

How to build PyQt5 for Autodesk Maya 2017 64bit

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Building SIP, and PyQt for Maya 2017 PyQt [<http://www.riverbankcomputing.co.uk>] is a python binding to the Qt library. Because Maya uses Qt internally, you can use the PyQt modules in Maya python scripts to create custom UI. PyQt does not have the same licensing as Maya, Qt, or Python. Please consult the PyQt website for information about licensing for PyQt.

Download PyQt: <http://www.riverbankcomputing.com/software/pyqt/download>

Download SIP: <http://www.riverbankcomputing.com/software/sip/download>

The following are instructions for building a copy of the PyQt modules that have been known to work with Maya.

Maya 2017 uses Qt5.6.1 which is binary compatible with the latest version of PyQt – 5.7 / SIP - 4.18.1

Note that it's important to use the Maya modified version of the Qt source code. A copy of the customized Qt 5.6.1 source is available from Autodesk's Open Source web-site (<http://www.autodesk.com/lgplsource>) and includes text files describing how to configure, build and install Qt for each platform supported by Maya.





However, be aware that with Maya 2017, there is no more need to build PySide as it is coming by default in Maya, nor you have to rebuild Qt itself as the main Qt tools to build PyQt are now included in the Maya distributions (I.e. qmake, moc, ...)

libxml, openssl, OpenAL, python2.7, qt-5.6.1, and tbb are also coming by default in the Maya include and lib folders, so unless you have a very specific need, you would not need to rebuild any of those libraries like before. Note as well that there is a 'MAYA_LOCATION/support/opensource' folder now which contains some of the community source.

Important: Maya 2017 now ships without the devkit, include and mkspecs folders. You can get the Maya 2017 devkit from the Autodesk App Store [here](#) for Windows, OSX, and Linux. Download the devkit and unzip the files into your Maya root folder. Make sure to read the instructions to install the devkit, include and mkspecs folders properly on your system.

The scripts used in this document are now also posted on [Github](#).

Download SIP and PyQt source from '<http://www.riverbankcomputing.co.uk>' - here I downloaded 'sip- 4.18.1' and 'PyQt5_gpl-5.7'. Unzip them in one folder, then you should get something like this:

 PyQt5_gpl-5.7	12/14/2016 11:32 PM	File folder	
 sip-4.18.1	12/14/2016 11:55 PM	File folder	
 build_pyqt_win_2017.bat	12/14/2016 11:25 PM	Windows Batch File	2 KB
 build_sip_win_2017.bat	8/9/2016 5:47 PM	Windows Batch File	1 KB

Mac

/Users/cyrille/Documents/_Maya2017Scripts/sip-4.18.1

/Users/cyrille/Documents/_Maya2017Scripts/PyQt5_gpl-5.7

/Users/cyrille/Documents/_Maya2017Scripts' being my local folder.

Here are the instructions and scripts for building SIP and PyQt.

Follow the instructions from the API docs to setup your environment (Developer Resources > API Guide > Setting up your build environment > Mac OS X environment, in the Maya Documentation)

If you would like to use Xcode 6.1.1 to compile it and you are having multiple installation of Xcode. Please backup /Applications/Xcode.app and use Xcode 6.1.1 to replace it. You can restore it after installation.

Note that Xcode 6.1.1 won't open on Mac OS X Sierra(10.12), but it is still able to build PyQt5.

Use xcode-select to change active xcode like below:

```
sudo xcode-select -switch /Applications/Xcode.app/Contents/Developer
```

The qt.conf file uses **MAYA_LOCATION** and **DEVKIT_LOCATION** to locate the expected header/library files. Therefore, users must set both environment variables before building the PyQt5.

DEVKIT_LOCATION should point to the directory where the devkit include, mkspecs, cmake directories are located.

Modify devkit/bin/qt.conf as below:

```
[Paths]
Prefix=
Libraries=$(MAYA_LOCATION)/MacOS
```

```
Binaries=$(DEVKIT_LOCATION)/devkit/bin
Headers=$(DEVKIT_LOCATION)/include/Qt
ArchData=$(DEVKIT_LOCATION)
Data=$(DEVKIT_LOCATION)
HostData=$(DEVKIT_LOCATION)
HostBinaries=$(DEVKIT_LOCATION)/devkit/bin
HostLibraries=$(MAYA_LOCATION)/MacOS
```

Untar the include/qt-5.6.1-include.tar.gz into /include/Qt

Untar the qt-5.6.1-mkspecs.tar.gz into /Applications/Autodesk/maya2017/mkspecs. Make sure the qconfig.pri looks like this:

qconfig.pri

```
#namespaces
QT_LIBINFIX =
QT_NAMESPACE =
QT_NAMESPACE_MAC_CRC =#configuration
CONFIG += release def_files_disabled exceptions no_mocdepend stl x86_64 qt
#qt_framework
QT_ARCH = macosx
QT_EDITION = OpenSource
QT_CONFIG += minimal-config small-config medium-config large-config full-config
no-pkg-config dwarf2 phonon phonon-backend accessibility opengl reduce_exports
ipv6 getaddrinfo ipv6ifname getifaddrs png no-freetype system-zlib nis cups
iconv openssl corewlan concurrent xmlpatterns multimedia audio-backend svg
script scripttools declarative release x86_64 qt #qt_framework
#versioning
QT_VERSION = 5.6.1
QT_MAJOR_VERSION = 5
QT_MINOR_VERSION = 6
QT_PATCH_VERSION = 1
#namespaces
QT_LIBINFIX =
```

```
QT_NAMESPACE =  
QT_NAMESPACE_MAC_CRC =
```

BUILD & INSTALL SIP

Please use the script below, you can also find it in [GitHub](#).

```
popd#!/usr/bin/env bash  
  
MAYAQTBUILD="`dirname \"$0\"`" # Relative  
export MAYAQTBUILD="`( cd \"$MAYAQTBUILD\" && pwd )`" # Absolutized and  
normalized  
pushd $MAYAQTBUILD  
  
export SIPDIR=$MAYAQTBUILD/sip-4.18.1  
export MAYA_LOCATION=/Applications/Autodesk/maya2017  
  
pushd $SIPDIR  
$MAYA_LOCATION/Maya.app/Contents/bin/mayapy ./configure.py --arch=x86_64  
make  
sudo make install  
popd  
  
popd
```

BUILD & INSTALL PYQT

Please use the script below, you can also find it in [GitHub](#).

```
error=0  
if [ ! -f $QMAKESPEC/qmake.conf ];  
then  
    echo "You need to install qt-5.6.1-mkspecs.tar.gz in $QTDIR/mkspecs !"  
    error=1  
fi
```

```

fi
if [ ! -f $INCDIR_QT/QtCore/qdir.h ];
then
    echo "You need to uncompress $MAYA_LOCATION/devkit/include/qt-5.6.1-include.tar.gz in
$INCDIR_QT !"
    error=1
fi
# qt.conf - /Applications/Autodesk/maya2017/Maya.app/Contents/Resources
if [ ! -f $QTDIR/bin/qt.conf ];
then
    echo "You need to copy $QTDIR/Resources/qt.conf in $QTDIR/bin !"
    error=1
fi

test='grep 'Data=$(DEVKIT_LOCATION)' $QTDIR/bin/qt.conf'
if [ -z "$test" ];
then
    echo "You need to edit $QTDIR/bin/qt.conf to use 'Data=$(DEVKIT_LOCATION)'"
    error=1
fi
test='grep 'Headers=$(DEVKIT_LOCATION)/include/Qt' $QTDIR/bin/qt.conf'
if [ -z "$test" ];
then
    echo "You need to edit $QTDIR/bin/qt.conf to use 'Headers=$(DEVKIT_LOCATION)/
include/Qt'"
    error=1
fi
test='grep 'Libraries=$(MAYA_LOCATION)/MacOS' $QTDIR/bin/qt.conf'
if [ -z "$test" ];
then
    echo "You need to edit $QTDIR/bin/qt.conf to use 'Libraries=$(MAYA_LOCATION)/
MacOS'"
    error=1

```

```
fi

if [ $error -eq 1 ];
then
    exit
fi

export DYLD_LIBRARY_PATH=$MAYA_LOCATION/MacOS
export DYLD_FRAMEWORK_PATH=$MAYA_LOCATION/Frameworks

export SIPDIR=$MAYAQTBUILD/sip-4.18.1
export PYQTDIR=$MAYAQTBUILD/PyQt5_gpl-5.7

export SIP_EXE=$MAYA_LOCATION/Frameworks/Python.framework/Versions/2.7/bin/sip
export SIP_INCLUDE=$MAYA_LOCATION/Frameworks/Python.framework/Versions/2.7/
include/python2.7

pushd $PYQTDIR
export PATH=$QTDIR/bin:$PATH

echo
echo Environment
echo ——
set
echo ——
echo QT Settings
echo ——
qmake -query
echo ——
echo
$MAYA_LOCATION/bin/mayapy ./configure.py QMAKE_MAC_SDK=macosx10.9
QMAKE_RPATHDIR+=${LIBDIR_QT} -sip=$SIP_EXE -sip-incdir=$SIP_INCLUDE -w -no-
designer-plugin
make -j 8
```

```
sudo make install
```

```
popd
```

```
popd#!/usr/bin/env bash
```

```
MAYAQTBUILD="`dirname \"$0\"`" # Relative
```

```
export MAYAQTBUILD="`( cd \"$MAYAQTBUILD\" && pwd )`" # Absolutized and  
normalized
```

```
pushd $MAYAQTBUILD
```

```
export MAYA_LOCATION=/Applications/Autodesk/maya2017/Maya.app/Contents
```

```
export DEVKIT_LOCATION=/Applications/Autodesk/maya2017
```

```
export QTDIR=$DEVKIT_LOCATION/devkit
```

```
export QMAKESPEC=$DEVKIT_LOCATION/mkspecs/macx-clang
```

```
export INCDIR_QT=$DEVKIT_LOCATION/include/Qt
```

```
export LIBDIR_QT=$MAYA_LOCATION/MacOS
```

```
error=0
```

```
if [ ! -f $QMAKESPEC/qmake.conf ];
```

```
then
```

```
    echo "You need to install qt-5.6.1-mkspecs.tar.gz in $QTDIR/mkspecs !"
```

```
    error=1
```

```
fi
```

```
if [ ! -f $INCDIR_QT/QtCore/qdir.h ];
```

```
then
```

```
    echo "You need to uncompress $MAYA_LOCATION/devkit/include/  
qt-5.6.1-include.tar.gz in $INCDIR_QT !"
```

```
    error=1
```

```
fi
```

```
# qt.conf - /Applications/Autodesk/maya2017/Maya.app/Contents/Resources
```

```
if [ ! -f $QTDIR/bin/qt.conf ];
```

```
then
```

```
    echo "You need to copy $QTDIR/Resources/qt.conf in $QTDIR/bin !"
```

```
    error=1
```

```

fi

test=`grep 'Data=$(DEVKIT_LOCATION)' $QTDIR/bin/qt.conf`
if [ -z "$test" ];
then
    echo "You need to edit $QTDIR/bin/qt.conf to use 'Data=\$(DEVKIT_LOCATION)'"
    error=1
fi

test=`grep 'Headers=$(DEVKIT_LOCATION)/include/Qt' $QTDIR/bin/qt.conf`
if [ -z "$test" ];
then
    echo "You need to edit $QTDIR/bin/qt.conf to use 'Headers=\$(DEVKIT_LOCATION)/include/Qt'"
    error=1
fi

test=`grep 'Libraries=$(MAYA_LOCATION)/MacOS' $QTDIR/bin/qt.conf`
if [ -z "$test" ];
then
    echo "You need to edit $QTDIR/bin/qt.conf to use 'Libraries=\$(MAYA_LOCATION)/MacOS'"
    error=1
fi

if [ $error -eq 1 ];
then
    exit
fi

export DYLD_LIBRARY_PATH=$MAYA_LOCATION/MacOS
export DYLD_FRAMEWORK_PATH=$MAYA_LOCATION/Frameworks

export SIPDIR=$MAYAQTBUILD/sip-4.18.1
export PYQTDIR=$MAYAQTBUILD/PyQt5_gpl-5.7

```



```

export SIP_EXE=$MAYA_LOCATION/Frameworks/Python.framework/Versions/2.7/bin/sip
export SIP_INCLUDE=$MAYA_LOCATION/Frameworks/Python.framework/Versions/2.7/
include/python2.7

pushd $PYQTDIR
export PATH=$QTDIR/bin:$PATH

echo
echo Environment
echo -----
set
echo -----
echo QT Settings
echo -----
qmake -query
echo -----
echo
$MAYA_LOCATION/bin/mayapy ./configure.py QMAKE_MAC_SDK=macosx10.9
QMAKE_RPATHDIR+=${LIBDIR_QT} --sip=$SIP_EXE --sip-incdir=$SIP_INCLUDE -w
--no-designer-plugin

make -j 8

sudo make install

popd

popd

```

Note that I am compiling against Mac OS X SDK 10.9 which is same as the developer environment. If you want to compile against other versions, please modify the script(macosx10.9).

You're done! Please check the testing paragraph at the end of the article.

Linux

/home/cyrille/Documents/_Maya2017Scripts/sip-4.18.1

/home/cyrille/Documents/_Maya2017Scripts/PyQt5_gpl-5.7

'/home/cyrille/Documents/_Maya2017Scripts' being my local folder.

Here are the instructions and scripts for building SIP and PyQt.

Follow the instructions from the API docs to setup your environment (Developer Resources > API Guide > Setting up your build environment > Linux environments (64 bit), in the Maya Documentation).

The qt.conf file uses **MAYA_LOCATION** and **DEVKIT_LOCATION** to locate the expected header/library files. Therefore, users must set both environment variables before building the PyQt5.

DEVKIT_LOCATION should point to the directory where the devkit include, mkspecs, cmake directories are located.

Please backup your qt.conf first, you'll need to restore it after building PyQt5. Replace .../bin/qt.conf with below:

```
[Paths]
Prefix=
Libraries=$(MAYA_LOCATION)/lib
Binaries=$(DEVKIT_LOCATION)/bin
Headers=$(DEVKIT_LOCATION)/include/Qt
ArchData=$(DEVKIT_LOCATION)
Data=$(DEVKIT_LOCATION)
HostData=$(DEVKIT_LOCATION)
HostBinaries=$(DEVKIT_LOCATION)/bin
```

Untar the /include/qt-5.6.1-include.tar.gz into /include/Qt

Untar the /mkspecs/qt-5.6.1-mkspecs.tar.gz into /mkspecs

Make qmake, moc executables from the Maya bin directory

```
sudo chmod aog+x /usr/autodesk/maya2017/bin/moc
sudo chmod aog+x /usr/autodesk/maya2017/bin/qmake
```

BUILD & INSTALL SIP

Please use the script below, you can also find it in GitHub.

```
popd#!/usr/bin/env bash
```

```
MAYAQTBUILD="`dirname \"$0\"`" # Relative
```

```
export MAYAQTBUILD="`( cd \"$MAYAQTBUILD\" && pwd )`" # Absolutized and  
normalized
```

```
pushd $MAYAQTBUILD
```

```
export SIPDIR=$MAYAQTBUILD/sip-4.18.1
```

```
export MAYA_LOCATION=/usr/autodesk/maya2017
```

```
pushd $SIPDIR
```

```
$MAYA_LOCATION/bin/mayapy ./configure.py
```

```
make
```

```
sudo make install
```

```
popd
```

```
popd
```

BUILD & INSTALL PYQT

Please use the script below, you can also find it in [GitHub](#).

```
error=0
```

```
if [ ! -f $QMAKESPEC/qmake.conf ];
```

```
then
```

```
echo "You need to install qt-5.6.1-mkspecs.tar.gz in $QTDIR/mkspecs !"
```

```
error=1
```

```
fi
```

```
if [ ! -f $INCDIR_QT/QtCore/qdir.h ];
```

```
then
```

```
echo "You need to uncompress $MAYA_LOCATION/include/qt-5.6.1-include.tar.gz in $IN-  
CDIR_QT !"
```

```

error=1
fi
# qt.conf - $QTDIR/bin/qt.conf
if [ ! -f $QTDIR/bin/qt.conf ];
then
echo "You need to copy $QTDIR/Resources/qt.conf in $QTDIR/bin !"
error=1
fi

# The grep string should be in single quote('), if it is in double quote (""),
# shell will expand the variable, hence the intension of the below grep will fail
test='grep 'Headers=$(DEVKIT_LOCATION)/include/Qt' $QTDIR/bin/qt.conf'
if [ -z "$test" ];
then
echo "You need to edit $QTDIR/bin/qt.conf to use 'Headers=$(DEVKIT_LOCATION)/
include/Qt'"
error=1
fi

if [ $error -eq 1 ];
then
exit
fi

export SIPDIR=$MAYAQTBUILD/sip-4.18.1
export PYQTDIR=$MAYAQTBUILD/PyQt5_gpl-5.7

pushd $PYQTDIR
export PATH=$QTDIR/bin:$PATH
$QTDIR/bin/mayapy ./configure.py LIBDIR_QT=$LIBDIR_QT INCDIR_QT=$INCDIR_QT
MOC=$QTDIR/bin/moc -w -no-designer-plugin
make -j 8
sudo make install
popd

```

```
popd#!/usr/bin/env bash

MAYAQTBUILD="\`dirname \"$0\"`" # Relative
export MAYAQTBUILD="\`( cd \"$MAYAQTBUILD\" && pwd )`" # Absolutized and
normalized
pushd $MAYAQTBUILD

export MAYA_LOCATION=/usr/autodesk/maya2017
export QTDIR=$MAYA_LOCATION
export DEVKIT_LOCATION=$MAYA_LOCATION
export QMAKESPEC=$QTDIR/mkspecs/linux-g++-64
export INCDIR_QT=$MAYA_LOCATION/include/Qt
export LIBDIR_QT=$QTDIR/lib

error=0
if [ ! -f $QMAKESPEC/qmake.conf ];
then
    echo "You need to install qt-5.6.1-mkspecs.tar.gz in $QTDIR/mkspecs !"
    error=1
fi
if [ ! -f $INCDIR_QT/QtCore/qdir.h ];
then
    echo "You need to uncompress $MAYA_LOCATION/include/qt-5.6.1-include.tar.gz in
$INCDIR_QT !"
    error=1
fi
# qt.conf - $QTDIR/bin/qt.conf
if [ ! -f $QTDIR/bin/qt.conf ];
then
    echo "You need to copy $QTDIR/Resources/qt.conf in $QTDIR/bin !"
    error=1
fi

# The grep string should be in single quote('), if it is in double quote ("),
```

```

# shell will expand the variable, hence the intension of the below grep will
fail

test=`grep 'Headers=$(DEVKIT_LOCATION)/include/Qt' $QTDIR/bin/qt.conf`
if [ -z "$test" ];
then
    echo "You need to edit $QTDIR/bin/qt.conf to use 'Headers=$(DEVKIT_LOCATION)/
include/Qt'"

    error=1
fi

if [ $error -eq 1 ];
then
    exit
fi

export SIPDIR=$MAYAQTBUILD/sip-4.18.1
export PYQTDIR=$MAYAQTBUILD/PyQt5_gpl-5.7

pushd $PYQTDIR
export PATH=$QTDIR/bin:$PATH
$QTDIR/bin/mayapy ./configure.py LIBDIR_QT=$LIBDIR_QT INCDIR_QT=$INCDIR_QT
MOC=$QTDIR/bin/moc -w --no-designer-plugin

make -j 8

sudo make install

popd

popd

```

You're done! Please check the testing paragraph at the end of the article.

Windows

D:__sdkext_Maya2017 Scripts\sip-4.18.1

D:__sdkext_Maya2017 Scripts\PyQt5_gpl-5.7

D:_sdkext_Maya2017 Scripts being my local folder.

Here are the instructions and scripts for building SIP and PyQt.

Follow the instructions from the API docs to setup your environment (Developer Resources > API Guide > Setting up your build environment > Windows environment (64-bit), in the Maya Documentation)

Please backup your qt.conf first, you'll need to restore it after building PyQt5. Replace .../bin/qt.conf with below:

```
[Paths]
Prefix=$(MAYA_LOCATION)
Libraries=lib
Binaries=bin
Headers=include/Qt
Data=.
Plugins=qt-plugins
Translations=qt-translations
Qml2Imports=qml
```

Unzip the /include/qt-5.6.1-include.tar.gz into /include/Qt

Unzip the /mkspecs/qt-5.6.1-mkspecs.tar.gz into /mkspecs

Please run following build scripts with VS2012 x64 Native Tools Command Prompt. If your Maya installed in folders required administrator privilege(e.g. Program files), please run the command prompt as Administrator.

ENVIRONMENT SETUP

```
set MAYAVERSION=2017
set ADSKQTVERSION=5.6.1
set SIPVERSION=4.18.1
set PYQTVERSION=5.7
set MAYADRIVE=m:
set BUILDDRIVE=v:
```

```
if exist %MAYADRIVE%\nul subst %MAYADRIVE% /d
subst %MAYADRIVE% "C:\Program Files\Autodesk\Maya%MAYAVERSION%"
set MAYA_LOCATION=%MAYADRIVE%

set MAYAPYQTBUILD=%~dpo
rem Removing trailing \
set MAYAPYQTBUILD=%MAYAPYQTBUILD:~-o,-1%

if exist %BUILDDRIVE%\nul subst %BUILDDRIVE% /d
subst %BUILDDRIVE% "%MAYAPYQTBUILD%"

set SIPDIR=%BUILDDRIVE%\sip-%SIPVERSION%
set PYQTDIR=%BUILDDRIVE%\PyQt5_gpl-%PYQTVERSION%
rem set ADSKQTDIR=%BUILDDRIVE%\qt-%ADSKQTVERSION%
set QTDIR=%MAYA_LOCATION%

set PATH=%QTDIR%\bin;%PATH%
set MSVC_VERSION=2012
set MSVC_DIR=C:\Program Files (x86)\Microsoft Visual Studio 11.0
set QMAKESPEC=%QTDIR%\mkspecs\win32-msvc%MSVC_VERSION%
set _QMAKESPEC_=win32-msvc%MSVC_VERSION%

if ["%LIBPATH%"]==[""] call "%MSVC_DIR%\VC\vcvarsall" amd64

set INCLUDE=%INCLUDE%;%MAYA_LOCATION%\include\python2.7
set LIB=%LIB%;%MAYA_LOCATION%\lib@echo off

set MAYAVERSION=2017
set ADSKQTVERSION=5.6.1
set SIPVERSION=4.18.1
set PYQTVERSION=5.7
set MAYADRIVE=m:
set BUILDDRIVE=v:

if exist %MAYADRIVE%\nul subst %MAYADRIVE% /d
subst %MAYADRIVE% "C:\Program Files\Autodesk\Maya%MAYAVERSION%"
```



```

set MAYA_LOCATION=%MAYADRIVE%

set MAYAPYQTBUILD=%~dp0
rem Removing trailing \
set MAYAPYQTBUILD=%MAYAPYQTBUILD:~0,-1%

if exist %BUILDDRIVE%\nul subst %BUILDDRIVE% /d
subst %BUILDDRIVE% "%MAYAPYQTBUILD%"

set SIPDIR=%BUILDDRIVE%\sip-%SIPVERSION%
set PYQTDIR=%BUILDDRIVE%\PyQt5_gpl-%PYQTVERSION%
rem set ADSKQTDIR=%BUILDDRIVE%\qt-%ADSKQTVERSION%
set QTDIR=%MAYA_LOCATION%

set PATH=%QTDIR%\bin;%PATH%
set MSVC_VERSION=2012
set MSVC_DIR=C:\Program Files (x86)\Microsoft Visual Studio 11.0
set QMAKESPEC=%QTDIR%\mkspecs\win32-msvc%MSVC_VERSION%
set _QMAKESPEC_=win32-msvc%MSVC_VERSION%

if ["%LIBPATH%"]==[""] call "%MSVC_DIR%\VC\vcvarsall" amd64

set INCLUDE=%INCLUDE%;%MAYA_LOCATION%\include\python2.7
set LIB=%LIB%;%MAYA_LOCATION%\lib

```

BUILD & INSTALL SIP

Please use the script below, you can also find it in [GitHub](#).

```

pushd %SIPDIR%
rem "%MAYA_LOCATION%\bin\mayapy" configure-ng.py -spec %_QMAKESPEC_%
"%MAYA_LOCATION%\bin\mayapy" configure.py
nmake
nmake install
popd@echo off

```

```

set XXX=%~dp0
if ["%MAYAPYQTBUILD%"]==[""] call "%XXX%setup.bat"

pushd %SIPDIR%
rem "%MAYA_LOCATION%\bin\mayapy" configure-ng.py --spec %_QMAKESPEC_%
"%MAYA_LOCATION%\bin\mayapy" configure.py
nmake
nmake install
popd

```

BUILD & INSTALL PYQT

Please use the script below, you can also find it in [GitHub](#).

```

set QMAKESPEC=%QTDIR%\mkspecs\%_QMAKESPEC_%
if not exist "%QMAKESPEC%\qmake.conf" (
    echo "You need to uncompress %MAYA_LOCATION%\mkspecs\qt-5.6.1-mkspecs.tar.gz !"
    goto end
)
if not exist "%MAYA_LOCATION%\include\Qt\QtCore\qdir.h" (
    echo "You need to uncompress %MAYA_LOCATION%\include\qt-5.6.1-include.tar.gz in
%MAYA_LOCATION%\include\Qt !"
    goto end
)
findstr /L /C:"Headers=include/Qt" "%MAYA_LOCATION%\bin\qt.conf" >nul 2>&1
if ERRORLEVEL 1 (
    echo "You need to edit %MAYA_LOCATION%\bin\qt.conf to use 'Headers=include/Qt'"
    goto end
)
findstr /L /C:"-lqtmain -lshell32" "%QTDIR%\mkspecs\common\msvc-desktop.conf" >nul
2>&1
if ERRORLEVEL 1 (

```

```

    echo "You need to edit %QTDIR%\mkspecs\common\msvc-desktop.conf to use
'QMAKE_LIBS_QT_ENTRY    = -lqtmain -lshell32'"

    goto end
)
if not exist "%MAYA_LOCATION%\include\Qt\qtnfc.disabled" (
    echo "You need to rename %MAYA_LOCATION%\include\Qt\qtnfc to
%MAYA_LOCATION%\include\Qt\qtnfc.disabled"

    goto end
)

pushd %PYQTDIR%

"%MAYA_LOCATION%\bin\mayapy" configure.py -spec %QMAKESPEC%
LIBDIR_QT="%QTDIR%\lib" INCDIR_QT="%QTDIR%\include\Qt"
MOC="%QTDIR%\bin\moc.exe" -sip="%QTDIR%\Python\sip.exe" -sip-
incdir="%QTDIR%\Python\include" -w -no-designer-plugin

nmake
nmake install
popd

:end@echo off

set XXX=%~dp0
if ["%MAYAPYQTBUILD%"]==[""] call "%XXX%setup.bat"

set QMAKESPEC=%QTDIR%\mkspecs\_%_QMAKESPEC_%
if not exist "%QMAKESPEC%\qmake.conf" (
    echo "You need to uncompress %MAYA_LOCATION%\mkspecs\qt-5.6.1-mkspecs.tar.gz
!"

    goto end
)

if not exist "%MAYA_LOCATION%\include\Qt\QtCore\qdir.h" (
    echo "You need to uncompress %MAYA_LOCATION%\include\qt-5.6.1-include.tar.gz
in %MAYA_LOCATION%\include\Qt !"

    goto end
)

findstr /L /C:"Headers=include/Qt" "%MAYA_LOCATION%\bin\qt.conf" >nul 2>&1

```

```

if ERRORLEVEL 1 (
    echo "You need to edit %MAYA_LOCATION%\bin\qt.conf to use 'Headers=include/Qt'"
    goto end
)

findstr /L /C:"-lqtmain -lshell32" "%QTDIR%\mkspecs\common\msvc-desktop.conf"
>nul 2>&1

if ERRORLEVEL 1 (
    echo "You need to edit %QTDIR%\mkspecs\common\msvc-desktop.conf to use
'QMAKE_LIBS_QT_ENTRY      = -lqtmain -lshell32'"
    goto end
)

if not exist "%MAYA_LOCATION%\include\Qt\qtnfc.disabled" (
    echo "You need to rename %MAYA_LOCATION%\include\Qt\qtnfc to
%MAYA_LOCATION\include\Qt\qtnfc.disabled"
    goto end
)

pushd %PYQTDIR%

"%MAYA_LOCATION%\bin\mayapy" configure.py --spec %QMAKESPEC%
LIBDIR_QT="%QTDIR%\lib" INCDIR_QT="%QTDIR%\include\Qt" MOC="%QTDIR%\bin\moc.exe"
--sip="%QTDIR%\Python\sip.exe" --sip-incdir="%QTDIR%\Python\include" -w
--no-designer-plugin

nmake
nmake install

popd

:end

```

You're done! Please check the testing paragraph at the end of the article.

Testing

Copy and paste this example in the Maya Script Editor (in a Python tab), and execute the code:

```

def initUI(self):
    QToolTip.setFont(QFont('SansSerif', 10))
    self.setToolTip('This is a <b>QWidget</b> widget')
    btn = QPushButton('Button', self)
    btn.setToolTip('This is a <b>QPushButton</b> widget')
    btn.resize(btn.sizeHint())
    btn.move(50, 50)
    self.setGeometry(300, 300, 300, 200)
    self.setWindowTitle('Tooltips')
    self.show()

```

```

ex = Example()
import sys
from PyQt5.QtWidgets import (QWidget, QToolTip, QPushButton)
from PyQt5.QtGui import QFont

```

```

class Example(QWidget):
    def __init__(self):
        super(Example, self).__init__()
        self.initUI()

    def initUI(self):
        QToolTip.setFont(QFont('SansSerif', 10))
        self.setToolTip('This is a <b>QWidget</b> widget')
        btn = QPushButton('Button', self)
        btn.setToolTip('This is a <b>QPushButton</b> widget')
        btn.resize(btn.sizeHint())
        btn.move(50, 50)
        self.setGeometry(300, 300, 300, 200)
        self.setWindowTitle('Tooltips')
        self.show()

```

```
ex = Example()
```

If you see the dialog showing, you are all set.