

Qt on the Mac

James Turner
<james@kdab.com>

- Mac developer for sixteen years
 - Classic, Carbon, Cocoa, Qt, iOS
- Qt developer for ten years

- Motivation
 - Problems with Qt UIs on Mac
- Bottom-up improvements
- Top-down Mac design
- Deployment and eco-system

Why are you here?

- Qt GUIs are cross-platform
 - Functionality is portable
 - Qt widgets follow native appearance
 - including size hints
- We're finished, let's ship on Mac



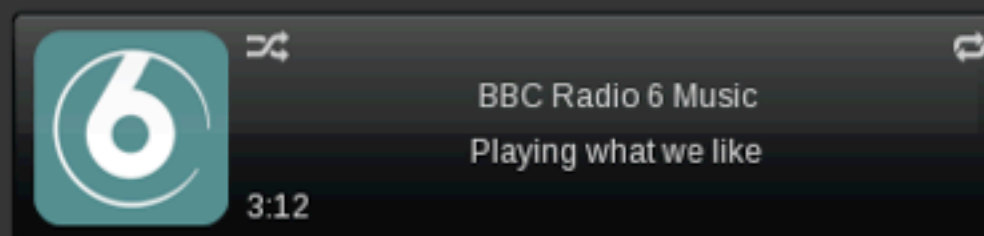
“it doesn’t
feel right”

- Mac users are pixel-picky
 - Spacing
 - Icons
 - Fonts
- Follow the Apple applications
 - Keynote, Mail, Aperture
- Subconscious perception of differences
 - ‘uncanny valley’ of UI similarity

- In-depth consideration of your UX
 - Less is *always* more
 - Engineers design terrible UIs
- Your CEO, marketing and sales people use Macs
- Irritating media & reviewer types use Macs

- Tolerate a functional UX
 - Possible in certain vertical markets
 - Mac users are an ungrateful lot
 - Reviewers will not be kind

- Totally custom UI on all platforms
 - CSS stylesheet or custom **QStyle**
 - QtQuick UI



▼ Music Library

Tracks

Albums

Artists

Composers

▼ TuneIn Radio

Add favourite station



Favourite stations

▼ Music Services

we7

Deezer

Input Sources

▶ Playlists

▶ iTunes Playlists



100.1 | CJVD-FM (...
French



101.5 | CIBL 101.5...
La Radio Libre



88.5 | CBC Radio ...
The Current



92.7 | CJMC-FM (...
French



93.3 | FM93 (Clas...
Bouchard en parle



94.3 | NRJ 94.3 (T...
Le Nadia Show



95.1 | Première C...
French



95.9 | Virgin Radi...
Nikki



96.1 | CBC Radio ...
Tempo (CBC)



97.5 | CHOX-FM (...
French



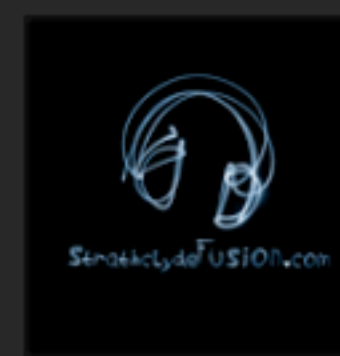
BBC Radio 6 Mus...
Radcliffe and Ma...



CHOQ (College)
la radio Web de l'...



CJIM Radio (Ecle...
Montreal's Rock ...



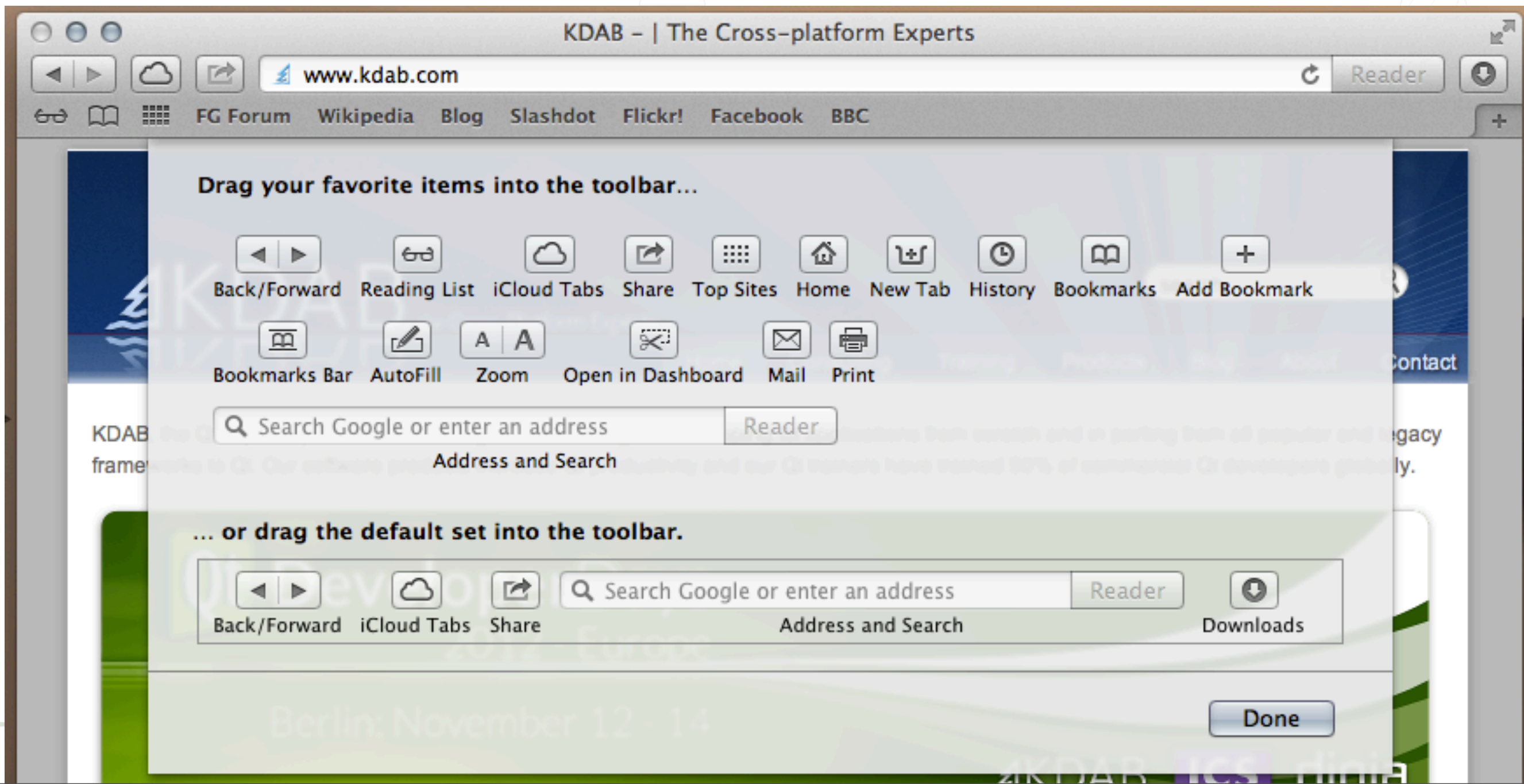
Strathclyde Fusi...
University of Str...



- Motivation
 - Problems with Qt UIs on Mac
- Bottom-up improvements
- Top-down Mac design
- Deployment and eco-system

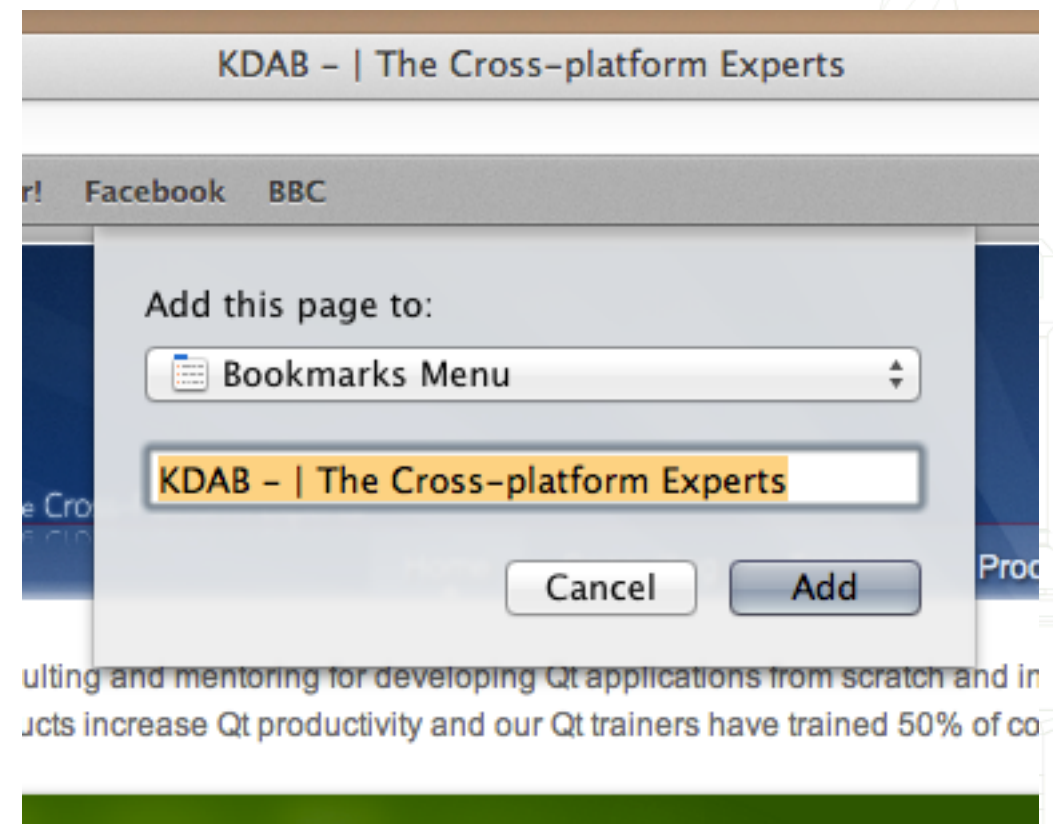
- Use a unified toolbar
- Reduce widget and window framing
- Parent dialogs
- Tune layouts and spacing / borders
- Use custom widgets, especially buttons

- Mac toolbar is unified, flat, and immovable
- Standard editing UI



- Mac UI minimizes framing & borders
 - Contrast to Windows, especially Win 2k
 - Few 3D highlight effects
- Nesting **QGroupBox** or **QFrame** looks terrible
 - Convert to a plain QWidget on Mac

- Window specific modal dialogs should appear as sheets
- Qt handles this if you set the modality and parent widget correctly on QDialog



- Use a custom stylesheet on Mac
 - Set custom margin, border, spacing
 - By class or id (objectName)
- Use an alternate **.ui** file on Mac
- Avoid stretching widgets
 - Especially **QPushButton**

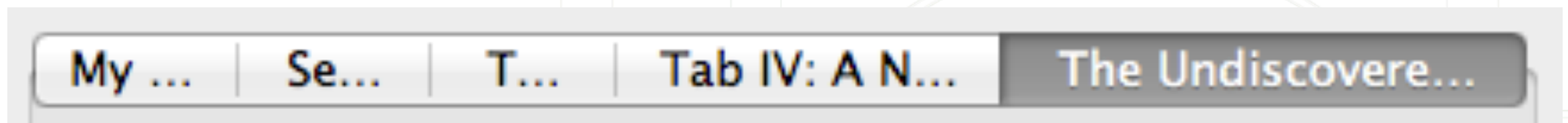
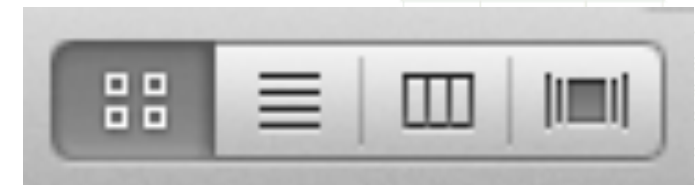
- Mac widgets come in three sizes
 - Default is 'regular' (large)
 - Smaller is often better
- Don't mix in a window / dialog / palette

`Qt::WA_MacNormalSize`

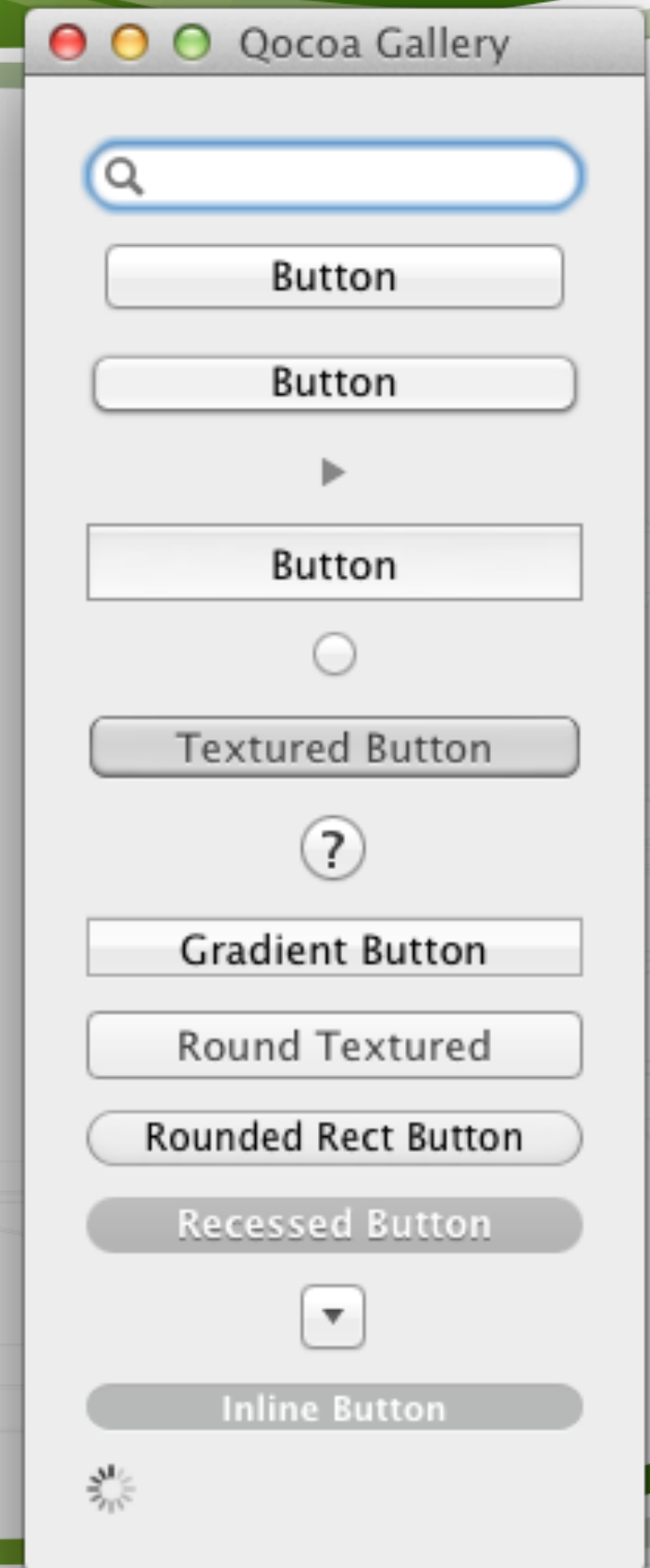
`Qt::WA_MacSmallSize`

`Qt::WA_MacMiniSize`

- Avoid widgets which aren't native to Mac
 - `QDial`, `QToolButton`
- Use `QTabBar documentMode`
- `QPushButton setFlat()`
- Make a segmented button control
- Wrap a native control in `QMacCocoaViewContainer`



- Many additional button styles
 - Compact
 - Suitable in many places
QPushButton is not
- Qocoa provides some easy wrappers
- Plain QPushButton on other platforms



- Default list, table appearance
- Mac is emphasizing composite list items over tables
 - Needs a custom delegate
- Standard add, remove and edit UI



- Motivation
 - Problems with Qt UIs on Mac
- Bottom-up improvements
- Top-down Mac design
- Deployment and eco-system

- Design a Mac UI from scratch
- Identify
 - Areas which can share UI with other platforms
 - UI elements missing in Qt
 - Concepts that differ entirely on Mac
- Structure the app
 - Share logic and common UI
 - Keep platform UI distinct

- Main window is critical
 - Usually the most radically different
- **QMainWindow** is not a big help
 - avoid dock widgets, movable toolbars, status bar, MDI
- Support an intelligent full-screen mode

- Create your main window using Cocoa
- Populate
 - Cocoa widgets
 - Qt widgets wrapped in **QMacWidget**
- Bridge Interface Builder (IB) *actions* to Qt slots

- Motivation
 - Problems with Qt UIs on Mac
- Bottom-up improvements
- Top-down Mac design
- Deployment and eco-system

- Available (and update) through the App Store
- Support iCloud storage
- Make full-screen mode really good

- Code-signing
- Only access files in your sandbox
 - Use iCloud for document storage
- Don't download code or scripts
- Update through the App Store

- Pay Apple \$100 / year
- Prove your identity
- Sign your final bundle with the certificate

- Radically different file dialogs
- Works via **NSDocument** and **NSDocumentController** APIs in Cocoa
 - not exposed to Qt
- Might affect deep structures of your app

- Think about UX early, not late
- Ensure the person working on your Mac UI loves the Mac
- Think different

Questions?