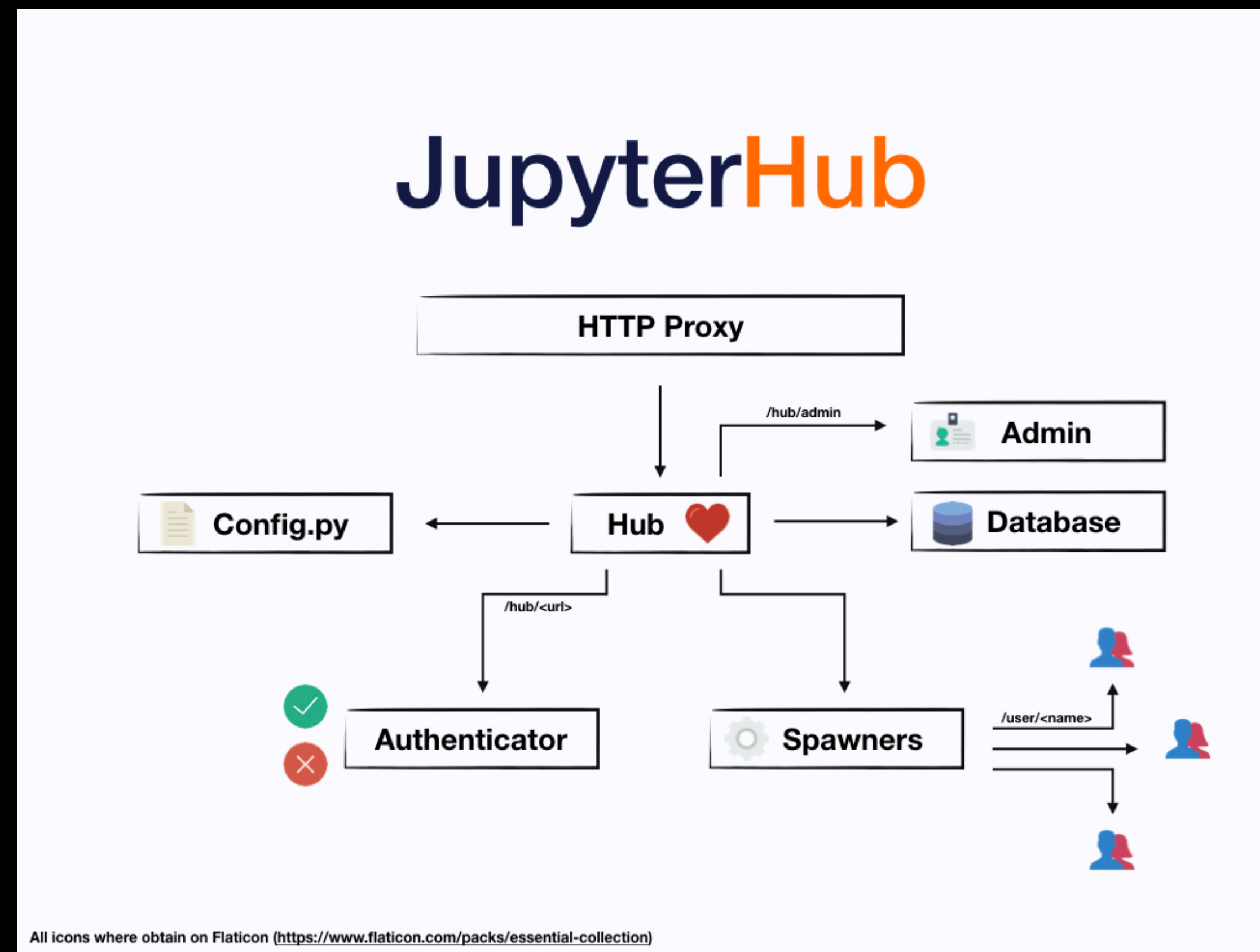


# **JupyterHub @ Nikhef**

**Computing Course - June 2022**

# What is JupyterHub?

- Runs http proxy service so multiple users can run a JupyterLab session (aka newer evolution of a Jupyter notebook).



# Who can access it?

- Anyone with a Nikhef login (sso login)
- Must be on the Nikhef network
  - By VPN (eduVPN: [https://wiki.nikhef.nl/ct/VPN\\_on\\_laptop\\_or\\_home\\_pc\\_\(EduVPN\)](https://wiki.nikhef.nl/ct/VPN_on_laptop_or_home_pc_(EduVPN))) (Make sure you're logged in with your Nikhef account!)
  - On-site via eduroam or the NIKHEF wifi SSID ([https://wiki.nikhef.nl/ct/Eduroam\\_and\\_Nikhef\\_\(Wi-Fi/Wireless\\_network\)](https://wiki.nikhef.nl/ct/Eduroam_and_Nikhef_(Wi-Fi/Wireless_network)))

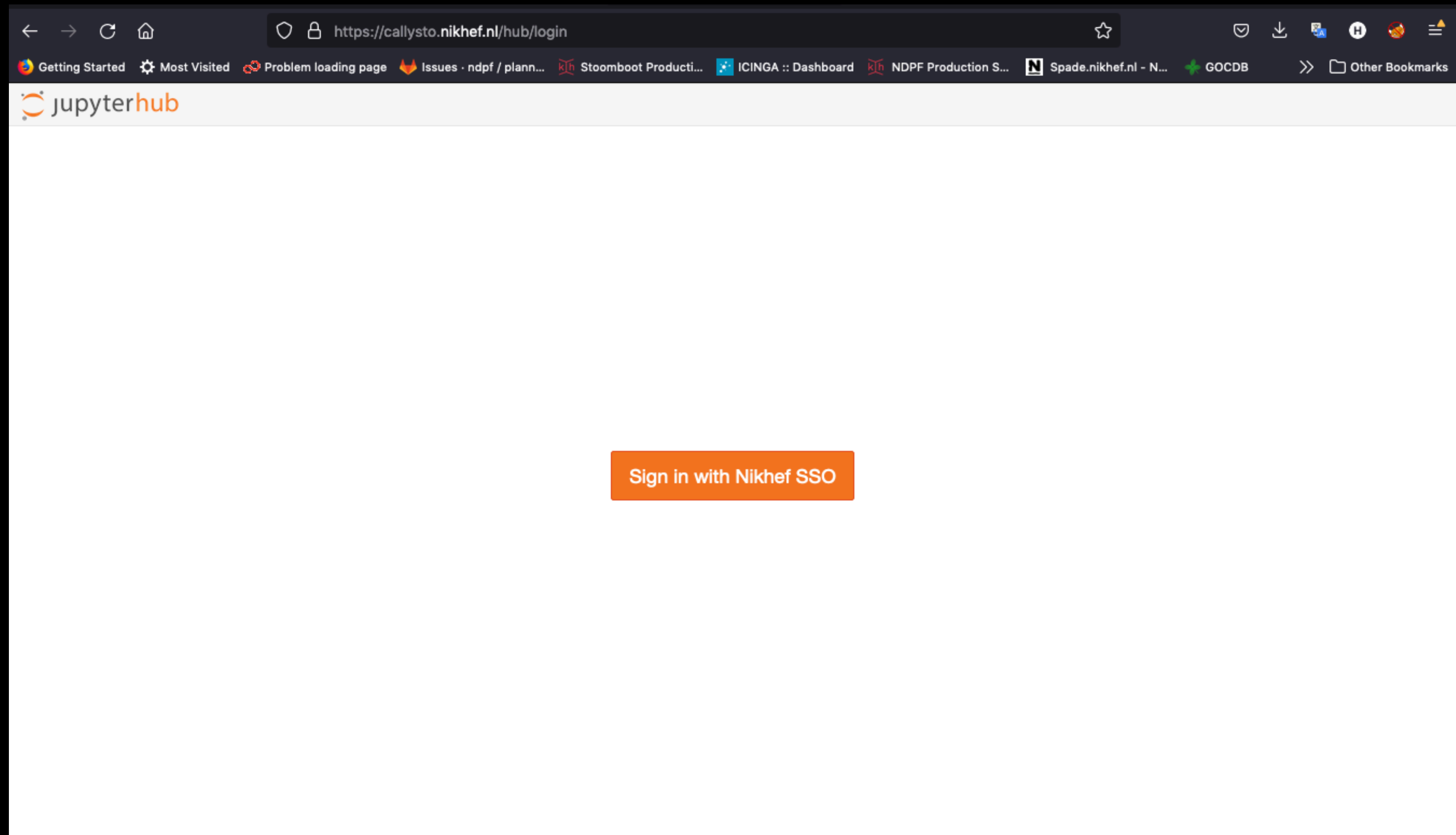
# Why is it there?

- Easier to share work in Nikhef
- No need to install software on your own laptops (running on Nikhef server)
- Load data from /project, /data, /dcache easily for computation in a GUI
- Gives you terminal access to server (note this is an Ubuntu OS!)

# Where is it?

- <https://callysto.nikhef.nl/>
- This is a 64-core AMD server with resources to run multiple user notebooks.

# Logging in



# Navigating the service

The screenshot displays a web-based IDE interface. The browser address bar shows the URL `https://callysto.nikhef.nl/user/maryh/lab/workspaces/auto-r`. The interface includes a menu bar with options: File, Edit, View, Run, Kernel, Tabs, Settings, and Help. On the left, a file explorer sidebar shows a list of files and folders with columns for Name and Last Modified. The main area is titled "Launcher" and contains three sections: "Notebook" with a Python 3 (ipykernel) icon, "Console" with a Python 3 (ipykernel) icon, and "Other" with five icons representing Terminal, Text File, Markdown File, Python File, and Show Contextual Help. The bottom status bar shows "Simple" mode, 0 files, 0 kernels, and a memory usage of 96.39 MB.

Name	Last Modified
Documents	3 days ago
Downloads	3 years ago
Music	3 years ago
nikhef-nl-...	3 days ago
perl5	3 years ago
Pictures	3 years ago
Public	3 years ago
sr655	2 years ago
Templates	3 years ago
update	2 years ago
Videos	3 years ago
errorfile	5 days ago
maryh@co...	2 months ago
outputfile	5 days ago
stuff	5 days ago
tmp.png	3 years ago
Untitled.ip...	3 days ago
walkb4run...	5 days ago
x509up_u...	a year ago
x509up_u...	3 years ago

# Using it with a Conda env

```
source /opt/tljh/user/etc/profile.d/conda.sh
conda create --name python38 python=3.8
conda activate python38**
conda install ipykernel
python -m ipykernel install --user --name python38 --display-name 'Python 3.8'
```

\*\*FROM YOUR NOTEBOOK, YOU CAN CHECK IF THE CONDA ENV IS ACTIVE/READY WITH

```
conda list -n python38
```



# Using it with a Conda env

The screenshot shows a web-based IDE interface. The browser address bar displays `https://callysto.nikhef.nl/user/maryh/lab/workspaces/auto-0`. The interface includes a menu bar with `File`, `Edit`, `View`, `Run`, `Kernel`, `Tabs`, `Settings`, and `Help`. On the left is a file explorer with a search bar and a table of files and folders.

Name	Last Modified
Documents	4 days ago
Downloads	3 years ago
Music	3 years ago
nikhef-nl-...	4 days ago
perl5	3 years ago
Pictures	3 years ago
Public	3 years ago
sr655	2 years ago
Templates	3 years ago
Untitled Fo...	6 minutes ago
update	2 years ago
Videos	3 years ago
errorfile	6 days ago
maryh@co...	2 months ago
outputfile	6 days ago
stuff	6 days ago
tmp.png	3 years ago
Untitled.ip...	4 days ago
Untitled1.i...	6 minutes ago
Untitled2.i...	3 minutes ago
Untitled3.i...	seconds ago
walkb4run...	6 days ago
x509up_u...	a year ago

The right side of the interface features a launcher panel with three sections:

- Notebook**: Contains two Python 3 (ipykernel) options.
- Console**: Contains two Python 3 (ipykernel) options.
- Other**: Contains icons for Terminal, Text File, Markdown File, Python File, and Show Contextual Help.

At the bottom, the status bar shows `Simple`, `1`, `5`, `Mem: 355.04 MB`, and `Saving completed`.

# Another example

```
source /cvmfs/oasis.opensciencegrid.org/ligo/sw/conda/etc/profile.d/conda.sh
conda create --prefix /data/datagrid/hester/PE-test python=3.7
conda activate /data/datagrid/hester/PE-test
conda install ipykernel
python -m ipykernel install --user --name pe-test
```

# Example with JupyterLab

To be continued..

# Additional information at:

- <https://wiki.nikhef.nl/ct/Jupyterlab>
- <https://www.nikhef.nl/pdp/computing-course/software/where-to-get.html#installing-python-packages-inside-the-conda-environment>
- Jupyter Notebooks and Root: [https://root.cern.ch/notebooks/HowTos/HowTo\\_ROOT-Notebooks.html](https://root.cern.ch/notebooks/HowTos/HowTo_ROOT-Notebooks.html)

# Current limitations

- Cannot submit jobs to stoomboot—however, you have access to your home directory + /project, /data, /dcache (TO DO?)
  - Can create symlinks in your home directory as needed.

# Feedback

- New service
  - Something you need that's not available?
  - Anything that looks weird?
  - Please send feedback to [stbc-admin@nikhef.nl](mailto:stbc-admin@nikhef.nl)