

# Customizing and Extending OnDemand



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Ohio Supercomputer Center

# Webinar Agenda

1. **About Open OnDemand**
2. Open OnDemand 1.2 release and upcoming 1.3 release features
3. Future funding and collaboration
4. Customizing OnDemand
5. Extending OnDemand
6. Demos
  1. PSC demo of OnDemand with Jupyter
  2. Tufts demo of OnDemand with custom apps
  3. OSC demo of OnDemand with multiple GUI apps



# Staying in Touch

- Visit our website
  - <http://go.osu.edu/ood>
- Join our mailing list
  - <https://lists.osu.edu/mailman/listinfo/ood-users>
- Our webinars are planned roughly quarterly
  - Let us know what you'd like to learn about next

**OPEN OnDemand**

Open-source project based on the Ohio Supercomputer Center's OnDemand platform

[View On GitHub](#) [Read The Docs](#) [Join the Mailing List](#)

Open OnDemand is an NSF-funded open-source HPC portal based on OSC's original OnDemand portal. The goal of Open OnDemand is to provide an easy way for system administrators to provide web access to their HPC resources, including, but not limited to:

- Plugin-free web experience
- Easy file management
- Command-line shell access
- Job management and monitoring across different batch servers and resource managers
- Graphical desktop environments and desktop applications

See the [documentation](#) for installation directions, app development tutorials, and an overview of the components and applications that make up OnDemand.

### Webinars

Date	Title	Slides	Media
2017-03-08	Introducing Open OnDemand	<a href="#">Download</a>	<a href="#">Video</a>
2017-06-07	Open OnDemand: Supporting your HPC needs now more than ever	<a href="#">Download</a>	<a href="#">Video</a>
2017-09-06	Open OnDemand - Jupyter, iHPC, and Authentication	<a href="#">Download</a>	<a href="#">Video - Missing 1st 9.5 min Audio - Complete</a>

This project is maintained by the Ohio Supercomputer Center (OSC), a member of the Ohio Technology Consortium, the technology and information division of the Ohio Department of Higher Education.

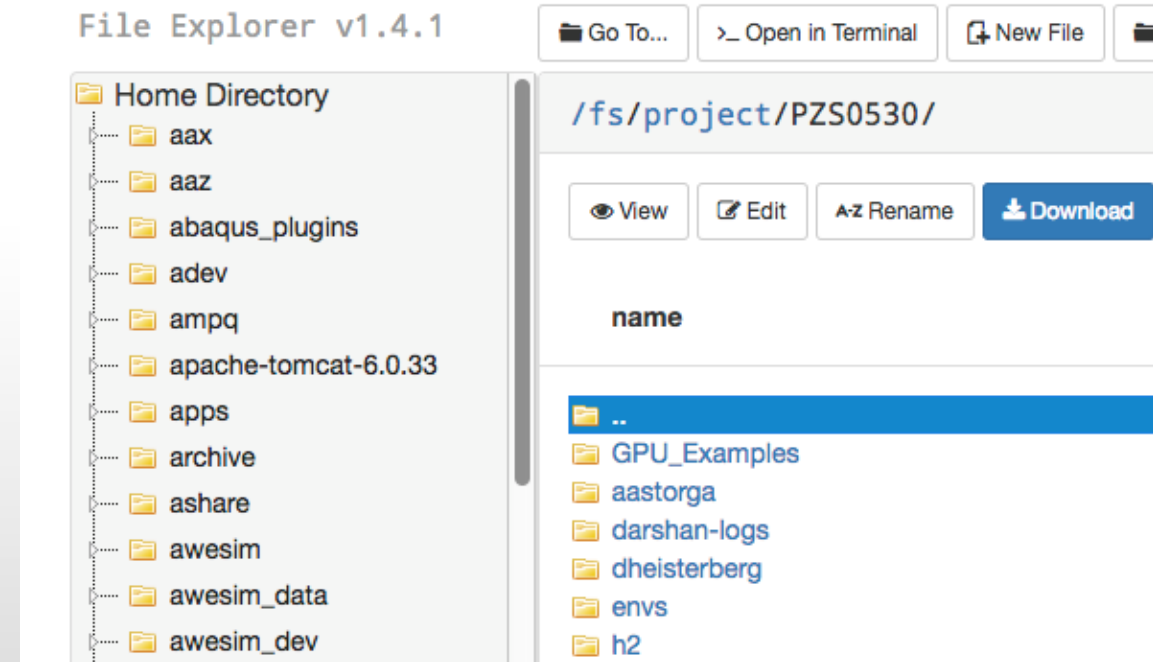
This material is based upon work supported by the National Science Foundation under grant numbers 1534949.

Further reading after reading the documentation:

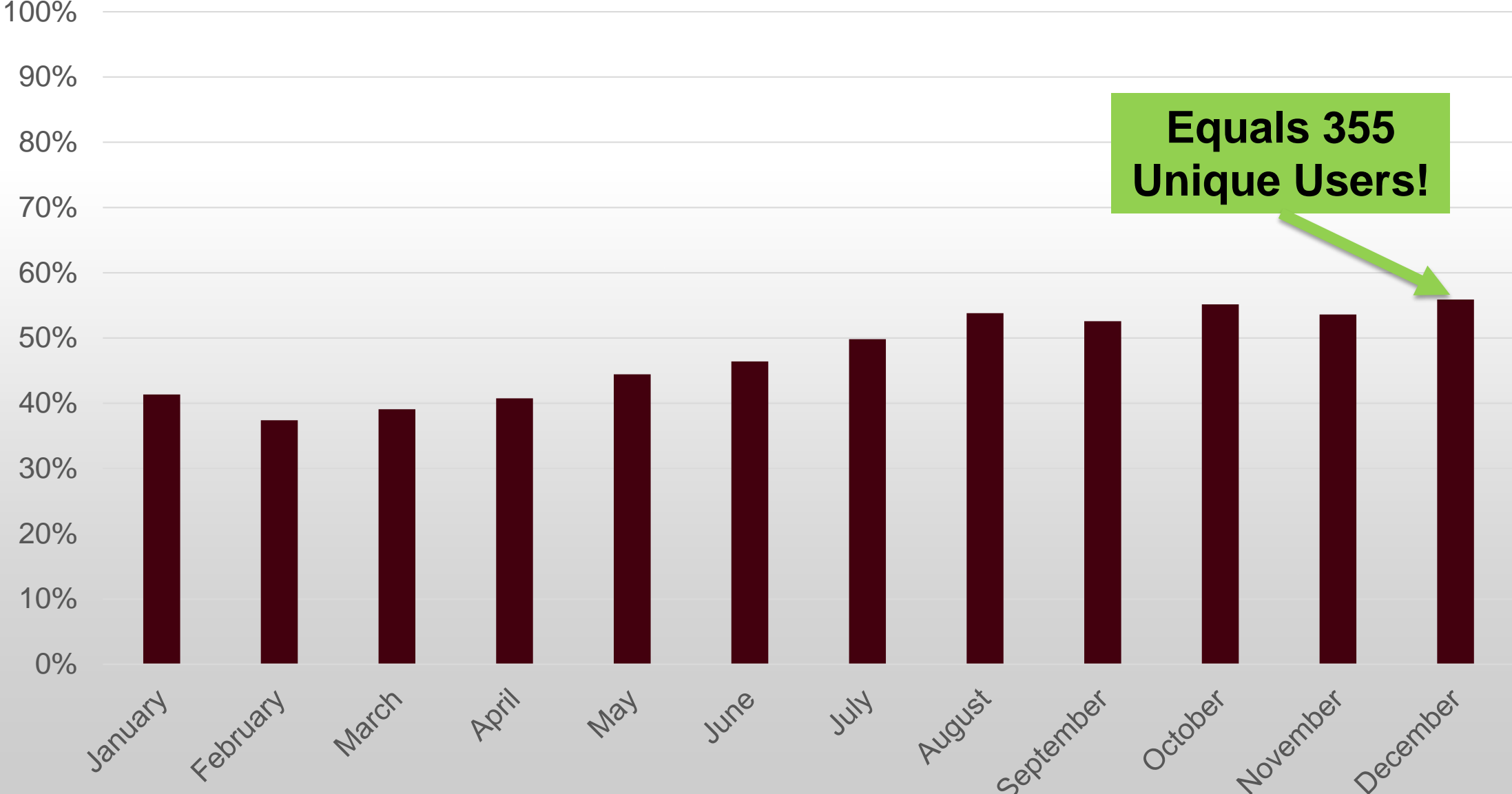
- OSC App Deployment Strategy
- OSC CILogon Authentication Strategy

# Provides Single Web-based Point of Entry for HPC Access

- User benefits
  - HPC Access
    - File access (browse, view, edit)
    - Job control (submit, monitor, delete)
    - Terminal access
    - VNC and interactive access
  - Single sign-on
  - Zero install (Completely browser based)
- Admin benefits
  - Firewall friendly (Keep traffic on https port)
  - Installable on a range of cluster sizes and architectures
  - Easy onboarding of users new to HPC

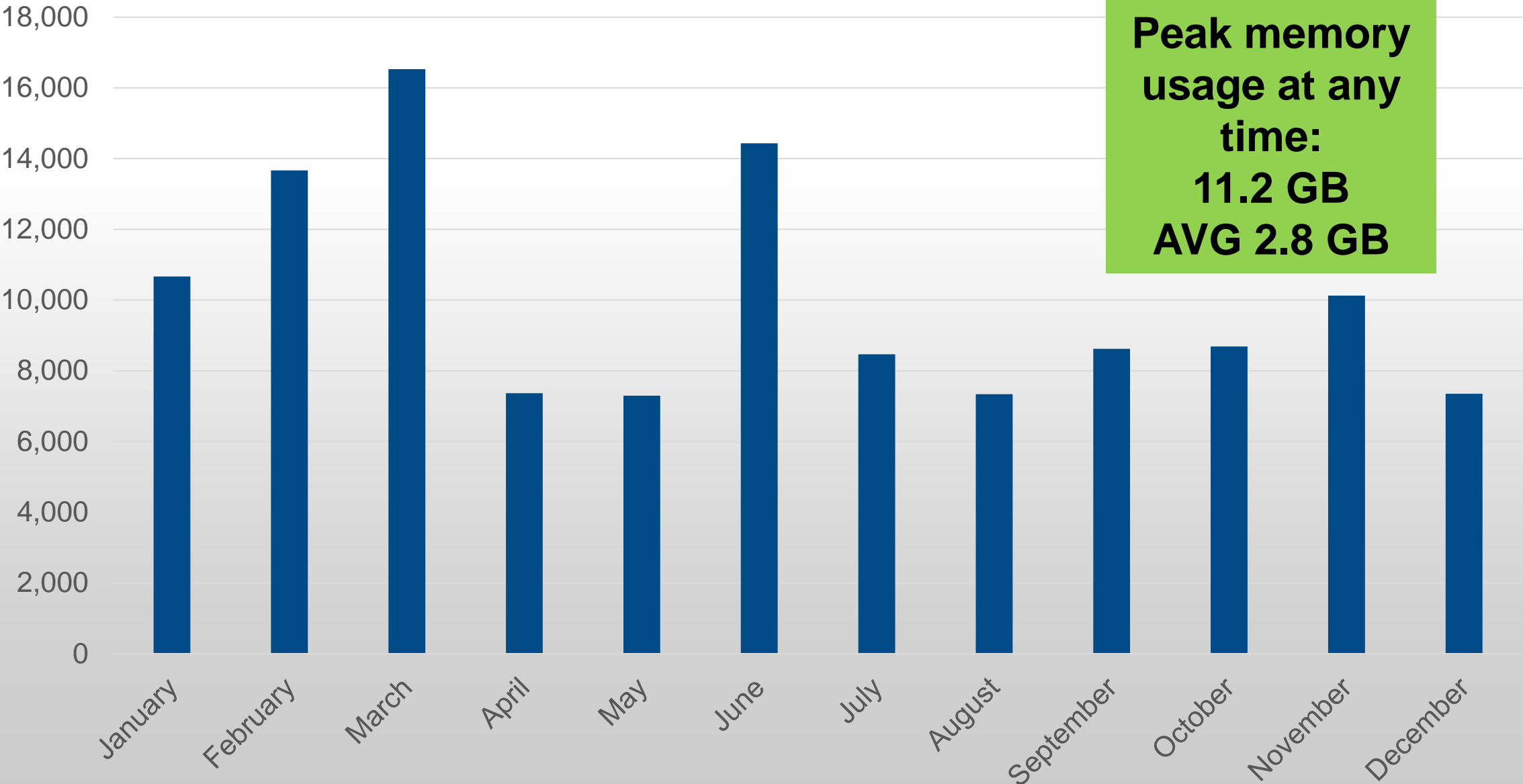


# % OSC Users Using OSC OnDemand in 2017



**Equals 355  
Unique Users!**

# OSC OnDemand: App Launches Per Month



**Peak memory usage at any time:  
11.2 GB  
AVG 2.8 GB**

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# Open OnDemand Current Version (1.2 Release, Nov 3 2017)

- 1.1 Release (Sep 29, 2017)
  - Interactive apps (Jupyter)
  - App development interface
- 1.2 Release (Nov 3, 2017)
  - Bug fixes and improve documentation for 1.1 features
  - Improved documentation for configuring authentication

**Some of these improvements were in direct response to  
community feedback**



# Proposed Features for 1.3 and Future Releases

- RPM based installation
- Built in usage reporting
- Better support for apps like Paraview, MATLAB and RStudio
- Community requested features, such as:
  - Job Composer usability enhancements
  - File Explorer usability enhancements
  - Better support for two factor authentication

**Looking for community feedback on features in the next release**

Visit [go.osu.edu/ood](https://go.osu.edu/ood) for instructions on how to provide feedback

# New Branding for Open OnDemand

- Stacked logo



- Horizontal logo



- Powered by logo



- Favicon



# Webinar Agenda

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**nDemand**

# Future Funding and Collaboration

- In year three of an NSF award to develop OnDemand
- Looking for collaborators for an NSF CSSI proposal
- Interested in collaborating on other related proposals

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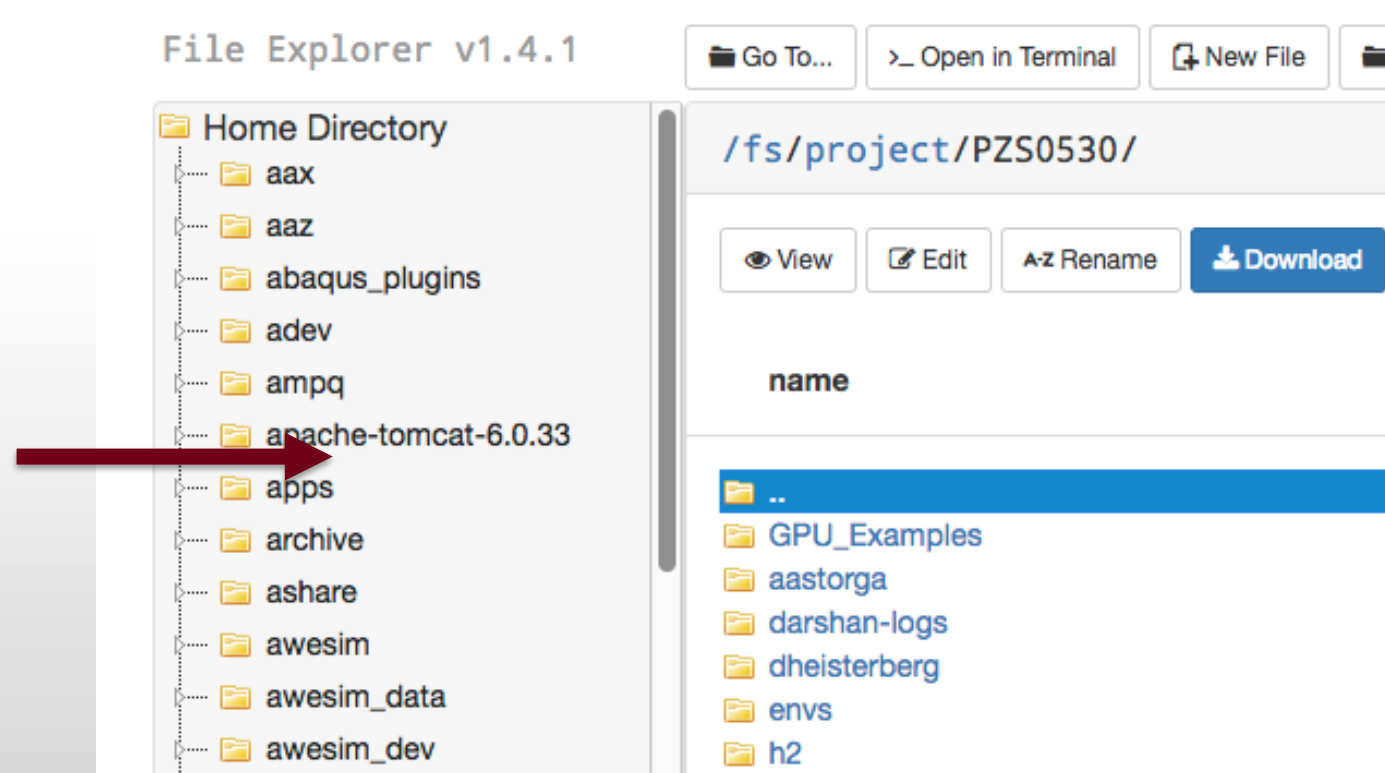
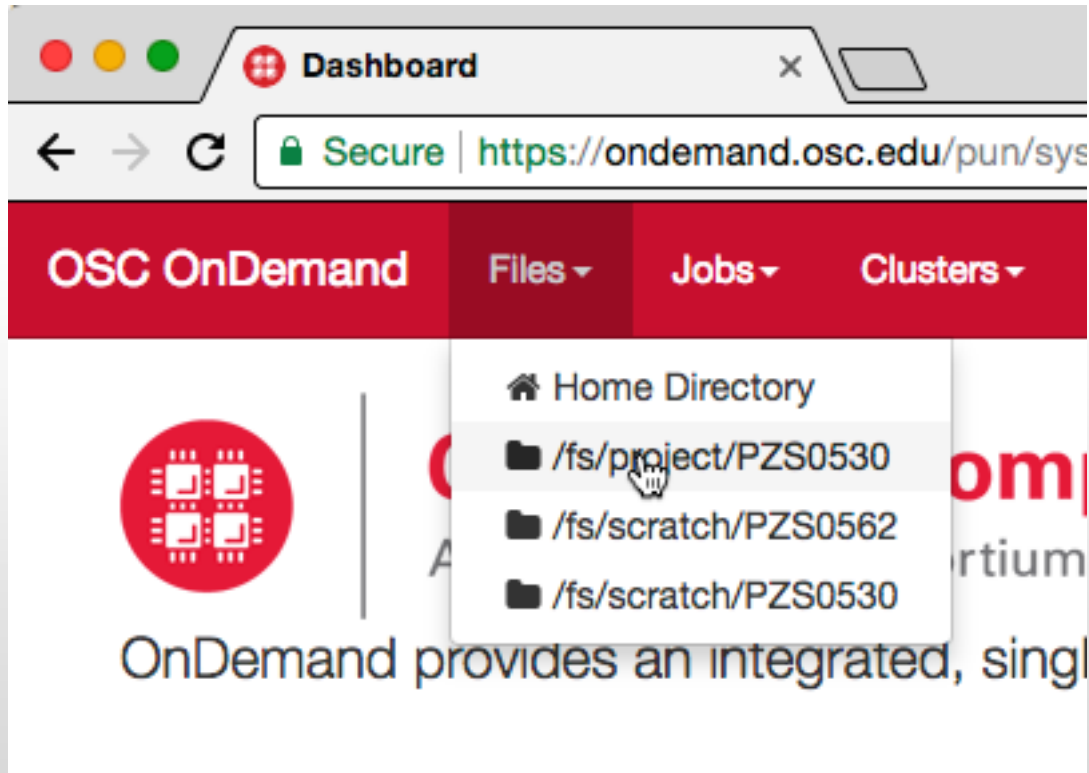


# Customizing OnDemand: Branding

- Institution logo
- Navbar color
- Portal name
- Display MOTD
- Display announcements

The screenshot displays the Open OnDemand interface with several branding elements highlighted. At the top, a dark grey navigation bar contains the text "Open OnDemand" on the left and user options "</> Develop", "Help", "efranz", and "Log Out" on the right. Below this, the "OPEN OnDemand" logo is prominently displayed, with "OPEN" in a black box and "OnDemand" in a large, bold font. A descriptive sentence follows: "OnDemand provides an integrated, single access point for all of your HPC resources." A second, red navigation bar is shown below, featuring "Bridges OnDemand" and menu items "Files", "Jobs", "Clusters", and "Interactive Apps" on the left, and "Develop", "Help", "efranz", and "Log Out" on the right. The main content area has a white background with a header "A PITTSBURGH SUPERCOMPUTING CENTER RESOURCE" in orange. Below this is a banner image of server racks with the text "Welcome to Bridges" in large black font. A red navigation bar is overlaid on the banner, containing "OSC OnDemand" and menu items "Files", "Jobs", "Clusters", and "Interactive Apps" on the left, and "Develop", "Help", "efranz", and "Log Out" on the right. The main content area features the Ohio Supercomputer Center logo (a red circle with a white chip icon) and the text "Ohio Supercomputer Center" in red, followed by "An OH·TECH Consortium Member" in black. Below this, the same descriptive sentence is repeated. The "Message of the Day" section contains two announcements: "2017-05-04 - NEW SCRATCH STORAGE POLICY IN EFFECT JUNE 1" and "2017-04-03 - GPUS NOW AVAILABLE ON OWENS".

# Customizing OnDemand: Files Shortcuts



Add directory shortcuts to open Files app i.e. home directory, scratch space, and project space

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# Extending OnDemand

- Extended through adding new apps
  - We realized that we can't write every app
- Platform enables users to write apps
  - Inspired by HubZero and Galaxy projects
  - Users can develop and run apps in their home directory
- Admins can publish apps by copying them to the deployment directory

# Extending OnDemand: Types of Apps

- Interactive app plugin
  - Consists of a job template and configuration files
  - Purpose is to connect to an existing GUI application
  - Example: Jupyter, MATLAB, Desktop
- Web apps
  - Consists of code written in Python, Ruby, or Node.js
  - Purpose is to provide custom workflow
  - Example: Shell, Files, Active Jobs, Job Composer

# Extending OnDemand: Developer Interface

- Tools enabled via developer mode:
  - Developer Menu
  - Developer Documentation Link
  - My Sandbox Apps
  - App Editor
- See documentation for how to enable developer mode

# Extending OnDemand: Developer Menu

Open OnDemand

</> Develop ▾

? Help ▾

efranz

Log Out



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

🔄 Restart Web Server

📖 Developer Documentation

⚙️ My Sandbox Apps (Development)

# Extending OnDemand: Developer Documentation

The screenshot shows a web browser window with the following elements:

- Browser Tab:** "App Development — Open" with a close button.
- Address Bar:** "Secure | https://osc.github.io/ood-documentation/master/app-development.html" with a star icon for bookmarks and various extension icons.
- Header:** A red banner with the "OPEN OnDemand 1.2" logo and a search bar labeled "Search docs".
- Table of Contents (Left Sidebar):**
  - CONTENTS
    - What is Open OnDemand
  - GETTING STARTED
    - Installation
    - Install Desktops
    - Install Other Interactive Apps
  - Authentication
  - Updating
  - COMPONENTS
    - Infrastructure
    - Applications
- Breadcrumbs:** "Docs » App Development" with a link to "Edit on GitHub".
- Main Content:**
  - ## App Development
  - OnDemand is made up of the platform (Apache and NGINX), Passenger apps and plugins. Passenger apps are rack based Ruby apps, wsgi based Python web apps, or Node.js apps that follow a convention for the app's startup file.
  - The Dashboard app, Shell app, and all other core apps in OnDemand are Passenger apps that can be replaced by custom Passenger apps. Or you can create your own.
  - ## App Development Guide
  - [Enabling App Development](#)
      - [1. Enable App Development Mode in Dashboard](#)
      - [2. Specify Development Shell Host](#)
    - [Interactive Apps \(Plugins\)](#)
      - [Setup](#)
      - [User Form](#)
      - [Render Template](#)

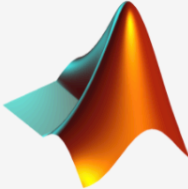


# Extending OnDemand: My Sandbox Apps

Open OnDemand </> Develop ▾ ? Help ▾ e Franz Log Out

Home / My Sandbox Apps (Development)

New App Launch Shell Launch Files Open Trash **8**

Show  entries Search:

	Directory Name <span>↕</span>	App Details <span>↕</span>	Last Modified <span>↓</span>	
	matlab	<a href="#">MATLAB</a> [master] <span style="float: right;">Launch MATLAB</span>	01/22/18	<a href="#">Details</a> <a href="#">Shell</a> <a href="#">Files</a>
	paraview	<a href="#">Paraview</a> <span style="float: right;">Launch Paraview</span>	01/22/18	<a href="#">Details</a> <a href="#">Shell</a> <a href="#">Files</a>
	quota	<a href="#">Quota</a> [quota2] Display quotas <span style="float: right;">Launch Quota</span>	01/22/18	<a href="#">Details</a> <a href="#">Shell</a>

# Extending OnDemand: App Editor

Open OnDemand

</> Develop ▾

? Help ▾

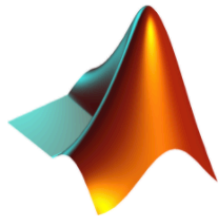
👤 efranz

🚪 Log Out

[Home](#) / [My Sandbox Apps \(Development\)](#) / [MATLAB](#)

**matlab** [master S:0 U:1 ? :0] ✖

## Details



Launch MATLAB

Edit Metadata

Shell

**Title:** MATLAB

**Active users:** 0

**Type:** Batch Connect App

**Directory:** /users/PZS0562/efranz/ondemand/dev/matlab

**Git remote:** git@github.com:OSC/bc\_osc\_matlab.git

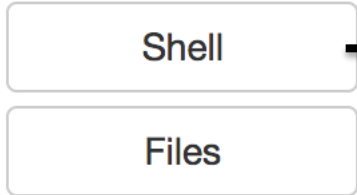
**Description:**

Files

Back

Delete App

# Extending OnDemand: App Editor – Shell Access



```
efranz@owens-login03: ~/ondemand/dev/matlab (master)$ pwd
/users/PZS0562/efranz/ondemand/dev/matlab
efranz@owens-login03:~/ondemand/dev/matlab (master)$ ls -l
.
..
CHANGELOG.md
form.yml
.git
.gitignore
icon.png
LICENSE.txt
manifest.yml
README.md
submit.yml.erb
template
efranz@owens-login03:~/ondemand/dev/matlab (master)$
```



# Extending OnDemand: App Editor – Files Access

Shell

Files



File Explorer v1.4.1

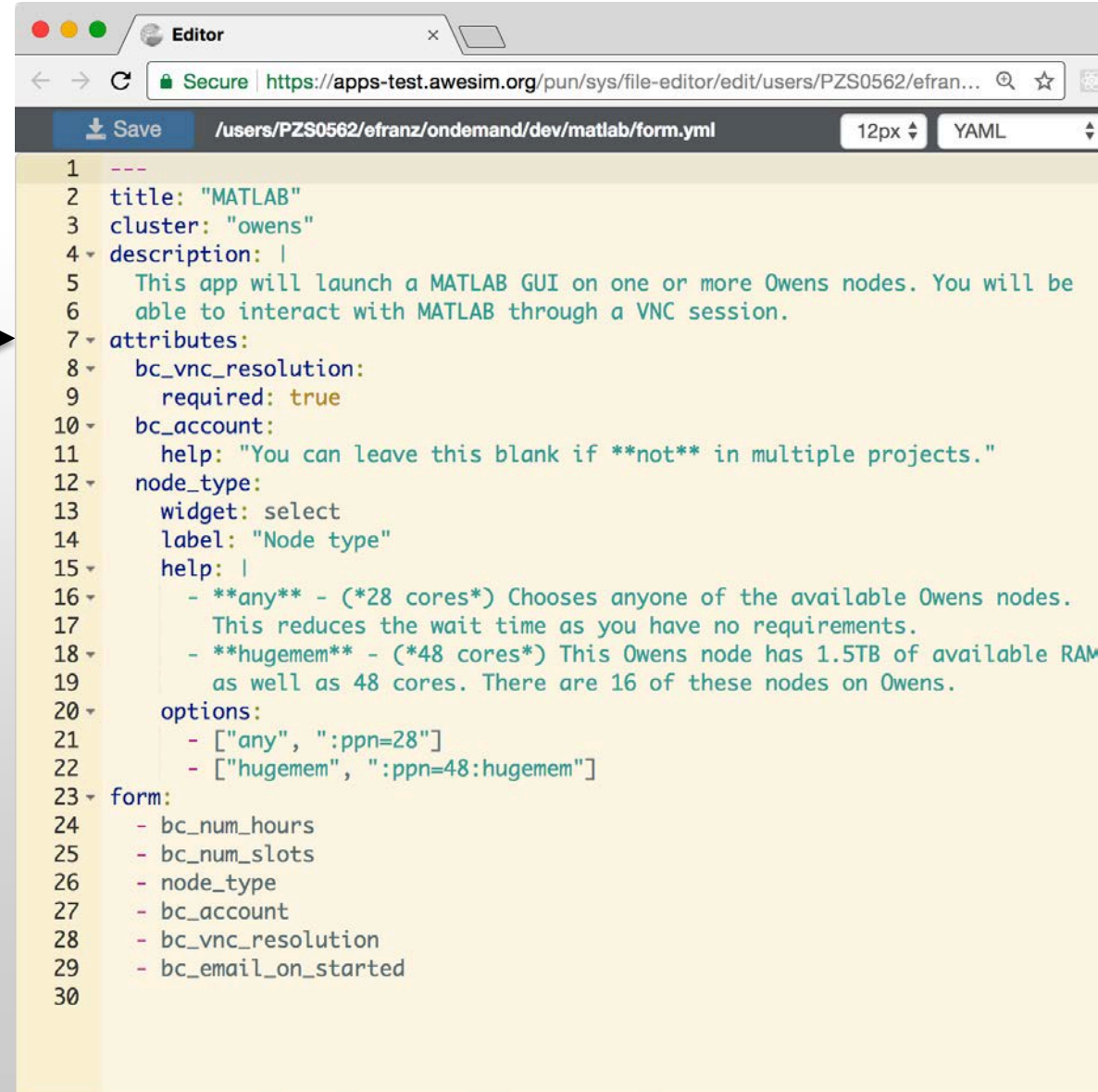
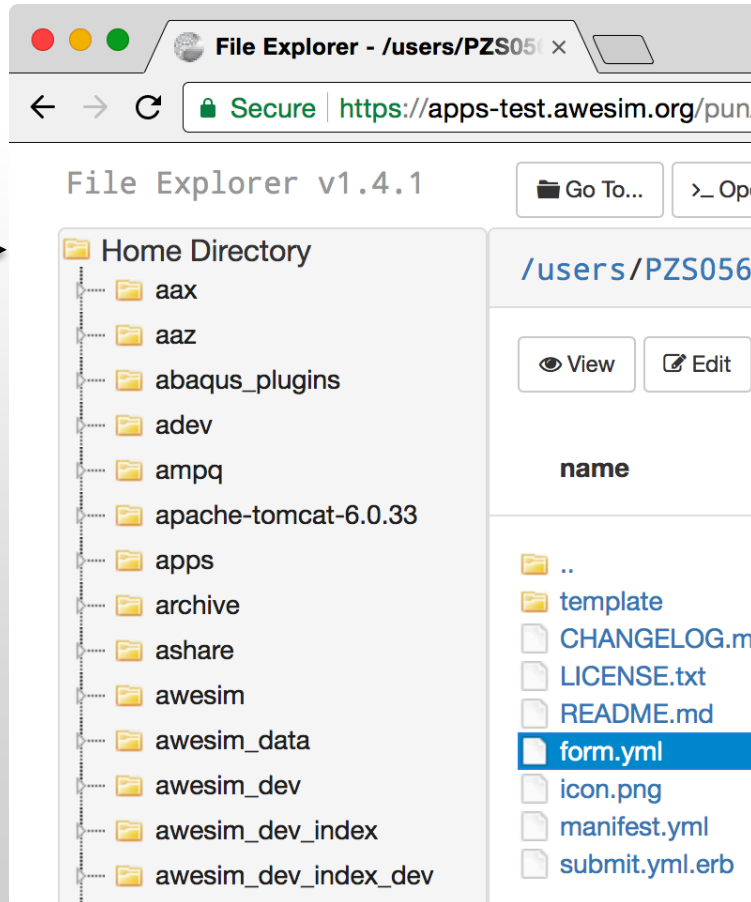
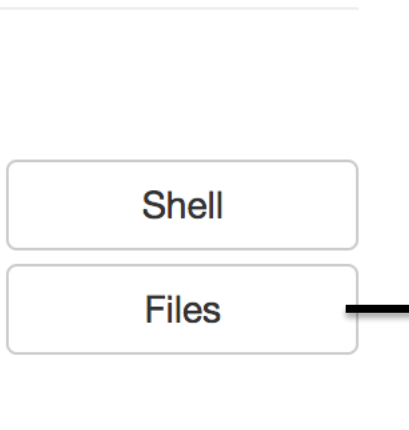
Go To... >\_ Open in Terminal New File New Dir Upload Show Dotfiles Show Owner/Mode

/users/PZS0562/efranz/ondemand/dev/matlab/

View Edit A-z Rename Download Copy Paste \* (Un)Select All Delete

name	size	modified date
..	<dir>	
template	<dir>	01/22/2018
CHANGELOG.md	396b	01/22/2018
LICENSE.txt	1.06kb	01/22/2018
README.md	1.86kb	01/22/2018
<b>form.yml</b>	<b>864b</b>	<b>01/22/2018</b>
icon.png	133.07kb	01/28/2017
manifest.yml	82b	01/22/2018
submit.yml.erb	174b	01/22/2018

# Extending OnDemand: App Editor – File Editor



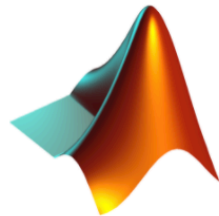
# Extending OnDemand: App Editor – Launch App

Open OnDemand

Home / My Sandbox Apps (Development) / M

matlab [master S:0 U:1 ?:0] ✖

## Details



Launch MATLAB

**Title:** MATLAB  
**Active users:** 0  
**Type:** Batch Connect App  
**Directory:** /users/PZS056  
**Git remote:** git@github.co  
**Description:**

Back

Home / Interactive Sessions / MATLAB

Interactive Apps

Desktops

- Oakley Desktop
- Owens Desktop
- Ruby Desktop
- Oakley VDI
- Owens VDI
- Ruby VDI

GUIs

- ANSYS Workbench
- Abaqus/CAE
- COMSOL Multiphysics
- MATLAB
- ParaView

Servers

- Jupyter + Spark
- Jupyter Notebook
- RStudio Server

### MATLAB

This app will launch a MATLAB GUI on one or more Owens nodes. You will be able to interact with MATLAB through a VNC session.

**Number of hours**

**Number of nodes**

**Node type**

any

- any** - (28 cores) Chooses anyone of the available Owens nodes. This reduces the wait time as you have no requirements.
- hugemem** - (48 cores) This Owens node has 1.5TB of available RAM as well as 48 cores. There are 16 of these nodes on Owens.

**Account**

You can leave this blank if **not** in multiple projects.

**Resolution**

width 1152 px height 720 px

Reset Resolution

I would like to receive an email when the session starts

Launch

\* All MATLAB session data is generated and stored under the user's home directory in the corresponding [data root directory](#).

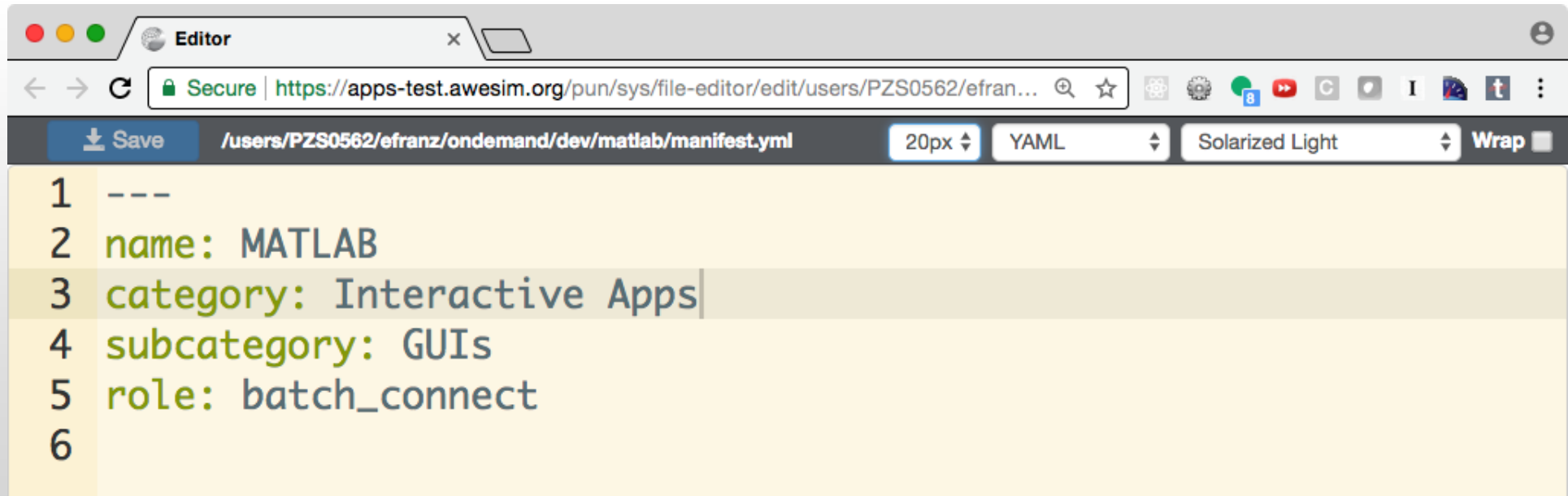
# Extending OnDemand: Publishing Apps

App Publishing: Deploy an app so every user can launch it

1. Developer specifies app category in a manifest file
  - Determines which dropdown menu the app will appear in
2. Admin copies the app code to deployment directory

# Extending OnDemand: Publishing Apps

Specify category in manifest.yml



```
1 ---
2 name: MATLAB
3 category: Interactive Apps
4 subcategory: GUIs
5 role: batch_connect
6
```

# Extending OnDemand: Publishing Apps – Copy and Launch

```
efranz@web05:~$ sudo rsync -rlptvu --delete /users/PZS0562/efranz/ondemand/dev/matlab/ \  
> /var/www/ood/apps/sys/matlab
```

The screenshot shows the OnDemand web interface. The top navigation bar includes 'Open OnDemand', 'Files', 'Jobs', 'Clusters', and 'Interactive Apps'. The 'Interactive Apps' menu is open, showing options: 'Interactive Sessions', 'Desktops' (with 'Owens Desktop' listed), 'GUIs' (with 'MATLAB' selected and a mouse cursor), 'Servers' (with 'Jupyter Notebook' and 'RStudio Server' listed), and 'All of your HPC'. The main content area displays the 'OPEN OnDemand' logo and the text 'OnDemand provides an integrated, single... resources.'

# Interactive App Development and Publishing: Summary

- App developer interface enables users to copy modify and run apps in their home directory
- Apps deployed to the deployment directory can be launched by every user

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# Demos

- PSC, Tufts, and OSC will demonstrate user facing installations of OnDemand that show off their customizations and extensions of OnDemand.
- Demos
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Thank you! Any questions?

Alan Chalker, Ph.D.

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Ohio Supercomputer Center

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[go.osu.edu/ood](http://go.osu.edu/ood)

## Appendix Slides

The following slides show some screens related to the demos that PSC, Tufts, and OSC did at the end of the webinar. Please watch the webinar video to see the entire demo content.

# PSC: Dashboard

A PITTSBURGH SUPERCOMPUTING CENTER RESOURCE



## Welcome to Bridges

Bridges is a uniquely capable resource for empowering new research communities and bringing together HPC and Big Data.

[Open OnDemand](#) provides a simple interface for file and job management on Bridges.

## Message of the Day

\*\*\*\*\* W A R N I N G \*\*\*\*\*  
You have connected to vm028.bridges.psc.edu

This computing resource is the property of the Pittsburgh Supercomputing Center. It is for authorized use only. By using this system, all users acknowledge notice of, and agree to comply with, PSC polices including the Resource Use Policy, available at <http://www.psc.edu/index.php/policies>. Unauthorized or improper use of this system may result in administrative disciplinary action, civil charges/criminal penalties, and/or other sanctions as set forth in PSC policies. By continuing to use this system you indicate your awareness of and

Files Jobs Clusters

- Home Directory
- /pylon2/sy560jp/efranz
- /pylon5/sy560jp/efranz

Interactive Apps

- Interactive Sessions
- Servers
  - Jupyter Notebook

# PSC: Jupyter

Bridges OnDemand

Files ▾

Jobs ▾

Clusters ▾

Interactive Apps ▾

</> Develop ▾

🔗 Help ▾

👤 Logged in as efranz

🚪 Log Out

[Home](#) / [Interactive Sessions](#) / Jupyter Notebook

Interactive Apps

Servers

📄 Jupyter Notebook

This app will launch a Jupyter Notebook server on one or more nodes.

### Number of hours

### Number of nodes

### Account

### Partition

For help please review the available [Bridges Partitions](#).

I would like to receive an email when the session starts

Launch

\* All Jupyter Notebook session data is generated and stored under the user's home directory in the corresponding [data root directory](#).

# PSC: Jupyter - Trying to Submit to Restricted Partition

Bridges OnDemand

Files ▾

Jobs ▾

Clusters ▾

Interactive Apps ▾

</> Develop ▾

🔗 Help ▾

👤 Logged in as efranz

🚪 Log Out

[Home](#) / [Interactive Sessions](#) / Jupyter Notebook

**Failed to submit session with the following error:**



```
sbatch: error: No memory amount given, see http://www.psc.edu/index.php/bridges/users/user-guide/running-jobs
sbatch: error: Batch job submission failed: Unspecified error
```

\* The Jupyter Notebook session data for this session can be accessed under the [staged root directory](#).

Interactive Apps

Servers

Jupyter Notebook

This app will launch a Jupyter Notebook server on one or more nodes.

**Number of hours**

**Number of nodes**

**Account**

**Partition**

For help please review the available [Bridges Partitions](#).

I would like to receive an email when the session starts

# PSC: Jupyter

Bridges OnDemand

Files ▾

Jobs ▾

Clusters ▾

Interactive Apps ▾

</> Develop ▾

🔗 Help ▾

👤 Logged in as efranz

🚪 Log Out

Session was successfully created. ✕

[Home](#) / Interactive Sessions

Interactive Apps

Servers

 Jupyter Notebook

**Jupyter Notebook (2258149)**

Queued

**Created at:** 2018-01-28 13:01:03 EST

 Delete

**Time Requested:** 1 hour

**Session ID:** [c9b9e625-fc53-49ec-ba24-519787dc07de](#)

Please be patient as your job currently sits in queue. The wait time depends on the number of cores as well as time requested.

# PSC: Jupyter

Bridges OnDemand

Files ▾

Jobs ▾

Clusters ▾

Interactive Apps ▾

</> Develop ▾

Help ▾

Logged in as efranz

Log Out

[Home](#) / Interactive Sessions

Interactive Apps

Servers

 Jupyter Notebook

## Jupyter Notebook (2258149)

1 node | 1 core | Running

**Host:** r001.opa.bridges.psc.edu

 Delete

**Created at:** 2018-01-28 13:01:03 EST

**Time Remaining:** about 1 hour

**Session ID:** [c9b9e625-fc53-49ec-ba24-519787dc07de](#)


 Connect to Jupyter

Select the blue **Connect to Jupyter** button above. If you see **Failed to connect to ...**, then wait a few seconds before trying the button again. This warning might appear if the Jupyter Notebook is still starting up.



# PSC: Jupyter

Secure | <https://ondemand.bridges.psc.edu/node/r001.opa.bridges.psc.edu/18195/tree?>

 jupyter

Logout

Files

Running

Clusters

Select items to perform actions on them.

Upload

New ▾



<input type="checkbox"/>	▼	📁	Name ↑	Last Modified ↑
<input type="checkbox"/>		ondemand		8 months ago
<input type="checkbox"/>		ood_core		9 months ago
<input type="checkbox"/>		runtime		seconds ago

# PSC: Active Jobs Shows Running Jobs

Bridges OnDemand / Active Jobs

All Jobs ▾ All Clusters ▾

## Active Jobs

Show 50 ▾ entries

Filter:




	ID	↕ Name	↕ User	↕ Account	↕ Time Used	↕ Queue	↕ Status	↕ Cluster	↕
>	2258149	ondemand/sys/dashboard/sys/jupyter_app	efranz	sy560jp	00:01:16	RM-small	Running	Bridges	
>	2231921	run.sh	lms464	mc5611p	00:03:33	RM	Running	Bridges	
>	2231458	image_measurement_add_2.job	szhang5	ac4s8vp		RM-shared	Queued	Bridges	
>	2231459	image_measurement_add_1.job	szhang5	ac4s8vp		RM-shared	Queued	Bridges	
>	2225583	Trinity-pdb_nonorm_centos7.4.slurm	blood	pscstaff		LM	Queued	Bridges	
>	2249004	zwitterion_0.0750_0.1050_10.00.sh	madinya2	mr561dp		RM-shared	Queued	Bridges	
>	2249005	zwitterion_0.0750_0.1200_10.00.sh	madinya2	mr561dp		RM-shared	Queued	Bridges	
>	2249006	zwitterion_0.0750_0.1350_10.00.sh	madinya2	mr561dp		RM-shared	Queued	Bridges	
>	2249007	zwitterion_0.0750_0.1500_10.00.sh	madinya2	mr561dp		RM-shared	Queued	Bridges	
>	2249008	zwitterion_0.0750_0.1650_10.00.sh	madinya2	mr561dp		RM-shared	Queued	Bridges	
>	2249009	zwitterion_0.0750_0.1800_10.00.sh	madinya2	mr561dp		RM-shared	Queued	Bridges	
>	2249010	zwitterion_0.0750_0.1950_10.00.sh	madinya2	mr561dp		RM-shared	Queued	Bridges	
>	2249011	zwitterion_0.0750_0.2100_10.00.sh	madinya2	mr561dp		RM-shared	Queued	Bridges	
>	2249012	zwitterion_0.0750_0.2250_10.00.sh	madinya2	mr561dp		RM-shared	Queued	Bridges	

# PSC: Job Details Provides Buttons to Access Job Files

**Running** ondemand/sys/dashboard/sys/jupyter\_app  
2258149

<b>Cluster</b>	Bridges
<b>Job Id</b>	2258149
<b>Job Name</b>	ondemand/sys/dashboard/sys/jupyter_app
<b>User</b>	efranz
<b>Account</b>	sy560jp
<b>Partition</b>	RM-small
<b>State</b>	RUNNING
<b>Reason</b>	None
<b>Total Nodes</b>	1
<b>Total CPUs</b>	1
<b>Time Limit</b>	1:00:00
<b>Time Used</b>	1:56
<b>Memory</b>	4400M

Output Location: `/home/efranz/ondemand/data/sys/dashboard/batch_connect/sys/jupyter_app/output/c9b9e625-fc53-49ec-ba24-519787dc07de`

 Open in File Manager  Open in Terminal  Delete

# Tufts: OnDemand Customization

OnDemand Files Jobs Clusters Misc Help Logged in as sdough01 Log Out

- **Support:** Email [tts-research@tufts.edu](mailto:tts-research@tufts.edu) for questions regarding Tufts High Performance Compute (HPC) cluster.
- **Job Limit:** Users are limited to submitting **2000** jobs per user at any one time via the slurm scheduler (salloc, sbatch, srun).
- **Upload/Download:** Via OnDemand web interface is limited to 976MB which will be increased in the future. Additional tools and assistance are available for larger transfers.
- **Workshop:** Dec. 5-6 Big Data and High Performance Computing (HPC)
- **Competition:** [National Student Cluster Competition 2018](#)

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

## Message of the Day

```
Red Hat Enterprise Linux Server release 6.9 (Santiago)
TAG: CLUSTER                               installed  24 May 2017
GROUP: prod                                patched 25 January 2018

                ONDEMAND-PROD.CLUSTER.TUFTS.EDU
This is the Access Webserver for Tufts University's NEW Linux
Research Cluster running RedHat Enterprise Linux 6 and SLURM.
                UNAUTHORIZED USE PROHIBITED
*****

Questions?  Send email to cluster-support@tufts.edu

By accessing and using this account and Tufts University computing resources,
you are responsible for adhering to the Tufts Responsible Use Policy at:
https://it.tufts.edu/ispol

To run interactive GUI applications please see go to
http://go.tufts.edu/cluster and click on the "Application specific Information
FAQs" link.
```

# Tufts: Simple Custom App Redirect for Files Shortcut

Files ▾

Jobs ▾

🏠 Home Directory

Projects

Scratch

Temp

/cluster/tufts/rt/

👁 View

✎ Edit

A-Z Rename

📄 Download

📄 Copy

📄 Paste

\* (Un)Select All

🗑 Delete

name

size

modified date

📁 ..	<dir>	
📁 cchiar01	<dir>	03/18/2017
📁 mpower11	<dir>	09/15/2017
📁 plone	<dir>	04/19/2017
📁 scripts	<dir>	12/28/2016
📁 sdough01	<dir>	12/18/2017
📁 software	<dir>	12/01/2017
📁 untitled folder	<dir>	01/28/2017
📁 ymalon01	<dir>	01/19/2018

```
exec('/usr/local/bin/projects', function(error, stdout, stderr){  
  response.writeHead(302, {'Location': 'http://ondemand.cluster.tufts.edu/pun/sys/files/fs/cluster/tufts/' + stdout});  
});
```

# Tufts: Simple Custom App Redirect for WebMo

Clusters ▾

Misc ▾

>\_ Tufts HPC Shell Access

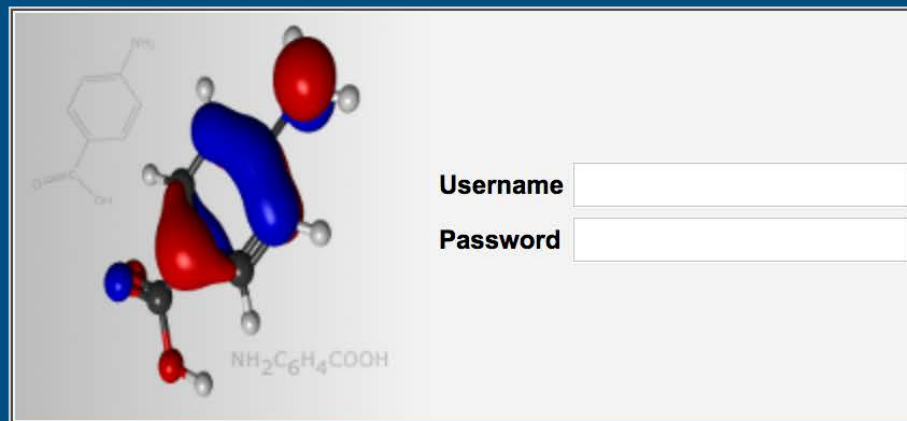
 Tufts HPC FastX11 Shell Access

Tufts HPC WebMo Access

## WebMO Login

Version: 17.0.012e

Computational Chemistry on Tufts High Performance Compute (HPC) cluster  
Only accessible from Tufts Network or VPN



The WebMO login interface features a 3D molecular model of a molecule with red and blue lobes, and a chemical structure of a benzene ring with a carboxylic acid group. Below the model is the chemical formula  $\text{NH}_2\text{C}_6\text{H}_4\text{COOH}$ . To the right of the model are two input fields: "Username" and "Password".

```
response.writeHead(302, {'Location': 'http://webmo-prod.cluster.tufts.edu/webmo'});
```

# Tufts: Custom Apps Menu “Misc” with Custom Status Apps

Misc ▾

Galaxy

Globus File Transfer

Module List

Quota Increase

⚙ Quota Report

⚙ Scheduler Info

⚙ Show Groups

Reports

⚙ Inventory

⚙ Top Users

⚙ Utilization by User

```
exec('/usr/local/bin/inventory', function(error, stdout, stderr){
```

```
pmem01          72          1033838
```

```
pmem02          72          1033838
```

```
=====
```

```
Nodes           Cores           Memory (MB)
```

```
201             6424           24727967
```

# Tufts: Custom Show Groups App

OnDemand Files Jobs Clusters Misc

- **Support:** Email [tts-research@tufts.edu](mailto:tts-research@tufts.edu)
- **Job Limit:** Users are limited to 10 jobs per cluster
- **Upload/Download:** Via [rsync](#) or [scp](#) transfers.
- **Workshop:** Dec. 5-6 Big Data Workshop
- **Competition:** National Science Foundation

OnDemand provides a variety of tools to help you manage your cluster.

**Message of the Day**

```
Red Hat Enterprise Linux Server release 6.9 (Santitas)
TAG: CLUSTER
GROUP: prod

ONDEMAND-PROD.CLUSTER.TUFTS
This is the Access Webserver for Tufts University
Research Cluster running RedHat Enterprise Linux 6.9
UNAUTHORIZED USE PROHIBITED
*****
Questions? Send email to cluster-support@tufts.edu
```

- Galaxy
- Globus File Transfer
- Module List
- Quota Increase
- ⚙️ Quota Report
- ⚙️ Scheduler Info
- ⚙️ Show Groups
- Reports
- ⚙️ Inventory
- ⚙️ Top Users
- ⚙️ Utilization by User

Open OnDemand / Show Groups

Using layout: Mon Jan 29 2018 13:59:28 GMT-0500 (EST)

```
chbe193
cohnlab
datalab
duchinlab
facstaff
fmri
galaxydev
gaussian
georgakoudilab
grj
gromacs
heldweinlab
hep
hrilab
isberg
levinlab
marchesini_lab
math150inst
perseus
rgts
schwob_lab
sokolovlab
student
train01
ttsworkshop
us@tlas1
vireos
```