

Jupyter Setup Instructions for Windows, Mac, and Linux

Windows Setup

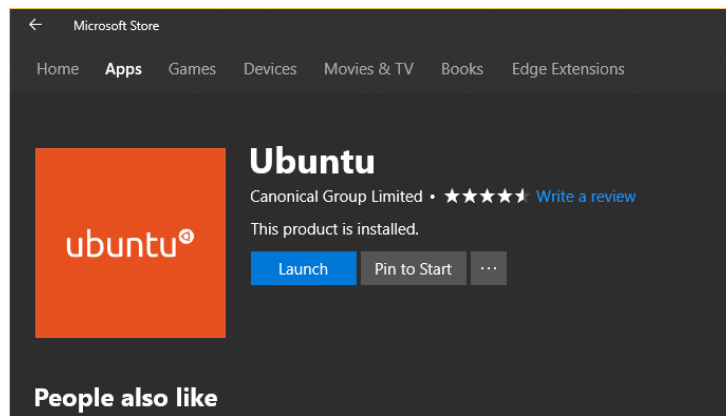
Requirements: Windows 10. If you do not have Windows 10 then you can download VirtualBox and run an Ubuntu system and follow the Linux/Ubuntu Setup instructions.

1) **Update Windows 10**

- a) Search for “Check for Updates” in the Windows search bar.

2) **Download Ubuntu**

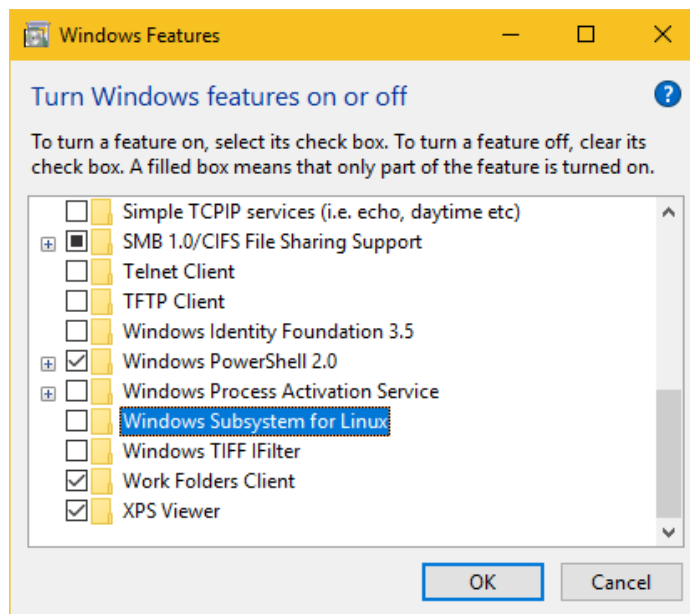
- a) Go to the Windows Store and Search for “Ubuntu”



- b) Download and Install Ubuntu

3) **Turn on Windows Subsystem for Linux**

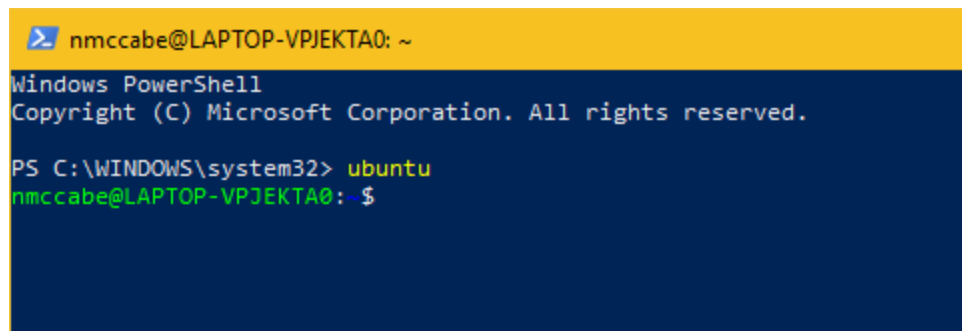
- a) Search for “Turn Windows features on or off” in the Windows search bar.
- b) Scroll until you find “Windows Subsystem for Linux”



- c) Check the box off and click ok.
- d) Restart your computer.

4) Start Ubuntu

- a) Start Command Prompt or Windows Powershell (Powershell is a newer version of Command Prompt or cmd, either can be used)
- b) Run the following command to start the ubuntu subsystem: `ubuntu`
- c) You will be prompted to enter a Username for the Ubuntu account on your computer and also enter a password. You will have to confirm the password. As you type the password the characters will not be displayed so no one can read your password.
- d) Your command line should now look like the following image, if it doesn't start from the beginning again. If your Windows 10 is really out of date it sometimes takes two "Check for Updates" to ensure you are fully up to date.



```
nmccabe@LAPTOP-VPJEKTA0: ~  
Windows PowerShell  
Copyright (C) Microsoft Corporation. All rights reserved.  
  
PS C:\WINDOWS\system32> ubuntu  
nmccabe@LAPTOP-VPJEKTA0:~$
```

NOTE: The following steps are a lot of downloads, they may take a while to get fully downloaded and installed. If the command line seems frozen don't be concerned unless it's stuck for more than 20 or 30 minutes.

NOTE 2: You will frequently have to run sudo commands, this means you are requesting admin permissions for this command. So every once and awhile you will need to type in your Ubuntu password you setup in step 5d.

5) Install Python 3

- a) In order to use Jupyter you need to have Python 3. So start by running the following command: `sudo apt-get update`
- b) Now run the following command: `python3 --version`
If your command line outputs something like "Python 3.6.2", then you can skip to step 6 because you already have Python 3 on your computer, but if not continue on to step 5c to install Python 3.
- c) Run this command to install Python 3: `sudo apt-get install python3.6`
This may take awhile.
- d) Now run the following command to make sure Python 3 was installed properly: `python3 --version`
If it doesn't output something similar to "Python 3.6.2" then Python 3 was not installed correctly.

6) Install PIP

- a) In order to download Jupyter you have to use PIP, but this is very easy.
- b) Run the following command to install PIP 3: `sudo apt-get install python3-pip`
- c) Run the following command to make sure PIP 3 was installed correctly: `pip3`
If a list of commands doesn't appear then PIP was not installed correctly.

7) Install Jupyter

- a) Run this command: `python3 -m pip install --upgrade pip`
- b) Run this command to install Jupyter: `python3 -m pip install jupyter`
- c) To ensure it installed properly run the following command: `jupyter -h`

8) Move to an Accessible Folder

- a) The Linux Subsystem operates outside the standard C:\ Drive. In order to access the Jupyter project files you make to upload for assignments you will need to move to a folder within the C:\ drive. You can move to any folder you wish, but the following instructions are where I placed my project files.
- b) Make a folder on your desktop called "CS320"
- c) Inside your CS320 folder, create a folder "Jupyter"
- d) Now run the following command to access your new folder: `cd /mnt/c/Users/YOUR WINDOWS USERNAME/Desktop/CS320/Jupyter`
REPLACE "YOUR WINDOWS USERNAME" with your User Account name.
- e) Do not do the following steps until you have moved to a folder you want to work within.

9) Install IHaskell

- a) Run the following command (This will take a long time): `sudo apt-get install -y python3-pip git libtinfo-dev libzmq3-dev libcairo2-dev libpango1.0-dev libmagic-dev libblas-dev liblapack-dev`
- b) Then run the following commands one by one:
 - i) `curl -sSL https://get.haskellstack.org/ | sh`
 - ii) `git clone https://github.com/gibiansky/IHaskell`
 - iii) `cd IHaskell`
(The 3 following will take a very long time)
 - iv) `sudo pip3 install -r requirements.txt`
 - v) `stack install gtk2hs-buildtools --allow-different-user`
 - vi) `stack install --fast --allow-different-user` (This took the longest out of all of the commands)
 - vii) `ihaskell install --stack`
- c) Run the command: `cd -`

10) Install Calysto Scheme

- a) Run the command: `sudo pip3 install --upgrade calysto-scheme`
- b) Run the command: `sudo python3 -m calysto_scheme install`

11) Install Calysto Prolog

- a) Run the command: `sudo pip3 install --upgrade calysto_prolog`
- b) Run the command: `sudo python3 -m calysto_prolog install`

12) Check to Ensure all the Installations were Successful

- a) Make sure you are in the folder you want to work within, if not move to it.
- b) Run the following command to start Jupyter: `jupyter notebook`
- c) Highlight the URL in Command Prompt and paste it into your browser.
- d) In the drop down in the top right that says "New" make sure that Haskell, Calysto Prolog, Calysto Scheme, and Python 3 all show up under the list.

Running Jupyter in the Future:

- 1) Open Command Prompt or Windows PowerShell.
- 2) Run the command: `ubuntu`
- 3) Run the command: `cd /mnt/c/Users/YOUR WINDOWS USERNAME/Desktop/CS320/Jupyter`
REPLACE "**YOUR WINDOWS USERNAME**" with your User Account name.
- 4) Run the command: `jupyter notebook`
- 5) Highlight the URL in Command Prompt or PowerShell and paste it into your browser.

Stopping Jupyter:

- 1) While Jupyter Notebook is running and you are in Command Prompt or PowerShell hit Control-C
- 2) You will be prompted if you are sure you want to quit, type Y and hit enter.
- 3) Exit Command Prompt or PowerShell.

WARNING: When you are using the `cd` command while running the Ubuntu Subsystem **be careful** as you have access to root folders in your computer and messing with those files can break your computer.

Mac Setup

- 1) **Update to macOS High Sierra**, which can be done through the App Store
 - a) If your laptop cannot update to macOS High Sierra then your steps for installing Xcode will be different. If you absolutely can't install macOS High Sierra scroll down to "Installing on older Macs".
- 2) **Install Xcode**
 - a) If you already installed Xcode skip this step and go to step 3
 - b) Run the command: `xcode-select --install`
 - c) You will get a popup with three options. I recommend selecting the "Get Xcode" option. This will bring you to the App Store to then install Xcode in full, HOWEVER, you can select the "Install" option, and if it works, it only provides the piece of Xcode we need to install jupyter. If you select "Install" skip to step 2e.
 - d) Click Get under the Xcode icon (You will need to have an up to date macOS in order to download)
 - e) Run the command: `sudo xcodebuild -license`
 - f) You will then have to read through an agreement, just keep hitting space until it prompts you to type "agree" to accept.
- 3) **Install Homebrew**
 - a) Open terminal (go to spotlight and search for terminal)
 - b) Run the command: `ruby -e "$(curl -fsSL https://raw.githubusercontent.com/Homebrew/install/master/install)"`
- 4) **Install Python 3**
 - a) Run the command: `brew install python3` (This will take awhile)
 - b) To make sure it is working run command: `python3 --version`
 - c) Also make sure PIP automatically installed by running the following command: `pip3`
- 5) **Install Jupyter**
 - a) Run the command: `python3 -m pip install --upgrade pip`
 - b) Run this command to install Jupyter: `python3 -m pip install jupyter`
 - c) To make sure it worked properly ensure the following command doesn't error: `jupyter -h`
- 6) **Move to the Folder you Will be Working in**
 - a) You can make a folder to save your project files wherever you like, however the following instructions are for the folder structure I will be using.
 - b) Make a folder on your desktop called "CS320"
 - c) Inside your CS320 folder, create a folder "Jupyter"
 - d) Go back to Terminal and run the command: `cd Desktop/CS320/Jupyter`

7) Install IHaskell*

- a) Run the following command (Worst Case Scenario: This might take 3 hours):
`brew install zeromq libmagic cairo pkg-config haskell-stack pango`
- b) Then run the following commands one by one:
 - i) `git clone https://github.com/gibiansky/IHaskell`
 - ii) `cd IHaskell`
(The 3 following will take a long time)
 - iii) `sudo pip3 install -r requirements.txt`
 - iv) `sudo stack install gtk2hs-buildtools --allow-different-user` (This took the longest out of all of the commands)
 - v) `sudo stack install --fast`
 - vi) `ihaskell install --stack`
- c) Run the command: `cd -`

8) Install Calysto Scheme

- a) Run the command: `sudo pip3 install --upgrade calysto-scheme`
- b) Run the command: `sudo python3 -m calysto_scheme install`

9) Install Calysto Prolog

- a) Run the command: `sudo pip3 install --upgrade calysto_prolog`
- b) Run the command: `sudo python3 -m calysto_prolog install`

10) Check to Ensure all the Installations were Successful

- a) Make sure you are in the folder you want to work within, if not move to it.
- b) Run the following command to start Jupyter: `jupyter notebook`
- c) Highlight the URL in Command Prompt and paste it into your browser.
- d) In the drop down in the top right that says "New" make sure that Haskell, Calysto Prolog, Calysto Scheme, and Python 3 all show up under the list.

Running Jupyter in the Future:

- 1) Open terminal
- 2) Move to the folder you want to work in
- 3) Run the command: `jupyter notebook`
- 4) Highlight the URL in Terminal and paste it into your browser.

Stopping Jupyter:

- 1) While Jupyter Notebook is running and you are in Terminal hit Control-C
- 2) You will be prompted if you are sure you want to quit, type Y and hit enter.
- 3) Exit Terminal

Installing on Older Macs:

- 1) Getting your Mac OS Version
 - a) Click the apple logo in the top left of your screen.
 - b) Click on "About this Mac". Your version should be visible in this window.
- 2) Choosing the right version of Xcode

Mac OS Version	Xcode Version
macOS High Sierra 10.13	Xcode 9
macOS Sierra 10.12	Xcode 8.3.3
OS X El Capitan 10.11	Xcode 7.3.1
OS X Yosemite 10.10	Xcode 6.4
OS X Mavericks 10.9.5	Xcode 6.2

- 3) Install Xcode
 - a) Go to <https://developer.apple.com/download/more/?name=Xcode>
 - b) You will need to log in with your Apple ID and Password. You DO NOT need a Developer account, just use your regular Apple account.
 - c) Scroll down the list until you find the version of Xcode listed in the table above that matches your version of Mac OS.
- 4) Install Xcode Command Line Tools
 - a) Run the command and select "Install" option: `xcode-select --install`
 - b) Run the command: `sudo xcodebuild -license`
 - c) You will then have to read through an agreement, just keep hitting space until it prompts you to type "agree" to accept.
- 5) Go back to the main Mac Setup section and start from Step 3

* If you have OS X Mavericks (10.9) you may have trouble downloading the haskell-stack (first step of the IHaskell Install). If you do then run the following commands separately instead of Step 7a:

- `brew install zeromq libmagic cairo pkg-config`
- `brew install ghc`
- `brew install cabal-install`
- `brew install ghc@8.2`
- `brew install haskell-stack pango`

Linux/Ubuntu Setup

Follow the Windows Setup instructions from Step 5. Skip step 8.

Running Jupyter in the Future:

- 1) Open Terminal
- 2) Move to the folder you want to work in
- 3) Run the command: `jupyter notebook`
- 4) Highlight the URL in Terminal and paste it into your browser.

Stopping Jupyter:

- 1) While Jupyter Notebook is running and you are in Terminal hit Control-C
- 2) You will be prompted if you are sure you want to quit, type Y and hit enter.
- 3) Exit Terminal