



Qt build system improvements and feedback

01.12.2023

Recent Qt improvements

- › Syncqt.cpp instead of syncqt.pl (qt 6.5, with further improvements in 6.6+)
 - › Thanks Alexey Edelev
 - › Faster builds, better dependency tracking, maintainable
- › bin/qt-cmake-create (qt 6.6) – create boilerplate cmake project from source files in current directory
 - › Thanks Alexey Edelev
 - › Similar to qmake -project
- › Configuring tests directly without qt-cmake-standalone-test (Qt 6.7+)
 - › Thanks Cristian Adam for initial idea
 - › Load test projects directly in IDE, rather than first relying on command line
 - › Some repos still pending, big ones are mostly fixed (qtbase, qtdeclarative, qtquick3d, others)



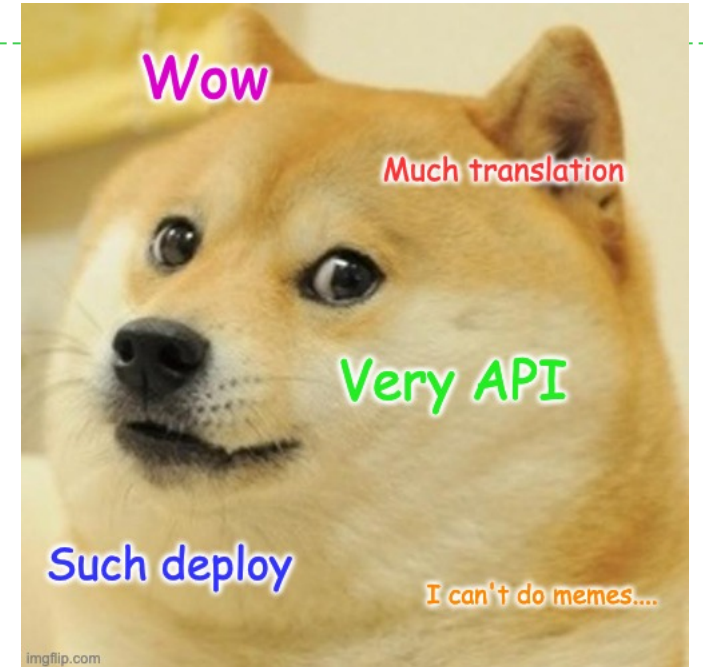
Recent Qt improvements continued

> Better translation / i18n public API (qt 6.7)

- > Thanks Joerg Bornemann
- > Project-wide translation instead of target based
- > Exclusion of sources
- > Native language translation
- > Automatic language setup via `qt_standard_project_setup`
- > Translation deployment (`qt_deploy_translations` qt 6.5)

> Linux app deployment public API (qt 6.5)

- > Thanks Joerg Bornemann
- > Based on `cmake's file(GET_RUNTIME_DEPENDENCIES)` + special handling for qt plugins / qml plugins



Recent Qt improvements continued v2_copy_2023

- › Fix configure -redo to consider new options (qt 6.5)
 - › Thanks Amir Masoud Abdol
- › Qt unity builds (qt 6.5)
 - › Thanks Amir Masoud Abdol
 - › Might not work for all platforms and configurations, but a lot of work was put forward to make it work
 - › Not a feasible project for one person to maintain for the whole scope of Qt, users are welcome to contribute fixes

Recent Qt improvements continued So much to make stuff

> A lot of other improvements

- > iOS docs
- > Deployment fixes
- > Docs fixes
- > Build dependency fixes
- > qmake fixes (ugh)



Recent Qt Creator 12 improvements

- › Thanks Cristian Adam + Artem Sokolovskii
- › CMake Debugging / profiling
- › Hover help
- › Code navigation (function definitions, targets, local variables, upstream modules)
- › Code completion

- › This is not exhaustive
- › See <https://www.qt.io/blog/qt-creator-12-cmake-update>



Ongoing and future work

- › Vcpkg support for building 3rd party dependencies (qt 6.8)
 - › Investigating feasibility
 - › Ultimate goal is providing better DX for customers to build and replace 3rd party dependencies
 - › Proof of concept implemented, waiting for merge after branching
 - › Initial PoC handles OpenSSL, with further ideas for zlib, protobuf, ffmpeg
- › Qt for iOS xcframework support (maybe qt 6.8)
 - › Proof of concept still under development
 - › Goal is to ship a single SDK that will contain x86_64 simulator, arm64 device, arm64 simulator slices
 - › Possible foundation for Apple's new mergeable libraries feature (a mix of static and dynamic linking)
- › QML SDK public API (maybe qt 6.8 or 6.9)
 - › Allow building / installing QML libraries to be used in downstream projects

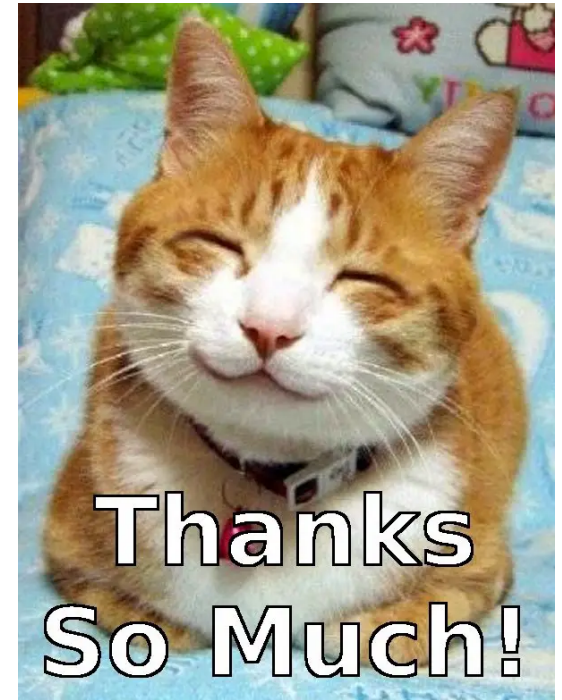
Ongoing and future work upstream CMake



- › Better AUTOMOC / AUTOUIC dependencies (tentative CMake 3.29)
 - › Thanks Orkun Tokdemir
 - › Faster and more correct builds of Qt -debug-and-release builds (also helpful for multi-config ninja user projects)
- › Better AUTOUIC / qt6_wrap_ui API (either CMake 3.29 or Qt 6.8)
 - › Thanks Orkun Tokdemir
 - › There are some issues with rebuilds and build file leakage
 - › Still investigating where we want the fixes to land

Thanks to our external contributors

- › It's amazing there are people not affiliated with Qt Company that care about build systems
- › Thanks to these contributors, in grep order:
 - › Yuhang Zhao
 - › Cajus Pollmeier
 - › Li Xinwei
 - › Ahmad Samir
 - › Tasuku Suzuki
 - › Eric Lemanissier
 - › Tim Blechmann
 - › And many others



What is X and how do I Y?

- › A living / dumping ground for various build system concepts and how-tos
- › https://wiki.qt.io/Qt_Build_System_Glossary
- › Yes I know it's not discoverable and it would be better if goes into docs
 - › But it's better than nothing
- › Reachable
 - › By IRC on #qt-cmake @ irc.libera.chat (bridged to kde.org matrix server)
 - › by email alexandru.croitor@qt.io



Feedback / paint
points

Q & A