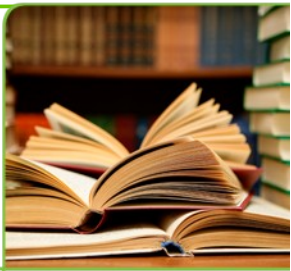
Qt in Education

The ideas behind Qt and a live demo

NOKIA

What is Qt?



“Qt is a cross platform development framework written in C++.”

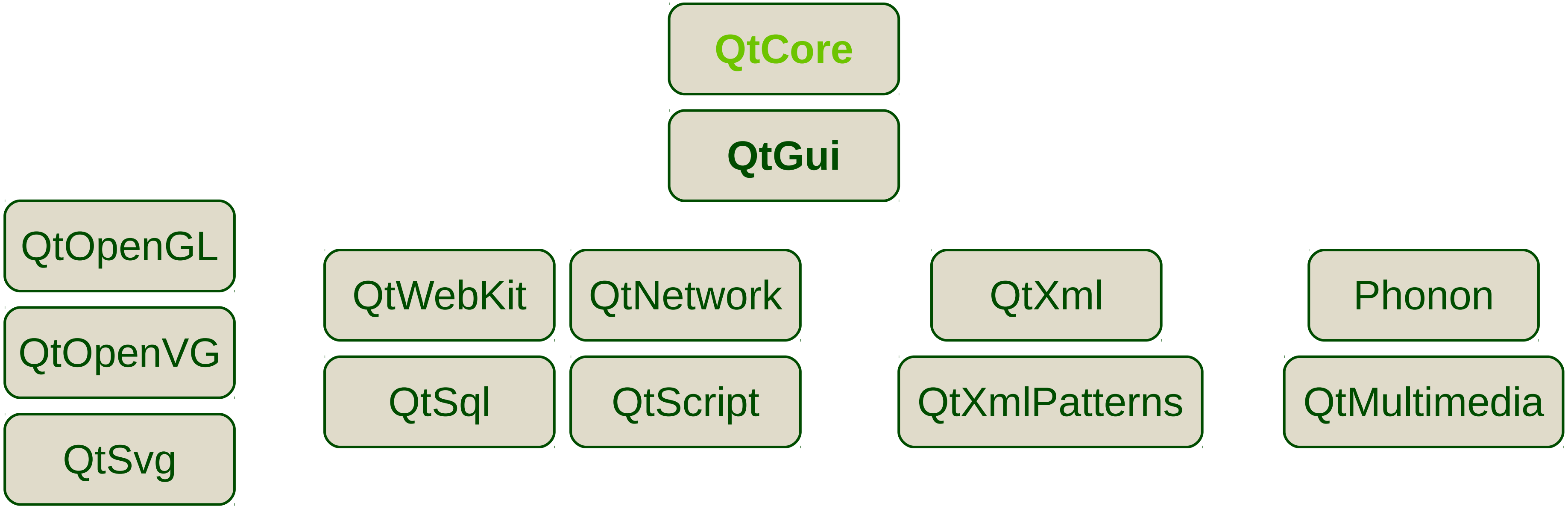
- C++ framework – bindings for other languages
  - Python, Ruby, C#, etc.

- Originally for user interfaces – now for everything

  Databases, XML, WebKit, multimedia, networking, OpenGL, scripting, non-GUI...

What is Qt?

- Qt is made up of modules
  - All modules have a common scheme and are built from the same API design ideas



QtCore

QtGui

QtOpenGL

QtOpenVG

QtSvg

QtWebKit

QtNetwork

QtSql

QtScript

QtXml

QtXmlPatterns

Phonon

QtMultimedia

What is Qt?

- Qt extends C++ with macros and introspection

```
foreach (int value, intList) { … }
```

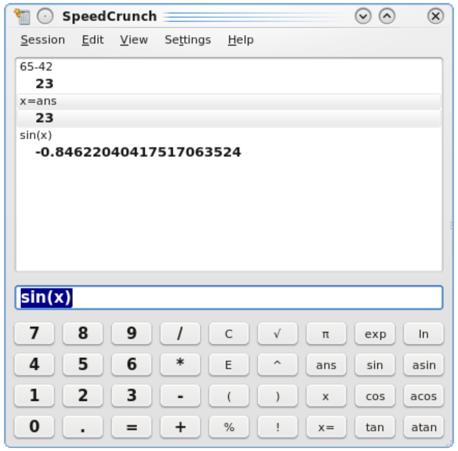
```
QObject *o = new QPushButton;
o->metaObject()->className(); // returns ”QPushButton”
```

```
connect(button, SIGNAL(clicked()), window, SLOT(close()));
```

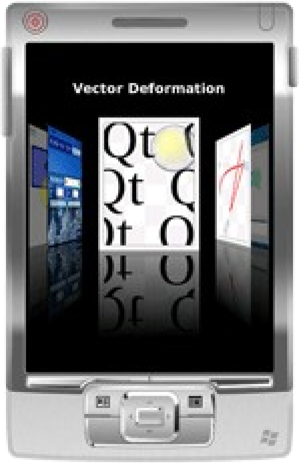
- All code is still plain C++

The Purpose of Qt

- Cross platform applications built from one source
- Builds native applications with native look and feel



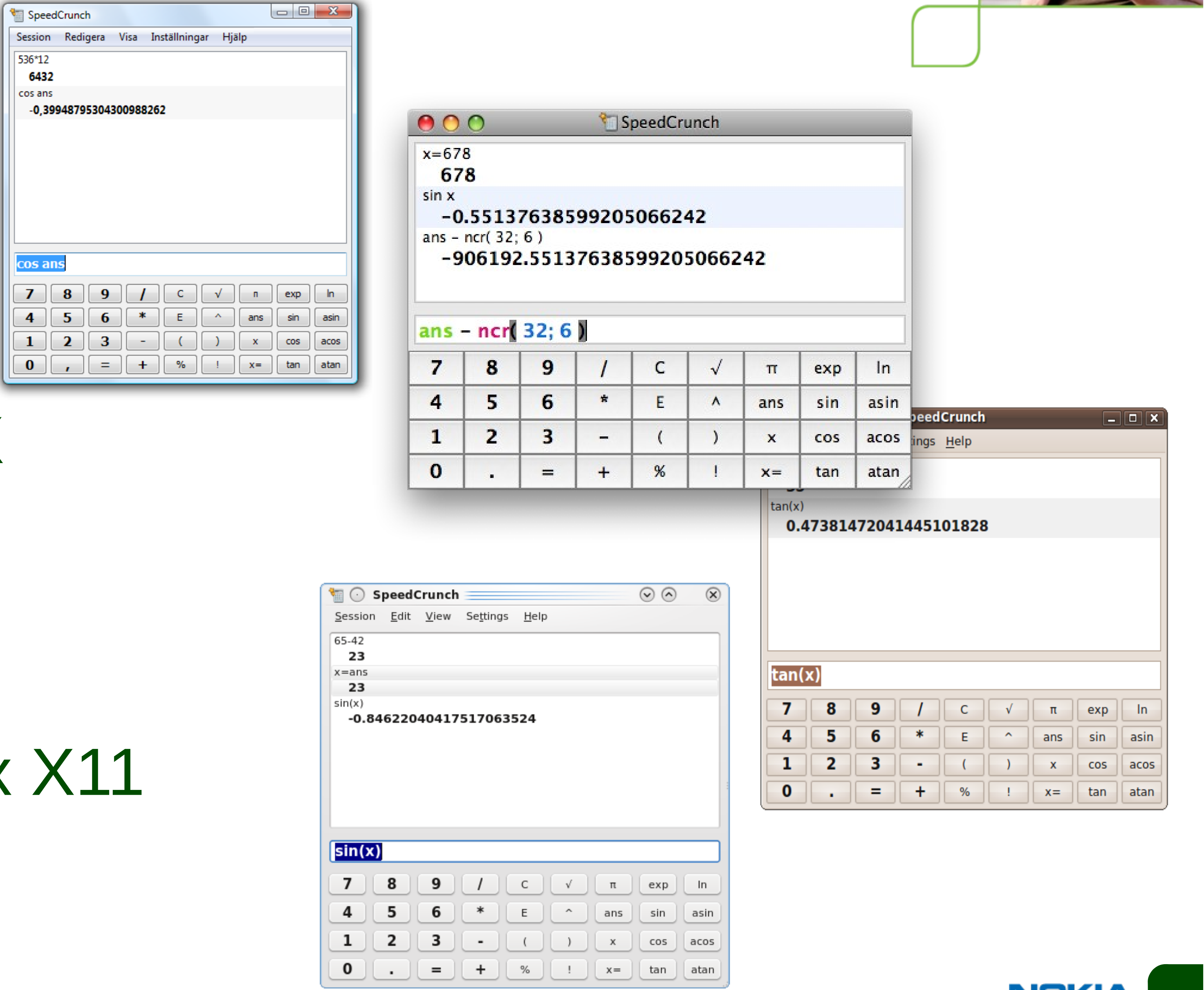
```
65-42
  23
x=ans
  23
sin(x)
  -0.846220404175170 63524
```



- Easy to (re)use API, high developer productivity, openess, fun to use

Desktop target platforms

- Windows
- Mac OS X
- Linux/Unix X11



```
536*12
  6432
cos ans
  -0,3994879530430098262
```

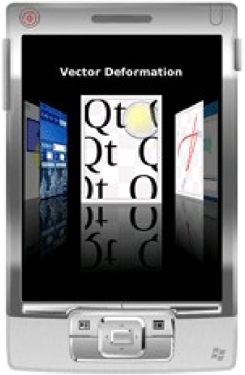
```
x=678
  678
sin x
  -0.55137638599205066242
ans - ncr( 32; 6 )
  -906192.55137638599205066242
```

```
tan(x)
  0.47381472041445101828
```

```
65-42
  23
x=ans
  23
sin(x)
  -0.84622040417517063524
```

Embedded target platforms

- Windows CE



- Symbian

- Maemo

Chat - Jon Reece

Jon Reece: Hi, do you want to come over and see a movie on friday? The whole crew is coming over for a get together! 15:14

You: Hey there! Sure! What time should I be there? 15:18

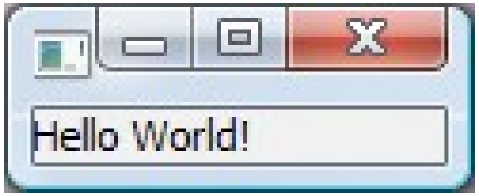
Jon Reece: How does 7 sound? We've got about 5 people coming so far. If you want to bring a friend along, feel free! 15:22

You: Oh great! I was going to ask if I can bring someone. Ashley wants to tag along. Need us to bring anything? 15:28

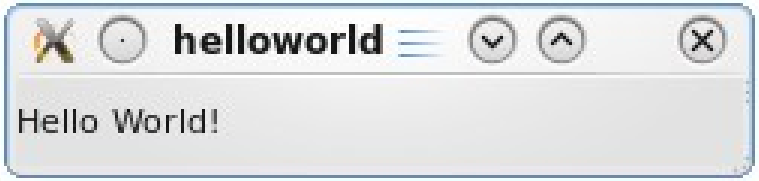
Jon Reece: Popcorn! 15:31

- Embedded Linux
  - Direct framebuffer access

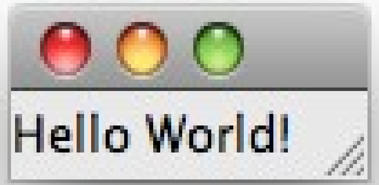
Hello World



Hello World!



Hello World!



Hello World!

Hello World

```
#include <QApplication>
#include <QLabel>

int main( int argc, char **argv )
{
    QApplication app( argc, argv );
    QLabel l( "Hello World!" );
    l.show();
    return app.exec();
}
```

Hello World

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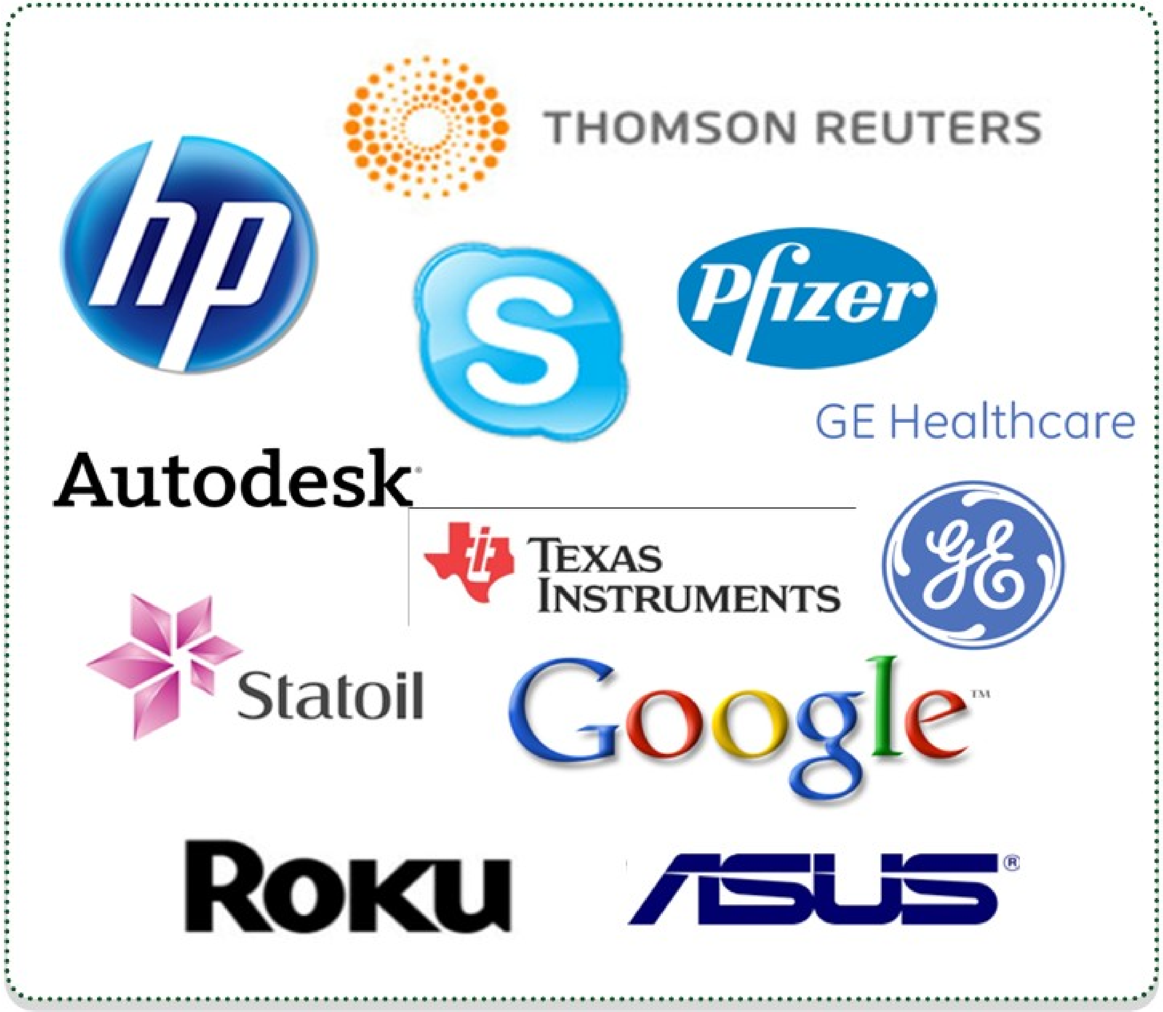
Where is Qt used?

Where is Qt used?



Commercial and Open Source

- LGPL – free
  - Your application can be open or closed
  - Changes to Qt must be fed back to the community
- GPL – free
  - Your application must be open
  - Changes to Qt must be fed back to the community
- Commercial – costs money
  - Your application can be closed
  - Changes to Qt can be kept closed

The history of Qt

- 1991 – Haavard Nord and Eirik Chambe-Eng begin to develop what will be Qt supporting X11 and Windows

TROLLTECH

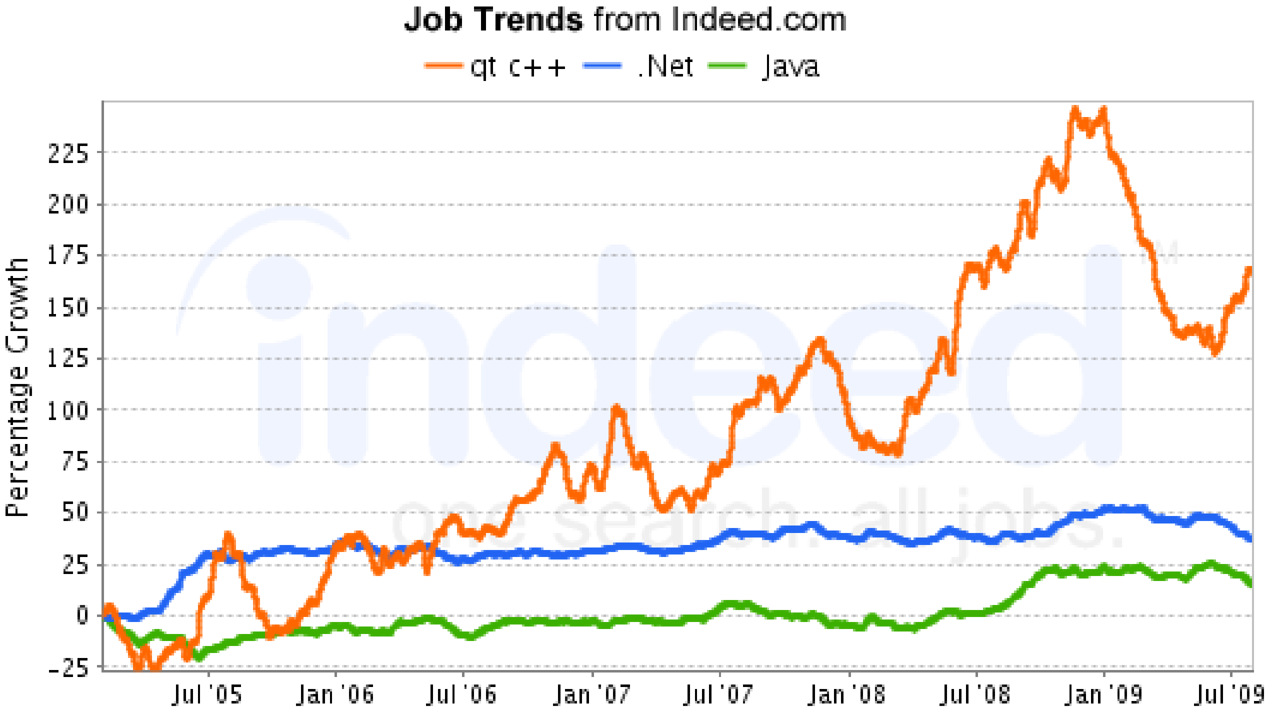
- 1994 – The company Trolltech was formed
- 1996 – The KDE project was started by Matthias Ettrich (now works for Nokia Qt Development Frameworks)

The history of Qt

- 2001 – Added support for Mac OS X
- 2005 – All platforms released under GPL
- 2008 – Nokia acquires Trolltech
- 2009 – Support for S60

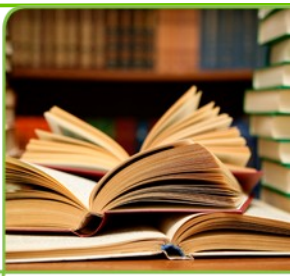
Qt Today

- ~840 classes
- ~180 developers working on Qt



Break

The Qt community



- Qt is open source software, but the development is led by Qt Development Frameworks.
- You can pay Qt for support.
- You can use the community for support.
- Or both...

The Qt Community

- QtCentre (www.qtcentre.org)

  forum, news, wiki

- Qt labs (labs.trolltech.com)

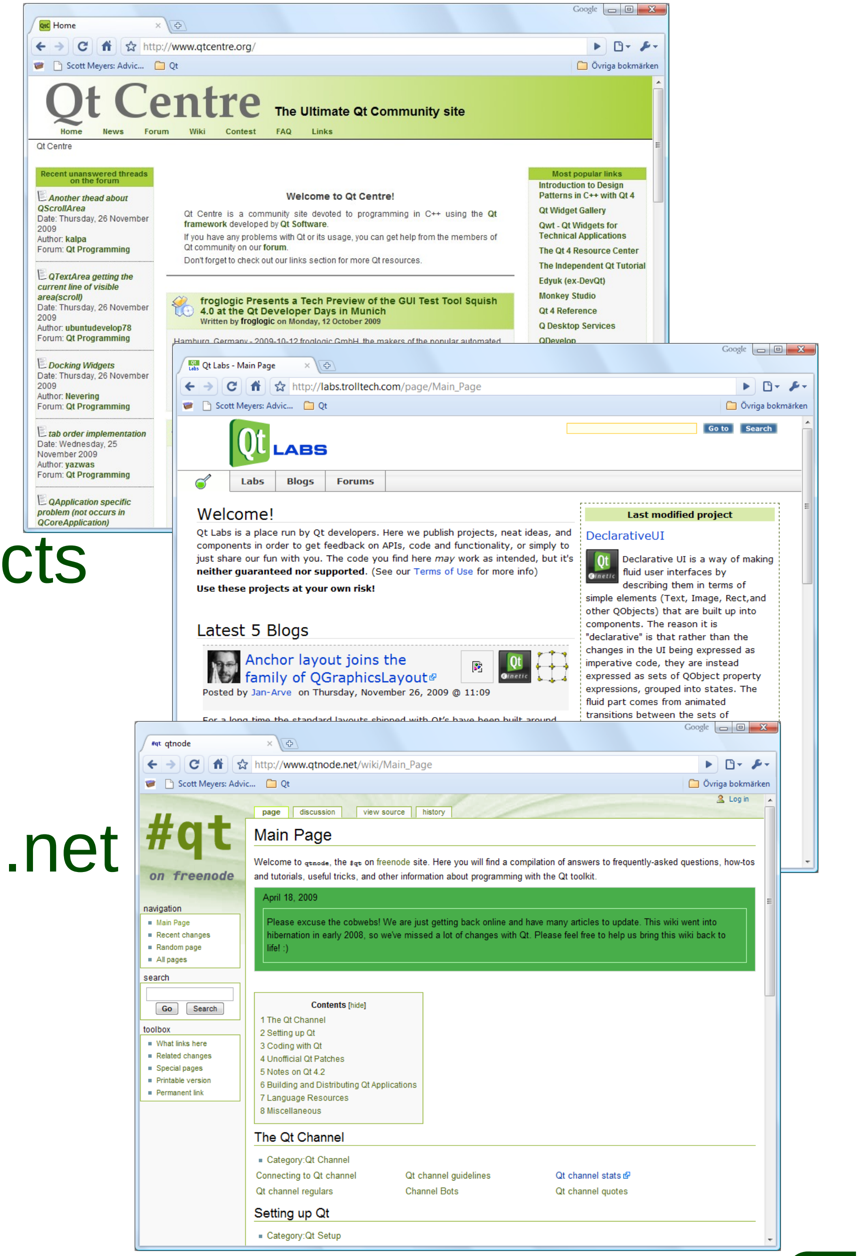
  developer blogs, research projects

- #qt at freenode

  IRC channel, has wiki at qtnode.net

- Mailing lists (lists.trolltech.com)

  Qt-interest (still very active)



Recent unanswered threads on the forum

Another thead about QScrollArea
Date: Thursday, 26 November 2009
Author: kalpa
Forum: Qt Programming

QTextArea getting the current line of visible area(scroll)
Date: Thursday, 26 November 2009
Author: ubuntudevelop78
Forum: Qt Programming

Docking Widgets
Date: Thursday, 26 November 2009
Author: Nevering
Forum: Qt Programming

tab order implementation
Date: Wednesday, 25 November 2009
Author: yazwas
Forum: Qt Programming

QApplication specific problem (not occurs in QCoreApplication)

Welcome to Qt Centre!

Qt Centre is a community site devoted to programming in C++ using the **Qt framework** developed by **Qt Software**.

If you have any problems with Qt or its usage, you can get help from the members of Qt community on our **forum**.

Don't forget to check out our links section for more Qt resources.

froglogic Presents a Tech Preview of the GUI Test Tool Squish 4.0 at the Qt Developer Days in Munich
Written by **froglogic** on Monday, 12 October 2009

Most popular links

Introduction to Design Patterns in C++ with Qt 4
Qt Widget Gallery
Qwt - Qt Widgets for Technical Applications
The Qt 4 Resource Center
The Independent Qt Tutorial
Edyuk (ex-DevQt)
Monkey Studio
Qt 4 Reference
Q Desktop Services
QDevelop

Welcome!

Qt Labs is a place run by Qt developers. Here we publish projects, neat ideas, and components in order to get feedback on APIs, code and functionality, or simply to just share our fun with you. The code you find here *may* work as intended, but it's **neither guaranteed nor supported**. (See our Terms of Use for more info)

Use these projects at your own risk!

Latest 5 Blogs

Anchor layout joins the family of QGraphicsLayout
Posted by Jan-Arve on Thursday, November 26, 2009 @ 11:09

Last modified project

DeclarativeUI

Declarative UI is a way of making fluid user interfaces by describing them in terms of simple elements (Text, Image, Rect,and other QObjects) that are built up into components. The reason it is "declarative" is that rather than the changes in the UI being expressed as imperative code, they are instead expressed as sets of QObject property expressions, grouped into states. The fluid part comes from animated transitions between the sets of

Main Page

Welcome to qtnode, the #qt on freenode site. Here you will find a compilation of answers to frequently-asked questions, how-tos and tutorials, useful tricks, and other information about programming with the Qt toolkit.

April 18, 2009

Please excuse the cobwebs! We are just getting back online and have many articles to update. This wiki went into hibernation in early 2008, so we've missed a lot of changes with Qt. Please feel free to help us bring this wiki back to life! :)

Contents [hide]

1 The Qt Channel
2 Setting up Qt
3 Coding with Qt
4 Unofficial Qt Patches
5 Notes on Qt 4.2
6 Building and Distributing Qt Applications
7 Language Resources
8 Miscellaneous

The Qt Channel

- Category:Qt Channel

Connecting to Qt channel	Qt channel guidelines	Qt channel stats
Qt channel regulars	Channel Bots	Qt channel quotes

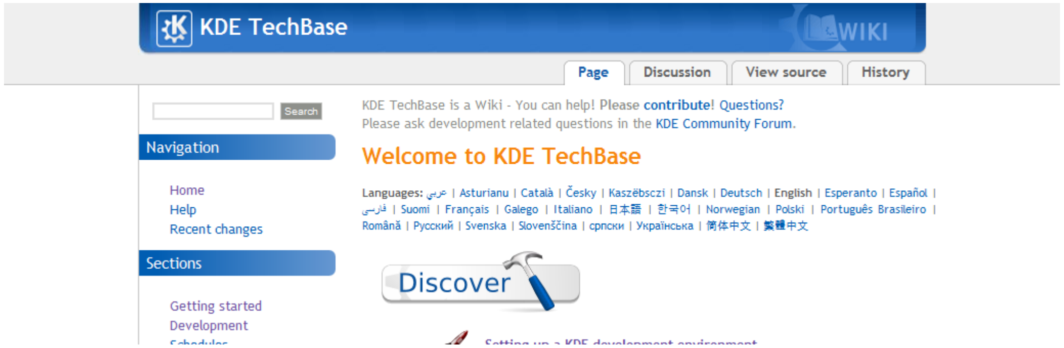
Setting up Qt

- Category:Qt Setup

The KDE Community

- The KDE project has been built on Qt

- KDE TechBase (techbase.kde.org) wiki



KDE TechBase is a Wiki - You can help! Please contribute! Questions?
Please ask development related questions in the KDE Community Forum.

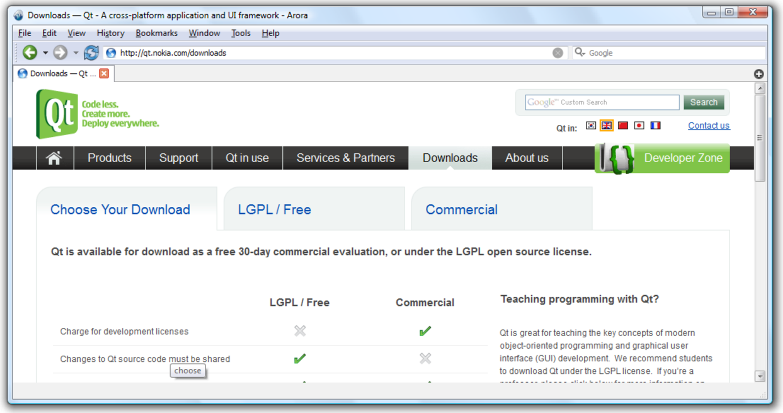
Welcome to KDE TechBase

Languages: عربي | Asturianu | Català | Česky | Kaszëbsczi | Dansk | Deutsch | English | Esperanto | Español | فارسی | Suomi | Français | Galego | Italiano | 日本語 | 한국어 | Norwegian | Polski | Português Brasileiro | Română | Русский | Svenska | Slovenščina | српски | Українська | 简体中文 | 繁體中文

Setting up a KDE development environment

Getting Qt

Installers and snapshots are downloaded from


Downloads — Qt - A cross-platform application and UI framework - Arora
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http://qt.nokia.com/downloads
Google
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Code less. Create more. Deploy everywhere.
Google™ Custom Search
Search
Qt in:
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choose

Qt is available for download as a free 30-day commercial evaluation, or under the LGPL open source license.

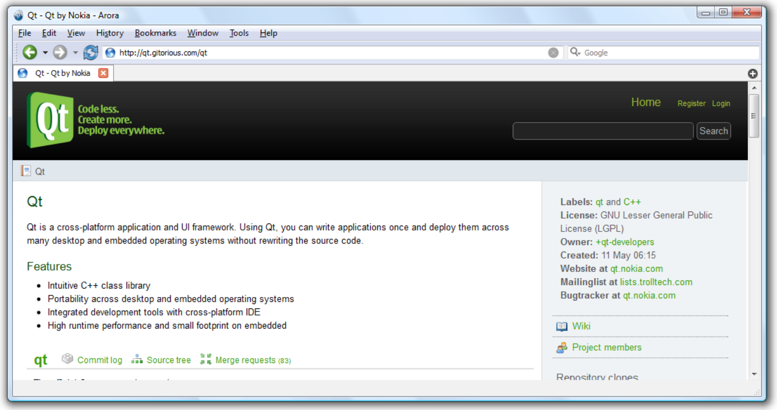
	LGPL / Free	Commercial
Charge for development licenses	✗	✓
Changes to Qt source code must be shared	✓	✗

Teaching programming with Qt?

Qt is great for teaching the key concepts of modern object-oriented programming and graphical user interface (GUI) development. We recommend students to download Qt under the LGPL license. If you're a

qt.nokia.com/downloads

Bleeding edge source trees are located at



Qt

Qt is a cross-platform application and UI framework. Using Qt, you can write applications once and deploy them across many desktop and embedded operating systems without rewriting the source code.

Features

- Intuitive C++ class library
- Portability across desktop and embedded operating systems
- Integrated development tools with cross-platform IDE
- High runtime performance and small footprint on embedded

Labels: qt and C++
License: GNU Lesser General Public License (LGPL)
Owner: +qt-developers
Created: 11 May 06:15
Website at qt.nokia.com
Mailinglist at lists.trolltech.com
Bugtracker at qt.nokia.com

qt.gitorious.com

Getting Qt

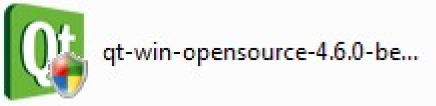
- The easiest way to get started is to download the Qt SDK. It contains
  - Qt headers and documentation
  - Pre-built Qt libraries and tools
  - The QtCreator integrated development environment

Windows Installation

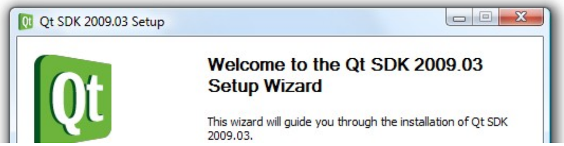
1. Download the Qt SDK for Windows

Download Qt SDK for Windows* (178 MB)

2. Run the downloaded installer


qt-win-opensource-4.6.0-be...

3. Click through the installer


Qt SDK 2009.03 Setup

Welcome to the Qt SDK 2009.03 Setup Wizard

This wizard will guide you through the installation of Qt SDK 2009.03.

4. Start QtCreator from the start menu

Mac OS X installation

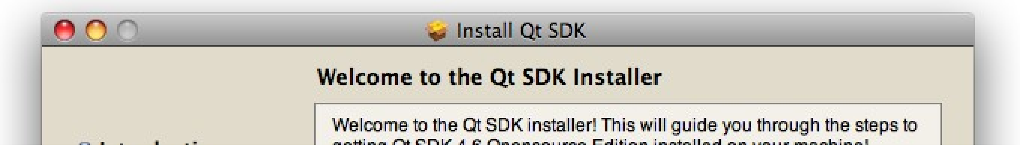
1. Download the Qt SDK for Mac OS X

Download Qt SDK for Mac (442 MB)

2. Run the downloaded installer package

QtSDK.mpkg

3. Click through the installer



Install Qt SDK

Welcome to the Qt SDK Installer

Welcome to the Qt SDK installer! This will guide you through the steps to getting Qt SDK 4.6 Opensource Edition installed on your machine!

4. Start QtCreator from the Finder

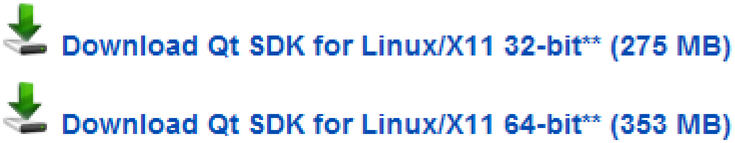
X11 installation

- If possible, use the package manager from your distribution

- (K)ubuntu – **`qt-sdk`** from universe
- Debian – **`qtcreator`**
- OpenSUSE – **`qt-creator`**
- Gentoo – **`qt-creator`**
- Arch Linux – **`qt qt-doc qt-creator`**
- ...

X11 Installation

1. Download the Qt SDK for your Linux version



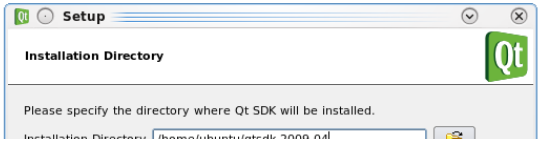
Download Qt SDK for Linux/X11 32-bit** (275 MB)

Download Qt SDK for Linux/X11 64-bit** (353 MB)

2. Make the installer executable

```
chmod u+x qt-sdk-linux-*.bin
```

3. Run the installer and click your way through it



Setup

Installation Directory

Please specify the directory where Qt SDK will be installed.

Installation Directory: /home/ubuntu/qtsdk-2009.04

4. Start QtCreator from your desktop or menu

Demonstration