

HIGH PERFORMANCE RESEARCH COMPUTING

HPRC Primer

Introduction to the Drona Workflow Engine

October 3rd, 2025

Kristine Lam

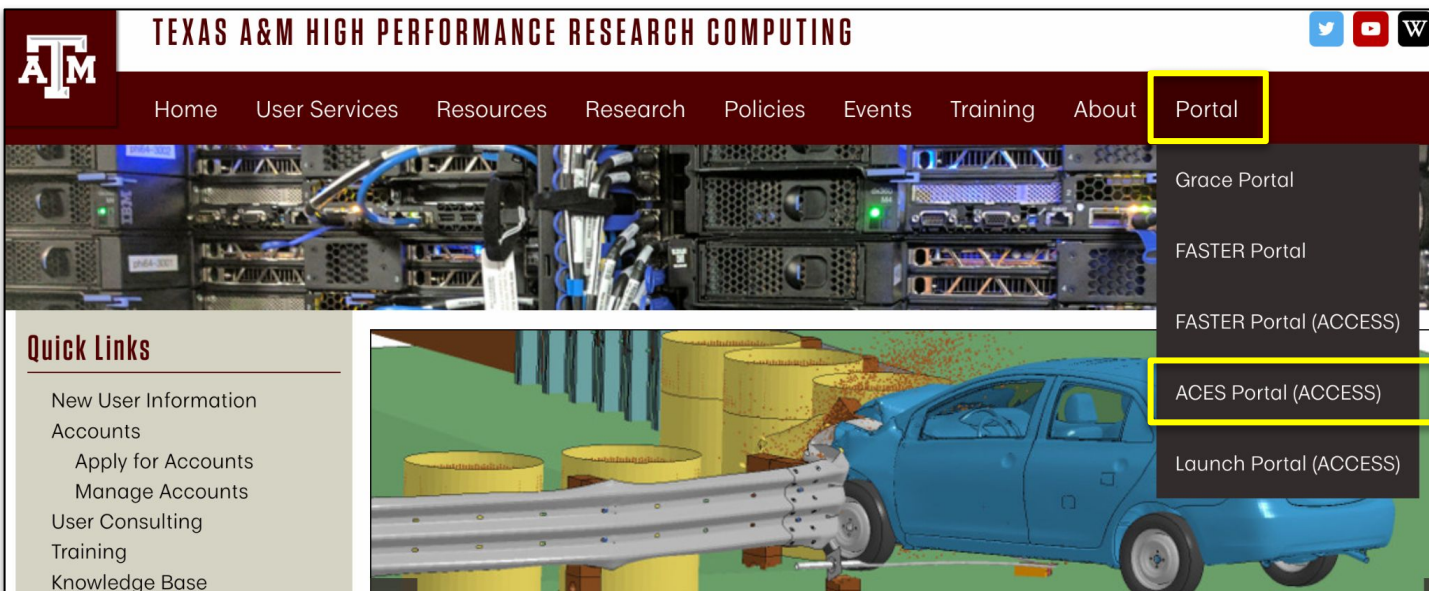


High Performance
Research Computing

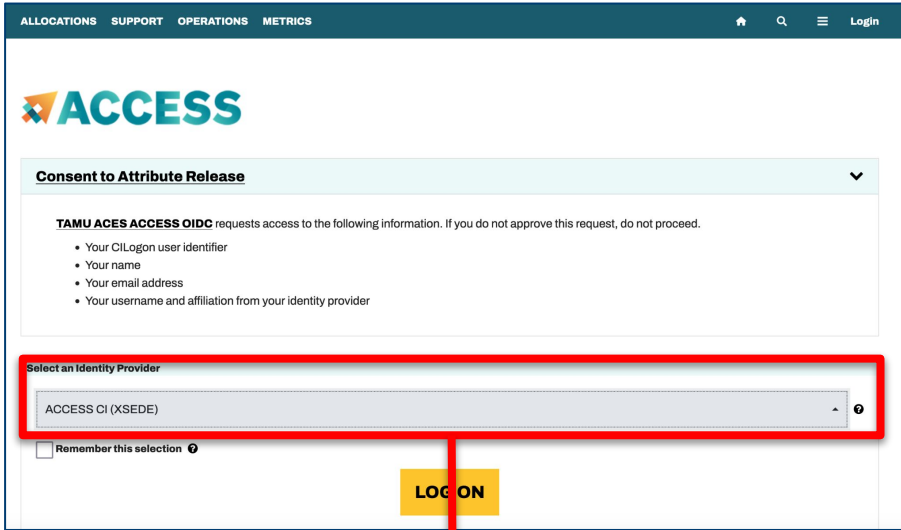
DIVISION OF RESEARCH

Accessing the ACES Portal

- HPRC webpage: hprc.tamu.edu
- Aces portal shortcut: portal-aces.hprc.tamu.edu
 - Requires an ACCESS ID!



Accessing ACES via the Portal (ACCESS)



The screenshot shows the ACCESS portal interface. At the top is a navigation bar with links: ALLOCATIONS, SUPPORT, OPERATIONS, METRICS, and a Login link. Below the navigation bar is the ACCESS logo. A section titled "Consent to Attribute Release" is expanded, showing a message from TAMU ACES ACCESS OIDC requesting access to user information. Below this is a "Select an Identity Provider" dropdown menu with "ACCESS CI (XSEDE)" selected. A red box highlights this dropdown. Below the dropdown is a "Remember this selection" checkbox and a "LOG ON" button. A red line points from the "LOG ON" button to the text below.

ALLOCATIONS SUPPORT OPERATIONS METRICS Login

ACCESS

Consent to Attribute Release

TAMU ACES ACCESS OIDC requests access to the following information. If you do not approve this request, do not proceed.

- Your CILogon user identifier
- Your name
- Your email address
- Your username and affiliation from your identity provider

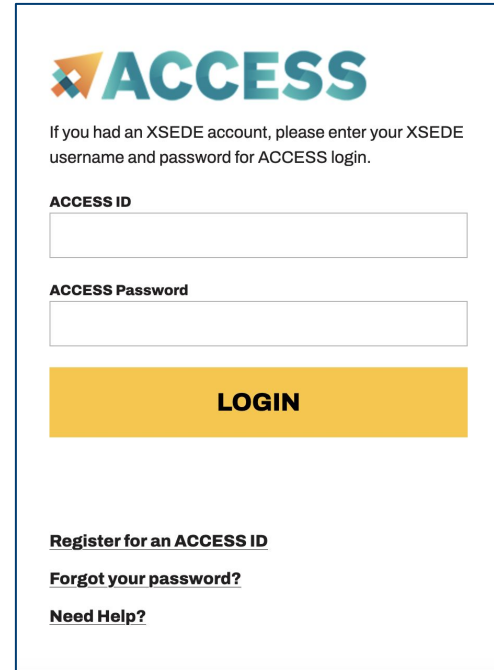
Select an Identity Provider

ACCESS CI (XSEDE)

☐ Remember this selection

LOG ON

Select the Identity Provider appropriate for your account.



The screenshot shows the ACCESS portal login page. At the top is the ACCESS logo. Below the logo is a message: "If you had an XSEDE account, please enter your XSEDE username and password for ACCESS login." Below this are two input fields: "ACCESS ID" and "ACCESS Password". Below the password field is a large yellow "LOGIN" button. At the bottom are three links: "Register for an ACCESS ID", "Forgot your password?", and "Need Help?".

ACCESS

If you had an XSEDE account, please enter your XSEDE username and password for ACCESS login.

ACCESS ID

ACCESS Password

LOGIN

[Register for an ACCESS ID](#)

[Forgot your password?](#)

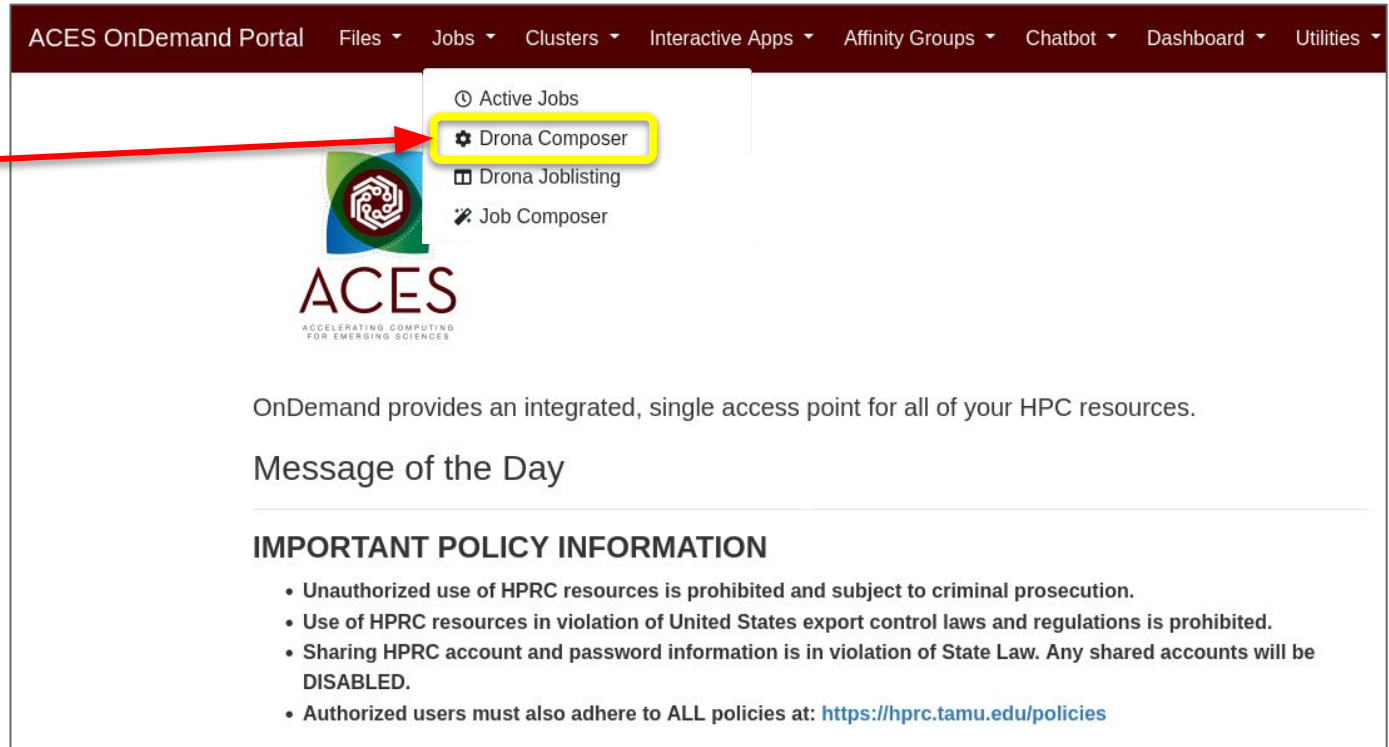
[Need Help?](#)

Log in using your ACCESS or institutional credentials.

Drona Workflow Engine

- A framework to assist you with generating and creating jobs

Once in the Portal,
select at the top:
“Jobs” → “Drona
Composer”



The screenshot shows the ACES OnDemand Portal interface. The top navigation bar includes links for Files, Jobs, Clusters, Interactive Apps, Affinity Groups, Chatbot, Dashboard, and Utilities. The 'Jobs' menu is open, showing options for Active Jobs, Drona Composer (highlighted with a yellow box and a red arrow), Drona Joblisting, and Job Composer. Below the navigation bar is the ACES logo with the tagline 'ACCELERATING COMPUTING FOR EMERGING SCIENCES'. The main content area contains a message about HPC resources and a section for important policy information.

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

Message of the Day

IMPORTANT POLICY INFORMATION

- Unauthorized use of HPRC resources is prohibited and subject to criminal prosecution.
- Use of HPRC resources in violation of United States export control laws and regulations is prohibited.
- Sharing HPRC account and password information is in violation of State Law. Any shared accounts will be DISABLED.
- Authorized users must also adhere to ALL policies at: <https://hprc.tamu.edu/policies>

Drona Workflow Engine

Job submission made easy

DRONA COMPOSER (ACES)

Job Name

Location Change

Environments +

Show History

Cautions: Job files will overwrite existing files with the same name. The same principle applies for your executable scripts.

Provide job name

Import additional environments

Show previously ran jobs

Select location where job should run

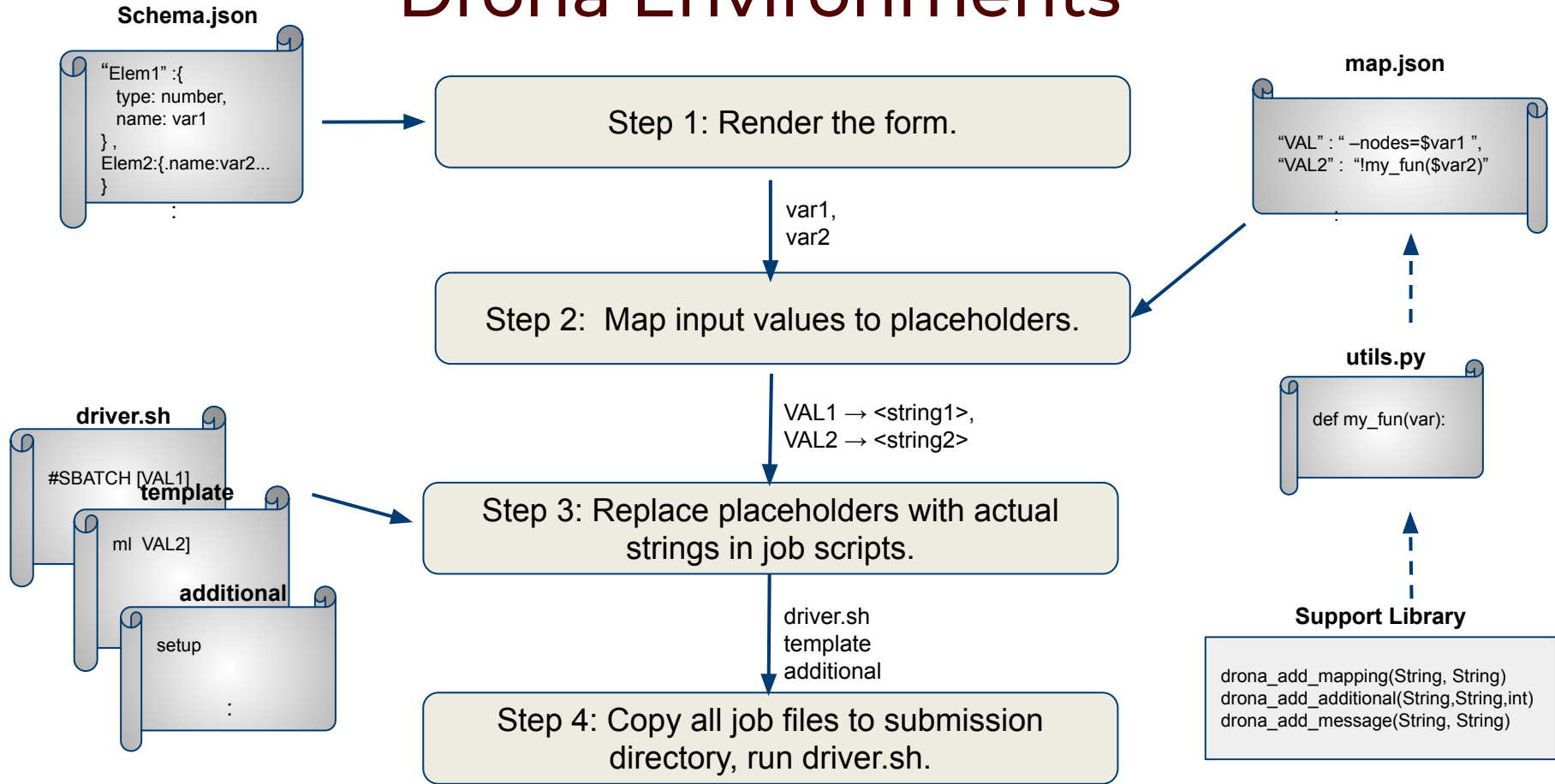
Select environment

Drona Demo

Hands on Activity - 5 minutes

1. Add the **DronaPrimer** env using the import functionality.
2. Check the environment dropdown again and see **DronaPrimer** in the list of environments.
3. Using the ACES portal, inspect the contents of directory.
`$SCRATCH/drona_composer/environments/DronaPrimer`

Drona Environments



Case Study: Adapting DronaPrimer Environment

DronaPrimer: Simple workflow that compiles a provided source file and then runs it using given number of tasks and cpus-per-task. We will modify the environment as follows:

1. Add an extra dropdown element in schema.json.
 - Dropdown has optimizations O0,O1, O2, O3
 - Update template.txt to add the compiler flag placeholder
 - Add a warning when a user selects 'O3'
2. Adjust number of cpus to make it fit on single node.
3. Add a README file to the preview.

Advanced Drona Features

1. Conditional fields
2. Dynamic Elements

```
"account": {  
  "type": "dynamicSelect",  
  "label": "Project Account",  
  "name": "account",  
  "retriever": "list_accounts.sh"  
},
```

Advanced Drona Features

1. Conditional fields
2. Dynamic Elements
3. Drona Job History

From

03/04/2025

To

04/03/2025

Filter

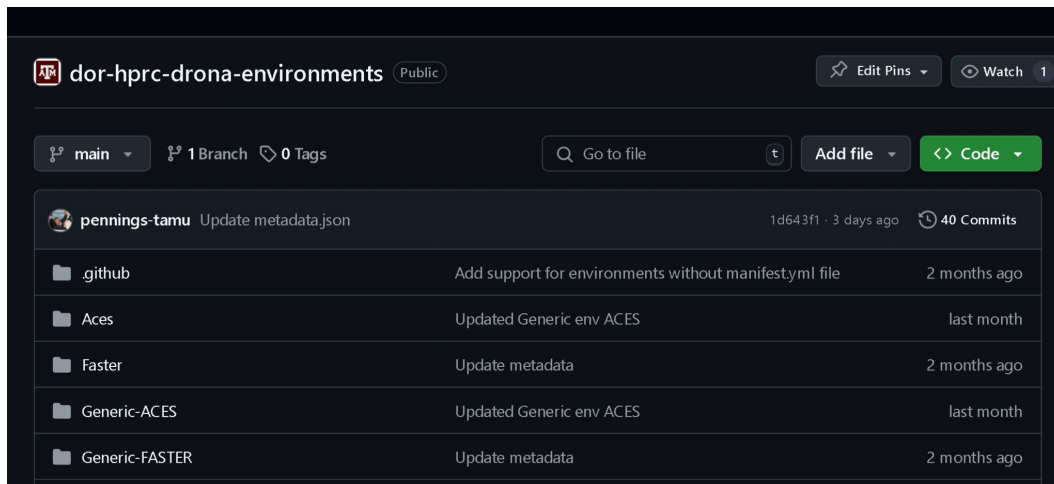
ID	Name	Location	Environment	Date	Actions
1008736	DronaPrimerTest2	drona_composer/runs/DronaPrim...	DronaPrimer	2025-04-03 13:52:38	Actions Rerun Recreate
1008734	DronaPrimerTest	drona_composer/runs/DronaPrim...	DronaPrimer	2025-04-03 13:48:45	
N/A	AlphaFold_run	drona_composer/runs/AlphaFold...	AlphaFold	2025-04-03 13:39:18	Actions
N/A	ML_training	drona_composer/runs/ML_training	Generic	2025-04-03 13:35:31	Actions
N/A	molecular_dynamics_...	drona_composer/runs/molecular...	Generic	2025-04-03 13:34:48	Actions
1008710	fluid_dynamics_simula...	drona_composer/runs/fluid_dyna...	Generic	2025-04-03 13:34:16	Actions

Rows per page: 10

1-6 of 6

Advanced Drona Features

1. Conditional fields
2. Dynamic Elements
3. Environment Repository

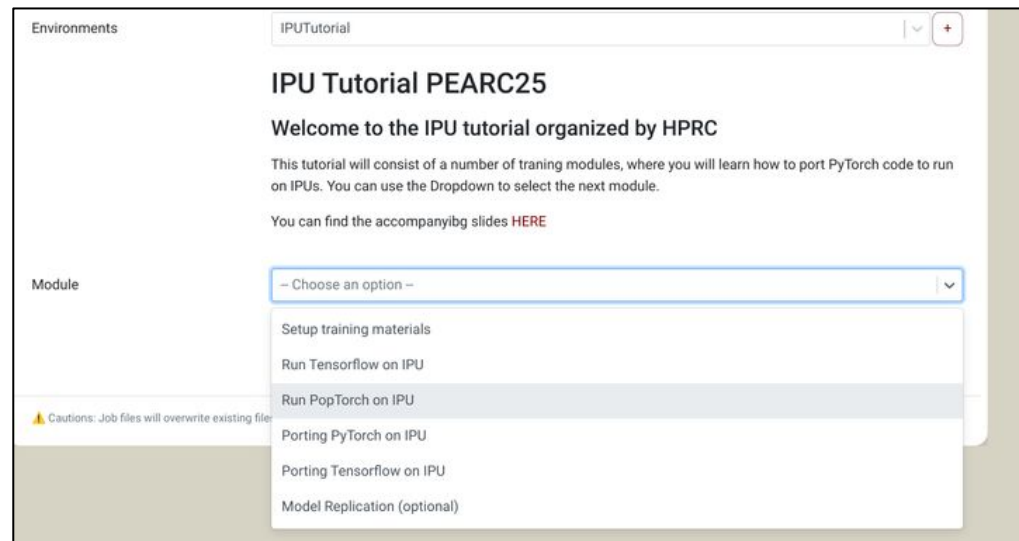


manifest.yml:

```
name: "Matlab"
description: "Matlab"
category: "Scientific"
version: "1.0.0"
author: "HPRC"
```

Advanced Drona Features

1. Conditional fields
2. Dynamic Elements
3. Environment Repository
4. HTML Elements



IPU Tutorial

Drona Preview

Continued Learning

[Drona Composer Documentation](#)

[Drona Form Elements](#)

[Drona Repository](#)

[ACES Batch System](#)

[ACES Quick Start Guide](#)

[HPRC YouTube](#)



**HIGH PERFORMANCE
RESEARCH COMPUTING**
TEXAS A&M UNIVERSITY

<https://hprc.tamu.edu>

HPRC Helpdesk:

help@hprc.tamu.edu

Phone: 979-845-0219

Take our short course survey!



HPRC Survey

https://u.tamu.edu/hprc_shortcourse_survey

Help us help you. Please include details in your request for support, such as, Cluster (ACES, FASTER, Grace, Launch), NetID (UserID), Job information (JobID(s), Location of your jobfile, input/output files, Application, Module(s) loaded, Error messages, etc), and Steps you have taken, so we can reproduce the problem.



High Performance
Research Computing
DIVISION OF RESEARCH

Thank you!
Any questions?

u.tamu.edu/hprc_shortcourse_survey