Installation

basemap and GEOS (Geometry Engine - Open Source) library are required for showing features on the map, both two libraries are already downloaded in the compressed file: **basemap-1.0.7.tar.gz**. The below instructions are referenced from: http://matplotlib.org/basemap/users/installing.html

step 1: Numpy, python and matplotlib

Install numpy 1.0.0 or later, python 2.4 or later, matplotlib 1.0.0 or later. **If they are installed, go to step2**.

step 2: Untar the file

Untar the basemap-1.0.7.tar.gz file in the folder **resource**, and and cd to the **basemap-1.0.7** directory

step 3: Install GEOS library

1 If you don't have GEOS library on your system, you can build it from the source code included with basemap by using following commands in the ubuntu command line:

- cd to the geos-3.3.3 directory (it is under the directory basemap-1.0.7)

```
$ cd geos-3.3.3
```

- setting environment variable GEOS_DIR and Install the GEOS library

```
$ export GEOS_DIR=<the directory you want the libs and headers to go>
##I recommend to install it in your home directory, for example:/home/ds-ga-1007
##Do not have space before and after the '=' symbol, a correct example is like this: export GEOS_DIR=/home/ds-ga-1007
##If any permission wrong happens, use sudo su to get the super user authority, or get root authority

$ ./configure --prefix=$GEOS_DIR
##I recommend you to get super user authority here
##The result of running this command is like:
##Swig: false
##Python bindings: false
##...

$ sudo su ##then enter the password to get super user authority
$ make; make install ## It may take a bit time, ignore the warnings if any
```

2 If you already have GEOS library on your system, just set the environment variable GEOS_DIR to point to the location of libgeos_c and geos_c.h (if libgeos_c is in /usr/local/lib and geos_c.h is in /usr/local/include, set GEOS_DIR to /usr/local). Then go to next step.

step 4: Install basemap

cd back to the top level basemap directory (**basemap-1.0.7**) and run the usual **python setup.py install**. Check your installation by running **from mpl_toolkits.basemap import Basemap** at the python prompt.

```
$ cd basemap-1.0.7
#make sure you have super user authority
$ sudo su
$ python setup.py install


##Check whether you have installed successfully
$ python
$ from mpl_toolkits.basemap import Basemap
##If this works, the installation is OK
```