Week12- Topics

PhoneGap Intro

PhoneGap

PhoneGap is a free and open source framework that allows you to create mobile apps using standardized web APIs for native platforms (iPhone, Android, etc.)

Phonegap is a bridge between HTML/CSS/JS and native code.

- Code your app as regular web app
- Connect with PhoneGap API to add native system functionality

Knowledge of native code (Objective-C / Java) is not necessary but can be helpful

PhoneGap

Developed by Nitobi Software

Bought by Adobe

PhoneGap is the commercial name for Apache Cordova

PhoneGap/Cordova was contributed to Apache Software Foundation by Adobe

https://cordova.apache.org/

PhoneGap

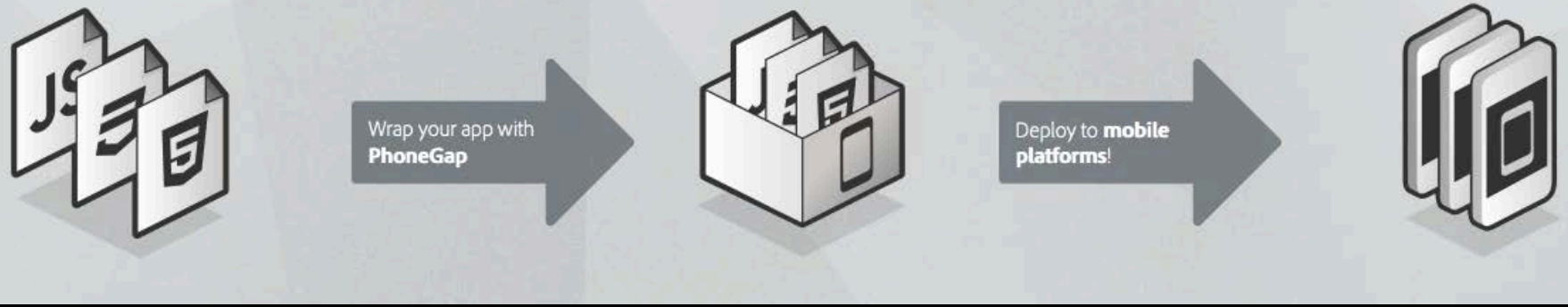
Free

+

Based on open source standards

Native APIs

1. Build your app based on open web standards
2. Wrap with PhoneGap
3. Deploy to multiple platforms



PhoneGap

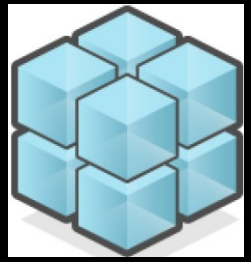
is a framework for mobile app development using standard web technologies:

HTML/HTML5 – content

CSS/ CSS3 – style

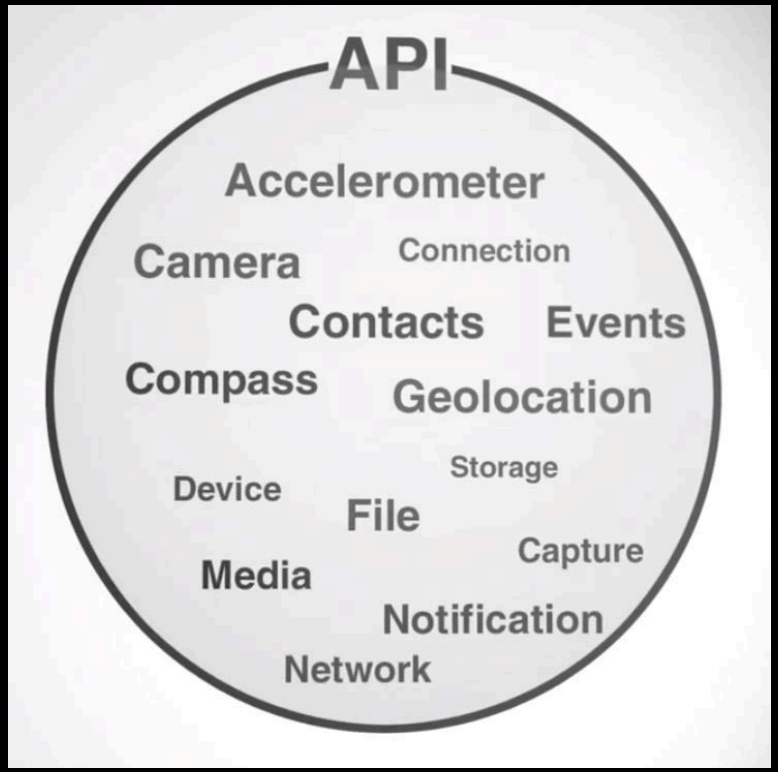
JavaScript - accessing device functionality, logic, interactivity

PhoneGap



Access native features

PhoneGap

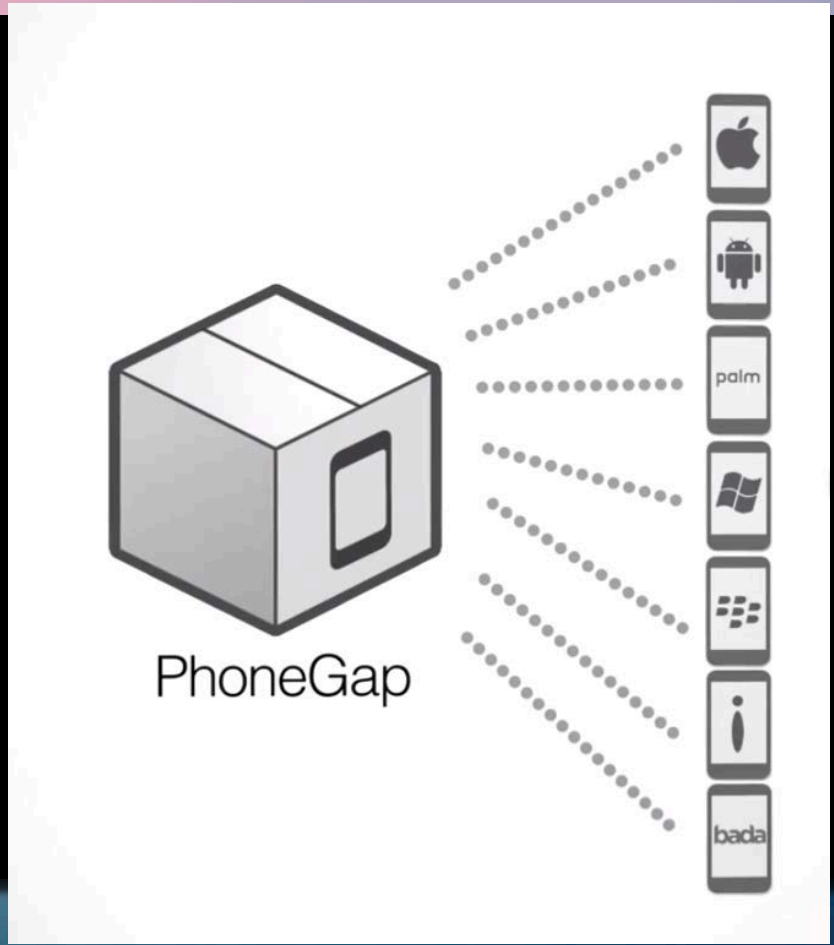


Native APIs

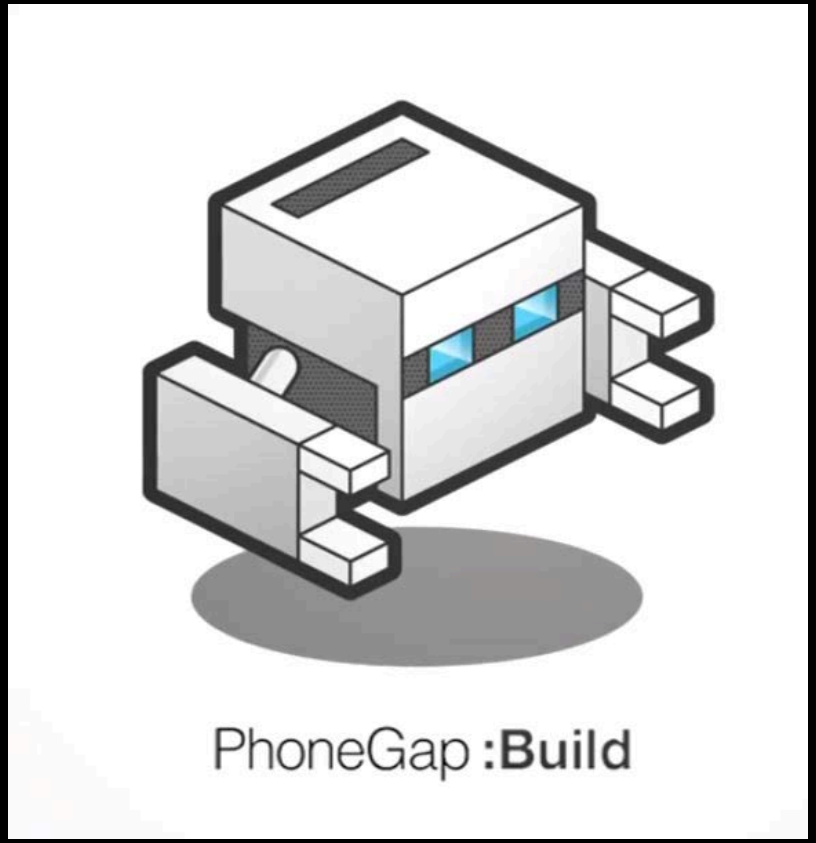
PhoneGap

Deploy your app to Multiple Platforms

PhoneGap



PhoneGap



PhoneGap

PhoneGap applications are web pages that access mobile device functionality (i.e. iPhone)

CSS transitions and animations are hardware accelerated on the iPhone, so Apps can provide a rich experience

HTML5 Canvas element used in games built with PhoneGap

PhoneGap – Example Apps

http://phonegap.com/app/

Native APIs

Geolocation
Contacts
Camera
Accelerometer: Access to device motion sensors
Device: Gather device specific information
Network: Quickly check the network state
Events: Hook into native events through JavaScript
Notification: Visual and audible device notifications
File: Hook into native file system through JavaScript

Native APIs

API Reference Documentation

http://docs.phonegap.com/en/1.9.0/index.html

Supported Features

	iPhone / iPhone 3G	iPhone 3GS and newer	Android	Blackberry OS 6.0+	Blackberry 10	WebOS	Windows Phone 7 + 8	Symbian	Bada
Accelerometer	✓	✓	✓	✓	✓	✓	✓	✓	✓
Camera	✓	✓	✓	✓	✓	✓	✓	✓	✓
Compass	X	✓	✓	X	✓	✓	✓	X	✓
Contacts	✓	✓	✓	✓	✓	X	✓	✓	✓
File	✓	✓	✓	✓	✓	X	✓	X	X
Geolocation	✓	✓	✓	✓	✓	✓	✓	✓	✓
Media	✓	✓	✓	X	✓	X	✓	X	X
Network	✓	✓	✓	✓	✓	✓	✓	✓	✓
Notification (Alert)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Notification (Sound)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Notification (Vibration)	✓	✓	✓	✓	✓	✓	✓	✓	✓
Storage	✓	✓	✓	✓	✓	✓	✓	X	X

✓ - supported feature

X - unsupported feature due to hardware or software restrictions

Native APIs

PhoneGap provides a bridging library to access the device features and handles communication with the native OS

Many JS frameworks started to emerge for mobile devices: jQuery, JQM, Sencha Touch, Dojo, etc.

PhoneGap

PhoneGap is just a library that you must include in your app

- Couple of JavaScript and xml files

What is PhoneGap doing?

- PhoneGap generates a out-of-the-browser window that executes the HTML and JavaScript
- Due to a couple of xml and jar/dll files it enables the usage of native APIs

PhoneGap Custom Plugins

Extensible with a native plugin model that enables you to write your own native logic to access via JavaScript

Open source plugins at:

https://github.com/phonegap/phonegap-plugins

PhoneGap intro

Getting Started Guides
http://docs.phonegap.com/en/3.4.0/index.html

Phonegap google groups
https://groups.google.com/forum/#!forum/phonegap

PhoneGap example

```
function capturePhoto() {
navigator.camera.getPicture(onPhotoDataSuccess, onFail,
{ quality: 50 });
}
function onPhotoDataSuccess(imageData) {
var smallImage = document.getElementById('smallImage');
smallImage.style.display = 'block';
smallImage.src = "" + imageData;
}
function onFail(mesage) { alert('Failed because: ' + message); }
```

PhoneGap example

```
<body onload="onLoad()">

<button onclick="capturePhoto();">Capture Photo</button>
<br>

<img style="display:none;width:60px;height:60px;"
id="smallImage" src="" />

</body>

</html>
```

PhoneGap

You use the same web view of the native OS

iOS = UIWebView

Android = ondroid.webkit.WebView

Why PhoneGap?

- Develop once, run in many devices
- Use familiar web tools (HTML, CSS, JavaScript)
- Reduced number of required skills
- Reduced development cost
- Reduced maintenance cost

Pros and Cons

HTML5, CSS3 and JavaScript skills

Cross platform

Single code base for all platforms

- iOS, Android, WP 7, etc.

Objective-C, Java and C# skills

Poor performance

- If the app is graphically intense, i.e. a game
- Caching or leveraging some 3rd party solutions may be implemented with native graphics
- For the most part a native app is much faster/smoother than mobile web app

Pros and Cons

Takes advantage of distribution stores:

- Apple Store
- Android Market

Quicker way to the market in general then with natives apps

Lack of pre-built UI transitions, standard controls, widgets

Therefore the development time can take longer

Ex. For a polished-looking app with a native look and feel

PhoneGap - Links

Phonegap Installation

http://docs.phonegap.com/en/3.0.0/guide_cli_index.md.html#The%20Command-line%20Interface

Phonegap Documentation

http://docs.phonegap.com/en/3.4.0/index.html

iOS Platform Guide

http://docs.phonegap.com/en/3.0.0/guide_platforms_ios_index.md.html#iOS%20Platform%20Guide

iOS Developer Center

https://developer.apple.com/devcenter/ios/index.action

PhoneGap - Export to Device

1. install SDKs for the native device platform (iOS SDK)
2. Otherwise, you can use the cloud-based PhoneGap Build service to compile apps

PhoneGap - Export to Device

Install the SDK

1. from the App Store, available by searching for "Xcode" in the App Store application

2. from Apple Developer Downloads, which requires registration as an Apple Developer

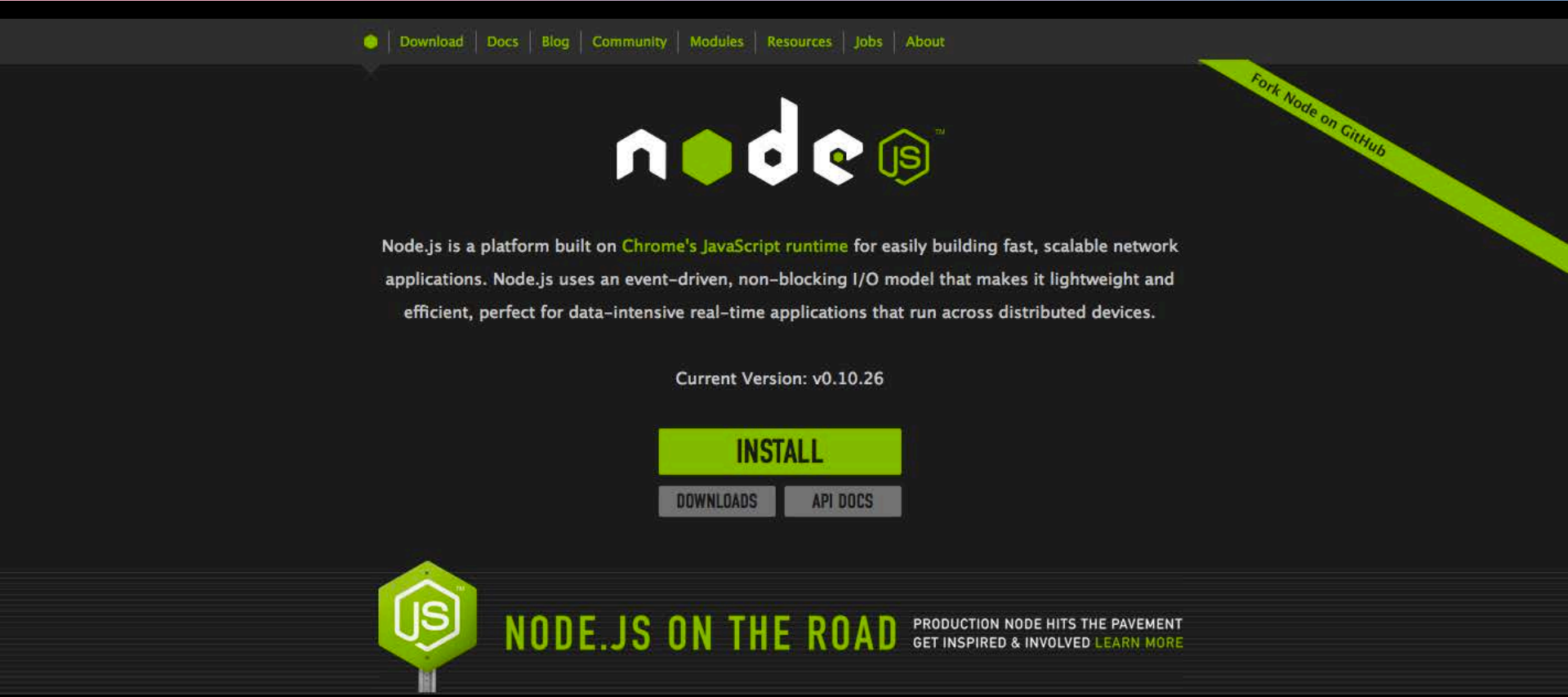
PhoneGap - Export to Device

Install the phonegap command-line tool (CLI):

1. Download and install Node.js

   http://nodejs.org/

PhoneGap – node.js



PhoneGap - Export to Device

2. Install the phonegap utility

Use terminal to type in the command:

$ sudo npm install -g phonegap

PhoneGap - Export to Device

3. Create the app

Use terminal to type in the command:

$ phonegap create hello com.example.hello HelloWorld

PhoneGap - Export to Device

4. Build the app

Use terminal to type in the command:

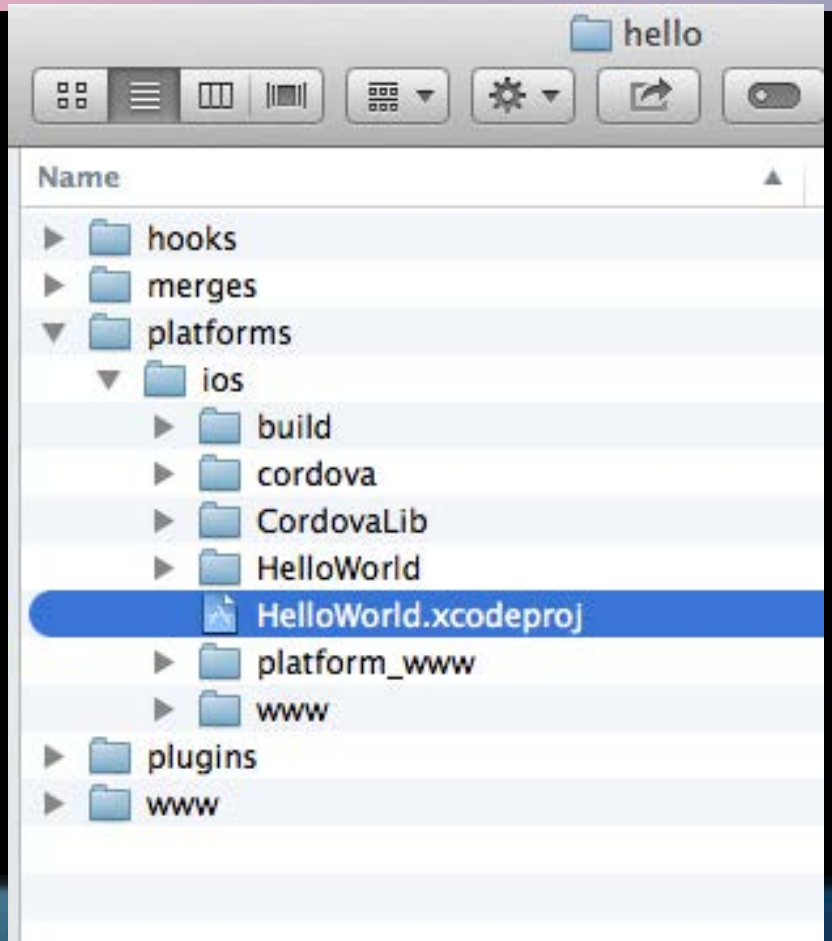
```
$ cd hello

$ phonegap build ios
  [phonegap] detecting iOS SDK environment...
  [phonegap] using the local environment
  [phonegap] compiling iOS...
  [phonegap] successfully compiled iOS app
```

PhoneGap - Export to Device

5. Test the app on device or simulator

```
$ phonegap install ios
```

PhoneGap - Export to Device



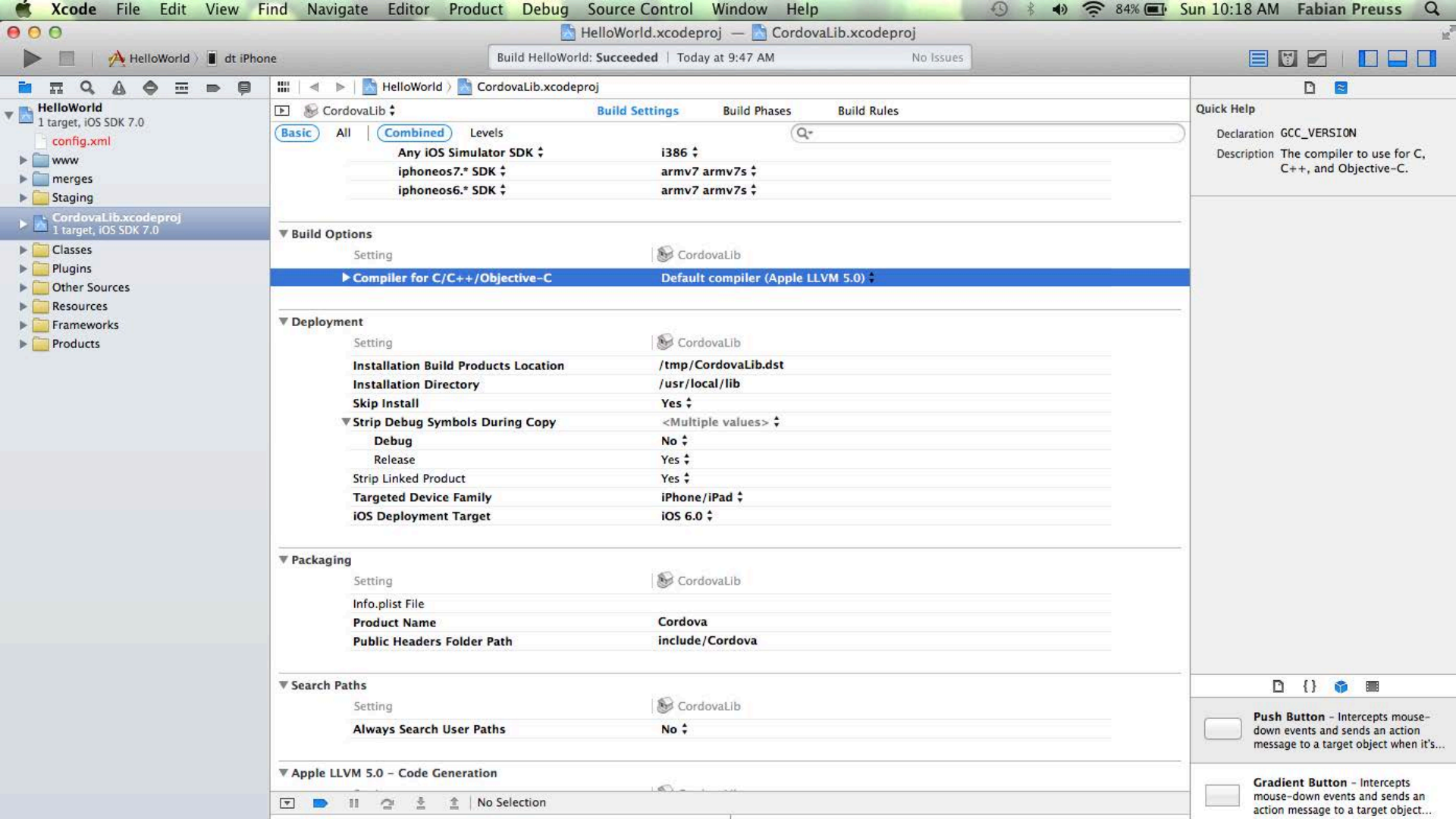
PhoneGap - Export to Device

6. Test the app on device or simulator

```
$ phonegap run ios
```

PhoneGap - Export to Device

Open a Project in the SDK (Xcode)


Xcode File Edit View Find Navigate Editor Product Debug Source Control Window Help
84% Sun 10:18 AM Fabian Preuss
HelloWorld.xcodeproj — CordovaLib.xcodeproj
HelloWorld dt iPhone
Build HelloWorld: Succeeded | Today at 9:47 AM
No Issues
HelloWorld
1 target, iOS SDK 7.0
config.xml
www
merges
Staging
CordovaLib.xcodeproj
1 target, iOS SDK 7.0
Classes
Plugins
Other Sources
Resources
Frameworks
Products
HelloWorld CordovaLib.xcodeproj
CordovaLib
Build Settings
Build Phases
Build Rules
Basic All Combined Levels
Any iOS Simulator SDK i386
iphoneos7.* SDK armv7 armv7s
iphoneos6.* SDK armv7 armv7s
Build Options
Setting CordovaLib
Compiler for C/C++/Objective-C Default compiler (Apple LLVM 5.0)
Deployment
Setting CordovaLib
Installation Build Products Location /tmp/CordovaLib.dst
Installation Directory /usr/local/lib
Skip Install Yes
Strip Debug Symbols During Copy <Multiple values>
Debug No
Release Yes
Strip Linked Product Yes
Targeted Device Family iPhone/iPad
iOS Deployment Target iOS 6.0
Packaging
Setting CordovaLib
Info.plist File
Product Name Cordova
Public Headers Folder Path include/Cordova
Search Paths
Setting CordovaLib
Always Search User Paths No
Apple LLVM 5.0 – Code Generation
No Selection
Quick Help
Declaration GCC_VERSION
Description The compiler to use for C, C++, and Objective-C.
Push Button – Intercepts mouse-down events and sends an action message to a target object when it's...
Gradient Button – Intercepts mouse-down events and sends an action message to a target object...

PhoneGap - Export to Device

Deploy to Simulator

- Make sure the *.xcodeproj* file is selected in the left panel.
- Select the hello app in the panel immediately to the right.
- Select the intended device from the toolbar's Scheme menu, such as the iPhone 6.0 Simulator
- Press the Run button. That builds, deploys and runs the application in the emulator.

PhoneGap - Export to Device

Deploy to connected device

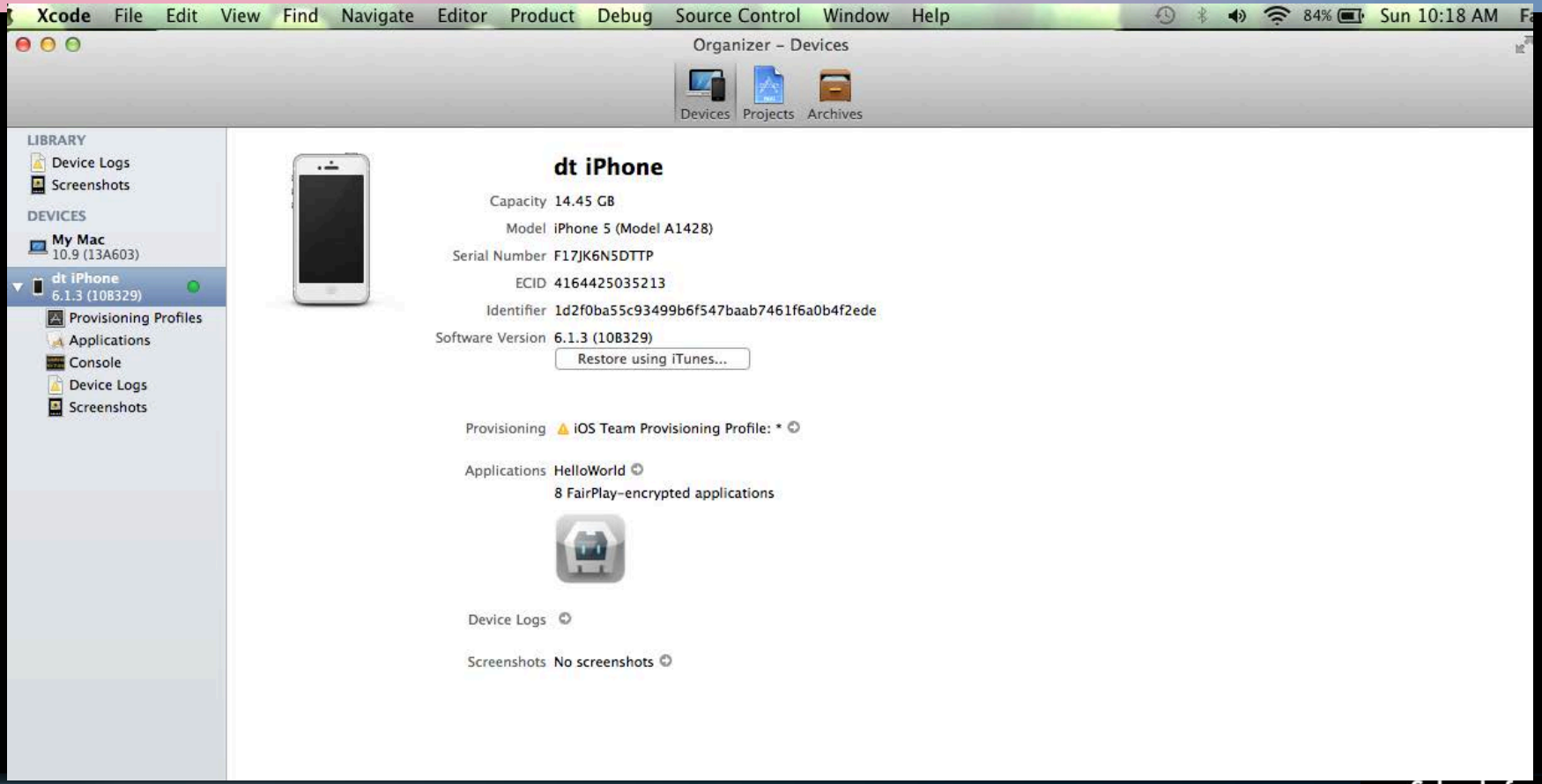
- Join the Apple iOS Developer Program.
- Create a *Provisioning Profile* within the iOS Provisioning Portal. You can use its *Development Provisioning Assistant* to create and install the profile and certificate Xcode requires.
- Verify that the *Code Signing* section's *Code Signing Identity* within the project settings is set to your provisioning profile name.

PhoneGap - Export to Device

Deploy to connected device

- Use the USB cable to plug the device into your Mac.
- Select the name of the project in the Xcode window's Scheme drop-down list.
- Select your device from the Device drop-down list.
- Press the Run button to build, deploy and run the application on your device.

PhoneGap - Export to Device



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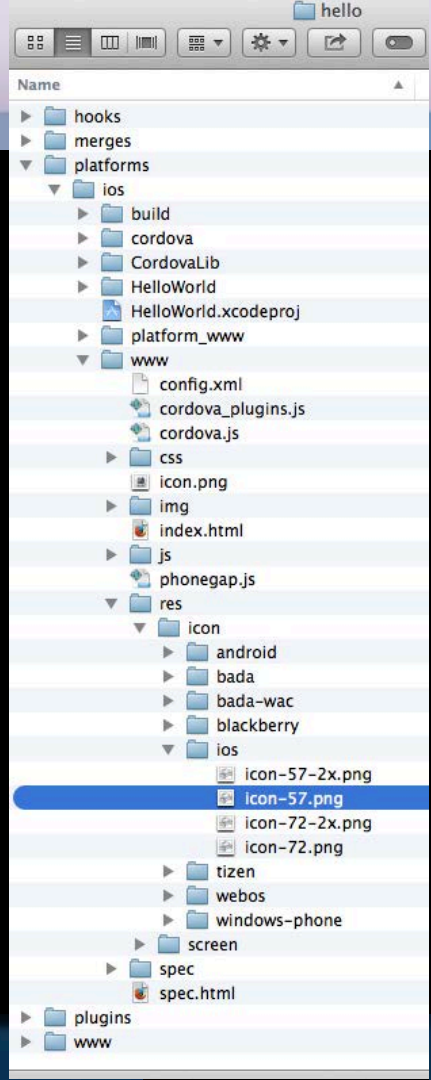
PhoneGap App Icon

The iOS platform specifies:

72-pixel-square icons for iPads
57-pixel icons for iPhones and iPods
with high-resolution 2x variants for retina displays

ios/icon-57-2x.png
ios/icon-57.png
ios/icon-72-2x.png
ios/icon-72.png



PhoneGap Splash Screen

Use the Splashscreen API to enable display of an app's introductory splash screen.

In the CLI splash screen source files are in www/res/screens subdirectory

- ios/screen-ipad-landscape-2x.png
- ios/screen-ipad-landscape.png
- ios/screen-ipad-portrait-2x.png
- ios/screen-ipad-portrait.png
- ios/screen-iphone-landscape-2x.png
- ios/screen-iphone-landscape.png
- ios/screen-iphone-portrait-2x.png
- ios/screen-iphone-portrait.png