



# iContinuousIntegration

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# What's Covered



Managing shared projects with xCode



Building a project without xCode GUI



Creating “universal binary” libraries



Deploying project and libraries for QA



# More Fun for Developers



Unit testing with GHUnit



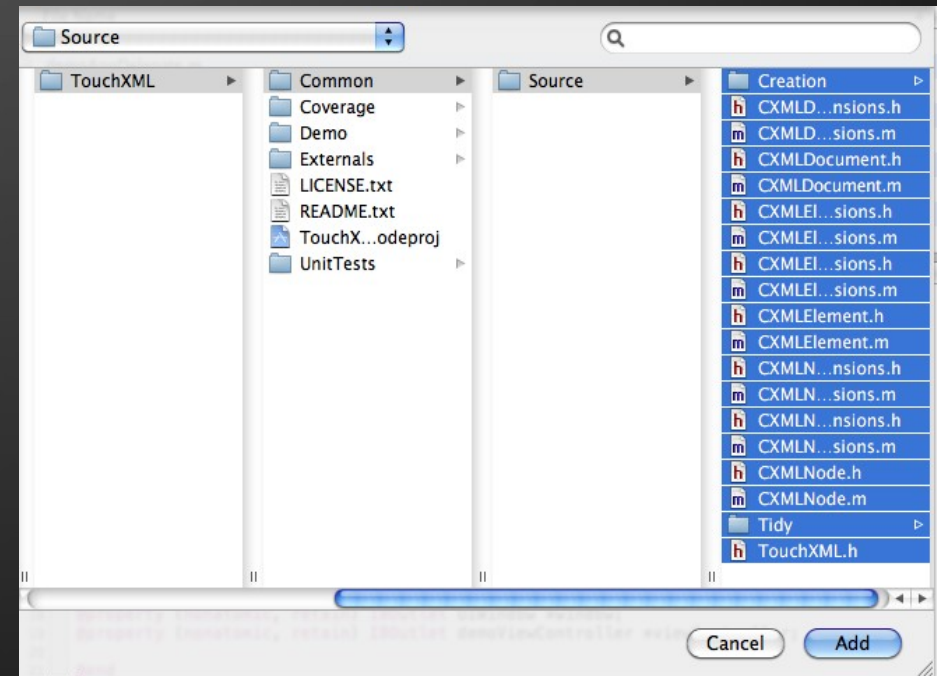
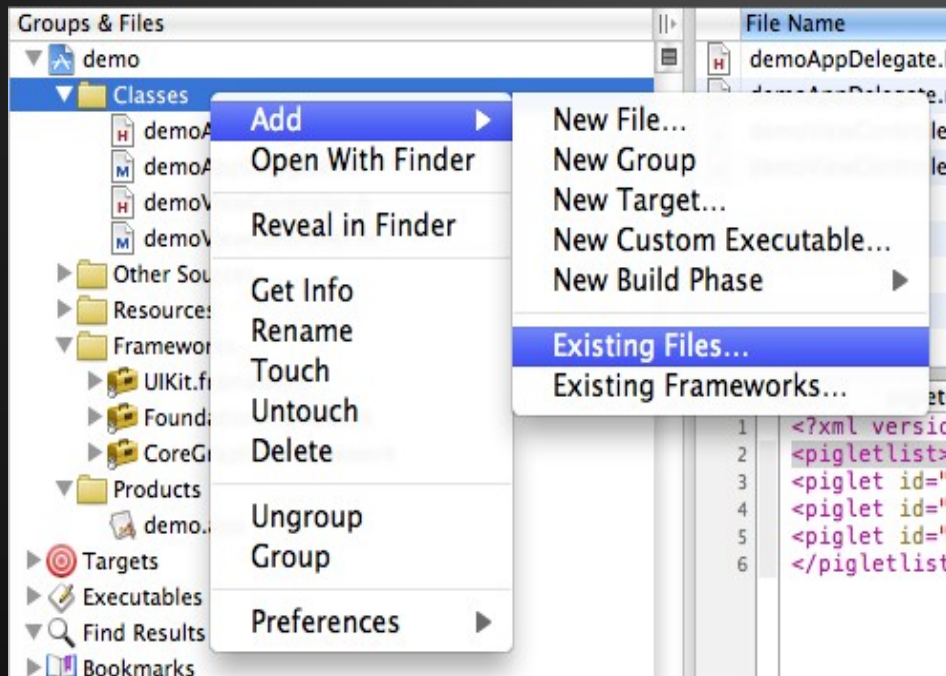
Using Hudson build server  
( it has Chuck Norris plug-in )



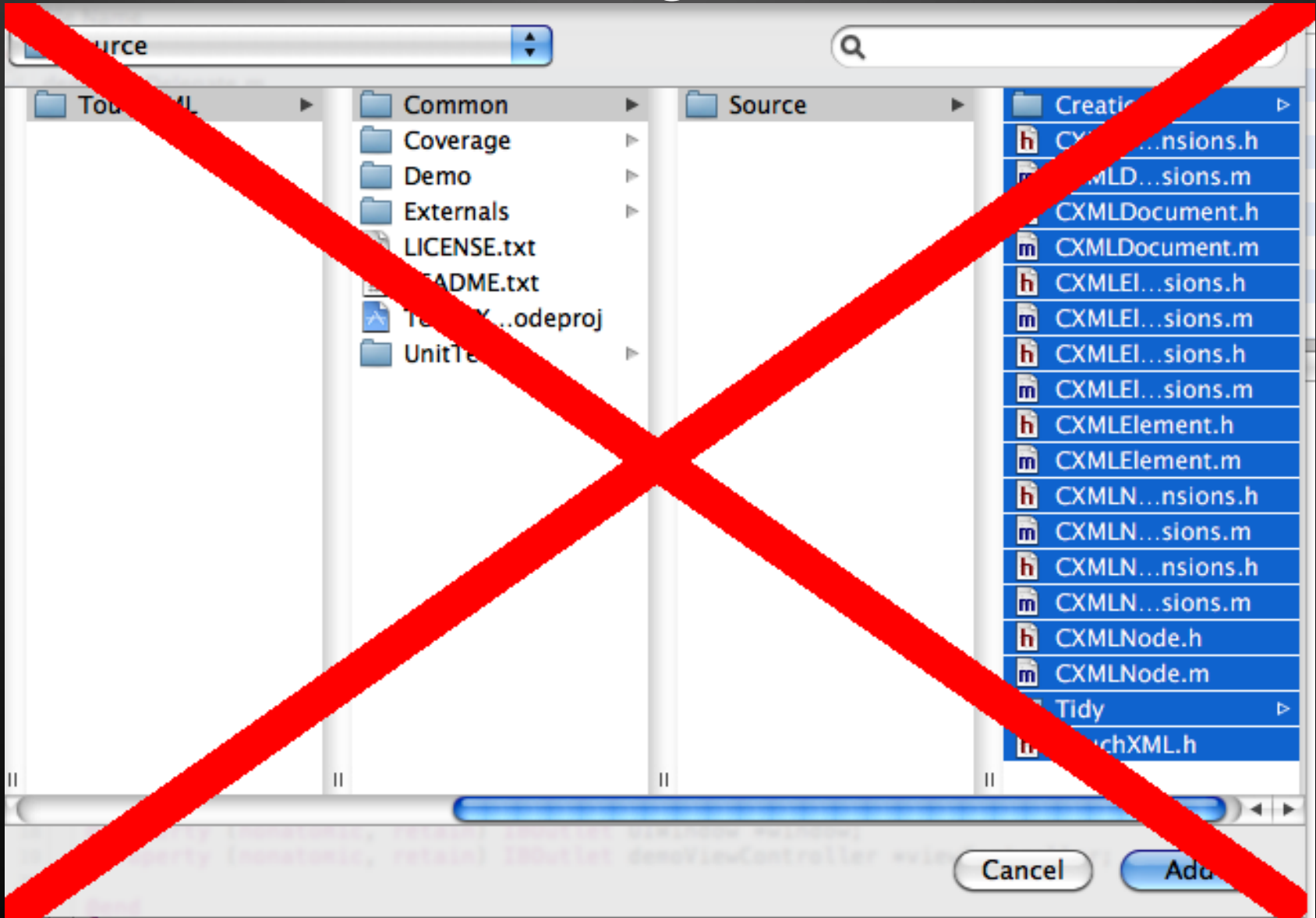
Running applications on simulator  
without xCode



# “Commonly Used” Project Organization



# Wrong !!!

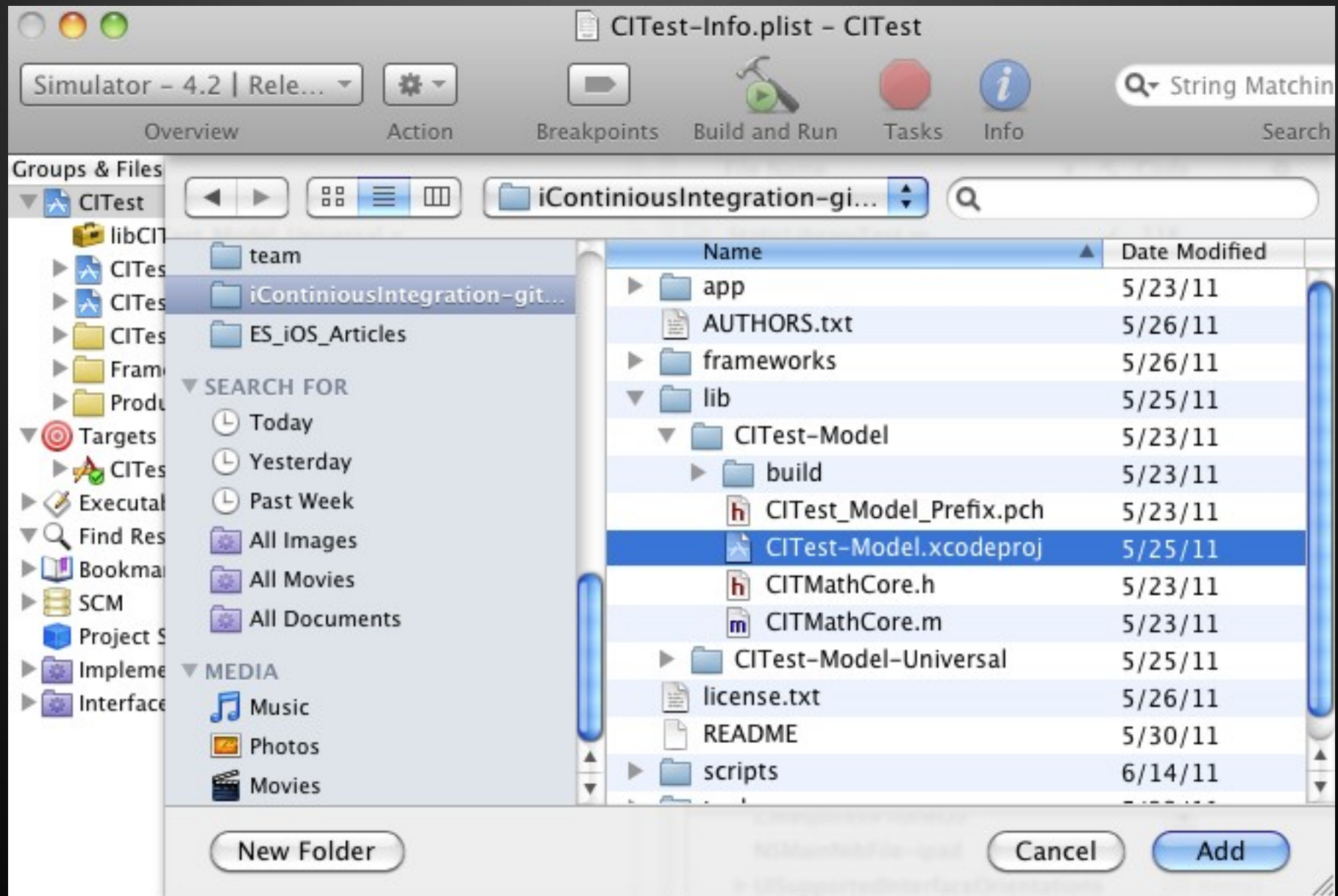


# ONE Product, ONE **XCODE** PROJECT

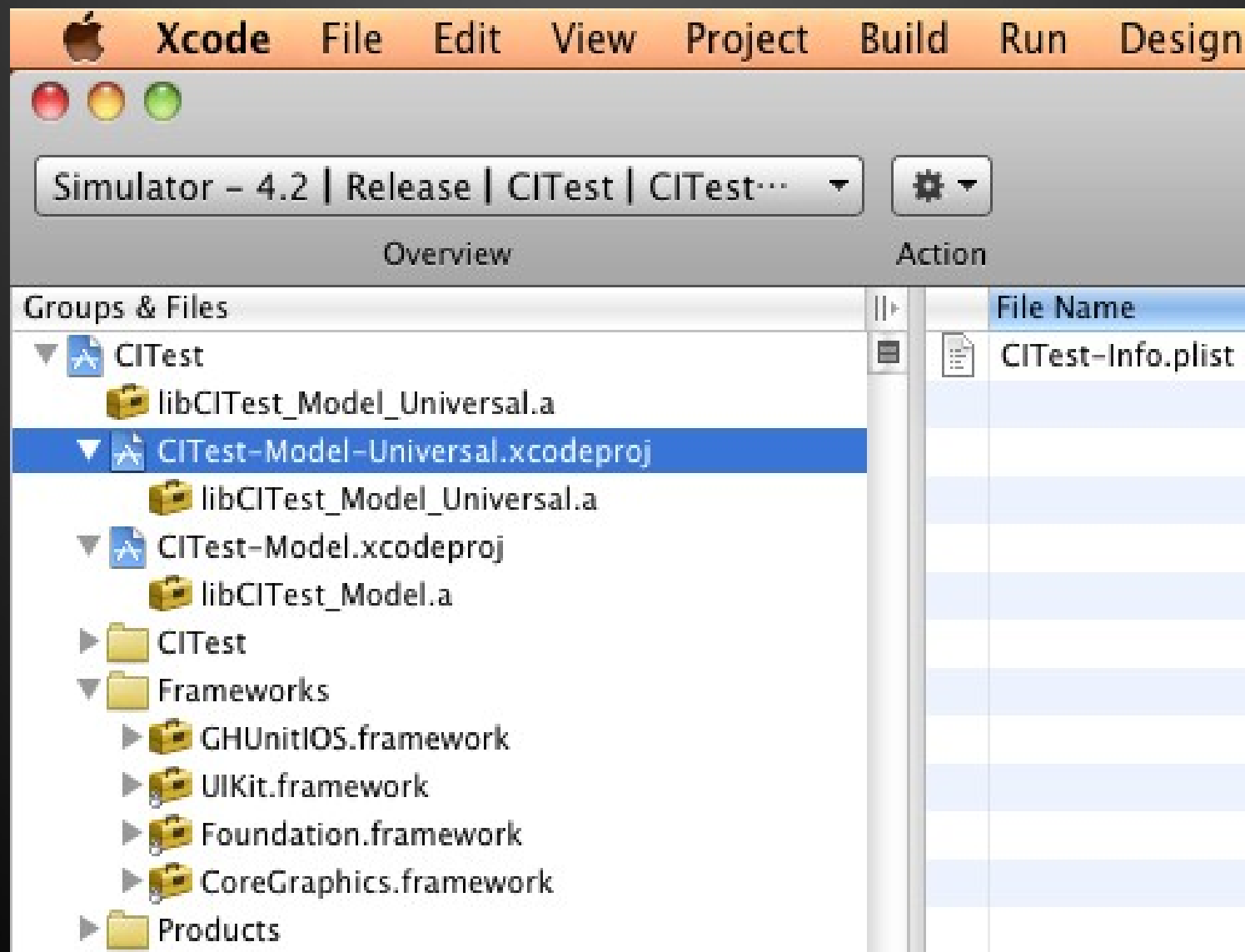




# Library Project How-To

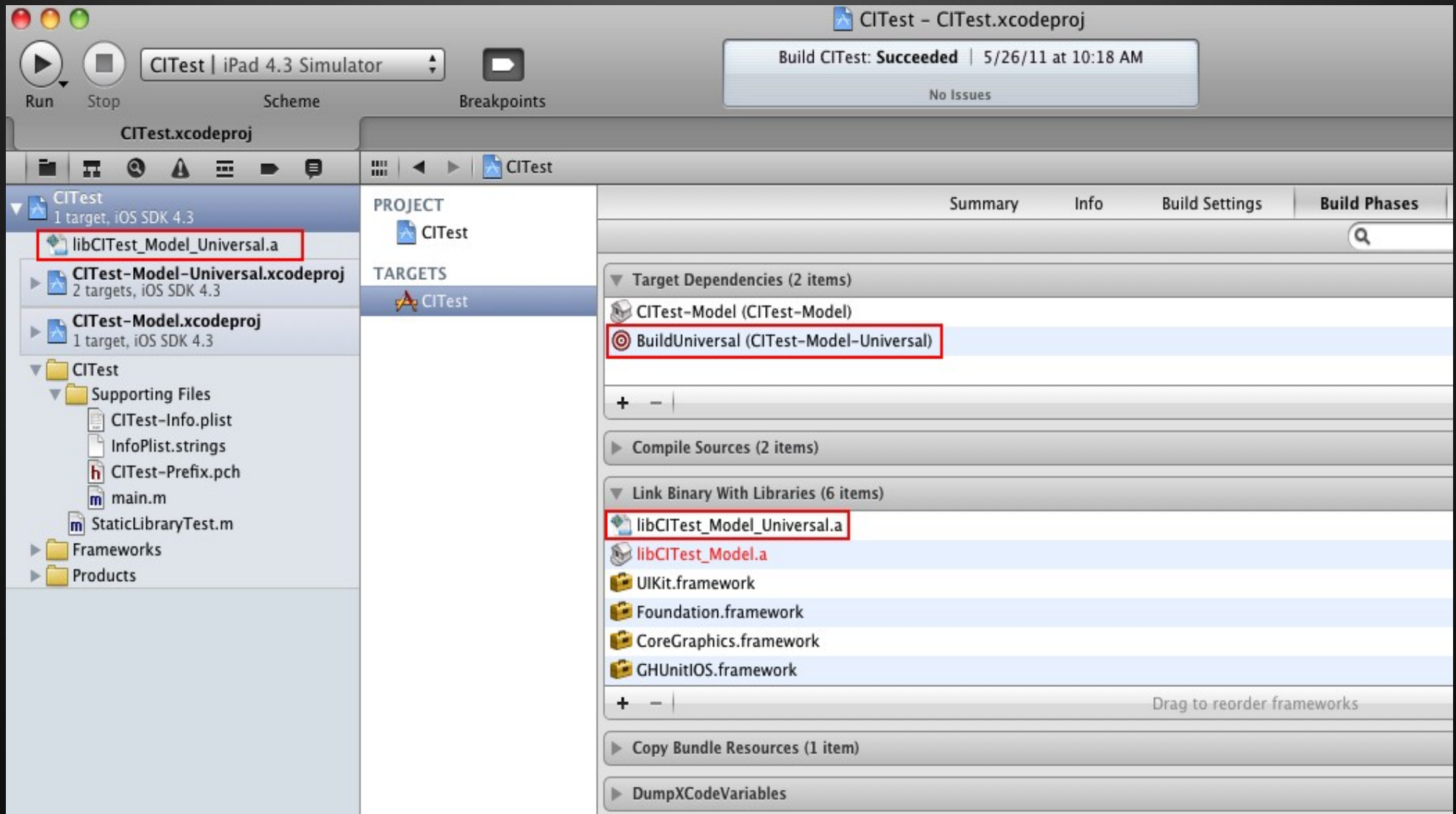


# Library Project How-To



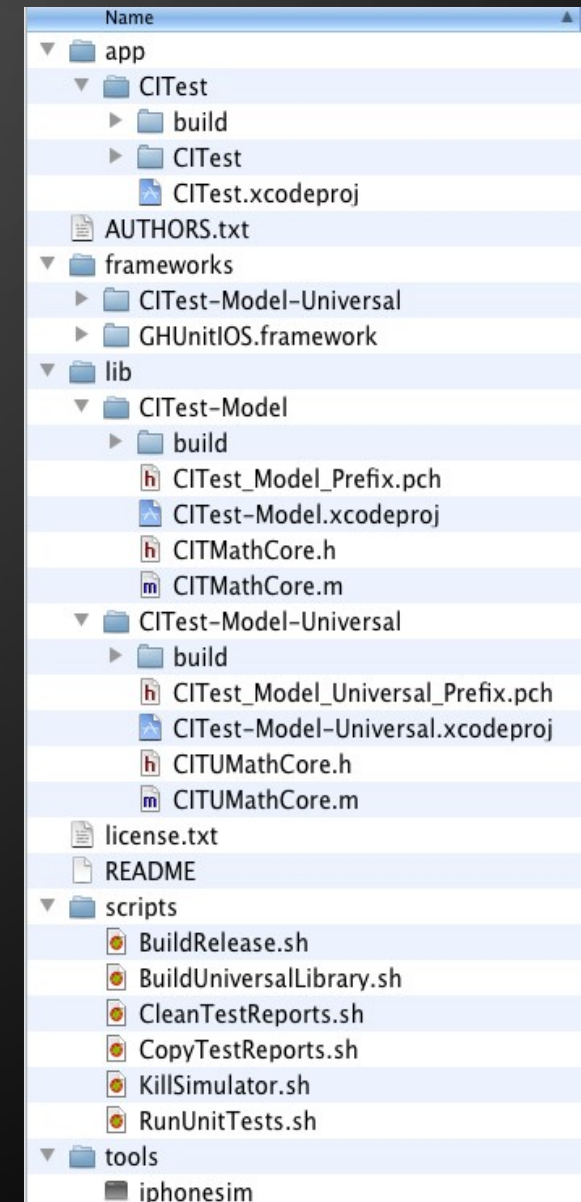


# Setting up dependencies



# Defining the Project Structure

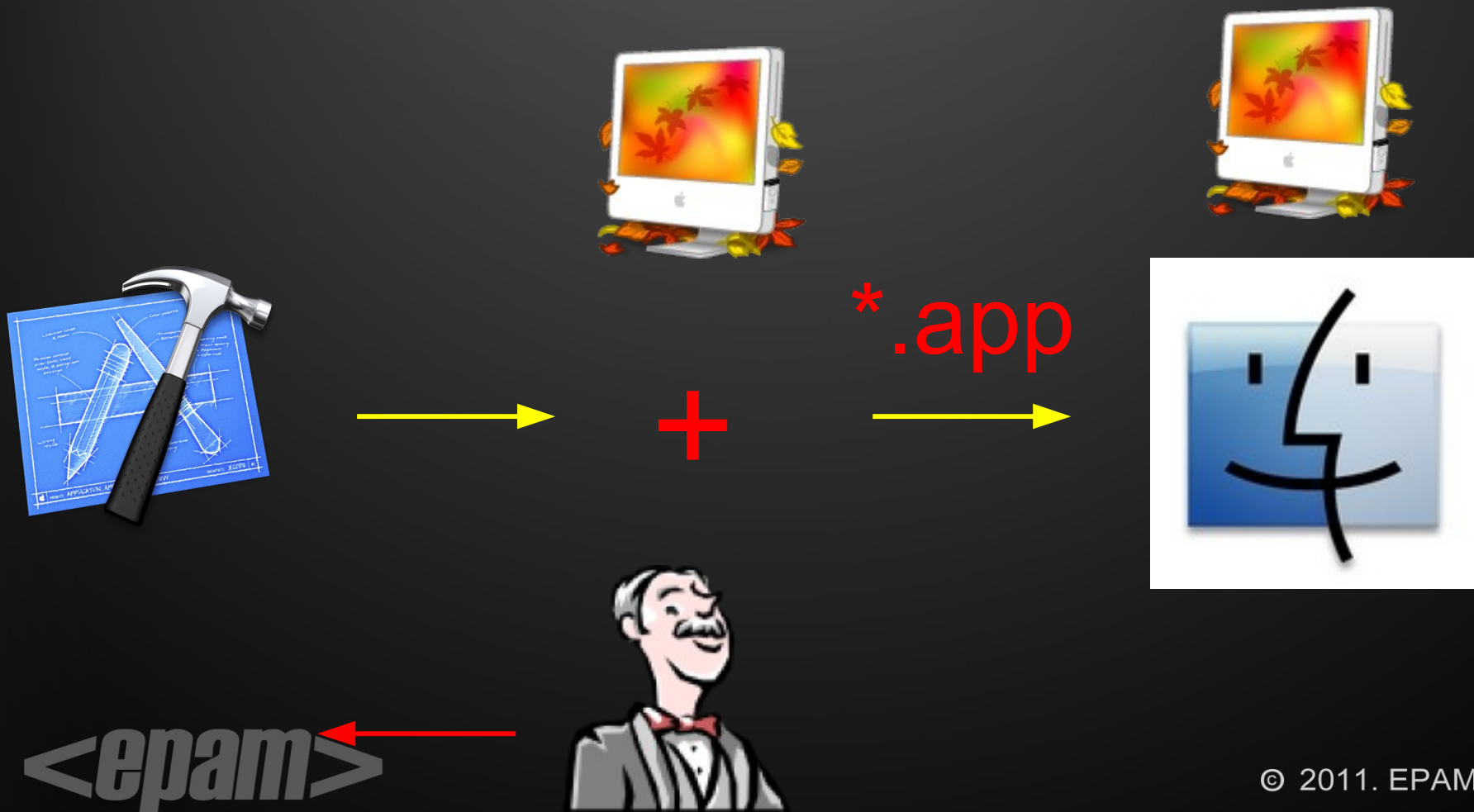
app  
lib  
frameworks  
scripts  
tools  
test  
certificates  
deployment



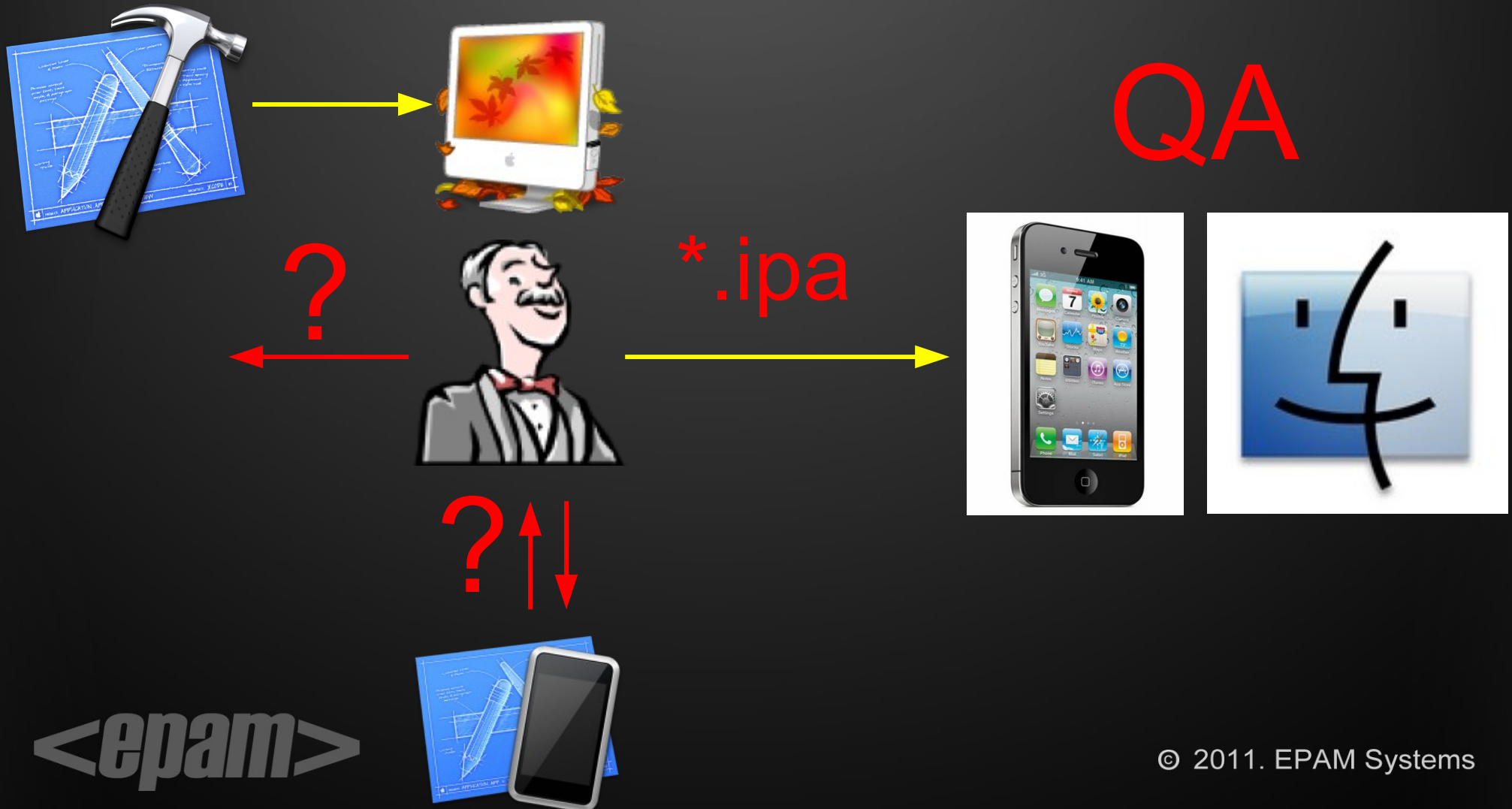
# Deployment : Desktop vs. Mobile



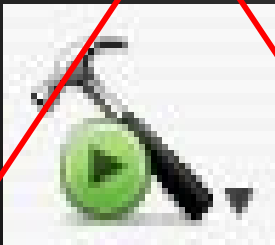
# Desktop Applications



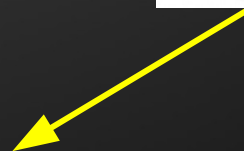
# iOS Applications



# Mobile QA



\*.ipa





# Building Without xCode GUI

xcodebuild -project CTest.xcodeproj

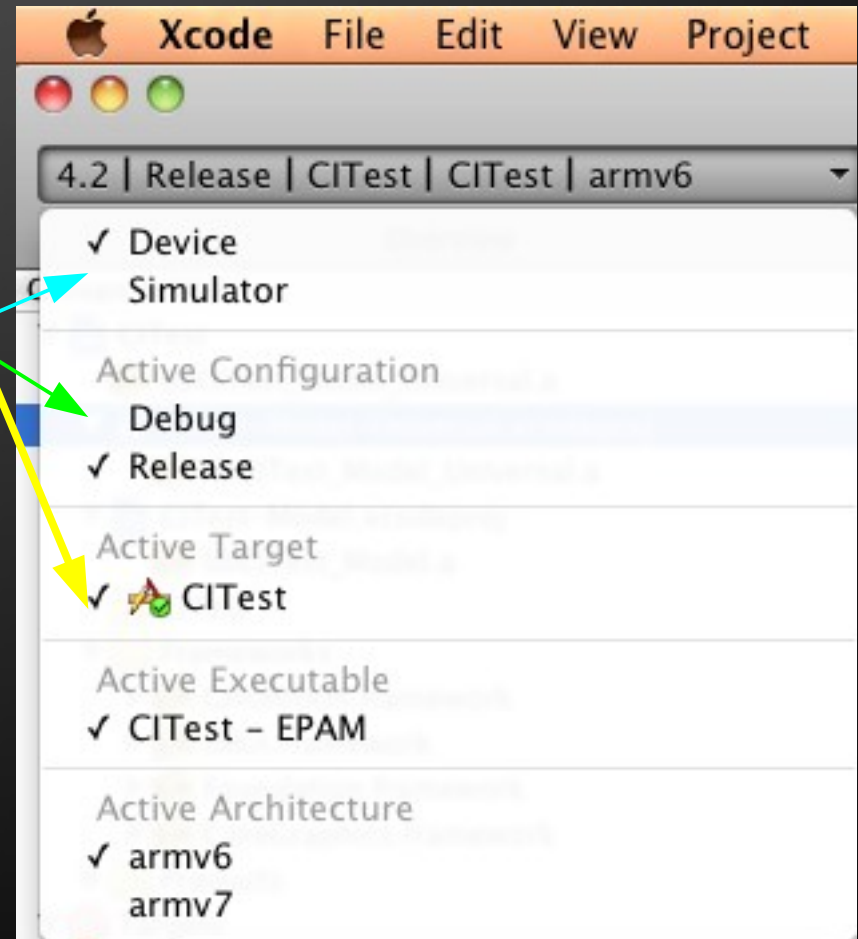
-target CTest

-configuration Release

-parallelizeTargets

-sdk iphonesimulator4.3

clean build



# Creating Installable \*.ipa File

/usr/bin/xcrun

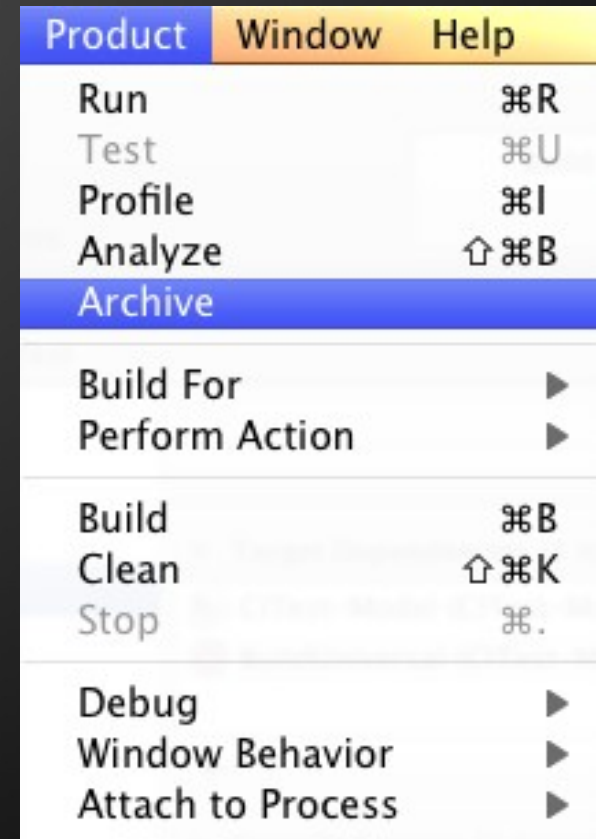
-sdk iphoneos PackageApplication

-v "\${BUILD\_DIR}/Release-iphoneos/  
\${PROJECT\_NAME}.app"

-o "\${DEPLOYMENT\_DIR}/  
\${PROJECT\_NAME}.ipa"

--sign "\${DEVELOPER\_NAME}"

--embed "\${PROVISIONING\_PROFILE}"



DEVELOPER\_NAME="iPhone Developer: Oleksandr Dodatko (ABCDEFGH123456)"

# How About Unit Testing?

Picking a framework

Running a test

Collecting results



# Test Frameworks Chart

	SenTest	Google	GHUnit
Xcode integration	+	+	---
UIKit Support	---	---	+
Bundles support	---	---	+
Xml reports	---	---	+
			(lack of support for hudson CI)
Runs on device	+ ( Runtime tests only )	+ ( Runtime tests only )	+
Runs on simulator	+ ( logic tests only )	+ ( logic tests only )	+
Debugging (out of box)	---	---	+
UI snapshots comparing	---	+	---

# GHUnit Configuration

Add GHUnit.framework

Replace Main.h with the one from GHUnit

Remove “MainNibFile” entry from the info.plists

```
setenv( "GHUNIT_AUTORUN" , "YES", 1 );
```

```
setenv( "WRITE_JUNIT_XML", "YES", 1 );
```

// Not supported in the official GHUNIT

```
setenv( "GHUNIT_AUTOEXIT" , "YES", 1 );
```

# Running a Test

"\$TOOLS\_DIR/iphonesim"

launch "\$DEPLOYMENT\_DIR/CITest.app"

4.2

ipad

**NOTE** : Use only **FULL PATH** to the app  
as shown above





# Collecting Test Results

```
TEMP_DIR=$(/usr/bin/getconf DARWIN_USER_TEMP_DIR)
```

```
TEST_DIR_NAME=test-results
```

```
TEST_RESULTS_DIR=$TEMP_DIR$TEST_DIR_NAME
```

```
## Now we can just copy test results
```

```
cd "$TEST_RESULTS_DIR"
```

```
pwd
```

```
cp *.xml "$TEST_PUBLISH_DIR"
```

```
cd "$LAUNCH_DIR"
```

# Terminating the Simulator

```
killall -s -KILL -c "iphonesim"
```

```
killall -KILL -c "iphonesim"
```

```
killall -s -KILL -c "iPhone Simulator"
```

```
killall -KILL -c "iPhone Simulator"
```

Do it before you run a test app



# Creating Universal Binaries

1. Build a library version for the device.
2. Build a library version for the simulator.
3. Combine them to a single binary
4. Deploy universal library to the “frameworks” directory.



# Combining Binaries

lipo -create

"\${LIB\_BUILD\_DIR}/Release-  
iphoneos/libCITest\_Model\_Universal.a"

"\${LIB\_BUILD\_DIR}/Release-iphonesimulator/  
libCITest\_Model\_Universal.a"

-output "../frameworks/CITest-Model-  
Universal/Lib/libCITest\_Model\_Universal.a"



# Build Script Should

Build main products

Create \*.ipa packages for main products

Build unit tests

Run unit tests with iphonesim

Package \*.ipa and \*.app entries to \*.zip archive

Prepare unit test reports for deployment



# Build server should

Checkout project sources

Run build script

Deploy product archives

Publish test reports





# Contacts

EPAM systems (Dnipropetrovsk) <http://www.epam.com/>

Github page : <https://github.com/EmbeddedSources>

<https://github.com/EmbeddedSources/iOS-articles>

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Github page : <https://github.com/dodikk>