Jupyter quickstart guide

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1 Introduction

The Jupyter Notebook interface is a Web-based application for authoring documents that combine live-code with narrative text, equations and visualizations. Several programming languages are supported such as python, julia, R and C++. Learn more about the Jupyter Project here: `https://jupyter.org/`

For an overview on the Jupyter Notebook: link

1.1 Try in Your Browser

No Installation Needed: `https://try.jupyter.org` Jupyter will run on a temporary server accessed through the browser. Data will be lost after closing the browser.

In order to "actually" use Jupyter you need to set it up.

2 Setting up Jupyter

Jupyter notebooks can run on a local machine or on a remote server. In both cases notebooks can be viewed and edited in a browser on the local machine (or in an IDE).

2.1 Local

Running Jupyter on your local machine requires python (python 3 recommended).

In order to install python there are mainly two ways:

- Anaconda (recommended)
- pip

Once python is locally available, you can install Jupyter. There are two Jupyter user interfaces.

2.1.1 Jupyter Notebook (classical interface)

Provide users access to notebooks through a web browser.

More information.

2.1.2 JupyterLab

JupyterLab is a newer user interface for Project Jupyter. It offers the building blocks of the classic Jupyter Notebook (notebook, terminal, text editor, file browser, rich outputs, etc.) in a flexible user interface.

Installation instructions

2.2 Remote

The main resource for running Jupyter remotely is JupyterHub. No installation of python and Jupyter is required on the local machine. Jupyter notebooks will run on a remote server and accessing them through a browser on your local machine.

2.2.1 JupyterHub @ UGA

GRICAD (Grenoble Alpe Research - Scientific Computing and Data Infrastructure) offers to users with a UGA account (Grenoble-INP included) access to a JupyterHub server. Data (notebooks, data files etc) loaded on the user home on the server are persistent.

More information.

Accès à la plate-forme : `https://jupyterhub.u-ga.fr`

L'accès est ouvert à toute personne ayant un compte Université Grenoble Alpes.

Les données utilisateurs (notebook, autres fichiers de données chargés sur le serveur) sont persistantes.

2.2.2 Google Colab

Google Colaboratory, or "Colab" for short, allows you to write and execute Python in your browser. Google Colab requires a Google account. Data and code will be stored on a Google Drive.

3 Running a Jupyter notebook

3.1 Local

Running Jupyter on the local machine can be done from the command line. See instructions.

3.2 Remote

In order to run Jupyter remotely (e.g., on JupyterHub or Google Colab) data and code have to be

- uploaded to the server (e.g., when data are on your local machine) or
- downloaded from the web to the server (e.g., code from a github repository or a publicly available dataset on the web).

Once the required files are available on the remote server you can start a kernel for executing notebooks that will be accessible from your browser.

3.3 Notebook interface

A notebook will be composed of cells containing either

- text (in Markdown format)
- code and results (output of computations, figures, plots...)

For more information:

- The notebook interface.
- Running code.
- Markdown cells.
- Typesetting equations.

3.4 Installing python packages

Python packages can be installed directly in a Jupyter notebook using either conda or pip.

For installing a python package PACKAGE_NAME, run in a cell either one of the following blocks.

3.4.1 conda

```
# Install a conda package in the current Jupyter kernel
import sys
!conda install --yes --prefix {sys.prefix} PACKAGE_NAME
```

3.4.2 pip

```
# Install a pip package in the current Jupyter kernel
import sys
!{sys.executable} -m pip install PACKAGE_NAME
```