

Mobile Phone Programming

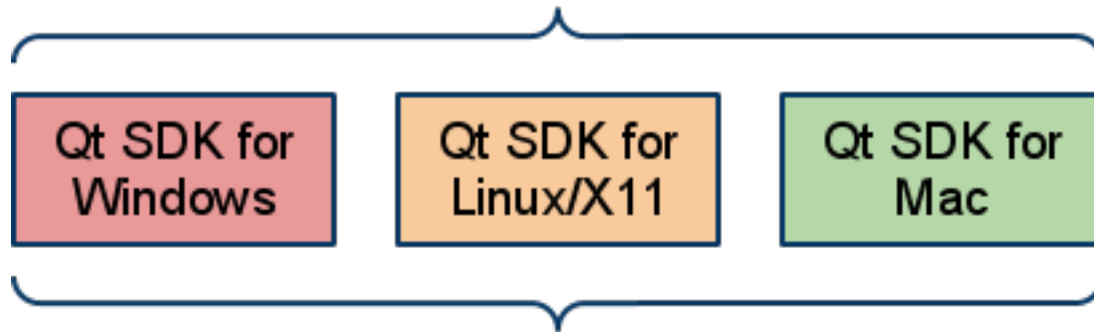
Quick start: Qt for Windows/Linux,
Symbian and Maemo/Megoo

Getting Qt: Available Qt SDKs



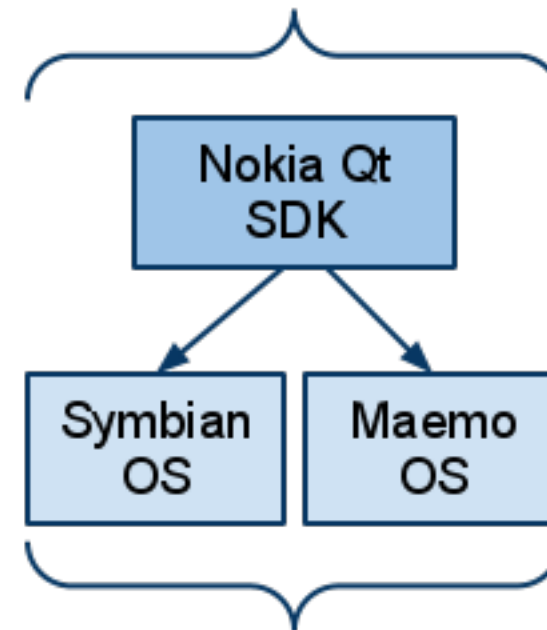
Stand-Alone Platform
SDK:

Desktop SDKs



- You can install both the desktop SDK and mobile SDK.

Mobile SDK



Download: <http://qt.nokia.com/downloads>

Qt SDK Content



- All SDKs contain:
 - Qt Source / libraries
 - Qt Creator - Qt development IDE
 - Qt Documentation - API documentation, examples etc.
 - Qt Designer - Drag and drop GUI creation
 - Qt Linguist - i18n (translation tool).
- Nokia Qt SDK
 - Qt Simulator - testing your mobile applications on the desktop.
 - Qt Mobility - APIs for mobile development

Nokia Qt SDK (version 1.0)

Versions available

- 32- or 64-bit Microsoft Windows XP Service Pack 2, Windows Vista, or Windows 7.
- 32-bit Ubuntu Linux 7.04 or later.
- 64-bit Ubuntu Linux 7.04 or later.
- Apple Mac OS X 10.6 or later (Beta).

Notes

- Linux and Mac support Maemo only
 - Remote Compiler can be used (beta).
- General on Windows
 - Install all tools to the same drive (e.g., C:\)
 - Do not use network drives.
 - Use default installation paths. Avoid special characters or spaces in paths.
- Maemo do not use special characters in the project name

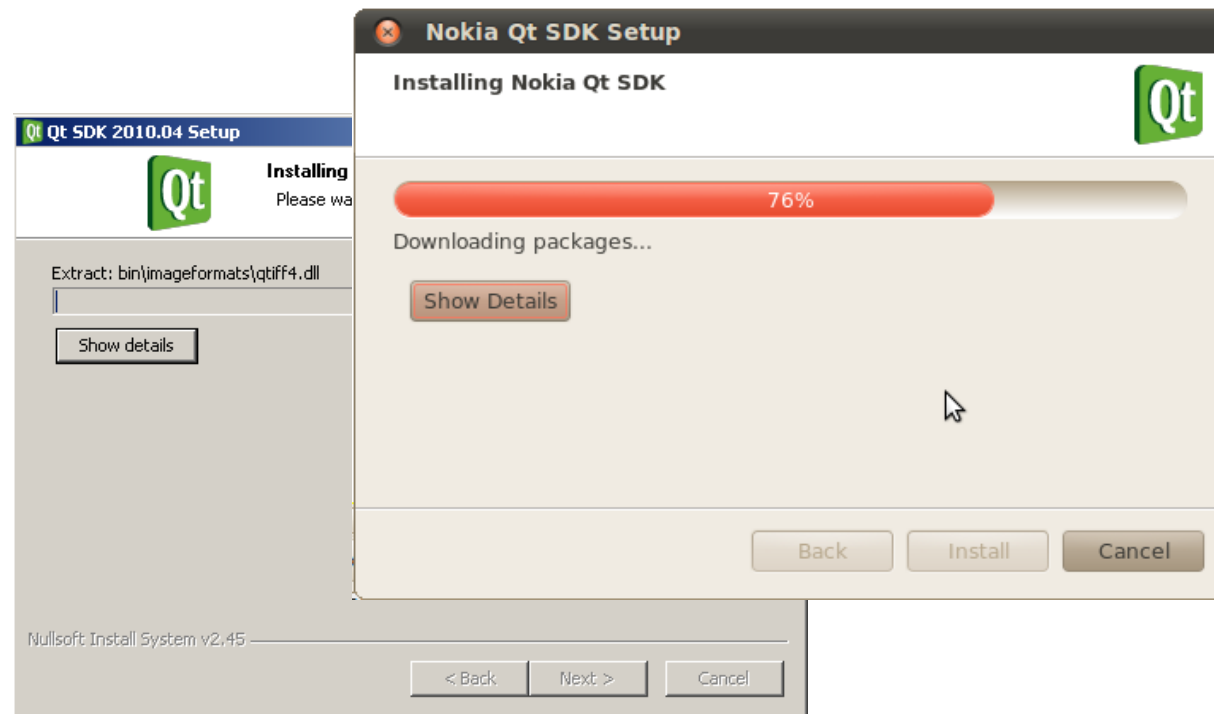


Running "hello world"

- Lets get started by creating and running a "hello world" on the desktop, in the Qt simulator, on Symbian and Maemo
1. Download and install Nokia Qt SDK
 2. Download and install the appropriate desktop SDK
 3. Launch Qt Creator
 4. Create a new project
 5. Add source files
 6. Compile and run on the target devices

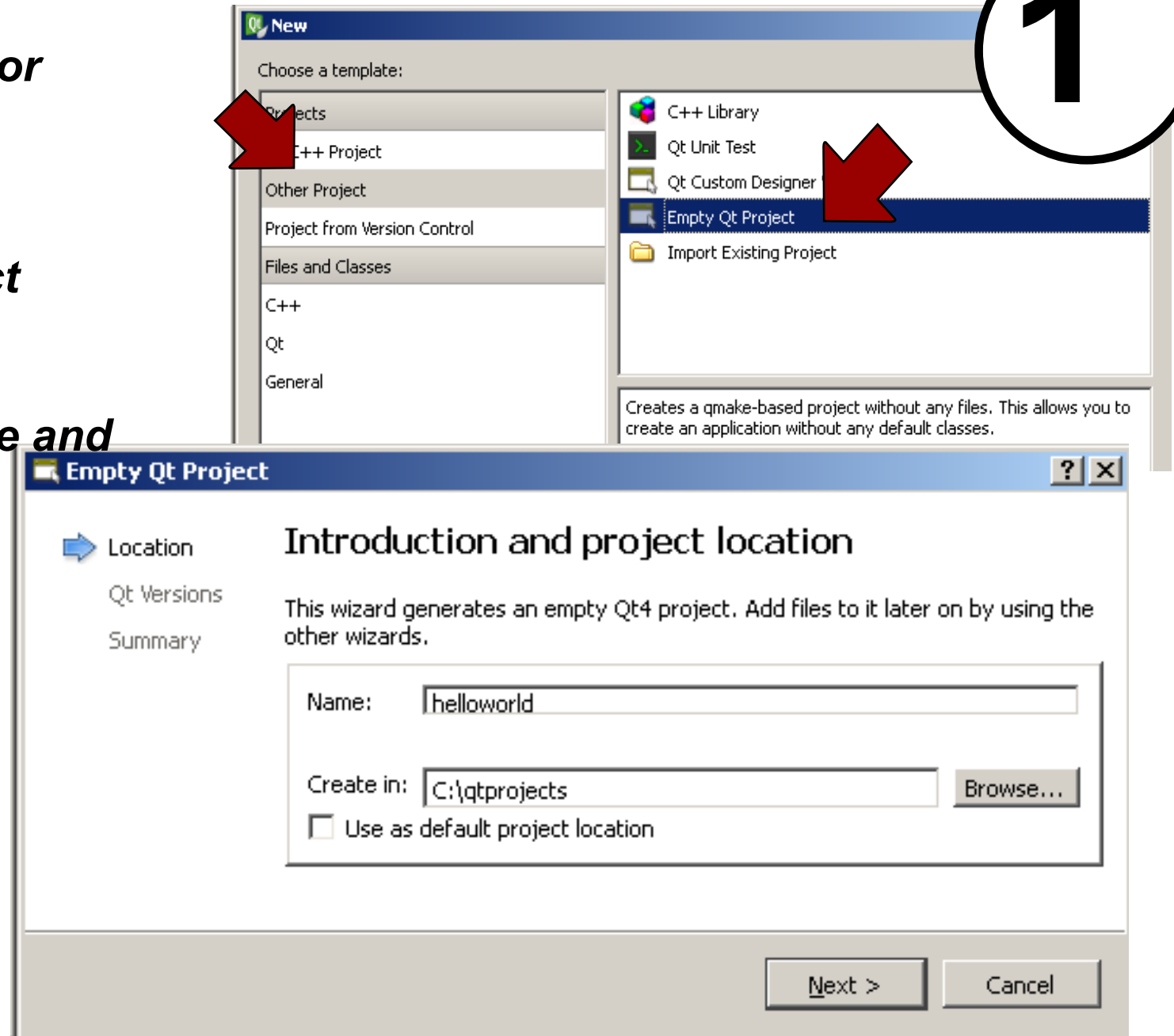
Installation:

- Download preferred version for your platform
 - Offline to download the entire SDK in one package (update later).
 - Online to let installer get latest version.
- For Windows, run setup.
- For Linux
 - `chmod u+x installer_filename`
 - `./installer_filename`



Create new project:

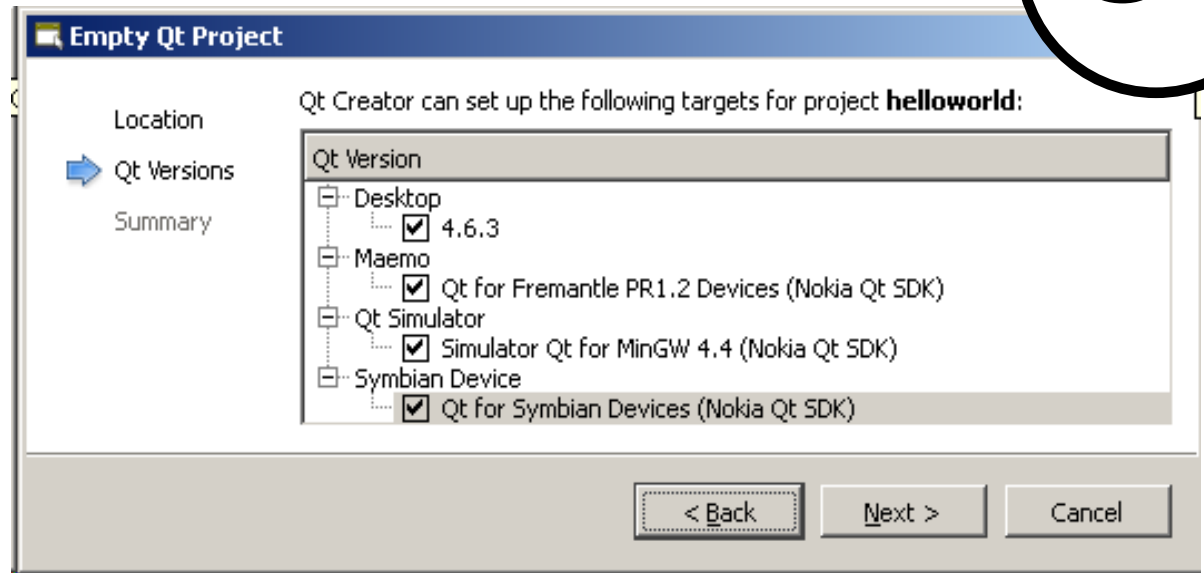
- **File -> New File or Project**
- **Empty Qt project**
- **Set project name and location**



Create new project

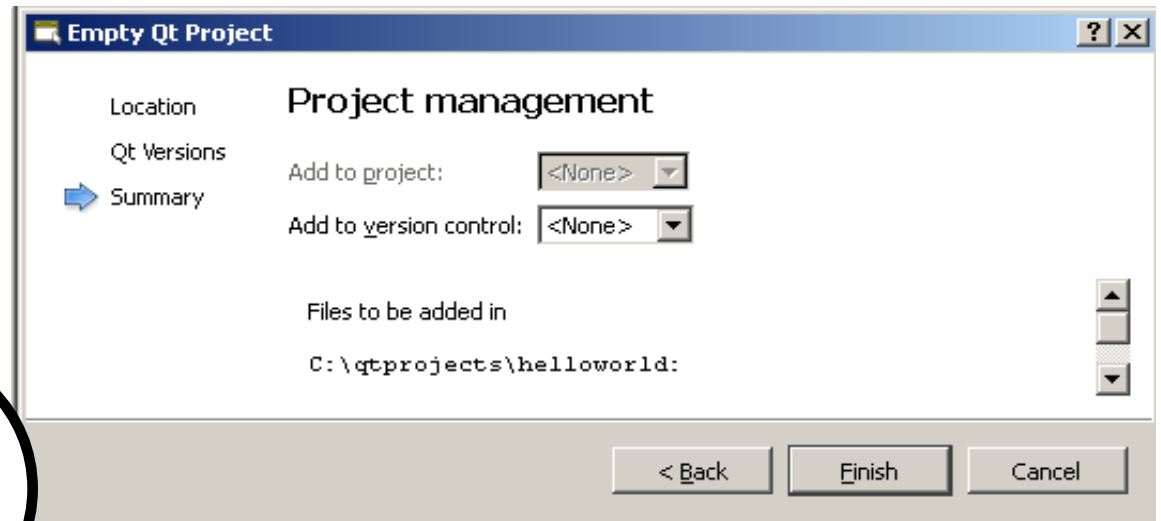
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- Select the targets you want to support



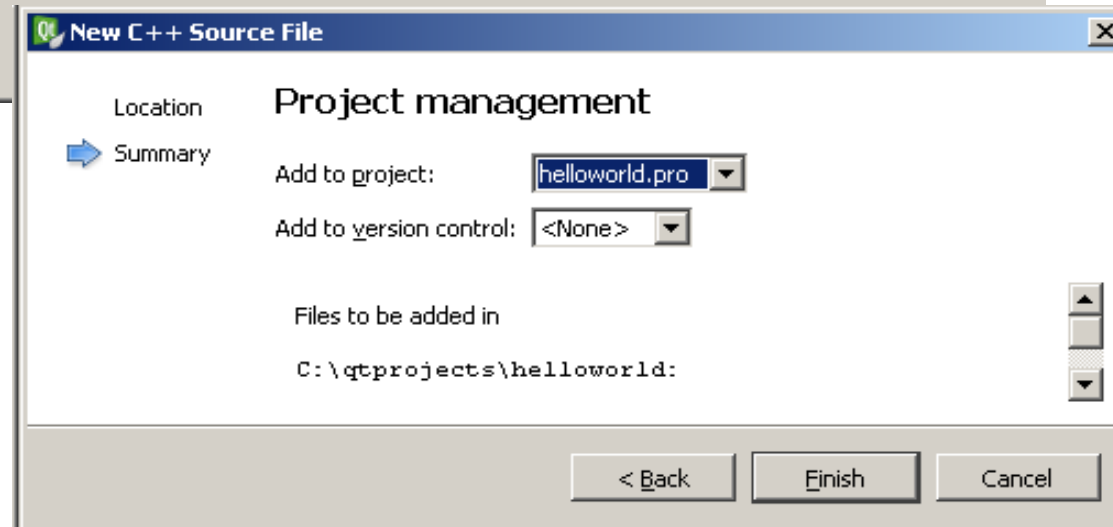
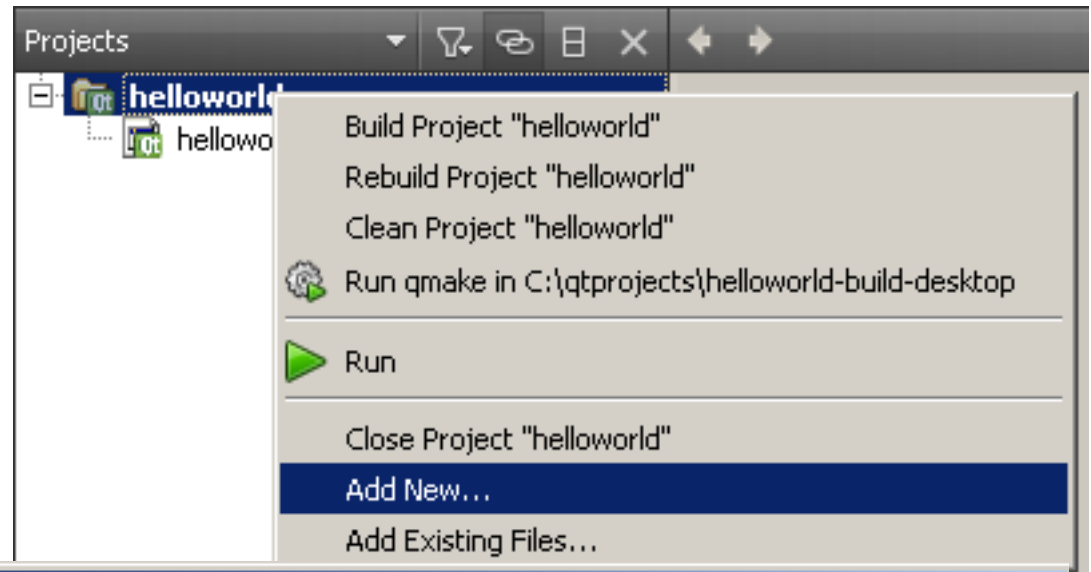
- Finish the project creation

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Create new project

- Right click project -> Add New
- Select C++ source file.
 - Name: main.cpp
 - Path: project path (default)
- Accept default project management options and finish.



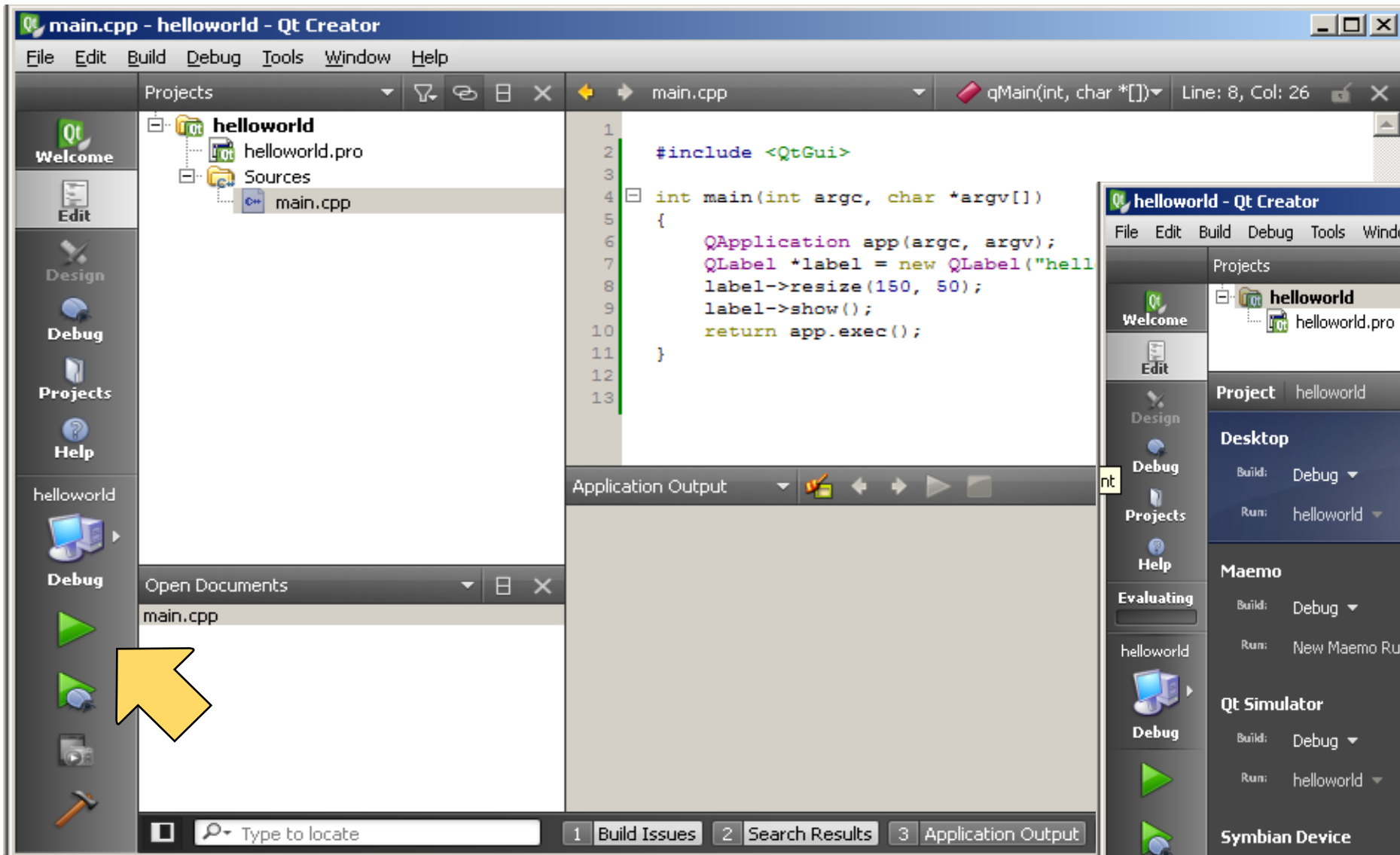
Create new project

- Adding our "hello world" source code to the empty main.cpp

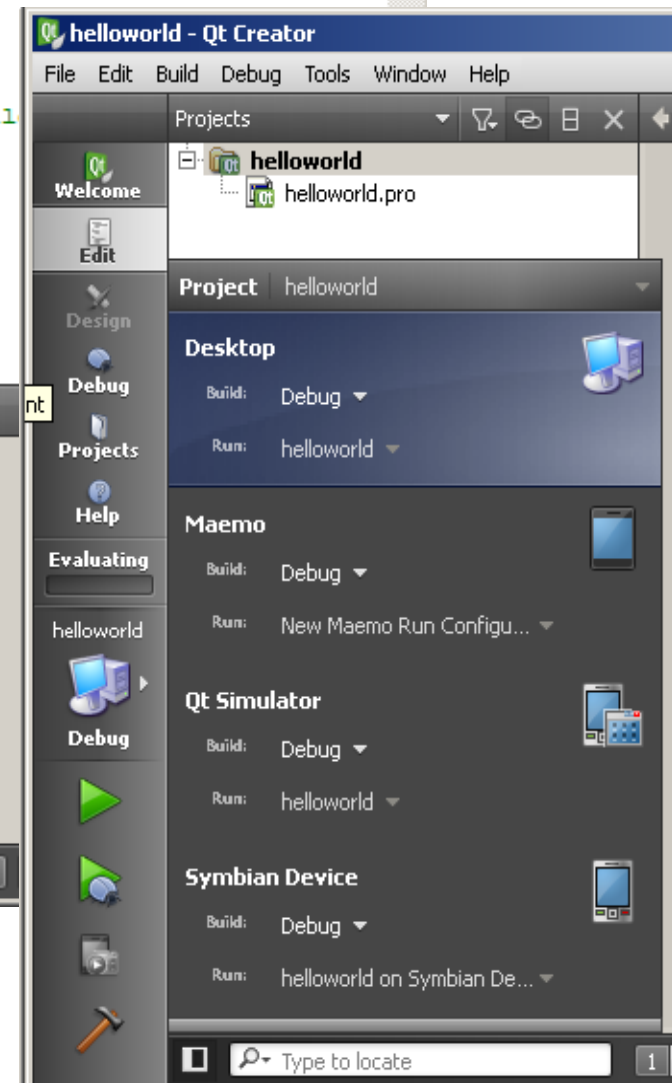
```
#include <QtGui>

int main(int argc, char *argv[])
{
    QApplication app(argc, argv);
    QLabel *label = new QLabel("hello world");
    label->show();
    return app.exec();
}
```

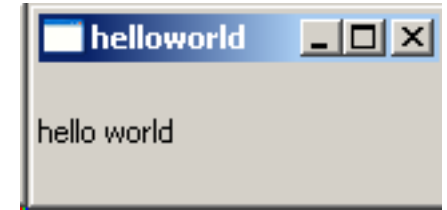
Create new project



- Select target and press **run**



Hello World - Elements



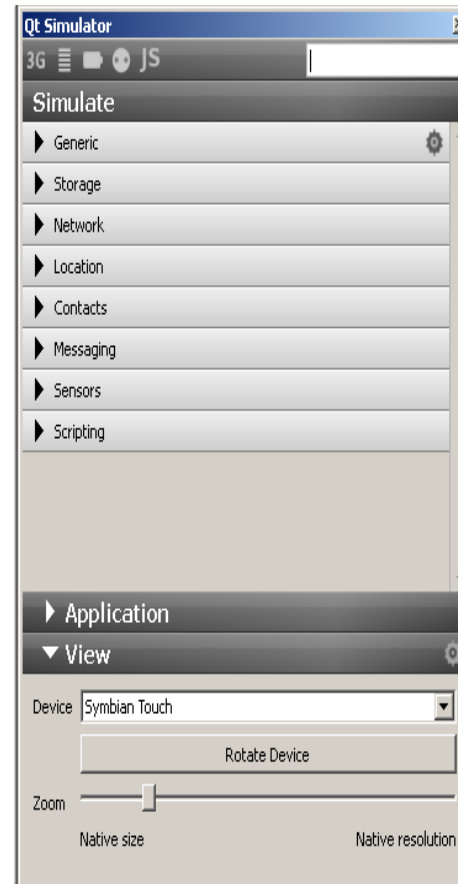
- QApplication
 - One per GUI application
 - Manages application wide resources.
 - Contains the application event loop (handles mouse clicks, etc.).
- QLabel
 - Qt GUI element (called a Widget)
 - Useful for displaying text and images

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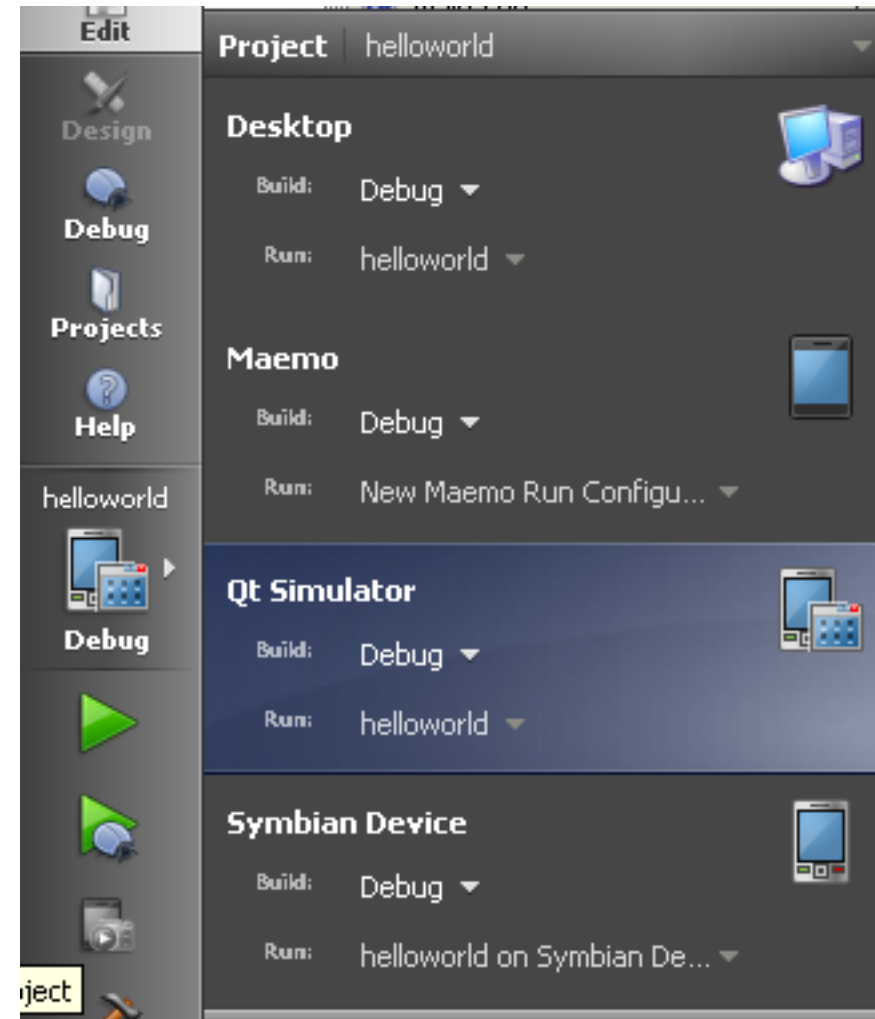
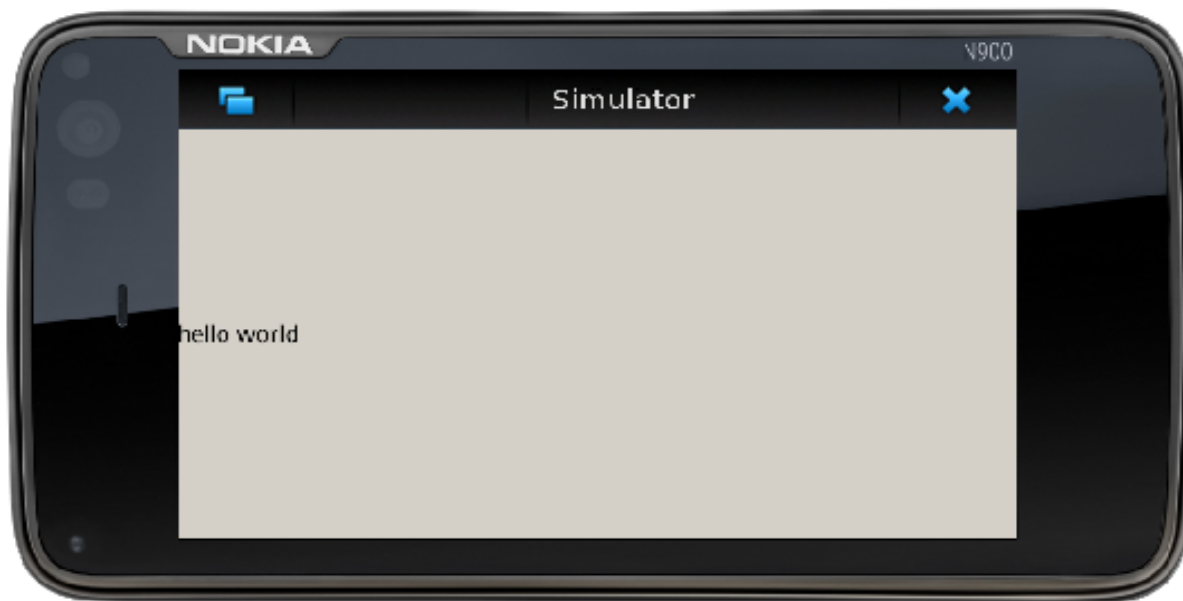
Nokia Qt SDK: Simulator

- Efficient Testing
 - Quick Launch
 - Scripting possibilities
 - Simulate phone events & Qt mobility events
 - Skins for different platforms
 - **Not** a full phone emulator.



Launching Qt Simulator

- Run "hello world" in simulator
 - Select Qt Simulator target
 - Click play



Running on Maemo

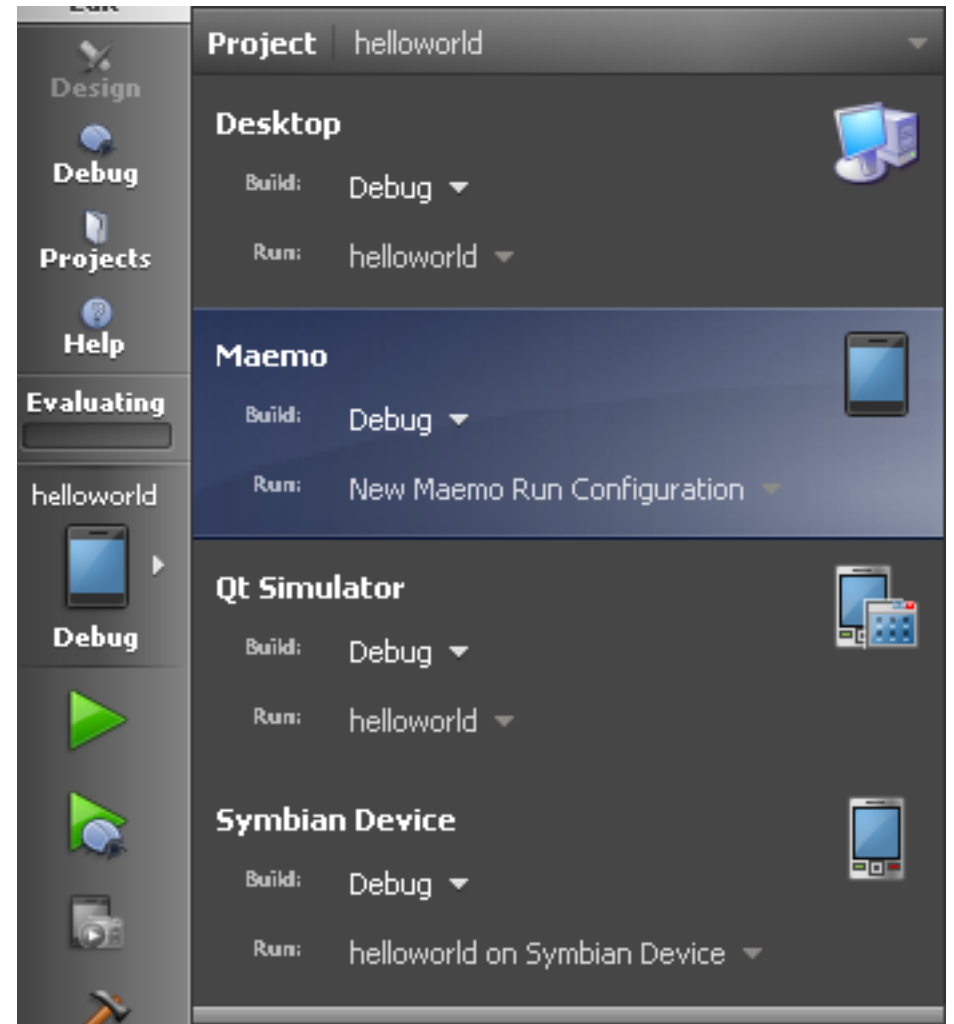
- Two development options
 - **Full Linux Environment (Scratchbox)**
 - Guide: http://wiki.maemo.org/Documentation/Maemo_5_Final_SDK_Installation
 - Using a Virtual Image: http://maemovmware.garage.maemo.org/2nd_edition/
 - **Nokia Qt SDK (based on MADDE)**
 - MADDE stands for Maemo Application Development and Debugging Environment.
 - Allows on device debugging from within Qt Creator
 - Works on Windows, Linux, Mac OS X (coming soon).

We use the Nokia Qt SDK - howto can be found here:

<http://bit.ly/b29q3h>

Run "hello world" on the N900

- Select the Maemo target
- Press the run button



Running on Symbian

- Building Symbian applications currently require Windows
 - Or use of Remote Compiler (not covered here)
- Depending on the device OS we have to install some prerequisites:



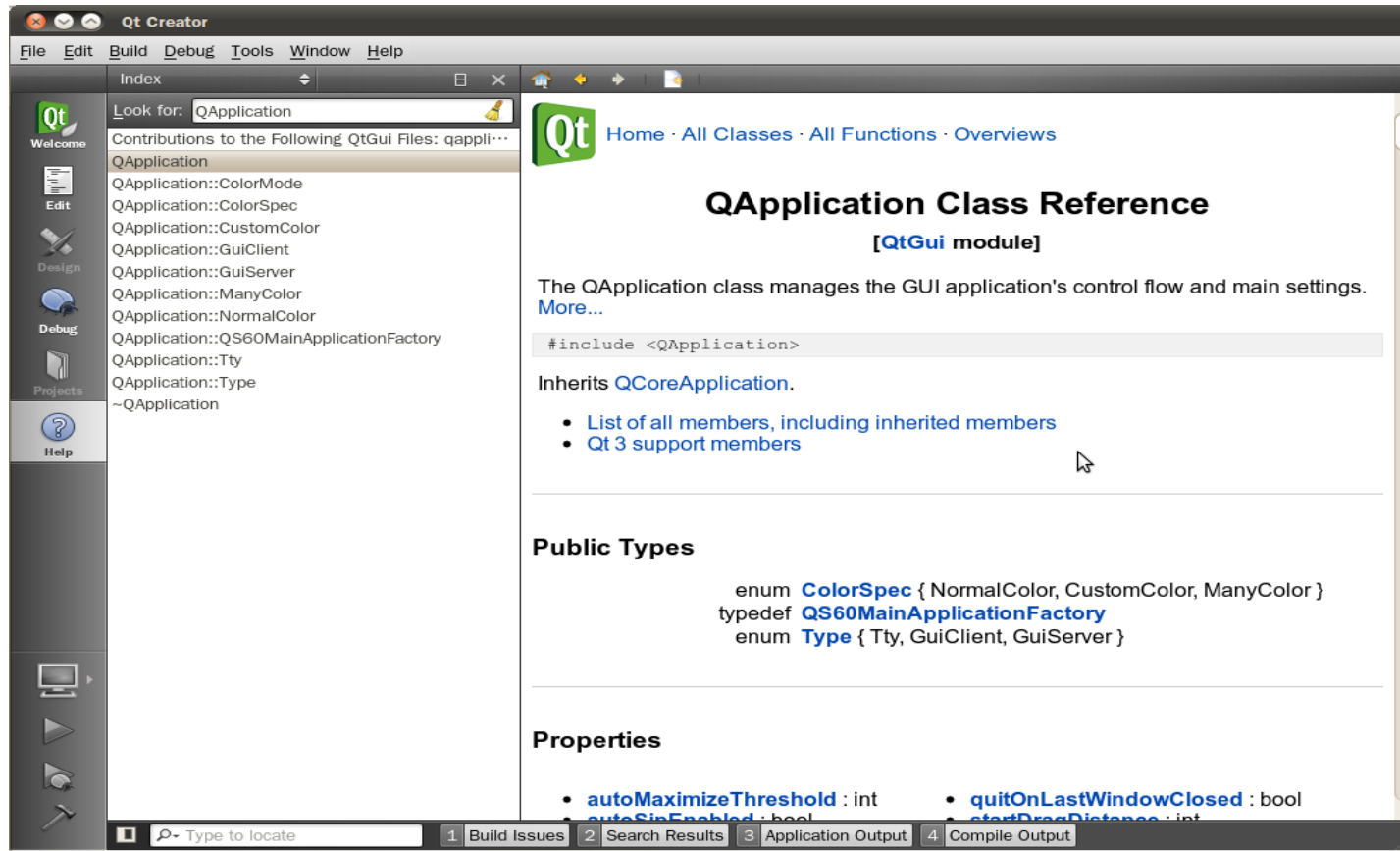
- *path*\NokiaQtSDK\Symbian\sis\qt_installer.sis - Qt libraries
- *path*\NokiaQtSDK\Symbian\sis\qtmobility.sis - Qt Mobility
- Install by sending files over Bluetooth or use Nokia PC Suite or Ovi Suite

Automatic Deployment & On-Device Debugging

- Requires debug agent running on device: **App Trk**
- Install:
 - *path*\NokiaQtSdk\Symbian\sis\s60_5_0_app_trk_3_x_x.sisx
 - Install to phone memory (C:\)
 - Also required on Symbian^3 devices
- Start the TRK application on the device
 - Create connection via Bluetooth or USB
 - **Recommended: USB**

Howto can be found here:
<http://bit.ly/d9Y3OA>

Using Qt Creator



- <http://developer.qt.nokia.com>
- <http://qt.nokia.com/doc>

Demo

Exercises

- Install the SDK on you computer
- Create and run "hello world".
- Try some examples.