

Python / PyLab environment for 32-bit Windows:
M. McLeod 2010-06-10

Python is a flexible interactive programming language commonly used in the ALMA project, especially for writing test scripts and for prototyping control software. IPython is a very convenient shell for interacting with Python. These along with a few widely used libraries for numerical analysis and plotting yield a convenient interactive data analysis environment similar to MatLab.

Base system required:
Python 2.6

Packages Required:

Matplotlib – plotting package

Numpy – numerical analysis and matrix math

Statlib – statistical package

IPython – interactive shell, provides "PyLab" mode similar to MatLab

PyReadLine – library required by IPython for color text support

Download Python and install 2.6.5 Windows installer:

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http://www.python.org/download/ python 2.5

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Download Python

The current production versions are [Python 2.6.5](#) and [Python 3.1.2](#).

Start with one of these versions for learning Python or if you want the most stability, they're both considered stable production releases.

If you don't know which version to use, start with Python 2.6.5; more existing third party software is compatible with Python 2 than Python 3 right now.

For the MD5 checksums and OpenPGP signatures, look at the [detailed Python 2.6.5](#) page:


- [Python 2.6.5 Windows installer](#) (Windows binary -- does not include source)
- [Python 2.6.5 Windows X86-64 installer](#) (Windows AMD64 / Intel 64 / X86-64 binary [1] -- does not include source)
- [Python 2.6.5 Mac OS X Installer Disk Image](#) (for Mac OS X 10.3 through 10.6)
- [Python 2.6.5 compressed source tarball](#) (for Linux, Unix or OS X)
- [Python 2.6.5 bziped source tarball](#) (for Linux, Unix or OS X, more compressed)

Also look at the [detailed Python 3.1.2](#) page:

http://www.python.org/ftp/python/2.6.5/python-2.6.5.msi

Opening python-2.6.5.msi

You have chosen to open

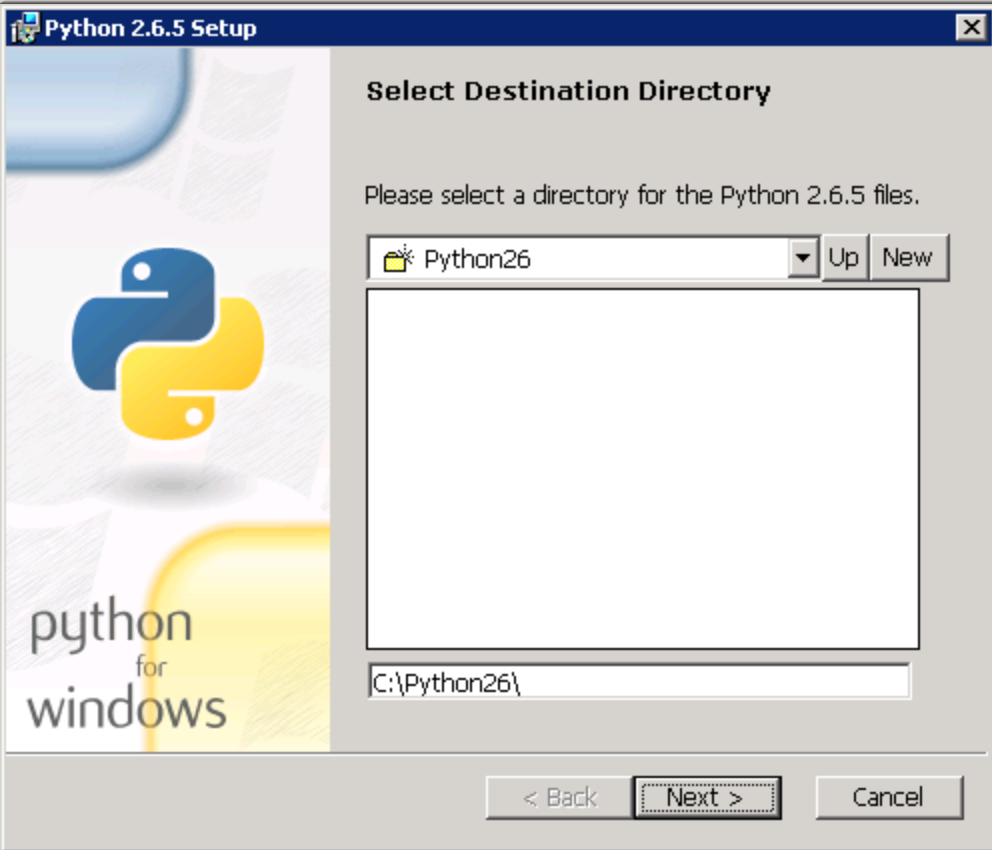
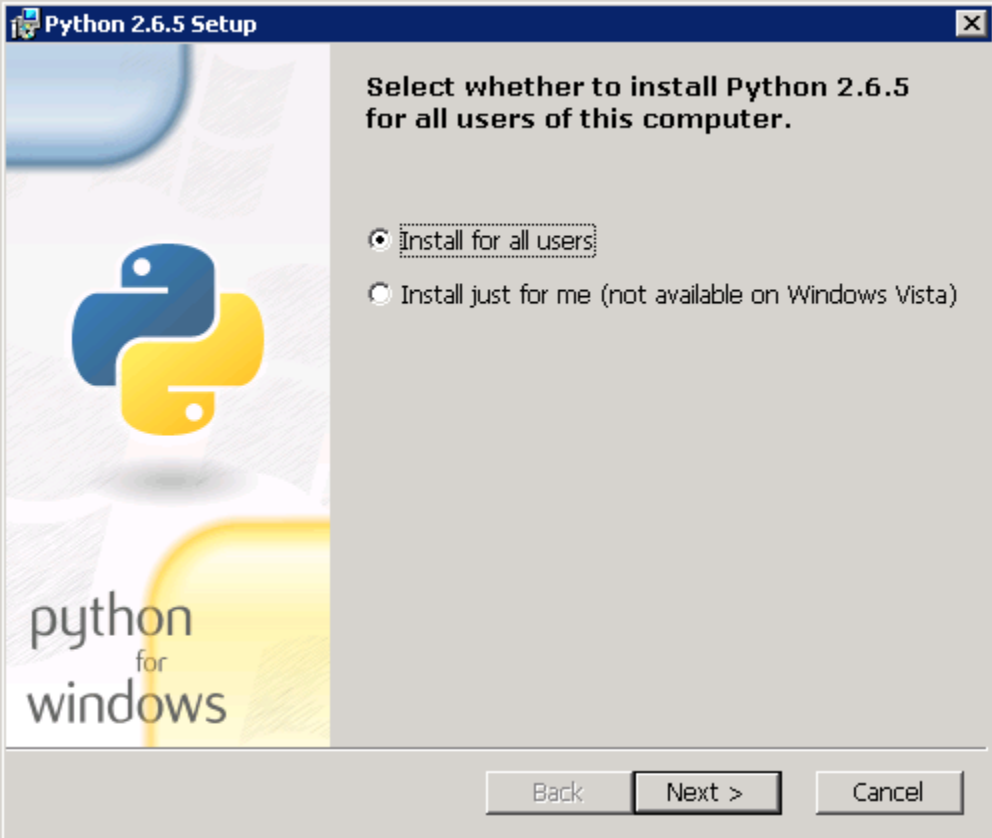
 **python-2.6.5.msi**

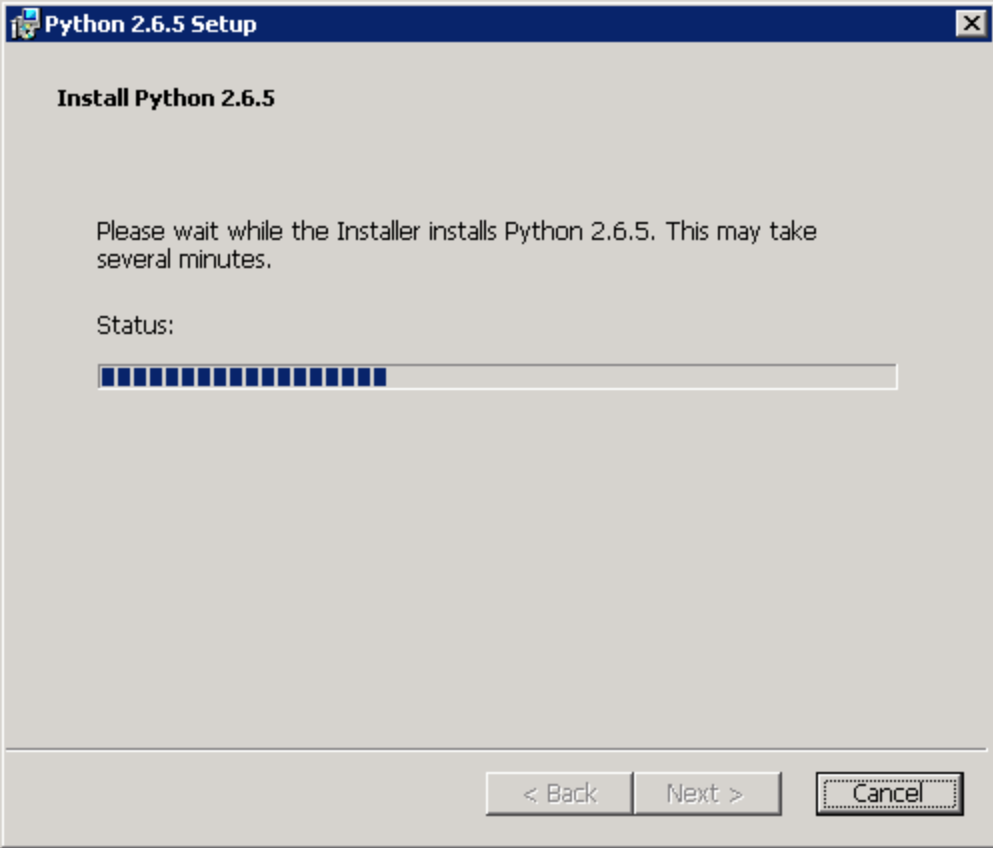
which is a: Windows Installer Package

from: http://www.python.org

Would you like to save this file?

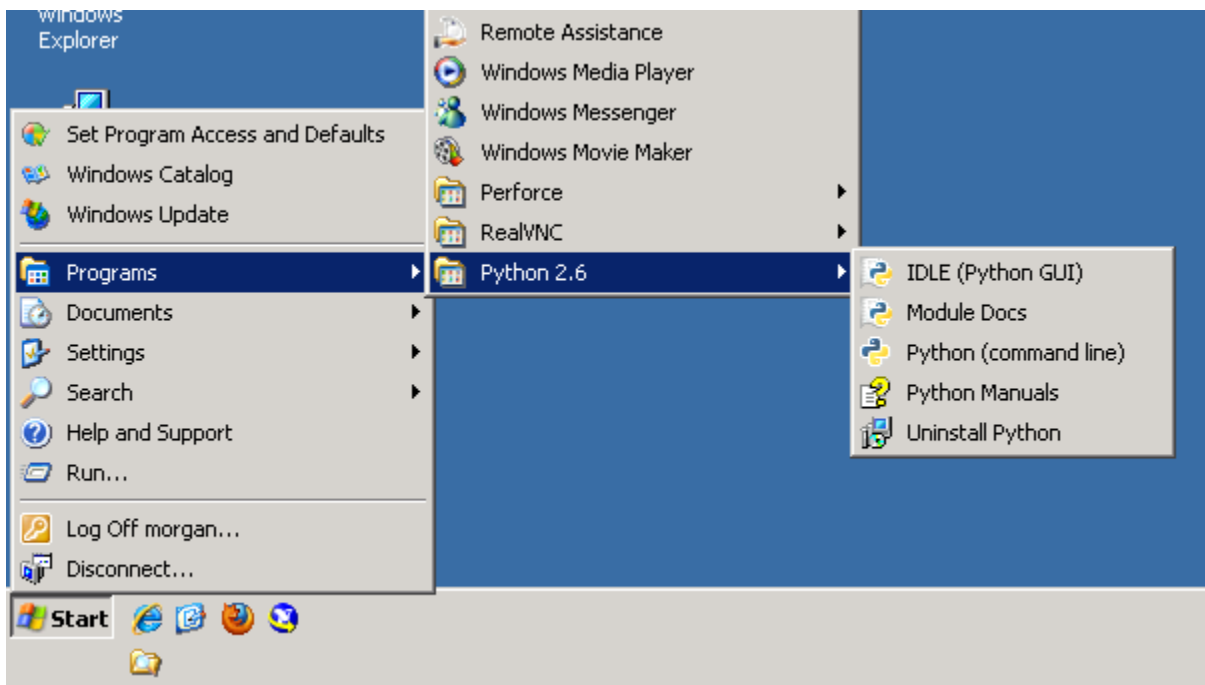
Save File Cancel







Python is installed:



Download matplotlib:

The screenshot shows a Mozilla Firefox browser window displaying the Matplotlib v0.99.3 documentation page. The browser's address bar shows the URL <http://matplotlib.sourceforge.net/>. The page features a header with the Matplotlib logo and navigation links: [home](#), [search](#), [examples](#), [gallery](#), [docs](#), [modules](#), and [index](#). The main content area is titled "intro" and contains the following text:

matplotlib is a python 2D plotting library which produces publication quality figures in a variety of hardcopy formats and interactive environments across platforms. matplotlib can be used in python scripts, the python and [ipython](#) shell (ala matlab or mathematica), web application servers, and six graphical user interface toolkits.

matplotlib tries to make easy things easy and hard things possible. You can generate plots, histograms, power spectra, bar charts, errorcharts, scatterplots, etc, with just a few lines of code. For a sampling, see the [screenshots](#), [thumbnail gallery](#), and [examples](#) directory

Below the text are three small plots: a histogram with a red normal distribution curve overlaid, a 2D contour plot with two distinct peaks, and a polar plot with concentric circles and radial lines.

For example, to generate 10,000 gaussian random numbers and make a histogram plot binning the data into 100 bins, you simply need to type

The right sidebar contains a "News" section with the following text:

Please [donate](#) to support matplotlib development.

matplotlib 0.99.3 is available for [download](#). See [what's new](#) and tips on [installing](#)

Sandro Tosi has a new book [Matplotlib for python developers](#) also at [amazon](#).

Build websites like matplotlib's, with [sphinx](#) and extensions for mpl plots, math, inheritance diagrams -- try the [sampledoc](#) tutorial.

The sidebar also has a "Videos" section with the following text:

Watch the [SdPy 2009 intro](#) and [advanced matplotlib tutorials](#)

Watch a [talk](#) about matplotlib presented at [MIPS 08](#)

The browser's status bar at the bottom left shows "Done".

Version for Python 2.6:

Browser window: **Browse matplotlib Files on SourceForge.net - Mozilla Firefox**



Address bar: <http://sourceforge.net/projects/matplotlib/files/matplotlib/r>

SourceForge.net > Find Software > matplotlib > Browse Files




matplotlib Beta by [cmoad](#), [dsdale](#), [efiring](#), [heeres](#), [jdh2358](#), ...

Summary | **Files** | Support | Develop

Matplotlib is a pure python plotting library with the goal of making publication quality plots using a syntax familiar to matlab users. The library uses numpy for handling large data sets and supports a variety of output backends

Download Now!
matplotlib-0.99.3.win32-p... (4.0 MB)  OR [View all files](#) 


Browse Files for matplotlib

File/Folder Name	Platform	Size	Date ↓	Downloads	Notes/Subscribe
Subdirectory (view all files)					
▼  matplotlib		51.7 MB	2010-06-01	4,907	 

Address bar: <http://sourceforge.net/projects/matplotlib/files/matplotlib/matplotlib-0.99.3/matplotlib-0.99.3.win32-py2.6.exe/download>

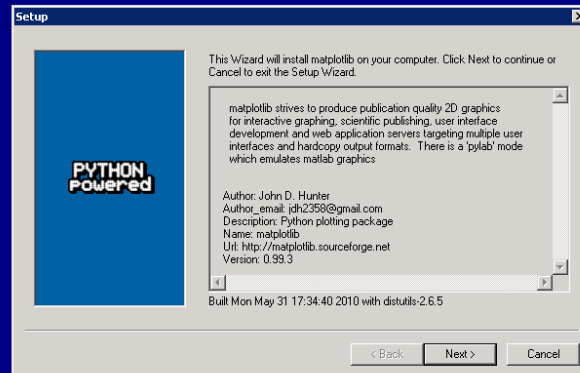
Opening matplotlib-0.99.3.win32-py2.6.exe

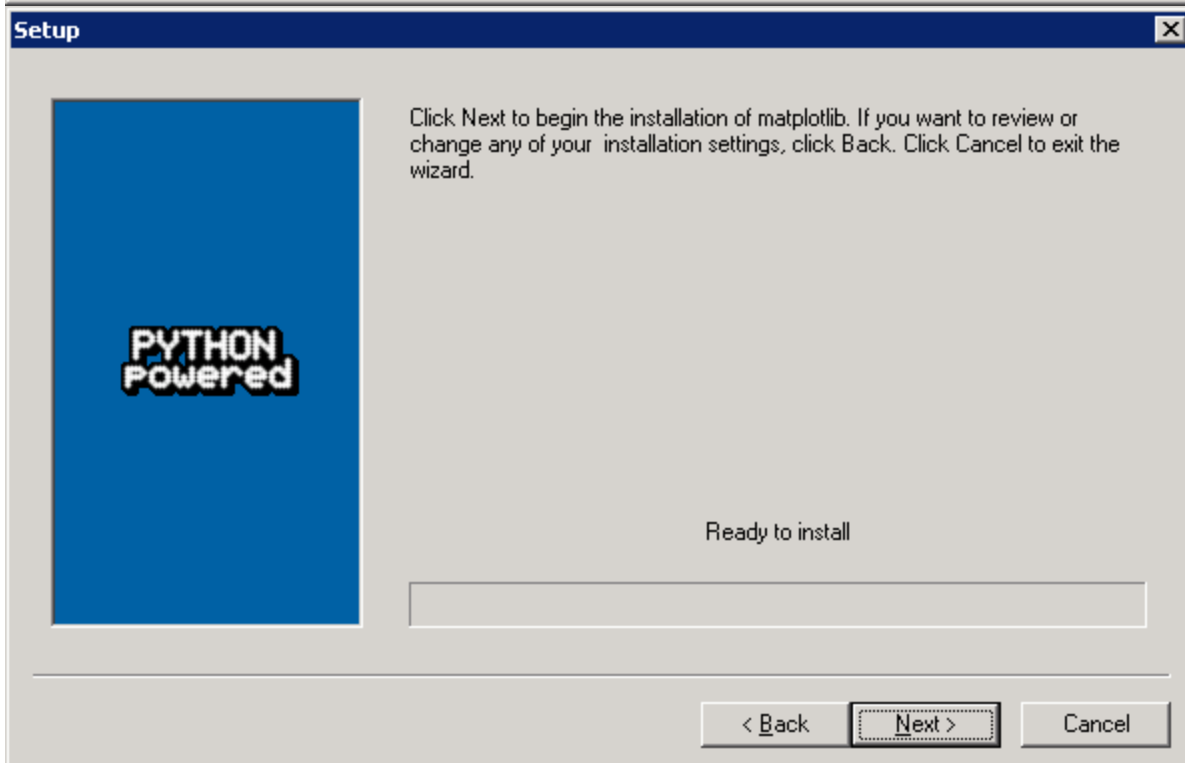
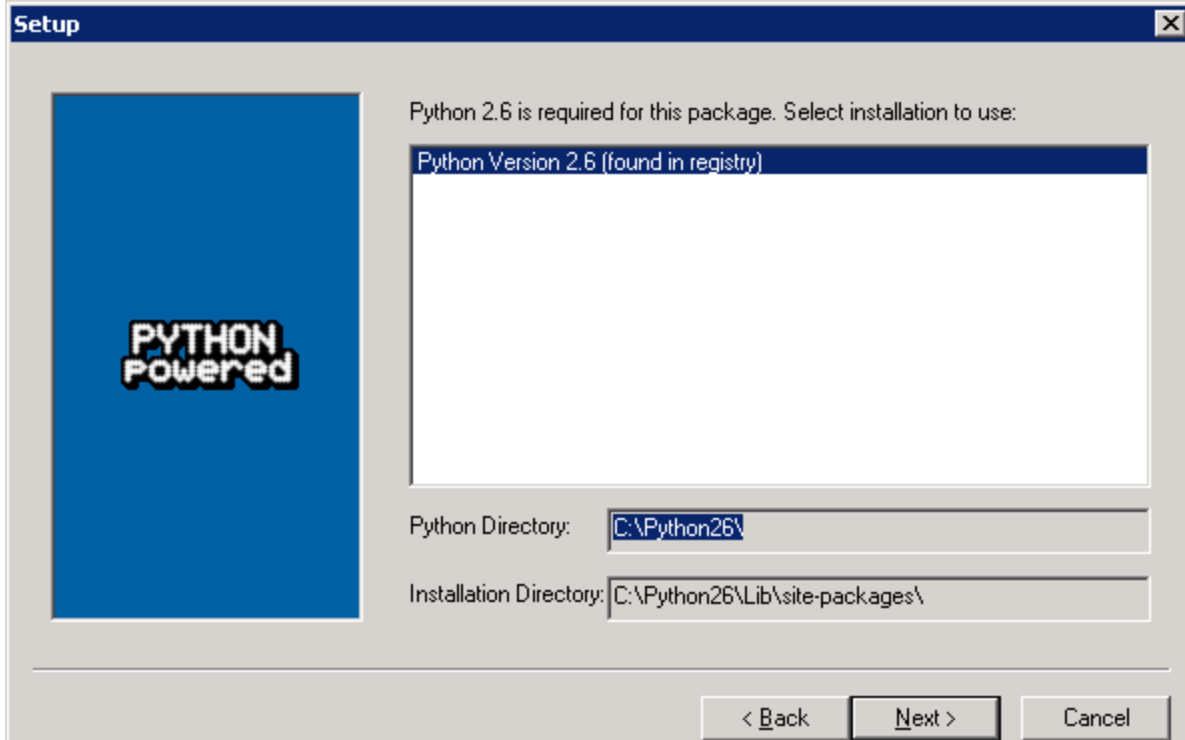
You have chosen to open

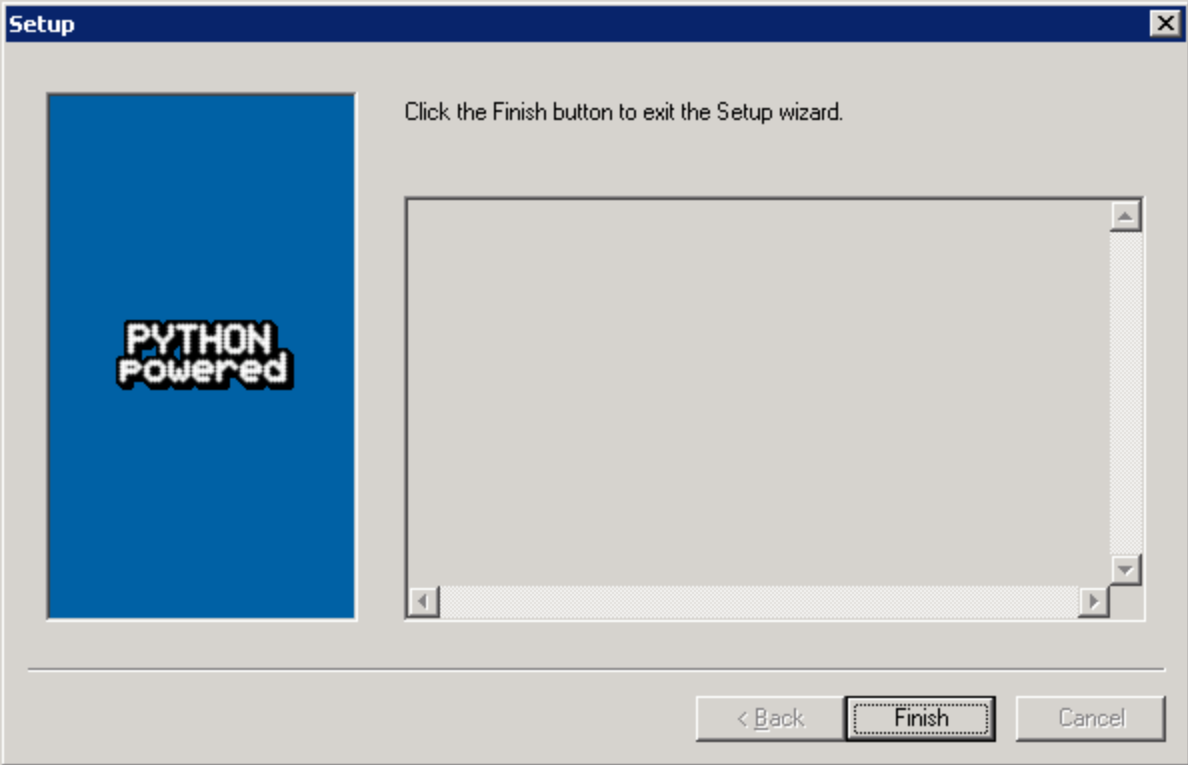
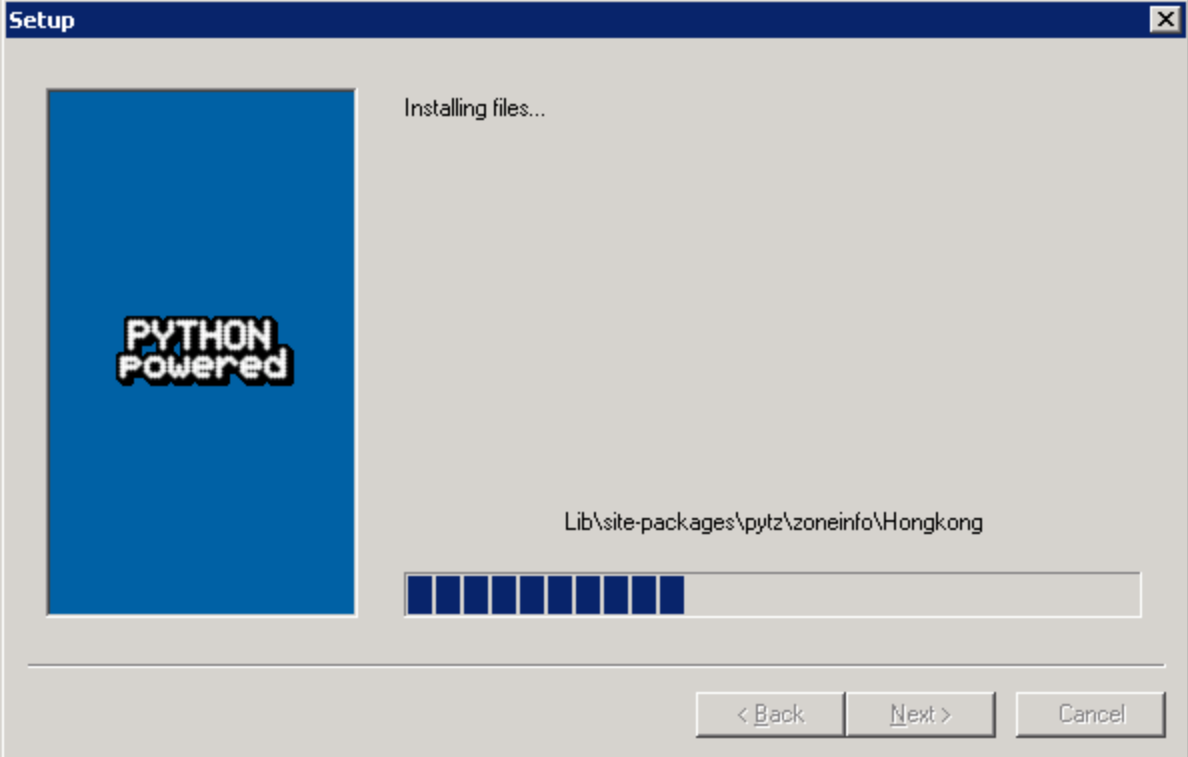
 **matplotlib-0.99.3.win32-py2.6.exe**
which is a: Binary File
from: <http://superb-sea2.dl.sourceforge.net>

Would you like to save this file?

matplotlib-0.99.3







Download and install NumPy:

The image shows a Mozilla Firefox browser window displaying the SourceForge project page for NumPy. The browser's address bar shows the URL `http://sourceforge.net/projects/numpy/files/`. The page title is "Browse Numerical Python Files on SourceForge.net". The SourceForge logo and navigation links are visible at the top. The main content area features the project name "Numerical Python" by jarrodmillman, jaytmiller, kern, and teoliphant. A green "Download Now!" button is highlighted, with the file name "numpy-1.4.1-win32-superpa..." and size "(5.2 MB)" next to it. Below this, a table titled "Browse Files for Numerical Python" lists several files. The first three files are highlighted in green:

File/Folder Name	Platform	Size	Date ↓	Downloads	Notes/Subscribe
numpy-1.4.1-py2.6-python.org.dmg	Apple	7.3 MB	2010-04-22	3,462	Notes
numpy-1.4.1-win32-superpack-python2.6.exe	Windows	5.2 MB	2010-04-22	16,469	Notes
numpy-1.4.1-win32-superpack-python2.5.exe	Windows	5.0 MB	2010-04-22	2,348	Notes

Below the browser window, a Windows file opening dialog box is shown. The title bar reads "Opening numpy-1.4.1-win32-superpack-python2.6.exe". The dialog contains the following text:

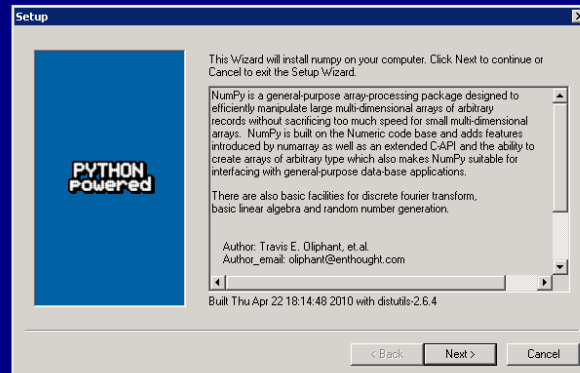
You have chosen to open

numpy-1.4.1-win32-superpack-python2.6.exe
which is a: Binary File
from: `http://hivelocity.dl.sourceforge.net`

Would you like to save this file?

Buttons: Save File, Cancel

numpy-1.4.1



Etc...

Download and install python-statlib:

The screenshot shows a Mozilla Firefox browser window displaying the 'python-statlib' project page on Google Code. The browser's address bar shows the URL 'http://code.google.com/p/python-statlib/'. The page features a navigation menu with 'Project Home', 'Downloads', 'Wiki', 'Issues', and 'Source'. Below the navigation, there is a 'Summary' section with a description of the project's goal and a typical use case. A code block shows Python code for using the 'stats' module. On the right side, there are sections for 'Activity' (Medium), 'Code license' (MIT License), 'Labels' (python, statistics), 'Featured downloads' (statlib-1.1.0.win32.exe, statlib-1.1.tar.gz), 'Feeds' (Project feeds), and 'Owners' (istvan.albert, gary.strangman). The browser's status bar at the bottom shows the URL 'http://code.google.com/p/python-statlib/downloads/detail?name=statlib-1.1.0.win32.exe'.

python-statlib - Project Hosting on Google Code - Mozilla Firefox

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http://code.google.com/p/python-statlib/

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 **python-statlib**
descriptive statistics for the python programming language

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Summary | Updates | People

The goal of the project is to combine several python statistics modules into a single package. This project is being run under the auspices of the [Python Project for the Google Highly Open Participation Contest](#)

Typical use case:

```
from statlib import stats


a = [1, 2, 3, 4]
# mean and standard deviation
print stats.mean(a), stats.stdev(a)

# vector operations
from statlib.matfunc import Vec
a = Vec( [ 4, -2, 5 ] )
b = Vec( [ 3, 10, -6 ] )

# vector dot and cross products
print a * b, a.cross(b)
```


For more information see the following pages:

- the **stats** module (see [StatsDoc](#)) contains a collection of basic statistical functions for python
- the **pstat** module (see [PstatDoc](#)) contains useful list and array manipulation routines modeled after those found in the [IStat](#) package by Gary Perlman
- the **matfunc** module (see [this help page](#)) is a python module for vector, matrix, and table math

Activity:  Medium

Code license: [MIT License](#)

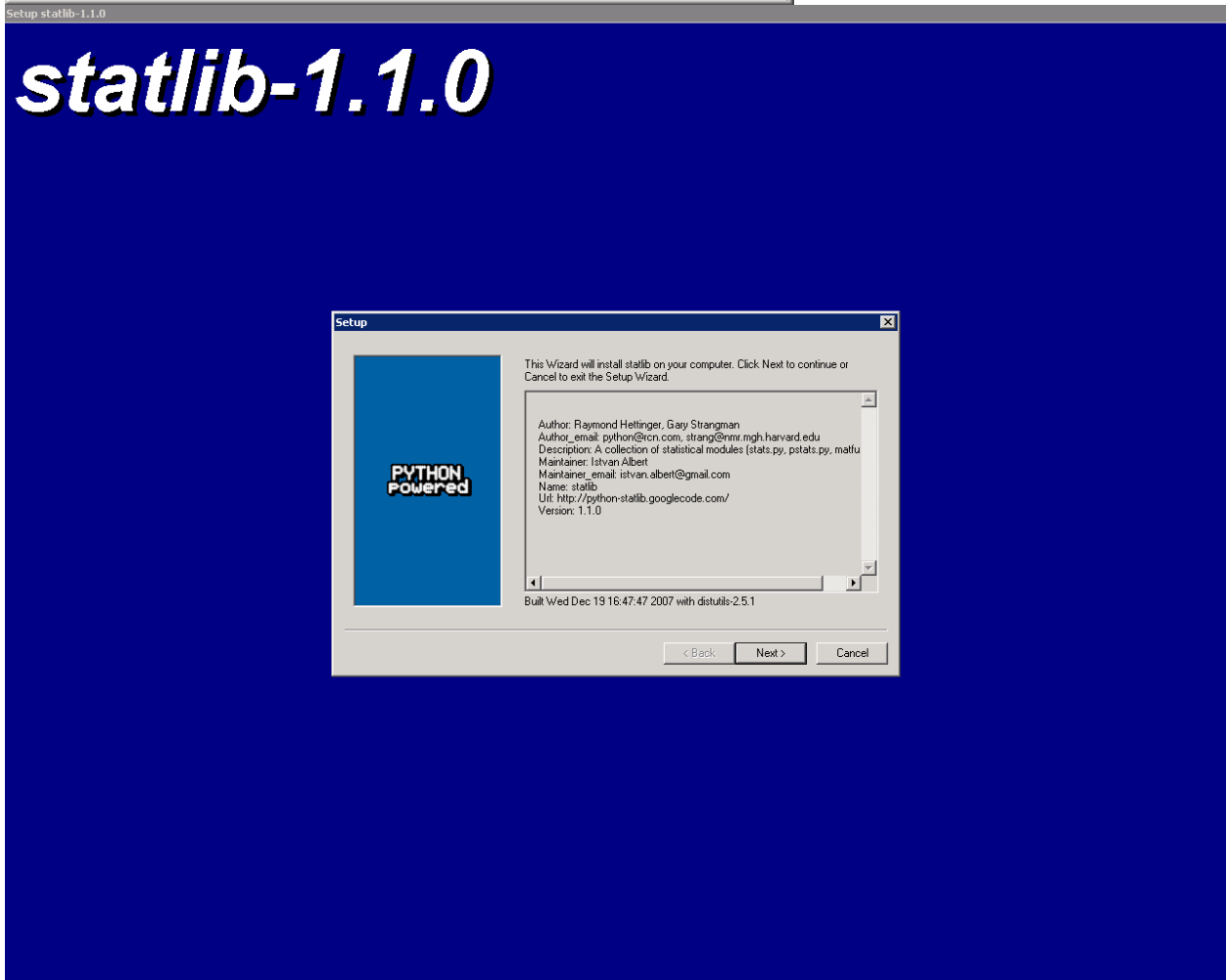
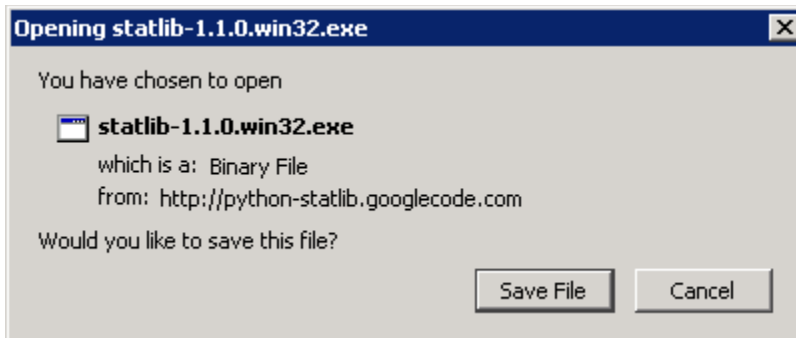
Labels: python, statistics

Featured downloads:
 [statlib-1.1.0.win32.exe](#)
 [statlib-1.1.tar.gz](#)
[Show all >](#)

Feeds: [Project feeds](#)

Owners: [istvan.albert](#), [gary.strangman](#)
[People details >](#)

http://code.google.com/p/python-statlib/downloads/detail?name=statlib-1.1.0.win32.exe



Etc...

Download and install PyReadLine:



The screenshot shows a Mozilla Firefox browser window with the address bar displaying `http://ipython.scipy.org/moin/PyReadline/Intro`. The page title is "PyReadline/Intro - IPython". The main content area features the "IP[y]: IPython" logo at the top. Below the logo, there is a sidebar on the left with a "Wiki" section containing links for "Documentation", "Download", "News", "Cookbook", "Developer Zone", "RecentChanges", "FindPage", and "PyReadline/Intro". Below the sidebar, there is a "Page" section with links for "Immutable Page", "Info", and "Attachments", along with a "More Actions:" dropdown menu.

The main content area has a heading "PyReadline / Intro" followed by a sub-heading "PyReadline: a ctypes-based readline for Windows". Below this, it states "pyreadline is based on UNC readline by Gary Bishop. New features:" and lists several features:

- Support for international characters (if you have the correct codepage active)
- Copy and paste using the clipboard
- Smart paste for convenient use with ipython. Converting tab separated data to python list or numpy array. Converting file paths to use / and escaping any spaces using \
- Pasting of multiline code removing empty lines
- System bell is disabled by default, can be activated in config file.

A note follows: "Note: UNC readline is not being developed further by Gary, and PyReadline can be considered the continuation of that project. This was done in full agreement with Gary, given his current development priorities."

The page then has sections for "Mailing list" (directing to the `ipython-user` mailing list), "Status" (stating the latest release is 1.5 and development is hosted at `launchpad`), and "Dependencies" (listing `ctypes` as a dependency).

The final section is "Install using binary installer", which lists three steps:

1. Download installer from [here](#).
2. make sure no other readline is installed
3. run installer

The browser's status bar at the bottom shows the URL `https://launchpad.net/pyreadline/+download`.

pyreadline project files : pyreadline - Mozilla Firefox


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launchpad.net https://launchpad.net/pyreadline/+downloa

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 **pyreadline - a python replacement of readline**

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1.5 release from the 1.5 series released 2008-12-17


File	Description	Downloads
pyreadline-1.5.zip (md5)	Source release	784 last downloaded today
pyreadline-1.5-win32-setup.exe (md5)	Installer for pyreadline 1.5	11,930 last downloaded today
Total downloads:		12,714

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http://launchpad.net/pyreadline/1.5/1.5/+download/pyreadline-1.5-win32-setup.exe

Opening pyreadline-1.5-win32-setup.exe

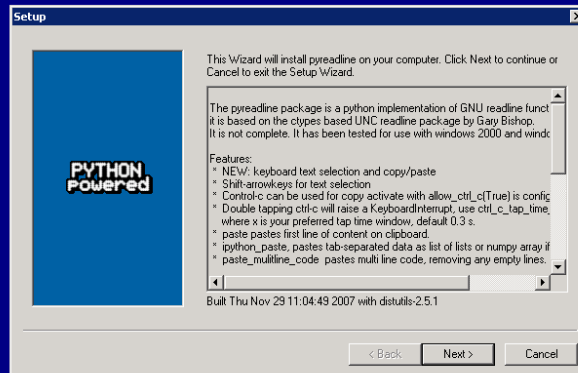
You have chosen to open

 **pyreadline-1.5-win32-setup.exe**
 which is a: Binary File
 from: http://launchpadlibrarian.net

Would you like to save this file?

Save File Cancel

pyreadline-1.5



Etc...

Download and install IPython:

The image shows a Mozilla Firefox browser window displaying the IPython download page. The browser's address bar shows the URL `http://ipython.scipy.org/moin/Download`. The page title is "Download - IPython". The main content area features a "Download" section with a "Stable Releases" subsection. It lists various download options for Linux, Unix, Mac OS X, and Windows, including source archives, eggs for Python 2.5 and 2.6, RPM packages, and a binary Windows installer. A sidebar on the left contains a "Wiki" menu with links to Documentation, Download, News, Cookbook, Developer Zone, RecentChanges, and FindPage. Below the browser window, a Windows file dialog box titled "Opening ipython-0.10.win32-setup.exe" is open, showing the file name, its type as a "Binary File", and its source as `http://ipython.scipy.org`. The dialog asks "Would you like to save this file?" and provides "Save File" and "Cancel" buttons.

Download - IPython

File Edit View History Bookmarks Tools Help

`http://ipython.scipy.org/moin/Download`

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IP[y]: IPython

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Wiki

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- Download
- News
- Cookbook
- Developer Zone
- RecentChanges
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Page

Immutable Page

Info

Attachments

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Download

Stable Releases

Our [downloads](#) directory for source distributions for Linux, Unix, Mac OS X and binaries for Windows.

The current stable release, version 0.10, can be downloaded directly as:

- A [compressed source archive](#) in .tar.gz format.
- An [egg for Python 2.5](#).
- An [egg for Python 2.6](#).
- An architecture independent [RPM for Python 2.5](#).
- An architecture independent [RPM for Python 2.6](#).
- A [binary Windows installer](#) (an executable setup file).

Note that most major Unix distributions now include IPython in their package systems (Ubuntu, Debian, Fedora, SUSE, fink, FreeBSD, OpenBSD,...). The same [downloads](#) directory contains links to older versions.

Installation Instructions

Our installation instructions can be found in our official [documentation](#).

Download (last edited 2010-01-19 03:07:07 by [FernandoPerez](#))

MoinMoin Powered Python Powered Valid HTML 4.01

`http://ipython.scipy.org/dist/0.10/ipython-0.10.win32-setup.exe`

Opening ipython-0.10.win32-setup.exe

You have chosen to open

ipython-0.10.win32-setup.exe

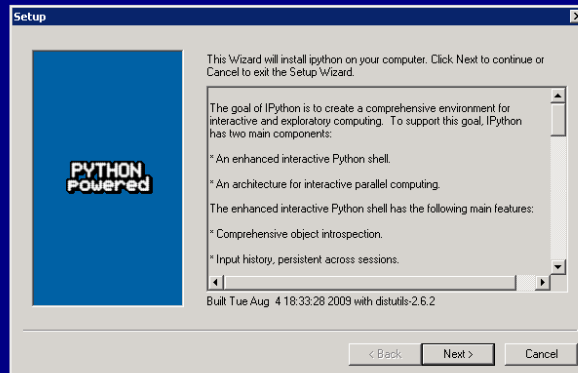
which is a: Binary File

from: `http://ipython.scipy.org`

Would you like to save this file?

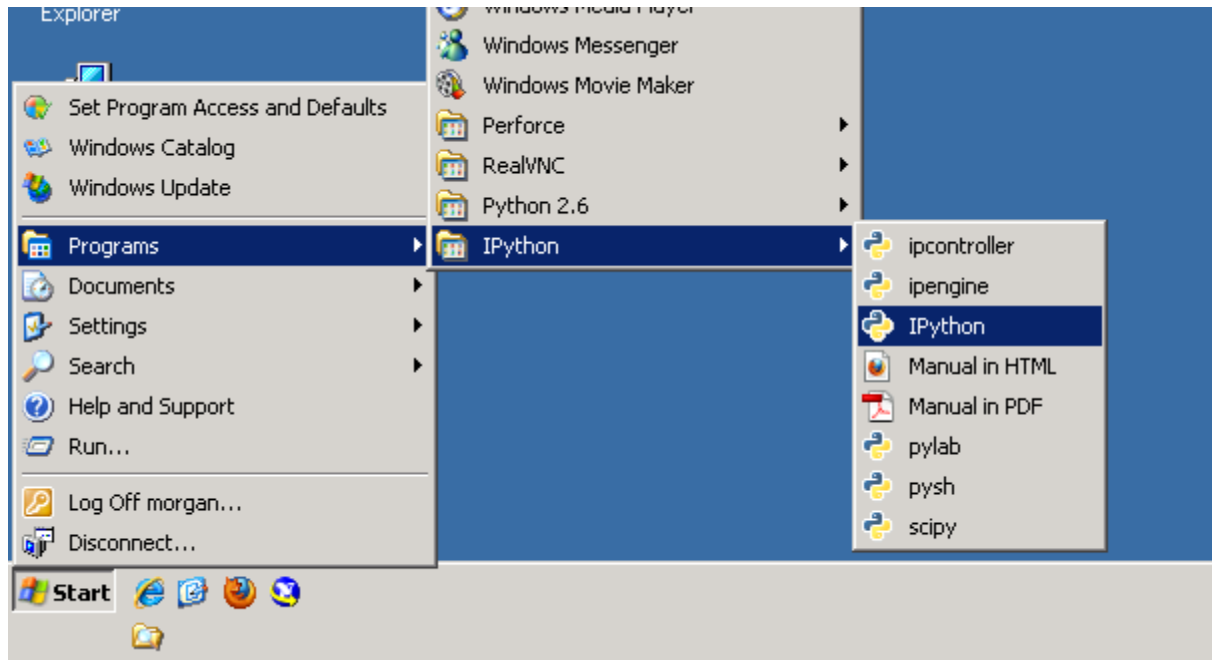
Save File Cancel

ipython-0.10



Etc...

IPython installed:



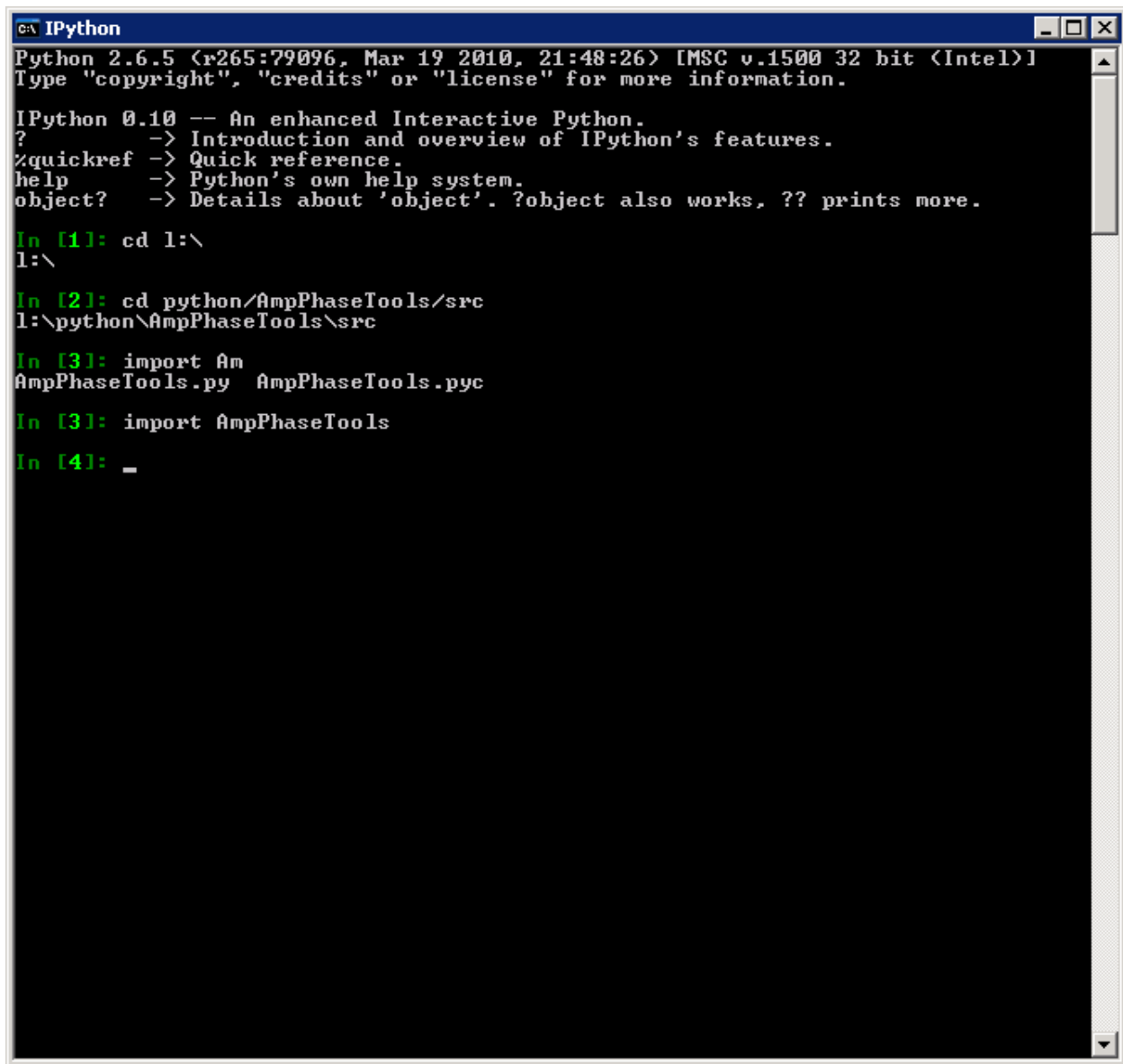
Launch IPython:

```
c:\ IPython
Python 2.6.5 (r265:79096, Mar 19 2010, 21:48:26) [MSC v.1500 32 bit (Intel)]
Type "copyright", "credits" or "license" for more information.

IPython 0.10 -- An enhanced Interactive Python.
?                -> Introduction and overview of IPython's features.
%quickref       -> Quick reference.
help            -> Python's own help system.
object?        -> Details about 'object'. ?object also works, ?? prints more.

In [1]: _
```

Running AmpPhaseTools in IPython:



```
c:\ IPython
Python 2.6.5 (r265:79096, Mar 19 2010, 21:48:26) [MSC v.1500 32 bit (Intel)]
Type "copyright", "credits" or "license" for more information.

IPython 0.10 -- An enhanced Interactive Python.
?          -> Introduction and overview of IPython's features.
%quickref  -> Quick reference.
help       -> Python's own help system.
object?    -> Details about 'object'. ?object also works, ?? prints more.

In [1]: cd 1:\
1:\

In [2]: cd python/AmpPhaseTools/src
1:\python\AmpPhaseTools\src

In [3]: import Am
AmpPhaseTools.py  AmpPhaseTools.pyc

In [3]: import AmpPhaseTools

In [4]: _
```

On line [3] I typed "import Am<TAB>" and it provided the listing of matching files.

See the examples in the AmpPhaseTools README file for how to use.