

S800 2014: Python Lab 1 – Python Installation

Overview

The goal for this lab is to install the required Python applications to communicate w/ test and measurement instruments using Python scripting.

General Lab Topics

- 1) Install Keysight IO Libraries
- 2) Install Keysight N1010A FlexDCA
- 3) Install Keysight Command Expert
- 4) Install Anaconda
- 5) Install PyVisa
- 6) Install Python.NET

Detailed Lab Instructions

1) Install Keysight IO Libraries

- a. Download Keysight IO Libraries 17.0 to Desktop
- b. <http://www.keysight.com/main/software.aspx?cc=US&lc=eng&ckey=1184883&nid=-33002.977662&id=1184883>
- c. Install Keysight IO Libraries

2) Install N1010A FlexDCA

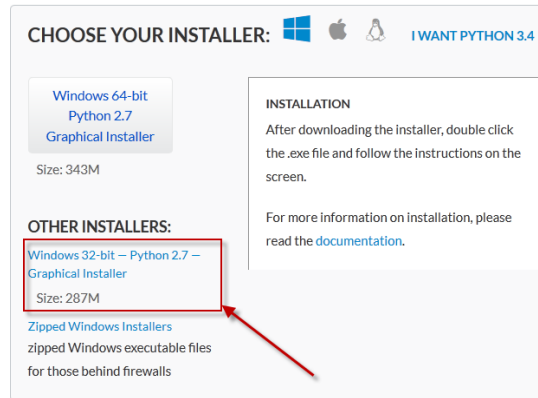
- a. Download N1010A FlexDCA
- b. <http://www.keysight.com/main/software.aspx?ckey=2028655&lc=eng&cc=US&nid=-35270.937137&id=2028655&pageMode=CV>
- c. Install N1010A FlexDCA

3) Install Keysight Command Expert

- a. Download Keysight Command Expert Desktop
- b. <http://www.keysight.com/main/software.aspx?ckey=2151326&lc=eng&cc=US&nid=-33002.992473&id=2151326&pageMode=CV>
- c. Install Keysight Command Expert

4) Install Anaconda

- a. Download 32 bit version of Anaconda for Windows. Note: Keysight Command Expert supports 32 bit versions of Python.
- b. <http://continuum.io/downloads>
- c. Select the installation package highlighted below

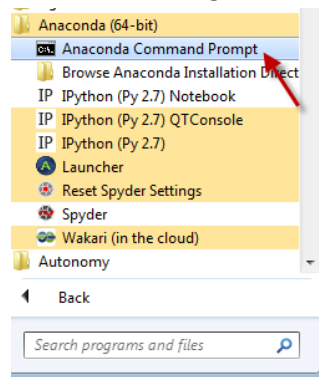


d. Install Anaconda Python 2.7 32-Bit for Windows

5) Install PyVISA

a. Open Anaconda Command Prompt

i. Start -> All Programs -> Anaconda Command Prompt



b. View installed packages

- i. Type 'conda list' at the Anaconda Command Prompt**
- ii. Press Enter**
- iii. The installed packages should display in the Command Prompt as shown below.**

```
Administrator: Anaconda

C:\Anaconda>conda list
# packages in environment at C:\Anaconda:
#
license 1.1 py27_0
anaconda 2.0.1 np18py27_0
argcomplete 0.6.7 py27_0
astropy 0.3.2 np18py27_0
atom 0.3.7 py27_0
backports.ssl-match-hostname 3.4.0.2 <pip>
beautiful-soup 4.3.1 py27_0
beautifulsoup4 4.3.1 <pip>
binstar 0.5.3 py27_0
bitarray 0.8.1 py27_1
blaze 0.5.0 np18py27_1
blz 0.6.2 np18py27_0
bokeh 0.4.4 np18py27_1
boto 2.28.0 py27_0
casuarina 1.1 py27_0
cdecimal 2.3 py27_1
chaco 4.4.4 np18py27_0
colorama 0.2.7 py27_0
conda 3.5.5 py27_0
conda-build 1.3.5 py27_0
configobj 5.0.5 py27_0
cubes 0.10.2 py27_4
cython 0.20.1 py27_0
datashape 0.2.0 np18py27_1
dateutil 2.1 py27_2
docutils 0.11 py27_0
dynd-python 0.6.2 np18py27_0
enable 4.3.0 np18py27_2
enaml 0.9.4 py27_1
Flask 0.10.1 py27_1
future 0.12.1 py27_0
gevent 1.0.1 py27_0
gevent-websocket 0.9.3 py27_0
greenlet 0.4.2 py27_0
grin 1.2.1 py27_2
h5py 2.3.0 np18py27_0
ipython 2.1.0 py27_2
ipython-notebook 2.1.0 py27_0
ipython-qtconsole 2.1.0 py27_0
itsdangerous 0.24 py27_0
jideal 1.0 py27_0
jinja2 2.7.2 py27_0
kivisolver 0.1.2 py27_0
launcher 0.1.5 py27_0
libpython 1.0 py27_1
llvmpy 0.12.6 py27_0
lxml 3.3.5 py27_0
```

- c. Install Pyvisa
 - i. Type 'pip install pyvisa' at Anaconda Command Prompt
 - ii. Press Enter
 - iii. The installation for Pyvisa should proceed as shown below

```
Administrator: Anaconda

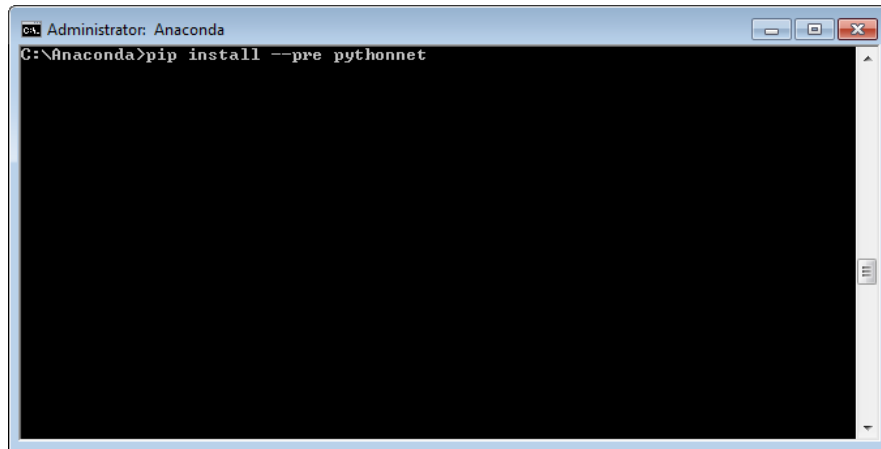
xlrd 0.9.3 py27_0
xlswriter 0.5.5 py27_0
xlwings 0.1.0 py27_0
xlwt 0.7.5 py27_0

C:\Anaconda>pip install pyvisa
Downloading/unpacking pyvisa
Running setup.py (path:c:\users\jodor\appdata\local\temp\pip_build_jodor\pyvisa\setup.py) egg_info for package pyvisa
no previously-included directories found matching 'docs\build'
no previously-included directories found matching 'docs\themes\git'
warning: no previously-included files matching '*.pyc' found anywhere in distribution
warning: no previously-included files matching '*.pyo' found anywhere in distribution
warning: no previously-included files matching '.DS_Store' found anywhere in distribution
warning: no previously-included files matching '__pycache__' found anywhere in distribution
warning: no previously-included files matching '*.pyo' found anywhere in distribution
Installing collected packages: pyvisa
Running setup.py install for pyvisa
no previously-included directories found matching 'docs\build'
no previously-included directories found matching 'docs\themes\git'
warning: no previously-included files matching '*.pyc' found anywhere in distribution
warning: no previously-included files matching '*.pyo' found anywhere in distribution
warning: no previously-included files matching '.DS_Store' found anywhere in distribution
warning: no previously-included files matching '__pycache__' found anywhere in distribution
warning: no previously-included files matching '*.pyo' found anywhere in distribution
Successfully installed pyvisa
Cleaning up...

C:\Anaconda>_
```

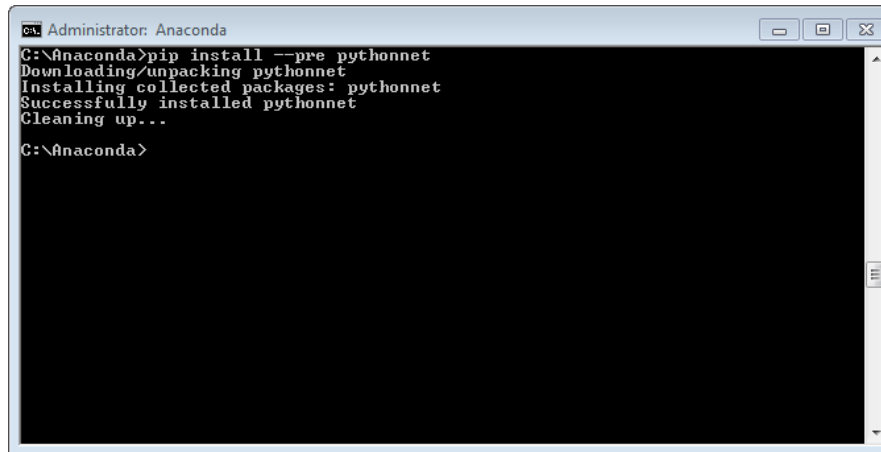
6) Install Python.NET

- a. Type 'pip install --pre pythonnet' at Anaconda Command Prompt
- Note: '-' before pre is 2x — as below



```
Administrator: Anaconda
C:\Anaconda>pip install --pre pythonnet
```

- b. The installation for Python .NET should proceed as shown below



```
Administrator: Anaconda
C:\Anaconda>pip install --pre pythonnet
Downloading/unpacking pythonnet
Installing collected packages: pythonnet
Successfully installed pythonnet
Cleaning up...
C:\Anaconda>
```

Appendix: Backup Options for Installing PyVISA and Python.NET

PyVISA Installation Option 2)

Download PyVISA

- <https://pypi.python.org/pypi/PyVISA>

Install PyVISA

```
Administrator: Command Prompt

Directory of C:\John_Dorighi\John Dorighi\Laptop Applications\Applications\Python\pyUISA1_5\PyUISA-1.5
07/16/2014 09:29 AM <DIR> .
07/16/2014 09:29 AM <DIR> ..
06/24/2014 08:11 PM 347 AUTHORS
06/24/2014 08:11 PM 28,276 ChangeLog
06/24/2014 08:11 PM 4,771 CHANGES
07/16/2014 09:29 AM <DIR> docs
07/16/2014 09:29 AM <DIR> examples
06/24/2014 08:11 PM 1,110 LICENSE
06/24/2014 08:11 PM 226 MANIFEST.in
06/24/2014 08:12 PM 10,421 PKG-INFO
07/16/2014 09:29 AM <DIR> pyvisa
07/16/2014 09:29 AM <DIR> PyUISA.egg-info
06/24/2014 08:11 PM 2,230 README
06/24/2014 08:12 PM 109 setup.cfg
06/24/2014 08:11 PM 2,050 setup.py
06/24/2014 08:11 PM 760 visa.py
10 File(s) 50,300 bytes
6 Dir(s) 2,420,133,888 bytes free

C:\John_Dorighi\John Dorighi\Laptop Applications\Applications\Python\pyUISA1_5\PyUISA-1.5>python setup.py install_
```

```
Administrator: Command Prompt

byte-compiling build\bdist.win-amd64\egg\pyvisa\testsuite\test_visa.py to test_visa.pyc
byte-compiling build\bdist.win-amd64\egg\pyvisa\testsuite\test_visa_attributes.py to test_visa_attributes.pyc
byte-compiling build\bdist.win-amd64\egg\pyvisa\testsuite\__init__.py to __init__.pyc
byte-compiling build\bdist.win-amd64\egg\pyvisa\util.py to util.pyc
byte-compiling build\bdist.win-amd64\egg\pyvisa\visa_attributes.py to visa_attributes.pyc
byte-compiling build\bdist.win-amd64\egg\pyvisa\__init__.py to __init__.pyc
byte-compiling build\bdist.win-amd64\egg\visa.py to visa.pyc
creating build\bdist.win-amd64\egg\EGG-INFO
copying PyUISA.egg-info\PKG-INFO -> build\bdist.win-amd64\egg\EGG-INFO
copying PyUISA.egg-info\SOURCES.txt -> build\bdist.win-amd64\egg\EGG-INFO
copying PyUISA.egg-info\dependency_links.txt -> build\bdist.win-amd64\egg\EGG-INFO
copying PyUISA.egg-info\not-zip-safe -> build\bdist.win-amd64\egg\EGG-INFO
copying PyUISA.egg-info\top_level.txt -> build\bdist.win-amd64\egg\EGG-INFO
creating dist
creating 'dist\PyUISA-1.5-py2.7.egg' and adding 'build\bdist.win-amd64\egg' to it
removing 'build\bdist.win-amd64\egg' (and everything under it)
Processing PyUISA-1.5-py2.7.egg
creating c:\anaconda\lib\site-packages\PyUISA-1.5-py2.7.egg
Extracting PyUISA-1.5-py2.7.egg to c:\anaconda\lib\site-packages
Adding PyUISA 1.5 to easy-install.pth file

Installed c:\anaconda\lib\site-packages\pyvisa-1.5-py2.7.egg
Processing dependencies for PyUISA==1.5
Finished processing dependencies for PyUISA==1.5

C:\John_Dorighi\John Dorighi\Laptop Applications\Applications\Python\pyUISA1_5\PyUISA-1.5>
```

Python.NET Installation Option 2)

Download Python.NET

Unzip

Then Copy the following files

clr.pyd	12/29/2012 4:28 PM	PYD File	4
nPython	12/29/2012 4:27 PM	Application	270
nPython	12/29/2012 4:27 PM	Program Debug D...	14
Python.Runtime.dll	12/29/2012 4:15 PM	Application extens...	367
Python.Runtime	12/29/2012 4:15 PM	Program Debug D...	402
pythonnet-2.0-Beta0-clr4.0_140_py27_UC...	7/22/2014 9:26 AM	WinZip File	184

Into the directory: 'C:\Anaconda'