

# Continuous Integration with Xcode 5

Session 412

**Andrew Nesbitt**

Software Engineering Manager, OS X Server

These are confidential sessions—please refrain from streaming, blogging, or taking pictures

# Building Better Apps

# Building Better Apps

Using continuous integration

# Introduction

- Why continuous integration?
  - Terminology refresher
- Explore the Xcode service
  - Configuring OS X Server
  - Bots in Xcode 5
  - Web App and Scoreboard
- Best practices

# Why Continuous Integration?

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- Testing on multiple OS versions and hardware models

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- Gather build and test history for your project

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- Testing on multiple OS versions and hardware models
- Build, analyze, and test your project often
- Catch problems quickly and automatically
- Let a server do the heavy-lifting
- Gather build and test history for your project
- Easily distribute builds to your team

# Terminology

# Terminology



**Scheme**

Recipe for building  
your project

# Terminology

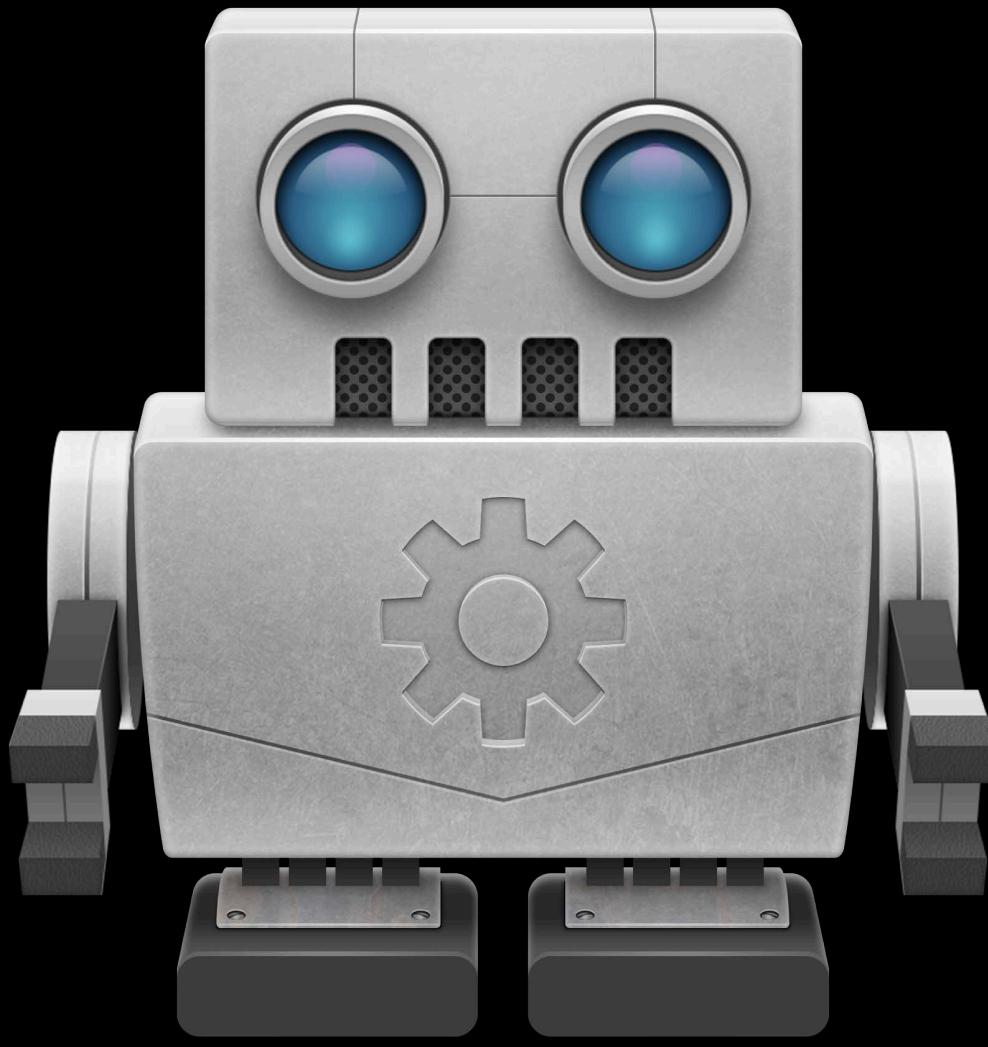


**Scheme**  
Recipe for building  
your project

# Terminology



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Recipe for building  
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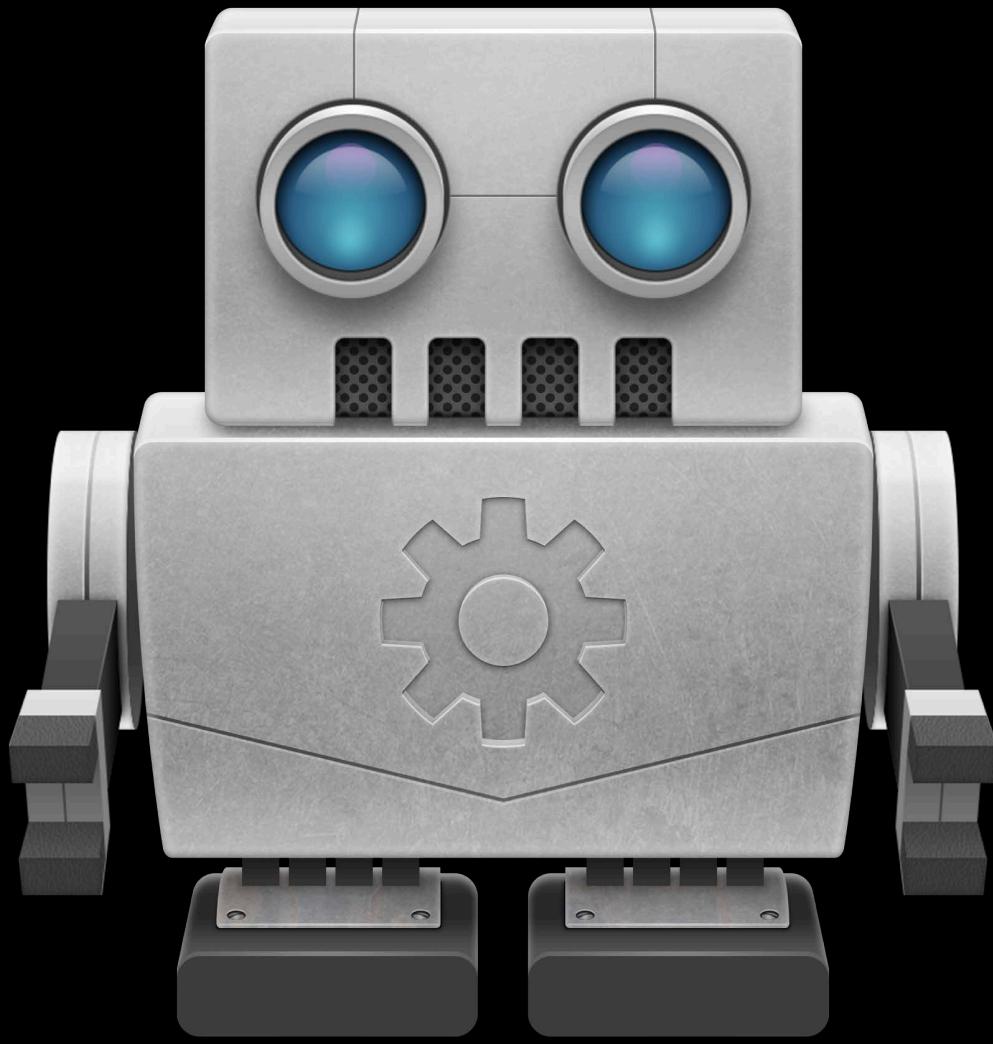


**Bot**  
Analyze, build,  
test, and archive  
on a schedule

# Terminology



**Scheme**  
Recipe for building  
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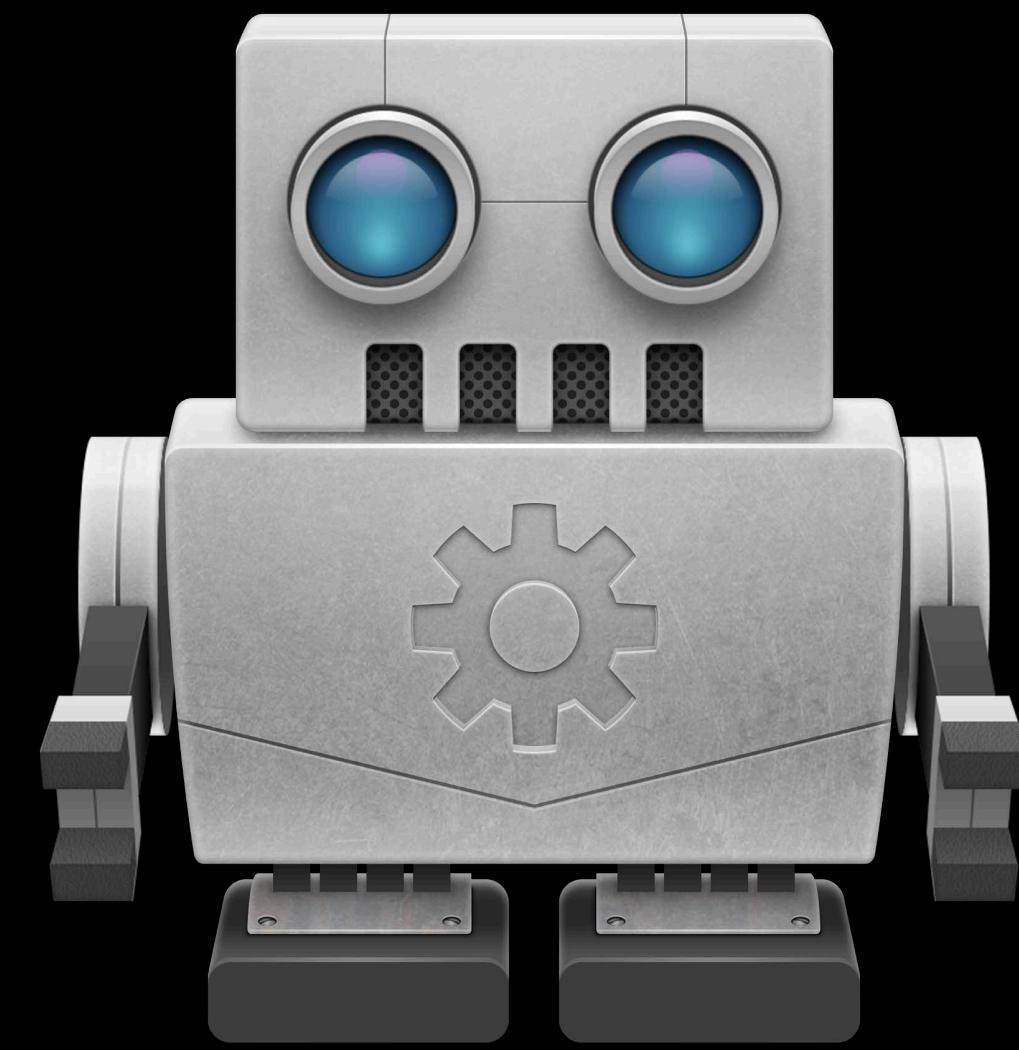


**Bot**  
Analyze, build,  
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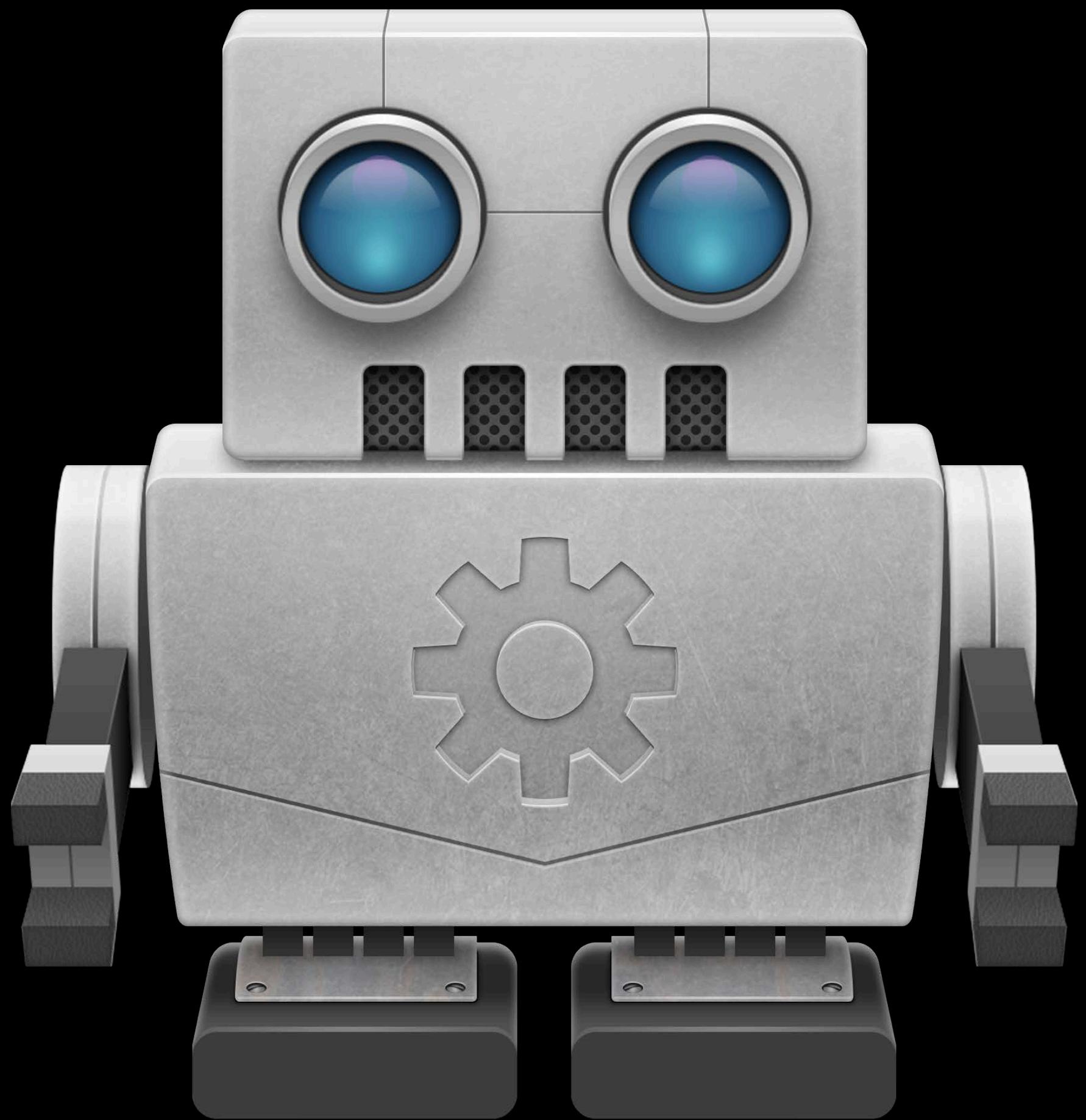


**Integration**  
A single run  
of a bot

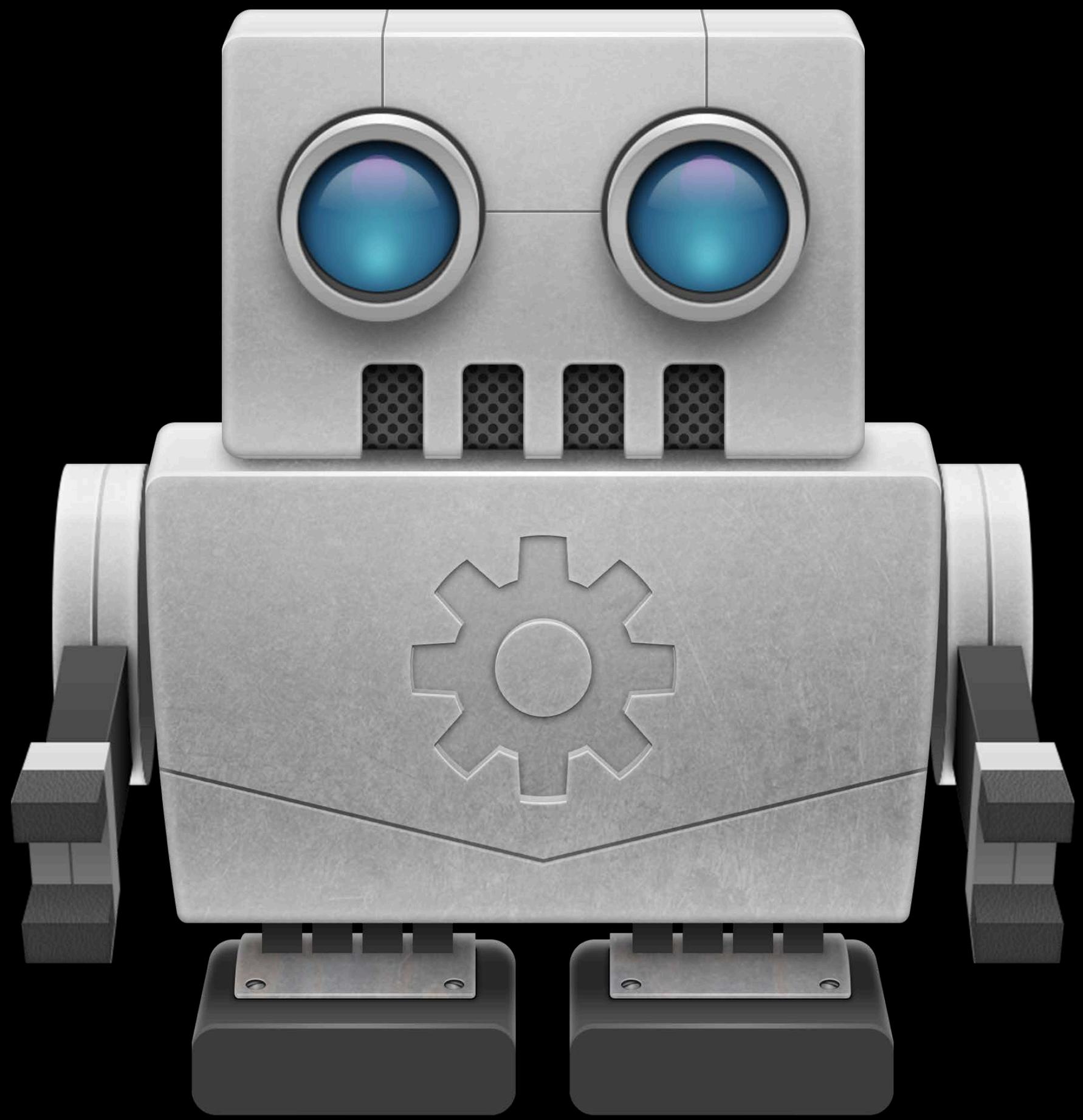
# Bot



# Bot

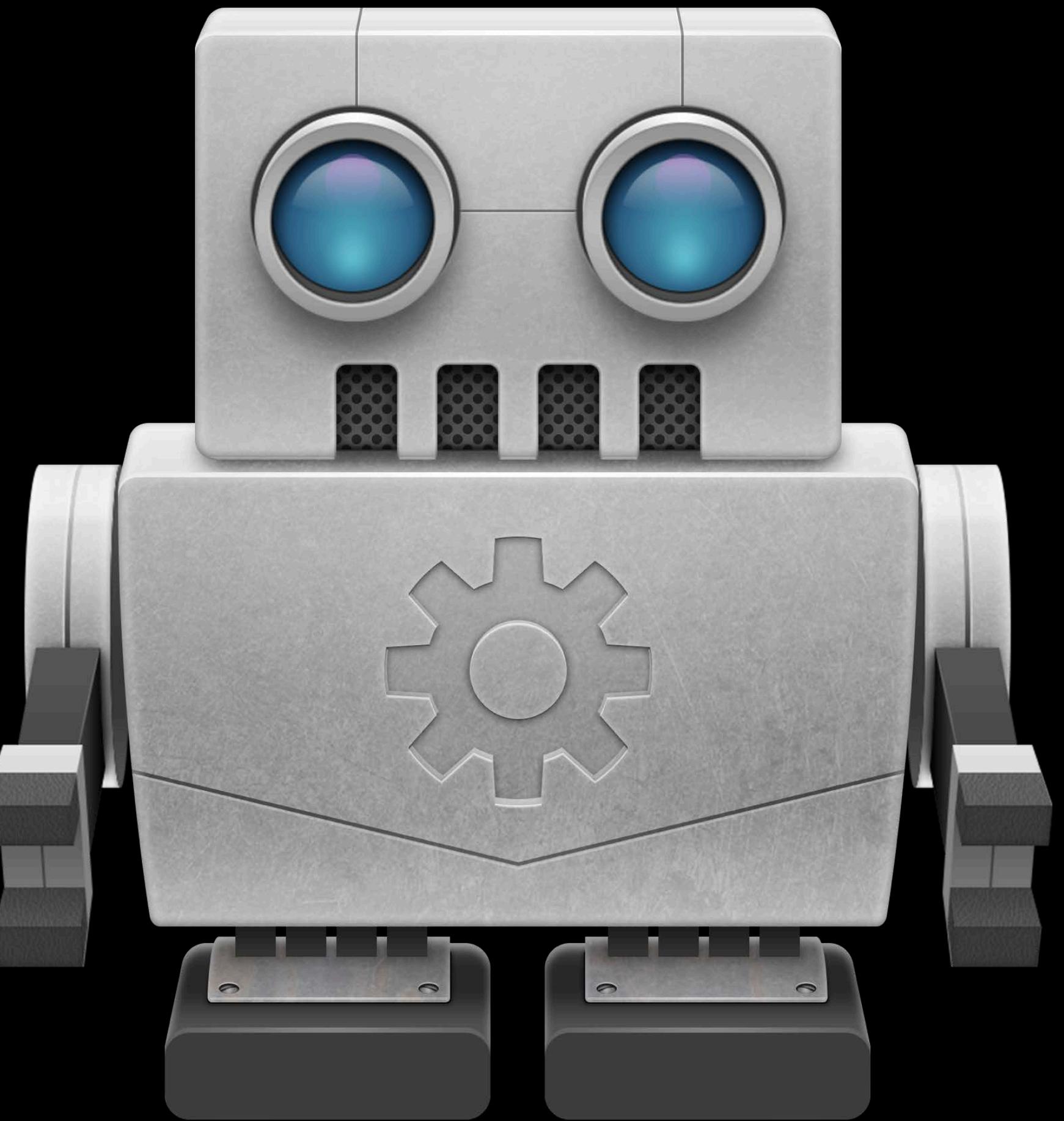


# Bot



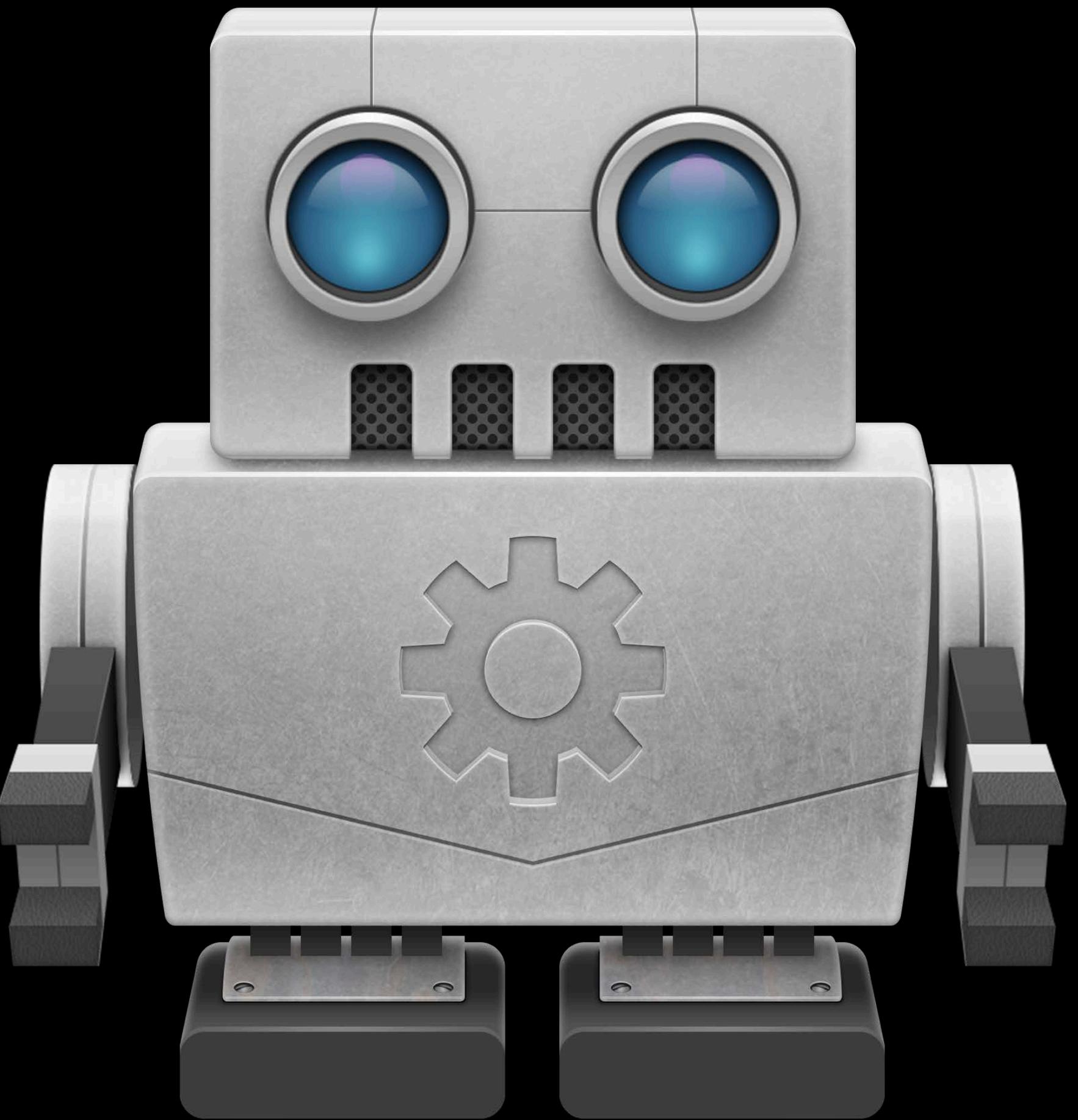
# Bot

- Defines what to build



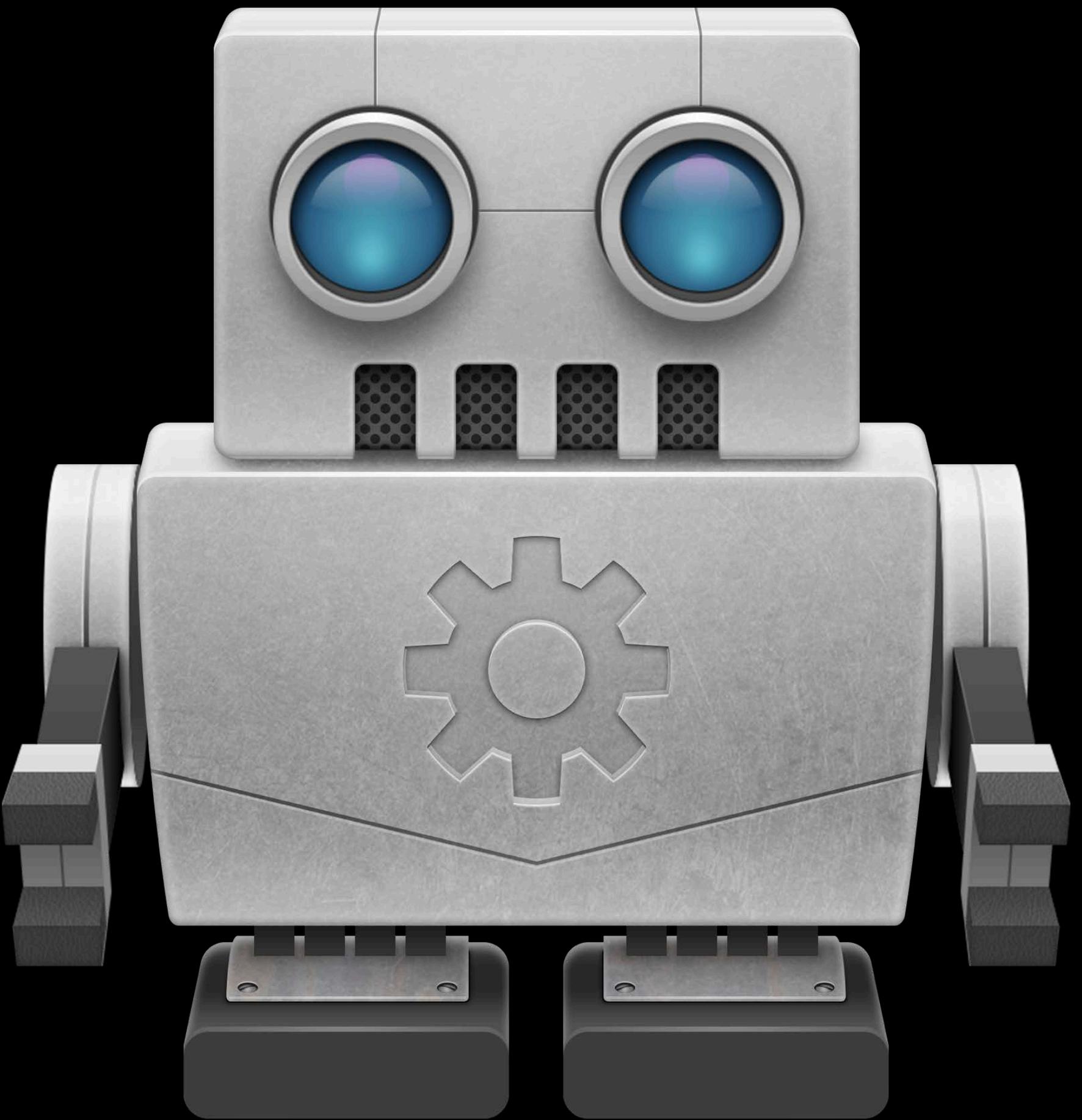
# Bot

- Defines what to build
  - Project and SCM information



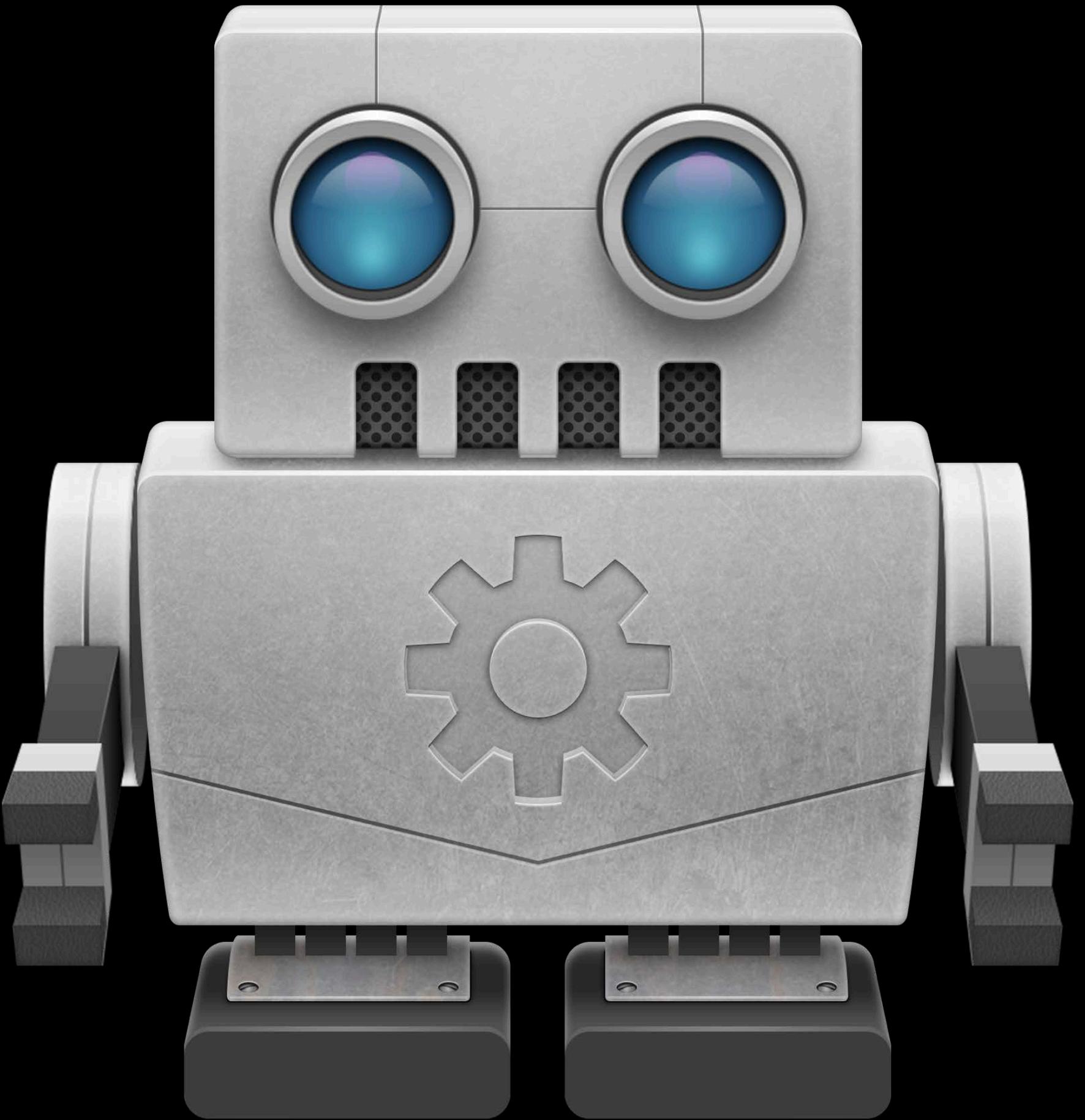
# Bot

- Defines what to build
  - Project and SCM information
- When to build it



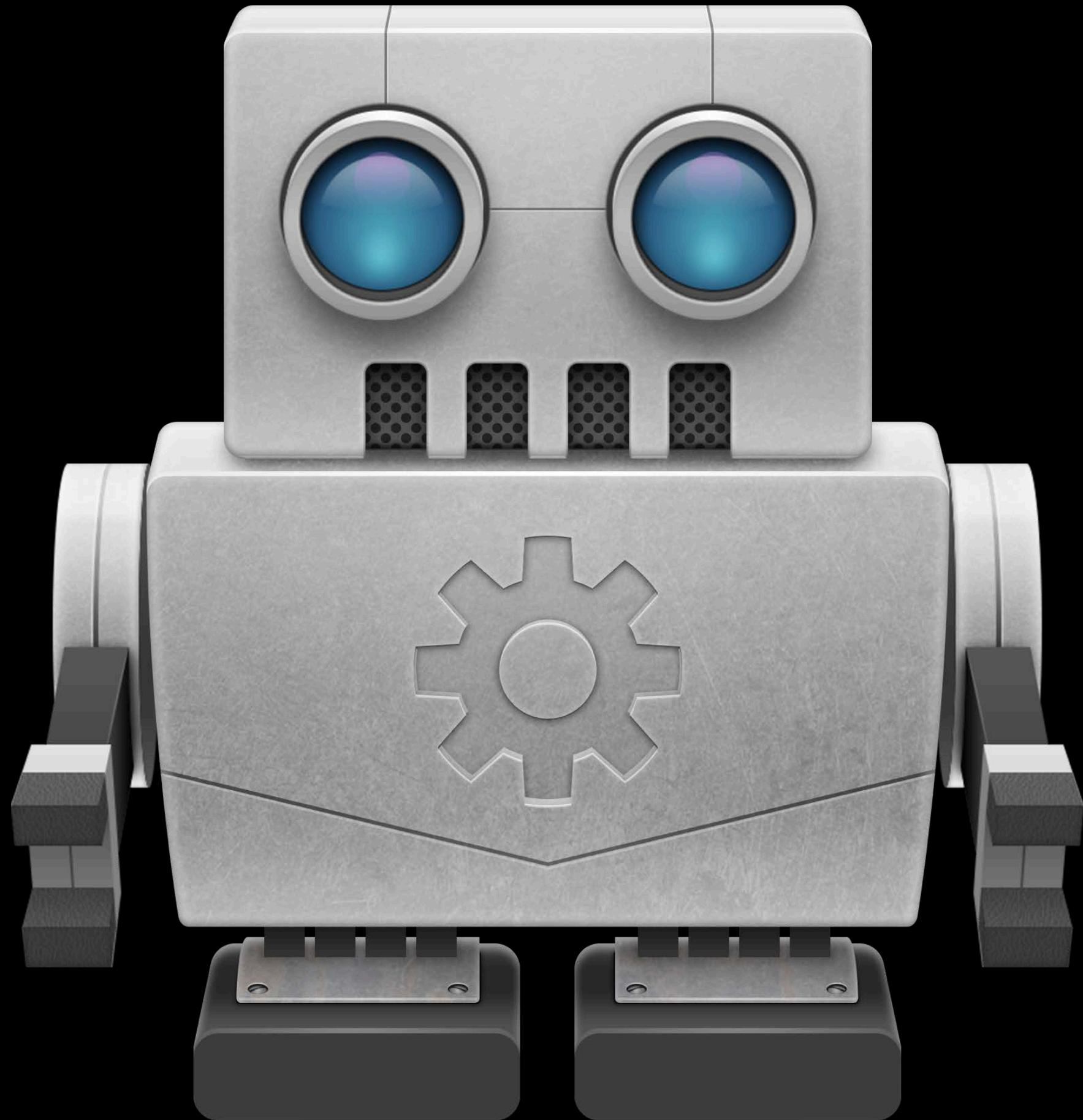
# Bot

- Defines what to build
  - Project and SCM information
- When to build it
  - Periodic, on-commit, or manual



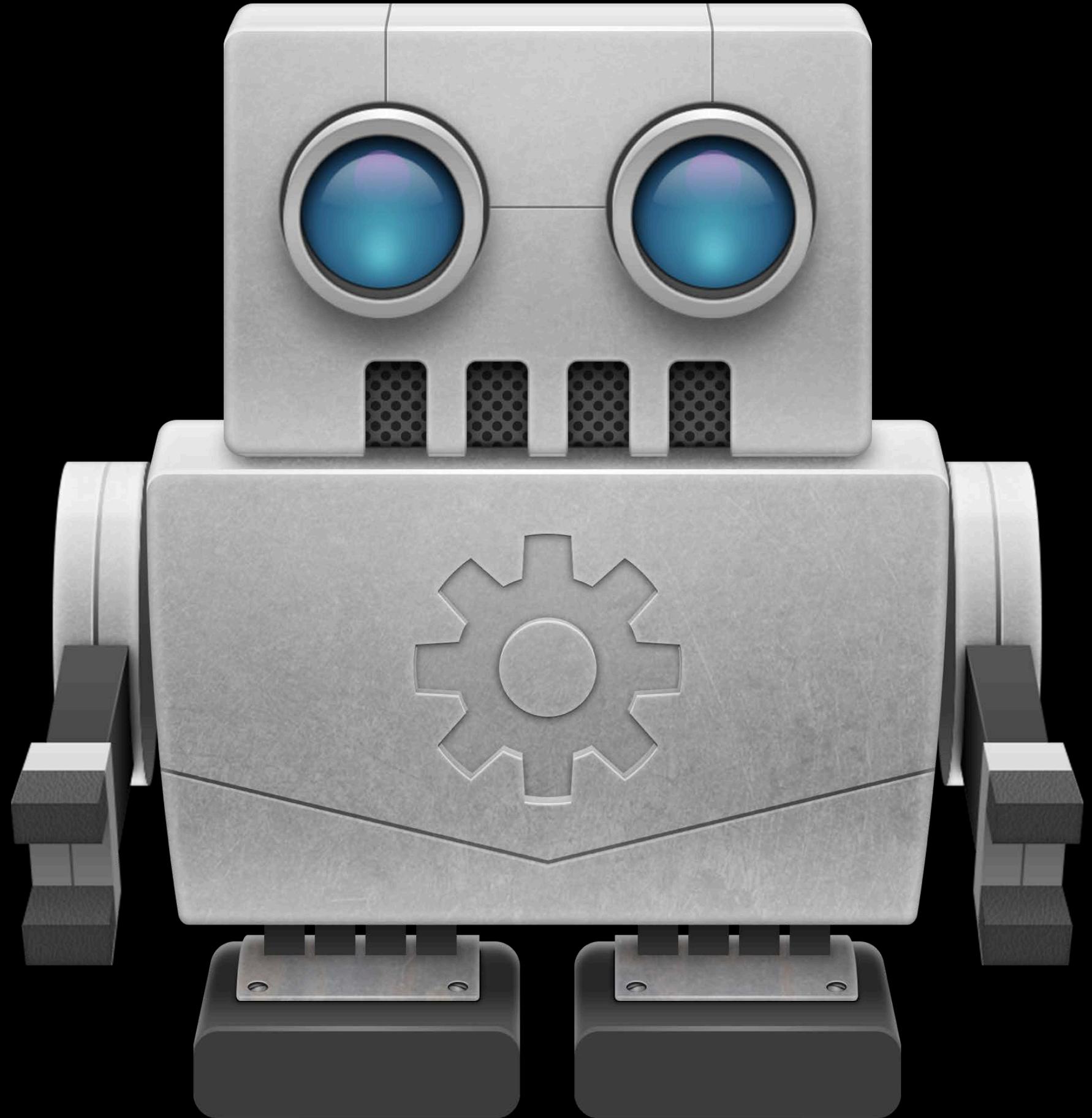
# Bot

- Defines what to build
  - Project and SCM information
- When to build it
  - Periodic, on-commit, or manual
- How to build it



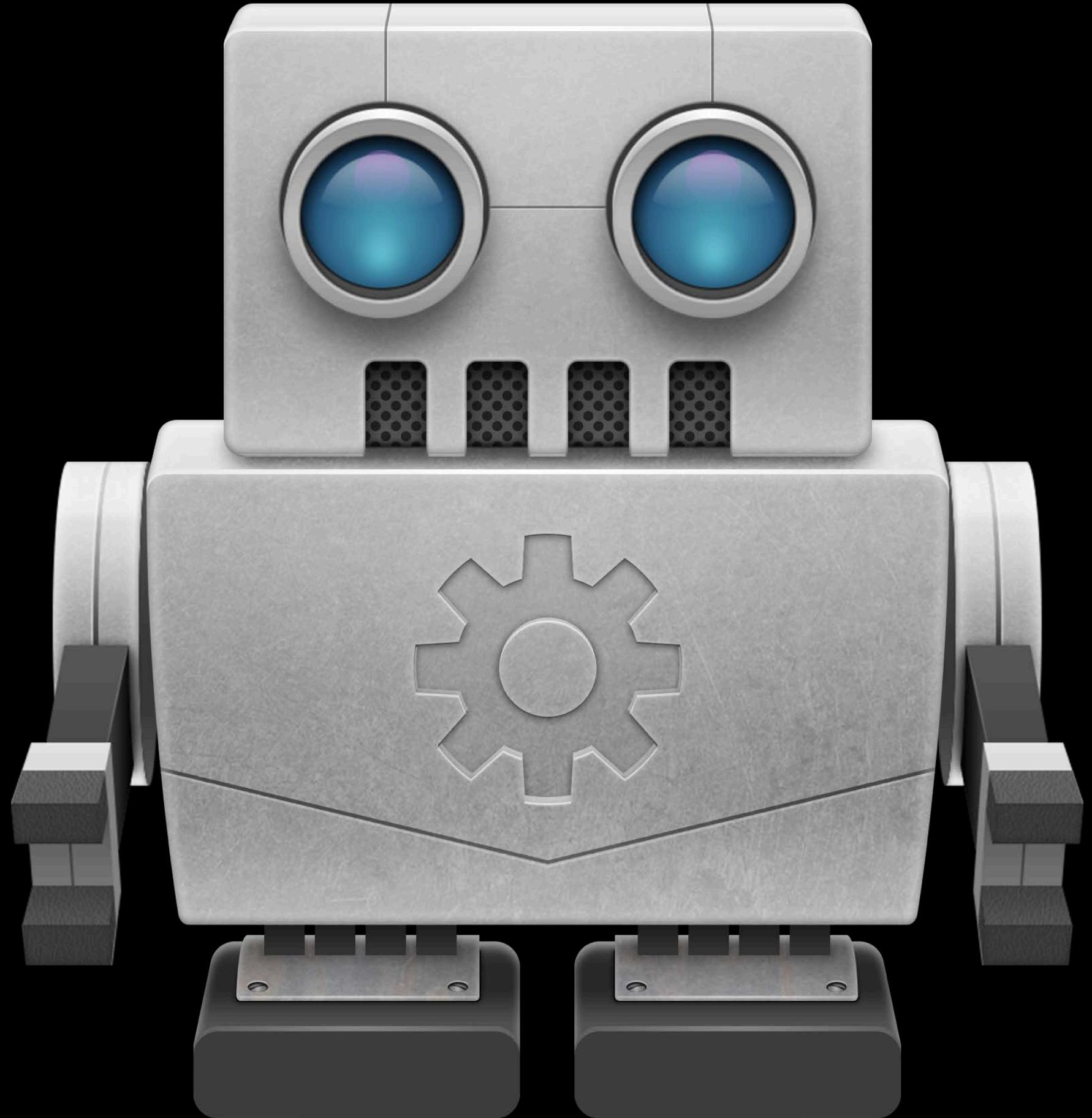
# Bot

- Defines what to build
  - Project and SCM information
- When to build it
  - Periodic, on-commit, or manual
- How to build it
  - Shared scheme



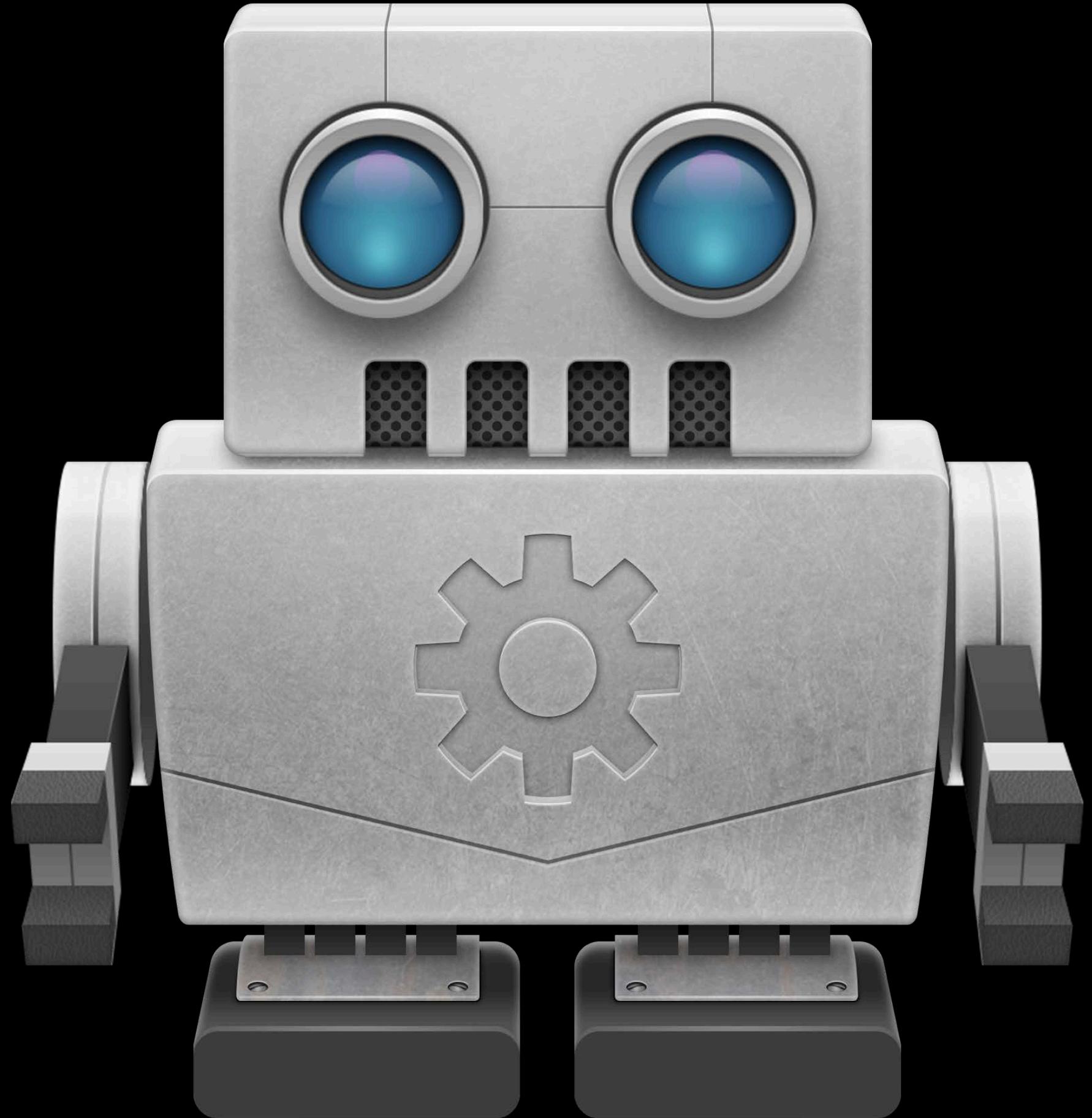
# Bot

- 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



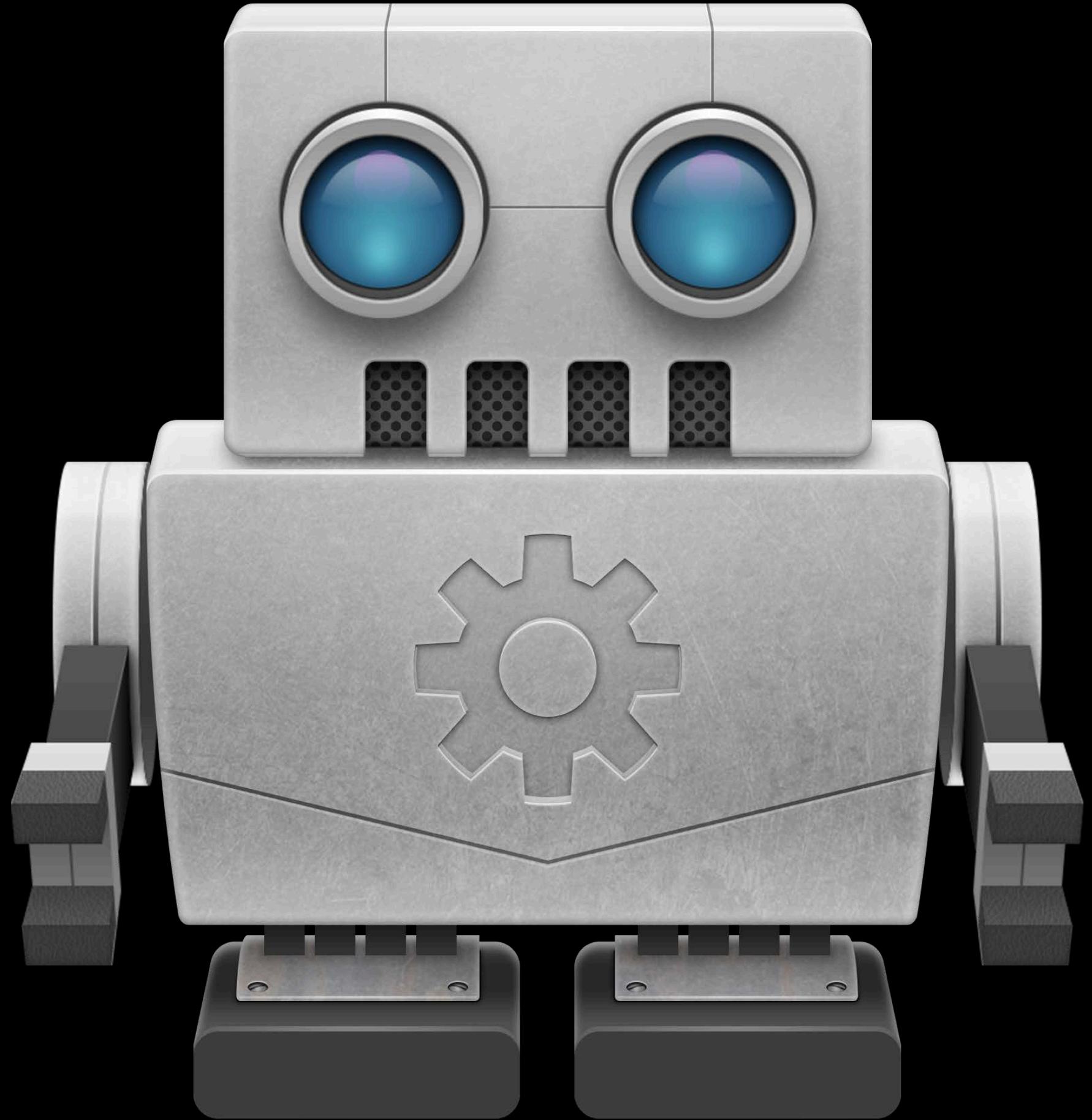
# Bot

- 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



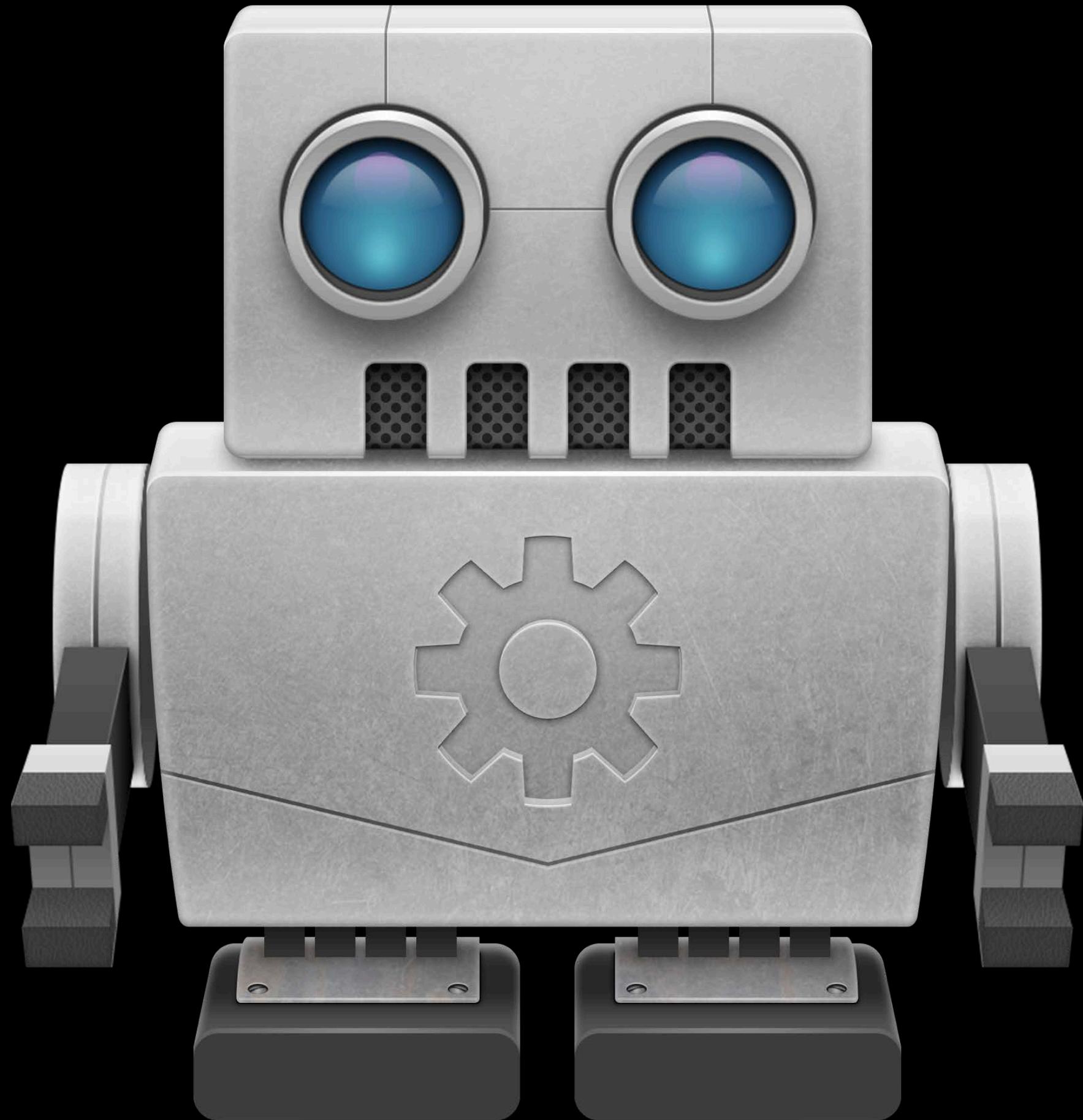
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  - Archives



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- When to build it
  - Periodic, on-commit, or manual
- How to build it
  - Shared scheme
  - Static analysis
  - Testing and devices
  - Archives
- Notifications







# OS X Server

## Preview



# OS X Server Preview



# Xcode 5.0



# OS X Server Preview



Xcode  
5.0



# OS X Server



# OS X Server



- Easy install from the Mac App Store

# OS X Server



- Easy install from the Mac App Store
- Simple setup

# OS X Server



- Easy install from the Mac App Store
- Simple setup
- Brand new UI









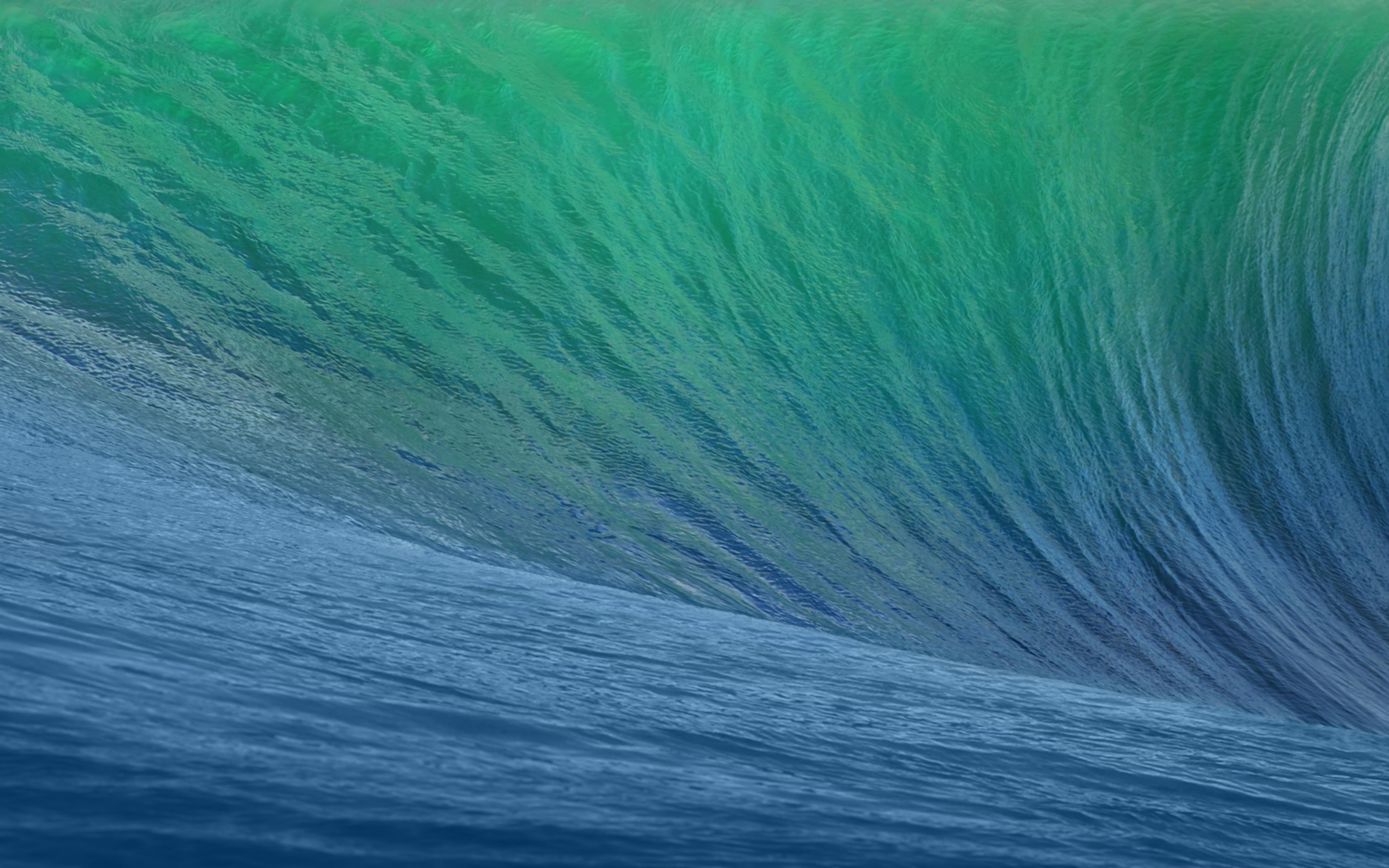












**Server**

**Andrew's MacBook Pro**

**Overview** **Settings** **Storage**

**Access**

Host Name: **xcodeserverdemo@icloud.com** **Edit...**  
Learn about accessing this server over the internet

Computer Name: **Andrew's MacBook Pro** **Edit...**  
Your server is available at this address on the local network.

**Server**

Running for: 9 hours, 57 minutes  
System Version: OS X 10.9 (Build 13A476l)  
Server Version: Server 2.2.55 (Build 13S264)

**Networks**

Wi-Fi: 10.0.1.3

**SERVER**

- Andrew's MacBook Pro
- Andrew's Airport Express
- Alerts
- Certificates
- Logs
- Stats

**ACCOUNTS**

- Users
- Groups

**SERVICES**

- Caching
- Calendar
- Contacts
- File Sharing
- Mail
- Messages
- Time Machine
- VPN
- Websites
- Wiki
- Xcode

**ADVANCED**

# OS X Server



- Easy install from the Mac App Store
- Simple setup
- Brand new UI

# OS X Server



- Easy install from the Mac App Store
- Simple setup
- Brand new UI
- New Xcode service



# Xcode Service



- Bonjour discovery

# Xcode Service



- Bonjour discovery
- Easily create and manage bots that build Mac and iOS projects

# Xcode Service



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  - Access settings (bot creators and viewers)

# Xcode Service



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- Hosted Git repositories

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  - Join your server to your development team
- Devices
  - Add/Remove devices from your team
  - Run tests on multiple iOS devices
- Hosted Git repositories
- Connect to remote SVN or Git repositories

 Xcode Server Demo

 Andrew's AirPort Express

 Alerts

 Certificates

 Logs

 Stats

**ACCOUNTS**

 Users

 Groups

**SERVICES**

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 Profile Manager

 Time Machine

 VPN

 Websites

 Wiki

 Xcode

**ADVANCED**

**Server**

 **Xcode**

OFF

**Access**

Status:  Available on your local network at **xcode-server-demo.local**

Learn about configuring devices for this service 

Permissions: Anyone can create and view bots

**Builds**

Perform builds using: **Xcode 5.0 (5A11314m)**

Developer Teams: No Teams

**Devices**

Add a developer team to test on iOS devices

Server

**Xcode**

OFF  ON

Access

Status: Available on your local network at **xcode-server-demo.local**  
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Permissions: Anyone can create and view bots [Edit...](#)

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 View bots   Filter Devices

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**ADVANCED**

 Xcode Server Demo

 Andrew's AirPort Express

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**ADVANCED**

**Sign in to Apple Developer**

Sign in using an Apple ID and password associated with an Apple Developer Program.

Apple ID:

Password:

See [Use of these Apple services is subject to your Apple Developer Program License Agreement.](#)

Perform builds using: Xcode 5.0 (5A11314m) [Choose...](#)

Developer Teams: No Teams [Add...](#)

Add a developer team to test on iOS devices

[View bots](#) [Filter Devices](#)

**Server**

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P ? Signing in... Cancel Sign In Edit...

**Builds**

Perform builds using: Xcode 5.0 (5A11314m) Choose...

Developer Teams: No Teams Add...

**Devices**

Add a developer team to test on iOS devices

View bots Filter Devices

**Server**

Your Apple ID is a member of the Xcode Server Demo development team. Do you want to add this server to this team?

OS X Server will obtain new signing certificates for all App IDs belonging to this team, and will be visible as a member of this team on the Mac and iOS Dev Centers.

**Add** **Don't Add**

Status: Available on your local network at [http://xcode-server-demos.xcode-server-demos.local](#)

Learn about configuring devices for this service [»](#)

Permissions: Anyone can create and view bots [Edit...](#)

Builds

Perform builds using: Xcode 5.0 (5A11314m) [Choose...](#)

Developer Teams: No Teams [Add...](#)

Devices

Add a developer team to test on iOS devices

[View bots](#) [Filter Devices](#)

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**ADVANCED**

 Xcode Server Demo

 Andrew's AirPort Express

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 ADVANCED

**Joining Xcode Server Demo...**

OFF  ON

Access

Status:  Available on your local network at **xcode-server-demo.local**

Learn about configuring devices for this service 

Permissions: Anyone can create and view bots 

Builds

Perform builds using: **Xcode 5.0 (5A11314m)** 

Developer Teams: No Teams 

Devices

Add a developer team to test on iOS devices

 View bots 

 Filter Devices

 Xcode Server Demo

 Andrew's AirPort Express

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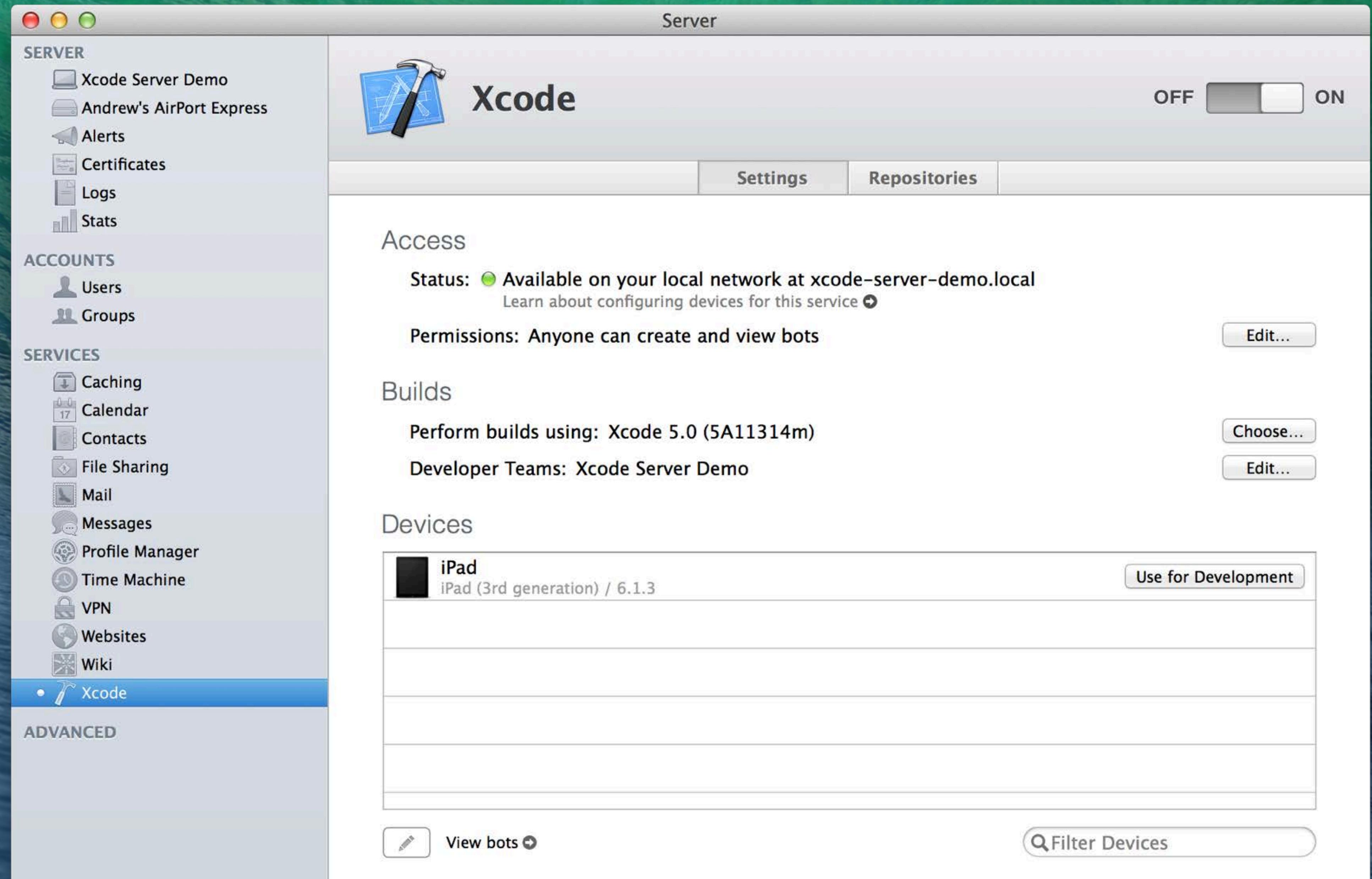
Developer Teams: **Xcode Server Demo**

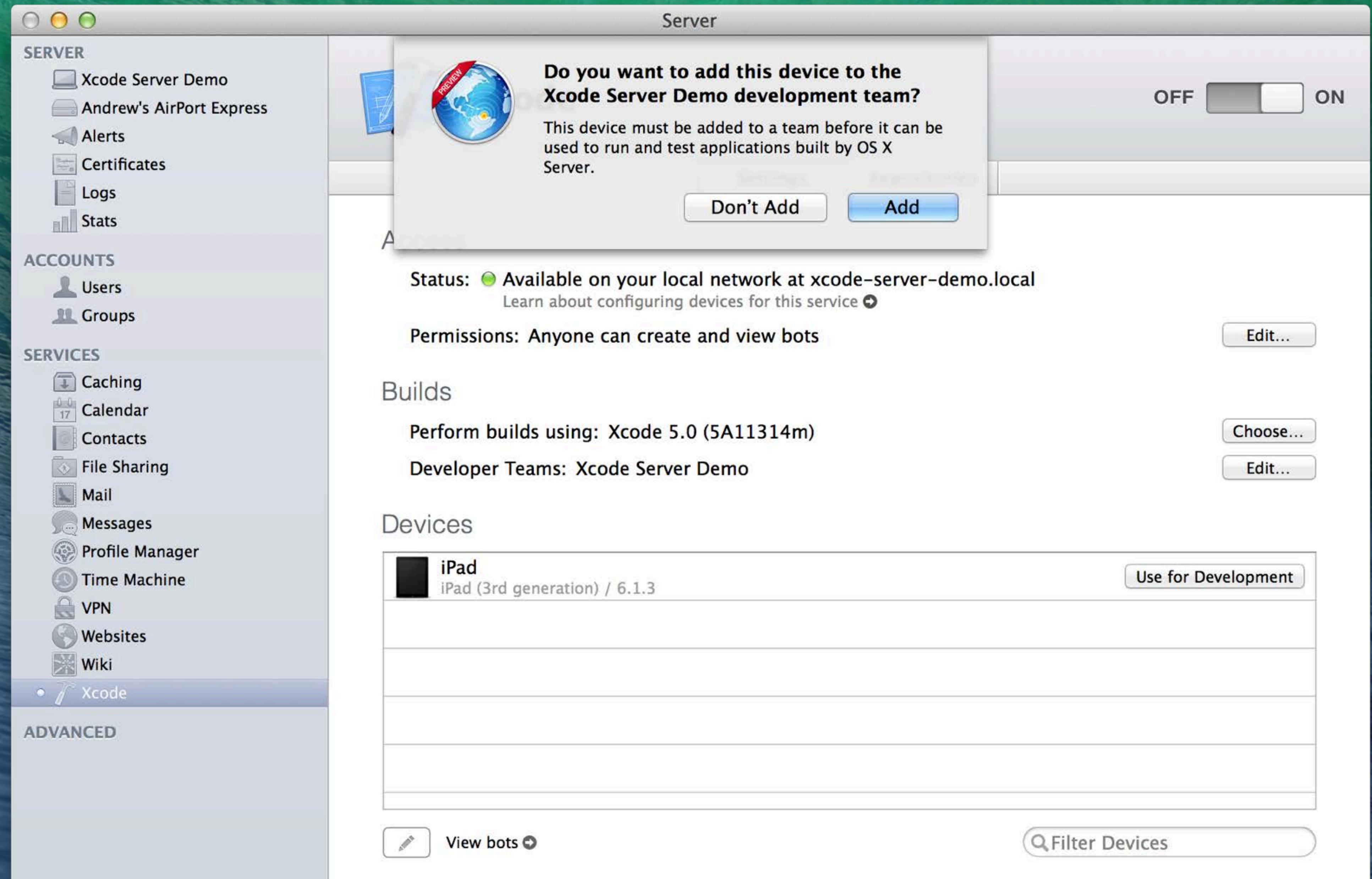
**Devices**

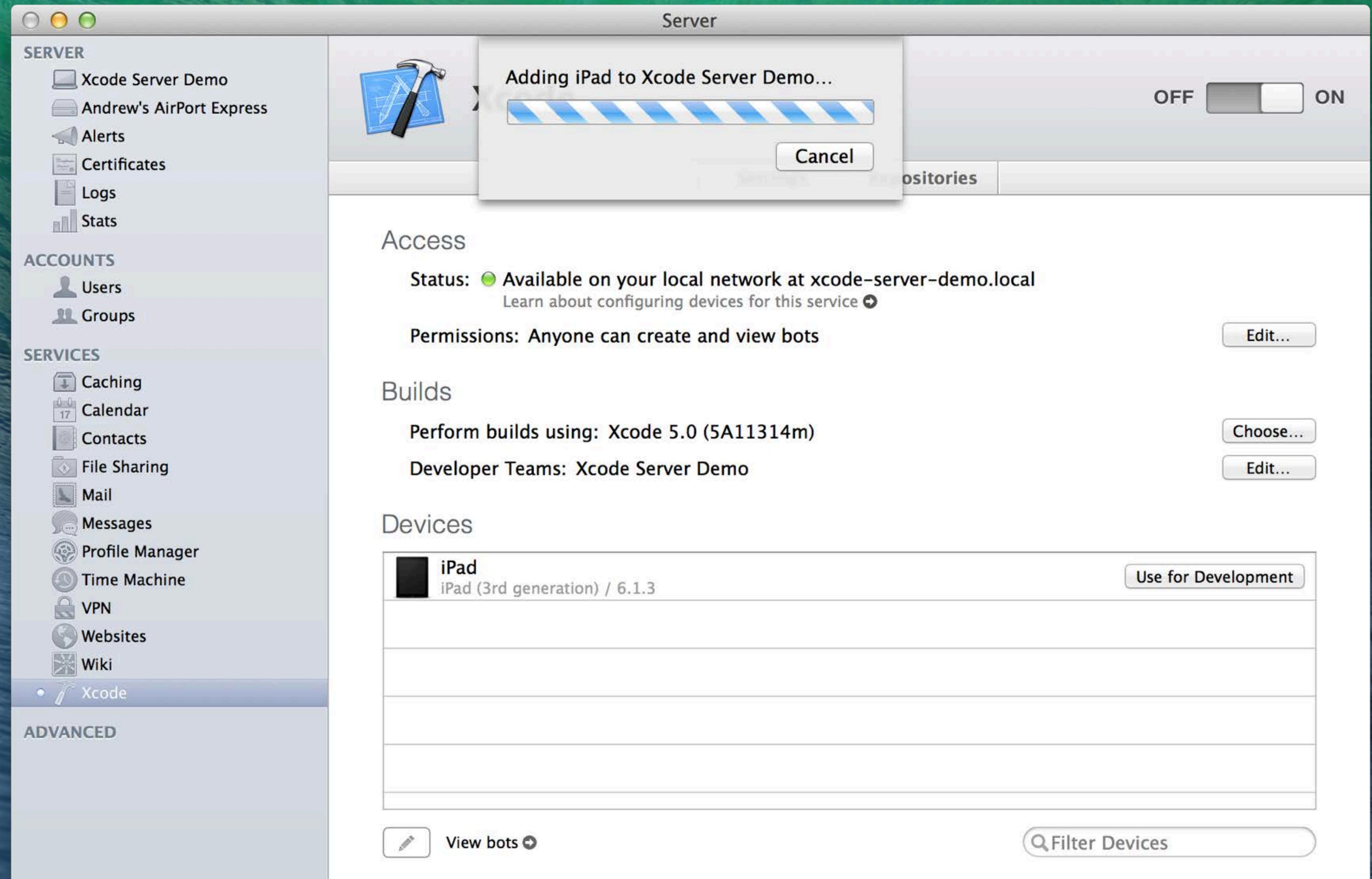
No devices connected











The screenshot shows the Xcode Server application window. The left sidebar contains navigation links for SERVER (Xcode Server Demo, Andrew's AirPort Express, Alerts, Certificates, Logs, Stats), ACCOUNTS (Users, Groups), SERVICES (Caching, Calendar, Contacts, File Sharing, Mail, Messages, Profile Manager, Time Machine, VPN, Websites, Wiki), and ADVANCED (Xcode). The main content area is titled 'Xcode' and features a hammer icon. It displays the following sections: 'Access' (Status: Available on your local network at xcode-server-demo.local, Learn about configuring devices for this service), 'Permissions' (Anyone can create and view bots, Edit... button), 'Builds' (Perform builds using: Xcode 5.0 (5A11314m), Choose... button, Developer Teams: Xcode Server Demo, Edit... button), and 'Devices' (List of devices: iPad (3rd generation) / 6.1.3, Xcode Server Demo). At the bottom are buttons for View bots and Filter Devices.

**Server**

**Xcode**

OFF

**Access**

Allow access to hosted repositories over HTTP, HTTPS, and SSH

Hosted repositories can be created by: Logged in users

**Repositories**

Click (+) to add repositories

**SERVER**

- Xcode Server Demo
- Andrew's AirPort Express
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- Certificates
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- Users
- Groups

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**ADVANCED**

**Server**



# Xcode

OFF

**Access**

Allow access to hosted repositories over HTTP, HTTPS, and SSH

Hosted repositories can be created by: Logged in users

**Repositories**

**Hosted Repositories**

-  **Bubblegum**  
<https://Xcode-Server-Demo.local/git/Bubblegum.git>

**Remote Repositories**

-  **SharedLibraries**  
<svn+ssh://bubbleinc.com/svn/libraries>

**SERVER**

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**ADVANCED**



# OS X Server

## Preview



# OS X Server Preview



# Xcode 5.0

# Xcode 5



# Xcode 5



- New account preferences

# Xcode 5



- New account preferences
- Create and edit bots in Xcode

# Xcode 5



- New account preferences
- Create and edit bots in Xcode
- Beautiful reports for build and test history

# Xcode 5



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- New account preferences
- Create and edit bots in Xcode
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    - Dig into errors, issues, and warnings

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# Xcode 5



- New account preferences
- Create and edit bots in Xcode
- Beautiful reports for build and test history
  - Assistant editor support
    - Dig into errors, issues, and warnings
    - View test results across multiple devices and over time
    - Commit history and logs

# Xcode 5



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  - View and download archives of your project

# Xcode 5



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- Source control integration

# *Demo*

## Continuous integration in Xcode 5

**Brent Shank**  
Software Engineer, Xcode



# Welcome to Xcode

Version 5.0 (5A11314m)



## Create a new Xcode project

Start building a new iPhone, iPad or Mac application.

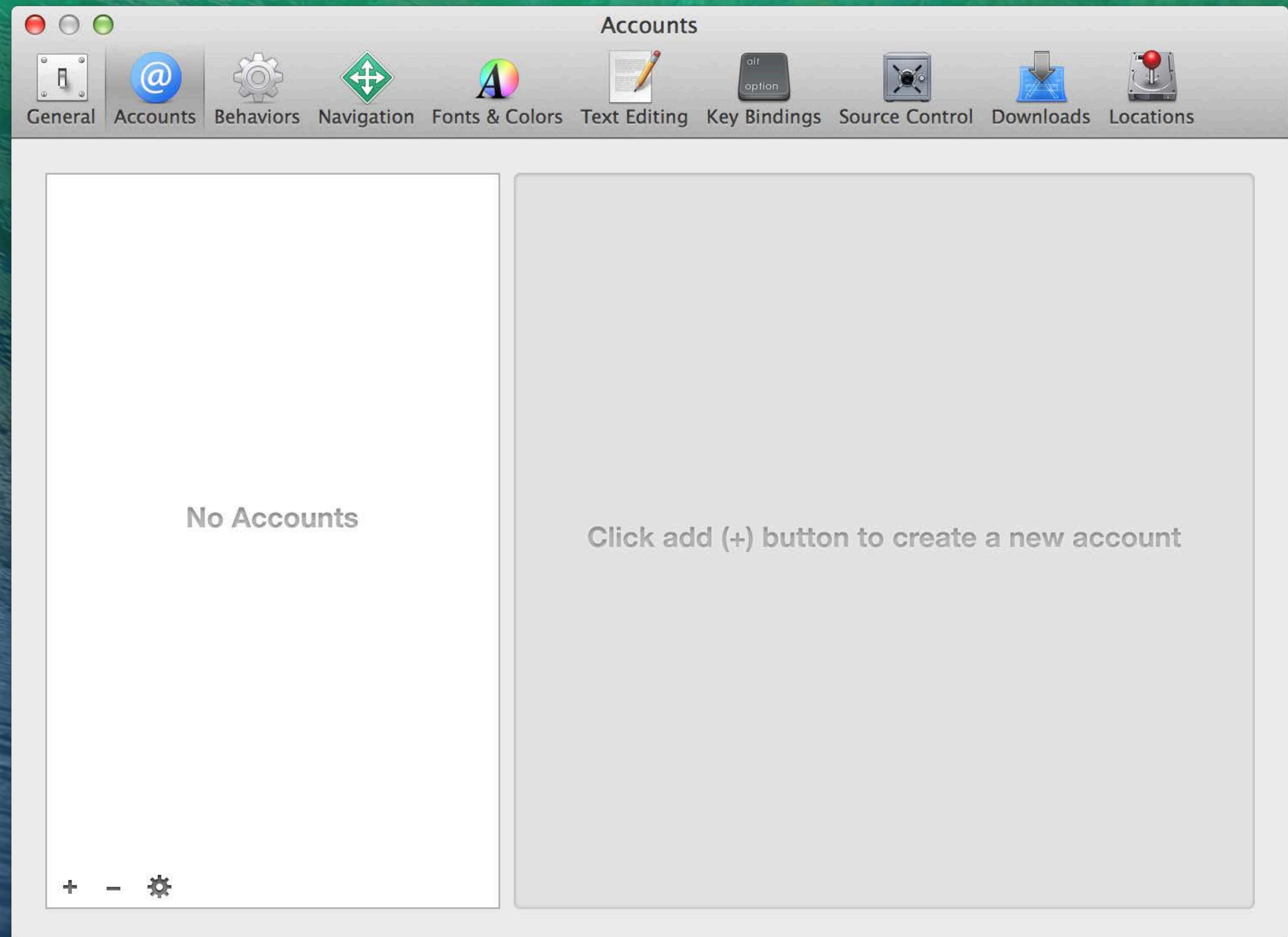


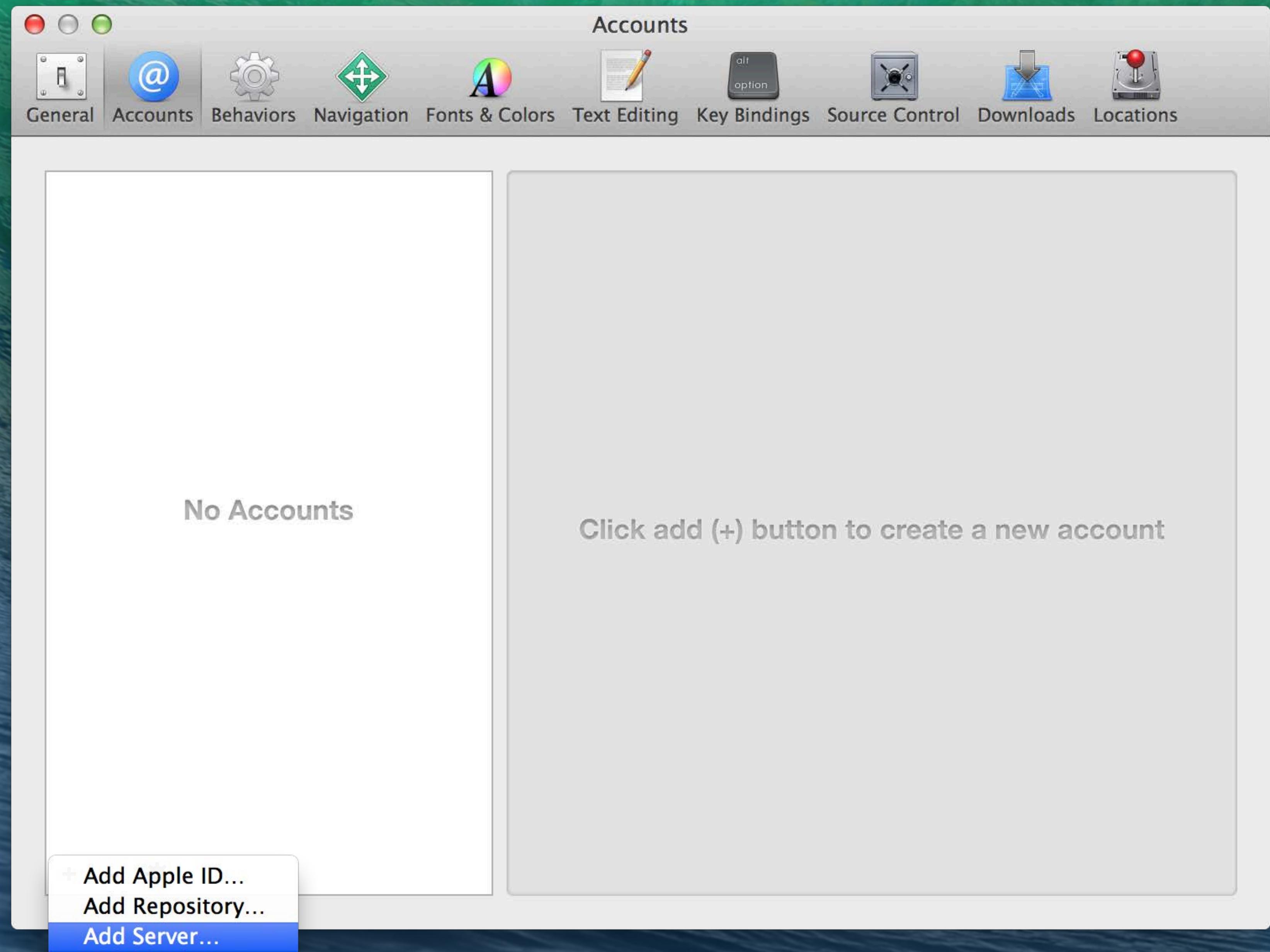
## Check out an existing project

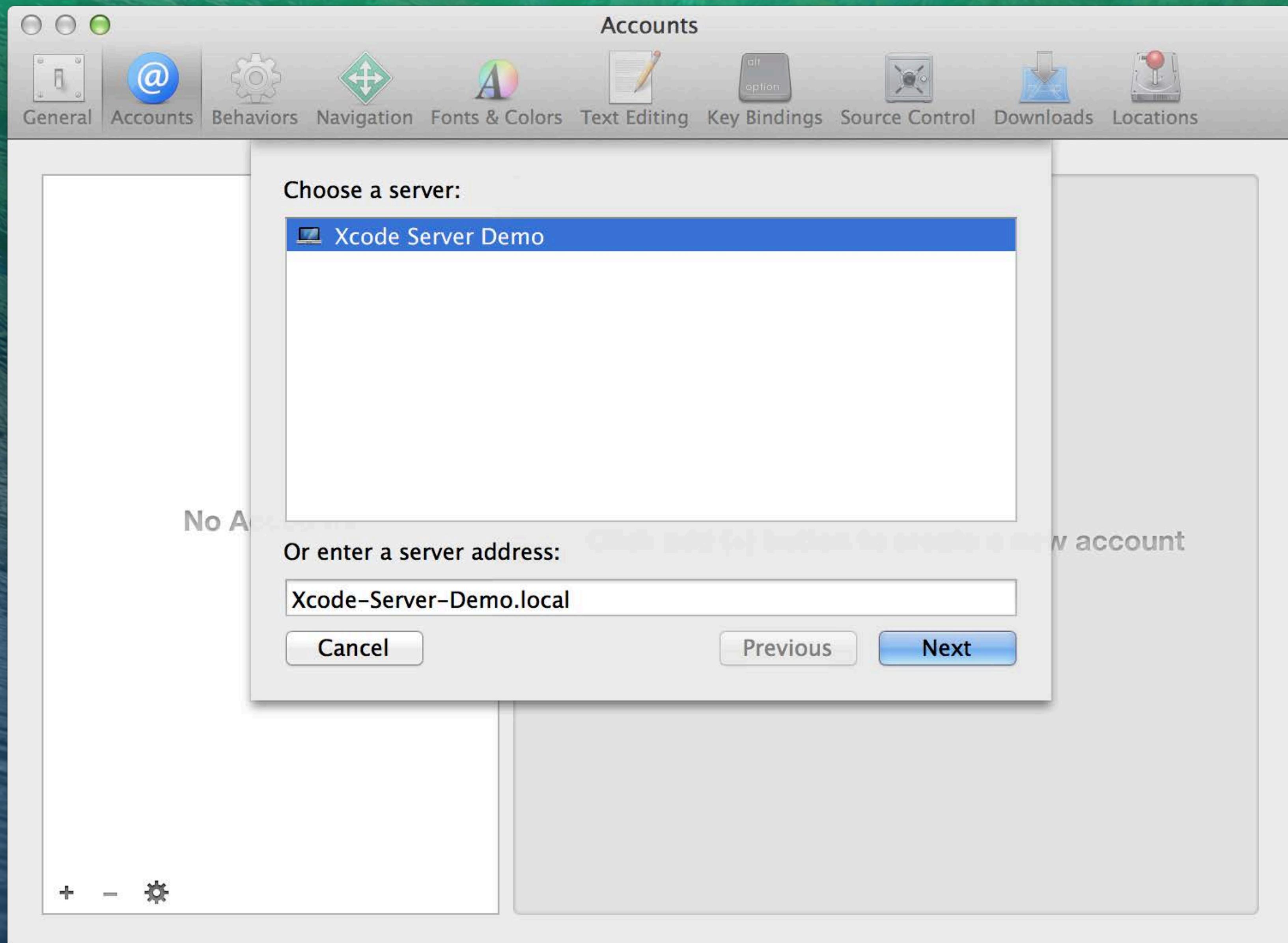
Start working on something from an SCM Repository.

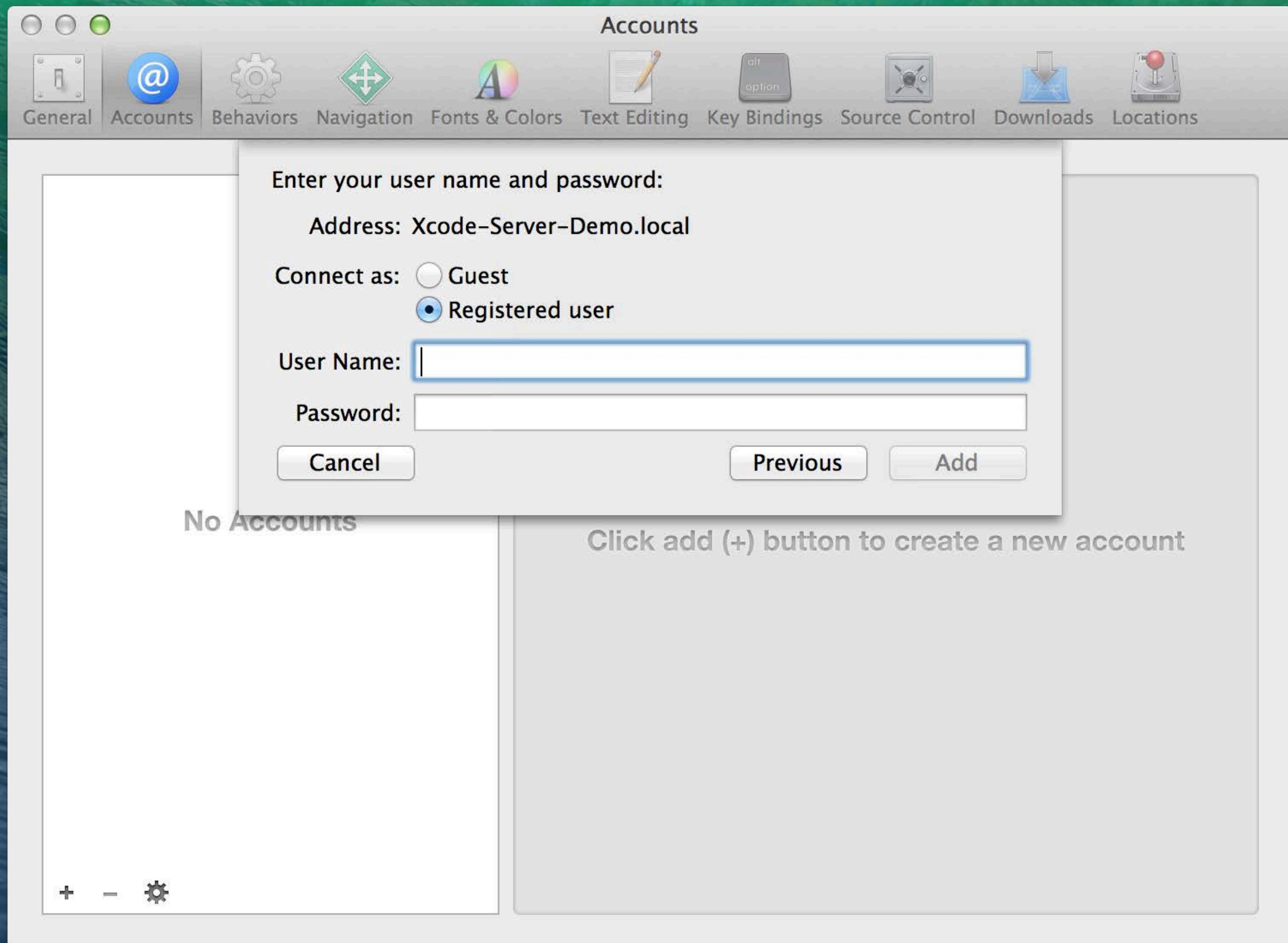
No Recent Projects

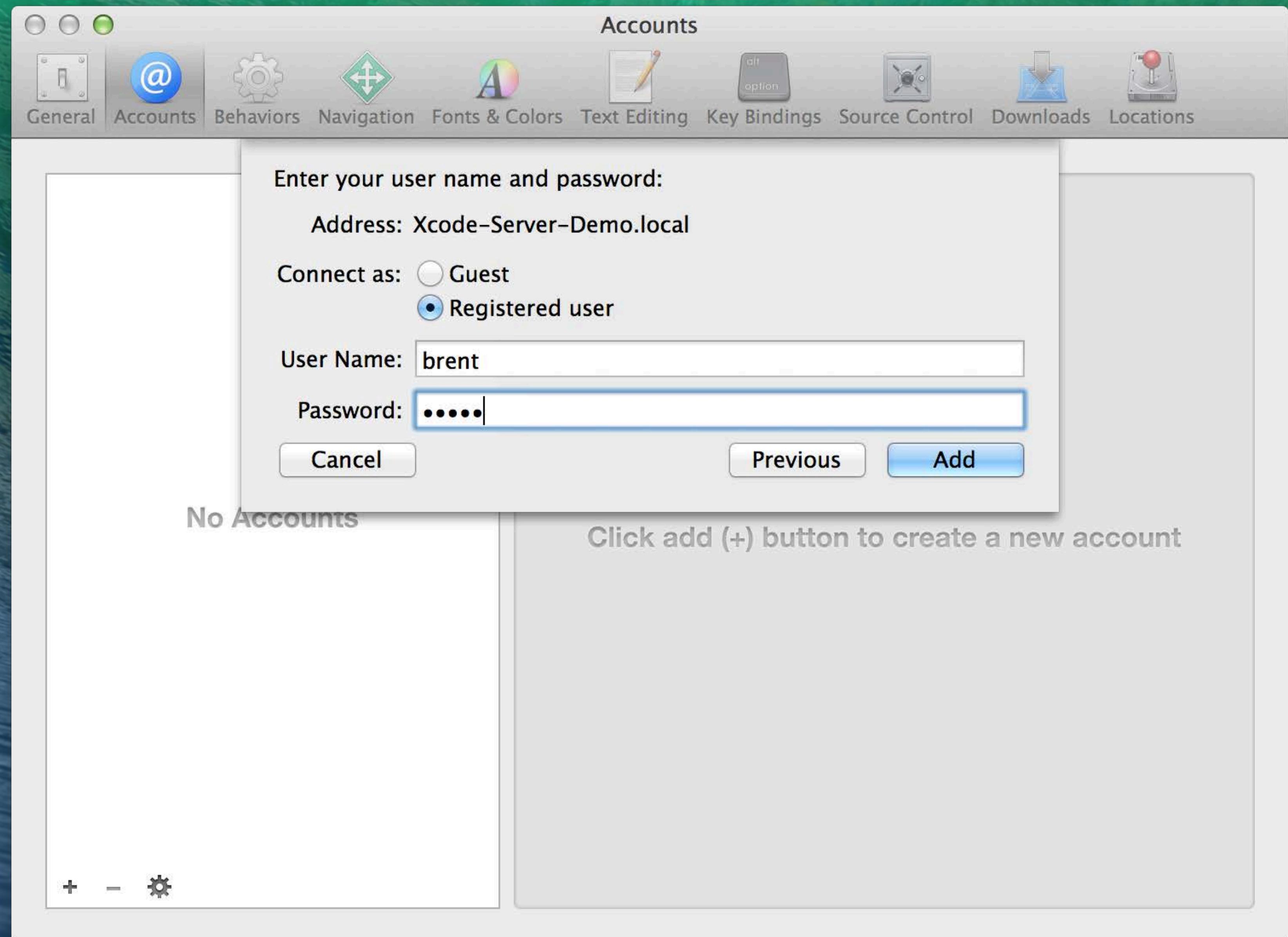
Open Other...

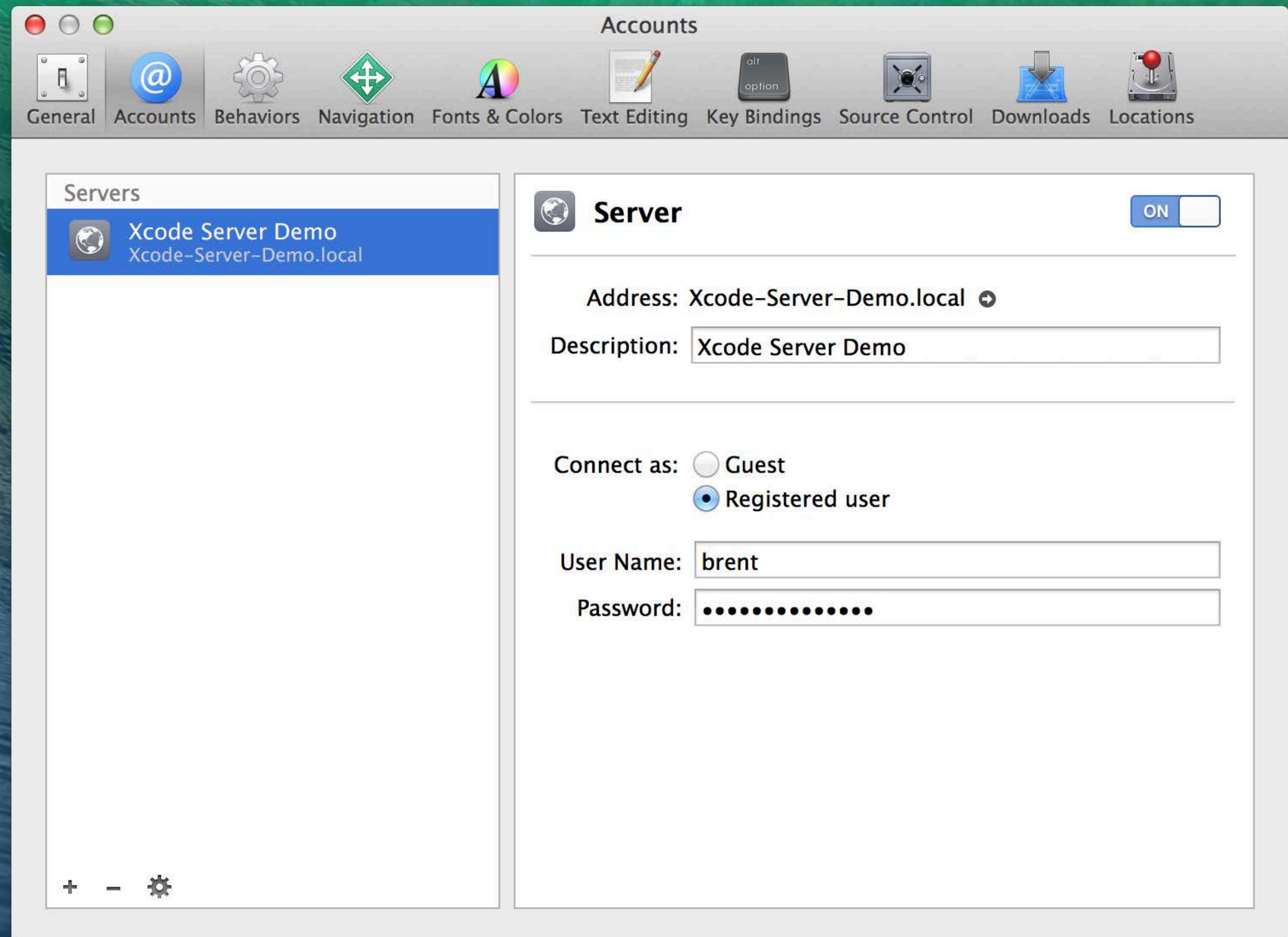












## Check Out

Choose an item:

Recents

Favorites

**Repositories**



**Ace**

ssh://Xcode-Server-Demo.local/git/Ace.git



**Avocado**

ssh://Xcode-Server-Demo.local/git/Avocado.git



**Bubblegum**

ssh://Xcode-Server-Demo.local/git/Bubblegum.git



**Epsilon**

ssh://Xcode-Server-Demo.local/git/Epsilon.git



**Gaia**

ssh://Xcode-Server-Demo.local/git/Gaia.git



**Guacamole**

ssh://Xcode-Server-Demo.local/git/Guacamole.git

Or enter a repository location:

Cancel

Previous

Next

## Check Out

Choose an item:

Recents

Favorites

**Repositories**



**Ace**

ssh://Xcode-Server-Demo.local/git/Ace.git



**Avocado**

ssh://Xcode-Server-Demo.local/git/Avocado.git



**Bubblegum**

ssh://Xcode-Server-Demo.local/git/Bubblegum.git



**Epsilon**

ssh://Xcode-Server-Demo.local/git/Epsilon.git



**Gaia**

ssh://Xcode-Server-Demo.local/git/Gaia.git



**Guacamole**

ssh://Xcode-Server-Demo.local/git/Guacamole.git

Or enter a repository location:

`ssh://brent@Xcode-Server-Demo.local/git/Bubblegum.git`

Cancel

Previous

Next

Bubblegum.xcodeproj

Bubblegum: Ready | Today at 1:06 PM

⚠ 2 ⚡ 1 • 1

By Group By Time

Project Yesterday, 6:41 PM Push Bubblegum Yesterday, 6:41 PM Bubblegum Xcode Server Demo

## Bubblegum

Summary Tests

Integrate Now

### Integration Results

Finished with test failures

Start: 6/7/13, 6:41 PM Duration: 53 seconds 2 commits by xcodeserverdemo...

0 Errors 1 Warning 1 Analysis 4 Tests Failed

### Build History

■ Errors ■ Warnings ■ Analysis Issues

No Issues

268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298

### Test History

■ Failure ■ Success

No Issues

268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298

### Integration Details

▼ ⚡ Warnings

Add suggested flavors here some day  
Bubblegum — BubblegumFactory.m

▼ ⚡ Analysis Issues

Value stored to 'flavors' during its initialization is never read  
Bubblegum — BubblegumFactory.m

Bubblegum.xcodeproj

Bubblegum: Ready | Today at 1:06 PM

⚠ 2 ⚡ 1 • 1

By Group By Time

Project Yesterday, 6:41 PM

Push Bubblegum Yesterday, 6:41 PM

**Bubblegum** Xcode Server Demo

Integrate (298) Yesterday, 6:41 PM

Integrate (297) Yesterday, 6:26 PM

Integrate (296) Yesterday, 6:13 PM

Integrate (295) Yesterday, 6:12 PM

Integrate (294) Yesterday, 6:11 PM

Integrate (293) Yesterday, 6:10 PM

Integrate (289) Yesterday, 6:06 PM

Integrate (288) Yesterday, 6:05 PM

Integrate (287) Yesterday, 6:04 PM

Integrate (286) Yesterday, 5:54 PM

Load More... 282 more integrations on server

# Bubblegum

Summary Tests

Integrate Now

Integration Results

Finished with test failures

Start: 6/7/13, 6:41 PM Duration: 53 seconds 2 commits by xcodeserverdemo...

0 Errors 1 Warning 1 Analysis 4 Tests Failed

Build History

268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298

No Issues No Issues

Test History

268 269 270 271 272 273 274 275 276 277 278 279 280 281 282 283 284 285 286 287 288 289 290 291 292 293 294 295 296 297 298

Failure Success

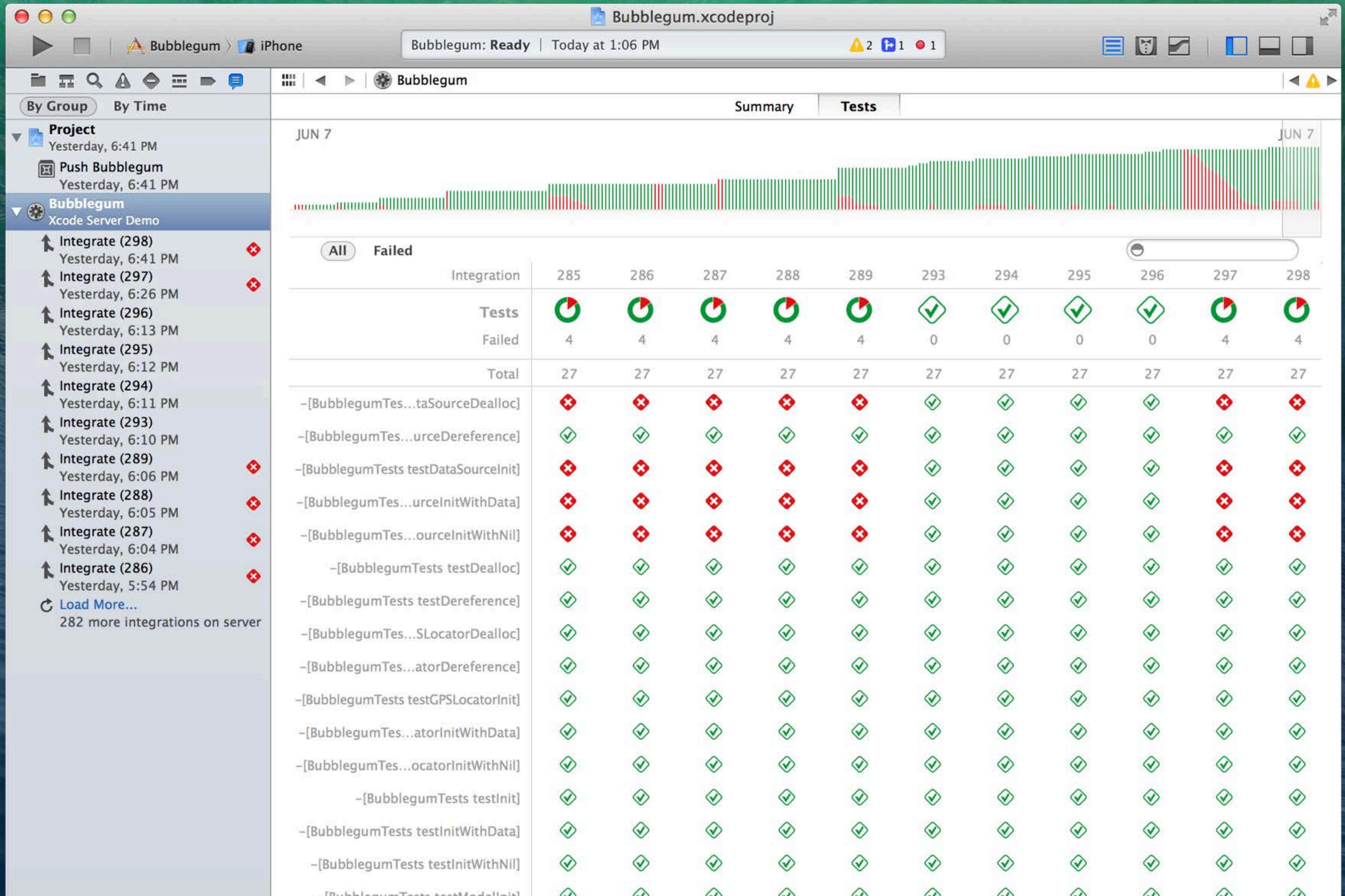
## Integration Details

⚠ Warnings

Add suggested flavors here some day  
Bubblegum — BubblegumFactory.m

⚡ Analysis Issues

Value stored to 'flavors' during its initialization is never read  
Bubblegum — BubblegumFactory.m



Bubblegum.xcodeproj

Bubblegum: Ready | Today at 1:06 PM

⚠ 2 ⚡ 1 ● 1

By Group By Time

**Project** Yesterday, 6:41 PM  
**Push Bubblegum** Yesterday, 6:41 PM  
**Bubblegum** Xcode Server Demo  
**Integrate (298)** Yesterday, 6:41 PM  
**Integrate (297)** Yesterday, 6:26 PM  
**Integrate (296)** Yesterday, 6:13 PM  
**Integrate (295)** Yesterday, 6:12 PM  
**Integrate (294)** Yesterday, 6:11 PM  
**Integrate (293)** Yesterday, 6:10 PM  
**Integrate (289)** Yesterday, 6:06 PM  
**Integrate (288)** Yesterday, 6:05 PM  
**Integrate (287)** Yesterday, 6:04 PM  
**Integrate (286)** Yesterday, 5:54 PM  
[Load More...](#)  
 282 more integrations on server

**Bubblegum Integrate (298)**

Summary Tests Commits Logs

## Test Results

Start: 6/7/13, 6:41 PM Duration: 53 seconds 2 commits by xcodeserverdemo...

27 Tests Total 23 Tests Passed 4 Tests Failed

**Device Summary**

- 4 Devices Tested
- 1/1 iPads Failed
- 3/3 iPhones Failed

Device	OS	Processor		
Device	iPad mini (Model A1...	iPod touch (4th gen...)	iPod touch (5th generation)	
Model	Cheesecake 7.0 / armv7f	Uproar 7.0 / armv7f	Hubhub 6.1.3 / armv7f	Din 6.1.3 / armv7
Tests	27	27	27	27
Failed	4	4	4	4
-[Bubblegum...ourceDealloc]	✗	✗	✗	✗
-[Bubblegum...eDereference]	✓	✓	✓	✓
-[Bubblegum...ataSourceInit]	✗	✗	✗	✗
-[Bubblegum...elinitWithData]	✗	✗	✗	✗
-[Bubblegum...rcelInitWithNil]	✗	✗	✗	✗
-[Bubblegum...ts testDealloc]	✓	✓	✓	✓
-[Bubblegum...tDereference]	✓	✓	✓	✓
-[Bubblegum...ocatorDealloc]	✓	✓	✓	✓
-[Bubblegum...rDereference]	✓	✓	✓	✓
-[Bubblegum...PSLocatorInit]	✓	✓	✓	✓
-[Bubblegum...rlinitWithData]	✓	✓	✓	✓
-[Bubblegum...torInitWithNil]	✓	✓	✓	✓

Bubblegum.xcodeproj

Build Bubblegum: Succeeded | Today at 1:10 PM

1 4 1

Bubblegum Integrate (298)

By Group By Time

**Bubblegum**

Test Today, 1:10 PM

Build Today, 1:10 PM

Project Yesterday, 6:41 PM

Push Bubblegum Yesterday, 6:41 PM

**Bubblegum**

Xcode Server Demo

Integrate (298) Yesterday, 6:41 PM

Integrate (297) Yesterday, 6:26 PM

Integrate (296) Yesterday, 6:13 PM

Integrate (295) Yesterday, 6:12 PM

Integrate (294) Yesterday, 6:11 PM

Integrate (293) Yesterday, 6:10 PM

Integrate (289) Yesterday, 6:06 PM

Integrate (288) Yesterday, 6:05 PM

Integrate (287) Yesterday, 6:04 PM

Integrate (286) Yesterday, 5:54 PM

Load More... 282 more integrations on...

**Test Results**

Start: 6/7/13, 6:41 PM Duration: 53 seconds 2 commits by xcodeserverdemo ...

27 Tests Total 23 Tests Passed 4 Tests Failed

Device Summary

- 4 Devices Tested
- 1/1 iPads Failed
- 3/3 iPhones Failed

Device	OS	Processor	iPad mini (Model A1432)	iPod touch (4th generation)	iPod touch (5th generation)
Model	Cheesecake 7.0 / armv7f	Uproar 7.0 / armv7f	Hubhub 6.1.3 / armv7f	Din 6.1.3 / armv7	
Tests	27	27	27	27	
Failed	4	4	4	4	
-[Bubblegum sourceDealloc]	✗	✗	✗	✗	
-[Bubblegum eDereference]	✓	✓	✓	✓	
-[Bubblegum ataSourceInit]	✗	✗	✗	✗	
-[Bubblegum eInitWithData]	✗	✗	✗	✗	
-[Bubblegum rceInitWithNil]	✗	✗	✗	✗	
-[Bubblegum ts testDealloc]	✓	✓	✓	✓	
-[Bubblegum tDereference]	✓	✓	✓	✓	
-[Bubblegum locatorDealloc]	✓	✓	✓	✓	
-[Bubblegum rDereference]	✓	✓	✓	✓	
-[Bubblegum PSLocatorInit]	✓	✓	✓	✓	
-[Bubblegum rInitWithData]	✓	✓	✓	✓	
-[Bubblegum torInitWithNil]	✓	✓	✓	✓	
-[BubblegumTests testInit]	✓	✓	✓	✓	
-[Bubblegum tInitWithData]	✓	✓	✓	✓	
-[Bubblegum estInitWithNil]	✓	✓	✓	✓	
-[Bubblegum testModelInit]	✓	✓	✓	✓	
-[Bubblegum lInitWithData]	✓	✓	✓	✓	
-[Bubblegum leViewDealloc]	✓	✓	✓	✓	
-[Bubblegum wDereference]	✓	✓	✓	✓	
-[Bubblegum TableViewInit]	✓	✓	✓	✓	
-[Bubblegum InitWithData]	✓	✓	✓	✓	
-[Bubblegum ieViewInitWithNil]	✓	✓	✓	✓	
-[Bubblegum rollerDealloc]	✓	✓	✓	✓	
-[Bubblegum rDereference]	✓	✓	✓	✓	

MasterViewController \*mvc = [[MasterViewController alloc] init];  
 STAssertNotNil(mvc, @"Failed to initialize MasterViewController.");  
 mvc = nil;

- (void)testTableViewDereference

{  
 MasterViewController \*mvc = [[MasterViewController alloc] init];  
 STAssertNotNil(mvc, @"Failed to initialize MasterViewController.");  
 mvc = nil;

- (void)testDataSourceInit

{  
 BubblegumFactory \*factory = [BubblegumFactory sharedBubblegumFactory];  
 STAssertNotNil(factory, @"Expected BubblegumFactory to not be nil, but it is: %@", factory);  
 NSArray \*suggestedFlavors = factory.tastyFlavors;  
 STAssertEquals(suggestedFlavors.count, (NSUInteger)4, @"Expected 4 flavors after initializing the factory.");  
 // '0' should be equal to '4': Expected 4 flavors after initializing the factory.

- (void)testDataSourceInitWithData

{  
 BubblegumFactory \*factory = [BubblegumFactory sharedBubblegumFactory];  
 STAssertNotNil(factory, @"Expected BubblegumFactory to not be nil, but it is: %@", factory);  
 NSArray \*suggestedFlavors = factory.tastyFlavors;  
 STAssertEquals(suggestedFlavors.count, (NSUInteger)4, @"Expected 4 flavors after initializing the factory.");  
 // '0' should be equal to '4': Expected 4 flavors after initializing the factory.

- (void)testDataSourceInitWithNil

{  
 BubblegumFactory \*factory = [BubblegumFactory sharedBubblegumFactory];  
 STAssertNotNil(factory, @"Expected BubblegumFactory to not be nil, but it is: %@", factory);  
 NSArray \*suggestedFlavors = factory.tastyFlavors;  
 STAssertEquals(suggestedFlavors.count, (NSUInteger)4, @"Expected 4 flavors after initializing the factory.");  
 // '0' should be equal to '4': Expected 4 flavors after initializing the factory.

- (void)testDataSourceDealoc

{  
 BubblegumFactory \*factory = [BubblegumFactory sharedBubblegumFactory];  
 STAssertNotNil(factory, @"Expected BubblegumFactory to not be nil, but it is: %@", factory);  
 NSArray \*suggestedFlavors = factory.tastyFlavors;  
 STAssertEquals(suggestedFlavors.count, (NSUInteger)4, @"Expected 4 flavors after initializing the factory.");  
 // '0' should be equal to '4': Expected 4 flavors after initializing the factory.

- (void)testDataSourceDereference

{  
 BubblegumFactory \*factory = [BubblegumFactory sharedBubblegumFactory];  
 STAssertNotNil(factory, @"Expected BubblegumFactory to not be nil, but it is: %@", factory);  
 factory = nil;

- (void)testGPSLocatorInit

{  
 BubblegumFactory \*factory = [BubblegumFactory sharedBubblegumFactory];  
 STAssertNotNil(factory, @"Expected BubblegumFactory to not be nil, but it is: %@", factory);  
 CLLocation \*userLocation = [factory userLocation];  
 STAssertNil(userLocation, @"Factory returned a user location.");

- (void)testGPSLocatorInitWithData

{  
 // BubblegumFactory \*factory = [BubblegumFactory sharedBubblegumFactory];  
 // STAssertNotNil(factory, @"Expected BubblegumFactory to not be nil, but it is: %@", factory);  
 // CLLocation \*userLocation = [factory userLocation];  
 // STAssertNil(userLocation, @"Factory returned a user location.");

- (void)testGPSLocatorInitWithNil

{  
 // BubblegumFactory \*factory = [BubblegumFactory sharedBubblegumFactory];  
 // STAssertNotNil(factory, @"Expected BubblegumFactory to not be nil, but it is: %@", factory);  
 // CLLocation \*userLocation = [factory userLocation];  
 // STAssertNil(userLocation, @"Factory returned a user location.");

- (void)testGPSLocatorDealloc

{  
 // BubblegumFactory \*factory = [BubblegumFactory sharedBubblegumFactory];  
 // STAssertNotNil(factory, @"Expected BubblegumFactory to not be nil, but it is: %@", factory);



# Welcome to Xcode

Version 5.0 (5A11314m)



## Create a new Xcode project

Start building a new iPhone, iPad or Mac application.



## Check out an existing project

Start working on something from an SCM Repository.

No Recent Projects

Open Other...



# Welcome to Xcode

Version 5.0 (5A11314m)



## Create a new Xcode project

Start building a new iPhone, iPad or Mac application.



## Check out an existing project

Start working on something from an SCM Repository.

Show this window when Xcode launches

No Recent Projects

 Open Other...

>Loading No Issues

Choose a template for your new project

iOS

- Application
- Framework & Library
- Other

OS X

- Application
- Framework & Library
- Application Plug-in
- System Plug-in
- Other

Master-Detail Application

OpenGL Game

Page-Based Application

Single View Application

Tabbed Application

Utility Application

Empty Application

SpriteKit Game

**Master-Detail Application**

This template provides a starting point for a master-detail application. It provides a user interface configured with a navigation controller to display a list of items and also a split view on iPad.

Cancel Previous Next

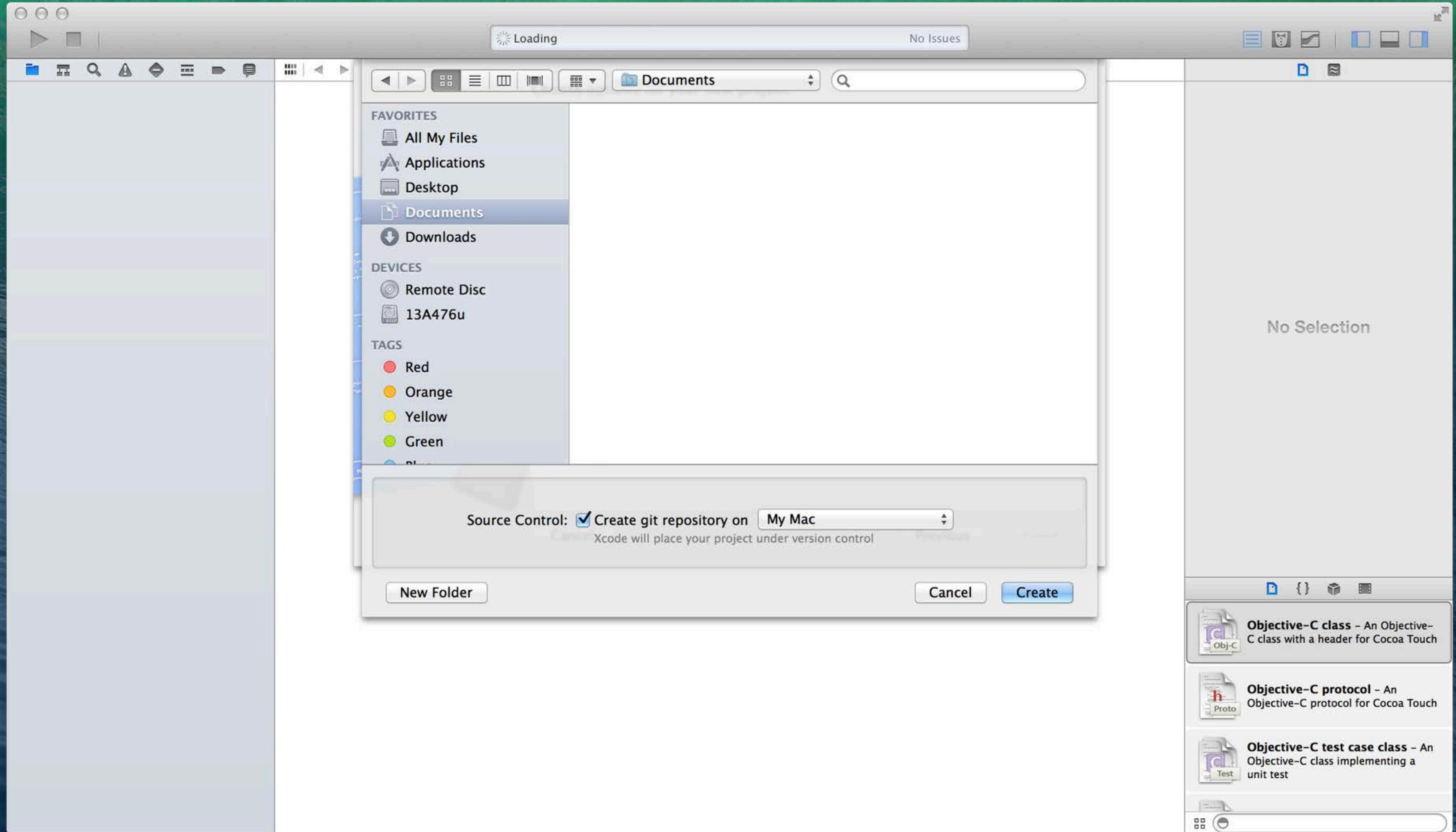
No Selection

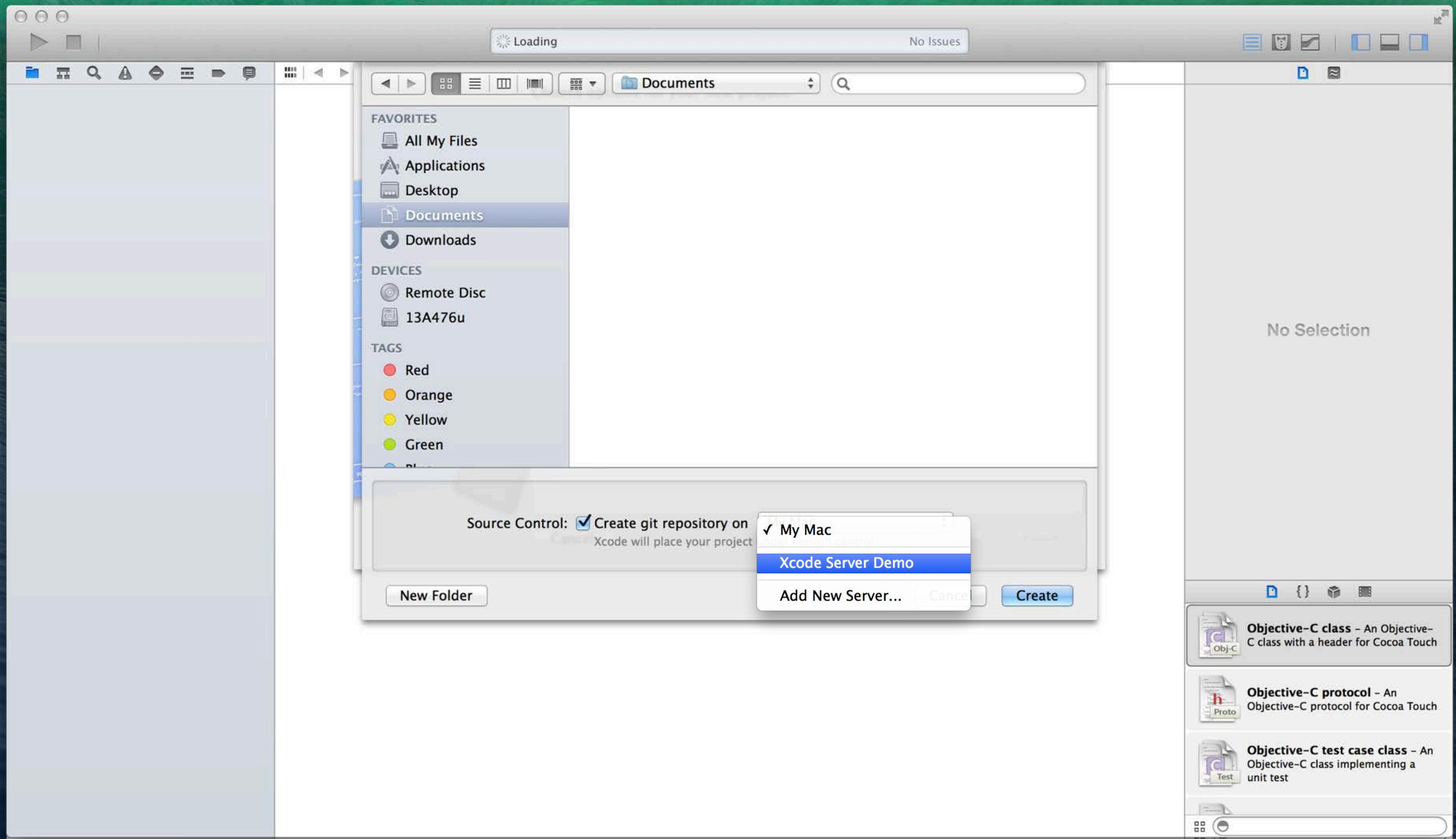
Objective-C class - An Objective-C class with a header for Cocoa Touch

Objective-C protocol - An Objective-C protocol for Cocoa Touch

Objective-C test case class - An Objective-C class implementing a unit test

The screenshot shows the Xcode interface with a modal dialog titled "Choose a template for your new project". The "iOS" section is selected, showing options like "Application", "Framework & Library", and "Other". The "Master-Detail Application" template is highlighted with a blue border and a callout. Below it, a detailed description of the template is provided. At the bottom of the dialog are "Cancel", "Previous", and "Next" buttons. The main workspace to the right is labeled "No Selection". A sidebar on the right lists "Objective-C class", "Objective-C protocol", and "Objective-C test case class". The top status bar shows "Loading" and "No Issues".





New Project.xcodeproj

Pushing to Server... No Issues

New Project General Capabilities Info Build Settings Build Phases Build Rules Identity and Type

**Identity**

Bundle Identifier: xcsdemo.wwdc.New-Project

Version: 1.0

Build: 1.0

Team: None

**Deployment Info**

Deployment Target: 7.0

Devices: Universal

**Main Interface**: Main\_iPhone

**Device Orientation**:  Portrait  
 Upside Down  
 Landscape Left  
 Landscape Right

**Status Bar Style**: Default  
 Hide during application launch

**App Icons**

Source: AppIcon

**Launch Images**

**Identity and Type**

Name: New Project

Location: Absolute

New Project.xcodeproj

Full Path: /Users/andrew/Documents/New Project/New Project.xcodeproj

**Project Document**

Project Format: Xcode 3.2-compatible

Organization: Andrew Nesbitt

Class Prefix:

**Text Settings**

Indent Using: Spaces

Widths: Tab 4 Indent 4

Wrap lines

**Source Control**

Repository: --

Type: --

Current Branch: --

Version: --

Status: No changes

Location:

**Objective-C class** - An Objective-C class with a header for Cocoa Touch

**Objective-C protocol** - An Objective-C protocol for Cocoa Touch

**Objective-C test case class** - An Objective-C class implementing a unit test

A screenshot of the Xcode 3.2 interface. The window title is "New Project.xcodeproj". The main area shows the "General" tab selected under "Build Settings". On the left, the project navigator lists files like AppDelegate.h, AppDelegate.m, and Main\_iPhone.storyboard. The right side contains sections for "Identity and Type", "Project Document", "Text Settings", "Source Control", and three sample items for Objective-C classes.

New Project.xcodeproj

Pushing to Server... No Issues

New Project

General Capabilities Info Build Settings Build Phases Build Rules

**Identity**

Bundle Identifier: xcsdemo.wwdc.New-Project

Version: 1.0

Build: 1.0

Team: None

**Deployment Info**

Deployment Target: 7.0

Devices: Universal

**Main Interface**: Main\_iPhone

**Device Orientation**:  Portrait  
 Upside Down  
 Landscape Left  
 Landscape Right

**Status Bar Style**: Default  
 Hide during application launch

**App Icons**

Source: AppIcon

**Launch Images**

**Identity and Type**

Name: New Project

Location: Absolute

New Project.xcodeproj

Full Path: /Users/andrew/Documents/New Project/New Project.xcodeproj

**Project Document**

Project Format: Xcode 3.2-compatible

Organization: Andrew Nesbitt

Class Prefix:

**Text Settings**

Indent Using: Spaces

Widths: 4 Tab 4 Indent

Wrap lines

**Source Control**

Repository: --

Type: --

Current Branch: --

Version: --

Status: No changes

Location:

**Objective-C class** - An Objective-C class with a header for Cocoa Touch

**Objective-C protocol** - An Objective-C protocol for Cocoa Touch

**Objective-C test case class** - An Objective-C class implementing a unit test

# Web Application



# Web Application



- A view of your project outside Xcode

# Web Application



- A view of your project outside Xcode
- See all bots on your server

# Web Application



- A view of your project outside Xcode
- See all bots on your server
- Add and edit bots on the web

# Web Application



- A view of your project outside Xcode
- See all bots on your server
- Add and edit bots on the web
- Same reports as Xcode

# Web Application



- A view of your project outside Xcode
- See all bots on your server
- Add and edit bots on the web
- Same reports as Xcode
- Archives view

# Web Application



- A view of your project outside Xcode
- See all bots on your server
- Add and edit bots on the web
- Same reports as Xcode
- Archives view
  - Archive and product downloading

# Web Application



- A view of your project outside Xcode
- See all bots on your server
- Add and edit bots on the web
- Same reports as Xcode
- Archives view
  - Archive and product downloading
  - Flagged builds

# Web Application



- A view of your project outside Xcode
- See all bots on your server
- Add and edit bots on the web
- Same reports as Xcode
- Archives view
  - Archive and product downloading
  - Flagged builds
  - Build pruning

# Web Application



- A view of your project outside Xcode
- See all bots on your server
- Add and edit bots on the web
- Same reports as Xcode
- Archives view
  - Archive and product downloading
  - Flagged builds
  - Build pruning
  - iOS product installation on the web

# Web Application



- A view of your project outside Xcode
- See all bots on your server
- Add and edit bots on the web
- Same reports as Xcode
- Archives view
  - Archive and product downloading
  - Flagged builds
  - Build pruning
  - iOS product installation on the web
- Scoreboard

# *Demo*

## Web App and Scoreboard

Xcode Bots



## Latest Integration

**Guacamole Nightly**

Integration 6

[View Summary](#)

0 Errors    0 Warnings    14 Analysis

## Next Integration

**Nightly Frameworks**

Integration 192

[Integrate Now](#)

00 Days 10 Hours 37 Minutes

## Latest Downloads

**Guacamole Nightly**

Integration 6

[View Archives](#)**Product**

Created 6/8/2013

27 KB

**Archive**

Created 6/8/2013

37 KB

[All](#) [Failed](#) [Passed](#)[Filter](#)

Name	Status	Next	Last	
Ace	Finished with warnings	--	Yesterday at 5:23 PM	<a href="#">Integrate</a>
Bubblegum	Finished with test failures	--	Yesterday at 6:50 PM	<a href="#">Integrate</a>
Bubblegum Nightly	Build failed	Tomorrow at 2:00 AM	Today at 2:22 PM	<a href="#">Integrate</a>
Guacamole	Finished with warnings	--	Yesterday at 12:09 PM	<a href="#">Integrate</a>
Guacamole Nightly	Finished with analysis issues	--	Today at 2:24 PM	<a href="#">Integrate</a>
Nightly Frameworks	Succeeded	Tomorrow at 1:00 AM	Today at 2:22 PM	<a href="#">Integrate</a>
Proctor	Finished with warnings	--	Yesterday at 7:18 PM	<a href="#">Integrate</a>
Salsa	Build failed	--	Yesterday at 2:11 AM	<a href="#">Integrate</a>

Xcode Bots



## Latest Integration

**Guacamole Nightly**

Integration 6

[View Summary](#)

0 0 14  
! Errors ! Warnings Analysis

## Next Integration

**Nightly Frameworks**

Integration 192

[Integrate Now](#)

00 10 37  
Days Hours Minutes

## Latest Downloads

**Guacamole Nightly**

Integration 6

[View Archives](#)**Product**

Created 6/8/2013

27 KB

**Archive**

Created 6/8/2013

37 KB

[All](#) [Failed](#) [Passed](#)[Filter](#)

Name	Status	Next	Last	
Bubblegum Nightly	Build failed	Tomorrow at 2:00 AM	Today at 2:22 PM	<a href="#">Integrate</a>
Salsa	Build failed	--	Yesterday at 2:11 AM	<a href="#">Integrate</a>

xcsdemo.wwdc/xcode/bots/bubblegum2

xcsdemo.wwdc/xcode/bots/bubblegum2 Reader

Xcode Bots Bubblegum

Bubblegum xcsdemo.wwdc

Yesterday

- Integrate (298) Jun 7, 2013 (Red)
- Integrate (297) Jun 7, 2013 (Red)
- Integrate (296) Jun 7, 2013 (Green)
- Integrate (295) Jun 7, 2013 (Green)
- Integrate (294) Jun 7, 2013 (Green)
- Integrate (293) Jun 7, 2013 (Green)
- Integrate (289) Jun 7, 2013 (Red)
- Integrate (288) Jun 7, 2013 (Red)
- Integrate (287) Jun 7, 2013 (Red)
- Integrate (286) Jun 7, 2013 (Red)
- Integrate (285) Jun 7, 2013 (Red)
- Integrate (284) Jun 7, 2013 (Red)
- Integrate (283) Jun 7, 2013 (Red)
- Integrate (282) Jun 7, 2013 (Red)
- Integrate (281) Jun 7, 2013 (Red)

## Bubblegum

Summary Tests Commits Logs Archives Integrate

### Latest Integration

Status: Finished with test failures  
Start: Friday at 6:41 PM  
Duration: 8 minutes  
2 commits

0 Errors 1 Warnings 1 Analysis 4 Failed Tests

### Build History

Analysis Issues (Blue), Warnings (Yellow), Errors (Red)

270 271 272 273 274 275 276 277 278 281 282 283 284 285 286 287 288 289 293 294 295 296 297 298

### Test History

Passed Tests (Green), Failed Tests (Red)

270 271 272 273 274 275 276 277 278 281 282 283 284 285 286 287 288 289 293 294 295 296 297 298

### Last Integration Details

Analysis Issues

Value stored to 'flavors' during its initialization is never read

Warnings

Add suggested flavors here some day

### Downloads

Archive (185 KB) Product (185 KB)

**Bubblegum**

Summary Tests Commits Logs Archives Integrate

Yesterday at 6:50 PM

Integrate (298) Jun 7, 2013 (Passed)

Integrate (297) Jun 7, 2013 (Failed)

Integrate (296) Jun 7, 2013 (Passed)

Integrate (295) Jun 7, 2013 (Passed)

Integrate (294) Jun 7, 2013 (Passed)

Integrate (293) Jun 7, 2013 (Passed)

Integrate (289) Jun 7, 2013 (Failed)

Integrate (288) Jun 7, 2013 (Failed)

Integrate (287) Jun 7, 2013 (Failed)

Integrate (286) Jun 7, 2013 (Failed)

Integrate (285) Jun 7, 2013 (Failed)

Integrate (284) Jun 7, 2013 (Failed)

Integrate (283) Jun 7, 2013 (Failed)

Integrate (282) Jun 7, 2013 (Failed)

Integrate (281) Jun 7, 2013 (Failed)

All Failed Passed Jun 7, 2013 - Jun 7, 2013 Filter

	Integration	286	287	288	289	293	294	295	296	297	298
Tests											
Total	27	27	27	27	27	27	27	27	27	27	27
Failed	4	4	4	4	0	0	0	0	4	4	4

BubblegumTests/testDataSource ...  
BubblegumTests/testDataSource ...  
BubblegumTests/testDataSource ...  
BubblegumTests/testDataSource ...  
BubblegumTests/testDataSource ...  
BubblegumTests/testDeallocation  
BubblegumTests/testDereference

Xcode Bots Bubblegum

**Bubblegum**

Summary Tests Commits Logs Archives Integrate

Yesterday	Type	Integration	Date	Name	Size
Integrate (298) Jun 7, 2013	Product	298	6/7/2013	Bubblegum.ipa	100 KB
	Archive		6/7/2013	Archive.xcarchive.zip	185 KB
Integrate (296) Jun 7, 2013	Product	297	6/7/2013	Bubblegum.ipa	99 KB
	Archive		6/7/2013	Archive.xcarchive.zip	185 KB
Integrate (294) Jun 7, 2013	Product	296	6/7/2013	Bubblegum.ipa	99 KB
	Archive		6/7/2013	Archive.xcarchive.zip	185 KB
Integrate (293) Jun 7, 2013	Product	295	6/7/2013	Bubblegum.ipa	99 KB
	Archive		6/7/2013	Archive.xcarchive.zip	185 KB
Integrate (289) Jun 7, 2013	Product	294	6/7/2013	Bubblegum.ipa	99 KB
	Archive		6/7/2013	Archive.xcarchive.zip	185 KB
Integrate (288) Jun 7, 2013	Product	294	6/7/2013	Bubblegum.ipa	99 KB
	Archive		6/7/2013	Archive.xcarchive.zip	185 KB
Integrate (287) Jun 7, 2013	Product	293	6/7/2013	Bubblegum.ipa	99 KB
	Archive		6/7/2013	Archive.xcarchive.zip	185 KB
Integrate (286) Jun 7, 2013	Product	293	6/7/2013	Bubblegum.ipa	99 KB
	Archive		6/7/2013	Archive.xcarchive.zip	185 KB
Integrate (285) Jun 7, 2013	Product	289	6/7/2013	Bubblegum.ipa	99 KB
	Archive		6/7/2013	Archive.xcarchive.zip	185 KB
Integrate (284) Jun 7, 2013	Product	289	6/7/2013	Bubblegum.ipa	99 KB
	Archive		6/7/2013	Archive.xcarchive.zip	185 KB
Integrate (283) Jun 7, 2013	Product	288	6/7/2013	Bubblegum.ipa	99 KB
	Archive		6/7/2013	Archive.xcarchive.zip	185 KB
Integrate (282) Jun 7, 2013	Product				
	Archive				
Integrate (281)					

Xcode Bots Bubblegum

 Bubblegum  
xcsdemo.wwdc

Yesterday

 Integrate (298)  
Jun 7, 2013 Integrate (297)  
Jun 7, 2013 Integrate (296)  
Jun 7, 2013

Integrate (295)

Product

15

6/3/2013

Ace.pkg

35 KB



Archive

6/3/2013

Archive.xcarchive.zip

45 KB

 Integrate (289)  
Jun 7, 2013 Integrate (288)  
Jun 7, 2013 Integrate (287)  
Jun 7, 2013 Integrate (286)  
Jun 7, 2013 Integrate (285)  
Jun 7, 2013 Integrate (284)  
Jun 7, 2013 Integrate (283)  
Jun 7, 2013 Integrate (282)  
Jun 7, 2013

Integrate (281)

Type	Integration	Date	Name	Size
Product	298	6/7/2013	Bubblegum.ipa	100 KB
Archive		6/7/2013	Archive.xcarchive.zip	185 KB
Product	297	6/7/2013	Bubblegum.ipa	99 KB
Archive		6/7/2013	Archive.xcarchive.zip	185 KB
Product	295	6/7/2013	Bubblegum.ipa	99 KB
Archive		6/7/2013	Archive.xcarchive.zip	185 KB
Product	294	6/7/2013	Bubblegum.ipa	99 KB
Archive		6/7/2013	Archive.xcarchive.zip	185 KB
Product	293	6/7/2013	Bubblegum.ipa	99 KB
Archive		6/7/2013	Archive.xcarchive.zip	185 KB
Product	289	6/7/2013	Bubblegum.ipa	99 KB
Archive		6/7/2013	Archive.xcarchive.zip	185 KB
Product	288	6/7/2013	Bubblegum.ipa	99 KB
Archive		6/7/2013	Archive.xcarchive.zip	185 KB





# Bubblegum

19 hrs ago



## Integration 298

0 1 1 4

! Errors

⚠ Warnings

↻ Analysis

✖ Failed Tests

1 Committer

Add a warning to remind myself to implement this method some day.



Andrew Nesbitt

Yesterday at 6:41 PM

1 file modified

4 Devices



Hubbub



Din



Uproar



Cheesecake



Bubblegum

19 hrs ago



Bubblegum Nightly

1 min ago



Guacamole

1 day ago



Guacamole Nightly

21 hrs ago



Nightly Frameworks

Just now



Proctor

19 hrs ago



Salsa

1 day ago



Unit Test Bot

1 day ago



Zed

1 day ago



Ace

21 hrs ago



Integration 298

0

1

1

4

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# Best Practices

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- Structure your code in workspaces

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- Structure your code in workspaces
- Use role accounts for remote repositories

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- Structure your code in workspaces
- Use role accounts for remote repositories
- Suggested bots

# Best Practices

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## On commit

Build, test, and run  
static analysis for  
every source  
change

# Best Practices



**On commit**  
Build, test, and run  
static analysis for  
every source  
change



**Nightly**  
Build your project  
at 3am

# Best Practices



**On commit**  
Build, test, and run  
static analysis for  
every source  
change



**Nightly**  
Build your project  
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**Per branch**  
Create a new bot  
per branch

# How to Get It

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- Bring your existing devices

# Summary

- Use the Xcode service to build better apps
  - Configure in minutes
  - Checkout and build your project automatically
  - Catch build issues and errors; run static analysis regularly
  - Run tests on multiple devices
- Keep history around for your projects
- Easily distribute builds to your team
- Integrated tightly with Xcode
- Web UI and Scoreboard

# Related Sessions

Testing in Xcode 5

Pacific Heights  
Thursday 9:00AM

Understanding Source Control in Xcode

Pacific Heights  
Friday 10:15AM

# Labs

Continuous Integration Lab	Tools Lab A Tuesday 4:30PM	
Xcode and Continuous Integration Lab	Tools Lab A Thursday 9:00AM	
Xcode Lab	Tools Lab A Friday 9:00AM	

