
Installation Documentation

Release 1.1.4

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INSTALLATION OF RSMAP3D ON LINUX HOST

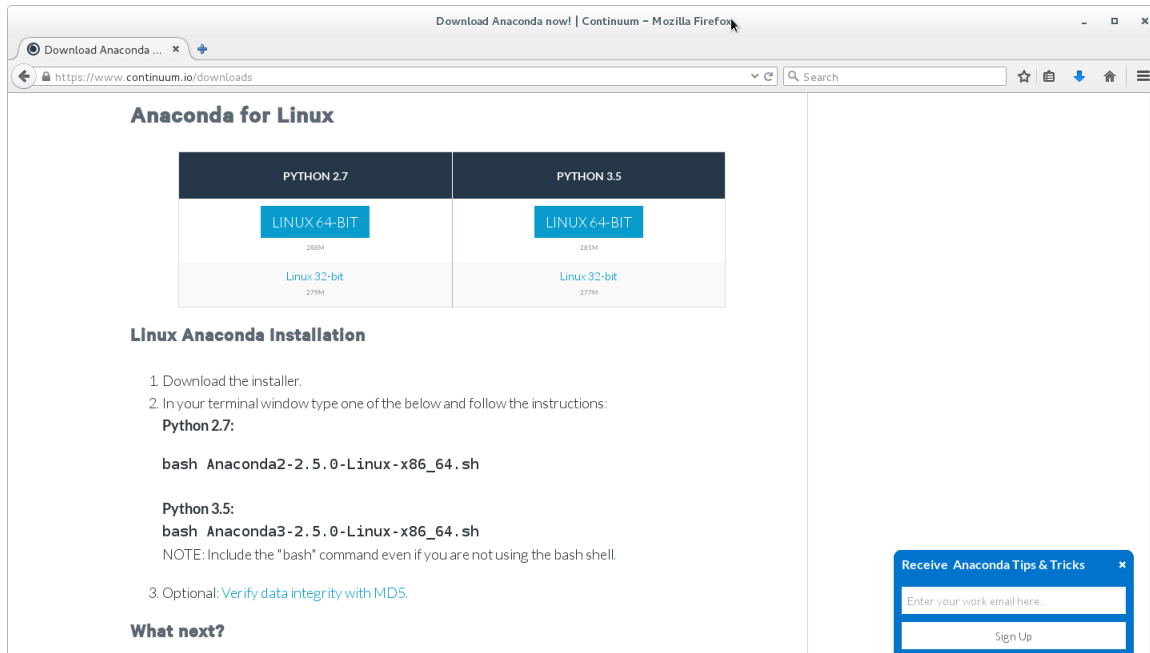
These installation instructions assume the use of the Anaconda Python distribution from Continuum Analytics. We use Canopy for these instructions as it is the default Python environment used by the Advanced Photon Source at this time. For these instructions, Anaconda 2.5.0 and the packages provided by 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](#)

1.1 Installation and setup of Anaconda

[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. Anaconda supports installation of both Python 2.7 and 3.x. At the time of this writing, The Python 3.x version does not support the integration of PyQt and VTK, which rsMap3D uses. Note that although the Anaconda download of for Python 2 & 3 are essentially the same it is recommended, especially if you are installing for this application, that you install the Python 2 version of Anaconda for more convenient installation. Note also that the current distribution of Anaconda installs version 5.x of PyQt by default. This version of PyQt does not support the integration with VTK so it will be necessary to downgrade the to version 4.11 of PyQt (see below). . To install Anaconda Python, go to the download site mentioned above you should see a web page with a section that looks like



Running the installer as described will prompt for acceptance of the license agreement and installation directory. Assuming acceptance of the license agreement, enter a location for anaconda installation. Note that this installation does not require administrator privilege, it just requires write access to the install director for all that need to provide maintenance. 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 an Anaconda prompt from Start->All Programs->Anaconda2 (64-bit). We can verify package installation with

```
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 (As noted above, it is necessary to

install the 4.11 version of PyQt. To do this use 'conda install pyqt=4.11') * 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).

1.2 Installing xrayutilities

Xrayutilities is a package written by Dominik Kriegner and Eugen Wintersberger. We are presently using version 1.0.6 of xrayutilities. This package can be downloaded as a tar.gz file from <http://sourceforge.net/projects/xrayutilities/>.

To unbundle the package in /local/xrayutilities-1.0.6:

```
cd /local
tar -xzf 'path to file'/xrayutilities-1.0.6.tar.gz
```

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

```
cd /local/xrayutilities-1.0.6
~/Enthought/Canopy_64bit/User/bin/python setup.py install
```

1.3 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
```

1.4 Installing rsMap3D

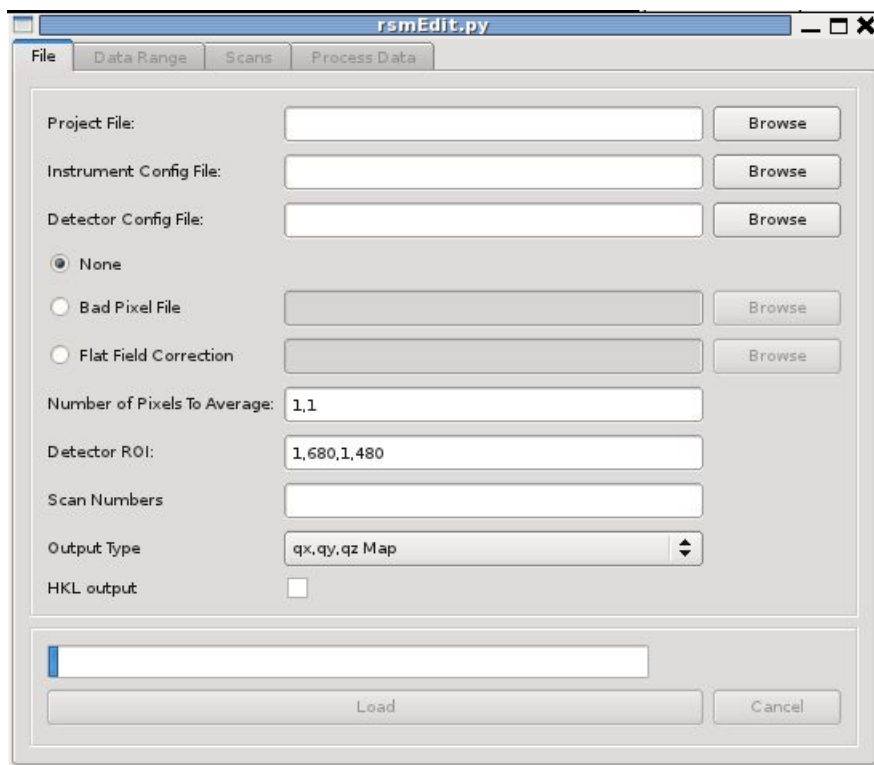
rsMap3D is now available as a package on the [Python Package Index](#). This allows installation of rsMap3D using the python pip installer

```
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.

INSTALLATION OF RSMAP3D ON MAC/OSX HOST

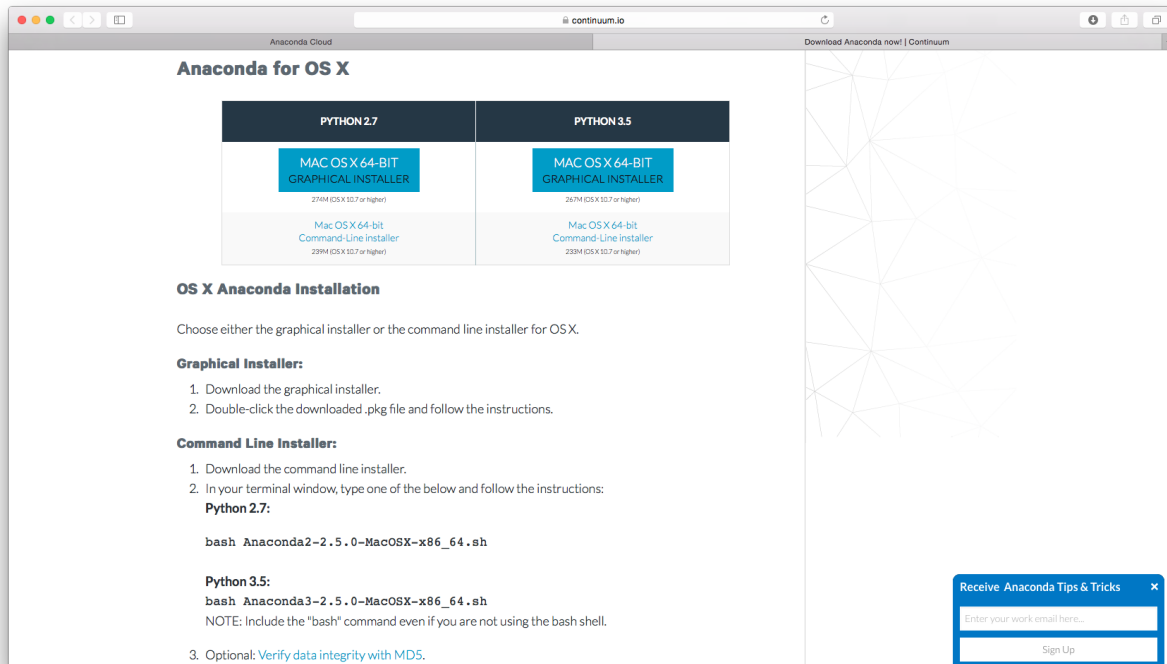
These installation instructions assume the use of the Anaconda Python distribution from Continuum Analytics. We use Canopy for these instructions as it is the default Python environment used by the Advanced Photon Source at this time. For these instructions, Anaconda 2.5.0 and the packages provided by 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:

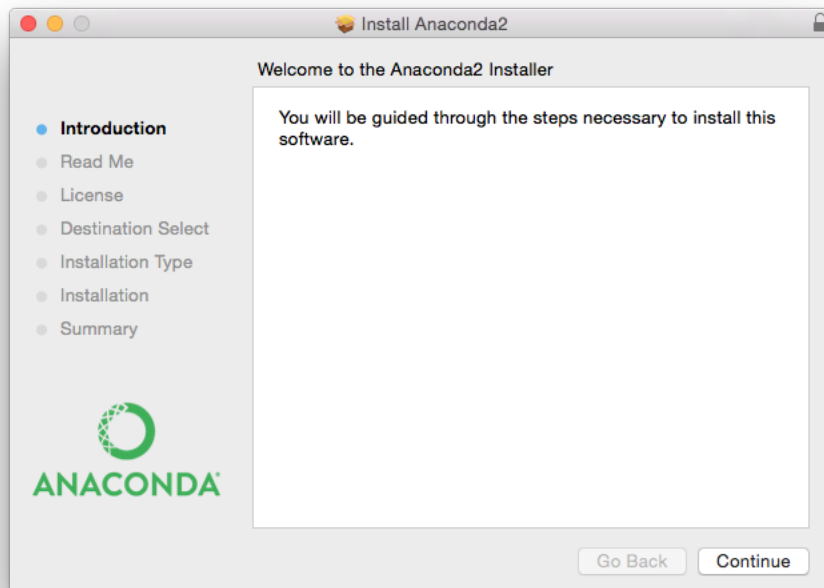
- [xrayutilities](#)
- [spec2nexus](#)
- And then download the source for [rsMap3D](#)

2.1 Installation and setup of Anaconda

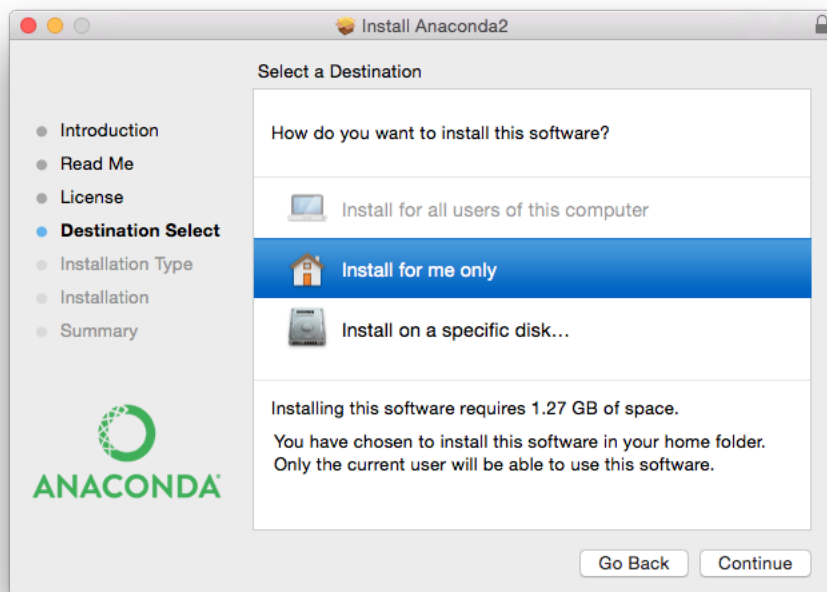
[Anaconda](#) is a completely free bundling of Python by Continuum Analytics. Note that although Continuum Analytics does provide Anaconda at no cost, it does provide [some additional levels of support](#) for a fee. Anaconda supports installation of both Python 2.7 and 3.x. At the time of this writing, The Python 3.x version does not support the integration of PyQt and VTK, which rsMap3D uses. Note that although the Anaconda download of for Python 2 & 3 are essentially the same it is recommended, especially if you are installing for this application, that you install the Python 2 version of Anaconda for more convenient installation. Note also that the current distribution of Anaconda installs version 5.x of PyQt by default. This version of PyQt does not support the integration with VTK so it will be necessary to downgrade the to version 4.11 of PyQt (see below). . To install Anaconda Python, go to the download site mentioned above you should see a web page with a section that looks like



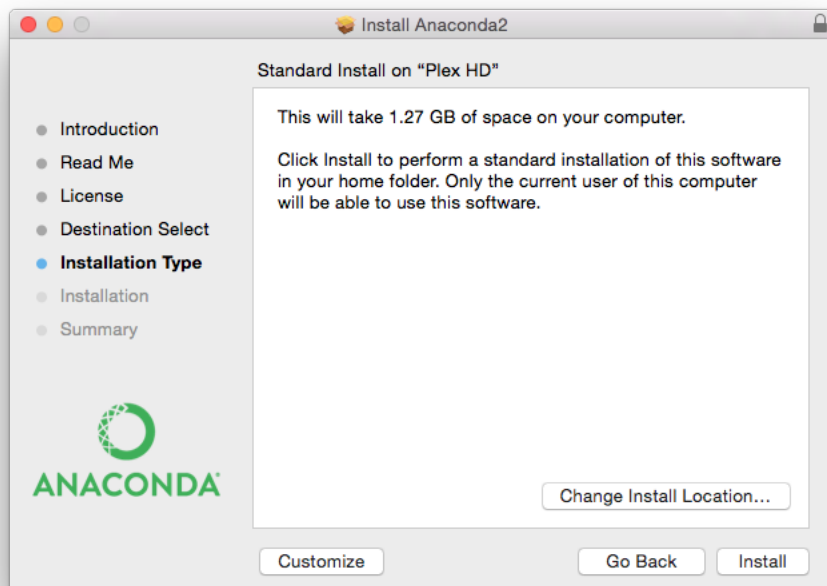
These instructions assume that you will install the Python 2.7, 64-bit graphical installer. Launching this installer should present a window like:



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 (As noted above, it is necessary to

install the 4.11 version of PyQt. To do this use ‘conda install pyqt=4.11’) * 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).

2.2 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):

To install directly with pip: – code-block:: none

```
pip install --global-option="--without-openmp" xrayutilities
```

if the compiler that you are using supports openmp then you can omit --global-option="--without-openmp"

2.3 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
```

2.4 Installing rsMap3D

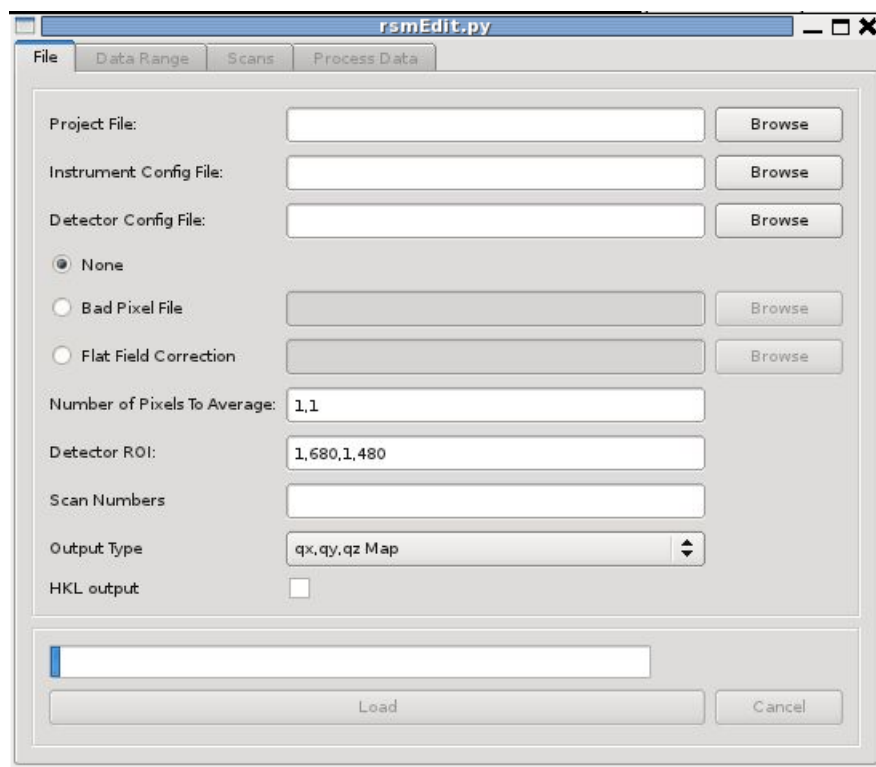
rsMap3D is now available as a package on the [Python Package Index](#). This allows installation of rsMap3D using pip

```
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.

INSTALLATION OF RSMAP3D ON WINDOWS HOST

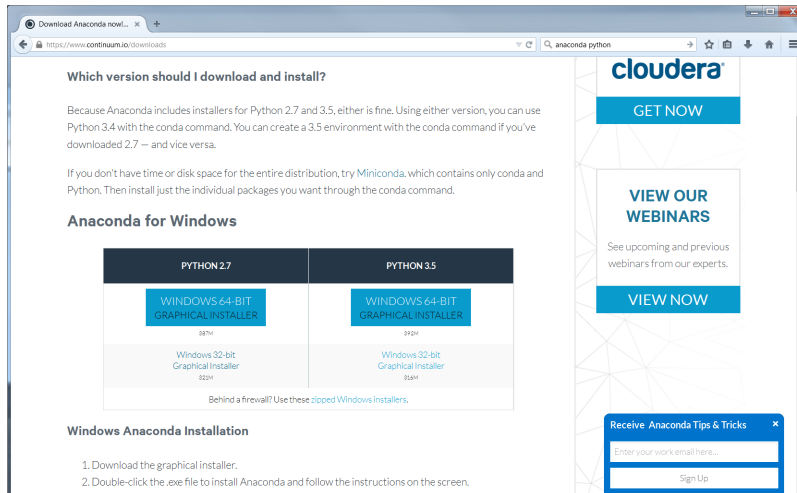
These installation instructions assume the use of the Anaconda Python distribution from Continuum Analytics. We use Canopy for these instructions as it is the default Python environment used by the Advanced Photon Source at this time. For these instructions, Anaconda 2.5.0 and the packages provided by 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:

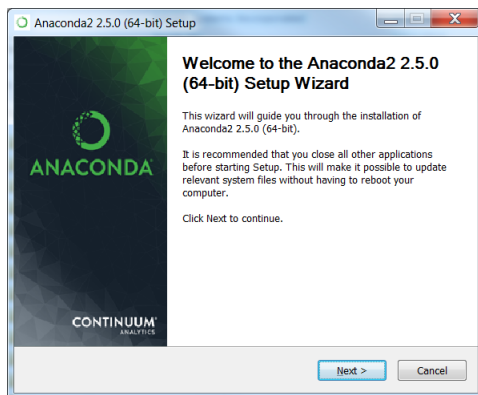
- [xrayutilities](#)
- [spec2nexus](#)
- And then download the source for [rsMap3D](#)

3.1 Installation and setup of Anaconda

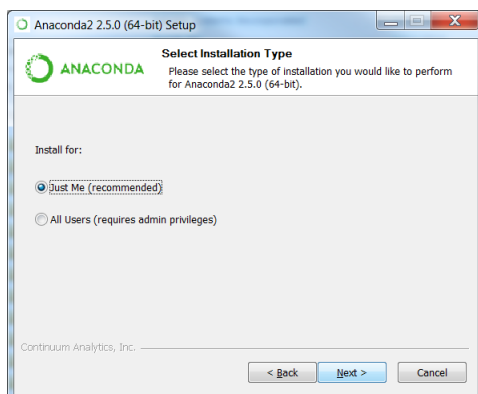
[Anaconda](#) is a completely free bundling of Python by Continuum Analytics. Note that although Continuum Analytics does provide Anaconda at no cost, it does provide [some additional levels of support](#) for a fee. Anaconda supports installation of both Python 2.7 and 3.x. At the time of this writing, The Python 3.x version does not support the integration of PyQt and VTK, which rsMap3D uses. Note that although the Anaconda download of for Python 2 & 3 are essentially the same it is recommended, especially if you are installing for this application, that you install the Python 2 version of Anaconda for more convenient installation. Note also that the current distribution of Anaconda installs version 5.x of PyQt by default. This version of PyQt does not support the integration with VTK so it will be necessary to downgrade the to version 4.11 of PyQt (see below). . 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 (“Just Me”) or for all users (requires admin privilege).



This installation assumes selection of “Just Me” which requires only normal user privilege. Before final installation the user will be prompted for installation location and permission to modify the path to include path to installed executables. It is recommended to accept the defaults here. 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 an Anaconda prompt from Start->All Programs->Anaconda2 (64-bit). We can verify package installation with

```
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 (As noted above, it is necessary to

install the 4.11 version of PyQt. To do this use ‘conda install pyqt=4.11’) * 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).

3.2 Installing xrayutilities

Xrayutilities is a package written by Dominik Kriegner and Eugen Wintersberger. We are presently using version 1.2.1 of xrayutilities. Although the source code for this package can be downloaded and built as a [tar.gz](#) although a precompiled distribution for windows is provided as a [wheel file](#). This wheel is recommended since this file was compile using the Microsoft Visual Studio 2008 compiler (the same used for compiling Anaconda Python).

This wheel file can be installed with

```
pip install xrayutilities-<long version info>.whl
```

3.3 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
```

3.4 Installing rsMap3D

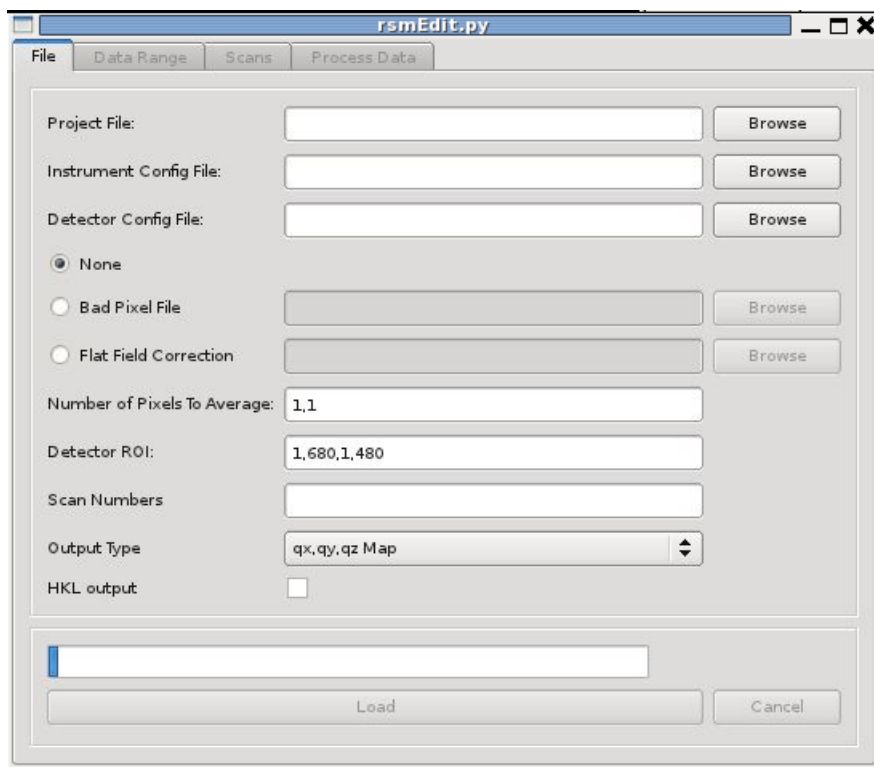
rsMap3D is now available as a package on the [Python Package Index](#). This allows installation of rsMap3D using pip

```
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

```
rsMap3D.bat
```

You will then see a window like the following:



You are now ready to start using rsMap3D.

INDICES AND TABLES

- `genindex`
- `modindex`
- `search`