

FAS OnDemand Quick-Start Guide

January 2021

Contents

What is FAS OnDemand?	5
Why are we using FAS OnDemand for DataFest?	5
How to launch RStudio / Jupyter from Canvas	7
0.1 RStudio	7
1 Jupyter	9
2 How to copy code/data from the shared drive to your home directory	11
2.1 RStudio: using Terminal	11
2.2 RStudio: using shell commands in the console	11
2.3 RStudio: using File menu	11
2.4 Jupyter: using Terminal	12
2.5 Jupyter: using shell commands in cells	12
2.6 Jupyter: using File menu	12
3 How to download code/data to your personal computer	13
3.1 RStudio	13
3.2 Jupyter	13

What is FAS OnDemand?

FAS OnDemand gives Harvard students access to Jupyter Notebooks and RStudio, and can be launched directly from Canvas. It is hosted by Harvard's FAS Research Computing group (FAS RC) and collaboratively supported by both FAS RC and FAS Academic Technology.

Why are we using FAS OnDemand for DataFest?

It can sometimes be challenging in large courses to get every participant's personal computer set-up with the necessary software. For this DataFest bootcamp, you will need an up to date R or Python environment with a suite of non-default packages/modules installed. FAS OnDemand provides you access to an environment that has been curated specifically for DataFest2021, so you can focus on learning skills, rather than debugging your software installation. In addition, you can access FAS OnDemand directly from within the DataFest2021 course on Canvas.

When using the FAS OnDemand environment, you will have access to resources that include:

- 8 cores
- 16Gb RAM
- 20Gb storage
- 10Tb scratch storage (shared between all users on the course)

Of course, if you prefer to use your own local R or Python environment on your personal computer that is perfectly fine, but we will not be able to provide assistance to you if you encounter problems setting that up correctly.

The FAS OnDemand DataFest2021 Jupyter Notebooks installation comes with a **Python 3** jupyter kernel, common data science packages such as **numpy**, **scipy**, **seaborn**, **pandas**, **bokeh**, and **matplotlib**, as well as many specialized modules we'll use during DataFest.

The FAS OnDemand DataFest2021 RStudio installation is available for **R 4.0.3** and comes preinstalled with common packages such as **devtools**, **learnr**, and the complete **tidyverse** collection of R packages, as well as many specialized packages we'll use during DataFest.

How to launch RStudio / Jupyter from Canvas

To be able to use the FAS OnDemand computing environment for your DataFest project you will need to walk-through a handful of steps. Once completed, you will be running an RStudio or Jupyter session with all necessary packages pre-installed.


0.1 RStudio

1. Click **FAS OnDemand** in the left-side navigation panel within Canvas.
2. On the Dashboard launcher page, on the left-side panel, click on **Rstudio Server - DataFest2021**.
3. On the main panel, click the blue **Launch** button.
4. On the Sessions page, click on the blue **Connect to RStudio Server** button.
5. You should now have access to RStudio. You can create a new R/Rmarkdown file as usual, or open an existing file.

Chapter 1

Jupyter

1. Click **FAS OnDemand** in the left-side navigation panel within Canvas.
2. On the Dashboard launcher page, on the left-side panel, click on **Jupyter Notebook - DataFest2021**.
3. On the main panel, click the blue **Launch** button.
4. On the Sessions page, click on the blue **Connect to Jupyter** button.
5. You should now have access to Jupyter. You can either create a new notebook from the **New** dropdown on the far right (select the “datafest_2021” kernel) or you can navigate to an existing file (after opening the file, select the **datafest_2021** kernel from the Kernel menu).

 IQSS/prefresher is licensed under the
GNU General Public License v3.0

Permissions of this strong copyleft license are conditioned on making available complete source code of licensed works and modifications, which include larger works using a licensed work, under the same license. Copyright and license notices must be preserved. Contributors provide an express grant of patent rights.

Permissions

- ✓ Commercial use
- ✓ Modification
- ✓ Distribution
- ✓ Patent use
- ✓ Private use

Limitations

- ✗ Liability
- ✗ Warranty

Conditions

- ① License and copyright notice
- ① State changes
- ① Disclose source
- ① Same license

Chapter 2

How to copy code/data from the shared drive to your home directory

If your instructor has uploaded code and/or data to the shared drive (the `shared_data` directory within your `Home` directory) then the first thing you should do before using these files is to copy them to your `Home` directory. These copies will serve as your own personal version of the files, which you can modify as you wish.

There are several different ways you can copy files from the `shared_data` directory to your `Home` directory, depending on whether you'd prefer to use the command line or a GUI. Here are the options:

2.1 RStudio: using Terminal

1. Click on the `Terminal` tab on the top left panel, next to `Console`.
2. Copy the file(s) or directories you want from the “`shared_data`” directory to your home directory: `cp -r shared_data/<directory-you-want>/ .`

2.2 RStudio: using shell commands in the console

1. Copy the file(s) or directories you want from the `shared_data` directory to your home directory by running the following command in the console: `system("cp -r ~/shared_data/<directory-you-want>/ .")`

2.3 RStudio: using File menu

1. In the `Files` menu in the bottom right panel, navigate to the `shared_data` directory.
2. Navigate to the directory with materials for the current session.

3. Put a check next to the file you want to copy to your home folder. You can only copy one file at a time and no directories.
4. Click on the **More** dropdown menu (with gears icon) and select **Copy To**.
5. Near the top of the resulting pop-up window, click on the **Home** directory icon.
6. Click the **Save** button on the bottom right. There will now be a copy of the file in your home directory, which you can open and work with.

2.4 Jupyter: using Terminal

1. Click on the **New** dropdown on the right side of the page.
2. Select **Terminal** from the dropdown menu.
3. In the new browser tab, copy the file(s) or directories you want from the `shared_data` directory to your home directory: `cp -r shared_data/<directory-you-want>/ .`
4. Close the browser tab containing the Terminal (don't click logout!). Go back to the previous browser tab to access Jupyter again.

2.5 Jupyter: using shell commands in cells

1. Open a Jupyter Notebook or create a new cell.
2. Copy the file(s) of interest to your home directory: `!cp -r ~/shared_data/<directory-you-want>/ .`

2.6 Jupyter: using File menu

1. Navigate to the file of interest within the `shared_data` directory.
2. Click **Duplicate** from the top menu.
3. Select the radio button next to the duplicated file.
4. Click **Move** from the top menu.
5. Delete ALL of the file path in the pop-up window and click the blue **Move** button

Chapter 3

How to download code/data to your personal computer

At the end of your project, you will probably want to download your script files and data files from the FAS OnDemand environment to your local machine. This is easy to do from within RStudio / Jupyter:

3.1 RStudio

1. Select the file of interest using the radio button within the file browser (bottom right panel).
2. Click on the **More** dropdown menu (with gears icon) and select **Export**.
3. In the pop-up window, click **Download**.

3.2 Jupyter

1. Select the file of interest using the radio button within the file browser.
2. Click the **Download** button on the top menu.