

Xcode complexity? No more.

with Pavlos Vinieratos

React Native EU @ your screen, your house

August 2020



I'm Pavlos,
aka `pvinis` on everything online.
I enjoy using and improving React
Native.

Xcode is a struggle for many.

Especially coming from web or native Android.

Why

- It's an **unknown/unfamiliar** tool.
- Almost all settings need to be edited using Xcode UI.
- Its **file format** is not very friendly.

MyProject > iPhone 11 Pro

MyProject | Build MyProject: **Succeeded** | Today at 11:59

508

+

MyProject

Frameworks
MyProject
Pods
Products
main.jsbundle
Pods

PROJECT
Basic Customized All Combined Levels +

SEARCH

General Signing & Capabilities Resource Tags Info Build Settings Build Phases Build Rules

PROJECT TARGETS

MyProject

Architectures Setting Resolved MyProject Config.File (Pods-MyProject....) MyProject iOS Default

Base SDK iOS

Build Active Architecture Only

Debug Yes

Release No

Build Options Setting Resolved MyProject Config.File (Pods-MyProject....) MyProject iOS Default

Debug Information Format Debug DWARF

Release DWARF with dSYM File

Enable Bitcode Debug <Multiple values>

Release No

Enable Testability Debug Yes

Release No

Validate Built Product Debug No

Release Yes

Deployment Setting Resolved MyProject Config.File (Pods-MyProject....) MyProject iOS Default

Installation Directory /Applications

Strip Debug Symbols During Copy Debug No

Release Yes

Strip Linked Product Yes

Targeted Device Family Universal

iOS Deployment Target iOS 10.0

iOS 10.0

iOS 13.6

Linking Setting Resolved MyProject Config.File (Pods-MyProject....) MyProject iOS Default

Other Linker Flags Debug -ObjC -l"CocoaAsyncSocket"...

Release -ObjC -l"CocoaAsyncSocket"...

Runpath Search Paths /usr/lib/swift @executable_p... /usr/lib/swift @executable_p... /usr/lib/swift

Packaging Setting Resolved MyProject Config.File (Pods-MyProject....) MyProject iOS Default

Info.plist File MyProject/Info.plist MyProject/Info.plist

Product Bundle Identifier org.reactjs.native.example.M... org.reactjs.native.example.M...

Product Name MyProject

Search Paths Setting Resolved MyProject Config.File (Pods-MyProject....) MyProject iOS Default

Always Search User Paths (Deprecated) No

Framework Search Paths "

Library Search Paths Debug <Multiple values>

/Applications/Xcode.app/Content... /Applications/Xcode.app/Content... /Applications/Xcode.app/Content...



What's your current React Native version?

0.62.2

To which version would you like to upgrade?

0.63.2

[Show me how to upgrade!](#)[Split](#) [Unified](#)

```
✓ ios/RnDiffApp.xcodeproj/project.pbxproj MODIFIED ⌂ View file ✓

@@ -9,17 +9,17 @@
9 /* Begin PBXBuildFile section */
10    00E356F31AD99517003FC87E /* RnDiffAppTests.m in Sources */ = {isa = PBXBuildFile; fileRef = 0 10
0E356F21AD99517003FC87E /* RnDiffAppTests.m */; };
11    13B07FBC1A68108700A75B9A /* AppDelegate.m in Sources */ = {isa = PBXBuildFile; fileRef = 13B0 11
7FB01A68108700A75B9A /* AppDelegate.m */; };
12    13B07FBF1A68108700A75B9A /* LaunchScreen.xib in Resources */ = {isa = PBXBuildFile; fileRef = 13B07FB11A68108700A75B9A /* LaunchScreen.xib */; };
13    13B07FB51A68108700A75B9A /* Images.xcassets in Resources */ = {isa = PBXBuildFile; fileRef = 13B07FB51A68108700A75B9A /* Images.xcassets */; };
14    13B07FC11A68108700A75B9A /* main.m in Sources */ = {isa = PBXBuildFile; fileRef = 13B07FB71A6 13
8108700A75B9A /* main.m */; };
15    2D02E4BC1E0B4A80006451C7 /* AppDelegate.m in Sources */ = {isa = PBXBuildFile; fileRef = 13B0 14
7FB01A68108700A75B9A /* AppDelegate.m */; };
16    2D02E4BD1E0B4A84006451C7 /* Images.xcassets in Resources */ = {isa = PBXBuildFile; fileRef = 13B07FB51A68108700A75B9A /* Images.xcassets */; };
17    2D02E4BF1E0B4B3006451C7 /* main.m in Sources */ = {isa = PBXBuildFile; fileRef = 13B07FB71A6 16
8108700A75B9A /* main.m */; };
18    2DCD954D1E0B4F2C00145EB5 /* RnDiffAppTests.m in Sources */ = {isa = PBXBuildFile; fileRef = 0 17
0E356F21AD99517003FC87E /* RnDiffAppTests.m */; };
19    5432F7EB7F7F4537A837621A /* libPods-RnDiffApp-tvOS.a in Frameworks */ = {isa = PBXBuildFile;
fileRef = 1D244570B607F65944D330F5 /* libPods-RnDiffApp-tvOS.a */; };
20    7DA60D6A41F36271428AE19D /* libPods-RnDiffApp-tvOSTests.a in Frameworks */ = {isa = PBXBuildF
ile; fileRef = 94208395677D9CD97160A544 /* libPods-RnDiffApp-tvOSTests.a */; };
21    C5465B0C2DA5FC8811C8600F /* libPods-RnDiffApp-RnDiffAppTests.a in Frameworks */ = {isa = PBXB
uildFile; fileRef = AA19CB7647AA9CD05007354A /* libPods-RnDiffApp-RnDiffAppTests.a */; };
22    E4D225D649DF4A69CD1D47AA /* libPods-RnDiffApp.a in Frameworks */ = {isa = PBXBuildFile; fileR
ef = 6363838C2C9AC1ED8E8695DB /* libPods-RnDiffApp.a */; };

18    414863EBA3EEE9B70E37CA67 /* libPods-RnDiffApp-tvOS.a in Frameworks */ = {isa = PBXBuildFile;
fileRef = 0337F866BBF58F82CD535A55 /* libPods-RnDiffApp-tvOS.a */; };
19    81AB9BB82411601600AC10FF /* LaunchScreen.storyboard in Resources */ = {isa = PBXBuildFile; fileRef = 81AB9BB7
2411601600AC10FF /* LaunchScreen.storyboard */; };
20    855F92B290D1BAEF9A00E291 /* libPods-RnDiffApp-tvOSTests.a in Frameworks */ = {isa = PBXBuildF
ile; fileRef = FCEF1E5B805FC5A281786439 /* libPods-RnDiffApp-tvOSTests.a */; };
21    C4FF6908C625E3F0B0D5ABF /* libPods-RnDiffApp-RnDiffAppTests.a in Frameworks */ = {isa = PBXB
uildFile; fileRef = 8F540A4D172F1F53B4CEAC37 /* libPods-RnDiffApp-RnDiffAppTests.a */; };
22    FEA69ADB84A303ACA129C954 /* libPods-RnDiffApp.a in Frameworks */ = {isa = PBXBuildFile; fileR
ef = 808D9A00AB0D707A05E9C4FC /* libPods-RnDiffApp.a */; };
23    /* End PBXBuildFile section */
24
25    /* Begin PBXContainerItemProxy section */
26
27    @@ -44,29 +44,29 @@
28        00E356EE1AD99517003FC87E /* RnDiffAppTests.xctest */ = {isa = PBXFileReference; explicitFileT
ype = wrapper.cfbundle; includeInIndex = 0; path = RnDiffAppTests.xctest; sourceTree = BUILT_PRODUCTS_DIR; };
29        00E356F11AD99517003FC87E /* Info.plist */ = {isa = PBXFileReference; lastKnownFileType = tex
t.plist.xml; path = Info.plist; sourceTree = "<group>"; };
30        00E356F21AD99517003FC87E /* RnDiffAppTests.m */ = {isa = PBXFileReference; lastKnownFileType
= sourcecode.c.objc; path = RnDiffAppTests.m; sourceTree = "<group>"; };

31        13B07F961A680F5B00A75B9A /* RnDiffApp.app */ = {isa = PBXFileReference; explicitFileType = wr
apper.application; includeInIndex = 0; path = RnDiffApp.app; sourceTree = BUILT_PRODUCTS_DIR; };
32        13B07FAF1A68108700A75B9A /* AppDelegate.h */ = {isa = PBXFileReference; fileEncoding = 4; las
tKnownFileType = sourcecode.c.h; name = AppDelegate.h; path = RnDiffApp/AppDelegate.h; sourceTree = "<group
>"; };
33        13B07FB01A68108700A75B9A /* AppDelegate.m */ = {isa = PBXFileReference; fileEncoding = 4; las
tKnownFileType = sourcecode.c.objc; name = AppDelegate.m; path = RnDiffApp/AppDelegate.m; sourceTree = "<grou
p>"; };
34        13B07FB21A68108700A75B9A /* Base */ = {isa = PBXFileReference; lastKnownFileType = file.xib;

48        00E356EE1AD99517003FC87E /* RnDiffAppTests.xctest */ = {isa = PBXFileReference; explicitFileT
ype = wrapper.cfbundle; includeInIndex = 0; path = RnDiffAppTests.xctest; sourceTree = BUILT_PRODUCTS_DIR; };
49        00E356F11AD99517003FC87E /* Info.plist */ = {isa = PBXFileReference; lastKnownFileType = tex
t.plist.xml; path = Info.plist; sourceTree = "<group>"; };
50        00E356F21AD99517003FC87E /* RnDiffAppTests.m */ = {isa = PBXFileReference; lastKnownFileType
= sourcecode.c.objc; path = RnDiffAppTests.m; sourceTree = "<group>"; };
51        0337F866BBF58F82CD535A55 /* libPods-RnDiffApp-tvOS.a */ = {isa = PBXFileReference; explicitFi
leType = archive.ar; includeInIndex = 0; path = "libPods-RnDiffApp-tvOS.a"; sourceTree = BUILT_PRODUCTS_DIR;
};

52        13B07F961A680F5B00A75B9A /* RnDiffApp.app */ = {isa = PBXFileReference; explicitFileType = wr
apper.application; includeInIndex = 0; path = RnDiffApp.app; sourceTree = BUILT_PRODUCTS_DIR; };
53        13B07FAF1A68108700A75B9A /* AppDelegate.h */ = {isa = PBXFileReference; fileEncoding = 4; las
tKnownFileType = sourcecode.c.h; name = AppDelegate.h; path = RnDiffApp/AppDelegate.h; sourceTree = "<group
>"; };
54        13B07FB01A68108700A75B9A /* AppDelegate.m */ = {isa = PBXFileReference; fileEncoding = 4; las
tKnownFileType = sourcecode.c.objc; name = AppDelegate.m; path = RnDiffApp/AppDelegate.m; sourceTree = "<grou
p>"; };
55        13B07FB21A68108700A75B9A /* Base */ = {isa = PBXFileReference; lastKnownFileType = file.xib;
```

```

74         isa = PBXFrameworksBuildPhase;
75         buildActionMask = 2147483647;
76         files = (
77             C5465B0C2DA5FC8811C8600F /* libPods-RnDiffApp-RnDiffAppTests.a in Frameworks */,
78         );
79         runOnlyForDeploymentPostprocessing = 0;
80     };
81     @@ -82,7 +82,7 @@
82         isa = PBXFrameworksBuildPhase;
83         buildActionMask = 2147483647;
84         files = (
85             E4D225D649DF4A69CD1D47AA /* libPods-RnDiffApp.a in Frameworks */,
86         );
87         runOnlyForDeploymentPostprocessing = 0;
88     };
89     @@ -90,7 +90,7 @@
90         isa = PBXFrameworksBuildPhase;
91         buildActionMask = 2147483647;
92         files = (
93             5432F7EB7F7F4537A837621A /* libPods-RnDiffApp-tvOS.a in Frameworks */,
94         );
95         runOnlyForDeploymentPostprocessing = 0;
96     };
97     @@ -98,7 +98,7 @@
98         isa = PBXFrameworksBuildPhase;
99         buildActionMask = 2147483647;
100        files = (
101            7DA60D6A41F36271428AE19D /* libPods-RnDiffApp-tvOSTests.a in Frameworks */,
102        );
103        runOnlyForDeploymentPostprocessing = 0;
104    };
105    @@ -130,7 +130,7 @@
106        13B07FB01A68108700A75B9A /* AppDelegate.m */,
107        13B07FB51A68108700A75B9A /* Images.xcassets */,
108        13B07FB61A68108700A75B9A /* Info.plist */,
109        13B07FB11A68108700A75B9A /* LaunchScreen.xib */,
110        13B07FB71A68108700A75B9A /* main.m */,
111    );
112    name = RnDiffApp;
113    @@ -141,30 +141,14 @@
114        children = (
115            ED297162215061F000B7C4FE /* JavaScriptCore.framework */,
116            ED2971642150620600B7C4FE /* JavaScriptCore.framework */,
117            6363838C2C9AC1ED8E8695DB /* libPods-RnDiffApp.a */,
118            AA19CB7647AA9CD05007354A /* libPods-RnDiffApp-RnDiffAppTests.a */,
119            1D244570B607F65944D330F5 /* libPods-RnDiffApp-tvOS.a */,
120            94208395677DFCD97160A544 /* libPods-RnDiffApp-tvOSTests.a */,
121        );
122    
```

```

151     };
152     52F58FE8BF6BEB13262C8F26 /* Pods */ = {
153         isa = PBXGroup;
154         children = (
155             1D7940FBF7CA3D1E2A5703FE /* Pods-RnDiffApp.debug.xcconfig */,
156             CE1F942EA789CD670A78DAF8 /* Pods-RnDiffApp.release.xcconfig */,
157             88185B6F69F96250716C8945 /* Pods-RnDiffApp-RnDiffAppTests.debug.xcconfig */,
158             46C031C99BA087C7D414BD9A /* Pods-RnDiffApp-RnDiffAppTests.release.xcconfig */
159         ,
160         9A1258F906FAEF290E80800D /* Pods-RnDiffApp-tvOS.debug.xcconfig */,
161         6F67B95AB047EFB4CDC1E4AC /* Pods-RnDiffApp-tvOS.release.xcconfig */,
162         736DC2F0EF0CECD14EBBE3AF /* Pods-RnDiffApp-tvOSTests.debug.xcconfig */,
163         D53A7F37504E7AE125015E53 /* Pods-RnDiffApp-tvOSTests.release.xcconfig */,
164     );
165     name = Pods;
166     path = Pods;
167     sourceTree = "<group>";
168 };
169 832341AE1AAA6A7D00B99B32 /* Libraries */ = {
170     isa = PBXGroup;
171     children = (
172     @@ -180,7 +164,7 @@
173         00E356EF1AD99517003FC87E /* RnDiffAppTests */,
174         83CBBA001A601CBA00E9B192 /* Products */,
175         2D16E6871FA4F8E400B85C8A /* Frameworks */,
176         52F58FE8BF6BEB13262C8F26 /* Pods */,
177     );
178     indentWidth = 2;
179     sourceTree = "<group>";
180 };
181 832341AE1AAA6A7D00B99B32 /* Libraries */ = {
182     isa = PBXGroup;
183     children = (
184     @@ -198,6 +182,22 @@
185         name = Products;
186         sourceTree = "<group>";
187     };
188     00E356EF1AD99517003FC87E /* RnDiffAppTests */,
189     83CBBA001A601CBA00E9B192 /* Products */,
190     2D16E6871FA4F8E400B85C8A /* Frameworks */,
191     ED69412BC9F32521A81E82E7 /* Pods */,
192     63C52600466C5C59690F4977 /* Pods-RnDiffApp.debug.xcconfig */,
193     2AA0104DAA5A4D5FDEE017C /* Pods-RnDiffApp.release.xcconfig */,
194     A32A329B1E6531BAB205894C /* Pods-RnDiffApp-RnDiffAppTests.debug.xcconfig */,
195     EF52E05E4D06F498444E6621 /* Pods-RnDiffApp-RnDiffAppTests.release.xcconfig */,
196     ,
197     D7942F91B151ACBE7A401D57 /* Pods-RnDiffApp-tvOS.debug.xcconfig */,
198     803E696069C4431D7428B474 /* Pods-RnDiffApp-tvOS.release.xcconfig */,
199     9471CB48B91478B1035D80D7 /* Pods-RnDiffApp-tvOSTests.debug.xcconfig */,
200     202951ED150B77E8B36FBCB1 /* Pods-RnDiffApp-tvOSTests.release.xcconfig */,
201     );
202     name = Pods;
203     path = Pods;
204     sourceTree = "<group>";
205   };
206 };
207 832341AE1AAA6A7D00B99B32 /* Libraries */ = {
208     isa = PBXGroup;
209     children = (
210     @@ -180,7 +164,7 @@
211         00E356EF1AD99517003FC87E /* RnDiffAppTests */,
212         83CBBA001A601CBA00E9B192 /* Products */,
213         2D16E6871FA4F8E400B85C8A /* Frameworks */,
214         ED69412BC9F32521A81E82E7 /* Pods */,
215         63C52600466C5C59690F4977 /* Pods-RnDiffApp.debug.xcconfig */,
216         2AA0104DAA5A4D5FDEE017C /* Pods-RnDiffApp.release.xcconfig */,
217         A32A329B1E6531BAB205894C /* Pods-RnDiffApp-RnDiffAppTests.debug.xcconfig */,
218         EF52E05E4D06F498444E6621 /* Pods-RnDiffApp-RnDiffAppTests.release.xcconfig */,
219         ,
220         D7942F91B151ACBE7A401D57 /* Pods-RnDiffApp-tvOS.debug.xcconfig */,
221         803E696069C4431D7428B474 /* Pods-RnDiffApp-tvOS.release.xcconfig */,
222         9471CB48B91478B1035D80D7 /* Pods-RnDiffApp-tvOSTests.debug.xcconfig */,
223         202951ED150B77E8B36FBCB1 /* Pods-RnDiffApp-tvOSTests.release.xcconfig */,
224         );
225         name = Pods;
226         path = Pods;
227         sourceTree = "<group>";
228       };
229   };
230 };
231 /* End PBXGroup section */
232

```

React Native Core and Community are working hard.

Besides the many improvements and new features shipped, tooling has been getting better too:

- CocoaPods was added, making manual linking a thing of the past.
- upgrade-helper was created, making manual upgrading easier.

I've had this idea for a while:

Wouldn't it be nice if my Xcode project was more like package.json?

XcodeGen is here to save the day!

<https://github.com/yonaskolb/XcodeGen>

It can generate an Xcode project from a `project.yml` file.

Imagine `project.yml` is `package.json` and `MyProject.xcodeproj` is `yarn.lock`.

Visit <https://github.com/pvinis/react-native-xcodegen> to get set up.

Steps:

- Install `xcodegen` and `xunique`.
- Copy `make` into your `ios` dir of your project.
- Find the right project file for your RN version from `templates`.
- Copy into your `ios` dir of your project and rename to `project.yml`.
- Done. You can now run `./make` from inside `ios` dir to have your Xcode project generated.

Demo

Adding libraries 1/3

No native code, nothing changes.

- yarn add ramda

Adding libraries 2/3

With native code, tiny change.

Old way

- yarn add react-native-permissions
- cd ios && pod install

New way

- yarn add react-native-permissions
- cd ios && ./make

<https://github.com/pvinis/talk-xcodegen-rn/commit/8940952a5d046ea0ef2db856ed3418e9bcfa91e9>

Adding libraries 3/3

Adding native code yourself, simple.

- Create the `native` files with or without Xcode
- Make sure they are in the target's sources in `project.yml`
- `cd ios && ./make`

<https://github.com/pvinis/talk-xcodegen-rn/commit/90ff2d1ac34b34ad6b229c9b7b486e9e457f9a78>

<https://github.com/pvinis/talk-xcodegen-rn/tree/master/code/MyProject/ios/MyProject> <https://github.com/pvinis/talk-xcodegen-rn/blob/master/code/MyProject/ios/project.yml>

How do I upgrade next time

Look for updated template in <https://github.com/pvinis/react-native-xcodegen>.

Otherwise check the upgrade-helper xcdeproj diffs for anything interesting.

<https://react-native-community.github.io/upgrade-helper/?from=0.62.2&to=0.63.0>

<https://github.com/pvinis/talk-xcodegen-rn/commit/286c0f5b7a18b8a2b68db41e44c1702860f94173>

Takeaways 1/3

XcodeGen is a great way to keep complicated upgrades simple.

From <https://github.com/react-native-community/upgrade-support/issues/13>

To <https://github.com/pvinis/talk-xcodegen-rn/commit/286c0f5b7a18b8a2b68db41e44c1702860f94173#diff-5b58604e7164c95a2602ad5b5fab7235>

Takeaways 2/3

Read the docs and specs of XcodeGen if you'd like to learn more.

<https://github.com/yonaskolb/XcodeGen/tree/master/Docs>

Takeaways 3/3

XcodeGen has no way **right now** to generate a project.yml from an existing xcdeproj, but it is being **worked on**.

That means when a new Xcode setting is changed, we need to look for the **right** **yml name** for it.

Or grab the **latest template** project.yml file and merge it with any changes we might already have.

<https://github.com/yonaskolb/XcodeGen/pull/735>

<https://github.com/pvinis/react-native-xcodegen>

Work to be done

- Keep the templates up-to-date with the diffs and upgrade-helper
- Make an RFC and a PR on react-native to add a `project.yml` to the init template

- Go set this up for your project
- Try it out
- Make issues for things that might not work for your project

Find me on twitter.



Thank you ❤

- [@ me](https://twitter.com/pvinis)
- p01.co/talk-xcodegen (this talk)
- p01.co/rn-xcodegen (tempate files)
- artsy.net (where I work)
- pvin.is (my blog, 🚧)
- pavlos.dev (my portfolio, 🚧)