



QGIS Plugin Development

An overview

Background

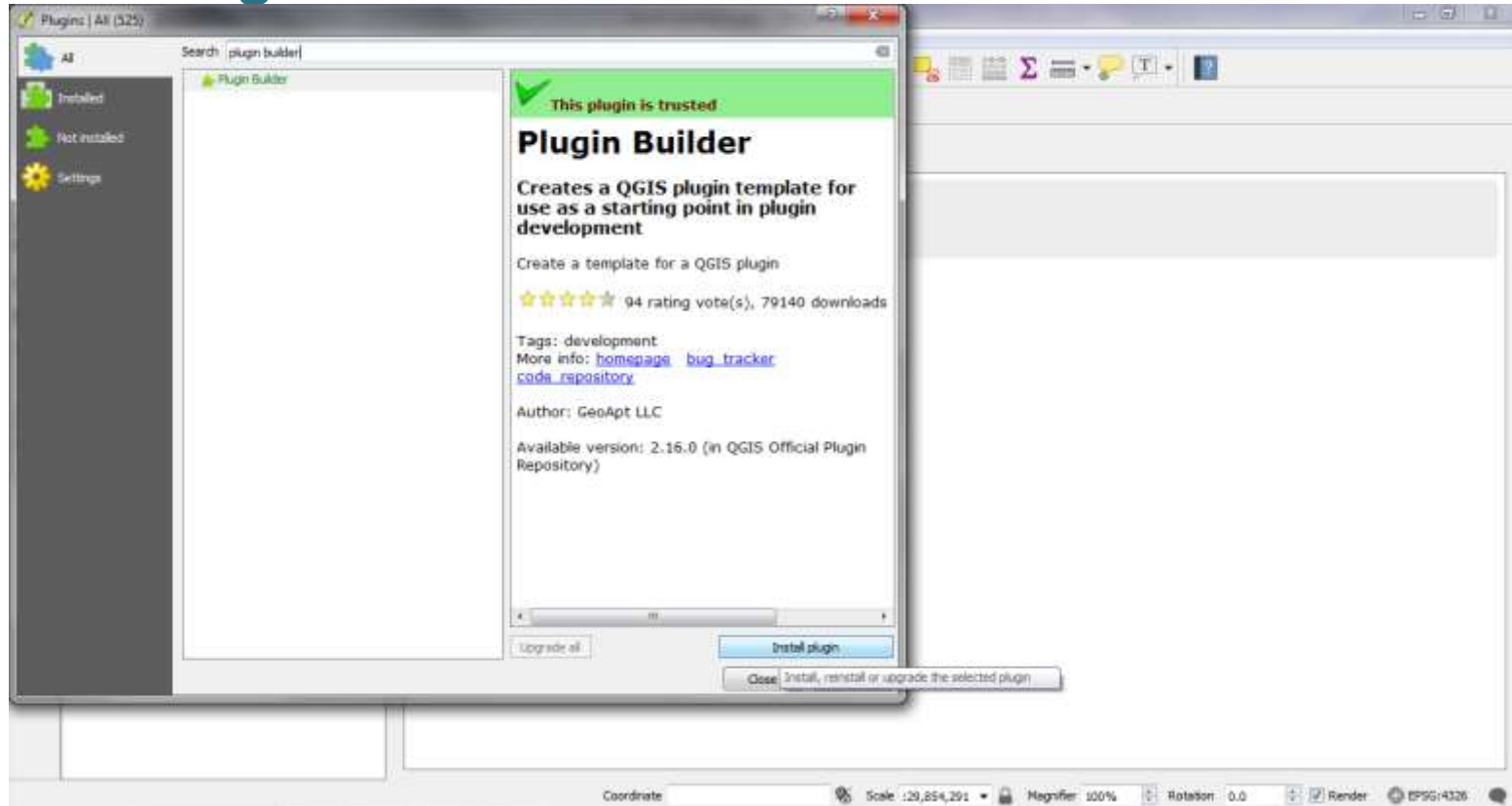
- Plugins are python-based (not C, this is possible but discouraged).
- There is a central plugin repository: <http://plugins.qgis.org/>
 - Plugin Manager provides an interface to the plugin repository
- Documentation is improving (from a low baseline)
- QGIS v3 will break your plugin. http://qgis.org/api/api_break.html
- Essential resources:
 - <http://www.qgis.org/pyqgis-cookbook/>
 - <http://www.qgis.org/api/>

	QGIS v2	QGIS v3
Python	2.7	3
Qt	Qt4	Qt5
PyQt	4	5

Overview

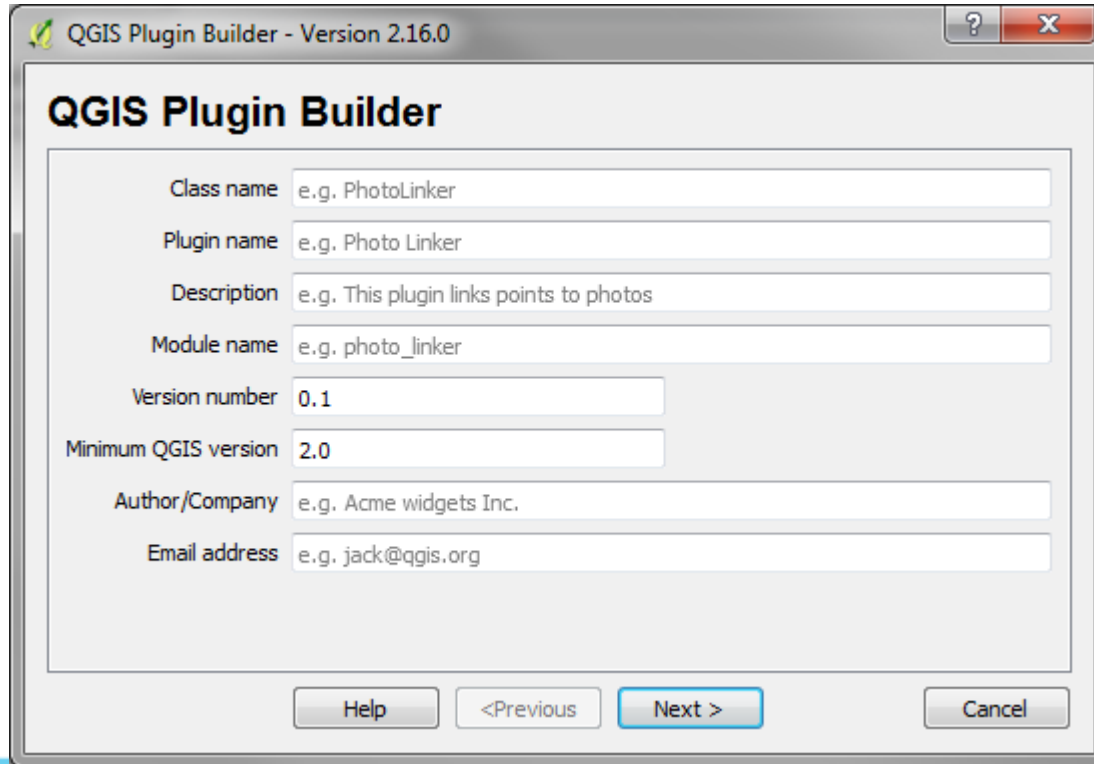
- Create pre-filled plugin template
- Compile resources
- Configure IDE (pycharm)
- Write functionality and GUI
- Use Plugin Reloader for testing
- Upload to plugin repository

Install Plugin Builder



Create plugin template

Save plugin to user home: C:\Users\user\qgis2\python\plugins



QGIS Plugin Builder - Version 2.16.0

QGIS Plugin Builder

Class name

Plugin name

Description

Module name

Version number

Minimum QGIS version

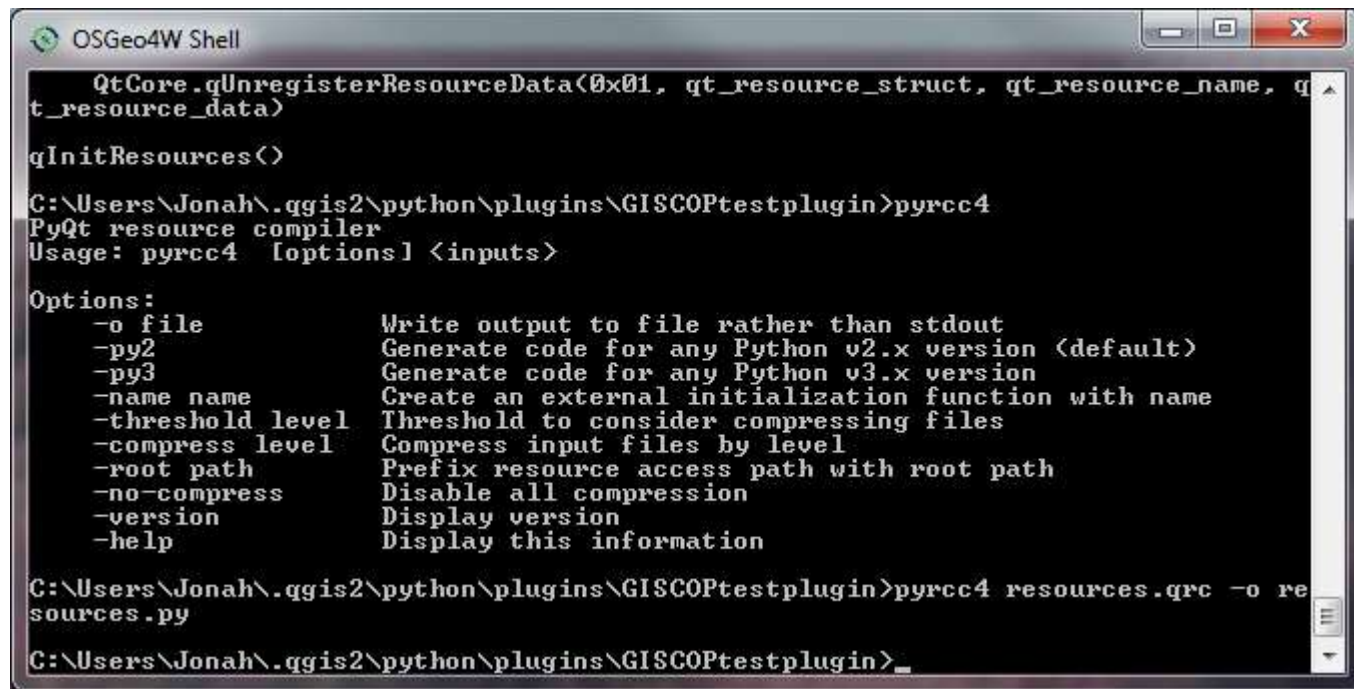
Author/Company

Email address

Help <Previous Next > Cancel

Create PyQt4 resources file

Use OSGeo4W Shell to access pyrcc4 utility.



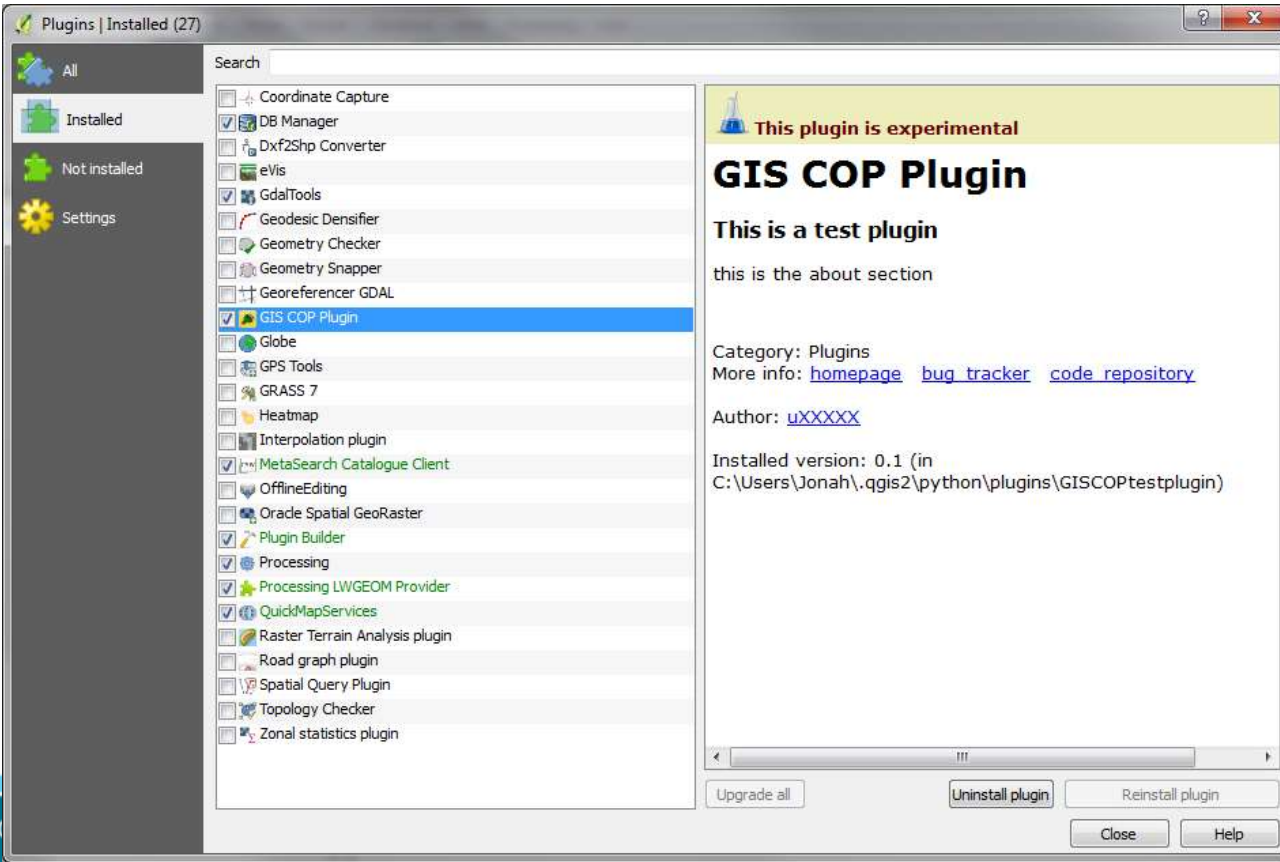
```
OSGeo4W Shell
QtCore.qUnregisterResourceData(0x01, qt_resource_struct, qt_resource_name, q
t_resource_data)
qInitResources()
C:\Users\Jonah\.qgis2\python\plugins\GISCOptestplugin>pyrcc4
PyQt resource compiler
Usage: pyrcc4 [options] <inputs>

Options:
  -o file           Write output to file rather than stdout
  -py2             Generate code for any Python v2.x version (default)
  -py3             Generate code for any Python v3.x version
  -name name       Create an external initialization function with name
  -threshold level Threshold to consider compressing files
  -compress level  Compress input files by level
  -root path       Prefix resource access path with root path
  -no-compress     Disable all compression
  -version         Display version
  -help           Display this information

C:\Users\Jonah\.qgis2\python\plugins\GISCOptestplugin>pyrcc4 resources.qrc -o re
sources.py
C:\Users\Jonah\.qgis2\python\plugins\GISCOptestplugin>_
```

Turn on your plugin

Open QGIS Plugin Manager and tick the box for your new plugin.



Set up pycharm to use QGIS python version

```
SET OSGEO4W_ROOT=C:\OSGeo4W64
```

```
SET QGISNAME=qgis
```

```
SET QGIS=%OSGEO4W_ROOT%\apps\%QGISNAME%
```

```
SET QGIS_PREFIX_PATH=%QGIS%
```

```
SET PYCHARM="C:\Program Files\JetBrains\PyCharm Community Edition  
2017.2.3\bin\pycharm.exe"
```

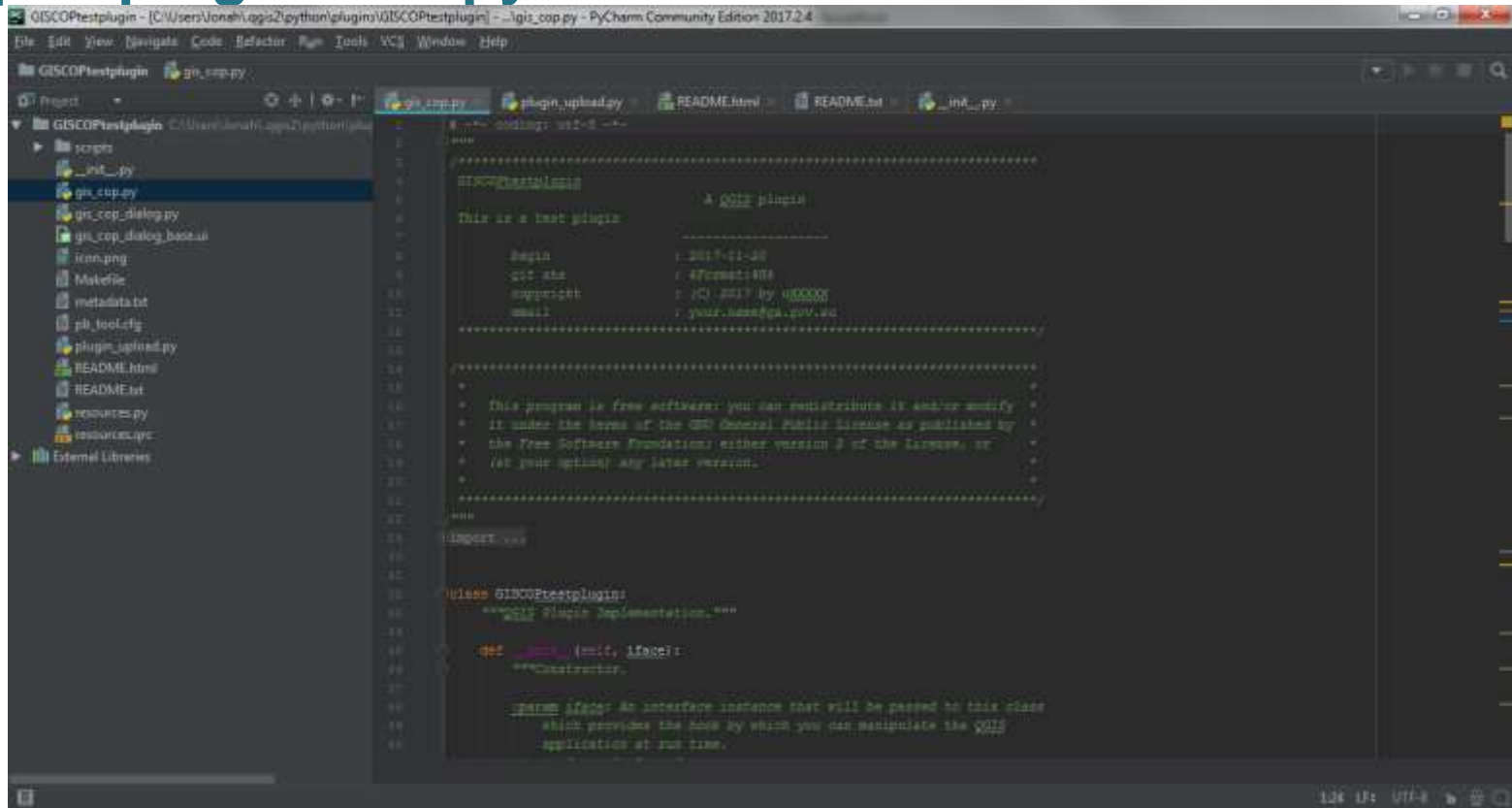
```
CALL %OSGEO4W_ROOT%\bin\o4w_env.bat
```

```
SET PATH=%PATH%;%QGIS%\bin
```

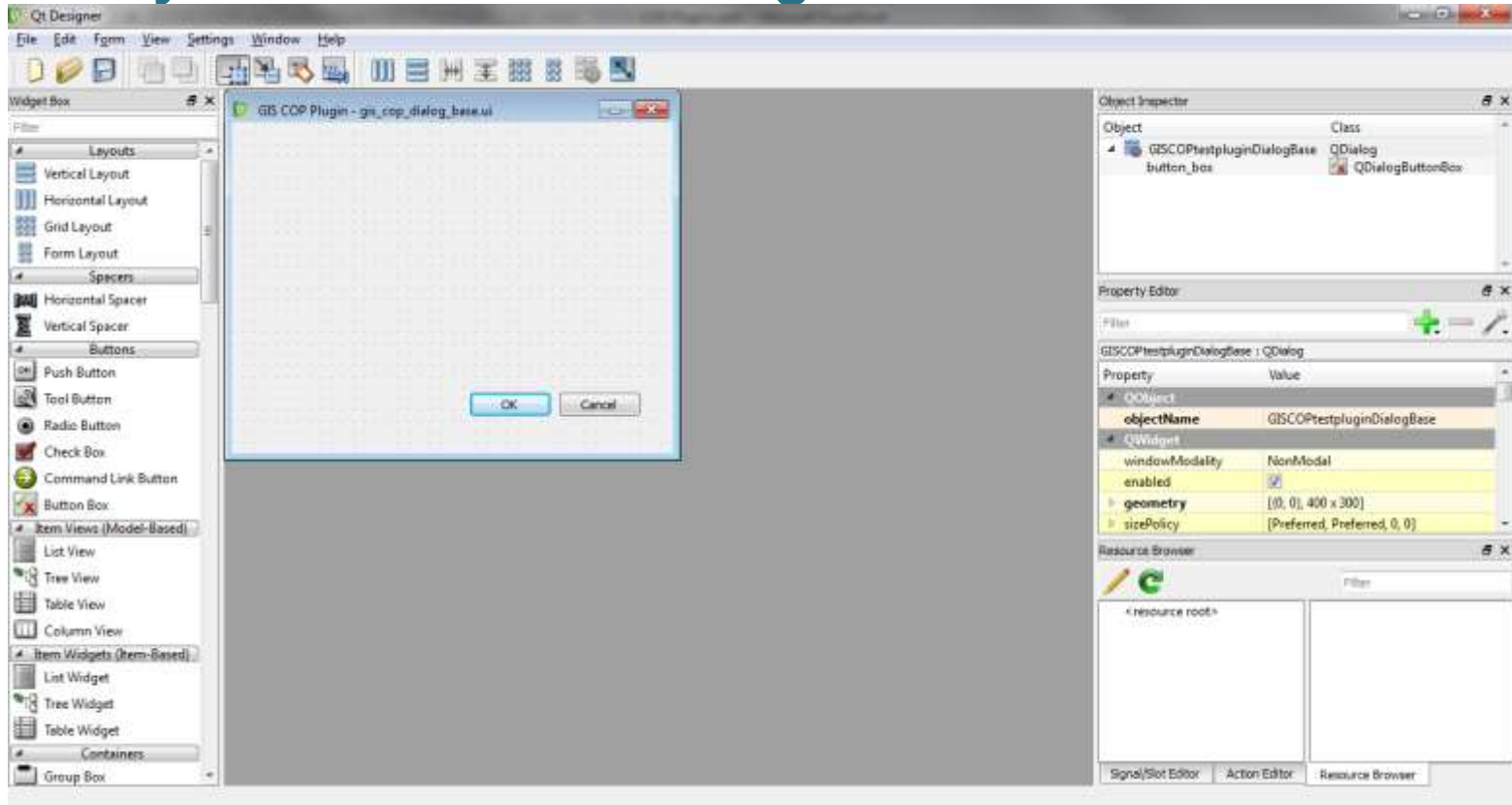
```
SET PYTHONPATH=%QGIS%\python;%PYTHONPATH%
```

```
start "PyCharm aware of QGIS" /B %PYCHARM% %*
```

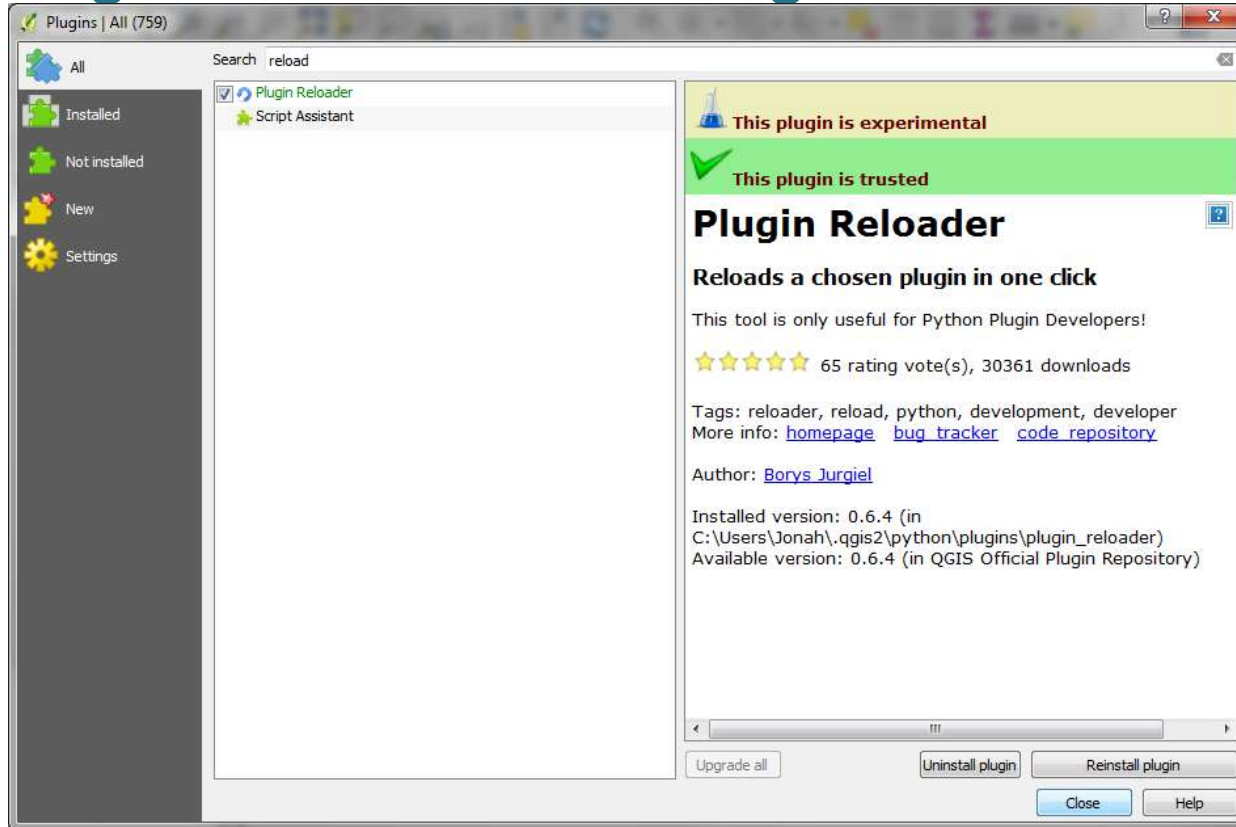

Open plugin with pycharm



Create your GUI with QtDesigner



Install Plugin Reloader for testing



Upload to Plugin Repository

The screenshot shows a web browser window with the URL `plugins.qgis.org/plugins/GeodesicDensifier/`. The page features a dark navigation bar with the QGIS logo and links for 'QGIS HOME', 'ABOUT PLUGINS', 'PLUGINS', 'PLANET', 'USER MAP', and 'LOGIN'. A search bar is located on the right side of the navigation bar.

On the left side of the page, there is a sidebar with a blue 'Upload a plugin' button. Below it, the 'Plugins' section lists various filters: 'Featured', 'All', 'Stable', 'Fresh', 'Experimental', 'Popular', 'Most voted', 'Top downloads', 'Most rated', and 'QGIS Server plugins'. The 'Plugin tags' section lists various tags such as '3d', 'accessibility', 'address', 'analysis', 'animation', 'api', 'archaeology', 'area', 'atlas', 'attribute', 'attribute editor', 'attribute table', 'attributes', 'basemap', 'bing', 'browser', 'buffer', 'cad', and 'cadastre'.

The main content area displays the 'Geodesic Densifier' plugin page. It includes a 'Download latest' button, a star rating of 5 stars (1 vote), and a description: 'Adds vertices to geometry along geodesic lines'. Below the description are tabs for 'About', 'Details', and 'Versions'. The 'Details' tab is active, showing the following information:

- Author:** [Jonah Sullivan](#)
- Maintainer:** [jonahsullivan](#)
- Tags:** `densify`, `polyline`, `feature`, `geometry`, `vector`, `geodesic`, `point`
- Plugin home page:** <https://github.com/GeoscienceAustralia/GeodesicDensifier>
- Tracker:** [Browse and report bugs](#)
- Code repository:** <https://github.com/jonahsullivan/GeodesicDensifier>
- Latest experimental ...:** 0.3



Questions

Jonah Sullivan

Maritime Jurisdiction Advice

National Location Information Branch

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