Continuous Integration with Xcode 6

Session 415
Brent Shank
Software Engineer, Xcode

Introduction

Why continuous integration?

What is Xcode Server?

What’s new in Xcode Server?

Demos

Why Continuous Integration?

Enhances collaboration

Improves software quality

Catches problems quickly and automatically

Broadens test coverage

Gathers build and test history for your project

Easily distributes builds to your team

Terminology

Terminology

Scheme

Recipe for building your project

Terminology

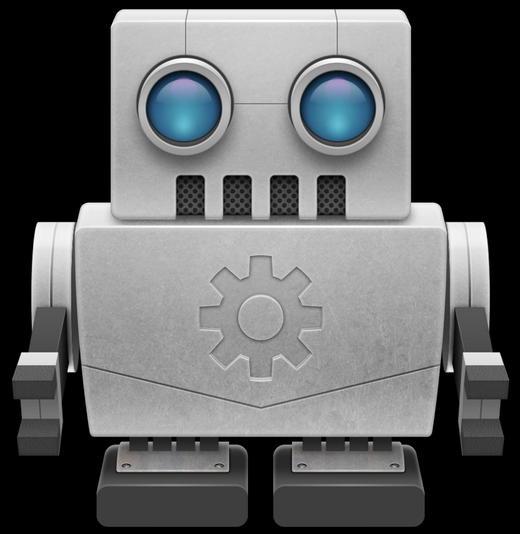
Scheme

Recipe for building your project

Terminology

Scheme

Recipe for building your project



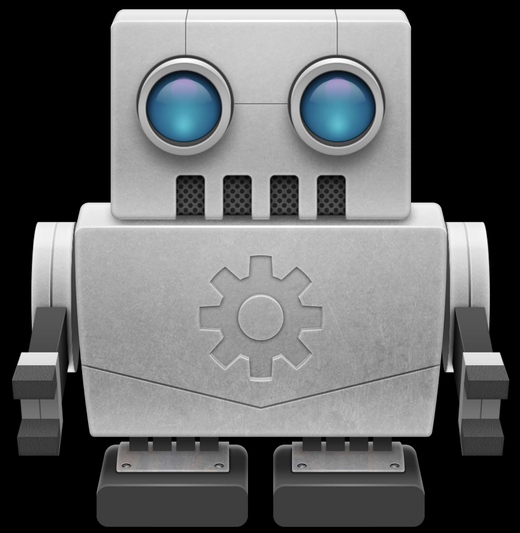
Bot

Analyze, build, test, and archive on a schedule

Terminology

Scheme

Recipe for building your project



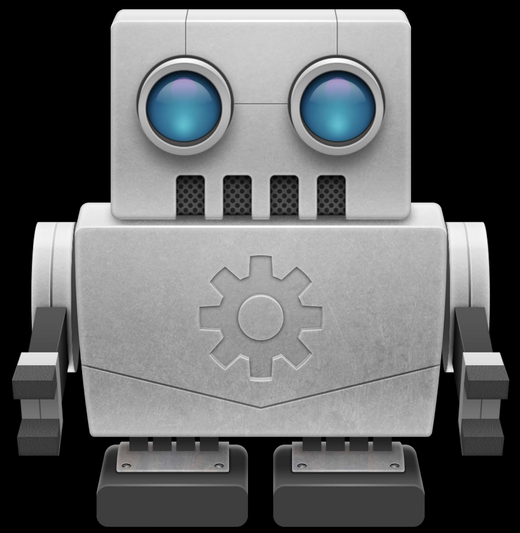
Bot

Analyze, build, test, and archive on a schedule

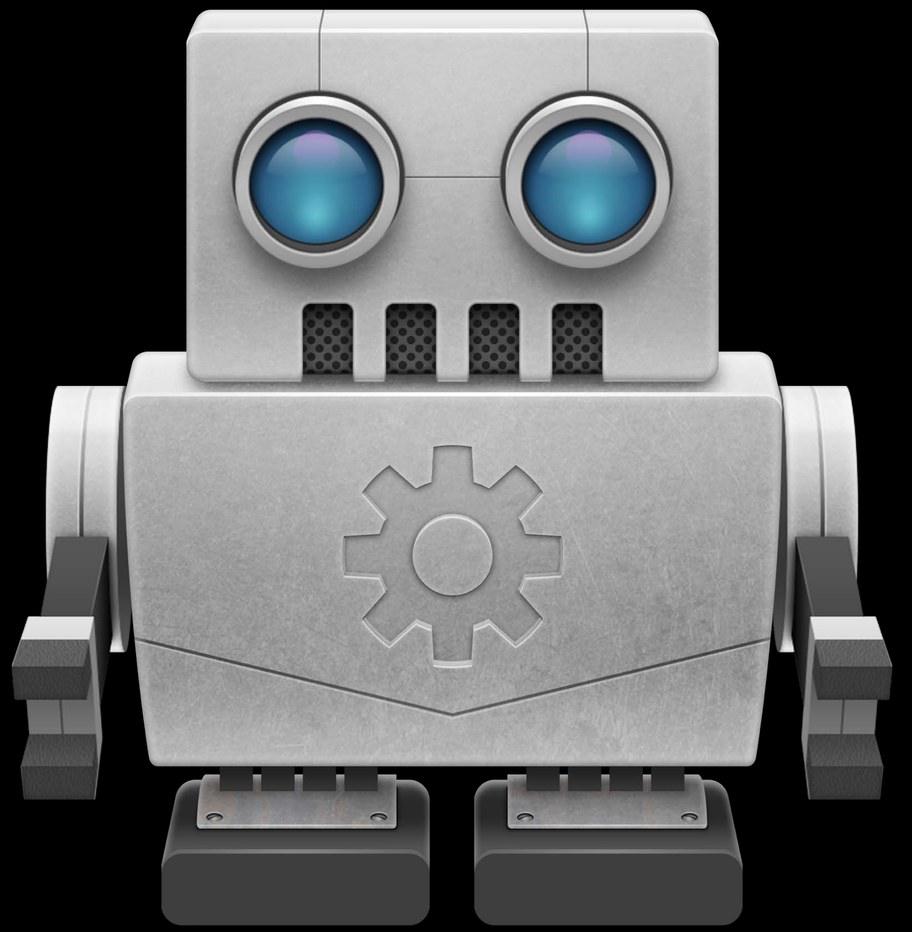
Integration

A single run of a bot

Terminology



Terminology



What Is a Bot?

Defines what to build

- Project and SCM information

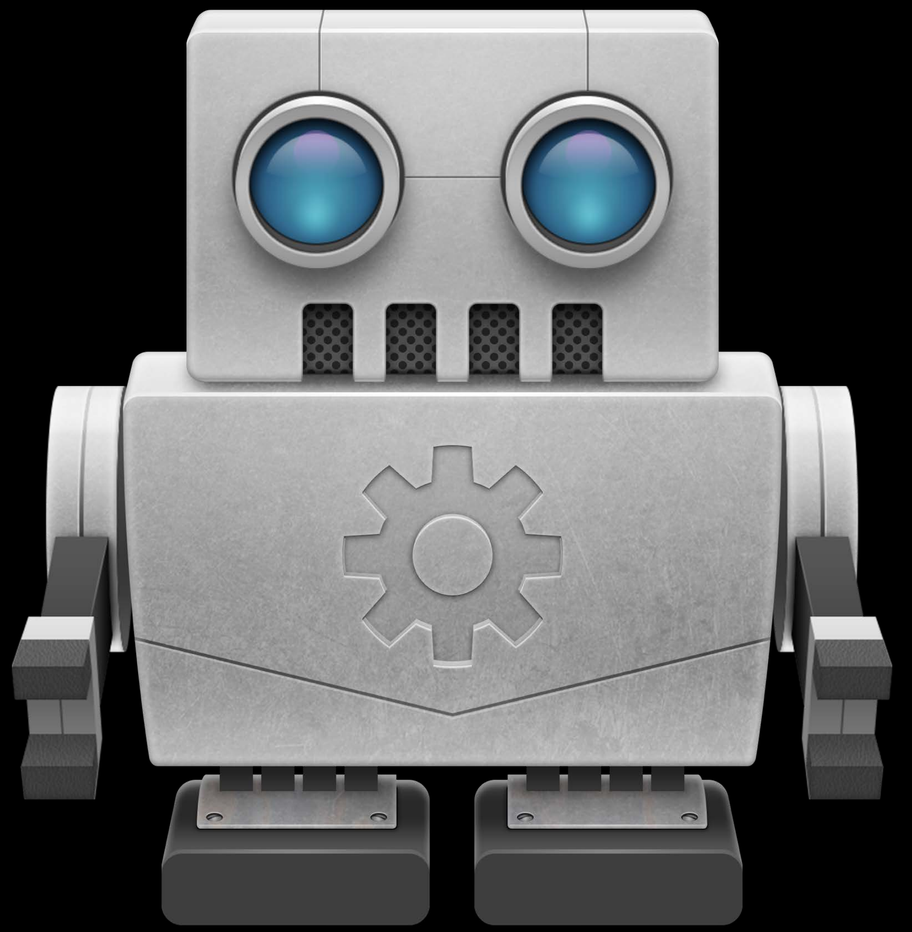
When to build it

- Periodic, on-commit, or manual

How to build it

- Shared scheme
- Static analysis
- Testing and devices
- Archives

Notifications



Xcode Server Features

Easy setup with Xcode and OS X Server

Integrates with the Apple Developer program

Builds iOS and Mac projects

Runs tests on multiple devices and simulators

Produces IPA and PKG files

Seamless Xcode integration

Beautiful UI

OS X Server

Application that hosts Xcode Server

Simple setup

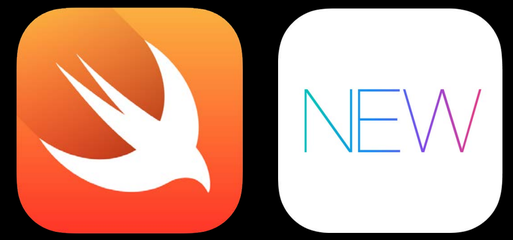
Hosted repositories

Devices

- Add and remove devices from your team
- Run tests on multiple iOS devices
- Automatic device provisioning for testing

Xcode Server for Xcode 6

What's new



A shiny new foundation

Support for Swift

Performance testing

Issue tracking

Support for pre- and post-integration triggers

Xcode Server

Improvements and performance

New foundation

Huge performance improvements

Super reliable

Great scalability

Xcode Server

Improvements and performance

New foundation

Huge performance improvements

Super reliable

Great scalability

Xcode Server

Triggers

Support for pre- and post-integration triggers

Trigger conditions

Shell script or email

Customized email reports

Environment variables

- Bot ID
- Bot Name
- Integration Number
- Integration Result
- And more!

Xcode Server

Issue tracking

Detects new issues (build errors, warnings, static analysis, test failures)

Attributes issues to committers

Tracks unresolved issues

Identifies resolved issues

Assistant editor integration

Surfaced in email notifications

Demo

Server setup, bot configuration, triggers

Matt Patenaude (a.k.a. Short Matt)

Xcode Server

Swift support

Builds Swift projects

Builds mixed Swift/Objective-C projects

Complete testing support

Performance testing

Assistant editor for issues

Complete feature parity with Objective-C projects

Xcode Server

Performance testing

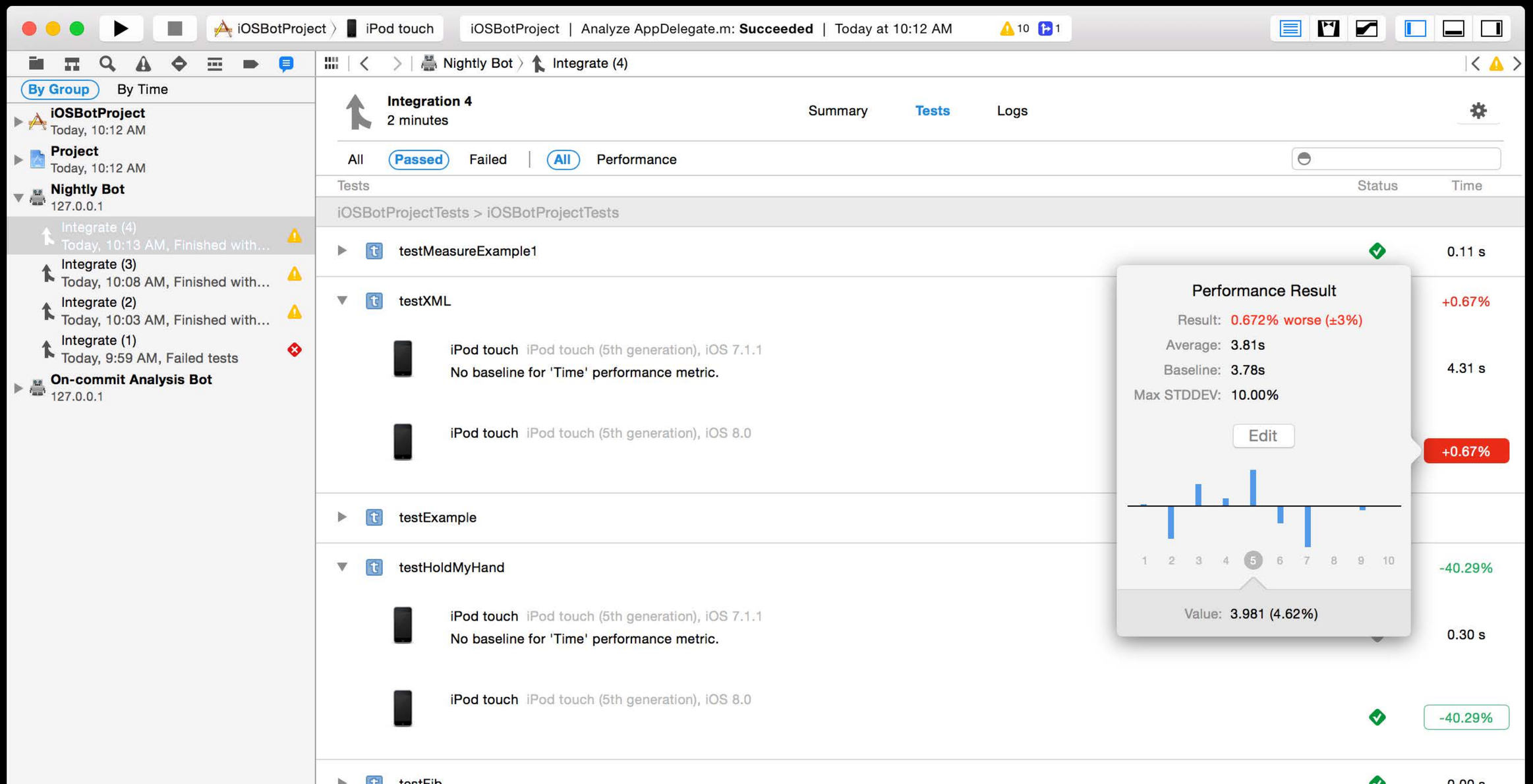
Runs performance tests on multiple devices

Supports iOS devices and Mac

Leverages baselines that you configure in Xcode

Xcode Server

Performance testing—Baselines



Xcode Server

Performance testing—Objective-C

```
- (void)testPerformanceExample {
    // This is an example of a performance test case.
    [self measureBlock:^{
        // Put the code you want to measure the time of here.
    }];
}
```

Xcode Server

Performance testing—Swift

```
func testPerformanceExample() {
    // This is an example of a performance test case.
    self.measureBlock() {
        // Put the code you want to measure the time of here.
    }
}
```

Demo

Swift support, performance testing

Matt Moriarity (a.k.a. Tall Matt)

Summary

New foundation

Tons of bug fixes and under the cover improvements

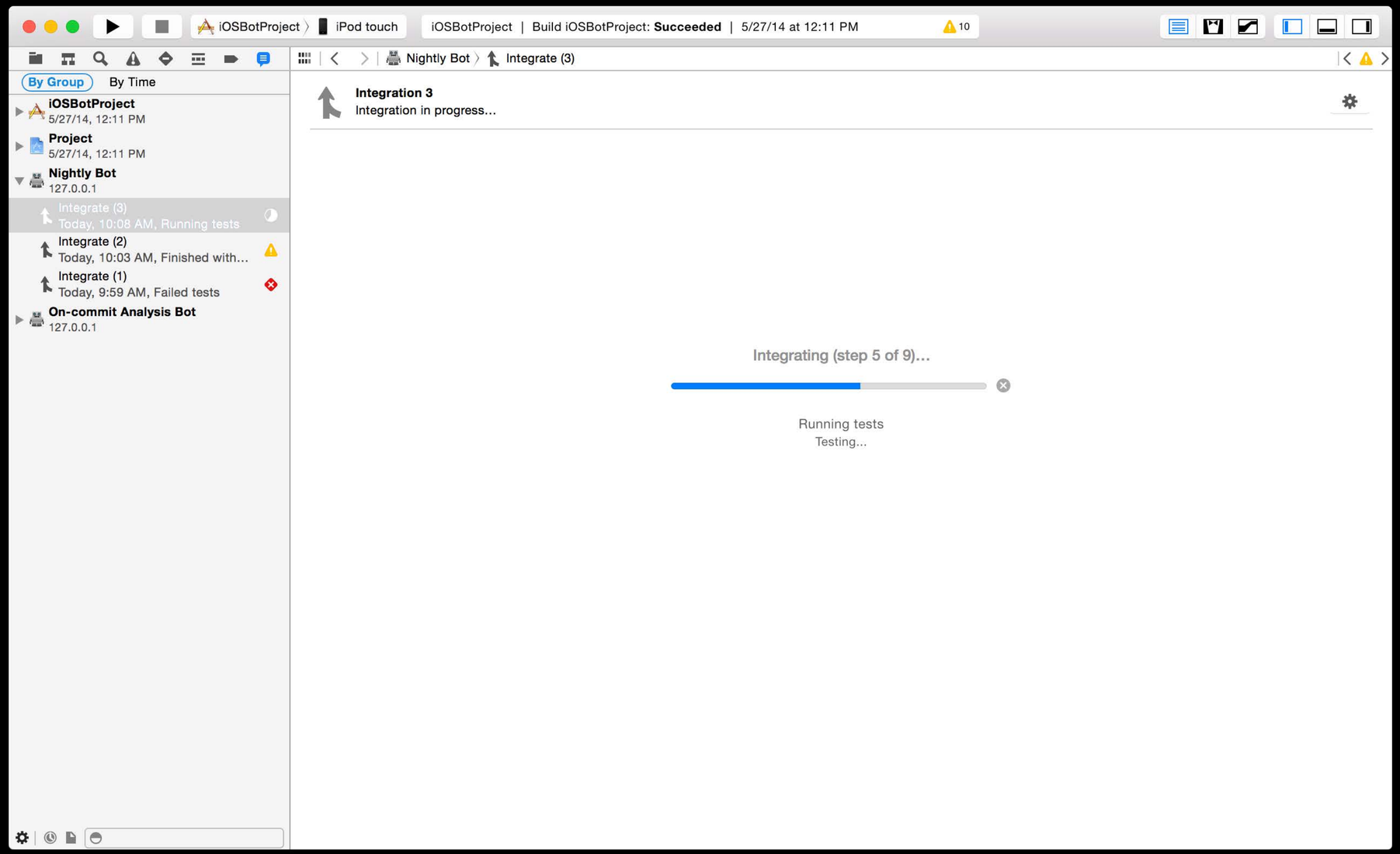
Triggers

Issue tracking

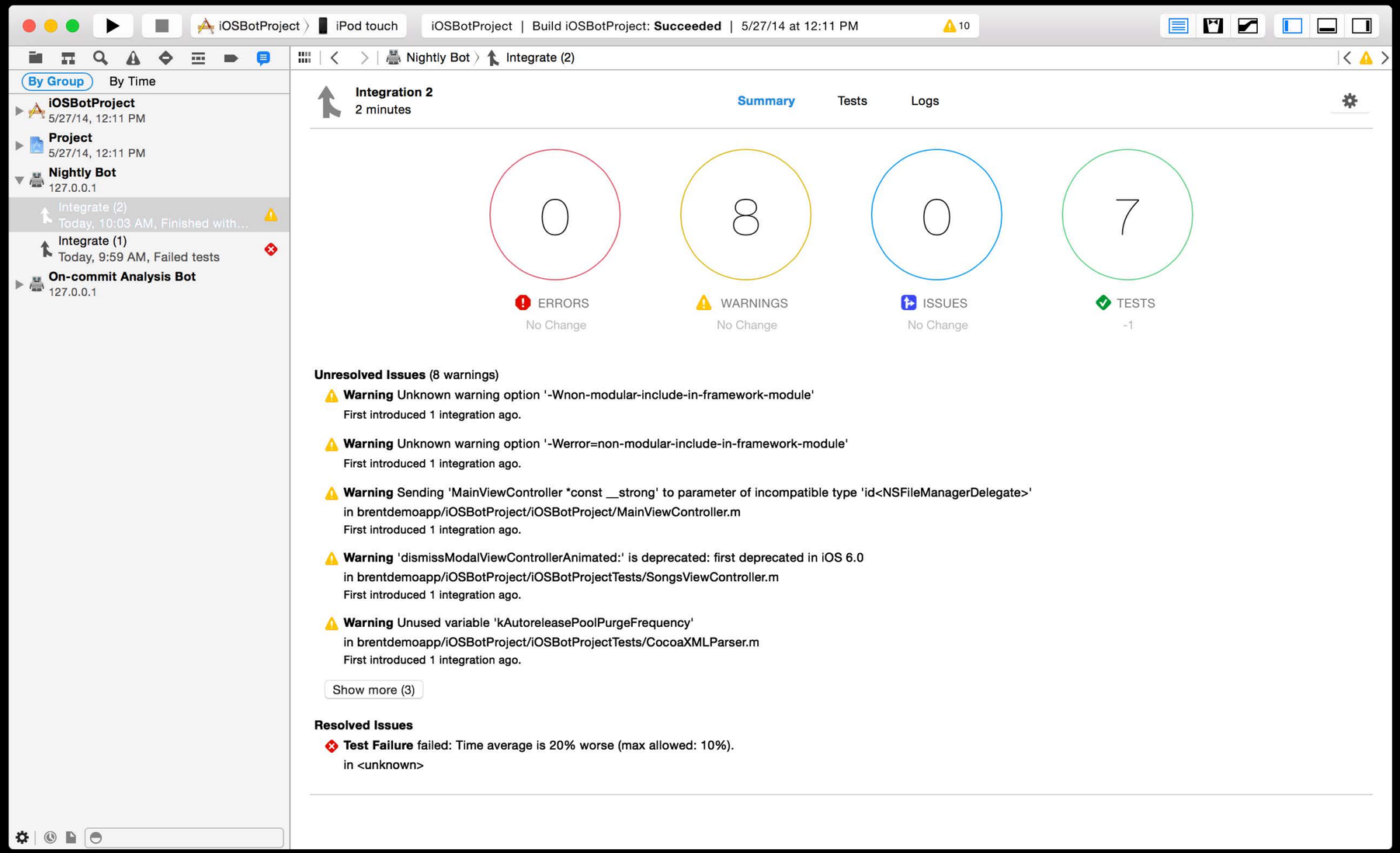
Swift support

Performance testing

Summary


iOSBotProject 〉 iPod touch
iOSBotProject | Build iOSBotProject: Succeeded | 5/27/14 at 12:11 PM
10
By Group
By Time
iOSBotProject
5/27/14, 12:11 PM
Project
5/27/14, 12:11 PM
Nightly Bot
127.0.0.1
Integrate (3)
Today, 10:08 AM, Running tests
Integrate (2)
Today, 10:03 AM, Finished with…
Integrate (1)
Today, 9:59 AM, Failed tests
On-commit Analysis Bot
127.0.0.1
Nightly Bot 〉 Integrate (3)
Integration 3
Integration in progress…
Integrating (step 5 of 9)…
Running tests
Testing…

Summary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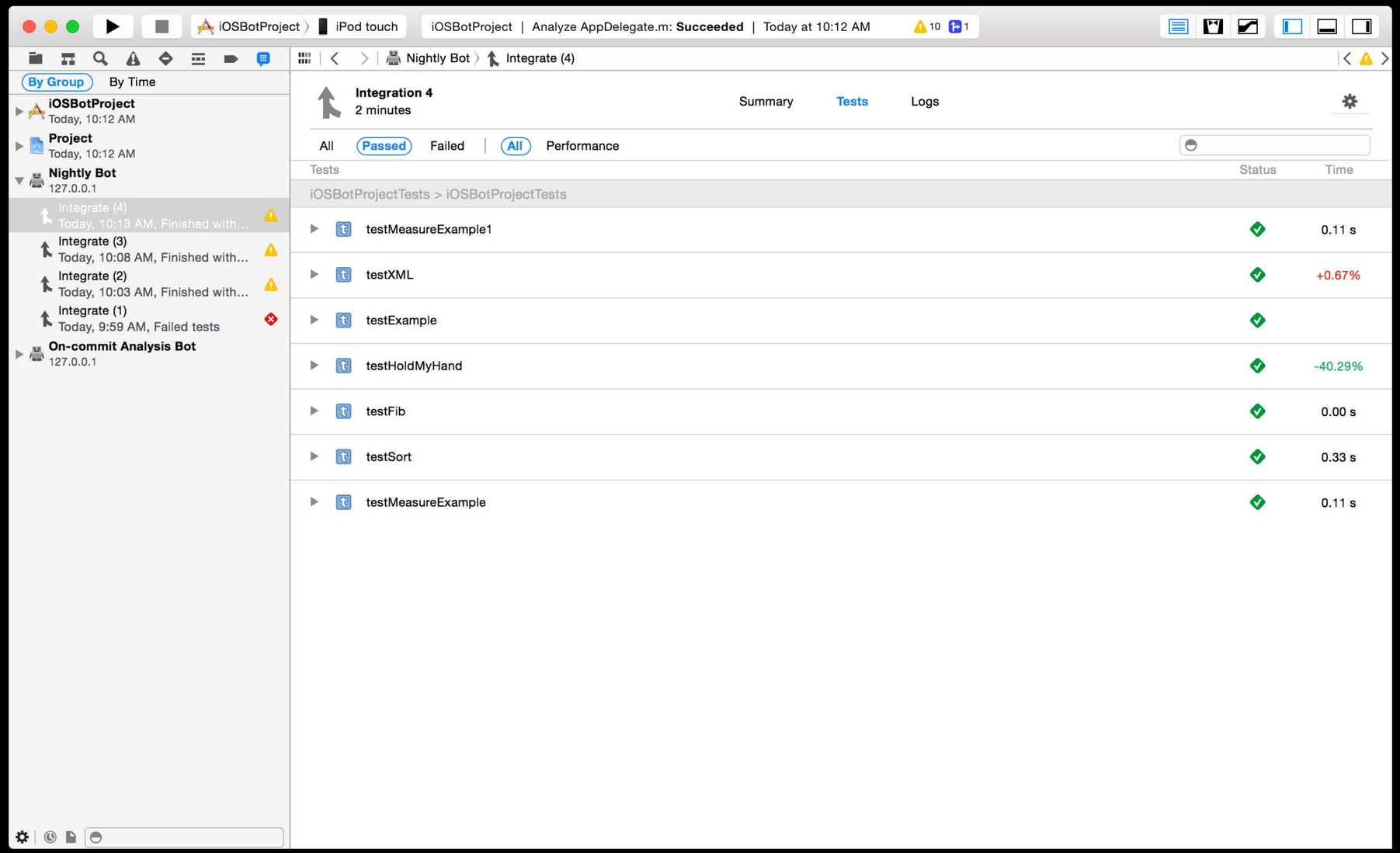
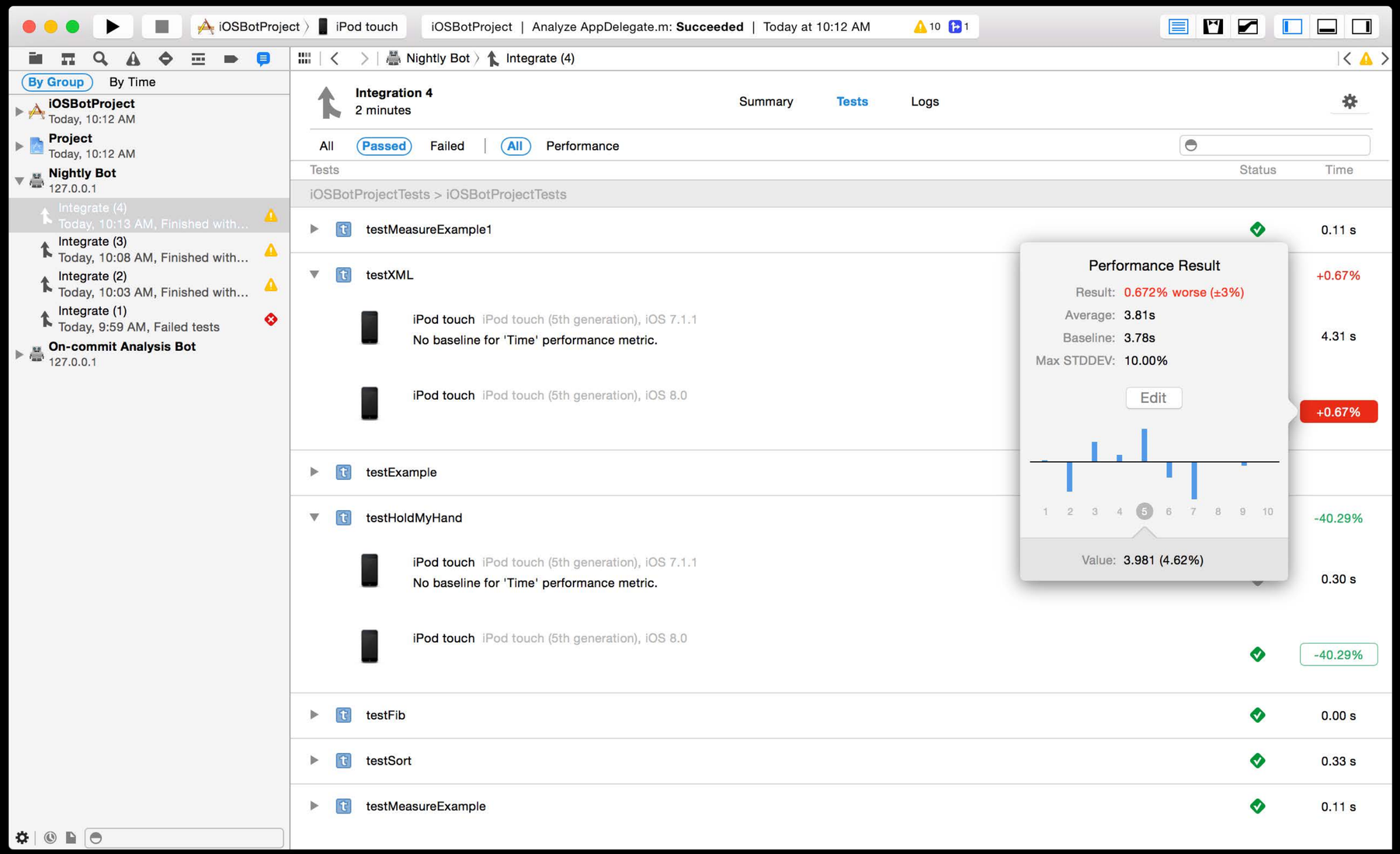
Project
5/27/14, 12:11 PM
Nightly Bot
127.0.0.1
Integrate (2)
Today, 10:03 AM, Finished with...
Integrate (1)
Today, 9:59 AM, Failed tests
On-commit Analysis Bot
127.0.0.1
Nightly Bot 〉 Integrate (2)
Integration 2
2 minutes
Summary
Tests
Logs
0
ERRORS
No Change
8
WARNINGS
No Change
0
ISSUES
No Change
7
TESTS
-1
Unresolved Issues (8 warnings)
Warning Unknown warning option '-Wnon-modular-include-in-framework-module'
First introduced 1 integration ago.
Warning Unknown warning option '-Werror=non-modular-include-in-framework-module'
First introduced 1 integration ago.
Warning Sending 'MainViewController *const __strong' to parameter of incompatible type 'id<NSFileManagerDelegate>'
in brentdemoapp/iOSBotProject/iOSBotProject/MainViewController.m
First introduced 1 integration ago.
Warning 'dismissModalViewControllerAnimated:' is deprecated: first deprecated in iOS 6.0
in brentdemoapp/iOSBotProject/iOSBotProjectTests/SongsViewController.m
First introduced 1 integration ago.
Warning Unused variable 'kAutoreleasePoolPurgeFrequency'
in brentdemoapp/iOSBotProject/iOSBotProjectTests/CocoaXMLParser.m
First introduced 1 integration ago.
Show more (3)
Resolved Issues
Test Failure failed: Time average is 20% worse (max allowed: 10%).
in <unknown>

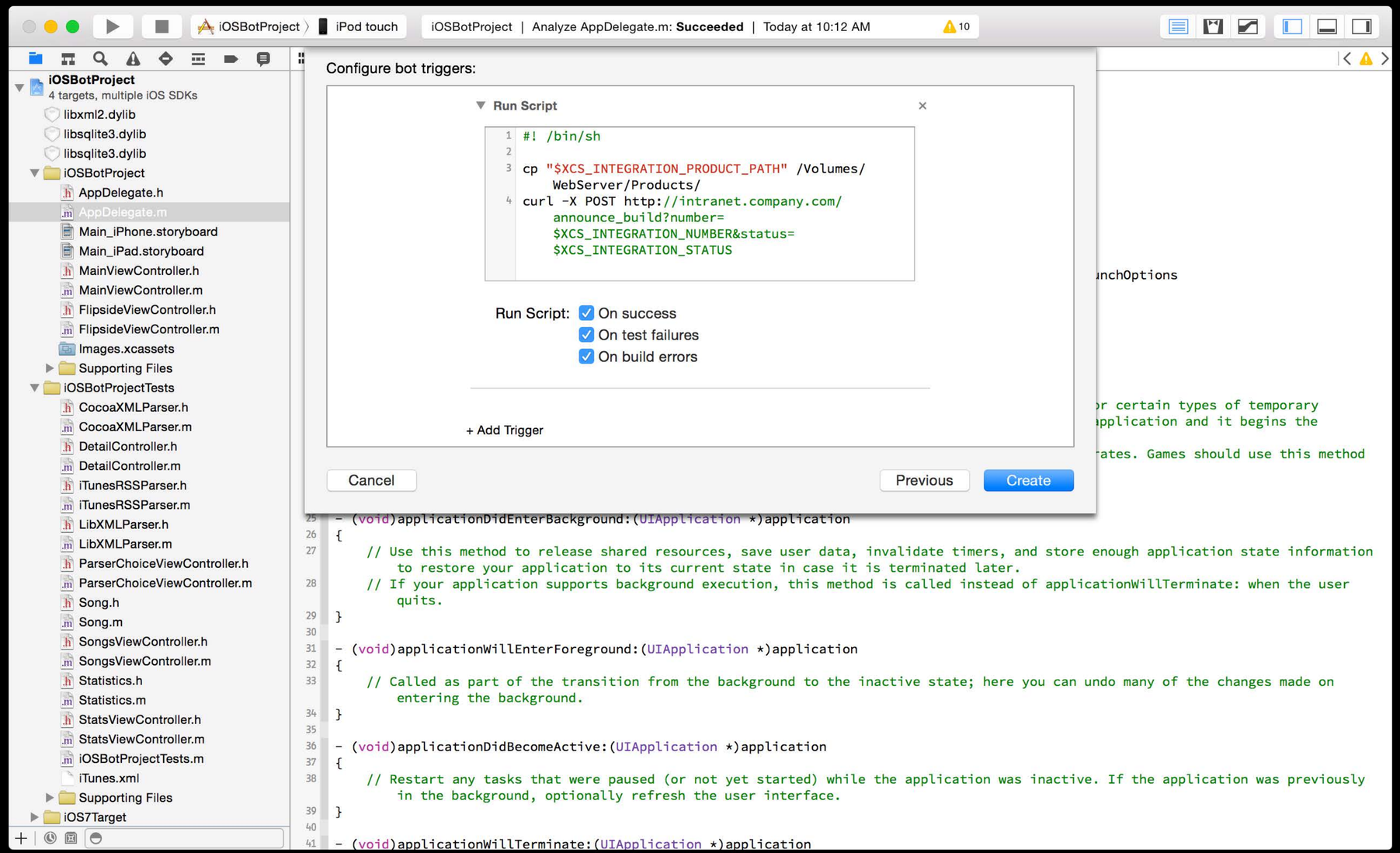
Summary


iOSBotProject 〉 iPod touch
iOSBotProject | Analyze AppDelegate.m: Succeeded | Today at 10:12 AM
10
1
By Group
By Time
iOSBotProject
Today, 10:12 AM
Project
Today, 10:12 AM
Nightly Bot
127.0.0.1
Integrate (4)
Today, 10:13 AM, Finished with...
Integrate (3)
Today, 10:08 AM, Finished with...
Integrate (2)
Today, 10:03 AM, Finished with...
Integrate (1)
Today, 9:59 AM, Failed tests
On-commit Analysis Bot
127.0.0.1
Nightly Bot 〉 Integrate (4)
Integration 4
2 minutes
Summary
Tests
Logs
All
Passed
Failed
All
Performance
Tests
Status
Time
iOSBotProjectTests > iOSBotProjectTests
testMeasureExample1
0.11 s
testXML
+0.67%
testExample
testHoldMyHand
-40.29%
testFib
0.00 s
testSort
0.33 s
testMeasureExample
0.11 s

Summary


iOSBotProject 〉 iPod touch
iOSBotProject | Analyze AppDelegate.m: Succeeded | Today at 10:12 AM
10
1
By Group
By Time
iOSBotProject
Today, 10:12 AM
Project
Today, 10:12 AM
Nightly Bot
127.0.0.1
Integrate (4)
Today, 10:13 AM, Finished with...
Integrate (3)
Today, 10:08 AM, Finished with...
Integrate (2)
Today, 10:03 AM, Finished with...
Integrate (1)
Today, 9:59 AM, Failed tests
On-commit Analysis Bot
127.0.0.1
Nightly Bot 〉 Integrate (4)
Integration 4
2 minutes
Summary
Tests
Logs
All
Passed
Failed
All
Performance
Tests
Status
Time
iOSBotProjectTests > iOSBotProjectTests
testMeasureExample1
0.11 s
testXML
+0.67%
iPod touch iPod touch (5th generation), iOS 7.1.1
No baseline for 'Time' performance metric.
4.31 s
iPod touch iPod touch (5th generation), iOS 8.0
+0.67%
testExample
testHoldMyHand
-40.29%
iPod touch iPod touch (5th generation), iOS 7.1.1
No baseline for 'Time' performance metric.
0.30 s
iPod touch iPod touch (5th generation), iOS 8.0
-40.29%
testFib
0.00 s
testSort
0.33 s
testMeasureExample
0.11 s
Performance Result
Result: 0.672% worse (±3%)
Average: 3.81s
Baseline: 3.78s
Max STDDEV: 10.00%
Edit
1 2 3 4 5 6 7 8 9 10
Value: 3.981 (4.62%)

Summary


iOSBotProject 〉 iPod touch
iOSBotProject | Analyze AppDelegate.m: Succeeded | Today at 10:12 AM
10
iOSBotProject
4 targets, multiple iOS SDKs
libxml2.dylib
libsqlite3.dylib
libsqlite3.dylib
iOSBotProject
AppDelegate.h
AppDelegate.m
Main_iPhone.storyboard
Main_iPad.storyboard
MainViewController.h
MainViewController.m
FlipsideViewController.h
FlipsideViewController.m
Images.xcassets
Supporting Files
iOSBotProjectTests
CocoaXMLParser.h
CocoaXMLParser.m
DetailController.h
DetailController.m
iTunesRSSParser.h
iTunesRSSParser.m
LibXMLParser.h
LibXMLParser.m
ParserChoiceViewController.h
ParserChoiceViewController.m
Song.h
Song.m
SongsViewController.h
SongsViewController.m
Statistics.h
Statistics.m
StatsViewController.h
StatsViewController.m
iOSBotProjectTests.m
iTunes.xml
Supporting Files
iOS7Target
Configure bot triggers:
Run Script
#! /bin/sh
cp "$XCS_INTEGRATION_PRODUCT_PATH" /Volumes/
WebServer/Products/
curl -X POST http://intranet.company.com/
announce_build?number=
$XCS_INTEGRATION_NUMBER&status=
$XCS_INTEGRATION_STATUS
Run Script:
On success
On test failures
On build errors
+ Add Trigger
Cancel
Previous
Create
- (void)applicationDidEnterBackground:(UIApplication *)application
{
// Use this method to release shared resources, save user data, invalidate timers, and store enough application state information
to restore your application to its current state in case it is terminated later.
// If your application supports background execution, this method is called instead of applicationWillTerminate: when the user
quits.
}
- (void)applicationWillEnterForeground:(UIApplication *)application
{
// Called as part of the transition from the background to the inactive state; here you can undo many of the changes made on
entering the background.
}
- (void)applicationDidBecomeActive:(UIApplication *)application
{
// Restart any tasks that were paused (or not yet started) while the application was inactive. If the application was previously
in the background, optionally refresh the user interface.
}
- (void)applicationWillTerminate:(UIApplication *)application

More Information

Dave DeLong
Developer Tools Evangelist
delong@apple.com

Documentation
Xcode Continuous Integration Guide
http://developer.apple.com

Apple Developer Forums
http://devforums.apple.com

Related Sessions

• Testing in Xcode 6	Marina	Thursday 9:00AM

Labs

• Continuous Integration	Tools Lab C	Thursday 2:00PM

WWDC14