

Options for Conda installation

If you don't want to manually install the required dependencies (including ROOT...), you can try installing via Conda. These instructions come from my colleague Austin, via his colleague at PSU

Prerequisite

Working conda installation. We recommend to install Miniconda to save some disk space compared to anaconda.

Install Miniconda

1. `wget https://repo.continuum.io/miniconda/Miniconda3-latest-Linux-x86_64.sh -O miniconda.sh`
2. `bash miniconda.sh`
3. `bash`

I needed an additional step 3.5: `3.5 conda update -n base -c defaults conda`

4. `conda install mamba conda-devenv -n base -c conda-forge`
5. `mamba init bash`
6. `rm miniconda.sh`

Create PUEO environment

Save the following code as `pueo.devenv.yml` in the desired directory

```
name: pueo_env
channels:
  - conda-forge
  - defaults

dependencies:
  - fftw
  - root

variables:
  PUEO_BUILD_DIR: /users/PAS2608/{your username}/pueo
  PUEO_UTIL_INSTALL_DIR: /users/PAS2608/{your username}/pueo/install
  NICEMC_SRC: /users/PAS2608/{your username}/pueo/components/nicemc
  NICEMC_BUILD: /users/PAS2608/{your username}/pueo/build/components/nicemc
  PUEOSIM_SRC: /users/PAS2608/{your username}/pueo/components/pueoSim
```

Now run

```
mamba-devenv -f pueo.devenv.yml
```

This creates a conda environment with required packages and environment variables. Change the path in the `.yml` according to your wishes for the path you want the PUEO tools to be installed/built. You can change the environment name to what ever you desire. Just remember to activate the environment whenever you want to use pueo tools:

```
conda activate pueo_env
```

Install cmake

You can download the source files for CMake here: <https://cmake.org/download/>. Untar the source files with:

```
tar -xvf cmake-3.27.6.tar
```

Compiling CMake is as easy as following the directions on the website: <https://cmake.org/install/>, but since we're doing a local build, we'll use the `configure` script instead of the listed `bootstrap` script. As an example, suppose that I downloaded the above tar file to `/scratch/kaeliautumn/cmake` :

```
mkdir install
cd cmake-3.27.6
./configure --prefix=/scratch/kaeliautumn/cmake/install
make
make install
```

You should additionally add this directory to your `$PATH` variable:

```
export PATH=/scratch/kaeliautumn/cmake/install/bin:$PATH
```

Download github and make

```
conda activate pueo_env
git clone git@github.com:PUEOCollaboration/pueoBuilder pueo
cd pueo
./pueoBuilder.sh
```

Now you can run `pueoSim` like so:

```
./pueoSim -i {inputFile} -o {outputDirectory} -r {runNumber} -n {numberOfNeutrinos} -t {triggerThreshold} -e {energyExponent}
```

so, from the `/users/PAS2608/{your_username}/pueo` directory, do

```
./build/components/pueoSim/simulatePueo -i pueo.conf -n 100 -r 102
```