Jenkins

Your personal butler for continuous integration and build automation in iOS
Hi, I’m Ben

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I work for Chaione

Houston, TX

iOS, Android, Rails, Coffee, Beer

I’m hiring!

Friday, March 8, 13
I make screencasts

NSScreencast
Weekly screencasts on iOS Development

$9/month

http://nsscreencast.com
Continuous Integration
Integration Problems

- Machine-specific configuration
- Merge conflicts
- Contention on core files (project.pbxproj)
- Bad changes committed
- Updating certificates / profiles
Actions, Pain, & Frequency

http://martinfowler.com/bliki/FrequencyReducesDifficulty.html
When something is painful, **do it more often**
“Many teams find that this approach leads to significantly reduced integration problems and allows a team to develop cohesive software more rapidly”

- Martin Fowler
Fowler’s Tenets of CI
Maintain a single repository
Automate the build
Build passes or fails
Everyone commits to master every day
Build runs on every commit
Easy to retrieve latest build
Automate Deployment
...more!
Ben's Tenet of CI:
GIVE A CRAP
WHEN THE BUILD IS BROKEN
Build a culture concerned with quality
<table>
<thead>
<tr>
<th>PPTools #572</th>
<th>DeleteOldPipelineData #783</th>
<th>Grouper-calibration #664</th>
<th>Grouper-demonstrator #1293</th>
<th>Grouper-event-detection-vhdl-test #65</th>
<th>Grouper-aeroflex-test #184</th>
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<tbody>
<tr>
<td>Grouper-update-test #139</td>
<td>GrouperDevserve #659</td>
<td>GrouperOnBlade-all_recipes #573</td>
<td>GrouperOnBlade-memleak_system_test #645</td>
<td>GrouperProd #858</td>
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<td>GrouperTrunk-multiplex_system_test #385</td>
<td>GrouperTrunk-raw_data_system_test #1045</td>
<td>GrouperTrunk-system_test #2300</td>
<td>GrouperTrunk-system_test_aeroflex #544</td>
<td>GrouperTrunk-weekend-test #38</td>
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<td>PaddleFish-rpm #386</td>
<td>PaddleFish #395</td>
<td>SampleCPP #405</td>
<td>SystemBoard #708</td>
<td>barrage #341</td>
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<tr>
<td>barracuda-lite-trunk #331</td>
<td>barracuda-prerelease-71.0 #46</td>
<td>barracuda-trunk #1082</td>
<td>barramundi-prerelease-1.0 #702</td>
<td>blackfin-prerelease-5.0 #46</td>
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<td>conger-pipeline-trunk-memleak #683</td>
<td>conger-pipeline-trunk #1650</td>
<td>conger-rpm-tag #56</td>
<td>conger-trunk #912</td>
<td>fast5to3 #253</td>
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<tr>
<td>ouper-api-prerelease-0.5 #331</td>
<td>grouper-api-trunk #493</td>
<td>moray-pipeline-trunk #415</td>
<td>moray-prerelease-10.0 #1</td>
<td>ont-hdf5-prerelease-1.0 #26</td>
<td>stickleback-trunk #562</td>
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<tr>
<td>ickleback-trunk #562</td>
<td>swordfish-prerelease-3.0 #128</td>
<td>swordfish-stable #105</td>
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</tbody>
</table>
Bubble, Bubble, Build's In Trouble
CI Servers

- Jenkins
- Travis
- TeamCity
- CruiseControl (.NET)
- CI Joe
Installing Jenkins

$ brew install jenkins
Useful plugins

- Git plugin
- Xcode
- Testflight
- Sounds
- HTML Publisher
More useful plugins

Github Plugin
IM Notifier
Status Monitor
Hipchat Notifier (or Campfire)
100’s of others
So we have a CI Server, now what?
Have it run the build on every commit
What is “the build”?
A Definition of “the Build”
Compiles
Runs Static Analyzer
Generates Documentation
Archives dSYMs
Increments build number
Inspects for code smells

Runs Unit Tests
Packages IPAs
Uploads to Testflight
Publishes Code Coverage Reports
Installs the latest distribution certificates & profiles

Friday, March 8, 13
1 command
Set up your CI Machine just like your Dev Machines
Our Mission:

Figure out how to do all that....

ON THE COMMAND LINE
Rake

Easy
Awesome
Better than Bash scripting
Building the Xcode Project

```
xcodebuild -workspace Foo.xcworkspace \ 
  -scheme Foo \ 
  -sdk iphonesimulator \ 
  -configuration Debug \ 
  ONLY_ACTIVE_ARCH=NO 
  clean build
```
Running Tests

```bash
xcodebuild -workspace Foo.xcworkspace \
    -scheme Foo \n    -sdk iphonesimulator \n    -configuration Debug \n    ONLY_ACTIVE_ARCH=NO \n    TEST_AFTER_BUILD=YES \n    clean build
```
Red / Green Test Output

Run test suite SocialAppTests
Run test case testExample

Run test case testMath
/Users/ben/Dropbox/presentations/2013/cocoa-conf-chicago/jenkins/SocialApp/SocialAppTests/SocialAppTests should be equal to '3': Math is broken

Executed 2 tests, with 1 failure (0 unexpected) in 0.000 (0.000) seconds

Executed 2 tests, with 1 failure (0 unexpected) in 0.000 (0.001) seconds

/Applications/Xcode.app/Contents/Developer/Tools/RunPlatformUnitTests.include:448: error: Failed tests for
/Applications/Xcode.app/Contents/Developer/Tools/RunPlatformUnitTests.include:462: note: Completed tests

=== BUILD NATIVE TARGET Pods OF PROJECT Pods WITH CONFIGURATION Debug ===

=== BUILD NATIVE TARGET SocialApp OF PROJECT SocialApp WITH CONFIGURATION Debug ===

** BUILD FAILED **

https://gist.github.com/subdigital/3931414  * Works best with Kiwi
XcodeBuild::Tasks::BuildTask.new do |t|
  t.sdk = "iphoneos"
  t.configuration = "Release"
  t.workspace = workspace
  t.scheme = scheme
  t.add_build_setting("ONLY_ACTIVE_ARCH", "NO")
  t.after_build do |build|
    derived_dir = build.environment['BUILT_PRODUCTS_DIR']
    `rm -rf #{output_dir} && mkdir -p #{output_dir}`
    `cp -R #{derived_dir}/* #{output_dir}`
  end
  t.formatter = XcodeBuild::Formatters::ProgressFormatter.new
end
Xcodebuild-rb

$ rake -T

rake xcode:archive
# Creates an archive build of the specified target(s).
rake xcode:build
# Builds the specified target(s).
rake xcode:clean
# Cleans the build using the same build settings.
rake xcode:cleanbuild
# Builds the specified target(s) from a clean slate.
rake xcode:install
# Builds and installs the target
rake xcode:settings
# Prints the full Xcode build settings
Why Xcodebuild-rb?

- Integration with Rake
- Easily find BUILT_PRODUCTS_DIR
- Progress Formatter!
=> Running xcodebuild build

Building target: SocialAppTests (in SocialApp.xcproject)
=================================================================

Configuration: Release

Building target: Pods (in Pods.xcproject)
=================================================================

Configuration: Release

Building target: SocialApp (in SocialApp.xcproject)
=================================================================

Configuration: Release

Finished in 2.571599 seconds.
Build succeeded.
Building an IPA

/usr/bin/xcrun -sdk iphoneos PackageApplication -v "build/Foo.app" -o "build/Foo.ipa"
What about Code Signing?
Installing certificates

TIP: create a keychain for Jenkins
Installing certificates

security unlock -p jenkins jenkins

security import provisioning/ios_distribution.p12 \\ 
-k ~/Library/Keychains/jenkins \ 
-P jenkins
Dir["provisioning/*/mobileprovision"].each do |f|
  `scripts/install_provisioning_profile.sh #{f}`
end

https://gist.github.com/subdigital/5049635
Renewed Certificate? Updated ad-hoc profile? just drop in provisioning/

BOOM.
$ brew install appledoc
Generating Appledoc

appledoc \
   --project-name Foo \n   --project-company "Acme, Inc" \n   --company-id com.acme \n   --output docs \n   --create-html \n   --no-create-docset \n   --ignore Pods \n   --keep-intermediate-files .
TwitterFollowersViewController Class Reference

<table>
<thead>
<tr>
<th>Inherits from</th>
<th>UITableViewController</th>
</tr>
</thead>
<tbody>
<tr>
<td>Declared in</td>
<td>TwitterFollowersViewController.h</td>
</tr>
<tr>
<td></td>
<td>TwitterFollowersViewController.m</td>
</tr>
</tbody>
</table>

Overview

TwitterFollowersViewController is a subclass of UITableViewCell for showing the followers &

Usage

This view controller requires an ACAccountStore to be provided via the accountStore property.

This view controller does not handle the ACAccountStoreDidChangeNotification however it

Limitations

Warning: This controller assumes there is only one twitter account in settings. If multiple are p
Uploading to Testflight

/usr/bin/curl "http://testflightapp.com/api/builds.json" \
  -F file=\"build/Foo.ipa\" \
  -F dsym=\"build/Foo.app.dSYM.zip\" \
  -F api_token="..." \
  -F team_token="..." \
  -F notes=\"RELEASE_NOTES\"
### SocialApp

#### Builds

All of the beta builds for this app you have uploaded

<table>
<thead>
<tr>
<th>Builds</th>
<th>Added Date</th>
<th>Built For</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.0 (20)</td>
<td>March 3, 2013</td>
<td>iPhone</td>
</tr>
</tbody>
</table>
ocunit2junit.rb
Plug it into Jenkins!
Links

- http://www.martinfowler.com/articles/continuousIntegration.html
- http://martinfowler.com/bliki/FrequencyReducesDifficulty.html
- http://jenkins-ci.org
- https://gist.github.com/subdigital/3931414 (Test w/ colored output)
- https://gist.github.com/subdigital/5049635 (Install provisioning profiles)
Thanks!

@subdigital
@nsscreencast
@bens (adn)

http://github.com/subdigital/cocoa-conf-jenkins
http://speakerdeck.com/u/subdigital/jenkins