
Advanced Programming with Qt Widgets

Based on Qt 5.15, created on March 16, 2023

The logo for KDAB, featuring a stylized white lightning bolt icon to the left of the text 'KDAB' in a white, sans-serif font, all contained within a blue rectangular background with a white diagonal cutout at the bottom left corner.

KDAB

The Qt, OpenGL and C++ Experts

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Qt Fundamentals Recap

- The Story of Qt
- Important Application Classes
- Practical Tips for Developers
- Introducing Qt Creator
- Common Features of Qt's Object Model
 - Qt's Object Model and QWidget Basics
- Object Communication Using Signals & Slots
 - Connecting Signals to Slots
 - Defining Slots
 - Defining Signals
- Layout Management
- Qt Designer
- Windows
 - Main Windows
 - Dialogs

Application Infrastructure

- Validating Input
- Resources
- Settings
- Commandline Arguments
- Drag and Drop
- Internationalization and Localization
- The Event System
- Providing Help
- File Management
- Printing

Model/View with Qt

- Concepts
- Models
 - List Models
 - Table Models
 - Tree Models
 - Value-based Models
 - Proxy Models
- Views
 - Item Views
 - Delegates
 - Selection
 - Drag and Drop

Graphics and Styling

- Painting
 - Painting Basics
 - Color Handling
 - Painting Operations
 - Painting Performance
- Graphics View
 - Architecture
 - Coordinate Systems and Transformations
 - Creating Custom Items
- Styling
 - Widget Styles
 - Style Sheets

Text Documents

- Processing
 - Text Encoding
 - Working with Regular Expressions
- Richtext Editing and Formatting
- HTML/Web Content
 - Introduction
 - Classes Involved
 - JavaScript
 - Tooling
 - Features for Browsers

Supplemental Topics

Application Infrastructure Extras

- Qt Animation Framework
- State Machine Framework
- Application Scripting
- Plug-ins

Graphics Extras

- Graphics View II
- QImage
- Custom Image Formats
- OpenGL in Qt

Supplemental Topics

Qt Core Extras

- Advanced Container Classes
- Memory mapped files
- Smart Pointers in Qt

Development and Testing

- Deployment
- Development Tools for Linux
- QMake
- Some Thoughts About Portability
- Qt Debugging Aids
- QTestLib
- Testing with Squish
- Introduction to Git
- Introduction to CMake

Supplemental Topics

Modern C++ Quick Tour

- Introduction to Modern C++
- Explicit Virtual Overrides
- Uniform Initialization
- Constructors
- Type Inference
- Range-based for Loop
- Lambdas
- Function Wrappers

Multithreading

- Concepts
- Synchronization Primitives
- Foundation
- QtConcurrent
- Atomic Operations
- Relation to Model/View

Supplemental Topics

XML, JSON and SQL

- Basic XML APIs
- XPath, XQuery and XSLT
- XML Schema
- JSON
- SQL Database API

Interprocess Communication

- Network Programming
- QtDBus
- QtDBus II
- QProcess
- Shared Memory with Qt
- MQTT
- Qt Remote Objects