Installation Guide for ArcGIS SDK for Qt

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This document is intended to guide the readers about the installation of ArcGIS Developer SDK for Qt on Ubuntu 14.04 platform. The reader is required to have an elementary knowledge of linux environment shell commands.

1 Prerequisites

Some prerequisites to install ArcGIS for Qt are:

1. **Qt5.4+:** You can get it on the link **http://www.qt.io/download/**. The community edition of the software is freely available, so this tutorial mostly talks about that edition only. Also I would be discussing about the offline edition (You can find that in all downloads section). Be sure to find a compatible version for your machine. Installation instructions of Qt and other information could be found on the links **http://doc.qt.io/qt-5/linux.html** and **https://wiki.qt.io/Install_Qt_5_on_Ubuntu**

2. **Qt Creator:** The page for all downloads of Qt will also have a link to setup Qt Creator. This is also required.

3. **Library Bindings:** The ArcGIS SDK for Qt requires additional Libraries to be Installed. The link **https://developers.arcgis.com/qt/qml/ guide/runtime-qt-sdk-ubuntu-required-libs.htm** gives the full details.

2   Installing ArcGIS SDK for Qt

The steps to be followed to install ArcGIS SDK are:

Step 1: You can download the ArcGIS SDK for Qt from the site:
https://developers.arcgis.com/qt/ . This site contains other info as well about installation, tutorials, etc. For Ubuntu 14.04 (64-bit), click on the LINUX (64-bit) button on the downloads, to download. You may need to create an account to be able to download the SDK, so be sure you create it and you are signed in when you are downloading the SDK.

Step 2: Extract the tarball (the `.tar.gz` file). You can do that by the command. `sudo tar zxvf <your ArcGIS tarball file name>.tar.gz` For example, if we have the file
`ArcGIS_Runtime_SDK_Qt_Linux64_1025.tar.gz`,
then we type on the terminal:
`sudo tar zxvf ArcGIS_Runtime_SDK_Qt_Linux64_1025.tar.gz`
The sudo will require your administrator password to do its task.
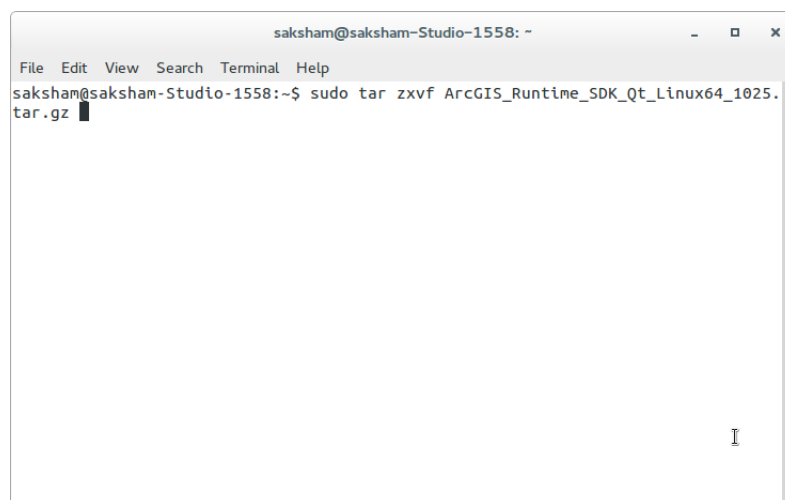
Figure 1: Extracting the Tarball.

Step 3: After extracting the tarball change the permissions and add the +x on file Setup. You may need the +rwx permissions on the entire directory. Do this by issuing the following command: `sudo chmod +rwx Setup` OR `sudo chmod -R +rwx ArcGISRuntimeSDKQt_Linux64`

Figure 2: Changing the Premissions.

Step 4: Issue `./Setup` in the terminal to install. This will start up a wizard to install the Qt. Follow the instructions. `sudo chmod -R +rwx ArcGISRuntimeSDKQt_Linux64`

Figure 3: Starting the Setup.

Step 5: Post Install procedures. This will require you to configure the ArcGIS SDK for Qt, with your Qt Creator. You will have to find your Qt Creator file (mostly it is present in your `<installation directory>` `/Qt5.4.1/Tools/QtCreator/bin/` directory). And your qmake for gcc (check for it in `<installation directory>/Qt5.4.1/5.4/gcc_64` `/bin/` directory).
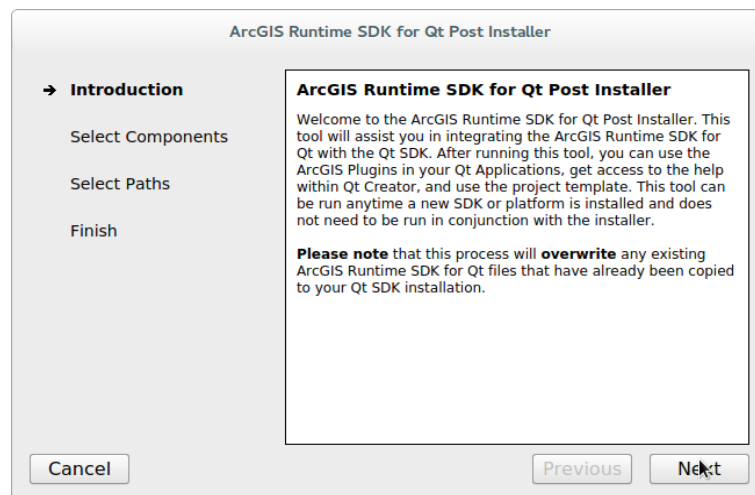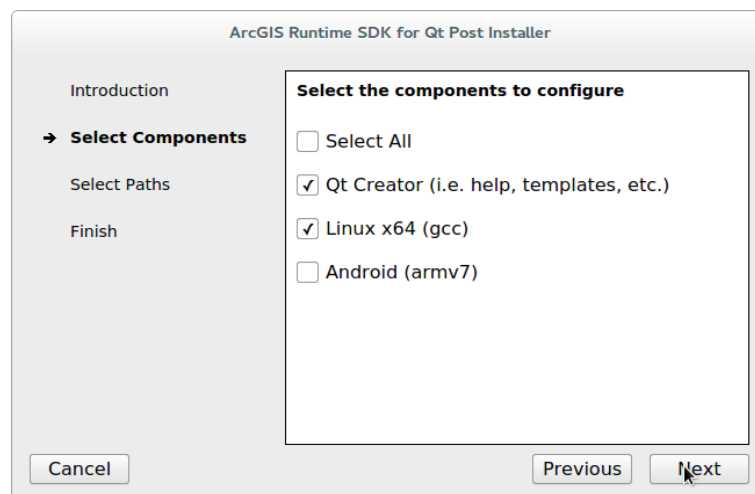

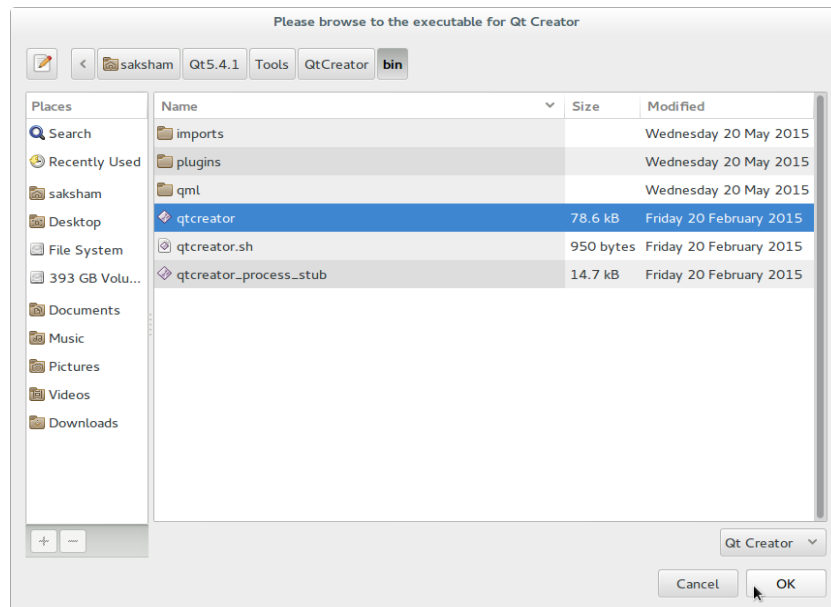Figure 4: Post-Install Step 1.

Figure 5: Post-Install Step 2.

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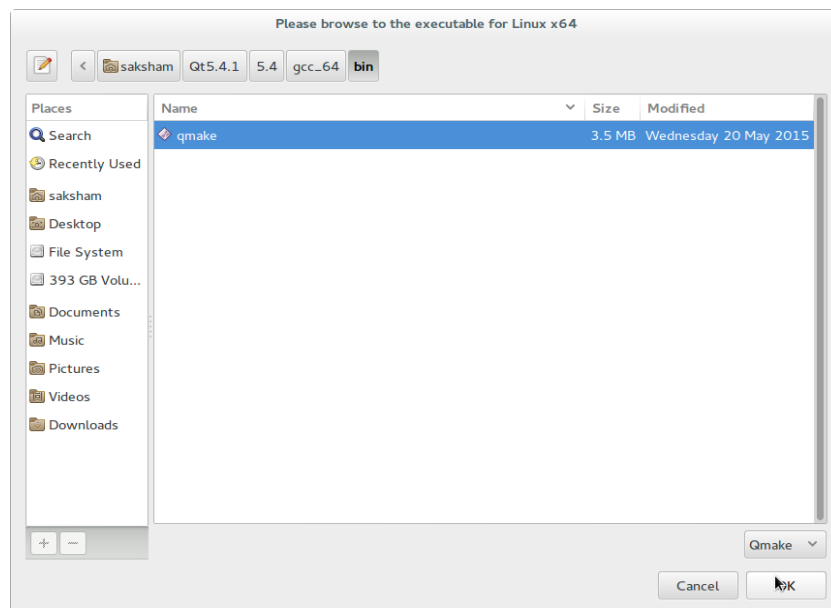Figure 6: Post-Install Step 3.

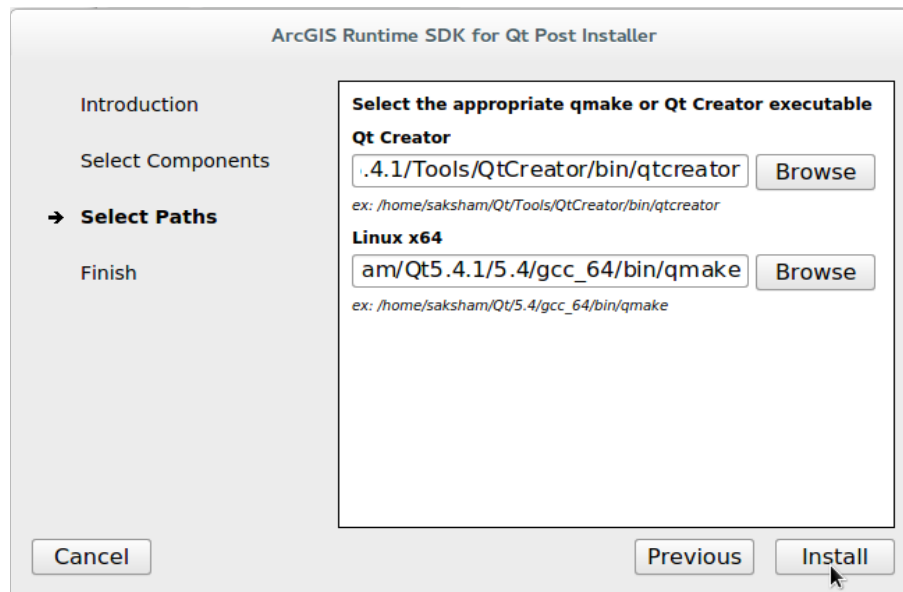

Figure 7: Post-Install Step 4.
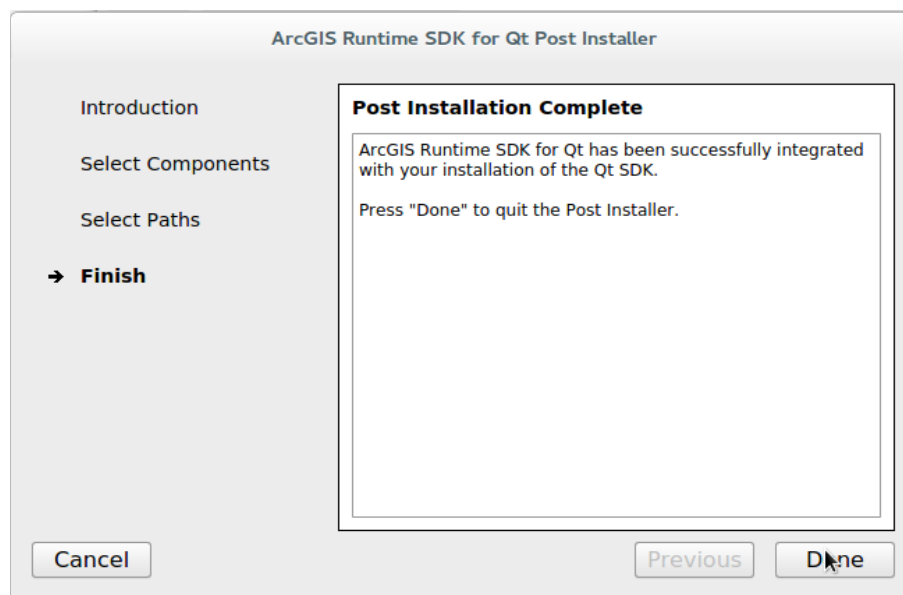
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Figure 8: Post-Install Step 5.

Figure 9: Post-Install Step 6.

3 Verifying your Install

To verify that your installation has taken place correctly, you will have to create an ArcGIS project. Let us start:
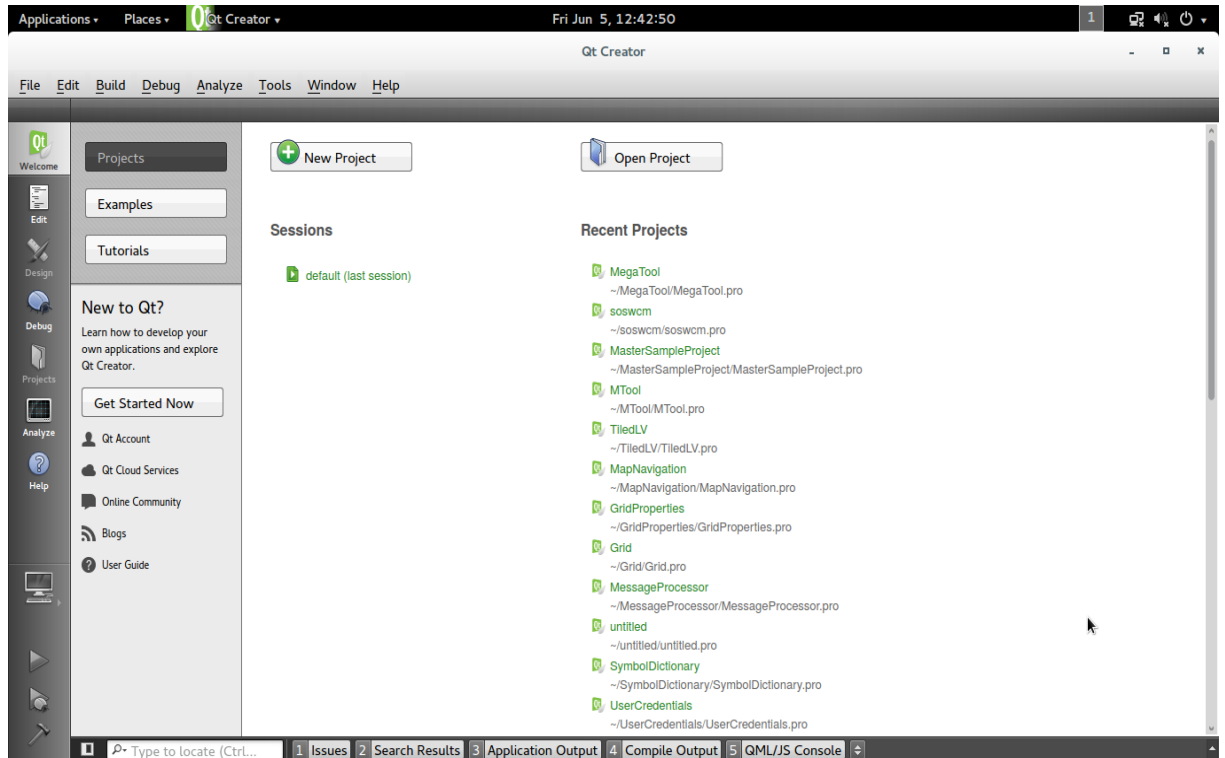
Step 1: Open Qt Creator.

Figure 10: Qt Creator Opened.

Step 2: Go to Tools → Options → Build&Run → Kits and Add a kit for your Desktop applications. Your Kit must include an environment variable LD_LIBRARY_PATH, in the run mode. Also make sure it has a value `/arcgis/runtime_sdk/qt10.2.5/sdk/linux/x64/lib` appended to it.
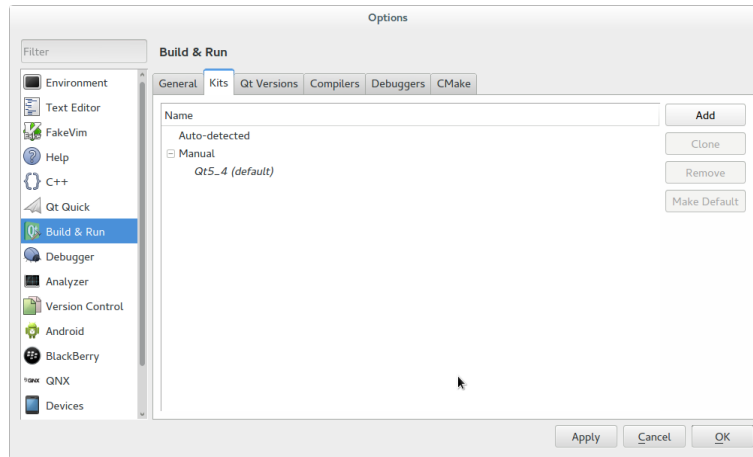

Figure 11: Adding a Kit.

Step 3: In File menu select create a new project.

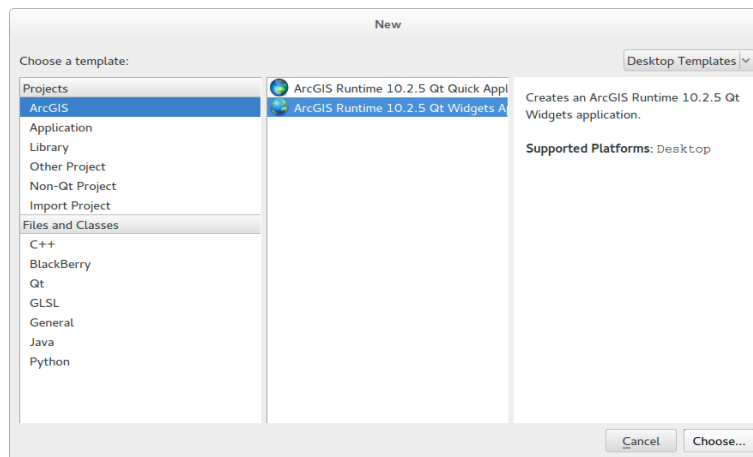**Step 4:** Select ArcGIS Qt Widget Application.

Figure 12: Create a New Project.

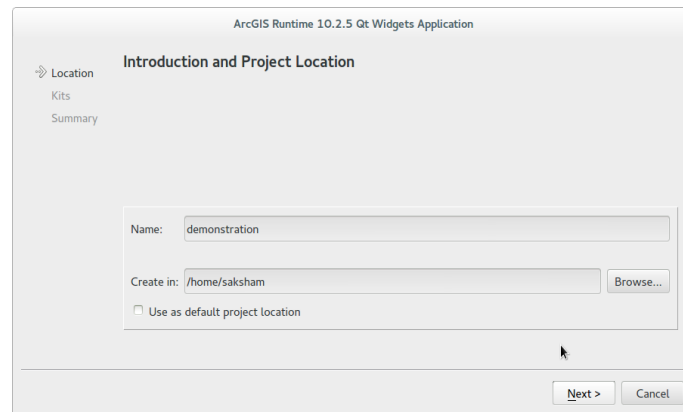**Step 5:** Provide a suitable name destination location to your Application.

Figure 13: Providing a name to the Project.
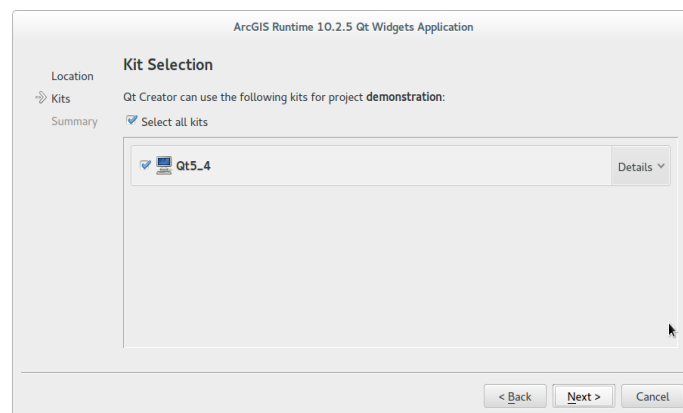
Step 6: In the next step, select your kit.

Figure 14: Select the Kit we Just created.

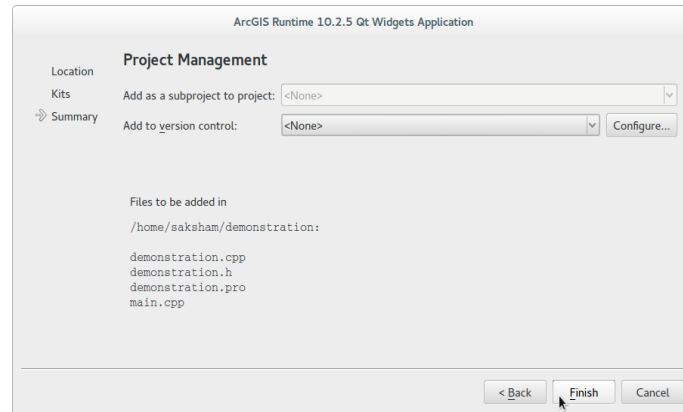**Step 7:** Click on the finish button.

Figure 15: Click the Finish Button.

Step 8: In your `.pro` file, Right-click and Select Add Library and Select External Library option. Include the Esri Runtime Library `libEsriRuntimeQt.so` from your `/arcgis/runtime_sdk/qt10.2.5 /sdk/linux/x64/lib` directory. Repeat the step to include the other library also in the same folder (you may have to add a symbolic link `libc++.so` to your `libc++.so.1` file. Refer to internet to find the command for adding a symbolic link). Also add the line `LIBS += -lc++` in the same file.
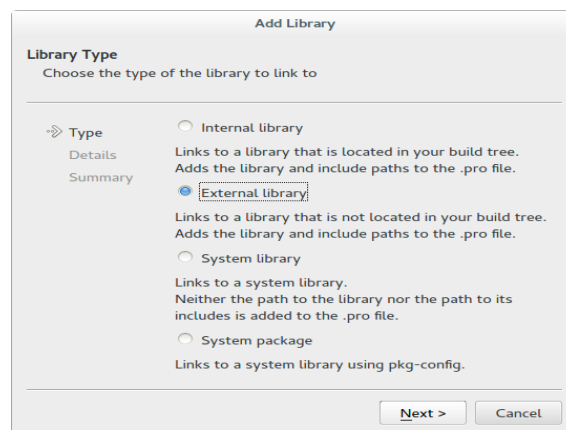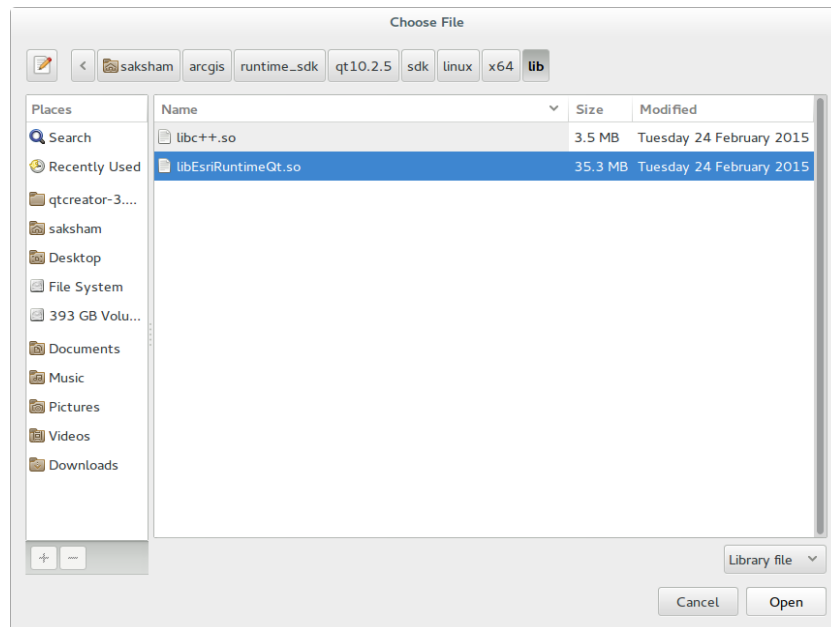

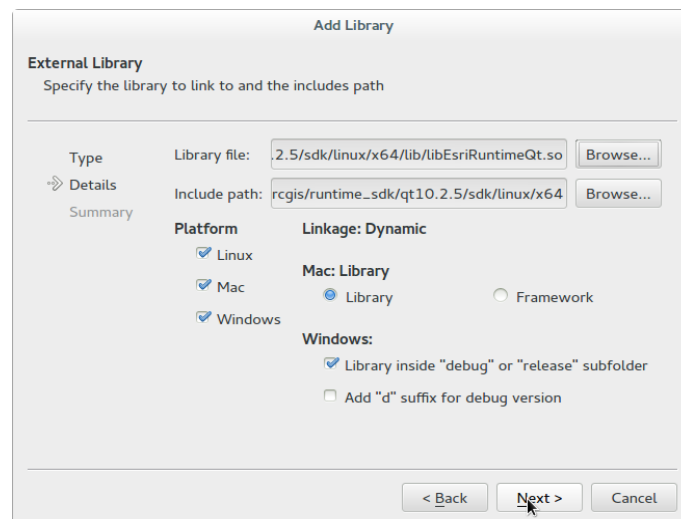Figure 16: Adding Library Step 1.

Figure 17: Adding Library Step 2.
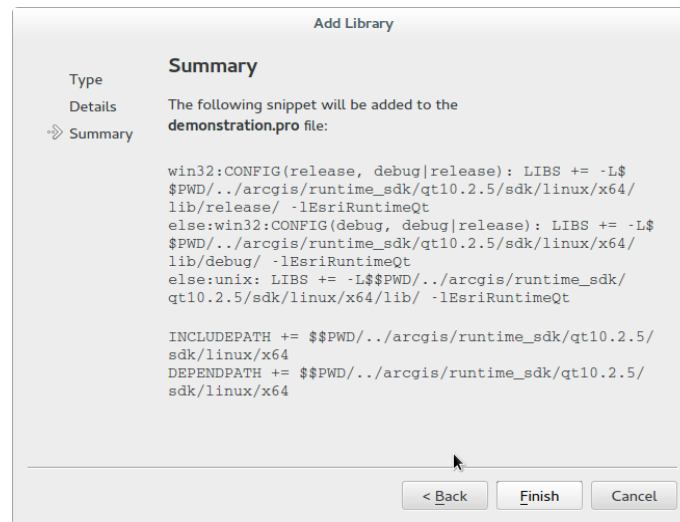

Figure 18: Adding Library Step 3.
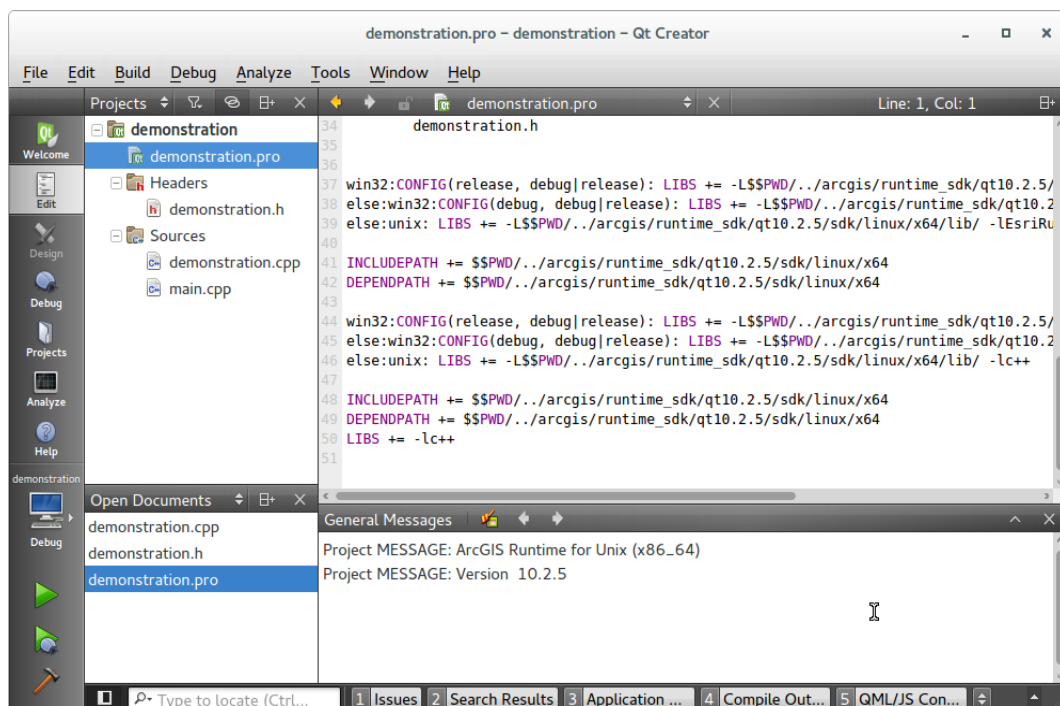
Figure 19: Adding Library Step 4.

Figure 20: The Final .pro File.

Step 9: In the edit mode, go to your header file and uncomment the line:
    // EsriRuntimeQt::ArcGISLocalTiledLayer* m_tiledLayer;
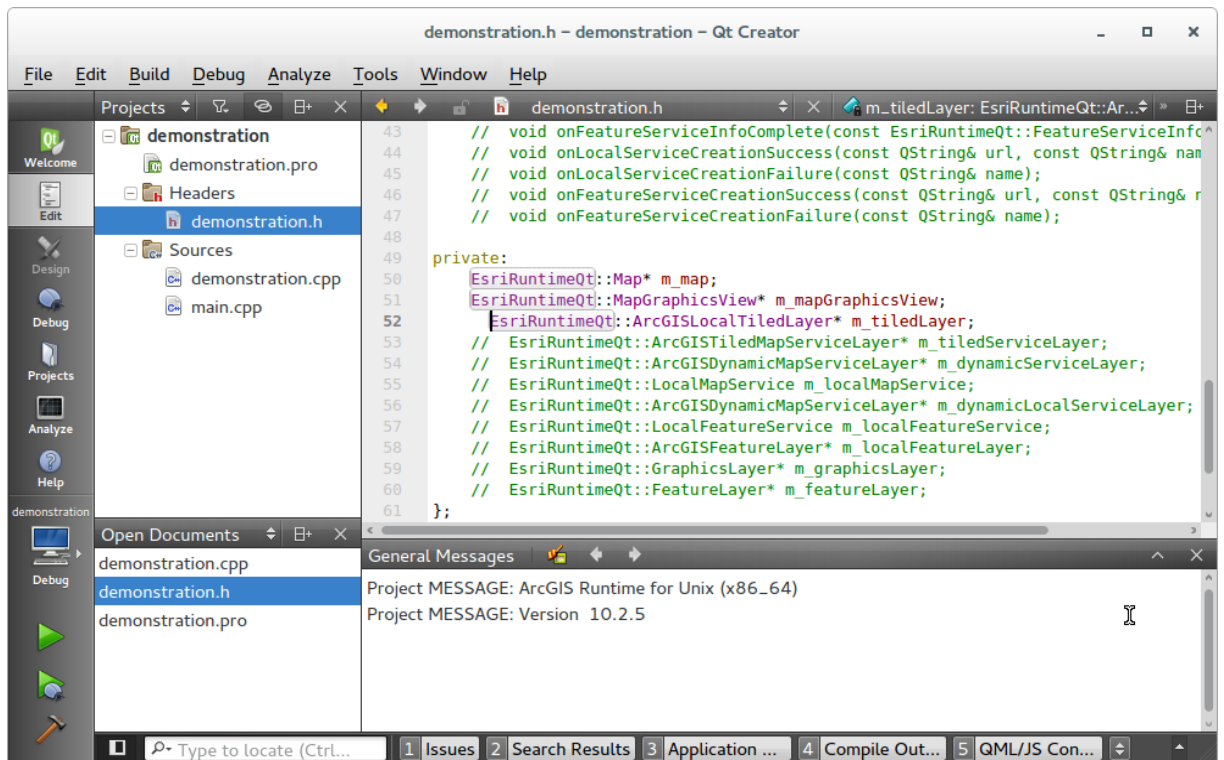

Figure 21: Uncomment the line from the Header.

Step 10: In the edit mode, go to your c++ file and uncomment the line:
　　`//#include "ArcGISLocalTiledLayer.h"`
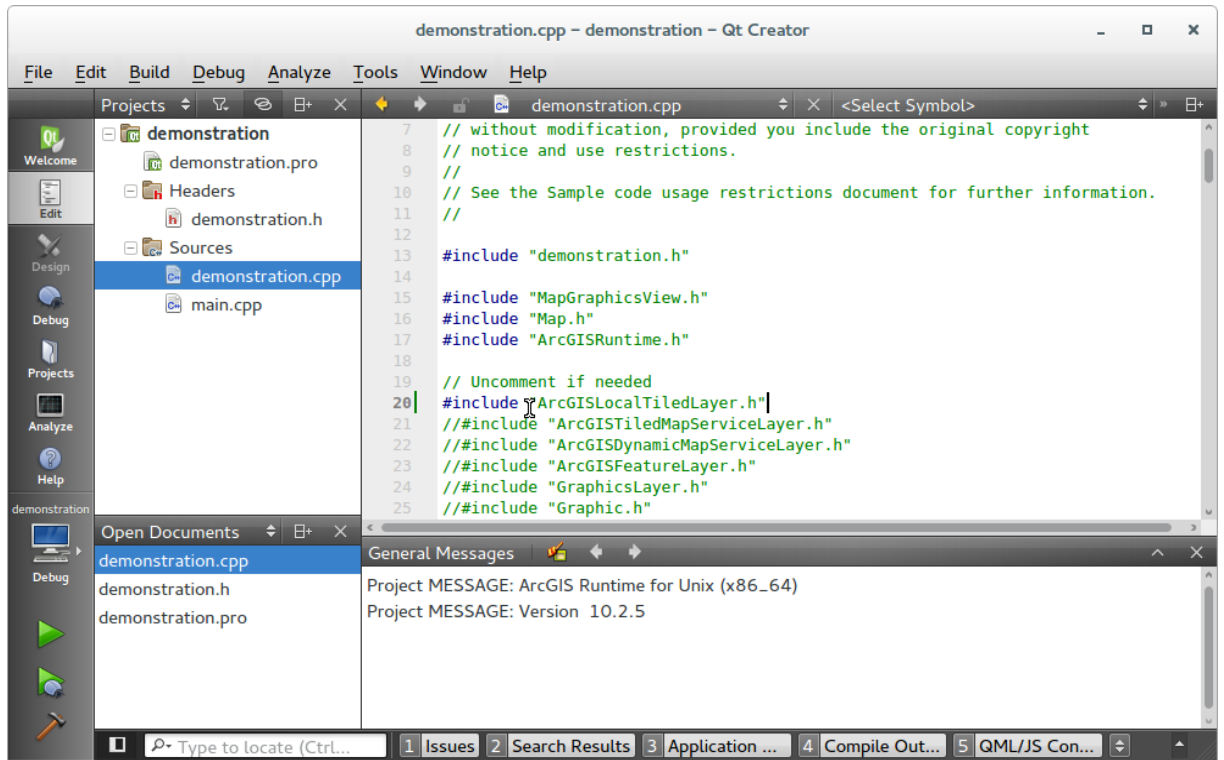　　in the include section.

Figure 22: Uncomment the line from include section of the .cpp File.

Step 11: In the constructor uncomment:

```
//QString tiledBaseMapLayer = pathSampleData + "tpks"
+ QDir::separator() + "Topographic.tpk";
//m_tiledLayer = new EsriRuntimeQt::ArcGISLocalTiledLayer
(tiledBaseMapLayer, this);
//m_map->addLayer(m_tiledLayer);
```
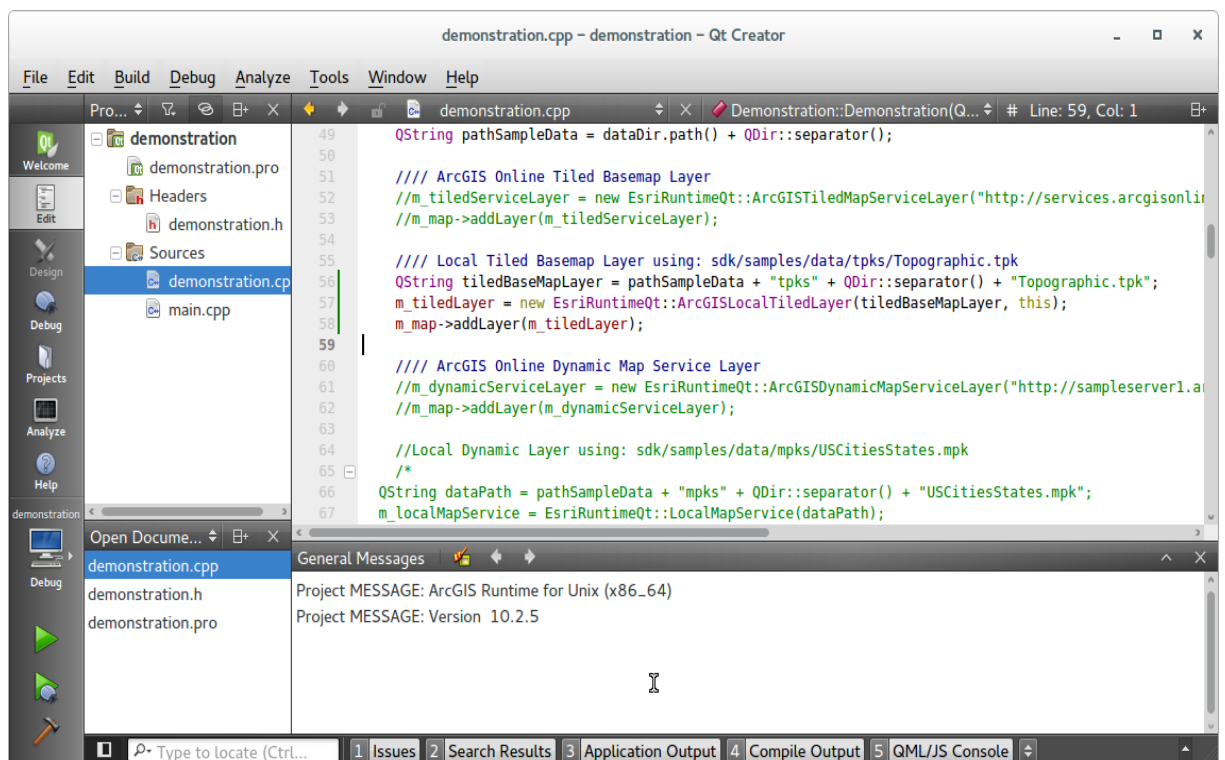

Figure 23: Uncomment the lines from the constructor section of the .cpp File.

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Step 12: Build and Run your project. This must display a map on your screen.
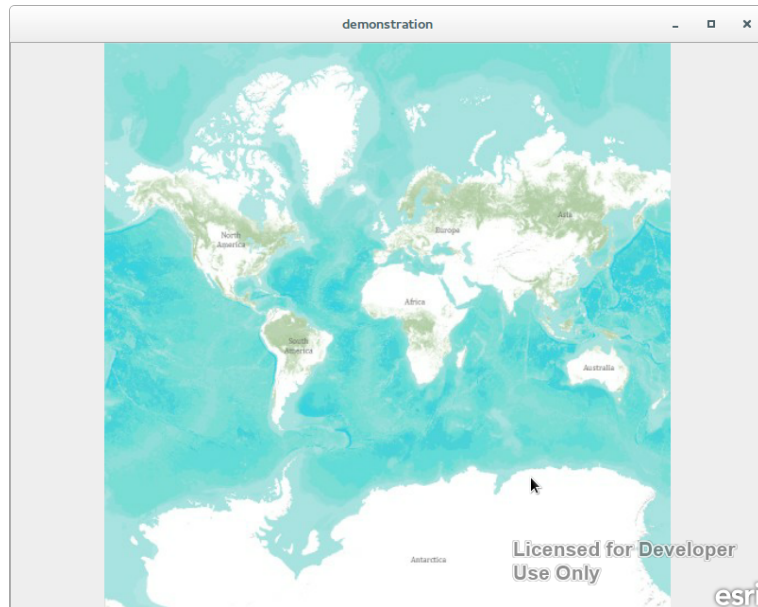

Figure 24: The Final Output.

If this Successfully completes, then Your installation is successful. Otherwise you may refer the ArcGIS sites and google for your troubleshoot.