

Module 1.1

ATMOS 5340: Environmental Programming and Statistics

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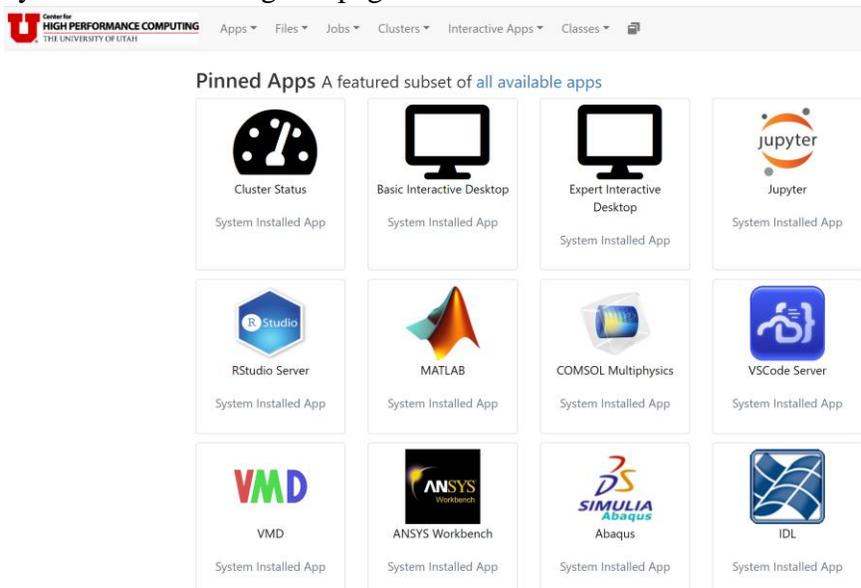
Accessing Jupyter Notebooks Using CHPC's Open OnDemand

Be sure to review the information in Appendix A of the DeCaria text that describes the Jupyter environment in more detail.

The objective of this document is to get you familiar with CHPC's Open OnDemand service, which is a web portal that provides *remote access* to CHPC file systems and computing resources. Using Open OnDemand, we can view, edit, upload and download files, run GUI applications in a Linux environment by simply using our web browser and run python programs! This service eliminates the need for us to install programs onto our computers, and therefore eliminates issue associated with system dependencies and so on!

To start, open your web browser on either your personal computer or computer lab desktop and go to the following webpage: <https://ondemand-class.chpc.utah.edu/>

Upon clicking this link, Open OnDemand will ask for your University of Utah Login credentials (uID + password). If you have provided the correct credentials, your web browser should take you to the following webpage:



The screenshot shows the CHPC Open OnDemand web portal interface. At the top left is the logo for the Center for High Performance Computing, The University of Utah. A navigation bar contains the following items: Apps, Files, Jobs, Clusters, Interactive Apps, and Classes. Below the navigation bar is a section titled "Pinned Apps A featured subset of all available apps". This section displays a grid of 12 application icons, each with a label and "System Installed App" below it:

- Cluster Status
- Basic Interactive Desktop
- Expert Interactive Desktop
- Jupyter
- RStudio Server
- MATLAB
- COMSOL Multiphysics
- VSCoDe Server
- VMD
- ANSYS Workbench
- SIMULIA Abaqus
- IDL

Click on the "Jupyter icon" and you should see something like but not identical to:



Classes

- Atmospheric Sciences
 - ATMOS Synoptic
- Bioinformatics
 - MIB2020
- Chemical Engineering
 - CHEN Jupyter
 - CHEN2450
- Geography
 - GEOG5670 desktop

Interactive Apps

- Desktops
 - Basic Interactive Desktop
 - Desktop
 - Expert Interactive Desktop

Jupyter version: 6acab92

This app will launch a [Jupyter](#) Notebook or Lab server using [Python](#) on a [HPC cluster](#) or on a [Frisco node](#).

To start the job promptly, use notchpeak-shared-short account and partition on the [Notchpeak cluster](#).

[GPU specification](#) is optional for the clusters and partitions that have them.

Jupyter interface

Notebook

This defines the interface of Jupyter you want to start (Notebook or Lab).

Jupyter Python version

Custom (Environment Setup below)

This defines the Python distribution of Jupyter you want to start.

Environment Setup for Custom Python

```
ml use
/uufs/chpc.utah.edu/common/home/u0035056/MyModules
ml miniconda3/latest
conda activate atmos5340
```

So, you must make yours identical one time only (after that it will default to your settings):

1. Jupyter Python version: pull down and select “Custom”
2. Type very carefully on three lines:
 - a. `ml use /uufs/chpc.utah.edu/common/home/u0035056/MyModules`
 - b. `ml miniconda3/latest`
 - c. `conda activate atmos5340`

Now look at the following and match the following options.

1. Make sure your are using the Notchpeak cluster
2. Select something more than 1 hour
3. For memory, use the default 4 GB

Now hit the “Launch” button.

Jupyter (5017390) 1 node | 1 core | Running

Host: _notch308.ipoib.int.chpc.utah.edu Delete

Created at: 2022-07-30 14:07:03 MDT

Time Remaining: 7 hours and 59 minutes

Session ID: 937893e7-a7ed-4b35-97ea-4f57b6ee7695

Connect to Jupyter

Be patient, but if you don't see "Running", then ask for help.

You should see then the Jupyter notebook environment (Fig. A.2 in the text). If you have completed all the steps done in the Linux introduction, you should see your "atmos_5340" and "public_html" directories. By clicking on atmos_5340 and if you copied all the class files

Jupyter Notebook is a server-client application that allows editing and running notebook documents (-i.e python code) via a web browser. We will be using this environment extensively as well as the Basic Terminal and its GUI and x-terminal functionality.

Note only 2 OnDemand sessions can be used at a time. If you start up more than 2, they others will remain stuck in the Queue until one of first two are deleted.

You will need to become familiar with using Ondemand on the fly as this environment will be an integral part of the ATMOS 5340 class.

Here's another one to try: on the top menu, what happens when you select "Home Directory" under the Files tab?