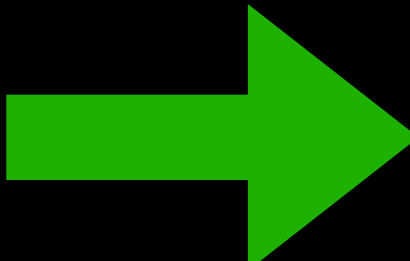


Working interactively @ Nikhef

Computing Course - November 2022

Etiquette

- Shared resources
 - Interactive nodes
 - **NOT** good for intensive processing
 - Testing a script, prepping batch jobs
 - If you need to run a longer running job, please allow your colleagues to continue working:
 `nice -20 <your script or program and its arguments>`
 - Batch/Stoomboot job resources
 - Intensive/resource hungry work
- Problems or questions? Email stbc-admin@nikhef.nl

Top 10 table manners

Before the Meal

1. Place your napkin in your lap.
2. Keep personal items (including smart phones) off the table.



During the Meal

3. Wait until all guests are served and the host begins eating before you begin eating.
4. Understand the table setting - use the "inside-out" rule.
5. Hold your utensils in the Continental or American style.
6. Cutting: fork in left hand, knife in right hand, cut one piece at a time, lay knife across top of plate with blade toward you and move fork to right hand.



7. Always pass the salt and pepper together.
8. If an item is not being passed to a specific person, pass food from left to right.

After the Meal

9. When finished eating, position your silverware to tell the server you are done.
10. Fold your used napkin and place it to the left of your place setting.



www.etiquettescholar.com

Shared resources

- Interactive nodes:
 - CPUs
 - stbc-i1.nikhef.nl & stbc-i2.nikhef.nl
 - Each have 32 cores and 256 GB RAM
 - GPUs



Node name	Node manufacturer	Node type name	GPU manufacturer	GPU type
stbc-g1	Fujitsu	CELCIUS C740	NVIDIA	GeForce GTX 1080
stbc-g2	Fujitsu	CELCIUS C740	NVIDIA	Quadro GV100
wn-lot-001	Lenovo	ThinkSystem SR655	AMD	Radeon Instinct MI50
wn-lot-008	Lenovo	ThinkSystem SR655	NVIDIA	Tesla V100

- More information at: https://wiki.nikhef.nl/ct/Stoomboot_cluster

Directories — which ones should you use?

- Home directory
 - Backed up. Limited quota — 2GB!
 - Use for `.[files]` and small personal files—not research data!
- `/project`
 - Backed up. Use for software, scripts, notebooks, things that aren't easy to recreate.
 - Space is limited — based on group quota
- `/data`
 - **NOT** backed up. For “reproducible” items.
 - Use for small analysis work, modifying data products, etc.
- `/dcache`
 - For large data files! One-time writing files—no editing.
- Temporary storage
 - Need to use scratch space on a server? Use `/${TMPDIR:-/tmp}` in your job. For intermediary products for short time.
- More information at: <https://www.nikhef.nl/pdp/doc/storage-classes>

The SURF logo is a white speech bubble with a tail pointing to the right, containing the word "SURF" in bold black capital letters.

Need to share files/results?
Check out:
SURFfilesender
SURFdrive

Directories — These are automouted!

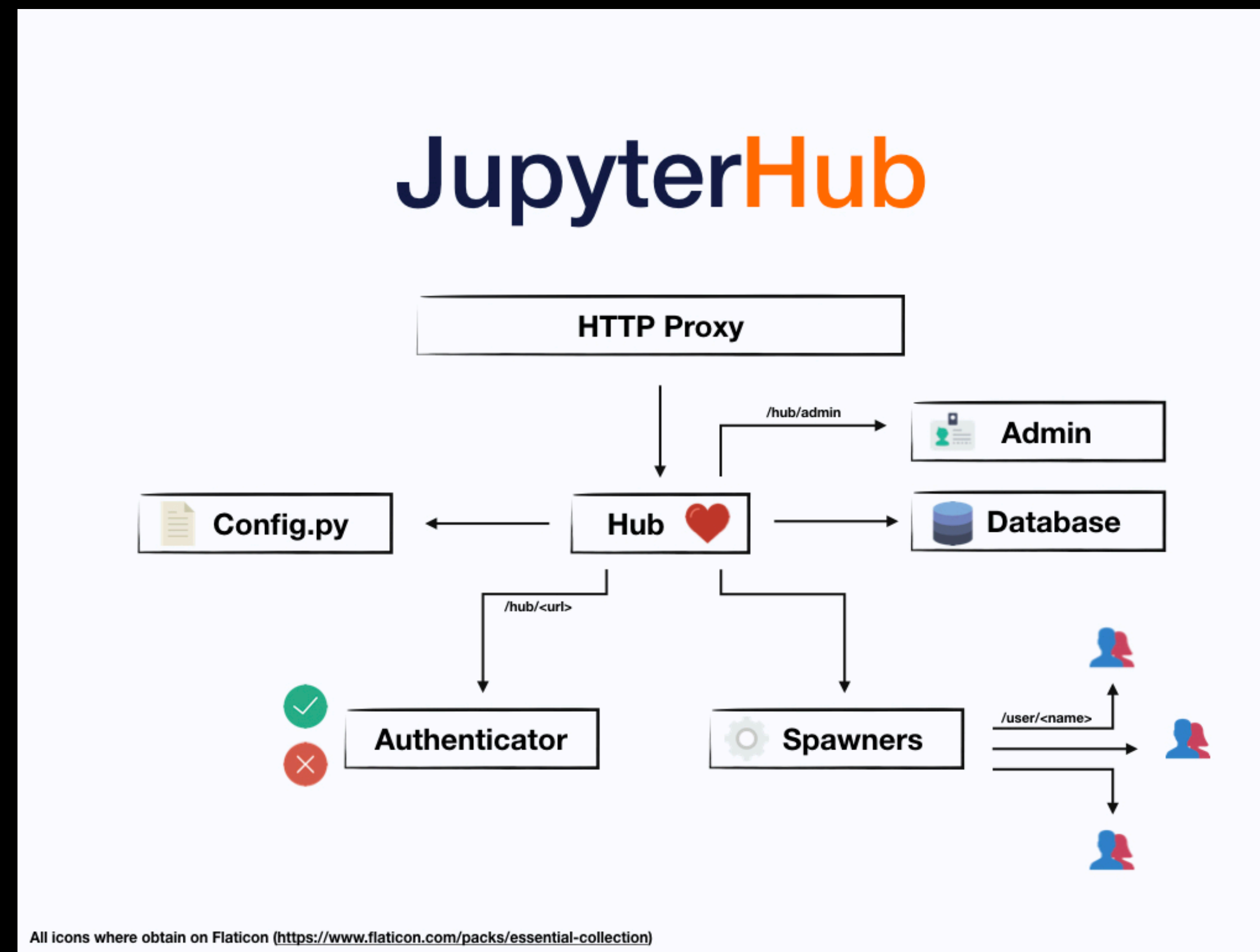
- Directories /project, /data, /dcache are automated
 - Viewable when calling the path:
 - Navigate to your group directory: i.e.,
 - /project/[your group]/[mkdir]
 - /data/[your group]/[mkdir]
 - /dcache/[yourgroup]/[user name] — note! We have to make this directory! (email grid.sysadmin@nikhef.nl if you need a directory)
 - For /data and /project, you can create your own subdirectories within your group

JupyterHub @ Nikhef

Computing Course - November 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)))

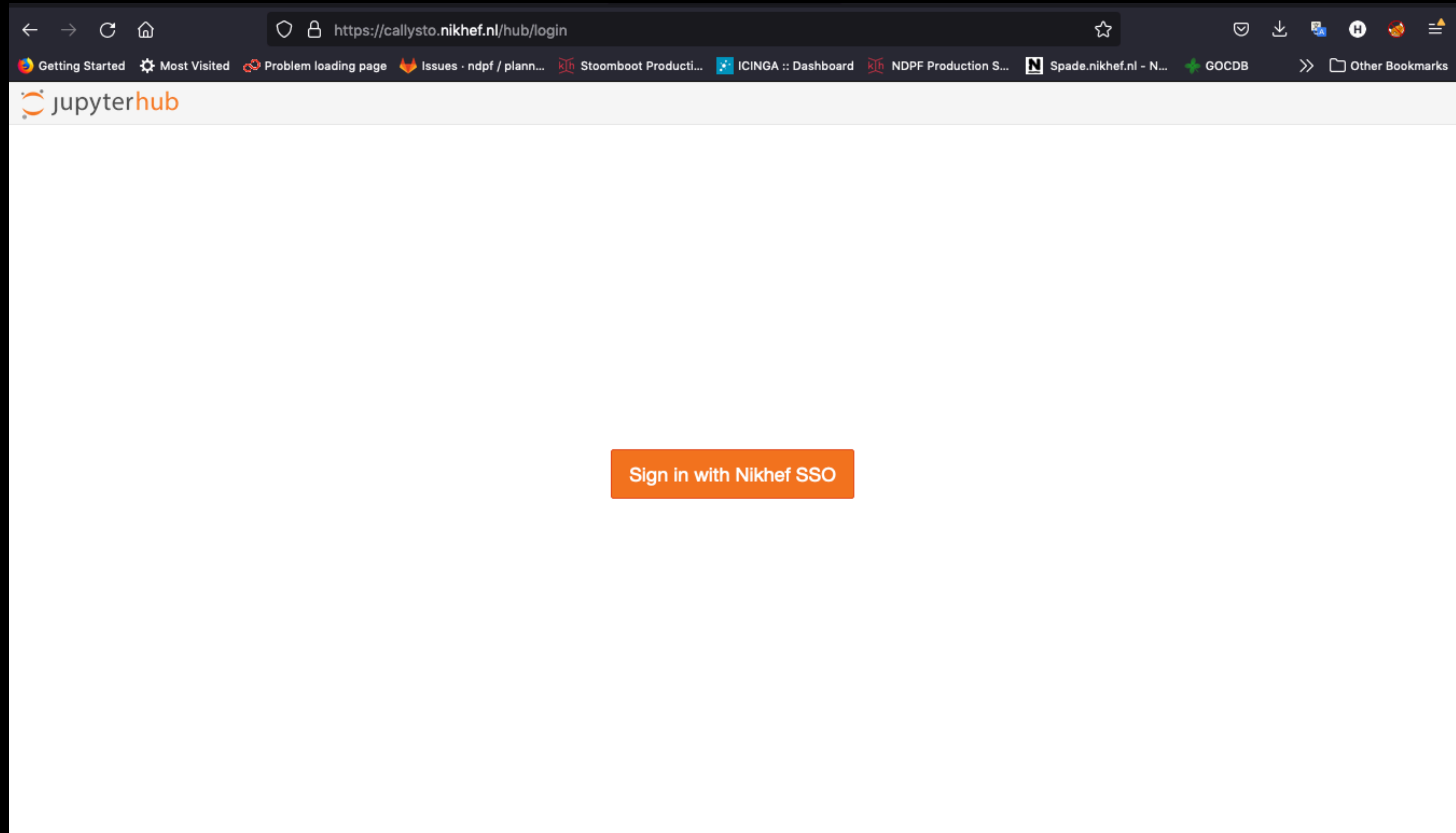
Why is it there?

- 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 browser's bookmark bar includes items like "Getting Started", "Most Visited", "Problem loading page", "Issues - ndpf / plann...", "Stoomboot Producti...", "ICINGA :: Dashboard", "NDPF Production S...", "Spade.nikhef.nl - N...", and "GOCDB".

The IDE interface features a menu bar with "File", "Edit", "View", "Run", "Kernel", "Tabs", "Settings", and "Help". On the left is a file explorer with a search bar labeled "Filter files by name". Below it is a table listing files and folders:

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

The main area is titled "Launcher" and contains three sections:

- Notebook**: A section with a Python 3 (ipykernel) icon.
- Console**: A section with a Python 3 (ipykernel) icon.
- Other**: A section with five icons: Terminal, Text File, Markdown File, Python File, and Show Contextual Help.

At the bottom of the interface, there is a status bar showing "Simple" mode, a memory usage indicator "Mem: 96.39 MB", and the word "Launcher" in the bottom right corner.

Navigating the service

- Create symlink to directories to navigate in GUI
 - In `-s /data/datagrid/hester data-hester`
 - In `-s /project/datagrid/hester project-hester`
 - In `-s [path-to-automounted-dir] [new dir name to appear in home directory]`

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 JUPYTERLAB TERMINAL WINDOW
## CHECK IF THE CONDA ENV IS ACTIVE/READY
conda list -n python38

## OR CHECK THE KERNEL LIST
jupyter kernelspec list
```

Using it with a Conda env - explained

```
## Source a script you want to use (sometimes this is in your experiment's CVMFS repository)
source /opt/tljh/user/etc/profile.d/conda.sh

## Create a conda environment with a name of your choice
conda create --name python38 python=3.8

## Activate the conda environment with a name used above
conda activate python38**

## Install the ipython kernel – this is the python execution backend for JupyterLabs/notebooks
conda install ipykernel

## Run the ipykernel install from the kernel's env pointing to the Jupyter environment.
python -m ipykernel install --user --name python38 --display-name 'Python 3.8'

## FROM YOUR JUPYTERLAB TERMINAL WINDOW
## CHECK IF THE CONDA ENV IS ACTIVE/READY
conda list -n python38

## OR CHECK THE KERNEL LIST
jupyter kernelspec list
```

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 (File, Edit, View, Run, Kernel, Tabs, Settings, Help) and a file explorer on the left. The file explorer shows a list of files and folders, with 'Untitled3.i...' selected. The main area is a 'Launcher' panel with three sections: 'Notebook', 'Console', and 'Other'. Each section contains two Python 3 kernel options: 'Python 3 (ipykernel)' and 'python38'. The 'Other' section includes icons for Terminal, Text File, Markdown File, Python File, and Show Contextual Help. The bottom status bar shows 'Simple', '1', '5', 'Mem: 355.04 MB', and 'Saving completed'.

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

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
```

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

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