Please execute this notebook with Kernel -> Restart & Run All

Out[1]: Click here to display/hide code cells in this notebook.

Installing AMUSE

In this tutorial, we will assume you are using a modern OS. Older versions than current may require slightly modified instructions. Also, we will assume you're using Python 2.7. Instructions for Python 3 are slightly different.

1. Installing the prerequisites

AMUSE depends on several software packages to run properly. While the core of AMUSE requires only Python and Numpy to run, the interface to community codes is based on MPI, and several of the community codes also have specific requirements. This section documents the installation of these prerequisite codes.

Please select your OS and preferred MPI below. If you already have either of these MPI versions (or another) installed, please choose that one. Having multiple MPIs installed can have undesired results.

OS	macOS
MPI	OpenMPI

In macOS, we use macports to install dependencies. Other methods (e.g. Homebrew) will probably work just as well, but we have not tested these.

In the example below, we use GCC version 7, but other versions will also work.

```
sudo port install python27 py27-virtualenv
sudo port install gcc7 hdf5 gsl cmake gmp mpfr fftw-3 +gcc7

sudo port install openmpi-gcc7
```

To make sure the right MacPorts compilers and python are set as default, do the following:

```
sudo port select --set mpi openmpi-gcc7-fortran
sudo port select --set gcc mp-gcc7
sudo port select --set python2 python27
```

2. Downloading and building AMUSE

Clone the AMUSE repository to your computer:

```
git clone https://github.com/amusecode/amuse.git
```

Then, make a virtual environment for Amuse.

```
virtualenv Amuse-env
```

This virtual environment ensures you are using the correct modules, and isolates them from other system-installed packages.

To activate the environment, use

```
. Amuse-env/bin/activate
```

From this point, your prompt will have 'Amuse-env ' in front of it, to indicate that you are using this virtual environment.

Inside this environment, install the python modules required by Amuse:

```
pip install future numpy scipy matplotlib nose docutils mpi4py
h5py
```

Also, install any additional modules you might want to use, like Astropy:

```
pip install astropy jupyter
```

Modules needed for some of the textbook examples:

```
pip install pandas seaborn
```

Now, go to your Amuse repository

```
cd $AMUSEDIR
```

Run configure to set the paths correctly, with optional support for CUDA (requires a NVIDIA GPU and CUDA to be installed) and Sapporo2 (enables multi-GPU use, also requires CUDA)

```
./configure [--enable-cuda] [--enable-sapporo2]
```

Finally, install Amuse (optional: download and build communtity codes not supplied with AMUSE, e.g. MESA and Rebound)

```
[export DOWNLOAD_CODES=1]
python setup.py install
```

Done!