

Java on iOS

SDJUG 2014

INTRODUCING J2OBJC & ROBOVM

MULTI-PLATFORM DEVELOPMENT?

*Reuse as much code & components
as possible between different
"mobile" platforms*

It is hard!

- ▶ **Develop several native apps** ("reuse concepts", mobile GW)
- ▶ **HTML5/JS based hybrid apps** (e.g. Cordova, Appcelerator)

Other choices

- ▶ **MDSB/MDA** model driven approach (e.g. iphonical, applause)
 - ▶ **JavaScript to native bridge** (e.g. Transit)
 - ▶ **Commonly used C/C++ libraries** (with NDK)

But, can I run Java on iOS?

Yes, absolutely!

- * **Transpile code: J2Objc, XMLVM**
- * **Cross-compile code: Xamarin (C#), RoboVM (Java)**

LOOK AT J2OBJC

- ▶ **Transpiler: Java source code to Objective-C source code**
 - ▶ **Open source project from Google**
 - ▶ **Used in Google Drive**
- ▶ **Write non-UI (such as data access, or application logic) in Java**

J2OBJC SUPPORTS "MOST" JAVA LANGUAGE AND RUNTIME FEATURES

- ▶ exceptions
- ▶ inner & anonymous classes
 - ▶ generic types
 - ▶ threads
 - ▶ reflection

<https://github.com/google/j2objc>

J20bjC is currently between alpha and beta quality.

EXAMPLES

```
$ j2objc HelloWorld.java  
translating HelloWorld.java  
Translated 1 file: 0 errors, 0 warnings
```

=> HelloWorld.m, HelloWorld.h

Compile translated file

```
$ j2objcc -c HelloWorld.m
```

Build an executable

```
$ j2objcc -o hello HelloWorld.o
```

```
$ ./hello HelloWorld
```

```
hello, world
```

HOW TO INTEGRATE IN DEVELOPMENT?

1. External build
2. Xcode build rule

LOOK AT SOME EXAMPLES
(LIVE DEMO)

ABOUT ROBOVM

*Our mission is to bring Java to iOS and to do it properly.
We empower the Java developer.*

LOOK AT ROBOVM

- ▶ **Cross-compiler:** Java bytecode **into** native ARM **or** x86 **code.**
 - ▶ **Open source project driven by Trillian Mobile AB**
 - ▶ **Used in many mobile games (libGDX)**
- ▶ **Build complete iOS Apps using native UI's and full hardware access**

OPEN-SOURCE

The compile time tools are **GPLv2** licensed.

Runtime code is licensed under business friendly licenses, mostly the **Apache License v2.0**.

ROBOVM FEATURES

- ▶ **Currently based on Android Java Runtime**
 - ▶ **Eclipse integration (Plugin)**
 - ▶ **Create App Store ready apps**

<http://www.robovm.com>

RoboVm probably not production ready but used successfully anyways

ECLIPSE PLUGIN AVAILABLE IN MARKET

<http://download.robovm.org/eclipse/>

EXAMPLES

```
$ ~/Development/robovm/robovm-1.0.0-alpha-04/bin/robovm  
-verbose  
-cp bin/  
HelloWorld
```

=> *.o file created plus executable

LOOK AT SOME EXAMPLES
(LIVE DEMO)

THANK YOU!

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