Meet Qt 5.7

May 2016
Contents

› Redefine User Experience
  › New Dimensions – Qt and 3D
  › Productivity out-of-the-box: Qt Quick Controls 2.0
  › Functionality meets design – Qt Quick Designer

› The Framework for Modern C++

› Get Ahead of the Rest! Shorter time-to-market for embedded devices

› New Licensing Offering

› Summary of Qt 5.7 Highlights
Redefine User Experience

› New dimensions
› Productivity Out-of-the-Box
› Functionality Meets Design
Pioneer in User Experience Creation

› For the past 20 years, Qt has kept pace with market demands for UI creation to create the best UX for your end users
  › Classic desktop look-and-feel
  › Modern touch-based embedded screens
  › Personalized mobile applications
  › True multi-screen user experience

› Qt gives You
  › Multiple approaches for UI creation to match your needs
  › Full native performance, leveraging OpenGL and hardware acceleration where possible
  › Declarative design language with Qt Quick for easy developer-designer workflow
  › Hybrid HTML5 integration, full browser engine through Qt WebEngine
  › Fun and productiveness, focus on content!
New Dimensions – Qt Offering for 3D Graphics

- **Qt 3D**
  - New Qt module for 2D and 3D rendering with a framework for near-realtime simulations (e.g. physics, audio, AI, collision detection)

- **Qt Canvas 3D**
  - Use JavaScript and JS-based 3D libraries with Qt Quick

- **Qt and OpenGL**
  - Mix and Match Qt with raw OpenGL to the maximum of your liking

- **Qt Data Visualization**
  - Library for 3D charting and data visualization
Introducing Qt 3D – Fully Supported with Qt 5.7

› 3D framework specifically tailored for Qt/QML
  › Renderer
  › Generic framework for near-realtime simulations
› Multithreaded and extensible architecture
› Split into core and *aspects* (physics, audio, collision, AI, path finding, etc)
› 3D object loaders for popular formats
› Developed together with KDAB, a Qt Service Partner
Productivity Out-of-the-Box – Qt Quick Controls 2.0

› Library of UI controls (*buttons, sliders, dials, etc.*) for Qt Quick
  › A new project, re-thinking the controls, mainly from Embedded perspective
› Sleak, performant, easily customizable, also for SDK creators
› Divided into Templates (basis) and an existing set of Controls (example set, using Flat Style)
Qt Quick Controls 2.0 - Examples

Google Material Design

Microsoft Universal Design
The Framework for Modern C++
The Framework for Modern C++

› Qt is the framework for all C++ development, following the modern C++ progress closely
  › Fully harness the power of C++ with the convenience of Qt libraries
› Qt supports C++11/C++14 features and Qt 5.7 leverages C++11 also within the API design
› Qt 5.7 requires compilers to support C++11
  › Dropping out support for older C++98 compilers
› Qt 5.6 (LTS) is a valid, parallel product for older compilers for multiple years
  › Qt 5.7+ will integrate more tightly into modern C++ features
Get Ahead of The Rest

› Shorter Time-to-Market with Qt Tooling
  › Qt Creator 4.0
  › Full Embedded Tooling
  › Pre-built Software Stack
Qt Creator 4.0

› Full cross-platform development environment for desktop, mobile and embedded
  › Optimal for Qt, QML and C++ projects
  › Develop, design, deploy, test, analyze and optimize—all in the same seamless workflow!

› New for Qt Creator 4.0
  › CLang Static Analyzer integration – Find problems easily in C, C++ and Objective-C programs
  › Autotest integration – Easily run autotests from your projects
  › Extended QML profiler – Analyze pixmap cache usage, scene graph performance, JS memory usage and input events
  › Improved workflow for CMake projects
  › New styles

Find problems early with Qt Creator and CLang static analyzer
Functionality Meets Design – Qt Quick Designer

- Visual drag’n’drop UI editor
  - Built-in to Qt Creator 4.0
- Together with integrated Qt Quick Controls 2.0 provide a rapid way for UI design
  - Seamless designer-developer workflow
- Separated UI presentation (UI Forms, ui.qml files) and UI logic (regular QML files).
- A lot of work has been put into improving the designer in the past versions

Drag’n’drop all Qt Quick Controls, manage their hierarchy, layout, properties and directly connect them to each other.
Qt Creator 4.0 – QML Profiler
Embedded Tooling

› With Qt tooling embedded development workflow is as effortless as desktop or mobile development
› Qt Creator IDE allows you to
  › Do UI prototyping with rapid design-develop-deploy cycles
  › Immediately see your software run on real embedded hardware—with one-click deployment!
  › Emulate the software without the actual HW with customizable environment and sensor simulation
  › Do embedded Linux development also from Windows host computer
Boot to Qt Software Stack

- Immediate Embedded Prototyping
- Kick-start to Embedded Projects
  - Pre-built binaries for common development boards
- Full Customization through the Yocto Project tooling
Boot to Qt
One Click Build-Deploy-and-Run to Multiple Build Environmentes
Summary
Qt 5.7 Highlights
Qt 5.7 Highlights

› **Qt Quick Controls 2.0** – A new and performant library of UI controls designed for embedded and mobile UIs
› **Qt 3D** fully supported
› **Qt Creator 4.0**
   › Qt 5.7 is fully leveraging **C++11**, supporting the use of it and using it internally as well
     › Qt 5.7 does not support for older non-C++11 compilers (Qt 5.6 LTS supports)
› **New Licensing Offering**
   › Upgraded from LGPLv2.1 to **LGPLv3** for Open Source Qt
   › **Open-sourced** new components under GPLv3
     › Qt Charts, Qt Data Visualization, Qt Virtual Keyboard, Qt Quick 2D Renderer, Qt Purchasing
› **Tech Previews**
   › Qt Wayland Compositor, multi-process support for embedded
   › Qt SCXML, state chart framework integration
   › Qt Gamepad, a plugin-based Qt API for interfacing with gamepads
   › Qt Serial Bus, for device bus communication, with CAN bus and ModBus implementation
Overview of 2015-2016 Qt Releases

Qt 5.5 (June 2015)
- Quality & maturity focus
- Qt 3D TP
- Qt Location TP
- Unified online installer
- New product structure
- VxWorks with Qt 5.5.1

Qt 5.6 (March 2016)
- LTS release
- HighDPI
- Full Windows 10 support
- New CI System
- Webkit and Qt Quick 1 removed
- Preview of new modules

Qt 5.7 (June 2016)
- License change
- Leveraging C++11
- Qt 3D
- Qt Quick Controls 2
- Yocto compliance
- New Tech Previews: Qt Wayland Compositor, State machine tooling (SCXML), Qt SerialBus, OTA
- Base of Qt Automotive

Qt 5.8 (Q4/2016)
- Qt Lite (configurability and optimization of resource usage)
- Built-in Qt Quick Compiler
- Vulkan / DirectX 12 enablers
- Input handling renewal
- Qt Wayland Compositor
- Qt SCXML