Pydoc with Blender BPY (Windows)

* Objective:
  + Need to compile and build the Blender into a module (bpy.pyd), so i can import it to the standard Python console to generate the Pydoc API documentation HTML pages using terminal command like “python -m pydoc -w testpydoc” where “testpydoc” is the final generated API HTML page name.
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# Main tutorial:

* 1. <http://cobertos.com/compiling-blender-as-a-python-module-for-windows-10-x64/>
     1. Failed tutorial:
        1. <http://www.gizmoplex.com/wordpress/compile-blender-as-python-module/>

# Main resources:

* 1. Blender source code Git:
     1. <http://cobertos.com/compiling-blender-as-a-python-module-for-windows-10-x64/>
     2. git://git.blender.org/blender.git
  2. Pre-compiled Blender libraries SVN:
     1. <https://wiki.blender.org/index.php/Dev:Doc/Building_Blender/Windows>
     2. https://svn.blender.org/svnroot/bf-blender/trunk/lib/win64\_vc14

# Must install:

* 1. **Caution: Need to be caution on software download and installation supporting bitness which have to match the Python bitness to be “cmake” properly.**
  2. Assuming Visual Studio 2017 is installed in the system:
     1. [Microsoft Visual Studio Community 2017 version 15.2 Release]
  3. [Git version 2.14.1.windows.1 download & install](https://www.atlassian.com/git/tutorials/install-git)
  4. [SlikSVN version 1.9.7 for Windows 64 bits download & install](https://sliksvn.com/download/)
  5. [CMake version 3.9.3 for Windows download & install](https://cmake.org/download/)
  6. [Python version 3.6.2 for Windows 64 bits download & install](http://www.python.org/download)

# Setup steps:

* 1. **Caution: Before starting, make sure to read the final output of each important commands such as git clone, svn checkout, cmake and devenv, there shouldn’t be any errors that causes termination on any of the below steps.**
  2. Create main directory to hold all the Blender module resource files let’s call it “blender-git”:
     1. $ mkdir blender-git
     2. $ cd blender-git
  3. Download Blender source by cloning from Git:
     1. $ git clone git://git.blender.org/blender.git
     2. Folder “blender” will be created when clone is completed.
  4. If you're using git, make sure to checkout the specific commit you want and also:
     1. $ cd blender
     2. $ git submodule update --init --recursive
  5. Navigate back to blender-git directory:
     1. $ cd ..
  6. Download pre-compiled libraries by checking out with SVN:
     1. $ svn checkout https://svn.blender.org/svnroot/bf-blender/trunk/lib/win64\_vc14 lib/win64\_vc14
     2. Folder “lib” will be created with “win64\_vc14” folder inside when checkout is completed.
  7. Create a build folder to keep the built files with:
     1. $ mkdir build
  8. CMake in the build folder created above:
     1. $ cd build
     2. $ cmake -DWITH\_PLAYER=OFF -DWITH\_PYTHON\_INSTALL=OFF -DWITH\_PYTHON\_MODULE=ON -DPYTHON\_VERSION=3.6 -G"Visual Studio 15 Win64" ../blender
     3. **Caution: Need to specify the “Win64” in cmake to match the bitness version with Python (64 bits).**
     4. **Caution: Visual Studio 2017 is compatible with 2015 option.**
  9. Build the Blender module through [Visual Studio Command Prompt](https://docs.microsoft.com/en-us/dotnet/framework/tools/developer-command-prompt-for-vs):
     1. Window Start menu: Type “prompt” → Select “Developer command prompt for VS 2017”
     2. **Caution: Confusing part was that “[TARGET]” means i just need to write “Release” not “[Release]”**
     3. $ devenv Blender.sln /build Release /Project INSTALL
  10. After building complete, i duplicate the files to the main Python installation folder in [Visual Studio Command Prompt](https://docs.microsoft.com/en-us/dotnet/framework/tools/developer-command-prompt-for-vs):
      1. **Caution: Before copying, check if “bpy.pyd” and multiple dll files are generated properly inside “build/bin/Release” folder.**
      2. **Caution: In the tutorial it says “bin/bpy.pyd” but instead my case was “bin/Release/bpy.pyd”.**
      3. My Python installation destination:
         1. C:\Users\Nickj\AppData\Local\Programs\Python\Python36
         2. Python third party library and module importing directory destination:
            + C:\Users\Nickj\AppData\Local\Programs\Python\Python36\Lib\site-packages
      4. Copy “bpy.pyd” main Blender module file to “Python36/Lib/site-packages” folder:
         1. $ copy bin\Release\bpy.pyd C:\Users\Nickj\AppData\Local\Programs\Python\Python36\Lib\site-packages
      5. Copy all the dll library files to main Blender module file to “Python36/Lib/site-packages” folder:
         1. $ copy bin\Release\\*.dll C:\Users\Nickj\AppData\Local\Programs\Python\Python36\Lib\site-packages
      6. Instead of deleting which was instructed in the tutorial, i changed the name “python36.dll” to “python36\_.dll” just in case.
      7. Finally copy the Blender module “2.79” folder to the main Python folder “Python/Python36”:
         1. $ xcopy /E bin\Release\2.79 C:\Users\Nickj\AppData\Local\Programs\Python\Python36\2.79\
  11. Finally test the import succeeded:
      1. $ python
      2. >> import bpy
      3. Or try this with going into Python interpreter with “python” command:
         1. $ python -c "import bpy ; bpy.ops.render.render(write\_still=True)"
  12. If no errors like “module not found” error or “%1 is not a valid Win32 application” error means the import is successful!!!!!

# Generate Pydoc with Blender module:

* 1. Create a Python file called testbpypydoc.py:
     1. Paste this code:

import bpy

"""

The mod module

"""

* 1. Generate Pydoc API HTML page
     1. **Caution: I just need to pass the filename without extension**
     2. $ python -m pydoc -w testbpypydoc
  2. Can see the [testbpypydoc.html] file is generated in the relative folder, which is the HTML page for the testbpypydoc.py Pydoc API.