

# Installation of rsMap3D on Mac/OSX Host

These installation instructions assume the use of the Anaconda Python distribution from Continuum Analytics. We use Canopy for these instructions as it is the default Python environment used by the Advanced Photon Source at this time. For these instructions, Anaconda 2.5.0 and the packages provided by Anaconda were used as much as possible. The description written here was put together using a fresh Anaconda install in order to provide as much information as possible for the beginning user.

In order to install run rsmMap3D the user will need to install Anaconda, and install/check the install of a number of other python packages and then install:

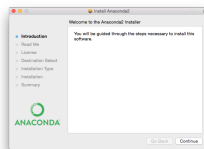
- [xrayutilities](#)
- [spec2nexus](#)
- And then download the source for [rsMap3D](#)

## Installation and setup of Canopy

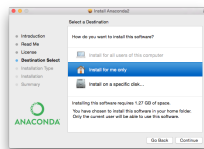
[Anaconda](#) is a completely free bundling of Python by Continuum Analytics. Note that although Continuum Analytics does provide Anaconda at no cost, it does provide [some additional levels of support](#) for a fee . To install Anaconda Python, go to the download site mentioned above you should see a web page with a section that looks like



These instructions assume that you will install the Python 2.7, 64-bit graphical installer. Launching this installer should present a window like:



Clicking next you will be asked to accept the license agreement. You will then be prompted to select an installation type see image below. Anaconda allows installation on a per user basis ("Install for me only") or for all users (requires admin privilege).



This installation assumes selection of "Install for me only" which requires only normal user privilege. In this case anaconda will be installed in the user's home directory by default. Before final installation the user will be prompted for installation type (see image). This allows customization of installed packages and location. It is recommended to accept the defaults here. Accepting defaults should add python executables to the user's PATH environment variable. It will take some time to complete the installation since Anaconda provides many common packages by default.



For rsMap3D we need to make sure that the following packages are installed: numpy, vtk, pytables and PyQt4. Installation can be verified by launching Terminal (Applications->Utilities->Terminal) and running

```
conda search <packagename> at the prompt.
```

At this time, Anaconda 2.5.0 is being used and the following packages are available and those not installed by default can be installed with the command

```
conda install <packagename>
```

### Required packages

- numpy 1.10.4 is already installed
- pyqt 4.11.4 is already for installation
- vtk 6.3.0 is available for installation
- pytables 3.2.2 is installed
- h5py 2.5.0 is installed
- pillow 3.1.0 is installed (or pil)

Make sure to install these packages now. Note that we will also need xrayutilities and spec2nexus (described below).

## Installing xrayutilities

Xrayutilities is a package written by Dominik Kriegner and Eugen Wintersberger. We are presently using version 1.2.1 of xrayutilities. This package can be downloaded as a tar.gz file from <http://sourceforge.net/projects/xrayutilities/>.

To unbundle the package in the user's home directory (i.e ~/xrayutilities-1.2.1):

```
cd ~  
tar -xzf 'path to file'/xrayutilities-1.2.1.tar.gz
```

This package includes a setup.py file to help with the install. To install xrayutilities run:

```
cd ~/xrayutilities-1.2.1  
python setup.py --without-openmp install
```

## Installing spec2nexus

spec2nexus is a python package written by Pete Jemian at the APS. This package provides a subpackage that enables parsing spec files in python. This package has been used in places to read spec files as input for the rsMap3D. Note that rsMap3D requires at least version 2016.216.0. Although the installation instructions suggest this can be installed with the conda installer, this method currently installs an older version. To install the correct version use:

```
pip install spec2nexus
```

# Installing rsMap3D

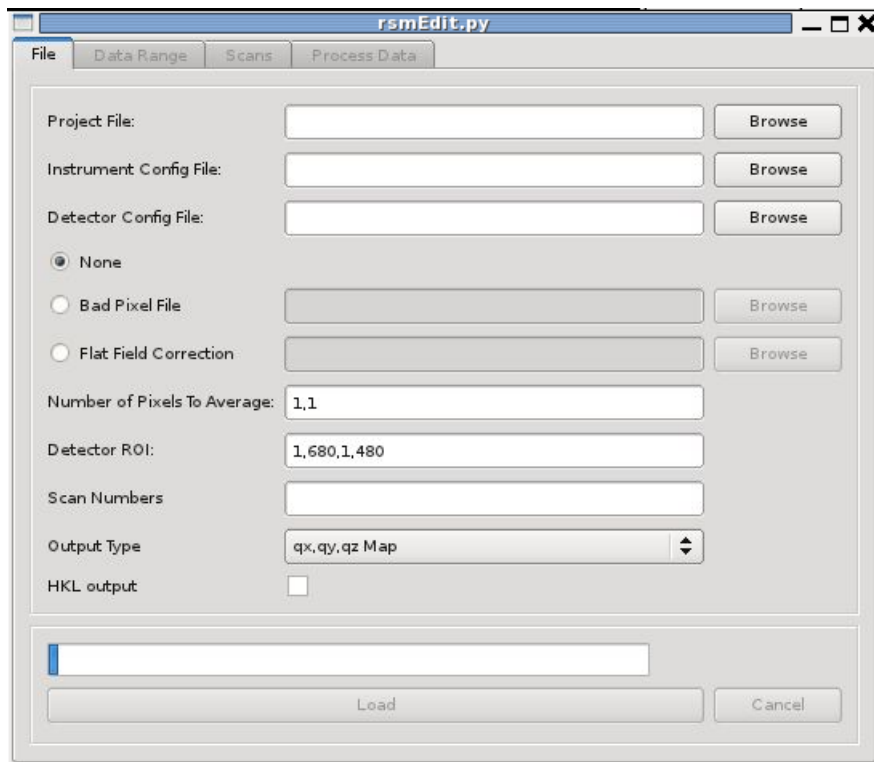
rsMap3D is now available as a package on the [Python Package Index](#). This allows installation of rsMap3D using pip

```
pip install rsMap3D
```

A windows .bat file is installed in the path defined by the python installation (the Scripts subdirectory for the Anaconda distribution). The application can be launched by running

```
python -m rsMap3D.rsmEdit
```

You will then see a window like the following:



You are now ready to start using rsMap3D.