How to install python packages on Windows

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Some of our C++ programs require the installation of **Python** and two associated packages—**NumPy** and **Matplotlib**—in order to create the needed graphs. Here is a brief set of guidelines for how best to install these packages. All python-related packages are available for free. (These guidelines will likely be out-of-date before too long, but they work as of August 2014.)

Python

It works best to use Python version 2.7.8, which may be obtained from the main python website: `https://www.python.org/ftp/python/2.7.8/python-2.7.8.msi`.[1] This is an installer file. Download it and save it to your downloads folder. Then from Windows Explorer→Downloads, right-click on it and choose "Install", then "Install for all users", notice that it will install it in `C:\Python27\` (the default), then on the next screen, click on the button that says "Add python.exe to Path" (with the "×" symbol) and choose "Entire feature will be installed on local hard drive". (This will ensure that the `python` command will be available for your use.) Then finish up the installation with a couple of clicks.

NumPy

NumPy, which stands for "numerical python" and is pronounced "num-pie", is available from the Sourceforge site at `http://sourceforge.net/projects/numpy/files/NumPy/1.8.1/numpy-1.8.1-win32-superpack-python2.7.exe/download`, so grab it from there, and again save this installer file in your downloads folder.

In a manner similar to that described above, install this package. It takes only a few clicks. The default settings should work.

Matplotlib

Matplotlib, which provides excellent easy-to-use software for creating good graphs, is also available from the Sourceforge site at `http://sourceforge.net/projects/matplotlib/files/matplotlib/matplotlib-1.2.0/matplotlib-1.2.0.win32-py2.7.exe/download`. Note that version 1.2.0 is **not** the latest version of matplotlib. Versions later than 1.2.0 will not work for us. (As of this writing, 1.4.0 is the latest version, but in fact is not much newer than 1.2.0.)

Again, download this installer file to your downloads folder, and as described above, install matplotlib on your computer. The default settings should work.

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[1] Links such as these should be clickable in this pdf file.

Testing your installation

First of all, check your python installation by giving the command `python` from the "Command Prompt" (`cmd.exe`) terminal, or the command `python -i` from the "mintty" terminal. You should see something like the following. (Giving the command `quit()` after the `>>>` will exit python.)

```
Python 2.7.8 (default, Jun 30 2014, 16:03:49) [MSC v.1500 32 bit (Intel)] on win32
Type "help", "copyright", "credits" or "license" for more information.
>>>
```

You can also try the commands `python --version` or `python --help` from either of the above terminals.

One simple way to see whether the packages you have installed actually work is to prepare a file called, say, `show_versions.py`, and using your favorite editor, insert these lines of python script:

```
from platform import python_version
from pylab import *
print " python version:    ",python_version()
print " numpy version:     ",np.__version__
print " matplotlib version:",matplotlib.__version__
```

Then give the command `python show_versions.py`. You should see something like the following:

```
 python version:     2.7.8
 numpy version:      1.8.1
 matplotlib version: 1.2.0
```

If the output quits with an error message, try editing the file `show_versions.py` to comment out print lines that cause the error message, and see if you can make anything work. If you have trouble, write to me. Otherwise, you should be set to go.

– Peter Scott, September 2014
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