

Steps to installing a Ubuntu / Linux environment on Windows

Commands to copy and paste / type into a terminal will be indicated through different font like this.

1. Install & Enable WSL/Ubuntu

Follow the instructions on the links below:

Watch either video that fits your Windows version

& Read the first link (for reference if the instructions in the videos don't work))

Link to read:

<https://learn.microsoft.com/en-us/windows/wsl/install>

Video for Windows 10:

https://www.youtube.com/watch?v=X-DHaQLrBi8&ab_channel=ProgrammingKnowledge2

Video for Windows 11:

https://www.youtube.com/watch?v=wjbb10TTMeo&ab_channel=ProgrammingKnowledge2

2. Creating directories and linking paths

After you're done installing Ubuntu, if you don't do this step, you won't be able to easily access your Windows folders/files from the Terminal and your Linux folders/files from your Windows explorer.

1. **Go to windows explorer: Go to your Documents folder**
2. **Create a folder unixdir.** *This is the folder where you will be working. Any folder you manually create in Windows in this folder and files you download and move to this folder can be accessed through the terminal if you do this step properly*
3. **Open the Ubuntu terminal and copy the following commands, one at a time:**

```
cd /mnt/c/Users/  
ls
```

You should see something like this:

```
(base) goodboy@nice_pc:~$ cd /mnt/c/Users/  
(base) goodboy@nice_pc:/mnt/c/Users$ ls  
'All Users'  Default  'Default User'  Joaki  Public  desktop.ini  
(base) goodboy@nice_pc:/mnt/c/Users$ |
```

4. **From this, we can run the next commands to create a symbolic link:**

Here, the username is Joaki (yours will of course be different, i.e. a username that you picked, usually your name). Given your username (XXX), we have previously created a folder called unixdir in Documents. Then, the path to access this folder should be /mnt/c/Users/XXX/Documents/unixdir/.

To create a symbolic link, run the following commands:

```
cd ~  
ln -s /mnt/c/Users/XXX/Documents/unixdir unixdir
```

What this does is that you change directory to your root (~), then you create a symbolic link with ln -s, meaning you will be able to easily access that folder from ~, which is where you start each time you open the terminal.

To verify that you did this properly, run the following:

```
cd ~  
ls -lh
```

You should now see the directory unixdir here.

Installing Conda / Python after installing ubuntu and setting paths.

The full guide can be found here: <https://docs.conda.io/projects/conda/en/latest/user-guide/install/linux.html>

1. First, try running this command I give here. If it doesn't work, go to the part below:

```
cd ~/unixdir/  
wget https://repo.anaconda.com/miniconda/Miniconda3-  
py310_23.3.1-0-Linux-x86_64.sh  
bash Miniconda3-py310_23.3.1-0-Linux-x86_64.sh
```

Accept all the default options. When it's finished, close the Terminal and re-open the terminal, then run the following to check that it is installed properly.

```
conda list
```

2. Next, we set up will install some packages that we will use, namely jupyter (to run jupyter notebooks).

Optional part in italic:

We can create a virtual environment to make our installation cleaner, and run the following commands. You must however activate this environment everytime in order to use the packages installed.

```
conda create --name MyEnv python=3.10  
conda activate MyEnv
```

Then, whether you created an environment or not, you need to run the following:

```
conda install jupyter  
jupyter notebook (or jupyter-notebook , depends on your version)
```

If this step was done properly, you should see something like this:

```
Please note that updating to Notebook 7 might break some of your extensions.  
[W 12:55:49.939 NotebookApp] Loading JupyterLab as a classic notebook (v6) extension.  
[I 2023-05-31 12:55:49.942 LabApp] JupyterLab extension loaded from /home/goodboy/anaconda3/envs/bioinformatics/lib/python3.10/site-packages/jupyterlab  
[I 2023-05-31 12:55:49.942 LabApp] JupyterLab application directory is /home/goodboy/anaconda3/envs/bioinformatics/share/jupyter/lab  
[I 12:55:49.945 NotebookApp] Serving notebooks from local directory: /mnt/c/Users/Joaki/Desktop  
[I 12:55:49.945 NotebookApp] Jupyter Notebook 6.5.4 is running at:  
[I 12:55:49.945 NotebookApp] http://localhost:8888/?token=26c5b60a5e1100aea3133e0f0f6f9e4cb3bb98bde66bd851  
[I 12:55:49.945 NotebookApp] or http://127.0.0.1:8888/?token=26c5b60a5e1100aea3133e0f0f6f9e4cb3bb98bde66bd851  
[I 12:55:49.945 NotebookApp] Use Control-C to stop this server and shut down all kernels (twice to skip confirmation).  
[C 12:55:50.395 NotebookApp]  
  
To access the notebook, open this file in a browser:  
file:///home/goodboy/.local/share/jupyter/runtime/nbserver-1354-open.html  
Or copy and paste one of these URLs:  
http://localhost:8888/?token=26c5b60a5e1100aea3133e0f0f6f9e4cb3bb98bde66bd851  
or http://127.0.0.1:8888/?token=26c5b60a5e1100aea3133e0f0f6f9e4cb3bb98bde66bd851  
tgetpgrp failed: Not a tty  
Start : This command cannot be run due to the error: The system cannot find the file specified.  
At line:1 char:1  
+ Start "file:///home/goodboy/.local/share/jupyter/runtime/nbserver-135 ...  
+ ~~~~~  
+ CategoryInfo          : InvalidOperation: (:) [Start-Process], InvalidOperationException  
+ FullyQualifiedErrorId : InvalidOperationException,Microsoft.PowerShell.Commands.StartProcessCommand
```

To check that it works, copy one of the two links indicated by the yellow arrow, and paste it in the browser of your choice (Chrome, Firefox, etc.)

If the FIRST part above didn't work: go to the following link:

<https://docs.conda.io/en/latest/miniconda.html#linux-installers>

Linux installers

Linux

Python version	Name	Size	SHA256 hash
Python 3.10	Miniconda3 Linux 64-bit	69.7 MiB	aef279d6baea7f67940f16aad17ebe5f6aac97487c7c03466ff01f4819e5a651
	Miniconda3 Linux-aarch64 64-bit		e915d1dee6c924c
	Miniconda3 Linux-ppc64le 64-bit		cefe64763e51d16
	Miniconda3 Linux-s390x 64-bit		c6238b8c4891de8
Python 3.9	Miniconda3 Linux 64-bit		9f904bf00c177d3
	Miniconda3 Linux-aarch64 64-bit		8d866704437a296
	Miniconda3 Linux-ppc64le 64-bit		cf0fec03e8498f5
	Miniconda3 Linux-s390x 64-bit		27d11273c4fdb5a

And find the version for Python 3 that corresponds to your architecture. (If you're not sure, just try the first one, and if you get a warning/error during installation, try another one.) **Right click the link, and do copy link address.**

In the terminal, try running

```
cd ~/unixdir/  
wget XXX_theNewLinkHere  
bash xxx_theNewFileHere
```

Here you should run `bash` on the new file it just downloaded. You can do `ls` to check what is the name of the file. Then do the other steps.