

1. Go to Microsoft Store
2. Search Windows Subsystem for Linux (WSL) - download and install
3. Open Windows PowerShell after installing
 - a. <https://www.systranbox.com/how-to-enable-the-windows-subsystem-for-linux-wsl-optional-component/>
4. Pick Ubuntu System of Choice (18.04 or 20.04)
 - a. Further Instructions given for Ubuntu-20.04
 - b. For Ubuntu-18.04 see indent after each step
5. In PowerShell type: **wsl.exe --install Ubuntu-20.04**
6. Wait for installation to complete - be patient
 - a. To Troubleshoot see: [Fix "WslRegisterDistribution Failed With Error 0x80070032" on Windows \(softwarekeep.com\)](#)
7. Create user - **DO NOT FORGET PASSWORD**
8. Use link to install python, CASA, and SUNCASA:
<https://github.com/suncasa/suncasa-src>
 - a. In Ubuntu:
 - i. **sudo apt install python3.8**
 - ii. Check that it works: **python3.8**
 - iii. **You need to install libgfortran3. Follow this steps:**
<https://gist.github.com/sakethramanujam/faf5b677b6505437dbdd82170ac55322#file-install-libgfortran3-sh>
 - iv.
 - b. On your PC:
 - i. Download the proper CASA software based on your python version
 - ii. Open File manager app
 - iii. Identify your Linux workspace
 - iv. Copy CASA download file into the desired workspace (Recommend: /home/username/)
 - v. This you can do for any files you need to have access to in your ubuntu server
 - c. Go back to Ubuntu terminal in directory /home/username/ (ensure CASA download file is there):
 - i. Setup directory: **mkdir casa**
 - ii. Move file into directory: **mv casa-6.5.2-26-py3.8.tar.xz \$HOME/casa**
 - iii. Move into directory: **cd casa**
 - iv. Untar file: **tar -xvf casa-6.5.2-26-py3.8.tar.xz**
 - v. Set commands in bash for use:
 1. **echo 'export CASAROOT="\$HOME/casa/casa-6.5.2-26-py3.8/'**
>> ~/.bashrc
 2. **echo 'export PATH="\$PATH:\$CASAROOT/bin"' >> ~/.bashrc**
 3. **exec "\$SHELL"**
 - vi. Make sure it works: **casa**
 - vii. Move back to working directory: **cd \$HOME**
 - viii. Prepare SUNCASA Environment: **python3.8 -m venv suncasaenv**

1. Troubleshoot: **sudo apt install python3.8-venv**
 - a. Troubleshoot Again:
 - i. **sudo apt-get update**
 - ii. **sudo apt-get install python3-virtualenv**
 - ix. Activate the Environment: **source suncasaenv/bin/activate**
 1. Update: **pip install --upgrade pip**
 2. Install: **pip install suncasa**
 3. Upgrade: **pip install --upgrade suncasa**
 4. Enter the space: **ipython3**
 - a. Troubleshoot:
 - i. Exit: deactivate
 - ii. Install: **sudo apt install ipython3**
 1. Troubleshoot: **python3.8**
 - iii. Reenter Environment: **source suncasaenv/bin/activate**
 - iv. Reenter space: **ipython3**
 - b. Import Module: **import suncasa**
 - c. Import Module: **import casatasks**
 - d. Exit Space: **exit**
5. **printf "import sys \nimport os \nimport sysconfig \nimport casatools \nimport casadata \nimport time \nlogfile='casalog-{}.log'.format(time.strftime('%%Y%%m%%d-%%%H',time.localtime())) \ntelemetry_enabled = False \ncrashreporter_enabled = True \ntb=casatools.table() \nospathsep = os.path.sep \nlibpath = sysconfig.get_paths()['purelib'] \nobdict = {'MJD': 57447.0, 'Name': 'EOVSA', 'Type': 'WGS84', 'Long': -118.287, \n'Lat': 37.2332, 'Height': 1207.13, 'X': 0.0, 'Y': 0.0, 'Z': 0.0, \n'Source': 'Dale Gary'} \nobstable = os.path.join(casadata.datapath,'geodetic','Observatories') \ntb.open(obstable, nomodify=True) \nif 'EOVSA' not in tb.getcol('Name'): \n print('Adding EOVSAs to the Observatories') \n tb.close() \n tb.open(obstable, nomodify=False) \n nrows = tb.nrows() \n tb.addrows(1) \n for k in obsdict.keys(): \n tb.putcell(k, nrows, obsdict[k]) \ntb.close() \n" > \$HOME/.casa/config.py**
9. To get plotting to work in WSL:
 - a. Download and install [VcXsrv](#) (X-window server). To run it, click on XLaunch icon, select Multiple Windows, next, then in Extra settings window tick the Disable access control box, then save the configuration to the install folder (e.g. C:\Program Files\VcXsrv). Then right click on the XLaunch icon and change the "target" line add to be **"C:\Program Files\VcXsrv\XLaunch.exe" -run config.xlaunch**. You'll have to click this shortcut each time before launching WSL.

- b. In WSL install tkinter with **sudo apt-get install python3-tk**. (I could not get QT to work).
 - c. Add the line **export DISPLAY=`grep -oP "(?<=nameserver).+\"**
/etc/resolv.conf`:0.0 to the end of your .bashrc file.
- 10. Run selfcal in CASA
 - a. **sudo apt install lsb-core**