# Guidelines for Setting Up the Working Environment

# Introduction

In this training, we will use a Jupyter-based environment. To ensure participants can continue accessing and working with the platform beyond the course, we will be using the WEkEO Workspace. The first step is to create a WEkEO account. Next we will be setting up the working environment, by cloning code repositories and creating the necessary virtual environments.

# WEKEO Workspace

WEKEO is one of the five Copernicus DIAS (Data and Information Access Services) – a cloud-based platform launched by the European Commission in 2018.

WEkEO offers for all users, the JupyterHub, a development multi-users platform designed to create, run and share Python codes and scripts for data analysis, in virtual Jupyter environments.

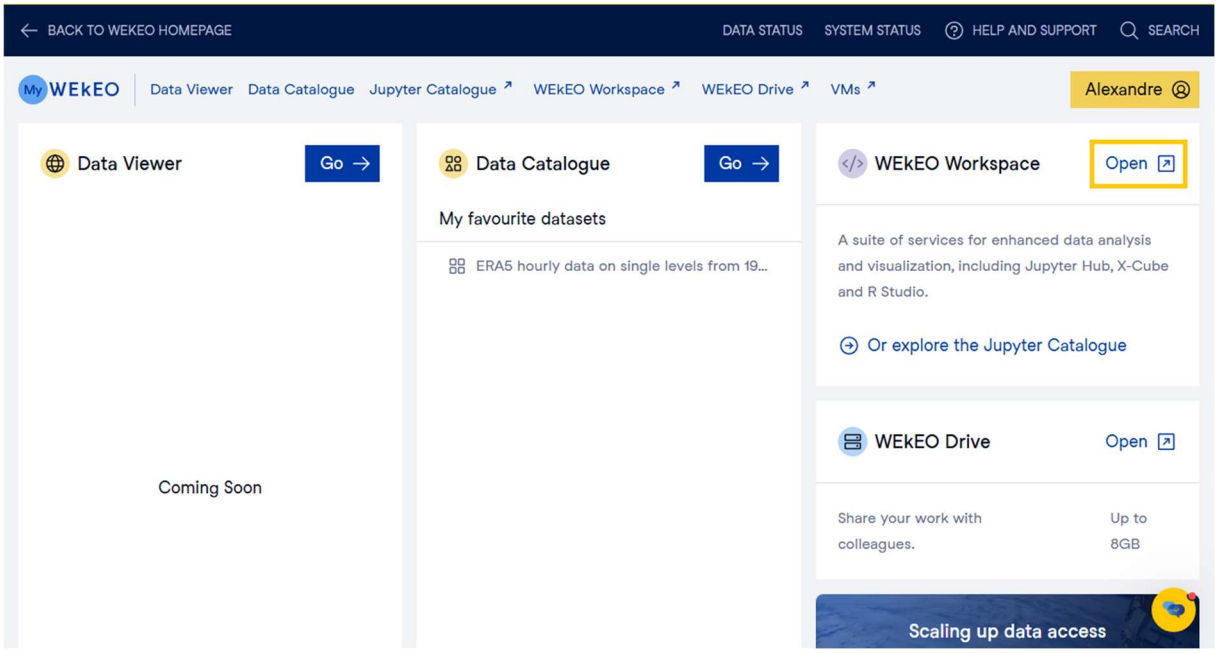
**Note: in WEkEO each user has 3.5 CPU, 14 GB RAM and 20 GB storage.**

## Creating a WEkEO Account

- Register here: https://wekeo.copernicus.eu/register

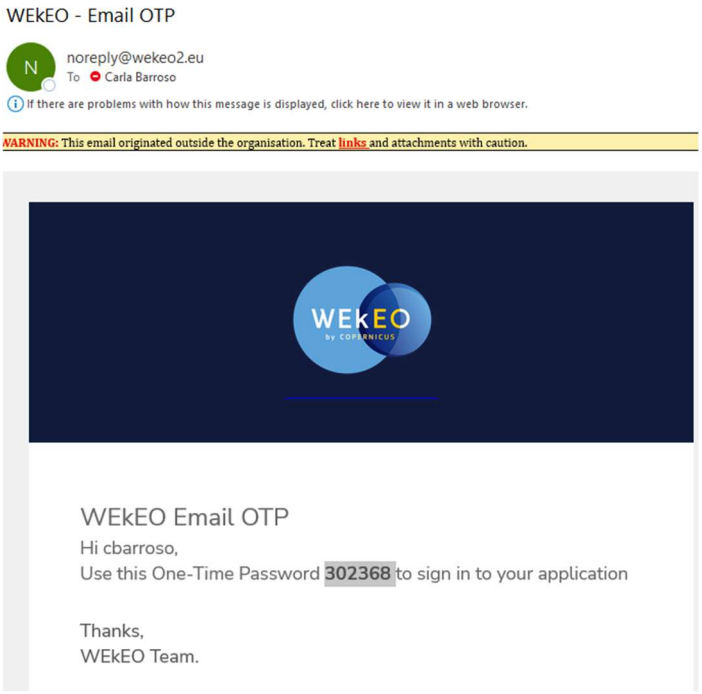
## Accessing the WEkEO JupyterHub

- Sign in to your WEkEO account (https://wekeo.copernicus.eu/my-wekeo)
- From MyWEkEO, **click on Open** next to *WEKEO Workspace*:

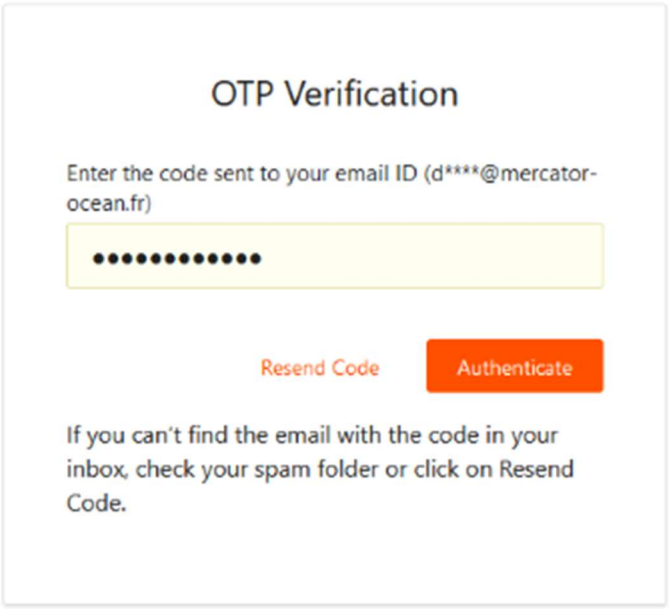



Please note: You may be prompted to enter a second authentication:

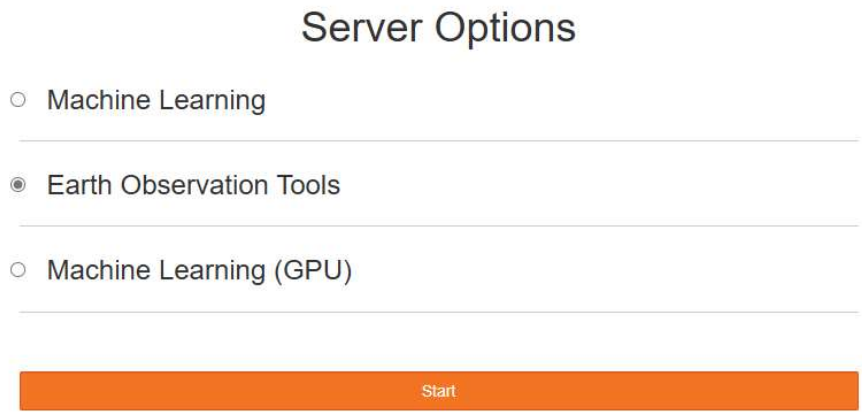
You will receive the authentication code by email. Be sure to check your inbox — it might take a couple of minutes to arrive. The email will look similar to the example shown below:



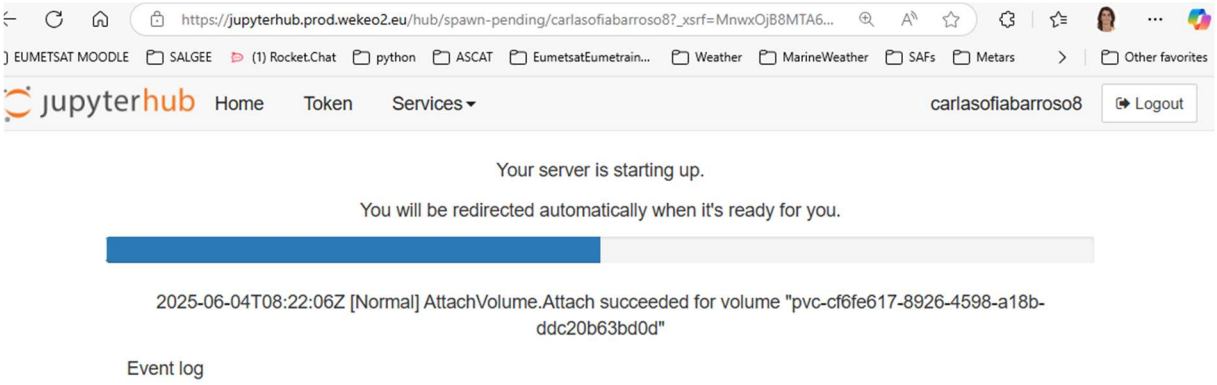

- Enter the one-time password (OTP) manually to complete the sign-in process. Copying and pasting the code may not work properly, so it is recommend typing it in directly.




- On the following window that opens select **Earth Observation Tools**:

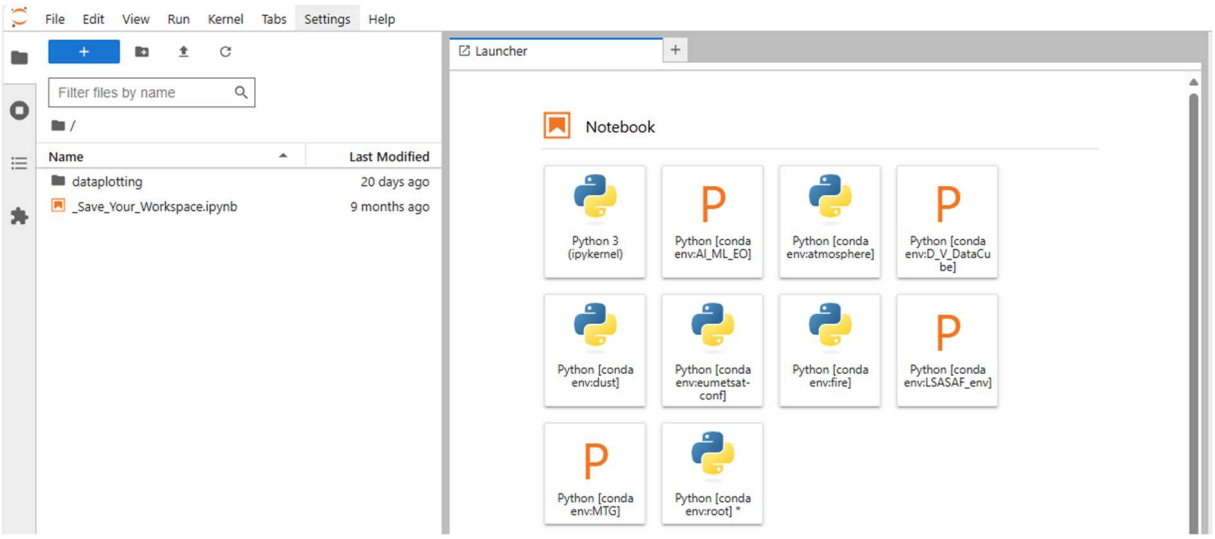



Please note that it may take a few minutes for the server to start. You will be seeing a loading screen like:




(You can find more information on [What is the WEkEO JupyterHub? | WEkEO Help Center])

Once loaded, you should be able to access and view the JupyterLab environment successfully. It should resemble the interface shown below, which includes, a file browser on the left displaying available directories and files.


File
Edit
View
Run
Kernel
Tabs
Settings
Help
Filter files by name
/
Name
Last Modified
dataplotting
20 days ago
_Save_Your_Workspace.ipynb
9 months ago
Launcher
Notebook
Python 3 (ipykernel)
Python [conda env:AI_ML_EO]
Python [conda env:atmosphere]
Python [conda env:D_V_DataCube]
Python [conda env:dust]
Python [conda env:eumetsat-conf]
Python [conda env:fire]
Python [conda env:LSASAF_env]
Python [conda env:MTG]
Python [conda env:root] *

# Setting up the working environments

For setting up the working environments we will be first downloading code packages from git repositories. We will be doing this for three code packages: Eumdac_data_store, dataplotting and imagery.

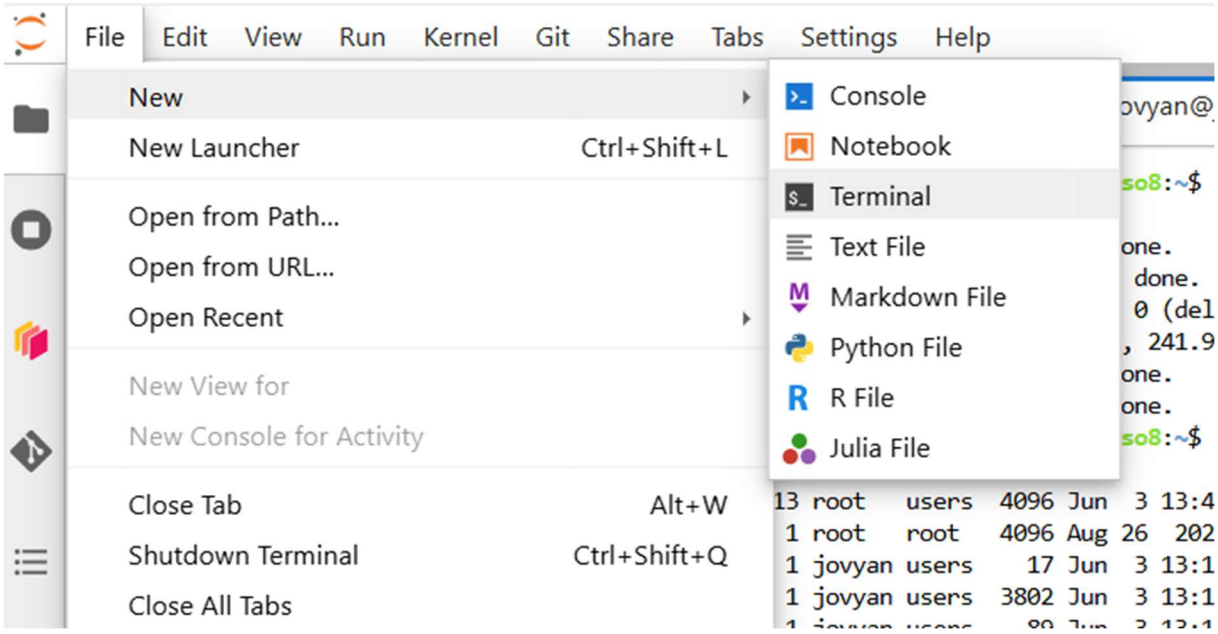
## Logging in into your WEKEO user account

First, log in into your WEKEO user account: https://wekeo.copernicus.eu/my-wekeo or **https://jupyterhub.prod.wekeo2.eu/hub/spawn**

## Eumdac_data_store

### Cloning Eumdac_data_store repository to the working environment

Open a terminal window, going to File->New->Terminal, like in the following image:




In the teminal window be sure you are positioned in your home directory:

```
cd $HOME
```

Copy paste the following line to the terminal window and click enter:

```
git clone --recurse-submodules https://gitlab.eumetsat.int/eumetlab/data-services/eumdac_data_store.git
```

You should get an output like:

```
Cloning into 'eumdac_data_store'...
remote: Enumerating objects: 525, done.
remote: Counting objects: 100% (316/316), done.
remote: Compressing objects: 100% (198/198), done.
remote: Total 525 (delta 174), reused 192 (delta 109), pack-reused 209 (from 1)
Receiving objects: 100% (525/525), 736.01 MiB | 21.66 MiB/s, done.
Resolving deltas: 100% (286/286), done.
```

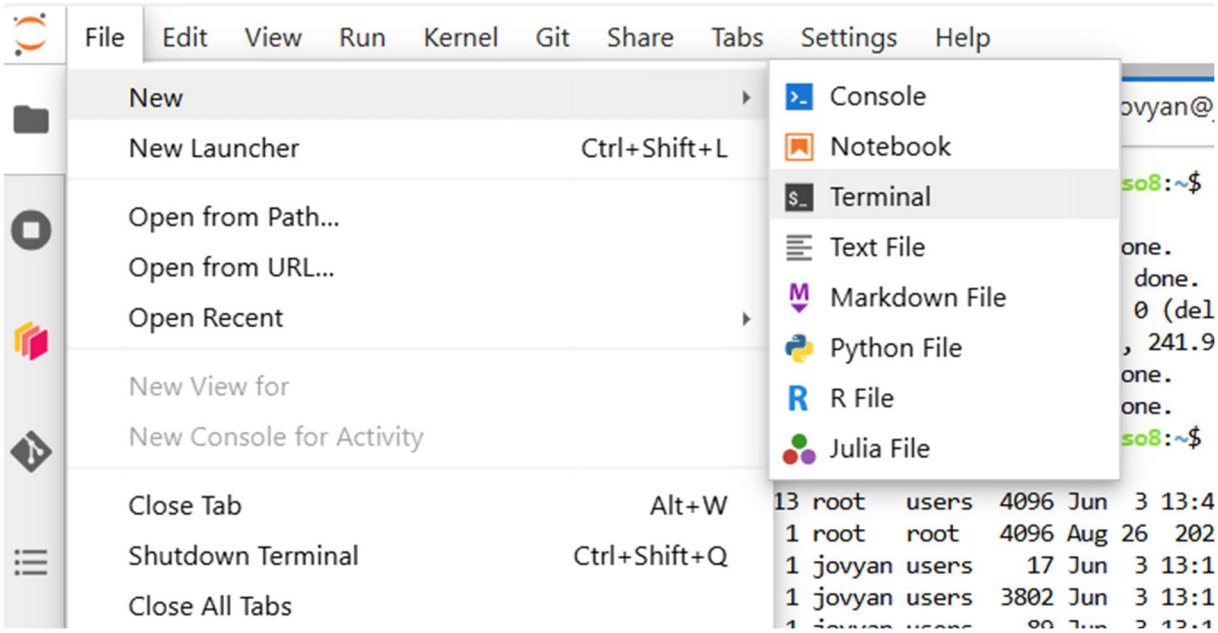
### Creating the virtual environment

```
cd $HOME/eumdac_data_store/
conda env create -f environment.yml
conda activate eumdac_data_store
python -m ipykernel install --user --name eumdac_data_store
```

## NWP and Metar

### Cloning dataplotting repository to the working environment

Open a terminal window, going to File->New->Terminal, like in the following image:




Next clone the repository that contains scripts to display NWP and Metar data, by typing, in the $HOME directory:

```
git clone https://github.com/carlabarrosoc/dataplotting.git
```

You should get an output like:

```
Cloning into 'dataplotting'...
remote: Enumerating objects: 24129, done.
remote: Counting objects: 100% (1/1), done.
remote: Total 24129 (delta 0), reused 0 (delta 0), pack-reused 24128 (from 2)
Receiving objects: 100% (24129/24129), 241.91 MiB | 35.12 MiB/s, done.
Resolving deltas: 100% (2483/2483), done.
Updating files: 100% (24469/24469), done.
```

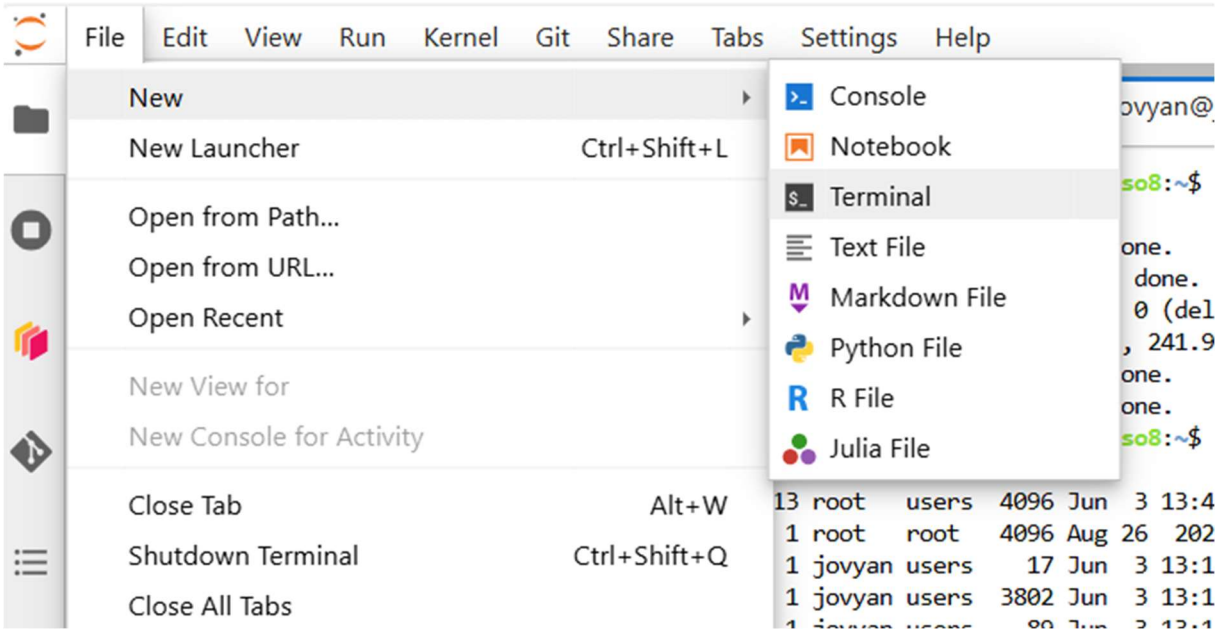
## Creating the virtual environment

```
cd $HOME/dataplotting/

conda env create -f environment.yml
```

## Satellite Imagery

Open a terminal window, going to File->New->Terminal, like in the following image:




## Cloning imagery repository to the working environment

Now let's clone the repository that contains scripts to display satellite imagery. Please copy &paste the following commands to the terminal:

```
cd $HOME
```

And then clone the repository:

```
git clone https://github.com/carlabarrosoc/imagery.git
```

You should get an output like:

```
Cloning into 'imagery'...
remote: Enumerating objects: 29, done.
remote: Counting objects: 100% (29/29), done.
remote: Compressing objects: 100% (22/22), done.
remote: Total 29 (delta 5), reused 29 (delta 5), pack-reused 0 (from 0)
Receiving objects: 100% (29/29), 40.80 KiB | 1.20 MiB/s, done.
Resolving deltas: 100% (5/5), done.
```

## Creating the virtual environment

```
cd $HOME/imagery/

conda env create -f environment.yml
```

After all these steps, you should see three folders in your file tree:

- eumdac_data_store/
- dataplotting/
- imagery/