CCB JUPYTER NOTEBOOKS

JUPYTER ON PC

DOWNLOADING THE CCB JUPYTER SCRIPT

1. Open this link: https://datashare.molbiol.ox.ac.uk/public/files/jupyter.bat
2. Press `Control + S` to open the Save dialogue
3. Change `Save as type:` to `All files (*.*)`
4. Under `File name`, delete the text. **Do not skip this step.**
5. Under `File name`, name the file `jupyter.bat`
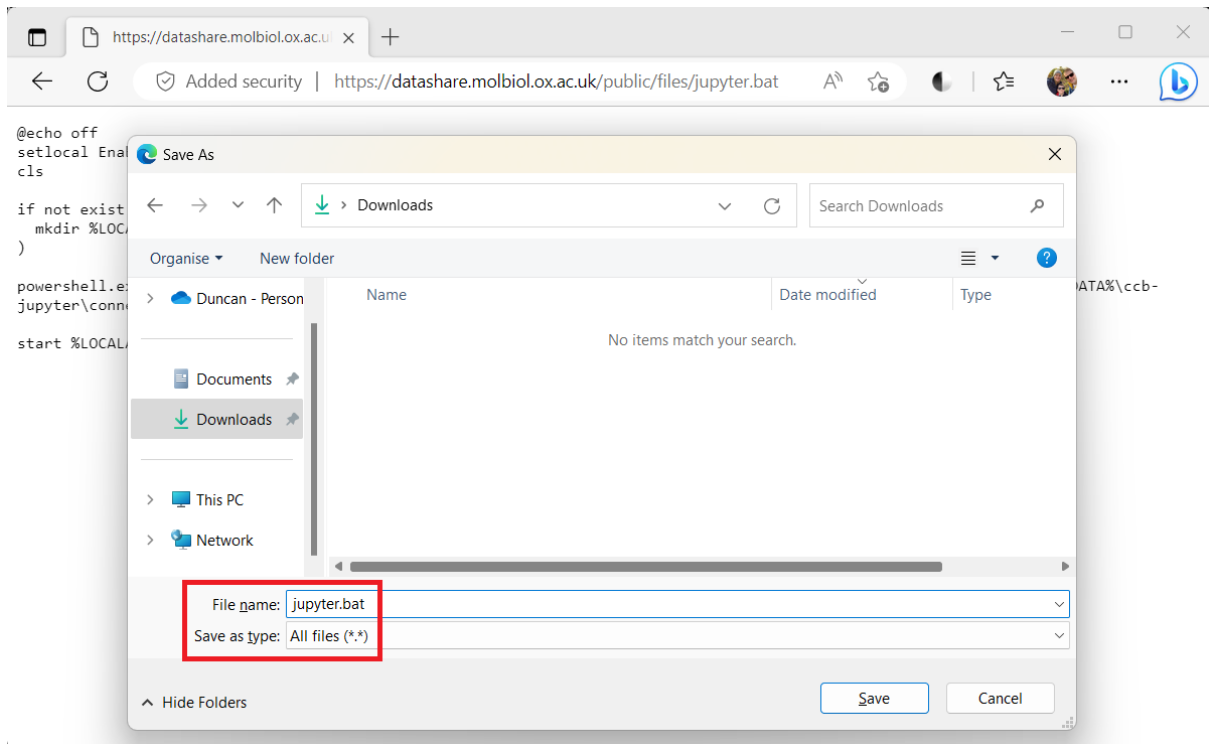
6. Press `Save`
7. Use File Explorer to find the file you just saved. It should look like this, with a small gear icon:
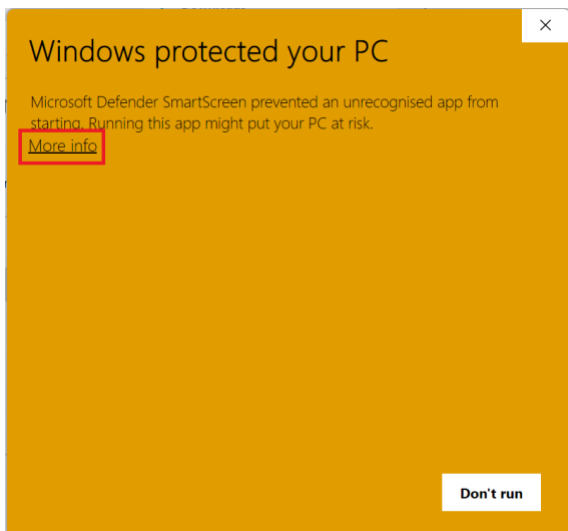
 jupyter

8. If it looks like this, with a text document icon then you have skipped step 4 or done the steps out of order, and you'll need to delete the file and start again:

 jupyter.bat

1. Double click the file to run it
2. The first time you run the script you may get a warning from Windows Defender Smart Screen. If you do, click `More info` and then `Run anyway`:

3. A black window will briefly flash on the screen as the program downloads the latest version, and then a command prompt will appear.
4. The first time you run the script you'll be prompted to enter your CCB username. Do this, and press Enter:

5. The first time you run the script you'll get a warning that the authenticity of the host can't be established. Type `yes` and press Enter:

6. Enter your CCB password (or your SSH key password if you have already set up SSH keys):

7. The message `Initialising Jupyter…` will appear
8. When Jupyter is ready, the message `…done` will appear, followed by instructions on how to open your notebook:

9. Following the instructions, hold down Control and left click the link `http://localhost:8888` to open your notebook in your default browser. If you want to use a different browser, you can cut and paste the URL.
10. **Do not close the command prompt**
11. Switch to your browser to access your notebook:

DOWNLOADING THE CCB JUPYTER SCRIPT
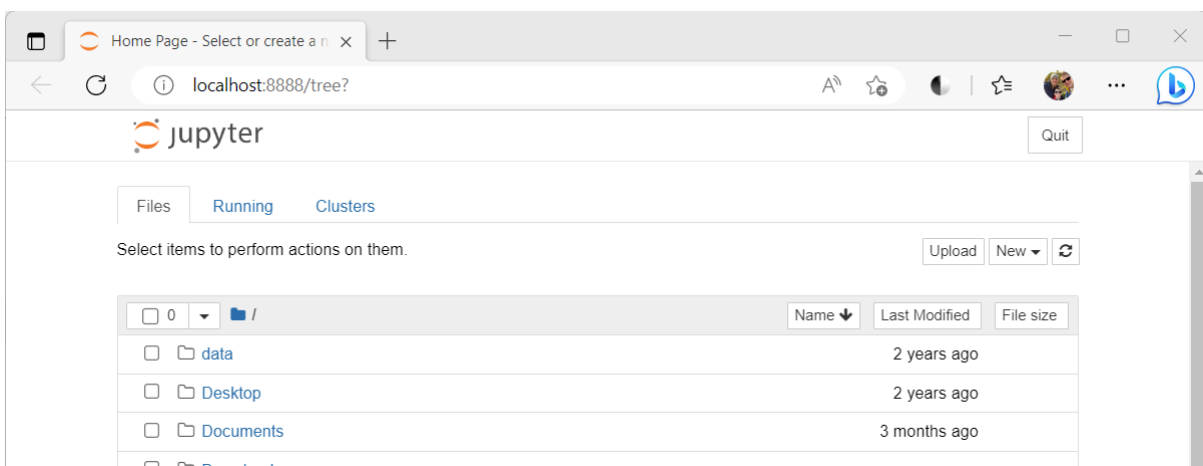
1. Open this link: https://datashare.molbiol.ox.ac.uk/public/files/jupyter.command
2. Press `Command + S` to open the Save dialogue
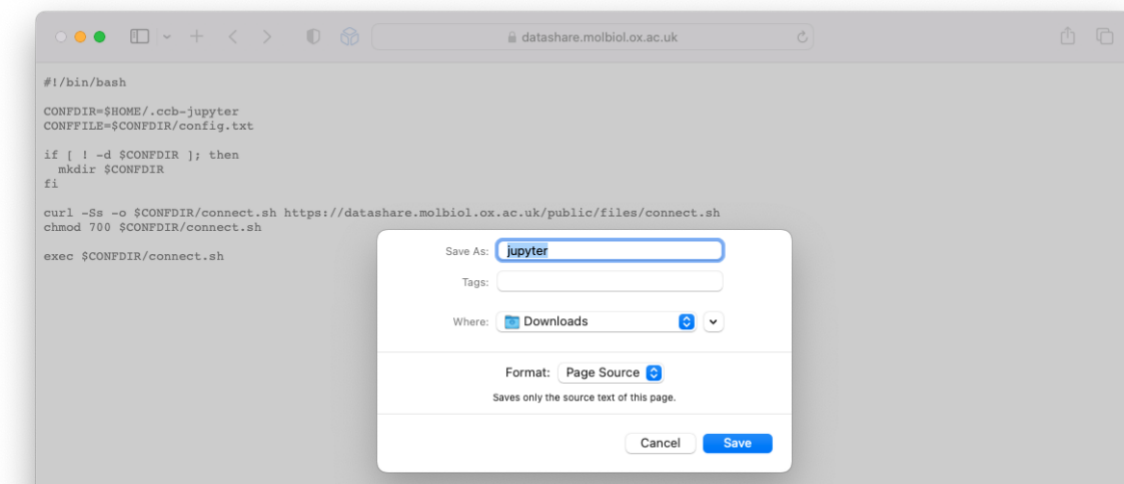
3. Make sure your `Downloads` folder is selected and press `Save`

4. If a dialogue box appears asking to `Save Plain Text`, choose `Don't append`
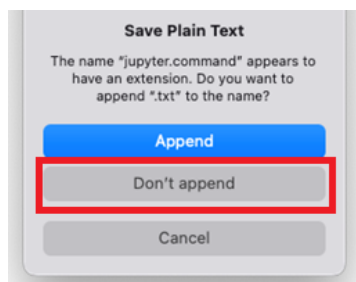
5. Open a terminal window (see https://support.apple.com/en-gb/guide/terminal/apd5265185d-f365-44cb-8b09-71a064a42125/mac)
6. Run the command `chmod +x $HOME/Downloads/jupyter.command`
7. Close the terminal window

USING THE CCB JUPYTER SCRIPT

1. The first time you run the script, you will need to `Control + click` it and choose `Open`:
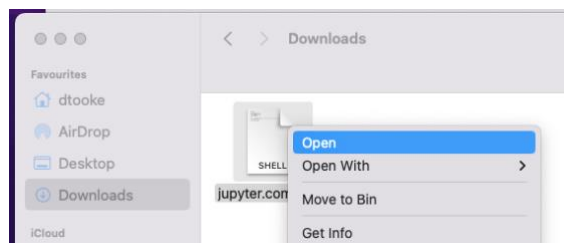
2. This will bring up a warning dialogue. Click `Open`:
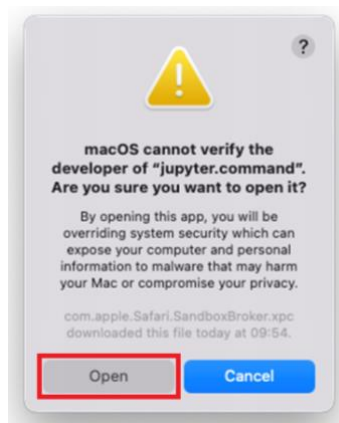
3. The first time you run the script you'll be asked to enter your CCB username. Do this then press Enter:

```
● ● ●                🗀 dtooke — jupyter.command — connect.sh — 80×25
Last login: Fri May 19 10:09:16 on ttys000
/Users/dtooke/Downloads/jupyter.command ; exit;
dtooke@Duncans-Mac-mini ~ % /Users/dtooke/Downloads/jupyter.command ; exit;
Configuring first time setup
Please enter CCB username: █
```

4. The first time you run the script you'll get a warning that the authenticity of the host can't be established. Type `yes` and press Enter:

```
Configuring first time setup
Please enter CCB username: dtooke
**********************************
* Enter your password if prompted *
**********************************
The authenticity of host 'jupyter.molbiol.ox.ac.uk (163.1.16.65)' can't be estab
lished.
ED25519 key fingerprint is SHA256:FRmcf8a3zrwZ05eXr7MGNUN5SuVmDPnznGlYjtIVvhc.
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? █
```

5. Enter your CCB password (or your SSH key password if you have already set up SSH keys):

```
This key is not known by any other names
Are you sure you want to continue connecting (yes/no/[fingerprint])? yes
Warning: Permanently added 'jupyter.molbiol.ox.ac.uk' (ED25519) to the list of k
nown hosts.
dtooke@jupyter.molbiol.ox.ac.uk's password: 🔒
```

6. The message `Initialising Jupyter...` will appear. When Jupyter is ready, the message `...done` will appear, followed by instructions on how to open your notebook:

7. Following the instructions, select the link with your mouse/trackpad, `Control + click` it, and choose `Open Link` to open your notebook in your default browser. If you want to use a different browser, you can copy and paste the URL:

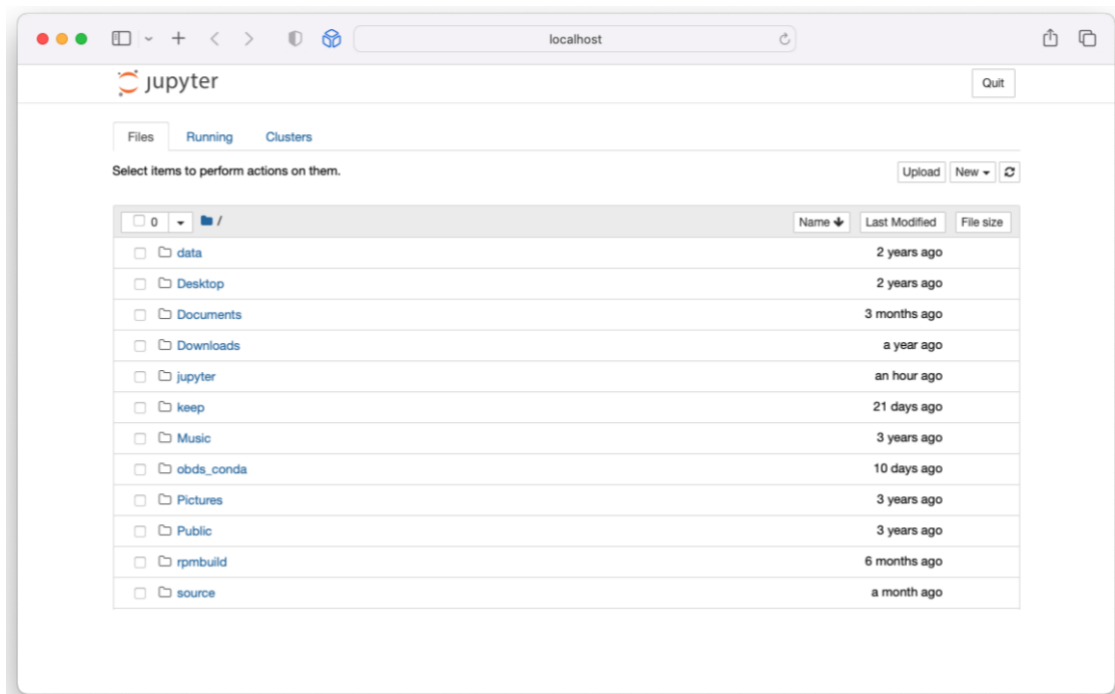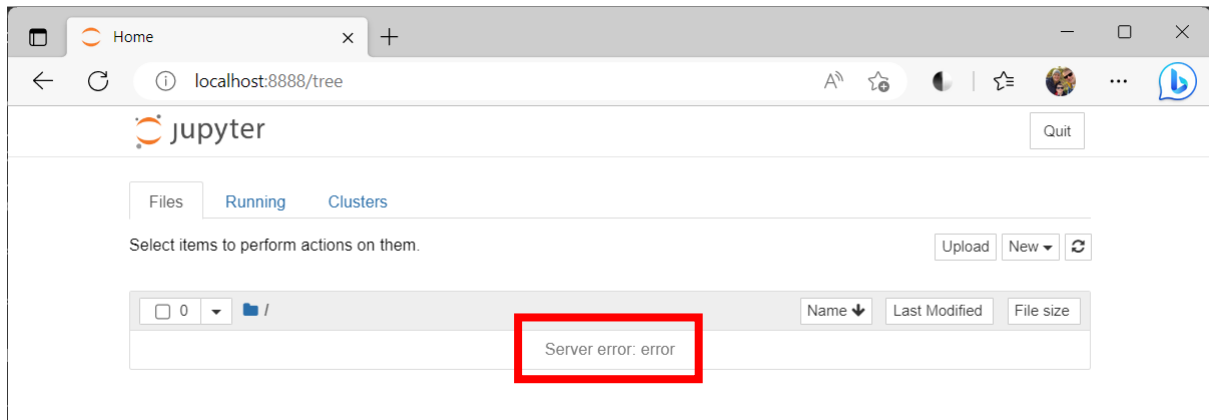8. **Do not close the command prompt**

9. Switch to your browser to access your notebook:

IF YOU GET DISCONNECTED

1. If at some point you become disconnected from the server, perhaps due to Wi-Fi or VPN issues, your notebook will become unresponsive and, after a short period of time, change to something like this:

2. Simply leave your browser open, reconnect your Wi-Fi and/or VPN, and wait for a little while. The CCB Jupyter script will automatically reconnect you to your notebook and the session will continue in your browser where you left off.
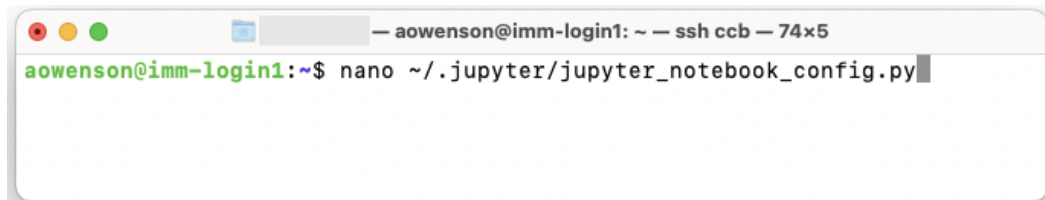
CLOSING YOUR JUPYTER SESSION

1. When you're finished, close the browser window. Do not use the `Quit` option in your Jupyter session unless you want to end it completely. Then close the command window.
2. From this point on, you can follow the steps above to run the script and log in again. Your Jupyter session will be running where you left off (unless you chose `Quit` as described above).
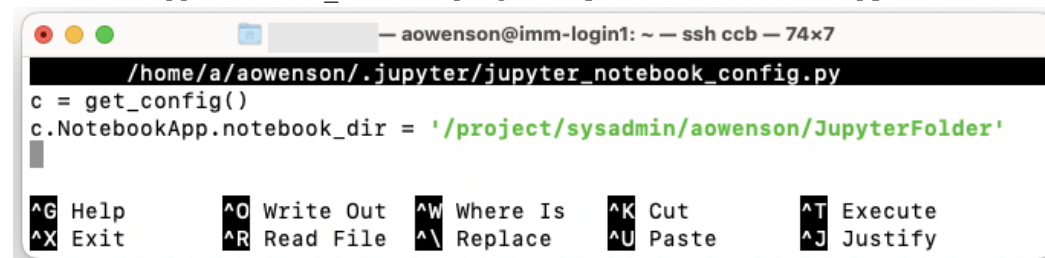
CHANGING WORKING DIRECTORY

By default, Jupyter has been basing your session at $HOME, but eventually you will want to work within specific project folders. To change Jupyter Notebook to a project folder requires simple command-line configuration.

1. Close Jupyter Notebook if open.
2. Perform a direct SSH login into CCB cluster. See our online documentation for SSH instructions.
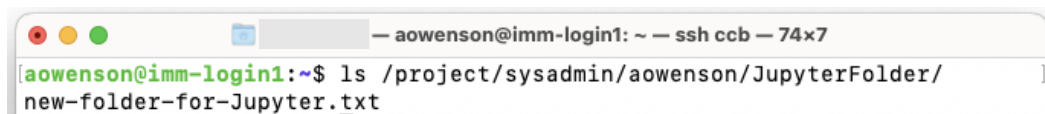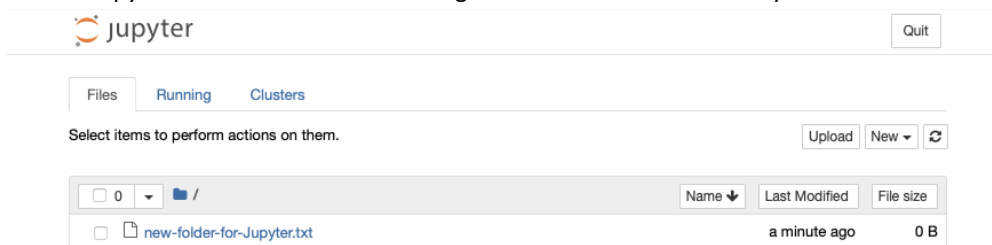3. Edit the text file named: `$HOME/.jupyter/jupyter_notebook_config.py`

4. Enter these two lines into file, where 2nd is the folder path of your choice:
```
c = get_config()
c.NotebookApp.notebook_dir = '/project/sysadmin/aowenson/JupyterFolder'
```


5. Save file: `Ctrl+X, Y, Enter`
6. Launch Jupyter as normal. You should be greeted with the contents of your folder:

ADDING CCB MODULES TO JUPYTER
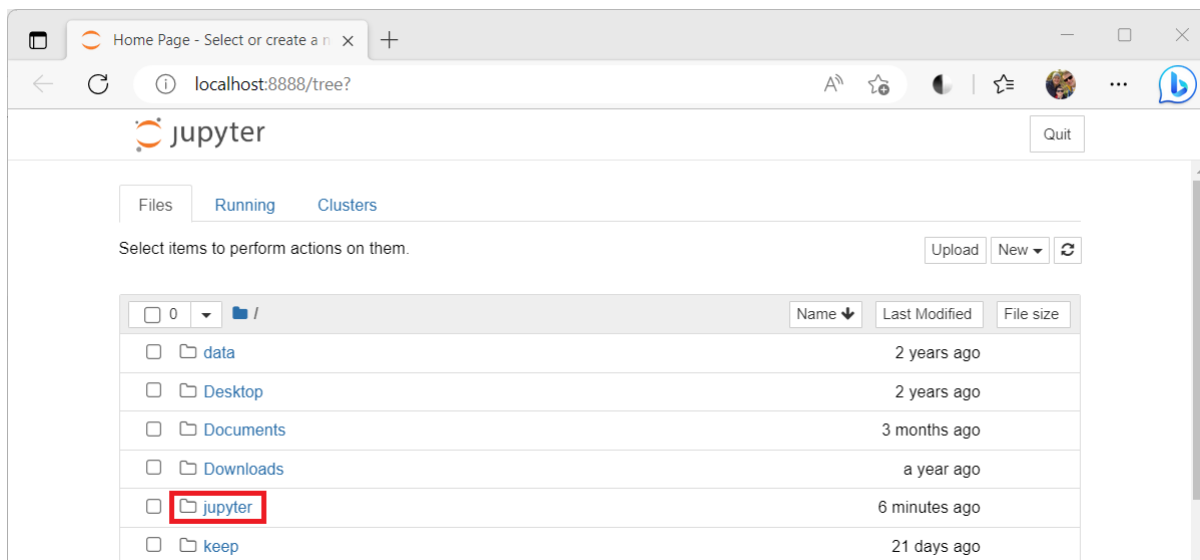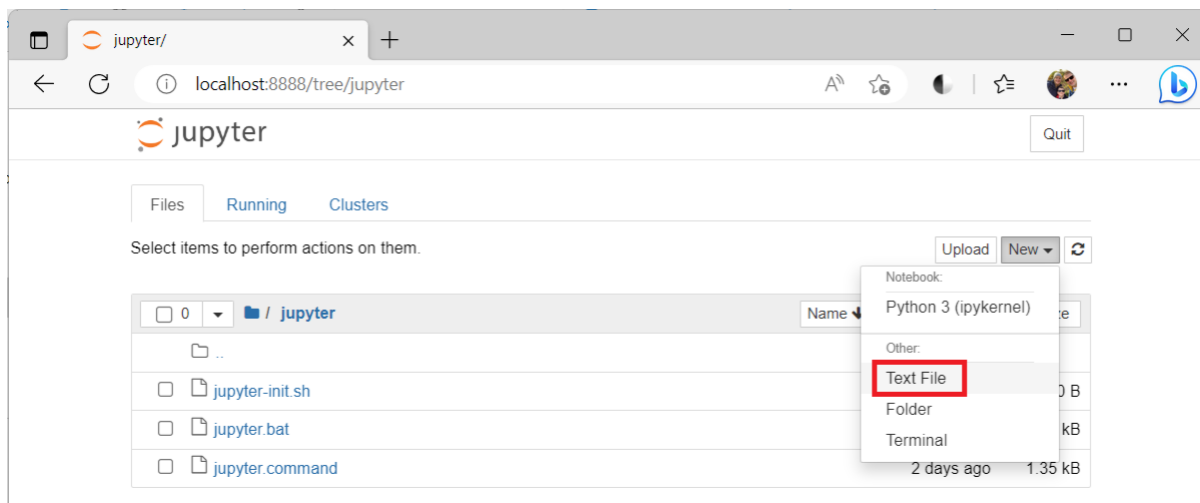
Jupyter Notebook looks in a specific file for extra modules to load: `$HOME/jupyter/ccb.modules`. You can edit this in Jupyter.
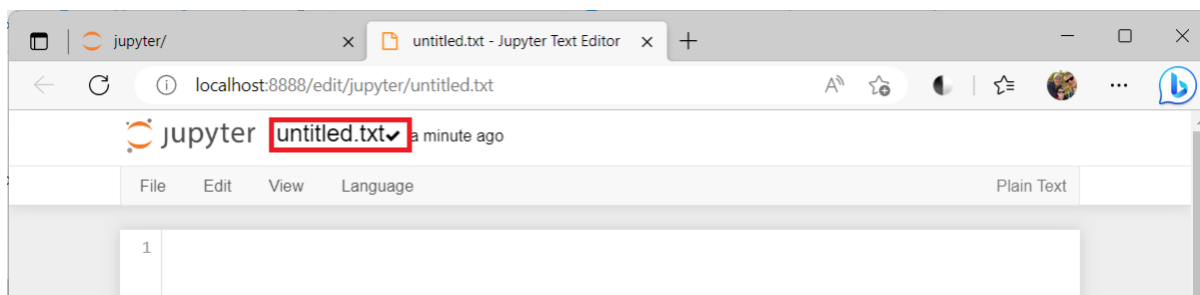
1. Open your Jupyter session as normal, then click on the `jupyter` folder to open it
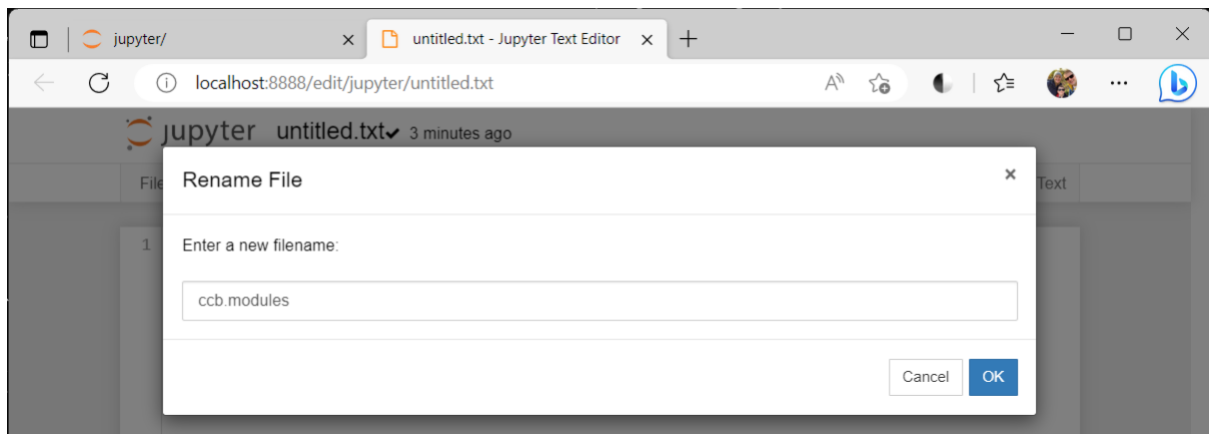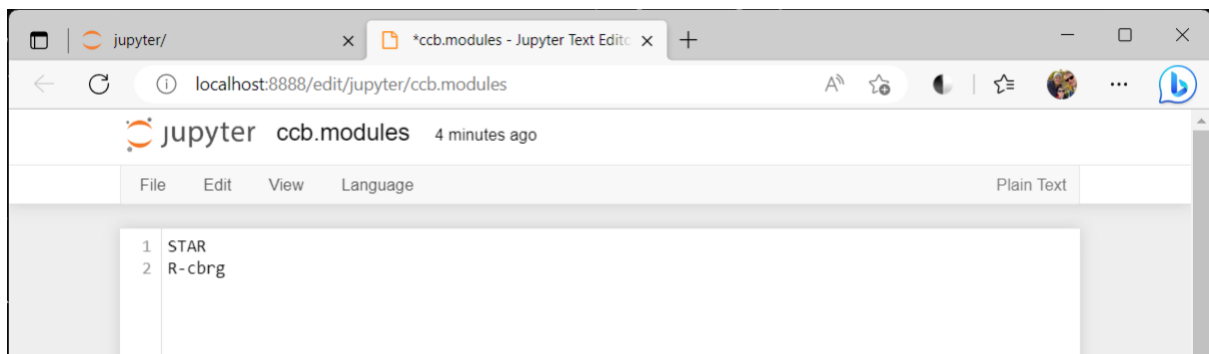

2. Click `New > Text File`:

3. At the top of the screen, click `untitled.txt`:
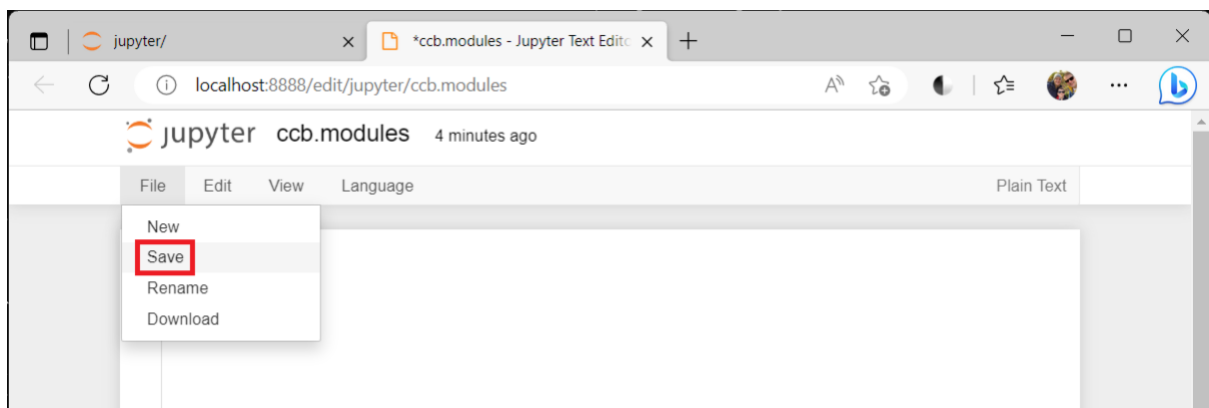
4. Name the file `ccb.modules` and press OK:

5. Add the modules you want to load one per line. For this example, I'll use `STAR` and `R-cbrg`:
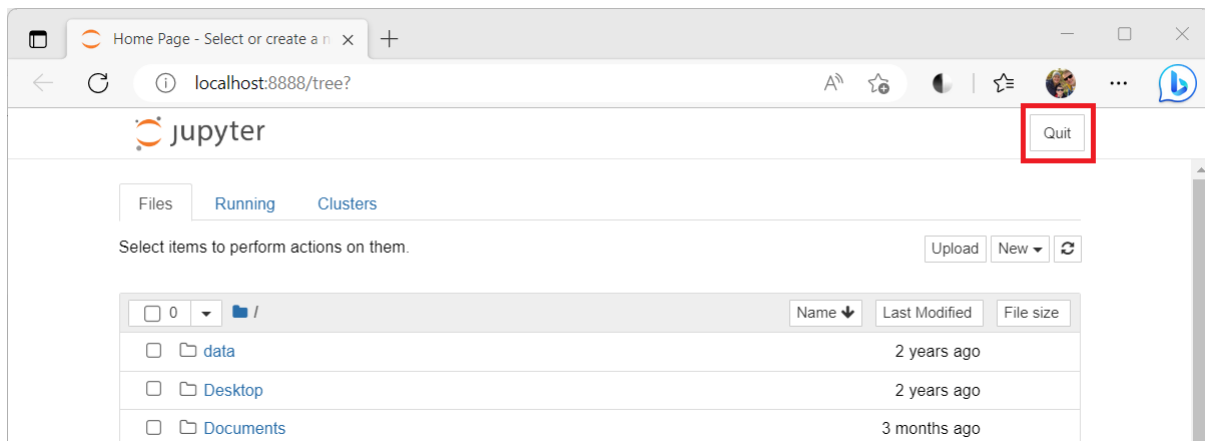

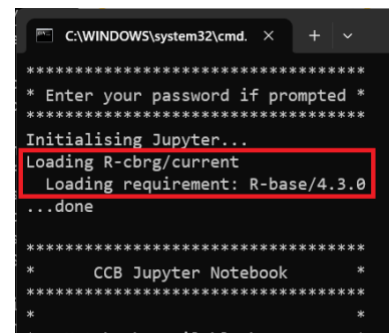6. Choose `File > Save`:

7. Close the tab

8. Back in the main Jupyter tab, choose `Quit`:

9. Close the tab

10. Close the command prompt, then open Jupyter again using the script as normal

11. Your new modules are automatically loaded (note that many modules do not produce visible output, though `R-cbrg` does):

12. Your modules are now available for use within Jupyter. We can verify this from a notebook using the `os.system` command:

ADVANCED USER QUICKSTART

The Jupyter notebook is automatically managed by the server. The scripts are a wrapper around an SSH tunnel combined with some configuration management and an auto-updater. If you want to run your own tunnel, the command used by the script is:

```
ssh -T -L 8888:%CCB_HOME%/jupyter/ccb.sock %CCB_USER%@jupyter.molbiol.ox.ac.uk
```

where `%CCB_HOME%` must be the full path to your CCB home directory and `%CCB_USER%` is your CCB username.