

How to install GPCAL on Mac OS 12.3+

*This method worked for Mac with Intel Mac (OS 14.6.1) M1 (OS 14.2.1) and M3 (14.6.1).

Reference:

<https://stackoverflow.com/questions/67380286/anaconda-channel-for-installing-python-2-7>

On your terminal, type

```
CONDA_SUBDIR=osx-64 conda create -n py2 python=2.7
```

ensure that future package installs in this env stick to 'osx-64'

```
conda activate py2
conda config --env --set subdir osx-64
```

```
CONDA_SUBDIR=osx-64 conda install -c kettenis parseltongue
```

After installation of ParselTongue, type “Parseltongue” on the terminal.

If you encounter the error like below, then

```
((py2) jpark@LOCALHOST ~ % Parseltongue
Using DADEV.S.H
PRDEVS: cannot proceed, no printers found in /Users/jpark/aips/DA00/PRDEVS.LIST
Python 2.7.18 [Anaconda, Inc.] (default, Nov 25 2022, 00:27:59)
[GCC Clang 14.0.6] on darwin
Type "help", "copyright", "credits" or "license" for more information.
Traceback (most recent call last):
  File "/Users/jpark/anaconda3/envs/py2/share/parseltongue/python/Parseltongue.py", line 27, in <module>
    import AIPS
  File "/Users/jpark/anaconda3/envs/py2/share/parseltongue/python/AIPS.py", line 35, in <module>
    import LocalProxy
  File "/Users/jpark/anaconda3/envs/py2/share/parseltongue/python/LocalProxy.py", line 28, in <module>
    import Proxy.AIPSTask
  File "/Users/jpark/anaconda3/envs/py2/share/parseltongue/python/Proxy/AIPSTask.py", line 35, in <module>
    import AIPSLite
  File "/Users/jpark/anaconda3/envs/py2/share/parseltongue/python/AIPSLite.py", line 18, in <module>
    import ObIt
ImportError: dlopen(/Users/jpark/anaconda3/envs/py2/lib/obit/python/Obit.so, 0x0002): Library not loaded: @rpath/libgsl.23.dylib
  Referenced from: <71F160A5-6FCE-39BB-AF9C-0743F8C828CA> /Users/jpark/anaconda3/envs/py2/lib/obit/python/Obit.so
  Reason: tried: '/Users/jpark/anaconda3/envs/py2/lib/libgsl.23.dylib' (no such file), '/System/Volumes/Preboot/Cryptexes/OS/Users/jpark/anaconda3/envs/py2/lib/libgsl.23.dylib' (no such file), '/Users/jpark/anaconda3/envs/py2/lib/libgsl.23.dylib' (no such file), '/Users/jpark/anaconda3/envs/py2/lib/obit/python/../../libgsl.23.dylib' (no such file), '/Users/jpark/anaconda3/envs/py2/lib/libgsl.23.dylib' (no such file), '/System/Volumes/Preboot/Cryptexes/OS/Users/jpark/anaconda3/envs/py2/lib/libgsl.23.dylib' (no such file), '/Users/jpark/anaconda3/envs/py2/lib/obit/python/../../libgsl.23.dylib' (no such file), '/Users/jpark/anaconda3/envs/py2/lib/libgsl.23.dylib' (no such file), '/Users/jpark/anaconda3/envs/py2/bin/../../lib/libgsl.23.dylib' (no such file), '/usr/local/lib/libgsl.23.dylib' (no such file), '/usr/lib/libgsl.23.dylib' (no such file, not in dyld cache)
>>>
```

#You should change the locations of these files adjusted to your Mac. In my case, the following command worked.

```
ln -s
/Users/jpark/anaconda3/pkgs/gsl-2.7.1-hdbe807d_1/lib/libgsl.27.dyl
ib /Users/jpark/anaconda3/envs/py2/lib/libgsl.23.dylib
```

If you don't have gsl installed (so you cannot find libgsl.27.dylib file anywhere), then you can install it using

```
conda install -c anaconda gsl
```

The location of

```
"/Users/jpark/anaconda3/pkgsgsl-2.7.1-hdbe807d_1/lib/libgsl.27.dyl  
ib "
```

 may depend on the PC, so you have to figure out where it is located.

If it says `/Users/jpark/anaconda3/envs/py2/lib/libgsl.23.dylib` already exists, then you may change its name like "libgsl.23.dylib" to "libgsl.23.dylib.orig".

* If you encounter a similar error regarding "libgfortran.3.dylib", you can do a similar job. In my case, the following command worked.

```
ln -s /Users/jpark/anaconda3/pkgslibgfortran-3.0.1-h93005f0_2/lib/libgfortran.3.dylib  
/Users/jpark/anaconda3/envs/testpy2/lib/libgfortran.3.dylib
```

* If "libgfortran-3.0.1~" does not exist, but other versions may already exist in the env

```
ln -s /Users/jpark/anaconda3/envs/testpy2/lib/libgfortran.dylib  
/Users/jpark/anaconda3/envs/testpy2/lib/libgfortran.3.dylib
```

*or `conda install mirror-test::libgfortran` will install the libgfortran, but you should `ln -s`

Try running ParselTongue again. It worked for me at least.

Then, install gpcal via "pip install gpcal" under the py2 environment. In some cases, you may encounter the following error:

```
-----  
(py2) kunwoo@Kunwooui-MacBookAir:~ $ pip install gpcal  
Traceback (most recent call last):  
  File "/opt/anaconda3/envs/py2/bin/pip", line 6, in <module>  
    from pip._internal.cli.main import main  
ImportError: No module named pip._internal.cli.main
```

install pip

```
>curl https://bootstrap.pypa.io/pip/2.7/get-pip.py -o get-pip.py
```

```
>python2 get-pip.py
```

Run ParselTongue again and try "import gpcal".

If it produces the following error:

```
>>> import gpcal  
Traceback (most recent call last):  
  File "<stdin>", line 1, in <module>  
    File "/Users/jpark/anaconda3/envs/py2/lib/python2.7/site-packages/gpcal/__init__.py", line 2, in <module>  
      import gpcal  
    File "/Users/jpark/anaconda3/envs/py2/lib/python2.7/site-packages/gpcal/gpcal.py", line 5, in <module>  
      import pandas as pd  
    File "/Users/jpark/anaconda3/envs/py2/lib/python2.7/site-packages/pandas/__init__.py", line 19, in <module>  
      "Missing required dependencies {0}".format(missing_dependencies))  
ImportError: Missing required dependencies ['numpy']
```

Install numpy via

```
CONDA_SUBDIR=osx-64 conda install anaconda::numpy
```

Try importing gpcal again. In my case, I did not encounter any error. However, if we run a GPCAL script, then you may encounter an error associated with “FITLD” (-999). Go to the “gpcal” subdirectory under the directory where your files are located. Check the GPCAL log file there. If it says something like

```
libgfortran.5.dylib error (need arm64 but have x86_64)
```

Then,

```
sudo ln ./aips/31DEC24/MACARM/LIBR/INTELCMP/libgfortran.5.dylib /usr/local/lib/libgfortran.5.dylib
```

Again, you may need to figure out the exact locations of these files.

Similarly,

```
sudo ln ./aips/31DEC24/MACARM/LIBR/INTELCMP/libquadmath.0.dylib /usr/local/lib/libquadmath.0.dylib
```

```
sudo ln ./aips/31DEC24/MACARM/LIBR/INTELCMP/libgcc_s.1.1.dylib /usr/local/lib/libgcc_s.1.1.dylib
```