

Open OnDemand

Information Technology Services
Cyberinfrastructure
University of Hawai'i

<https://www.hawaii.edu/its/ci/>
<http://datascience.hawaii.edu/>
uh-hpc-help@lists.hawaii.edu

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Part I – Background

Part II – Connecting & Tour

Part III – Customization:

Part I

Background



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What is Open OnDemand & who is using it?

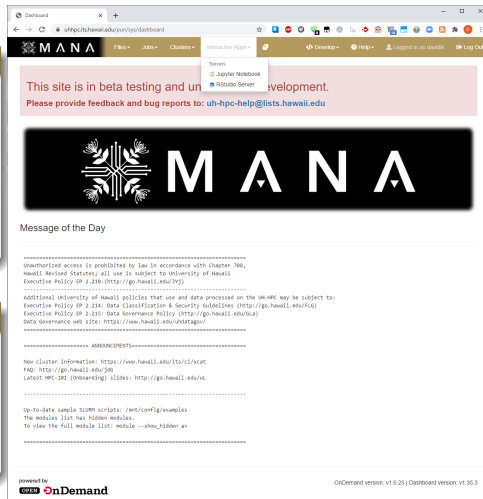
What is it?

Open OnDemand, is a National Science Foundation (NSF) funded science gateway project (OAC1534949, OAC183575) from the Ohio Supercomputer Center, with the goal of making access to HPC resources simpler through a web browser.¹

Who is using it?

- Universities
- The Federal Reserve Bank
- Super computing centers

¹<https://openondemand.org/>



What can it do for me?

- Provide a uniform environment which can help simplify instruction in a classroom setting
- Built-in file browser with in browser download/upload capabilities
 - Max upload file size is currently limited to 5GB
- In browser SSH terminal
- Job management and monitoring
- The ability to proxy graphical output from applications like Jupyter notebooks and Rstudio Server executed on a compute node



Part II

Connecting & Tour



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Prerequisite

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- An active Mana (UH-HPC) account
- A web browser

Supported Browsers

- Chrome¹², Firefox, Edge are all supported
- Any modern browser that supports ECMAScript 2016 should work

Unsupported Browsers

- Internet Explorer 11

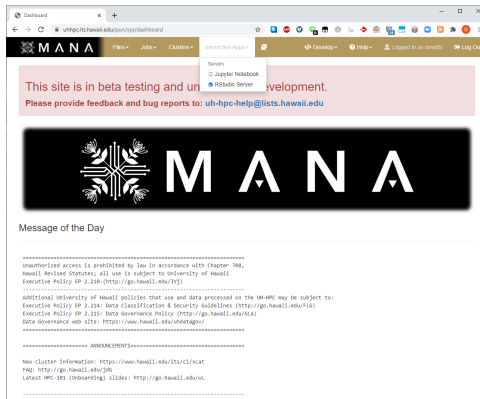
¹ Chrome is the recommended browser

² <https://osc.github.io/ood-documentation/latest/requirements.html#browser-requirements>



Connecting

- Open up a browser window in incognito mode
 - Optional but recommended for security upon logout
- Direct your browser to <https://uhhpc.its.hawaii.edu>
- Should be prompted for your UH credentials by the UH gold screen
- If successful, should be directed to a page with the Mana logo



Tour



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Part III

Customization



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Defaults

- Rstudio Server will utilize the default R module unless told otherwise
 - Current default is R 4.0.0
- Only the dependencies the R module provides are loaded

Quirks

- The terminal in Rstudio does not start up knowing the modules command
 - User can correct this by doing the following commands in the terminal
 - Changes in this terminals environment (modules loaded/purged) do not change what the R environment sees
 - `. ~/.bash_profile`
 - `. /opt/ohpc/admin/lmod/lmod/init/sh`



- Lmod has the ability to save/create a named environment (Collections) which can be restored when needed
 - For example, a user may create a build environment that loads multiple dependencies and they don't want to load them every single time or remember what they loaded and save it with a name
 - The user would save the collection by doing "module save build_enviro"
 - The user can then restore the collection by doing "module restore build_enviro"
- We utilize this mechanism to allow a user to customize their Rstudio environment when using Open OnDemand and allow for the user to:
 - Pin the R language version
 - Load additional dependencies that some of their R libraries require, e.g., netCDF, gdal, CUDA



Requirements

- The Lmod collection must contain a working R environment
 - At a minimum it requires an R module to be loaded - lang/R
- The collection must be named "rstudio"

Procedure

- 1 Bring up a terminal on the cluster
- 2 purge your current module environment
 - module purge
- 3 Load modules you want to use with R studio
 - module load lang/R/3.5.1-intel-2018.5.274-Python-2.7.15
 - module load data/GDAL/2.2.3-intel-2018.5.274-Python-2.7.15
- 4 Save the module environment to the name "rstudio"
 - module save rstudio
- 5 Start up a new Rstudio instance and Rstudio should now have the additional libraries and be using the version of R you specified.

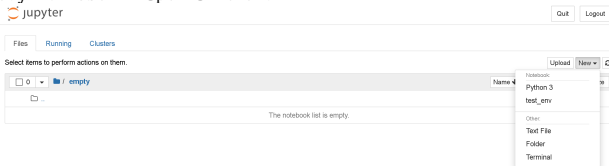


The following steps were adapted from

<https://github.com/PSC-PublicHealth/pha-nbextensions>.

The following commands should be executed from a compute node in an interactive session prior to starting up a Jupyter Notebook in Open OnDemand.

```
[$] module load lang/Anaconda3
[$] conda create --name test_env python=3
[$] source activate test_env
### Install your required packages ###
# ...
# ...
### Finalize setup with these last two packages ###
[$(test_env)] conda install ipykernel
[$(test_env)] pip install git+https://github.com/PSC-PublicHealth/pha-nbextensions.git
### DONE and ready for use in Open OnDemand ###
```



Questions?



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