R/3.6.0, R/3.6.0-gnu7.3. RStudio Versions to be Deleted from Owens: 3.3.2, 3.4.2, 3.6.0

2024-07-22 - Change is Coming!

Later this fall, OSC will be introducing a major change to the current process clients use to get help. We will be rolling out a new web-based system for clients to manage and review open cases with the service desk. More information will be forthcoming over the next few months, so keep an eye out for messages on various OSC communication channels, as well as at

Looking for a classroom?

[Go to class.osc.edu](#)

Jobs Efficiency Report - 2024-08-26 to 2024-09-25 [Open XDMoD](#)

0% efficient 100% inefficient

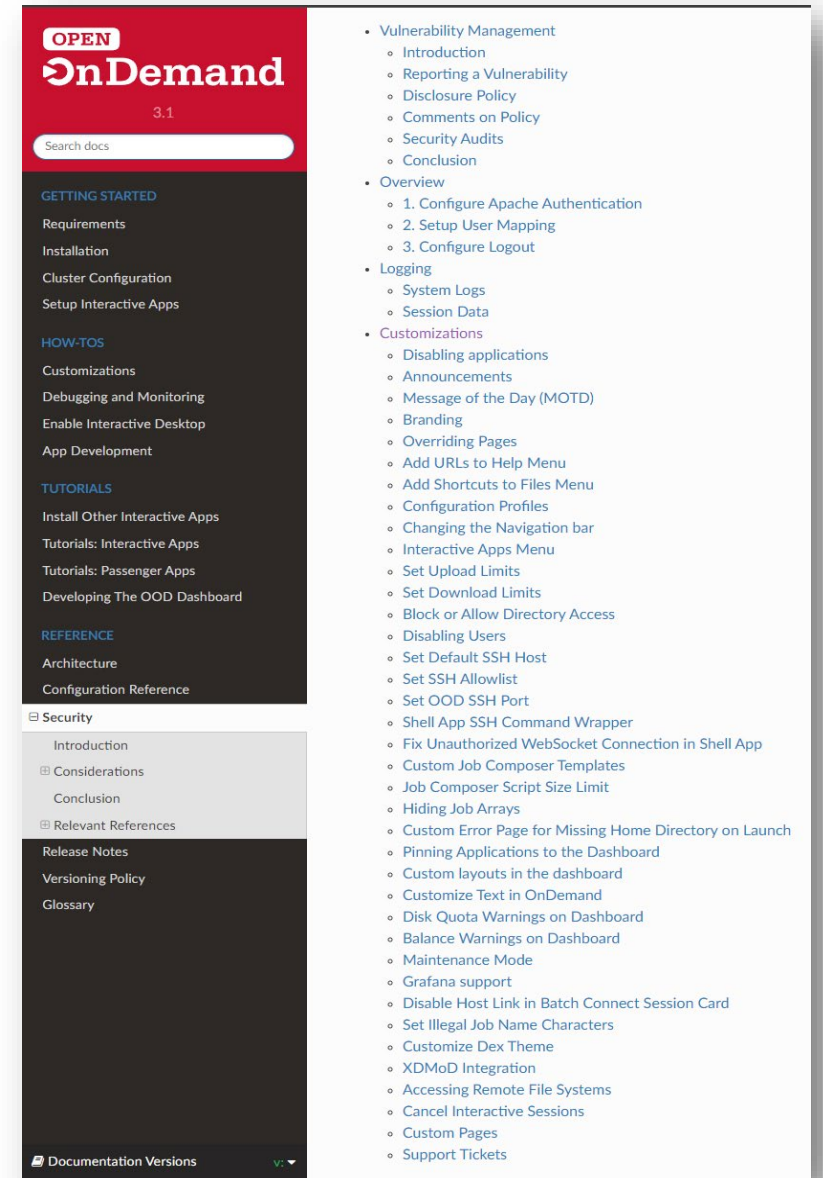
3 inefficient jobs/3 total jobs

Core Hours Efficiency Report - 2024-08-26 to [Open XDMoD](#)

openondemand.org/tutorial

Securing Open OnDemand

- An authentication consumer
- Relies on its host's operating system for access to a Network File System
- Install and configure OnDemand once for each HPC scheduler process whose access for authorized users of the network file system you'd like to manage
- HPC resource ->
- browser ->
- Apache ->
- Nginx ->
- HPC scheduler ->
- HPC resource
- Securing OnDemand deployments requires consideration of all installations and customizations relevant to an HPC center's services



The screenshot shows the Open OnDemand documentation website. The top navigation bar is red with the 'OPEN OnDemand' logo and version '3.1'. Below the logo is a search bar labeled 'Search docs'. The main navigation menu is dark grey and includes sections like 'GETTING STARTED', 'HOW-TOS', 'TUTORIALS', and 'REFERENCE'. The 'Security' section is expanded, showing a list of topics such as 'Introduction', 'Considerations', 'Conclusion', and 'Relevant References'. A detailed list of security topics is shown on the right side of the page, including 'Vulnerability Management', 'Logging', 'Customizations', and 'Security Audits'.

Tutorial Agenda

~~About Open OnDemand~~

~~Walkthrough~~


~~Customization~~


Engaging with the Project





Reaching Us


Latest

 Issues with Bundler and Passenger when Updating Open OnDemand 3.0 8
10h
■ Get Help


 Open OnDemand tips and tricks calls 105
22h
■ Announcements

 Restrict users from accessing some apps 1
1d
■ Get Help

 Unexpected behavior when there is a single character surrounded by underscores 1
1d
■ Get Help question

 JUPYTER_PATH does not add my customized directory into kernelspec 2
4d
■ Get Help question



OPEN  nDemand

categories ▾ tags ▾ **Categories** Latest Top

Category	Topics
Get Help Topics with specific questions or help requests	1.5k
Feature Requests and Roadmap Discussion Topics with feature requests or project roadmap suggestions	161
Announcements Topics with announcements by the project team	84
General Discussion Topics that don't fit into one of the other categories	73
Interested In Contributing? If you are interested in contributing to the Open OnDemand platform, please leave a post stating how you would like to contribute. We will reach out and help you get started.	6

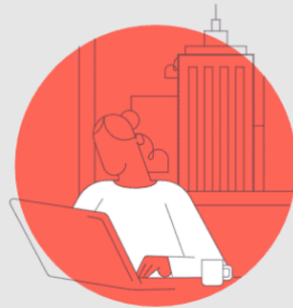
Staying Up To Date

OPEN

 nDemand

openondemand.org

Connecting Computing Power
With Powerful Minds



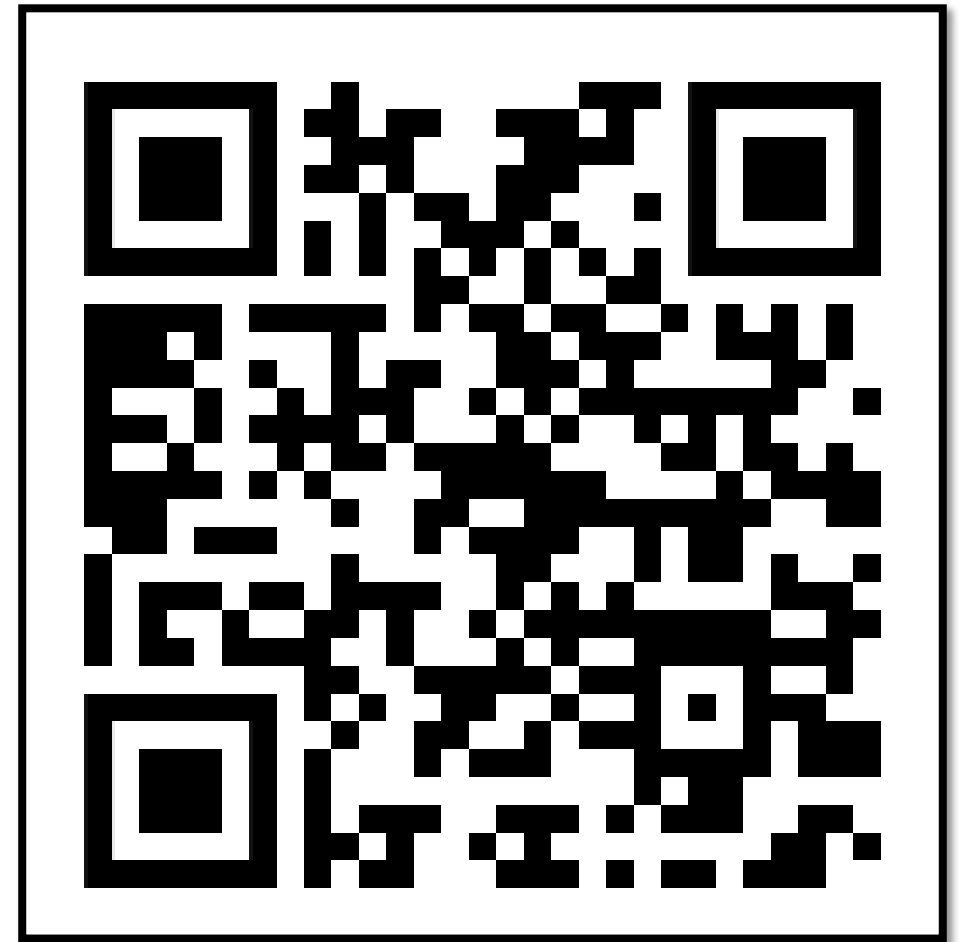
Open OnDemand Version 3.1.7 Available

3.1.7 is now generally available, which includes several bug fixes and security related fixes. **Please note that the security fix is around leaking secret environment variables, so we strongly encourage all existing deployments to apply this update.**

Fixed:

- Logo images no longer take 100% width
- Dynamic batch connect forms now accept fields with numbers
- Host based profiles now correctly route to the correct server alias

Added/Changed:



openondemand.org/newsletter

Videos & Publications

Video Archive

Search

 05.09.24
Project Webinar: CaRCC call

 04.18.24
Project Webinar: Overview

 11.02.23
Tips Webinar: ALL GOOD

 09.07.23
Tips Webinar: PEARC23 BoF

 06.01.23
Tips Webinar: Customizations

Publications

Search

 05.13.24
ISC24 Preso: User group meeting

 04.30.24
Project Paper: Style Guide

 03.22.24
Project Paper: General brochure

 11.14.23
SC23 Preso: CSC LUMI

 11.12.23
SC23 Paper: Fugaku

Community Events



Tips and tricks calls


Hosted by the larger Open OnDemand community, tips and tricks webinars share best practices for setting up and using Open OnDemand. They take place on the first Thursday of every month at 1 p.m. ET.



Open office hours

Hosted by our development team, Zoom open office hours are the perfect opportunity to ask questions or make a suggestion. They are held on the second Tuesday of every month from 11:15 a.m. to 12:45 p.m. ET.

View the Live Roadmap








GitHub Issue Review Project Add status update 

Dev Rel View + New view

Filter by keyword or by field Disc






Waiting 20 ...

In queue to be reviewed next.

-  ondemand #354
Downloading research data based on the DOI of a dataset
-  ondemand #375
ActiveJobs has no tests
-  ondemand #379
Add "About this installation" page
-  ondemand #392
Provide an OnDemand "branded" OIDC error template
-  ondemand #394
Specify columns returned in activejobs
-  ondemand #412
Support quotas by group rather than just by user
-  ondemand #415







Further Discussion or Action 3 ...

These issues need further discussion amongst the team.

-  ondemand #163 
JobComposer: Consider adding a timeout when submit host unresponsive.
-  ondemand #225 
Dashboard: Hide launch shell buttons if OOD_DEV_SSH_HOST is not set
-  ondemand #22
Supprt Themes in the dashboard







Reviewed, Scheduled 17 ...

These issues were reviewed by the team. These issues were categorized to be in the next major "milestone" or release.

-  ondemand #294
FileExplorer: Allow user to chmod files.
-  ondemand #274
Test cases for file downloads' content-type headers
-  ondemand #240
Dashboard: Properly timeout when IO to unavailable or unstable volumes result in process in uninterruptible sleep state
-  ondemand #237 
Dashboard: Provide "rss widget" ability to dashboard so we can show "known issue alerts"
-  ondemand #254
File-Editor: Properly handle files with different encodings

Reviewed, Not Scheduled 23 ...

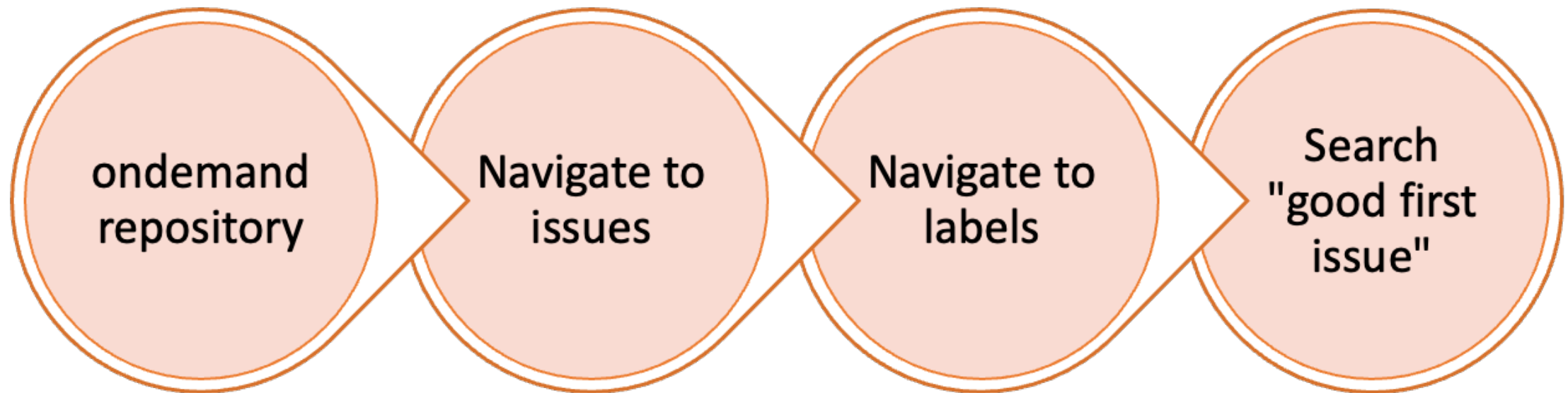
These issues were reviewed, but not determined as a priority.

-  ondemand #138
ActiveJobs: Add 'hold' and 'release' buttons.
-  ondemand #186
JobComposer: Feature Upgrade: Convert script <pre> into editable pane.
-  ondemand #183
JobComposer: Custom, user defined template sources
-  ondemand #280
FileExplorer: Maybe bring back ctrl-c and ctrl-v keyboard shortcuts
-  ondemand #279
FileExplorer: Use ~ for going to folders
-  ondemand #133
ActiveJobs: Use scrollspy to fix the expanded row at top when it scrolls out of view

Getting Involved

Contribute to Open OnDemand!

We want our community to be a part of our development



openondemand.org/github

Support Summary



Discuss on Discourse

The Get Help category features user and admin questions and answers.

openondemand.org/discourse



Slack Workspace

Communicate and collaborate with the project team and community members.

openondemand.org/slack



GitHub Documentation

Outlines installation steps, app guidelines, release notes, and more.

openondemand.org/docs



Constant Contact Newsletter

Subscribe to get notices about upcoming events, new releases and user stories.

openondemand.org/newsletter

openondemand.org/support

Thank You!

Alan Chalker

alanc@openondemand.org

Julie Ma

jma@openondemand.org

