

TOOLING
IN

SWIFT

I'M STAN!

A.K.A LXCID

**WHAT YOU DO TODAY CAN BE
AUTOMATED TOMORROW**

– DOUGLAS MCLLOY

AUTOMATE

AUTOMATE

TRANSFORMATION

AUTOMATE

ABSTRACTION

AUTOMATE

FLOW

AUTOMATE

ERROR DETECTION/PREVENTION

AUTOMATE

BUILD

BUILD

➤ ON-DEMAND
MAKEFILE

NOMAD / SHENZHEN
FABRIC / FASTLANE
CUSTOM SCRIPTS

BUILD

- SCHEDULED/TRIGGERED
 - XCODE SERVER
 - TRAVIS CI
 - CIRCLE CI (BETA)

BUILD

> SCHEDULED/TRIGGERED

👉 XCODE SERVER 👈

TRAVIS CI
CIRCLE CI (BETA)



OS X SERVER

19.99 USD

Server

Stan's MacBook Pro

Alerts

Certificates

Logs

Stats

Accounts

Users

Groups

Services

Caching

Calendar

Contacts

File Sharing

Mail

Messages

Profile Manager

Time Machine

VPN

Websites

Wiki

Xcode

Advanced

Xcode

ON

Settings

Repositories

Status: Available on your local network at khinboon.local

Learn about configuring devices for this service

Permissions: Logged in users can create bots, anyone can view bots

Edit Permissions...

Build using: Xcode 7.1 (7B91b)

Choose Xcode...

Developer Teams: No Teams

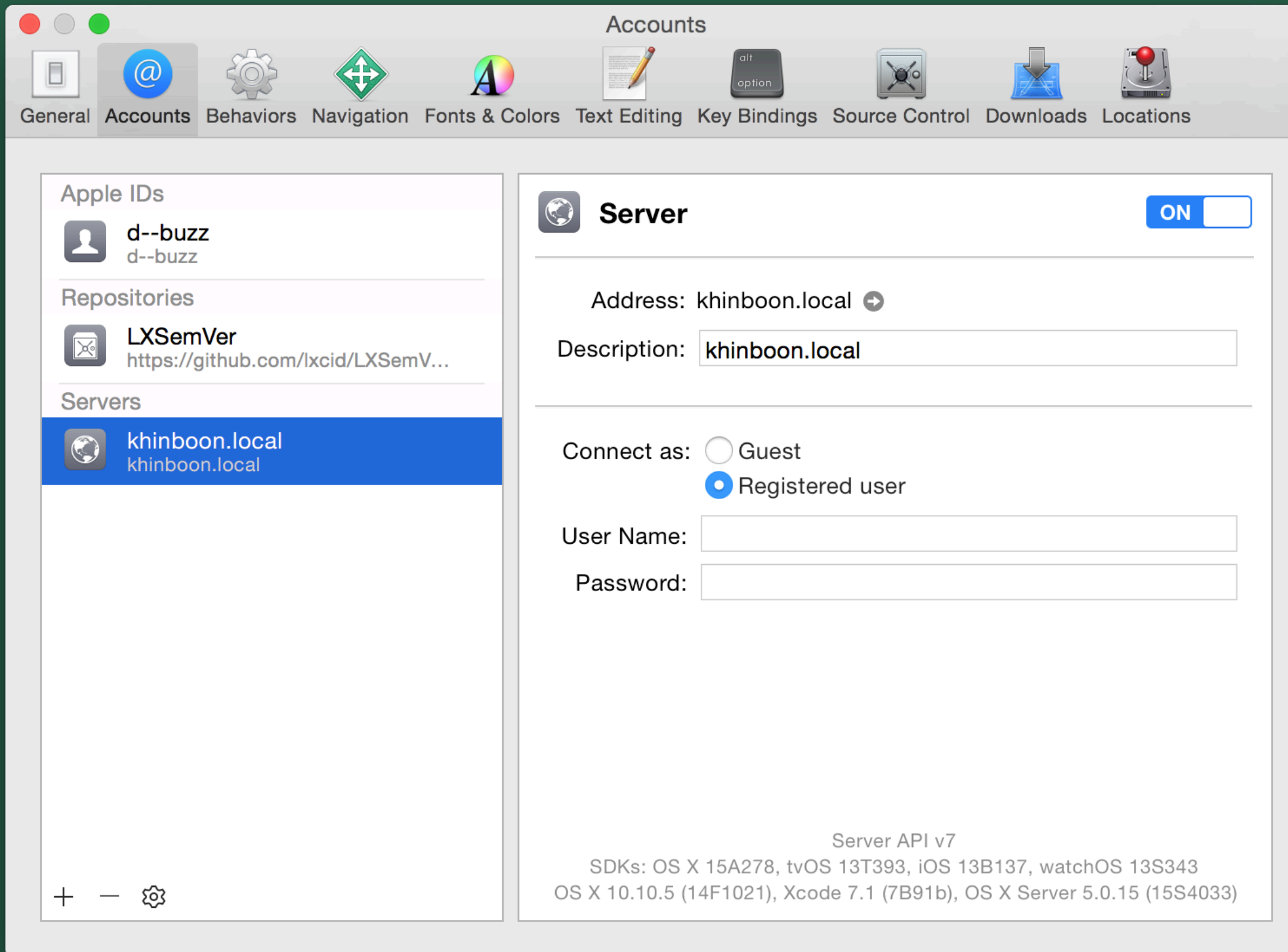
Add Team...

Development Devices:

| Name | Type | Status |
|---|------|--------|
| Add a developer team to test on iOS devices | | |

View bots

Search



| | |
|---------|-----|
| Run | ⌘R |
| Test | ⌘U |
| Profile | ⌘I |
| Analyze | ⇧⌘B |
| Archive | |

| | |
|----------------|---|
| Build For | ▶ |
| Perform Action | ▶ |

| | |
|-------|-----|
| Build | ⌘B |
| Clean | ⇧⌘K |
| Stop | ⌘. |

| | |
|-------------|---|
| Scheme | ▶ |
| Destination | ▶ |

Create Bot...

Schedule:

On Commit



This bot will check for new commits periodically.

Schedule:

Periodically

Daily

at

1:00 am

Configure bot triggers:

Before Integration:

+ Add Trigger

After Integration:

+ Add Trigger

Cancel

Previous

Create



RNYSTROM/HACKERNEWSREADER

DEMO

HackerNewsReader

iPhone 6s Plus

HackerNewsReader: Ready | Today at 12:15 am

By Group

By Time

Workspace No Logs

HackerNewsReader Bot khinboon.local

Integrate (1) Oct 24, 12:11 am

LXSemVer OSX Bot khinboon.local

Integration 1

Summary

Tests

Coverage

Commits

Logs

Integrate

Edit Bot...

3

ERRORS

+3

1

WARNINGS

+1

0

ISSUES

No Change

0

TESTS

No Change

New Issues (3 errors, 1 warning)

Error Diff: ../Podfile.lock: No such file or directory

Error Diff: /Manifest.lock: No such file or directory

Error The sandbox is not in sync with the Podfile.lock. Run 'pod install' or update your CocoaPods installation.

Warning The file "Pods-HackerNewsReader.debug.xcconfig" couldn't be opened because there is no such file. (/Library/Developer/XcodeServer/Integrations/Caches/47c6c7d9d89c94d28294403cd716f10c/Source/HackerNewsReader/Pods/Target Support

Build Service Issues

Build Service Warning An error occurred while building, so archiving was skipped.

Device Testing

Devices: 1

Total Tests: 0

Tests Passed: 0

Tests Failed: 0

iPhone 6s Plus

Simulator

iOS 9.1

Unknown Status

Not Applicable

No Matches

INTEGRATION ERROR

```
Error: ../../Podfile.lock: No such file or directory
Error: /Manifest.lock: No such file or directory
Error: The sandbox is not in sync with the Podfile.lock.
Run 'pod install' or update your CocoaPods installation.
```

COCOAPODS

AUTOMATE DEPENDENCY MANAGEMENT

RUN

```
sudo gem install cocoapods
```


PRE-TRIGGER

```
pod install
```

HackerNewsReader

iPhone 6s Plus

HackerNewsReader: Ready | Today at 12:39 am

By Group

By Time

Workspace No Logs

HackerNewsReader Bot khinboon.local

Integrate (2) Oct 24, 12:37 am

Integrate (1) Oct 24, 12:11 am

LXSemVer OSX Bot khinboon.local

Integration 2

SummaryTestsCoverageCommitsLogs

0

ERRORS

-3

33

WARNINGS

+33 | -1

0

ISSUES

No Change

7

TESTS

No Change

Integrate

Edit Bot...

New Issues (33 warnings)

Warning

Null passed to a callee that requires a non-null argument

In HackerNewsReader/HackerNewsReader/Classes/HNSearchPostsController.m:65

Warning

Directory not found for option '-F/var/_xcsbuild/Library/Developer/Xcode/DerivedData/HackerNewsReader-citxqvsousoeacbtbcujtwnuobc/Build/Products/Debug-iphoneos'

Warning

Object file (/Library/Developer/XcodeServer/Integrations/Caches/47c6c7d9d89c94d28294403cd716f10c/DerivedData/Build/Products/Debug-iphonesimulator/libHackerNewsNetworker.a(HNStore.o)) was built for newer iOS version (8.2) than being linked (7

Warning

Object file (/Library/Developer/XcodeServer/Integrations/Caches/47c6c7d9d89c94d28294403cd716f10c/DerivedData/Build/Products/Debug-iphonesimulator/libHackerNewsNetworker.a(HNFeedParser.o)) was built for newer iOS version (8.2) than

Warning

Object file (/Library/Developer/XcodeServer/Integrations/Caches/47c6c7d9d89c94d28294403cd716f10c/DerivedData/Build/Products/Debug-iphonesimulator/libHackerNewsNetworker.a(HNDataCoordinator.o)) was built for newer iOS version (8.2)

Show more (28)

Resolved Issues (3 errors, 1 warning)

Error

Diff: ../Podfile.lock: No such file or directory

Introduced 1 integration ago

Error

Diff: /Manifest.lock: No such file or directory

Introduced 1 integration ago

Error

The sandbox is not in sync with the Podfile.lock. Run 'pod install' or update your CocoaPods installation.

Introduced 1 integration ago

Warning

The file "Pods-HackerNewsReader.debug.xcconfig" couldn't be opened because there is no such file. (/Library/Developer/XcodeServer/Integrations/Caches/47c6c7d9d89c94d28294403cd716f10c/Source/HackerNewsReader/Pods/Target Support

Introduced 1 integration ago

Build Service Issues

Build Service Warning

'HackerNewsKit/HNFeed.h' file not found

Build Service Warning

Installable product could not be created because creating the archive failed.

Device Testing

Devices: 1

Total Tests: 7

Tests Passed: 7

Tests Failed: 0

iPhone 6s Plus

Simulator

iOS 9.1

All Tests Passed

Not Applicable

No Matches

WITHOUT

~~sue~~

?

Server

Stan's MacBook Pro

Alerts

Certificates

Logs

Stats

Accounts

Users

Groups

Services

Caching

Calendar

Contacts

File Sharing

Mail

Messages

Profile Manager

Time Machine

VPN

Websites

Wiki

Xcode

Advanced

Users

Search

| Name | Account | Type |
|---|------------------|--------|
| <div>L</div> <div>_launchservicesd</div> <div>Limited Access</div> | _launchservicesd | System |
| <div>X</div> <div>_xcsbuildagent</div> <div>Limited Access</div> | _xcsbuildagent | System |
| <div></div> <div>_xcsbuldd</div> | _xcsbuldd | System |
| <div></div> <div>_xcscouch</div> | _xcscouch | System |
| <div>X</div> <div>_xcscredserver</div> <div>Limited Access</div> | _xcscredserver | System |
| <div></div> <div>_xcsd</div> | _xcsd | System |
| <div></div> <div>_xcsnginx</div> | _xcsnginx | System |
| <div>AD</div> <div>AMaViS Daemon</div> <div>Limited Access</div> | _amavisd | System |
| <div>AU</div> <div>Apple Events User</div> <div>Limited Access</div> | _eppc | System |
| <div>AD</div> <div>Apple Remote Desktop</div> <div>Limited Access</div> | _ard | System |
| <div>AD</div> <div>AppleEvents Daemon</div> <div>Limited Access</div> | _appleevents | System |

+

−

⚙

1 of 90 selected

?

PRE-TRIGGER

```
#!/bin/sh
export WORKING_DIR="HackerNewsReader"
# Cocoapods require us to define the language
export LANG=en_US.UTF-8
# Add user space bin directory of rubygem in $PATH
if which ruby >/dev/null && which gem >/dev/null; then
    PATH="$(ruby -rubygems -e 'puts Gem.user_dir')/bin:$PATH"
fi
# Install cocoapods in user space of rubygem
gem install --user-install cocoapods
cd $WORKING_DIR
pod install
```

DEMO

NIGHTLY BUILD

NIGHTLY BUILD

☐ VERSIONING

☒ INTEGRATION

☐ COMMIT & TAG

☐ DISTRIBUTE

AUTOMATE

VERSIONING

VERSIONING

➤ APPLE GENERIC VERSIONING

AGVTOOL

APPLE GENERIC VERSIONING

APPLE GENERIC VERSIONING

- **VERSION (MARKETING)**
CFBUNDLESHORTVERSIONSTRING
- **BUILD (INTERNAL)**
CFBUNDLEVERSION



Xcode

Version 7.1 (7B91b)

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[Acknowledgments](#)

[License Agreement](#)

APPLE GENERIC VERSIONING **XCODE**

> **7.1**

CFBUNDLESHORTVERSIONSTRING

> **9079**

CFBUNDLEVERSION

> **7B91B**

PRODUCTBUILDVERSION



Maps

Version 2.0 (1844.0.15)

Data from **TOMTOM** and others ➔

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APPLE GENERIC VERSIONING MAP

> 2.0

CFBUNDLESHORTVERSIONSTRING

> 1844.0.15

CFBUNDLEVERSION



Server

Version 5.0.15 (15S4033)



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[Acknowledgments](#)

[License Agreement](#)

APPLE GENERIC VERSIONING OS X SERVER

> **5.0.15**

CFBUNDLESHORTVERSIONSTRING

> **662**

CFBUNDLEVERSION

> **15S4033**

PRODUCTBUILDVERSION

CONS OF APPLE GENERIC VERSIONING

- > NO SPECIFICATION/NO VERSION GRAPH
 - > INCONSISTENT
 - > NOT EXPRESSIVE
 - > NO GIT SUPPORT
- > NO VERSIONING FOR VERSION (MARKETING)
- > LIMITED VERSIONING FOR BUILD (INTERNAL)

LIMITED VERSIONING FOR BUILD (INTERNAL)

AGVTOOL NEXT-VERSION | BUMP

○ 1844.0.15 ➤ 1845

✗ 1844.0.15 ➤ 1844.1

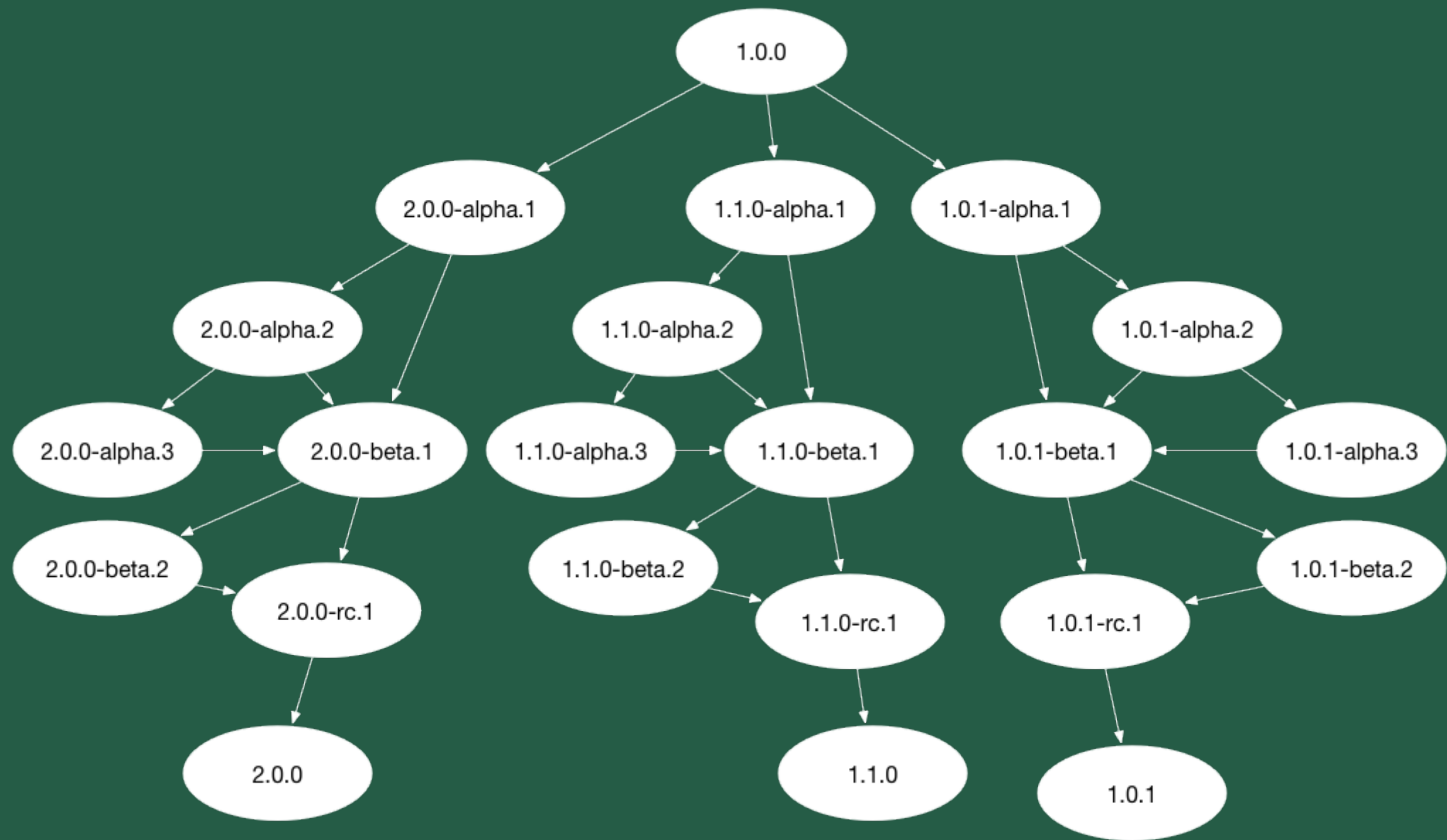
✗ 1844.0.15 ➤ 1844.0.16

VERSIONING

- ~~APPLE GENERIC VERSIONING~~
- SEMANTIC VERSIONING 2.0.0

MAJOR.MINOR.PATCH-PRERELEASE(DSV)+METADATA(DSV)

DSV = DOT SEPARATED VALUES



LXSEMVER.FRAMEWORK

LXCID/LXSEMVER

SCRIPTING CLI

PODFILE

```
plugin 'cocoapods-rome'  
pod 'LXSemVer', '~> 1.0'
```

SEMVER

```
#!/usr/bin/env xcrun swift -F Rome
```

DEMO

SCRIPTING NIGHTLY TRIGGERS

- PRERELEASE IS ALWAYS TAGGED WITH NIGHTLY
- RETRIEVE PROJECT'S VERSIONS FROM ITS INFO.PLIST
 - KEEP A NIGHTLY COUNTER IN ITS INFO.PLIST
LXNIGHTLYBUILDVERSIONSTRING

LXXCODETOOLS.FRAMEWORK

LXCID/LXXCODETOOLS

LXXCODETOOLS.FRAMEWORK

- SPAWN NEW PROCESS WITH NSTASK
- PARSES THE OUTPUT OF XCODEBUILD

```
##/usr/bin/xcrun xcodebuild -showbuildsettings
```

DEMO

DEVTOOLSSCORE.FRAMEWORK

/APPLICATIONS/XCODE.APP/CONTENTS/PLUGINS/XCODE3CORE.IDEPLUGIN/CONTENTS/
FRAMEWORKS/DEVTOOLSSCORE.FRAMEWORK

DEVTOOLSSCORE.FRAMEWORK

- PRIVATE FRAMEWORK
- GENERATE OUR OWN HEADERS
- IMPORT THE FRAMEWORK INTO SWIFT BY DEFINING A MODULE WITH MODULEMAP

DEVTOOLS SCORE.FRAMEWORK

GENERATING HEADERS

- CLASS-DUMP
- PARTIALLY DECLARED HEADERS IS FINE

DEVTOOLS CORE.FRAMEWORK

DEFINING MODULEMAP

CREATE UMBRELLA HEADER

```
#import <DevToolsCore/PBXObject.h>
#import <DevToolsCore/PBXProject.h>
#import <DevToolsCore/PBXProjectItem.h>
#import <DevToolsCore/PBXTarget.h>
```

CREATE MODULEMAP

```
module DevToolsCore {
    umbrella header "DevToolsCore.h"
    link framework "DevToolsCore"
}
```

DEVTOOLSSCORE.FRAMEWORK

RESOLVE FRAMEWORK DEPENDENCIES

```
$ otool -L /path/to/DevToolsCore.framework/DevToolsCore  
    @rpath/DVTFoundation.framework/Versions/A/DVTFoundation  
    @rpath/IDEFoundation.framework/Versions/A/IDEFoundation  
    @rpath/DevToolsFoundation.framework/Versions/A/DevToolsFoundation  
    @rpath/DevToolsSupport.framework/Versions/A/DevToolsSupport
```

DEVTOOLSSCORE.FRAMEWORK

IMPORT THE MODULARIZED FRAMEWORK

```
#!/usr/bin/env xcrun swift
-F Rome
-I modules
-F /Applications/Xcode.app/Contents/SharedFrameworks
-F /Applications/Xcode.app/Contents/Frameworks
-F /Applications/Xcode.app/Contents/PlugIns/Xcode3Core.ideplugin/Contents/Frameworks
-framework DVTSourceControl
-framework IDEFoundation
-framework DevToolsFoundation
-framework DevToolsSupport
-framework DVTFoundation
-framework IBFoundation
-framework IBAutolayoutFoundation
```

...

```
import DevToolsCore
```

DEMO

CONS OF SEMANTIC VERSIONING

- > CAN'T SUBMIT TO ITUNES

NIGHTLY BUILD

☒ VERSIONING

☒ INTEGRATION

☐ COMMIT & TAG

☐ DISTRIBUTE

COMMIT & TAG

```
/usr/bin/git commit --all --message="$VERSION"  
/usr/bin/git tag $VERSION  
/usr/bin/git push --set-upstream  
/usr/bin/git push --tags
```

DISTRIBUTE

```
# http://stackoverflow.com/a/32784145
originalBinaryName=$(basename "${XCS_ARCHIVE%.*}").ipa)
originalBinaryPath="${XCS_OUTPUT_DIR}/ExportedProduct/Apps/${originalBinaryName}"

xcodebuild -exportArchive -exportFormat IPA \
    -exportProvisioningProfile my_profile_name \
    -archivePath $XCS_ARCHIVE \
    -exportPath $originalBinaryPath \

# Check with your distribution provider on the CLI to distribute the app.
```


NIGHTLY BUILD

☒ VERSIONING

☒ INTEGRATION

☒ COMMIT & TAG

☒ DISTRIBUTE

AUTOMATE

CODE GENERATION



XCODE SERVER

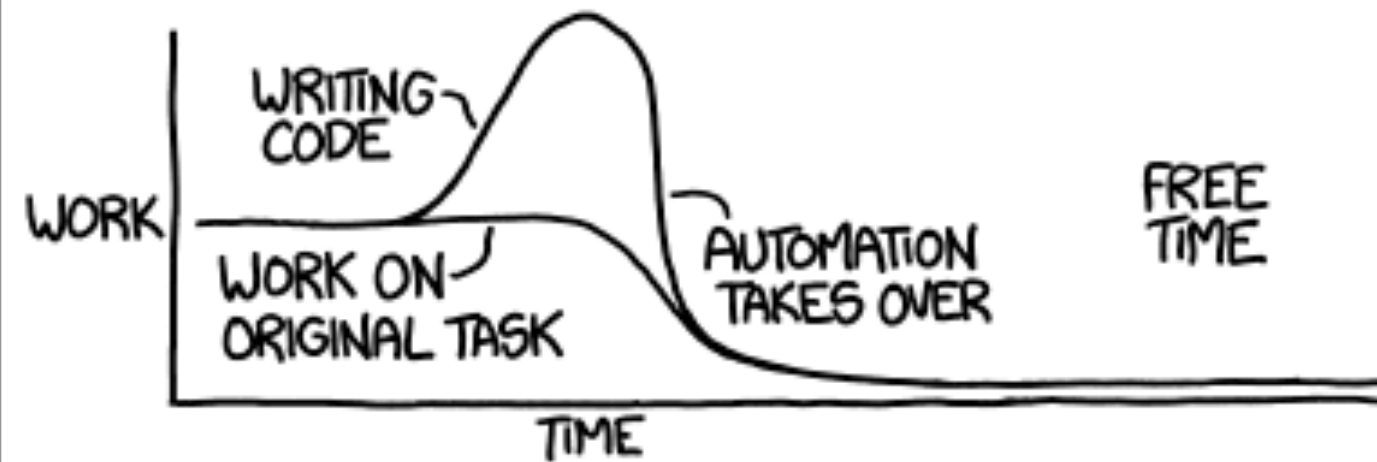
- > XCODE SERVER IS WRITTEN IN NODE

//APPLICATIONS/XCODE.APP/CONTENTS/DEVELOPER/USR/
SHARE/XCS/XCSD

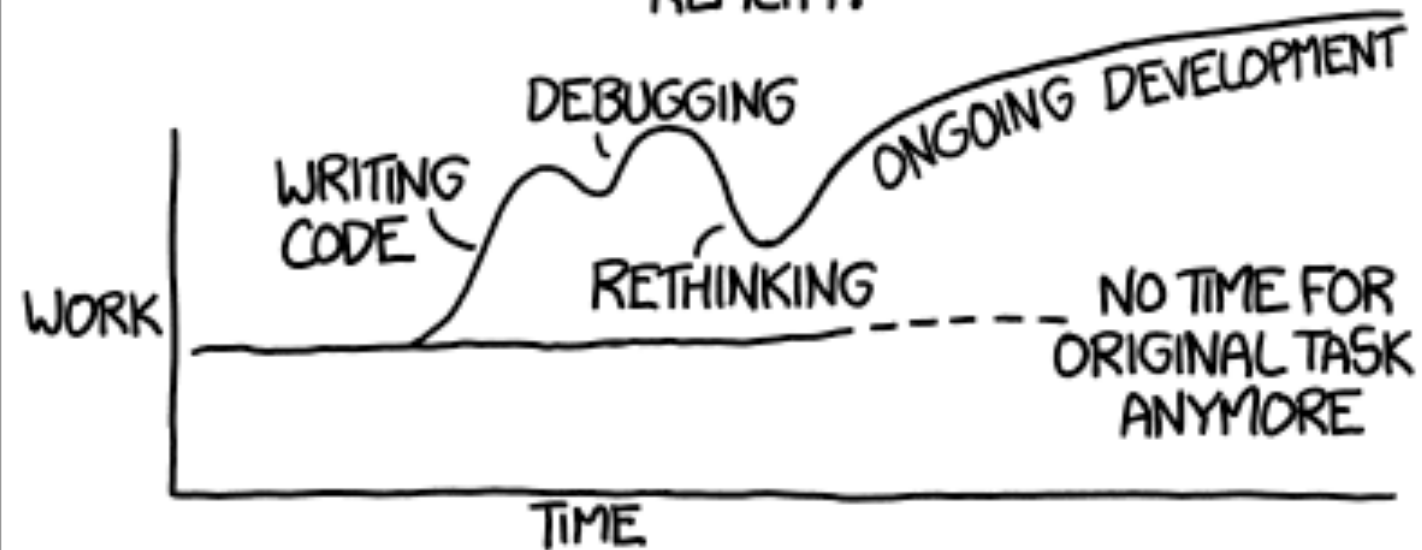
- > XCODE SERVER API

"I SPEND A LOT OF TIME ON THIS TASK.
I SHOULD WRITE A PROGRAM AUTOMATING IT!"

THEORY:



REALITY:



CAN YOU PASS
THE SALT?



I SAID—

I KNOW! I'M DEVELOPING
A SYSTEM TO PASS YOU
ARBITRARY CONDIMENTS.

IT'S BEEN 20
MINUTES!

IT'LL SAVE TIME
IN THE LONG RUN!



QUESTIONS?

