

Jupyter4NFDI - One Hub to Rule Them All

Like the Eye of Sauron, but helpful - one interface to access research resources

01.07.2025 | TIM KREUZER

CHAPTER 1

The Myth of Easy Collaboration

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The Myth of Easy Collaboration



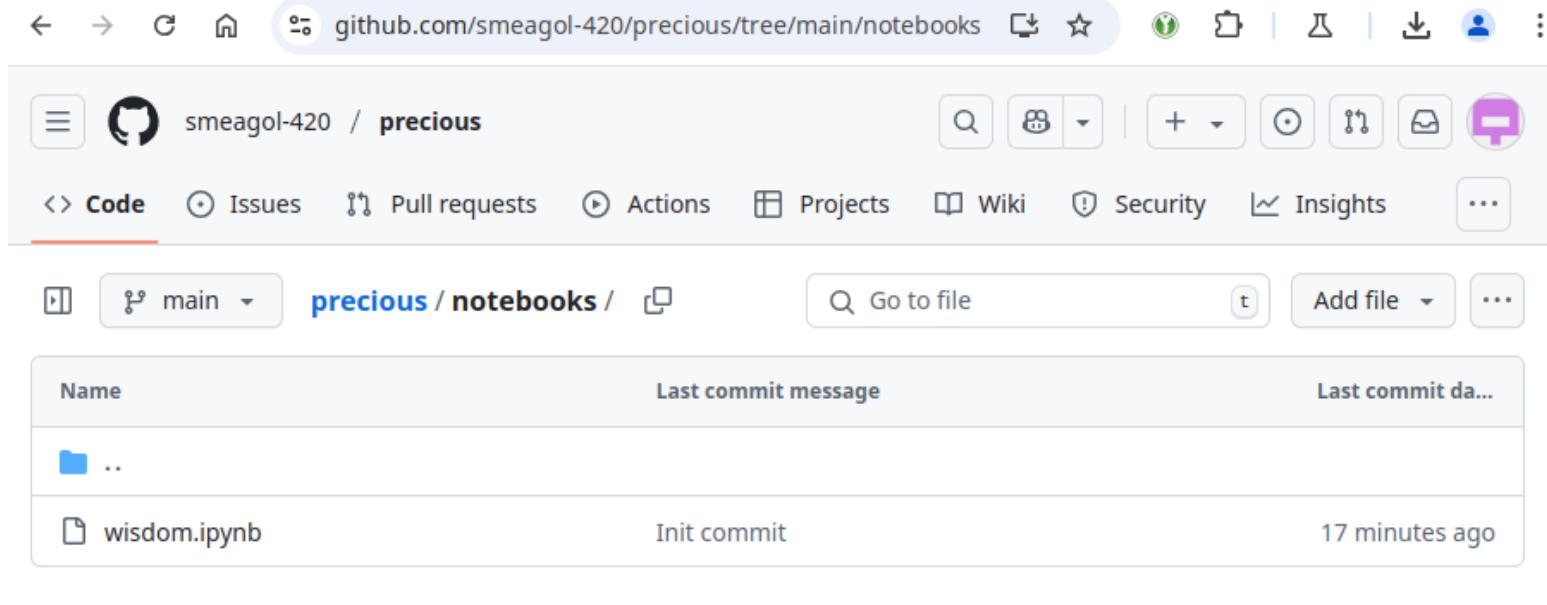
CHAPTER 1

The Myth of Easy Collaboration



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The Myth of Easy Collaboration

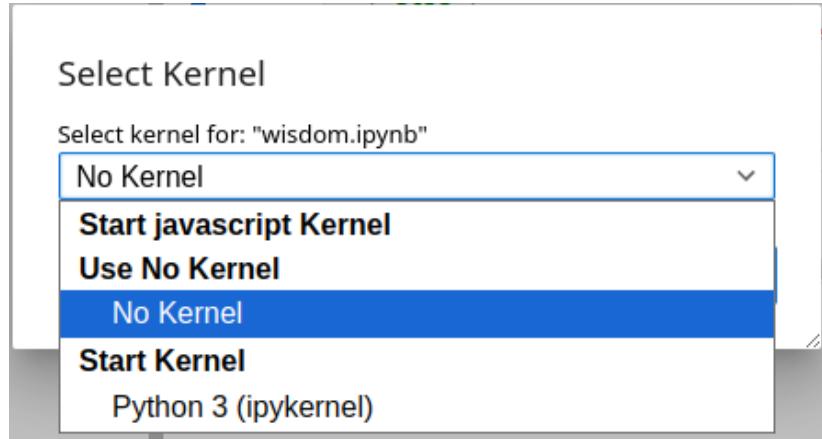


CHAPTER 2

The First Hurdle

CHAPTER 2

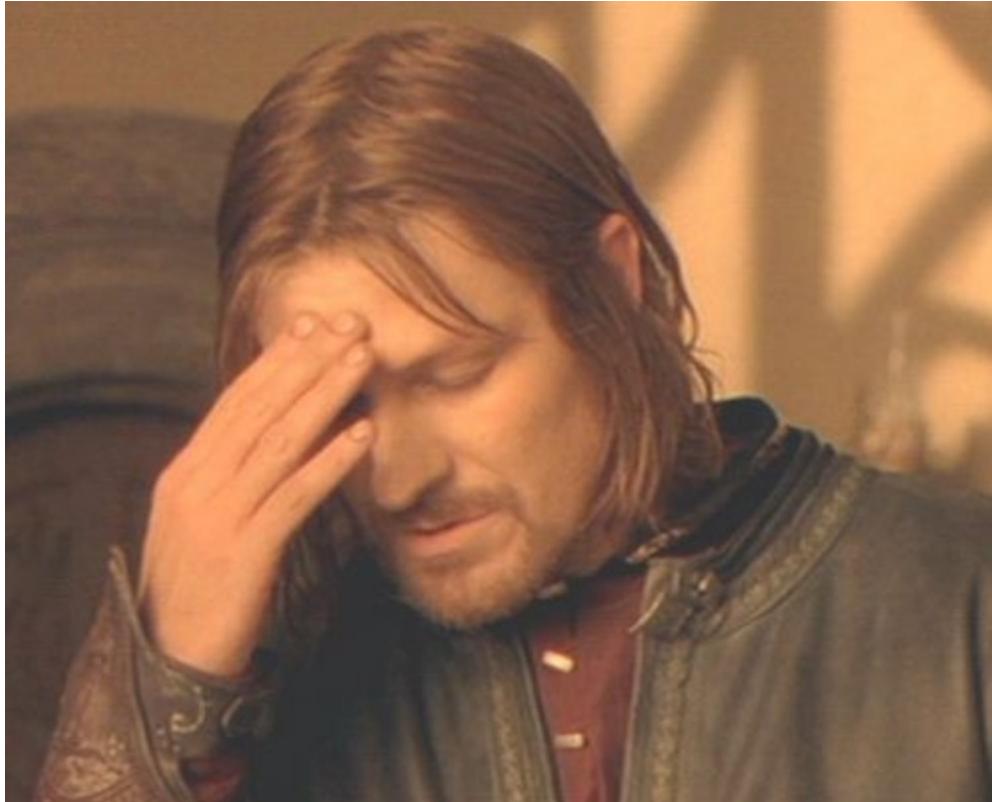
The First Hurdle



```
Cell In[1], line 1
  let fs = require('fs');
^
SyntaxError: invalid syntax
```

CHAPTER 2

The First Hurdle



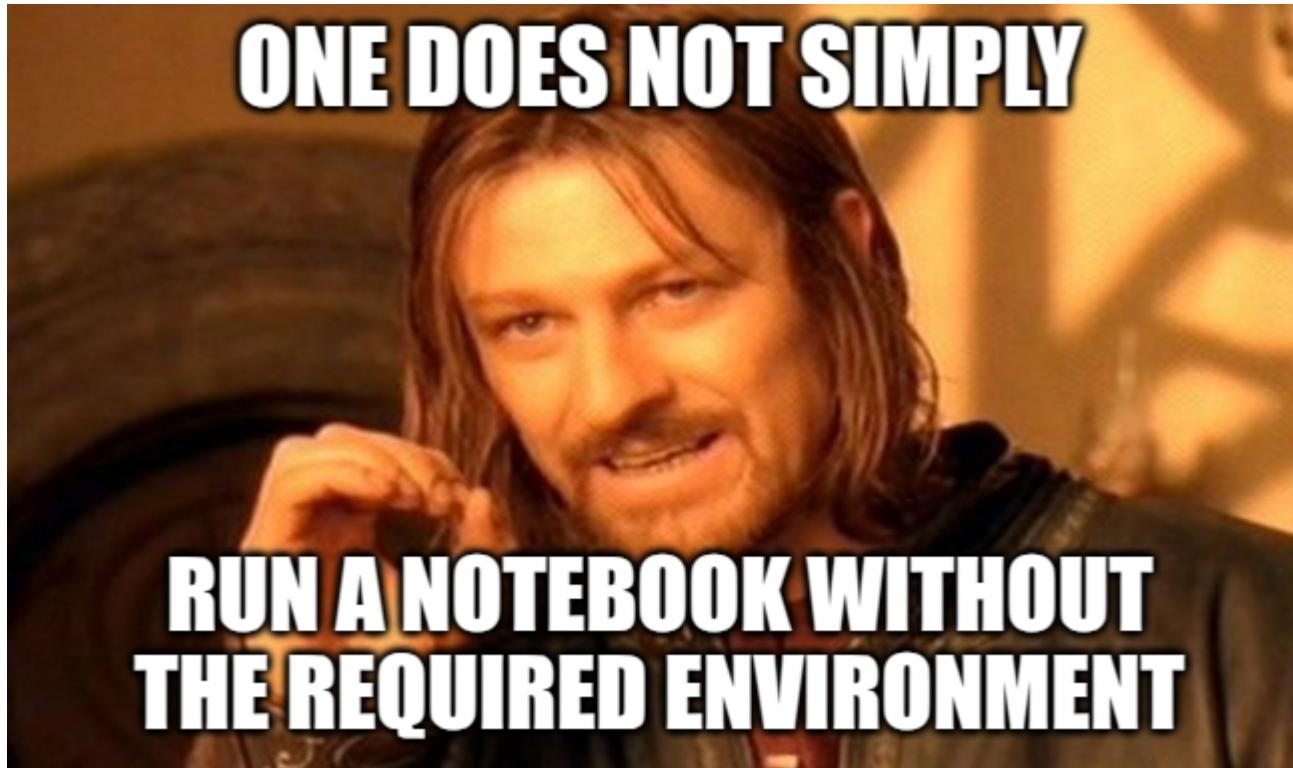
CHAPTER 2

The First Hurdle



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Making kernels for Jupyter

A 'kernel' is a program that runs and introspects the user's code. IPython includes a kernel for Python code, and people have written kernels for [several other languages](#).

```
apt-get update && apt-get install -y \
curl \
build-essential \
&& curl -fsSL https://deb.nodesource.com/setup_18.x | bash - \
&& apt-get install -y nodejs \
&& apt-get clean \
&& rm -rf /var/lib/apt/lists/*

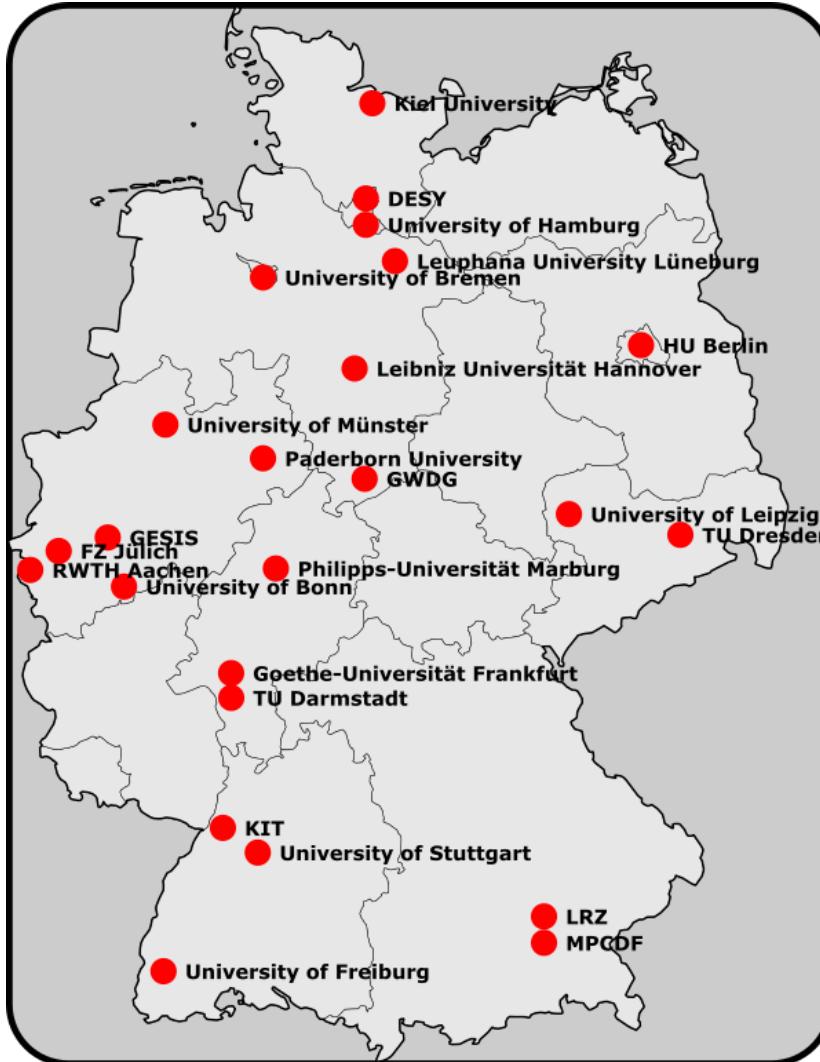
# Install ijavascript globally
npm install -g ijavascript && ijsinstall --install=global
```

CHAPTER 3

The Vault

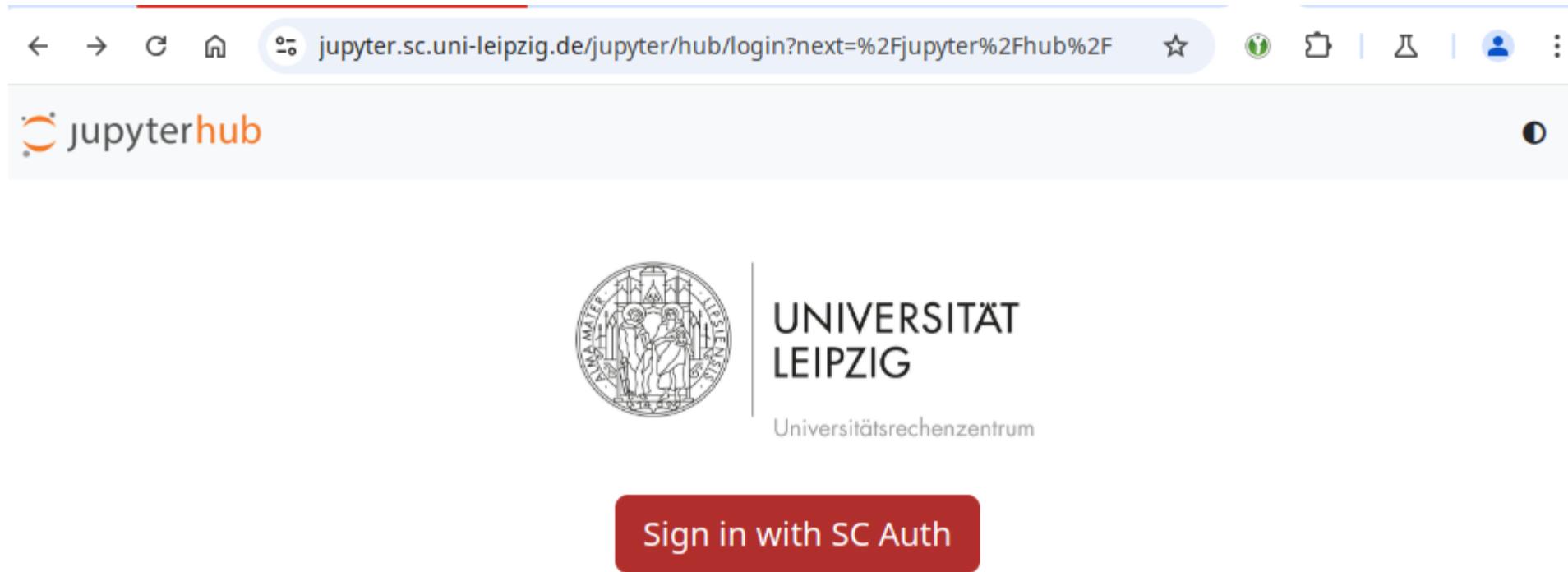
CHAPTER 3

The Vault



CHAPTER 3

The Vault



CHAPTER 3

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The Vault



CHAPTER 3

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CHAPTER 3

The Vault



CHAPTER 4

The Temptation of Binder

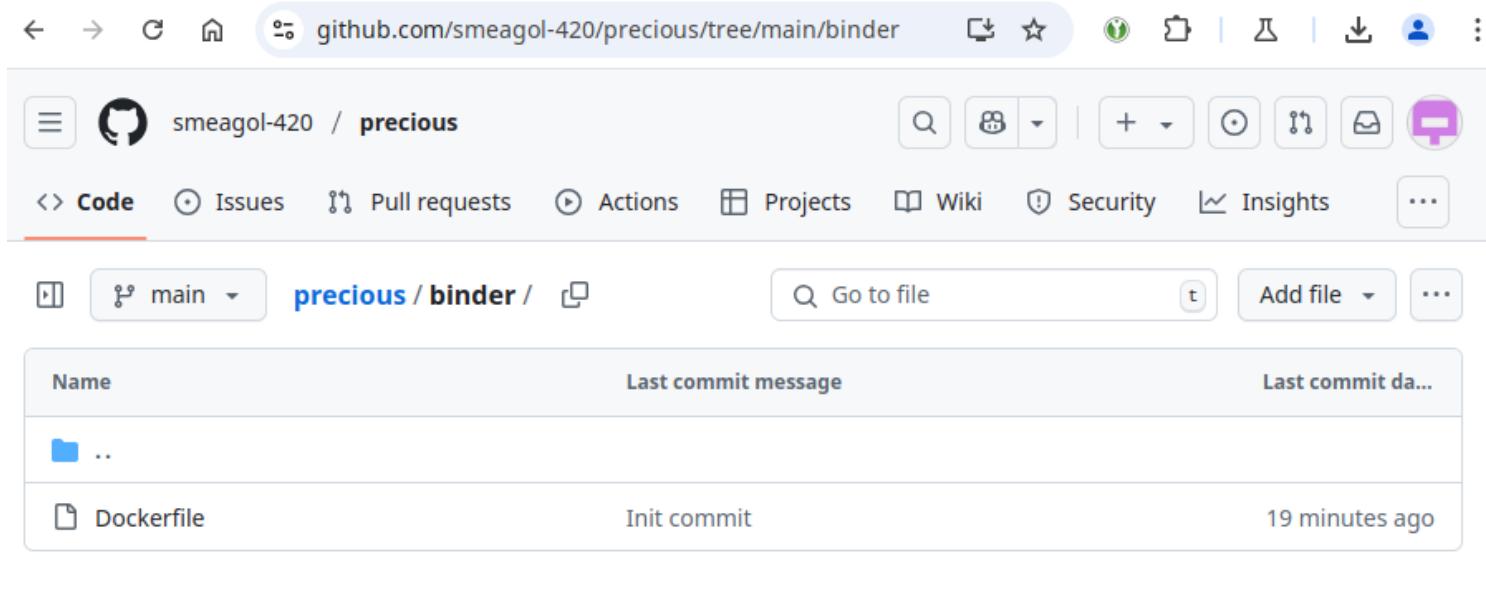
CHAPTER 4

The Temptation of Binder



CHAPTER 4

The Temptation of Binder



A screenshot of a GitHub repository page for the user 'smeagol-420' named 'precious'. The 'Code' tab is selected. Below it, a 'main' branch dropdown shows 'precious / binder /'. A search bar contains 'Go to file'. The main content area displays a table of files:

Name	Last commit message	Last commit da...
..		
Dockerfile	Init commit	19 minutes ago

<https://mybinder.org/v2/gh/smeagol-420/precious/HEAD>

CHAPTER 4

The Temptation of Binder



CHAPTER 5

The Gates of Jupyter4NFDI

CHAPTER 5

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CHAPTER 5

The Gates of Jupyter4NFDI

Lab Config

Name: My Precious

Select Version: Repo2docker (Binder)

Storage

Logs

Systems: deNBI-Cloud

Direct Link for this configuration: <https://hub.nfdi-jupyter.de/v2/gh/smeagol-420/precious/HEAD?labpath=notebooks%2Fwisdo>

Repository Type: GitHub

GitHub repository name or URL: smeagol-420/precious

Git ref (branch, tag, or commit): HEAD

Open notebook or path (optional): notebooks/wisdom.ipynb

Notebook Type: File

Mount user data: /home/jovyan/work

Flavor: 2GB RAM, 1VCPU, 2 hours

Share | Save | Reset | Delete

CHAPTER 5

The Gates of Jupyter4NFDI

The screenshot shows a user interface for managing storage mounts. On the left, a sidebar has buttons for 'Lab Config', 'Storage' (which is selected), and 'Logs'. The main area has a header 'Add Storage Mount' with a '+' button. Below is a table with columns 'Template' and 'Action' (containing delete icons). Three rows are listed: 'B2Drop', 'Webdav', and 'AWS'. The 'AWS' row is expanded, showing detailed configuration fields: 'Template' (set to 'AWS'), 'Relative Mount Path' (set to 'aws'), 'Read Only' (checkbox checked), 'Bucket Name' (set to 'myawsbucket4545/subdir'), 'Region' (set to 'EU (Stockholm) (eu-north-1)'), 'Username' (set to 'AKIA6G75D3GPNTBN2VXV'), and 'Password' (redacted). At the bottom, there's a summary row for 'S3 Compliant Storage Provider' with a delete icon.

Template	Action
B2Drop	
Webdav	
AWS	

Template: AWS
Relative Mount Path: aws
Read Only:
Bucket Name: myawsbucket4545/subdir
Region: EU (Stockholm) (eu-north-1)
Username: AKIA6G75D3GPNTBN2VXV
Password:

S3 Compliant Storage Provider

CHAPTER 6

The Link of Power

CHAPTER 6

The Link of Power



CHAPTER 6

The Link of Power

Lab Config

Name: My Precious

Select Version: Repo2docker (Binder)

Storage

Logs

Systems: deNBI-Cloud

Direct Link for this configuration: <https://hub.nfdi-jupyter.de/v2/gh/smeagol-420/precious/HEAD?labpath=notebooks%2Fwisdo>

Repository Type: GitHub

GitHub repository name or URL: smeagol-420/precious

Git ref (branch, tag, or commit): HEAD

Open notebook or path (optional): notebooks/wisdom.ipynb

Notebook Type: File

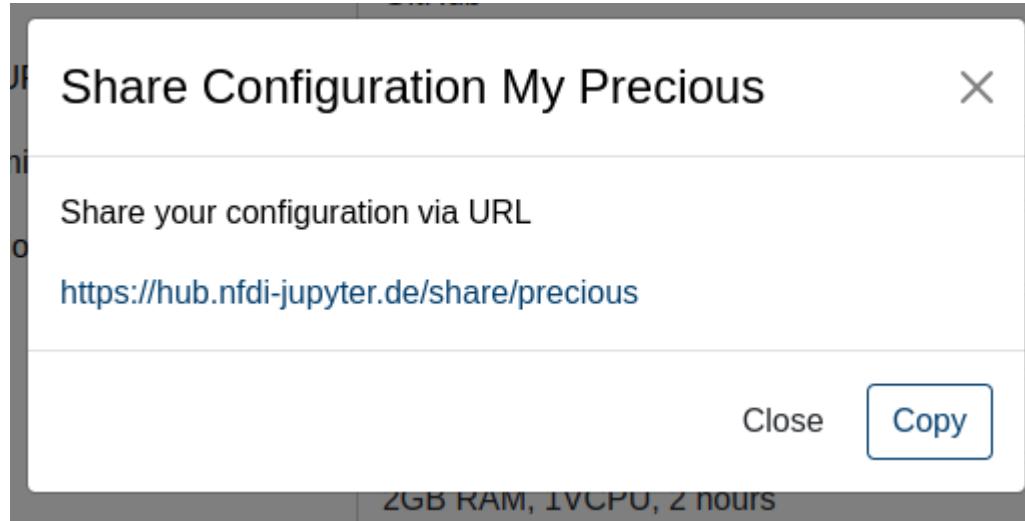
Mount user data: /home/jovyan/work

Flavor: 2GB RAM, 1VCPU, 2 hours

Share | Save | Reset | Delete

CHAPTER 6

The Link of Power



CHAPTER 6

The Link of Power

https://hub.nfdi-jupyter.de/share/precious

Name	Configuration	Status	Action
+ My Precious	System deNBI-Cloud Shared jupyterlab Shared configuration (precious).		

Lab Config

Storage

Logs

Add Storage Mount

Template	Action
B2Drop	
Webdav	
AWS	

Template: AWS

Relative Mount Path: aws

Read Only:

Bucket Name: myawsbucket4545/subdir

Region: EU (Stockholm) (eu-north-1)

Username: AKIA6G75D3GPNTBN2VXV

Password: hiddenSecret

S3 Compliant Storage Provider

CHAPTER 6

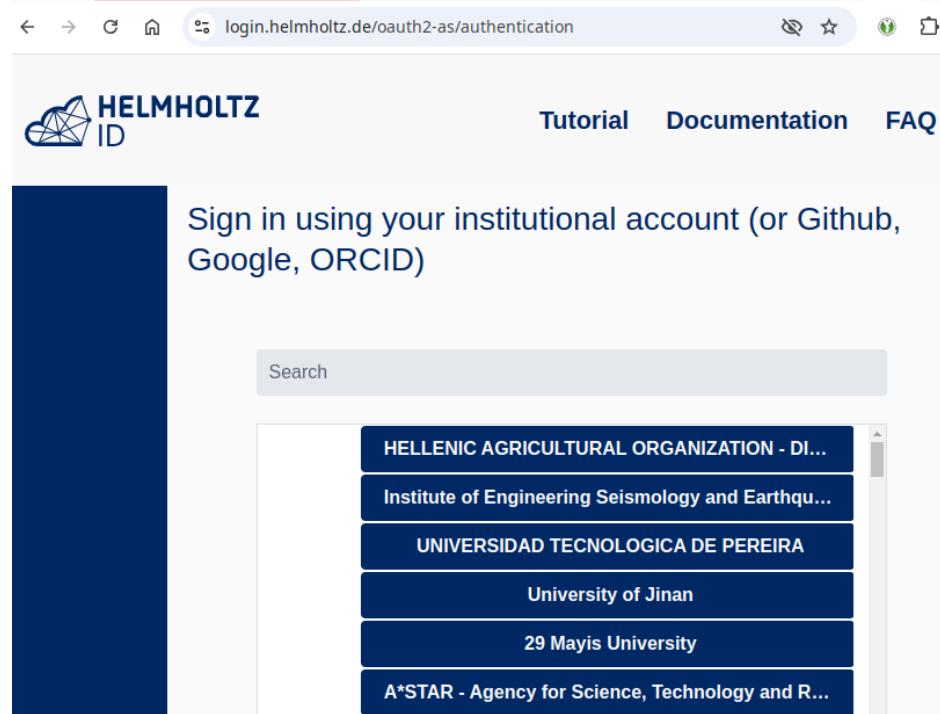
The Link of Power



All right, then. Keep your secrets.

CHAPTER 6

The Link of Power



A screenshot of a web browser showing the login page for HELMHOLTZ ID. The URL in the address bar is "login.helmholtz.de/oauth2-as/authentication". The page features the HELMHOLTZ ID logo (a blue cloud-like icon) and navigation links for "Tutorial", "Documentation", and "FAQ". A main heading says "Sign in using your institutional account (or Github, Google, ORCID)". Below it is a search bar and a list of institutional partners:

- HELLENIC AGRICULTURAL ORGANIZATION - DI...
- Institute of Engineering Seismology and Earthqu...
- UNIVERSIDAD TECNOLOGICA DE PEREIRA
- University of Jinan
- 29 Mayis University
- A*STAR - Agency for Science, Technology and R...

CHAPTER 6

The Link of Power



CHAPTER 6

The Link of Power



EPILOGUE

The End of the Old Ways

EPILOGUE

The End of the Old Ways

- Repo2Docker Features
 - Set up environment from Git Repo
- Helmholtz ID
 - Access for everyone
- Share Link
 - One Click solution to relive your precious work
- Bringing together resources from across Germany
- Interactive Demo:
<https://hub.nfdi-jupyter.de/share/textplus>
- HPC Access? Use <https://jupyter.jsc.fz-juelich.de>

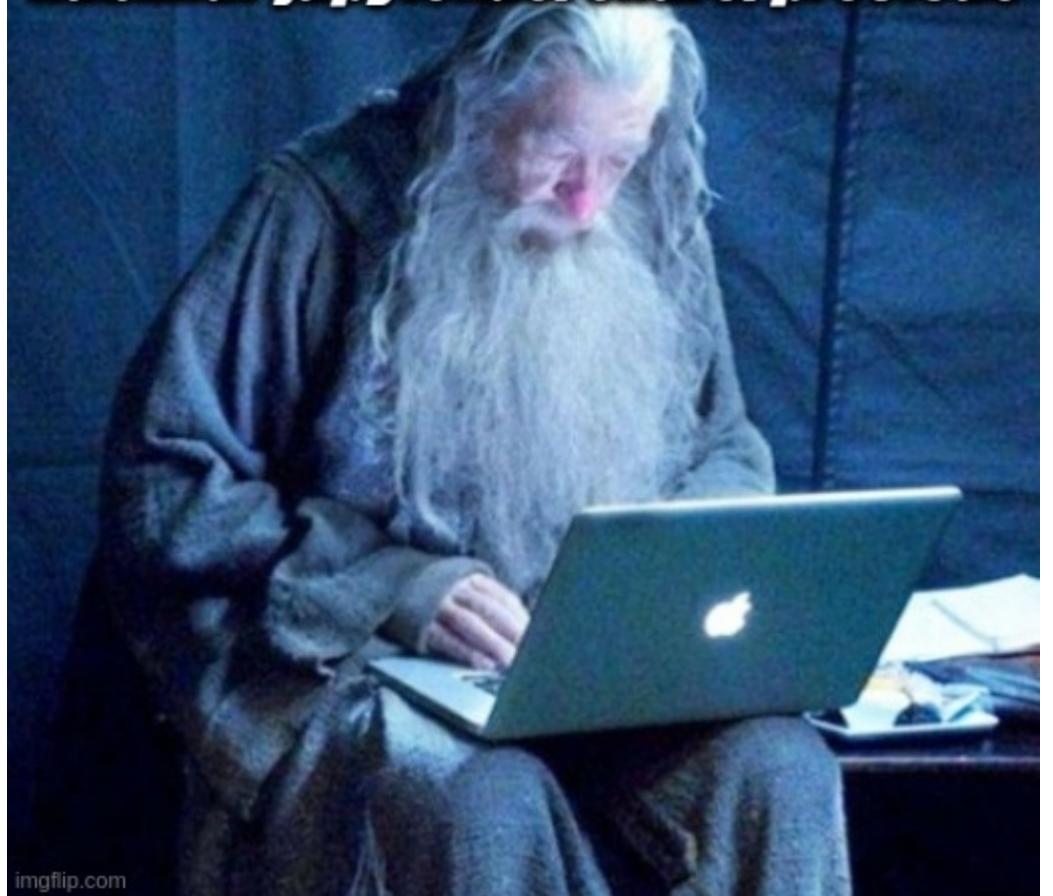


EPILOGUE

The End of the Old Ways

- Interactive Demo:
<https://hub.nfdi-jupyter.de/share/textplus>
- HPC Access? Use <https://jupyter.jsc.fz-juelich.de>

hub.nfdi-jupyter.de/share/precious



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