

Computing Setup Guide for Windows 10

In this guide, we will go through all of the installation steps necessary to launch a Jupyter Notebook. This guide assumes you have an x64 machine, if this is not the case please contact the course staff.

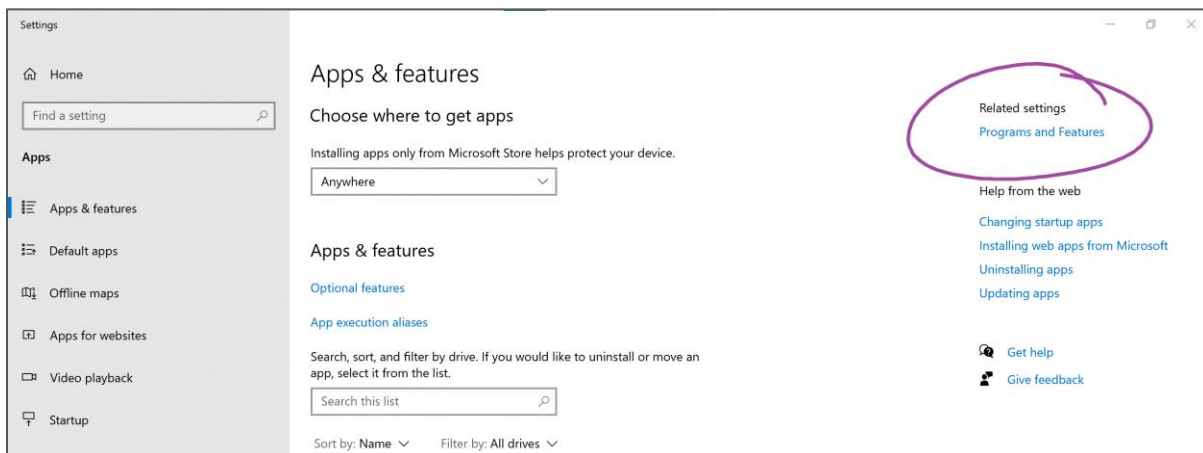
1. Installing Windows Subsystem for Linux (WSL)

WSL allows us to run a Linux environment directly within Windows. This will ensure that everyone—whether they’re running Windows 10, macOS, or Linux—will be able run the same shell commands from both a terminal and within Jupyter Notebook.

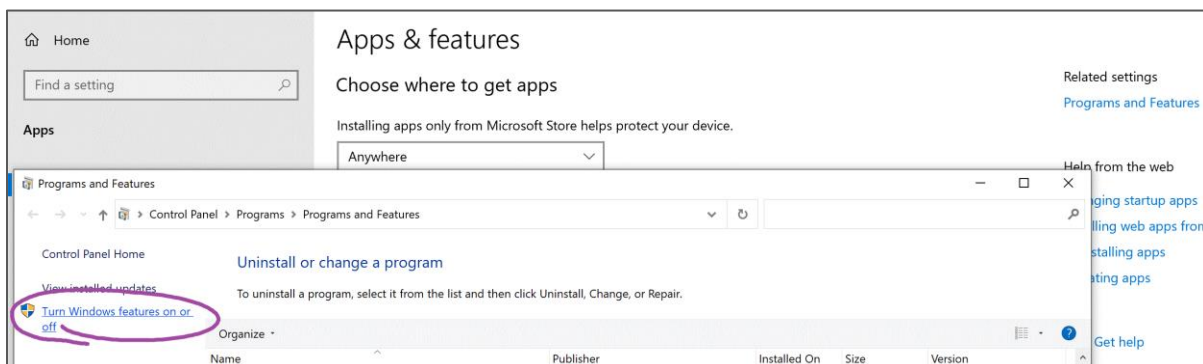
Step 1. Enable WSL

First, we need to enable the “Windows Subsystem for Linux” feature. For the purposes of this course, you only need to install WSL 1.

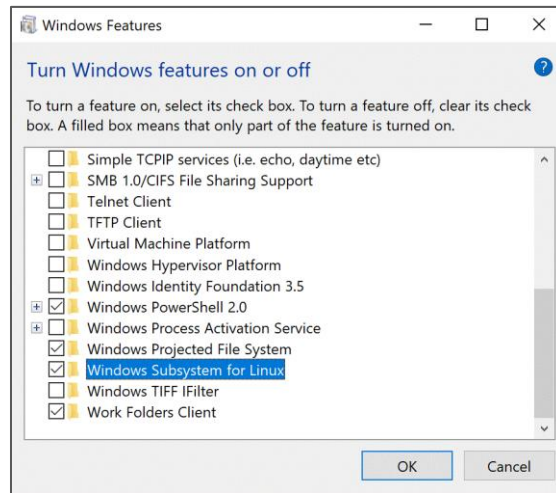
1. Go to “App & features”
2. On the right, under the “Related settings” section, select “Program and Features



3. On the left, select “Turn Windows Features on or off”



4. Check the “Windows Subsystem for Linux” option (near the end of the list)

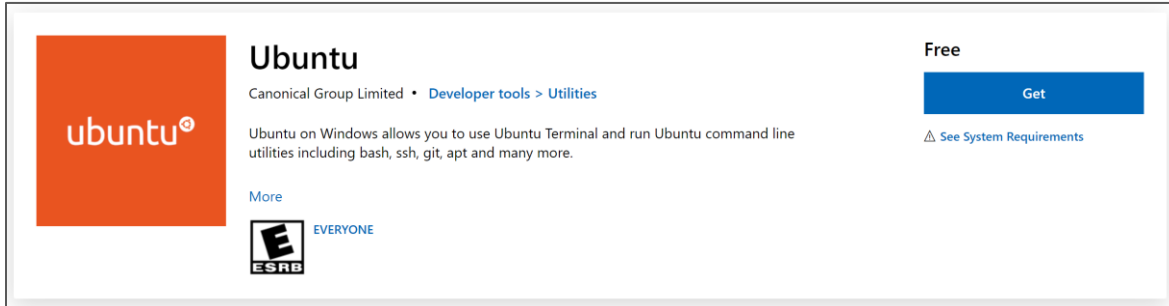


5. Select OK
6. Select Restart Now

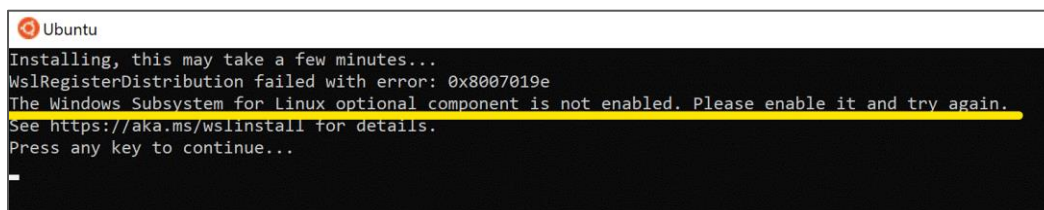
Step 2. Install Ubuntu App

Now that we’ve enabled WSL, we can install a WSL application.

1. Install the [Ubuntu](#) app from the Microsoft Store



2. Launch Ubuntu to complete the installation. If you have WSL has not been enabled, then the installation will fail.



3. As part of the installation, you will need to select a username and password. The password will not appear as you type it.

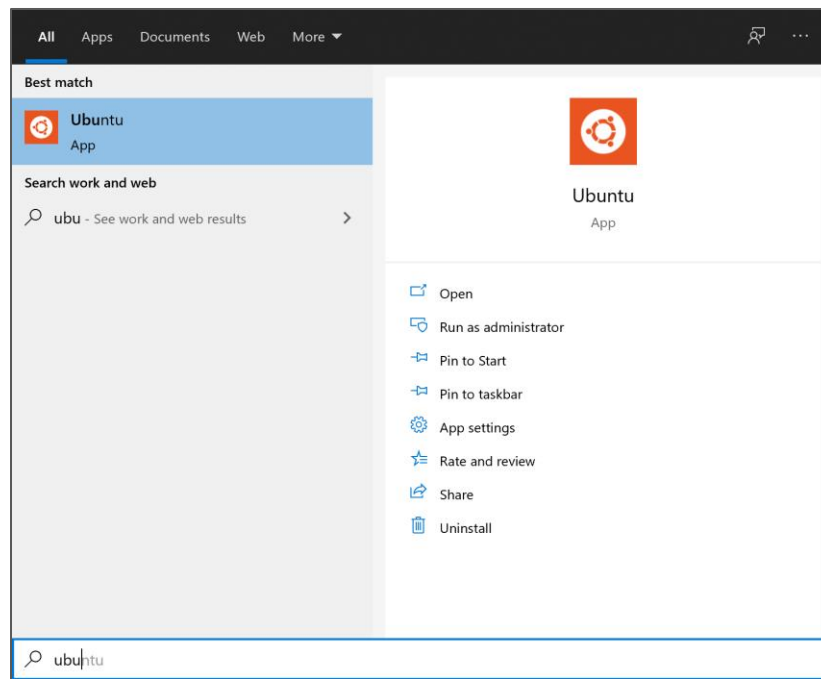
```
Ubuntu
Installing, this may take a few minutes...
Please create a default UNIX user account. The username does not need to match your Windows username.
For more information visit: https://aka.ms/wslusers
Enter new UNIX username: laurejt
New password:
```

2. Installing Anaconda

Next, we will install the Anaconda Python 3.8 distribution *within* WSL.

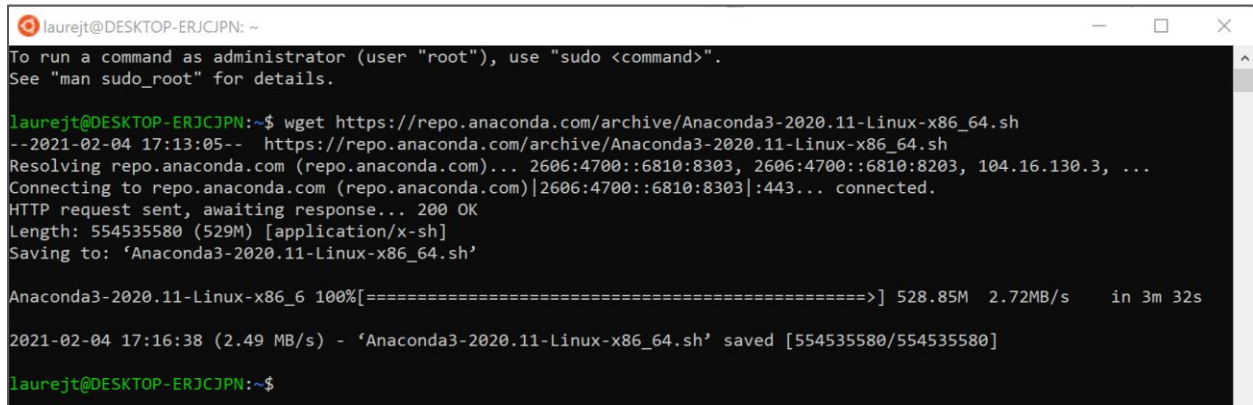
Step 1. Download Anaconda Installer

1. Launch the Ubuntu app to open a new terminal.



- Next, download the Anaconda installation script from within the terminal. To do so, we will run the following command within the terminal:

wget https://repo.anaconda.com/archive/Anaconda3-2020.11-Linux-x86_64.sh



```
laurejt@DESKTOP-ERJCJPN: ~
To run a command as administrator (user "root"), use "sudo <command>".
See "man sudo_root" for details.

laurejt@DESKTOP-ERJCJPN:~$ wget https://repo.anaconda.com/archive/Anaconda3-2020.11-Linux-x86_64.sh
--2021-02-04 17:13:05-- https://repo.anaconda.com/archive/Anaconda3-2020.11-Linux-x86_64.sh
Resolving repo.anaconda.com (repo.anaconda.com)... 2606:4700::6810:8303, 2606:4700::6810:8203, 104.16.130.3, ...
Connecting to repo.anaconda.com (repo.anaconda.com)|2606:4700::6810:8303|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 554535580 (529M) [application/x-sh]
Saving to: 'Anaconda3-2020.11-Linux-x86_64.sh'

Anaconda3-2020.11-Linux-x86_6 100%[=====>] 528.85M  2.72MB/s   in 3m 32s

2021-02-04 17:16:38 (2.49 MB/s) - 'Anaconda3-2020.11-Linux-x86_64.sh' saved [554535580/554535580]

laurejt@DESKTOP-ERJCJPN:~$
```

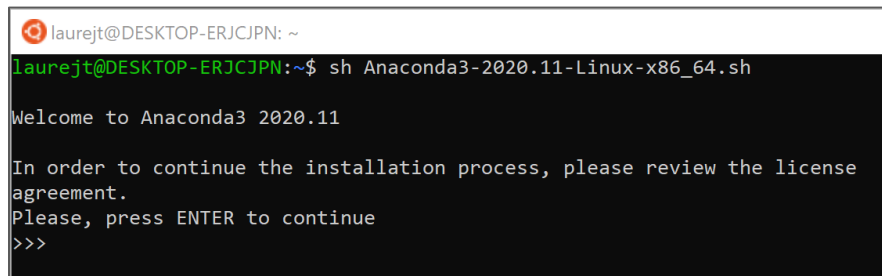
To run a command:

- Enter the command text within the terminal. Right click to paste copied text into the terminal.
- Then, hit enter to run the command.

Step 2. Run Anaconda Installer

Now that we've downloaded the installer, we can install Anaconda.

- Run the following command to install the Anaconda distribution:
sh Anaconda3-2020.11-Linux-x86_64.sh

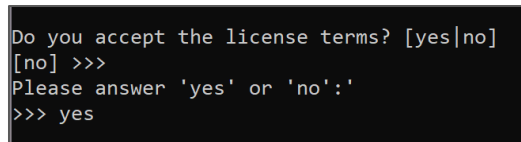


```
laurejt@DESKTOP-ERJCJPN: ~
laurejt@DESKTOP-ERJCJPN:~$ sh Anaconda3-2020.11-Linux-x86_64.sh

Welcome to Anaconda3 2020.11

In order to continue the installation process, please review the license
agreement.
Please, press ENTER to continue
>>>
```

- As instructed, press enter to continue.
- Continue pressing enter to read through the license. Then, to accept the license terms type in **yes** and press enter.



```
Do you accept the license terms? [yes|no]
[no] >>>
Please answer 'yes' or 'no':
>>> yes
```

- Press enter to confirm installation location. Anaconda will begin installing.

5. Then, enter **yes** to initialize Anaconda

```
installation finished.
Do you wish the installer to initialize Anaconda3
by running conda init? [yes|no]
[no] >>> yes
```

6. Close and open a new terminal to finalize the setup of Anaconda.

3. Launch Jupyter Notebook

Now that we've successfully installed Anaconda, we can launch a Jupyter Notebook with the following command: **jupyter notebook**

This will launch Jupyter Notebook. However, this command will hit an error when attempting to launch a browser to access the application.

```
(base) laurejt@DESKTOP-ERJ3JPN:~$ jupyter notebook
[I 17:50:42.234 NotebookApp] Writing notebook server cookie secret to /home/laurejt/.local/share/jupyter/runtime/notebook_cookie_secret
[I 17:50:45.557 NotebookApp] JupyterLab extension loaded from /home/laurejt/anaconda3/lib/python3.8/site-packages/jupyterlab
[I 17:50:45.558 NotebookApp] JupyterLab application directory is /home/laurejt/anaconda3/share/jupyter/lab
[I 17:50:45.560 NotebookApp] Serving notebooks from local directory: /home/laurejt
[I 17:50:45.560 NotebookApp] Jupyter Notebook 6.1.4 is running at:
[I 17:50:45.560 NotebookApp] http://localhost:8888/?token=b405b1ea1bce14eec56f248bd616248ef990a47a912de703
[I 17:50:45.560 NotebookApp] or http://127.0.0.1:8888/?token=b405b1ea1bce14eec56f248bd616248ef990a47a912de703
[I 17:50:45.560 NotebookApp] Use Control-C to stop this server and shut down all kernels (twice to skip confirmation).
[C 17:50:45.578 NotebookApp]

To access the notebook, open this file in a browser:
file:///home/laurejt/.local/share/jupyter/runtime/nbserver-2316-open.html
Or copy and paste one of these URLs:
http://localhost:8888/?token=b405b1ea1bce14eec56f248bd616248ef990a47a912de703
or http://127.0.0.1:8888/?token=b405b1ea1bce14eec56f248bd616248ef990a47a912de703
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/laurejt/.local/share/jupyter/runtime/nbserver-231 ...
+ ~~~~~
+ CategoryInfo          : InvalidOperation: (:) [Start-Process], InvalidOperationException
+ FullyQualifiedErrorId : InvalidOperationException,Microsoft.PowerShell.Commands.StartProcessCommand
```

This error does not crash Jupyter Notebook, so we can simply open a browser (e.g. Chrome, Firefox) and enter one of the specified URLs to access the application (circled in yellow in the picture below). To copy text within the terminal, select it and right click.

```
To access the notebook, open this file in a browser:
file:///home/laurejt/.local/share/jupyter/runtime/nbserver-2316-open.html
Or copy and paste one of these URLs:
http://localhost:8888/?token=b405b1ea1bce14eec56f248bd616248ef990a47a912de703
or http://127.0.0.1:8888/?token=b405b1ea1bce14eec56f248bd616248ef990a47a912de703
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/laurejt/.local/share/jupyter/runtime/nbserver-231 ...
+ ~~~~~
```

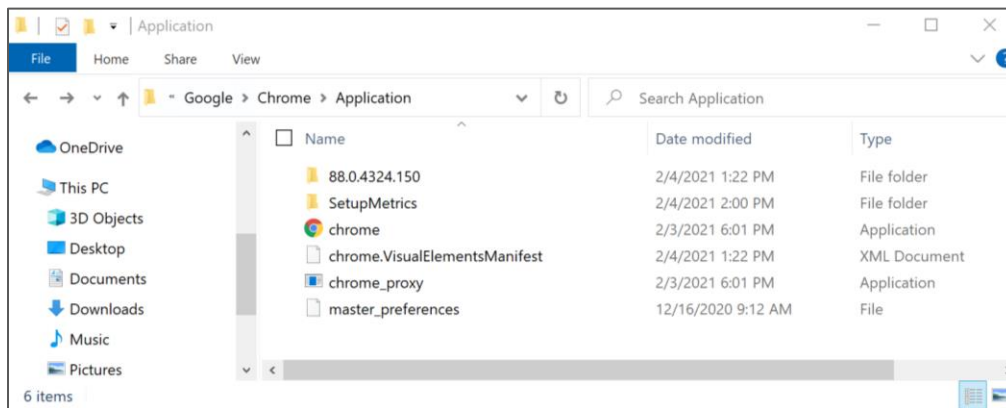
Optional. Configure Jupyter Notebook to correctly launch to a browser

We can configure Jupyter Notebook to correctly launch into a specified browser. This means when we run **jupyter notebook** the application will directly launch into a browser rather than hitting an error.

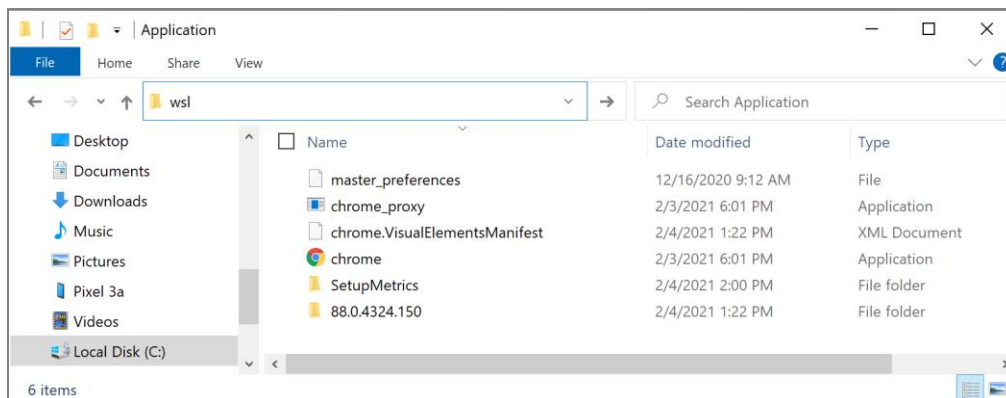
Step 1. Get Browser Path

First, we need the full path to your browser of choice's application file (.exe)

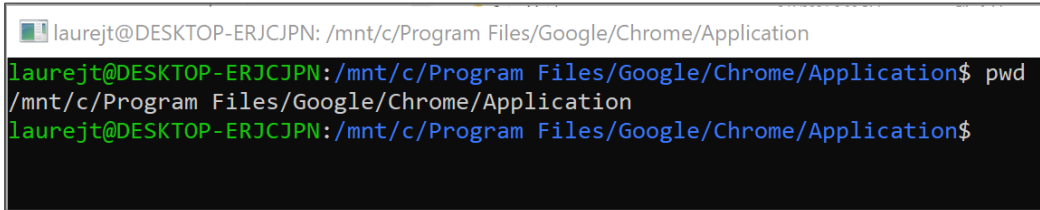
1. Locate the.exe file
 - a. For Chrome, it's **chrome.exe**. Check in this folder:
C:\Program Files\Google\Chrome\Application
 - b. For Firefox, it's **firefox.exe**. Check in this folder:
C:\Program Files\Mozilla Firefox
2. Navigate to the folder containing this file within File Navigator



3. Launch a terminal whose active directory is this folder. To do this:
 - a. Click the address bar within File Navigator
 - b. Type **wsf** and press enter



4. Enter the command **pwd** into the terminal. This command prints out the full path name of the current directory (which is the folder containing the browser's .exe).

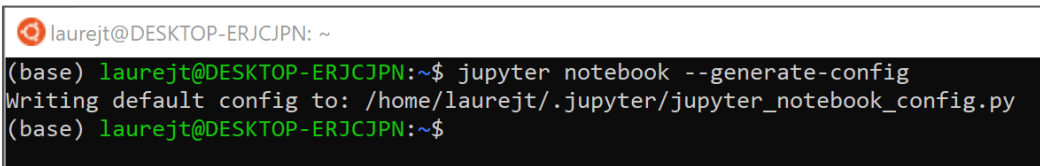


```
laurejt@DESKTOP-ERJCJPN: /mnt/c/Program Files/Google/Chrome/Application
laurejt@DESKTOP-ERJCJPN:/mnt/c/Program Files/Google/Chrome/Application$ pwd
/mnt/c/Program Files/Google/Chrome/Application
laurejt@DESKTOP-ERJCJPN:/mnt/c/Program Files/Google/Chrome/Application$
```

This path will likely contain spaces (e.g. **Program Files**). Spaces will need to be escaped by placed a \ before each space. So, **Program Files** becomes **Program\ Files**. So, the full path for the browser .exe is: **[space-escaped folder path name]/[.exe name]**

Step 2. Create Config File

Now, we will create a config file for Jupyter Notebook. Generate a config file by running the following command from a terminal: **jupyter notebook --generate-config**

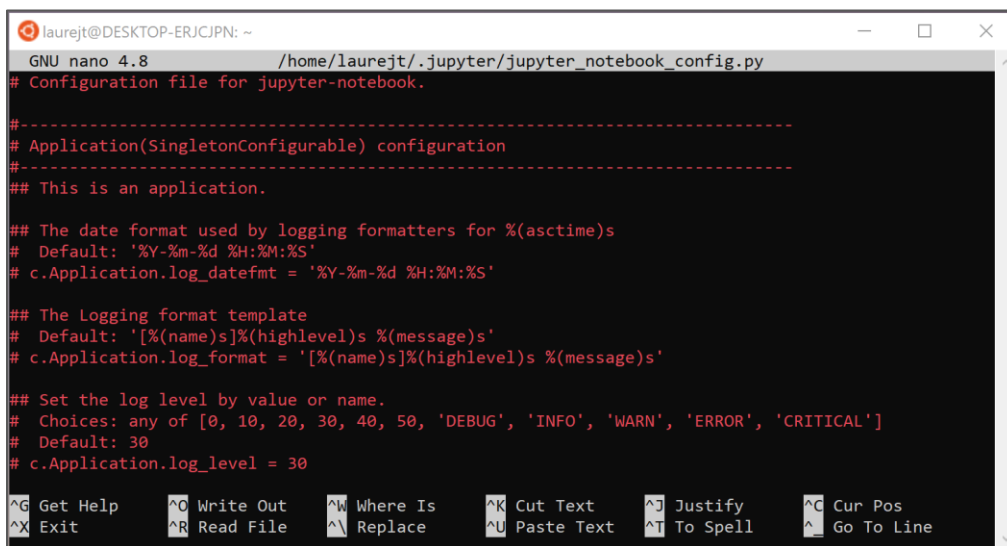


```
laurejt@DESKTOP-ERJCJPN: ~
(base) laurejt@DESKTOP-ERJCJPN:~$ jupyter notebook --generate-config
Writing default config to: /home/laurejt/.jupyter/jupyter_notebook_config.py
(base) laurejt@DESKTOP-ERJCJPN:~$
```

Step 3. Edit Config File

Finally, we will edit the generated config file. Its file name is `jupyter_notebook_config.py`. It has a .py extension which indicates that it is a Python file.

1. Open config file using a terminal-based editor. If you are familiar with text-based editors skip ahead to the next step. In this guide we'll open the file using a simple text-editor **nano**. To open the config file in nano enter the following command:
nano ~/.jupyter/jupyter_notebook_config.py



```
laurejt@DESKTOP-ERJCJPN: ~
GNU nano 4.8 /home/laurejt/.jupyter/jupyter_notebook_config.py
# Configuration file for jupyter-notebook.

#-----
# Application(SingletonConfigurable) configuration
#-----
## This is an application.

## The date format used by logging formatters for %(asctime)s
# Default: '%Y-%m-%d %H:%M:%S'
# c.Application.log_datefmt = '%Y-%m-%d %H:%M:%S'

## The Logging format template
# Default: '%(name)s%(highlevel)s %(message)s'
# c.Application.log_format = '%(name)s%(highlevel)s %(message)s'

## Set the log level by value or name.
# Choices: any of [0, 10, 20, 30, 40, 50, 'DEBUG', 'INFO', 'WARN', 'ERROR', 'CRITICAL']
# Default: 30
# c.Application.log_level = 30

^G Get Help      ^O Write Out    ^W Where Is     ^K Cut Text     ^J Justify      ^C Cur Pos
^X Exit          ^R Read File    ^\ Replace      ^U Paste Text   ^T To Spell     ^_ Go To Line
```

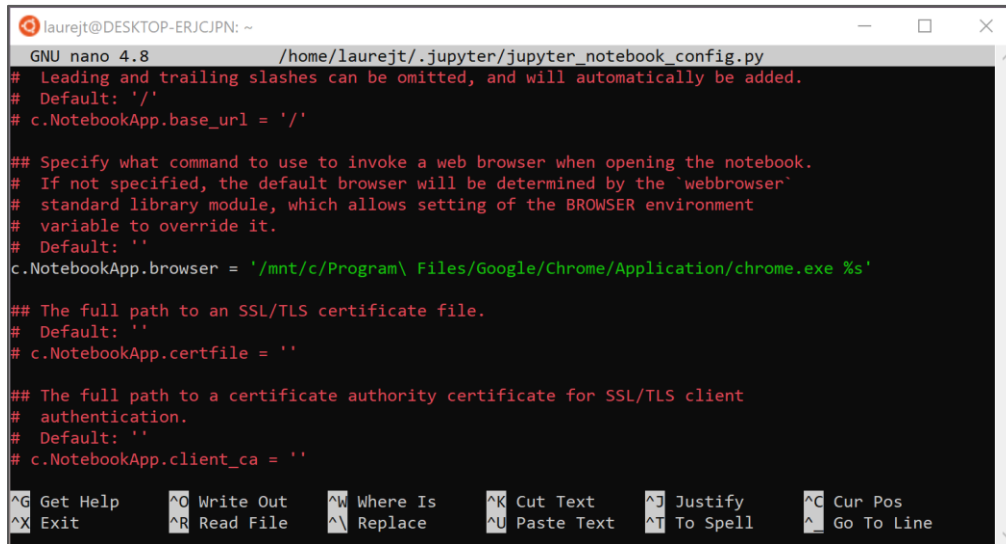
Within nano, all commands are listed at the bottom.

^ corresponds to Ctrl. So, to exit press Ctrl+x.

M corresponds to Alt. – means “followed by”. So, to undo press Alt followed by u.

2. Got to line 149. It will contain: `# c.NotebookApp.browser = ''`

Replace it with: `c.NotebookApp.browser = '[full path for browser .exe] %s'`



```
laurejt@DESKTOP-ERJCJPN: ~
GNU nano 4.8 /home/laurejt/.jupyter/jupyter_notebook_config.py
# Leading and trailing slashes can be omitted, and will automatically be added.
# Default: '/'
# c.NotebookApp.base_url = '/'

## Specify what command to use to invoke a web browser when opening the notebook.
# If not specified, the default browser will be determined by the `webbrowser`
# standard library module, which allows setting of the BROWSER environment
# variable to override it.
# Default: ''
c.NotebookApp.browser = '/mnt/c/Program Files/Google/Chrome/Application/chrome.exe %s'

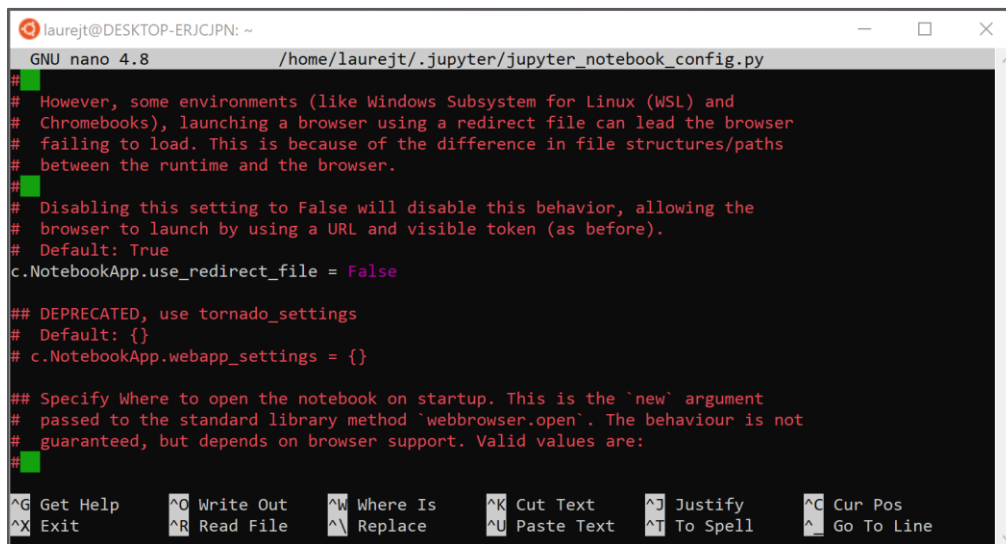
## The full path to an SSL/TLS certificate file.
# Default: ''
# c.NotebookApp.certfile = ''

## The full path to a certificate authority certificate for SSL/TLS client
# authentication.
# Default: ''
# c.NotebookApp.client_ca = ''

^G Get Help      ^O Write Out    ^W Where Is     ^K Cut Text     ^J Justify      ^C Cur Pos
^X Exit         ^R Read File    ^\ Replace      ^U Paste Text   ^T To Spell     ^_ Go To Line
```

3. Go to line 521. It will contain: `# c.NotebookApp.use_redirect_file = True`

Replace it with: `c.NotebookApp.use_redirect_file = False`



```
laurejt@DESKTOP-ERJCJPN: ~
GNU nano 4.8 /home/laurejt/.jupyter/jupyter_notebook_config.py
#
# However, some environments (like Windows Subsystem for Linux (WSL) and
# Chromebooks), launching a browser using a redirect file can lead the browser
# failing to load. This is because of the difference in file structures/paths
# between the runtime and the browser.
#
# Disabling this setting to False will disable this behavior, allowing the
# browser to launch by using a URL and visible token (as before).
# Default: True
c.NotebookApp.use_redirect_file = False

## DEPRECATED, use tornado_settings
# Default: {}
# c.NotebookApp.webapp_settings = {}

## Specify Where to open the notebook on startup. This is the `new` argument
# passed to the standard library method `webbrowser.open`. The behaviour is not
# guaranteed, but depends on browser support. Valid values are:
#
^G Get Help      ^O Write Out    ^W Where Is     ^K Cut Text     ^J Justify      ^C Cur Pos
^X Exit         ^R Read File    ^\ Replace      ^U Paste Text   ^T To Spell     ^_ Go To Line
```