Debugging with Xcode

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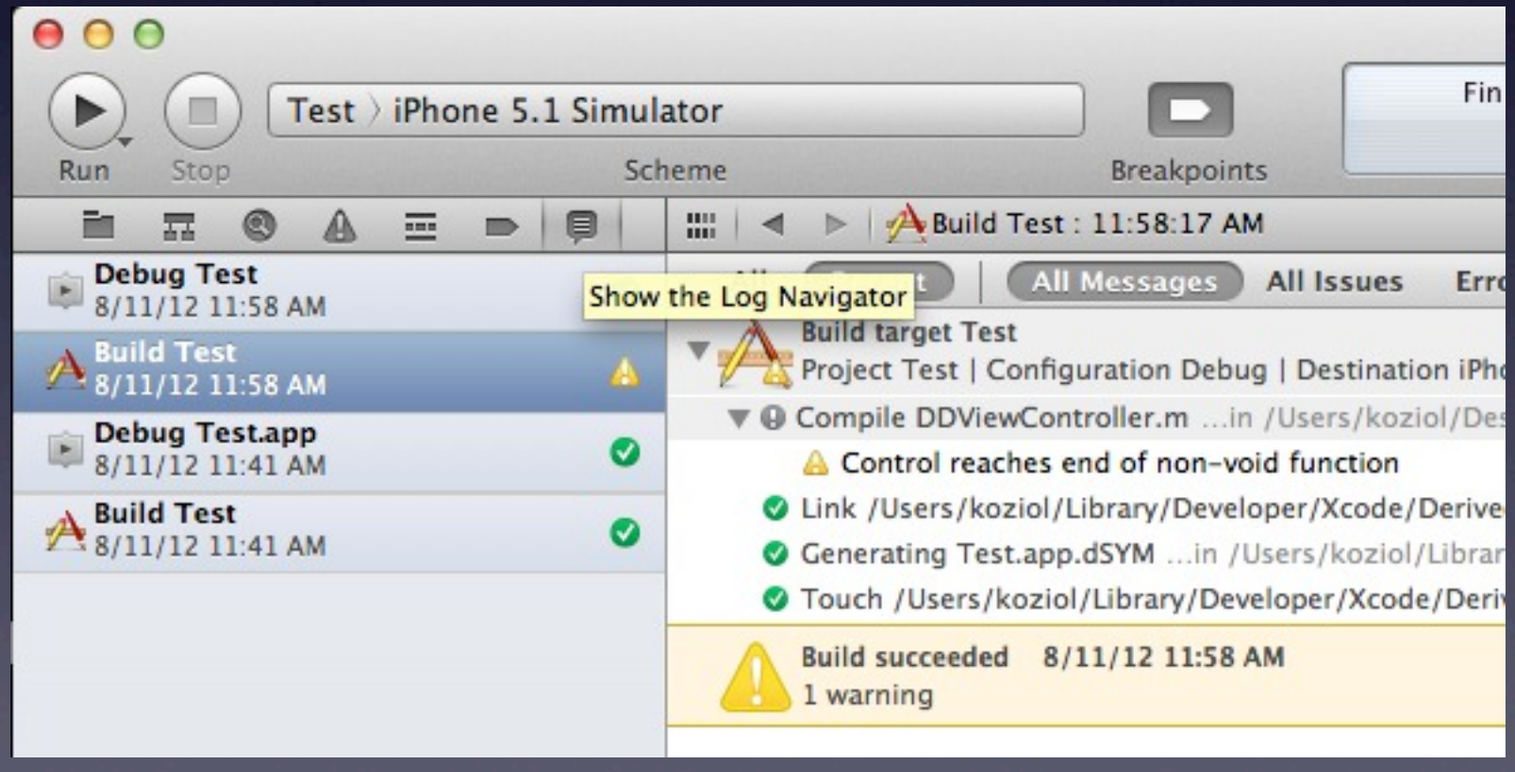
About Me

- Long time Apple Developer (21 WWDCs)
- Organizer Ann Arbor, MI CocoaHeads
- President & iOS Developer at Arbormoon Software Inc.
- Wunder Radio, KNBR, XanEdu, several many other smaller apps.

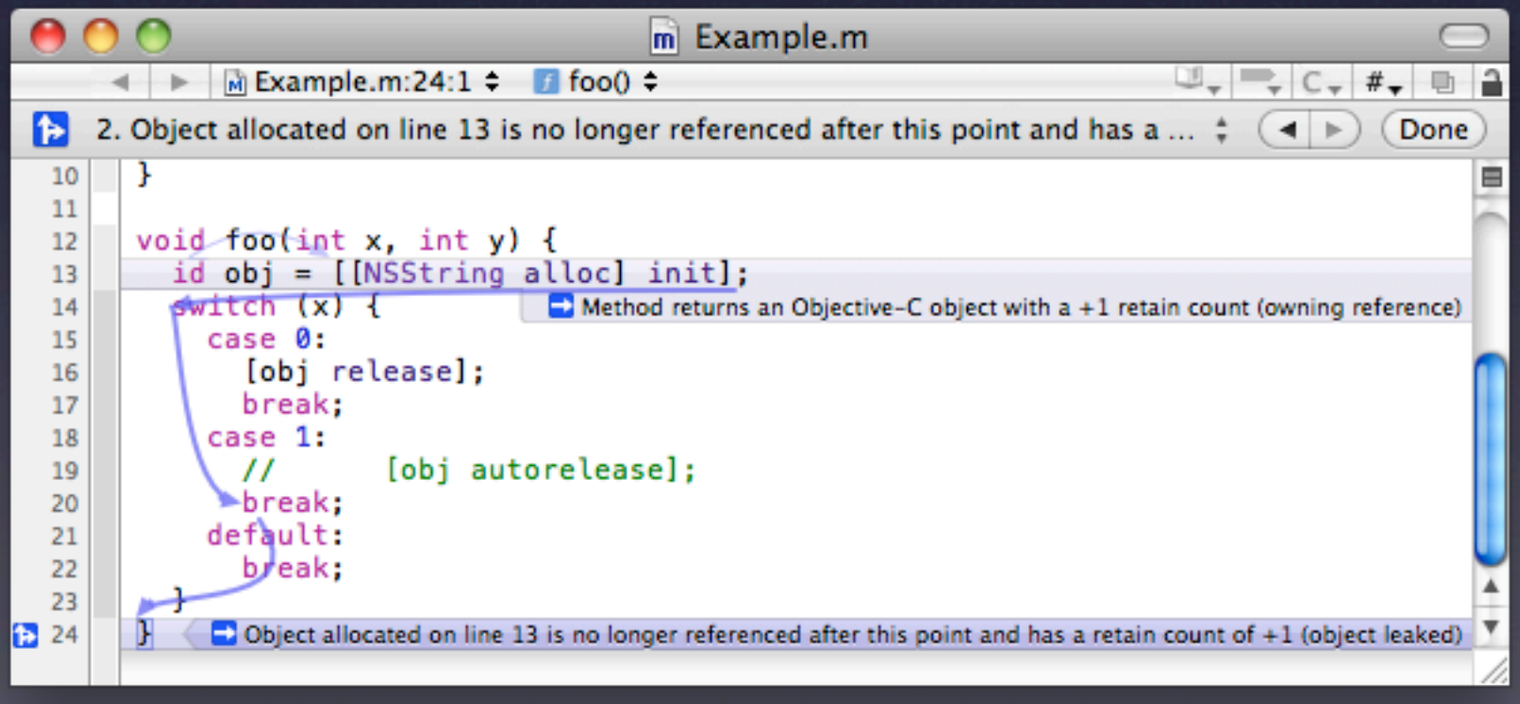
Getting Started

- Prevent bugs
- Warnings



Static Analyzer

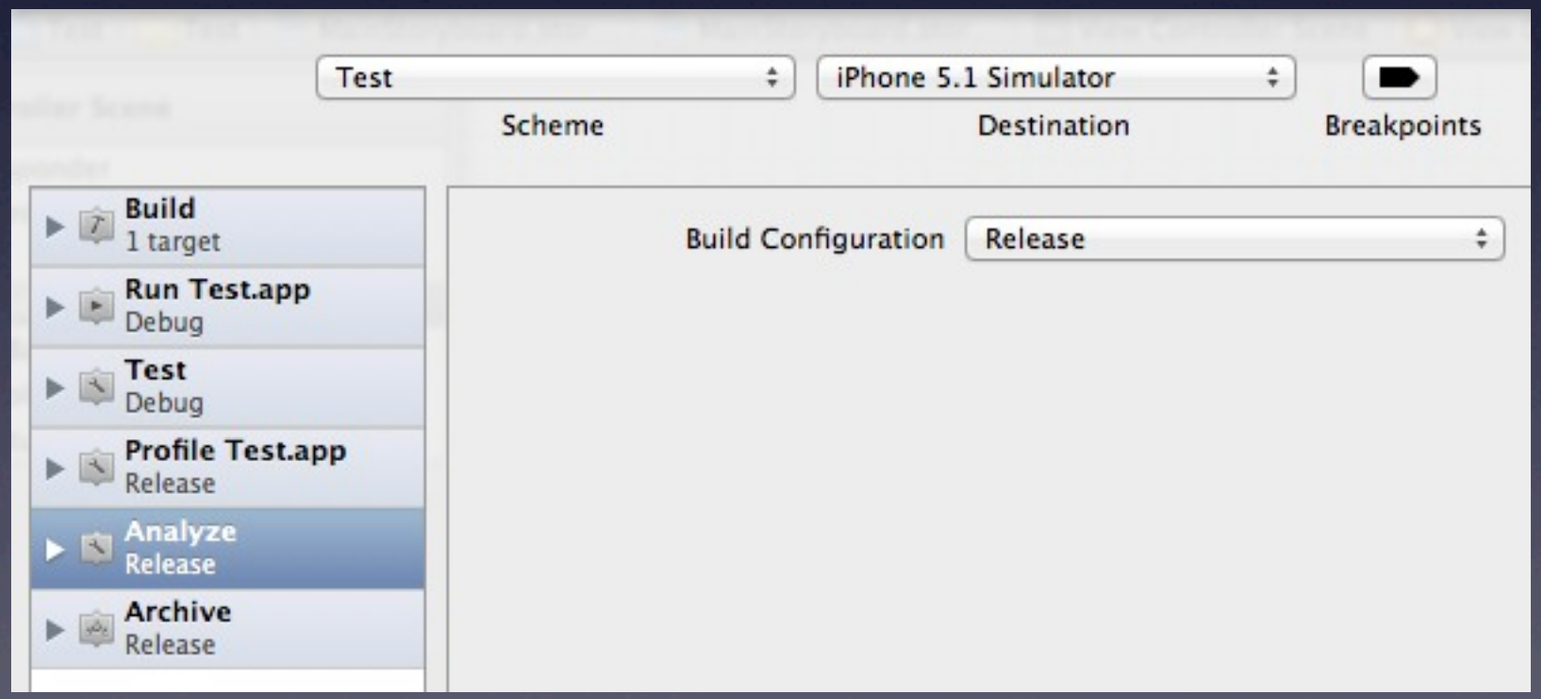
- Prevent Bugs
- Product -> Analyze
- Log Navigator



Configurations

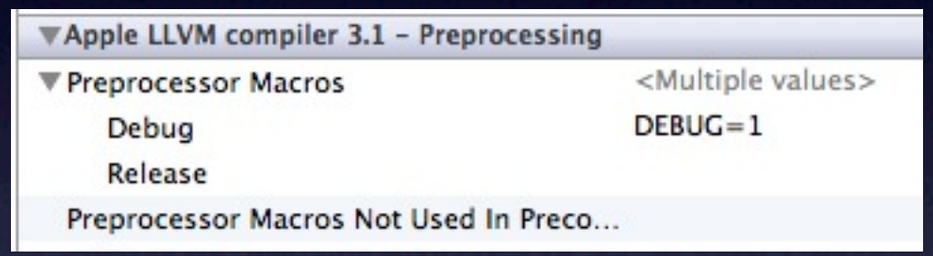
- Debug vs Release

  Edit Scheme, Info, Build Configuration

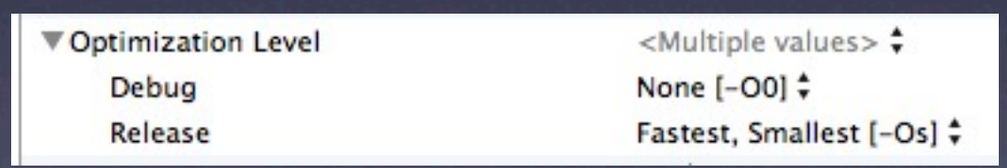


Build Settings

- Preprocessor Macros



- Optimization Level



NSLog

- printf
- Output to Console
- %@ calls Objective-C - (NSString) description method

NSLog 2

- Macros Help

```
NSLog((@"%s [Line %d] " fmt), __PRETTY_FUNCTION__, __LINE__,
##__VA_ARGS__);

-[LibraryController awakeFromNib] [Line 364] Hello world
```

NSLog 2

- Macros Help

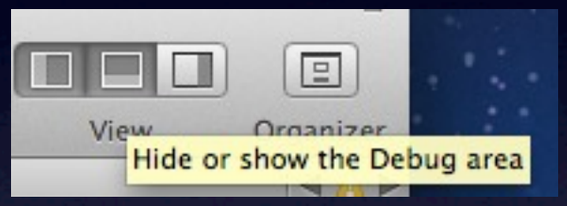
```
NSLog((@"%s [Line %d] " fmt), __PRETTY_FUNCTION__, __LINE__,
##__VA_ARGS__);

-[LibraryController awakeFromNib] [Line 364] Hello world
```

- Beware the watchdog:

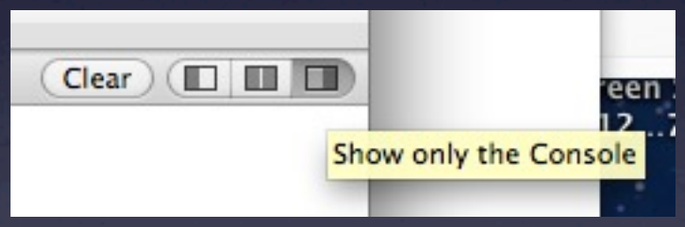
```
#ifdef DEBUG
    #define DLog(fmt, ...) NSLog((@"%s [Line %d] " fmt),
__PRETTY_FUNCTION__, __LINE__, ##__VA_ARGS__);
#else
    #define DLog(...)
#endif
```

Console

- Show/Hide Debug Area



- Only Console or Variable View and Console



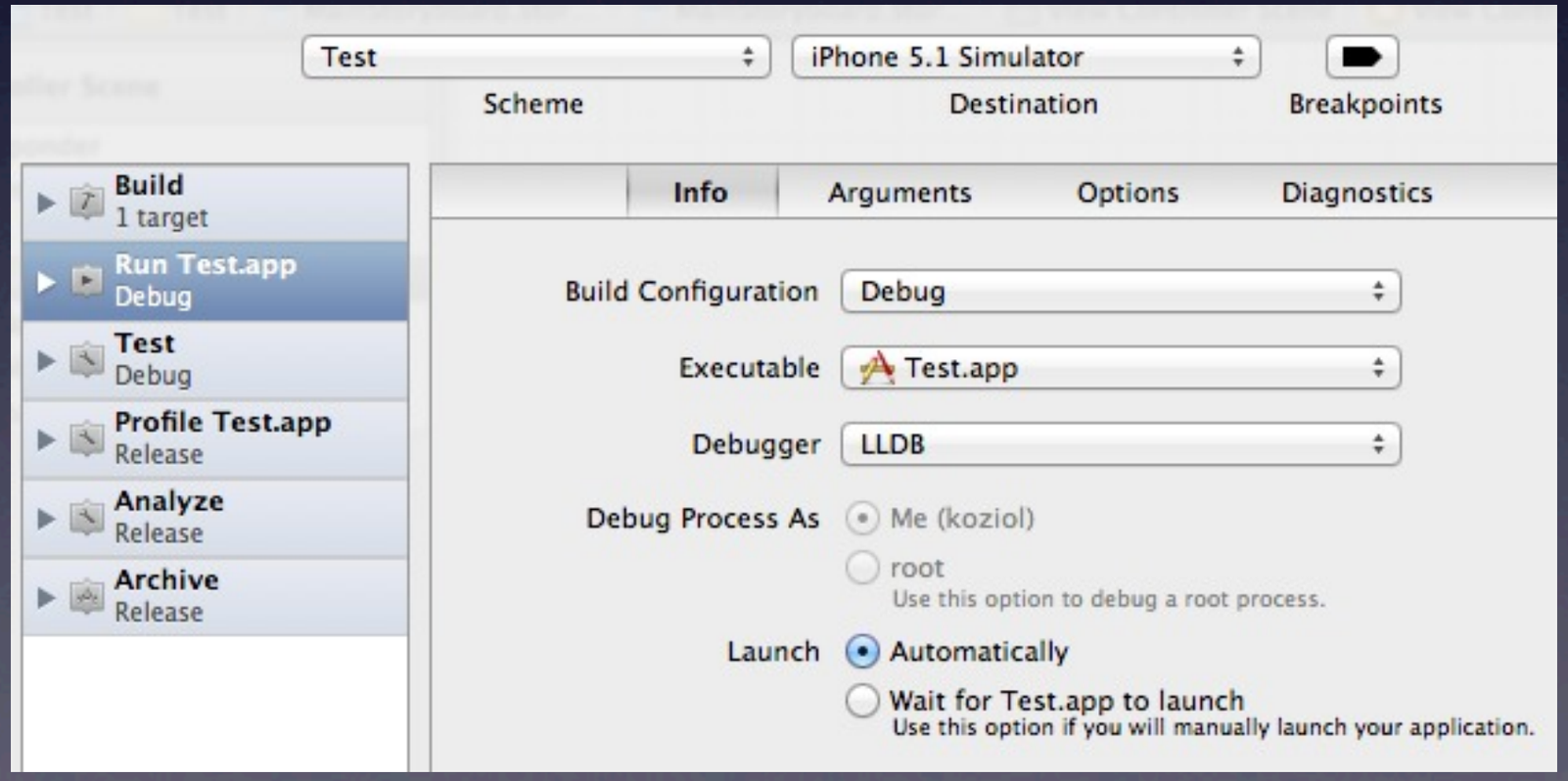
- Organzier, Devices, Console

- /Applications/Utilities/Console.app

Which Debugger?

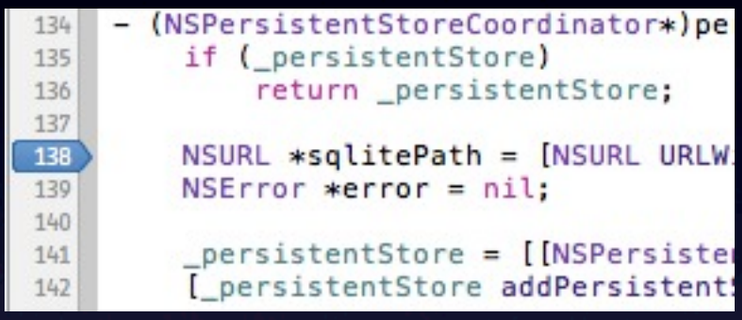
- LLDB vs GDB

  Edit Scheme, Info, Debugger

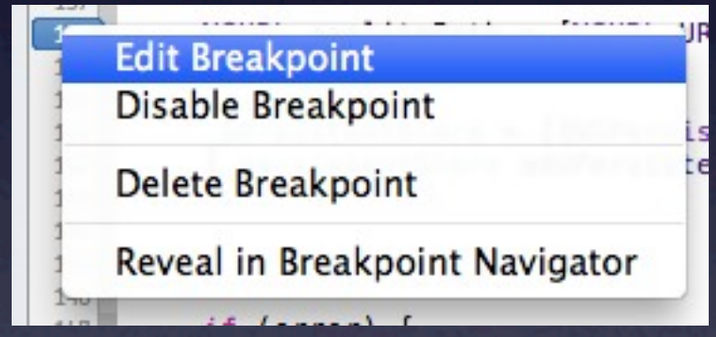


Breakpoints

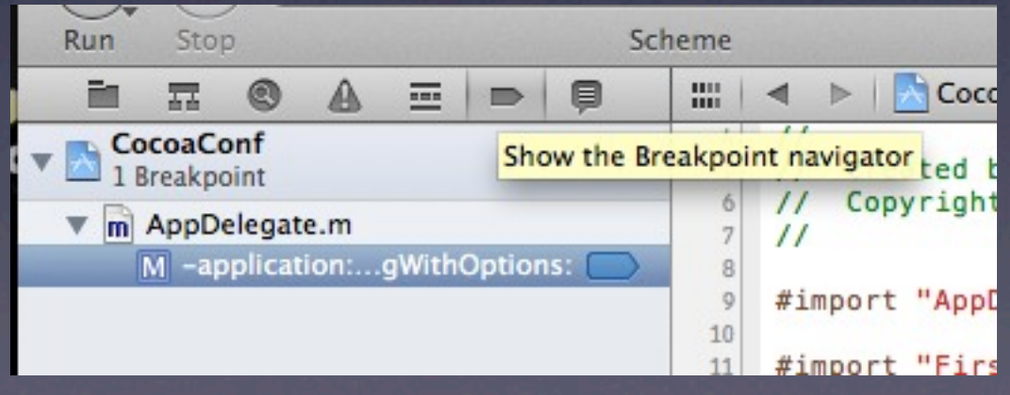
- At line numbers



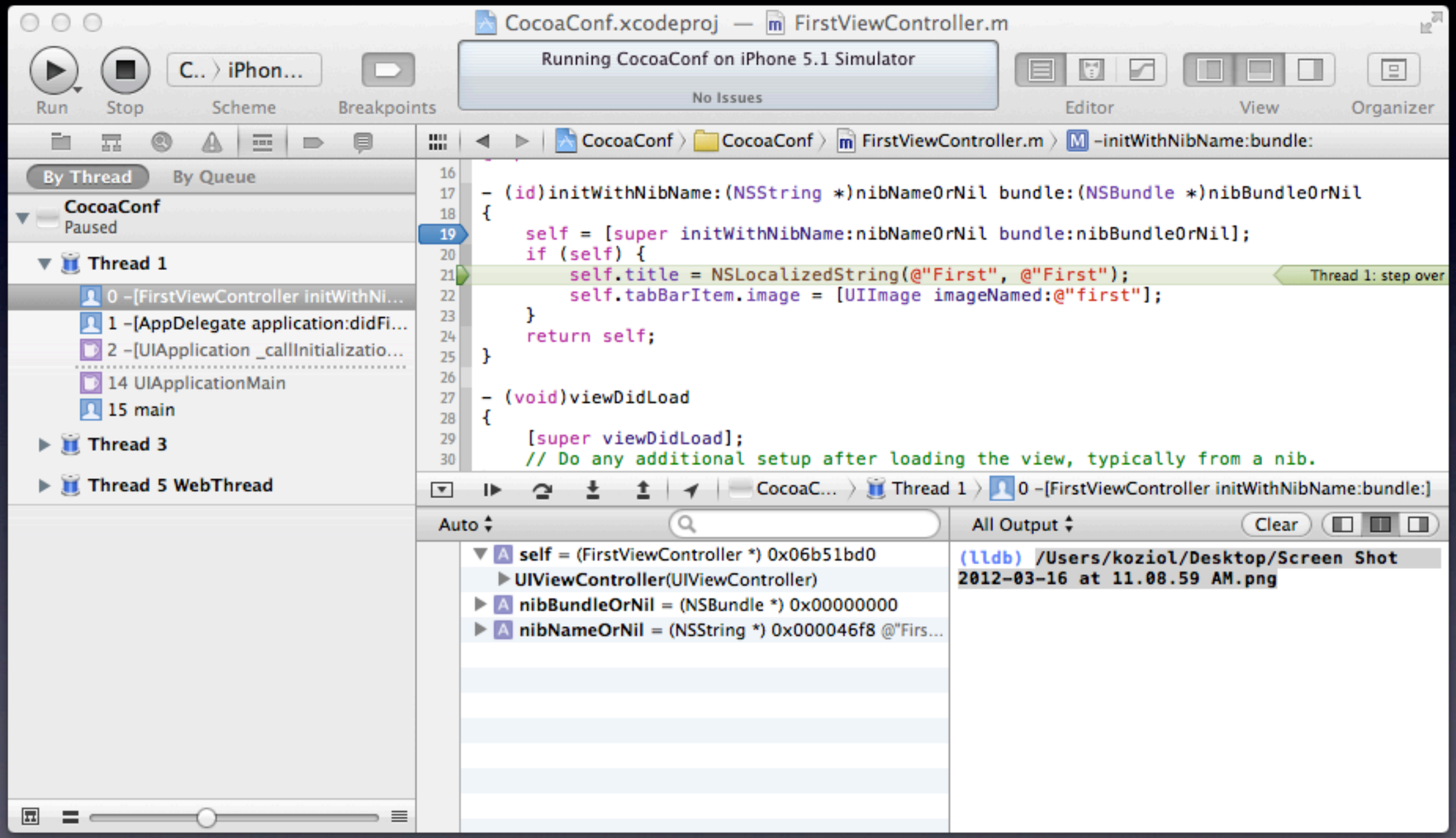
- Edit - Right Click or Drag



- Breakpoints Navigator

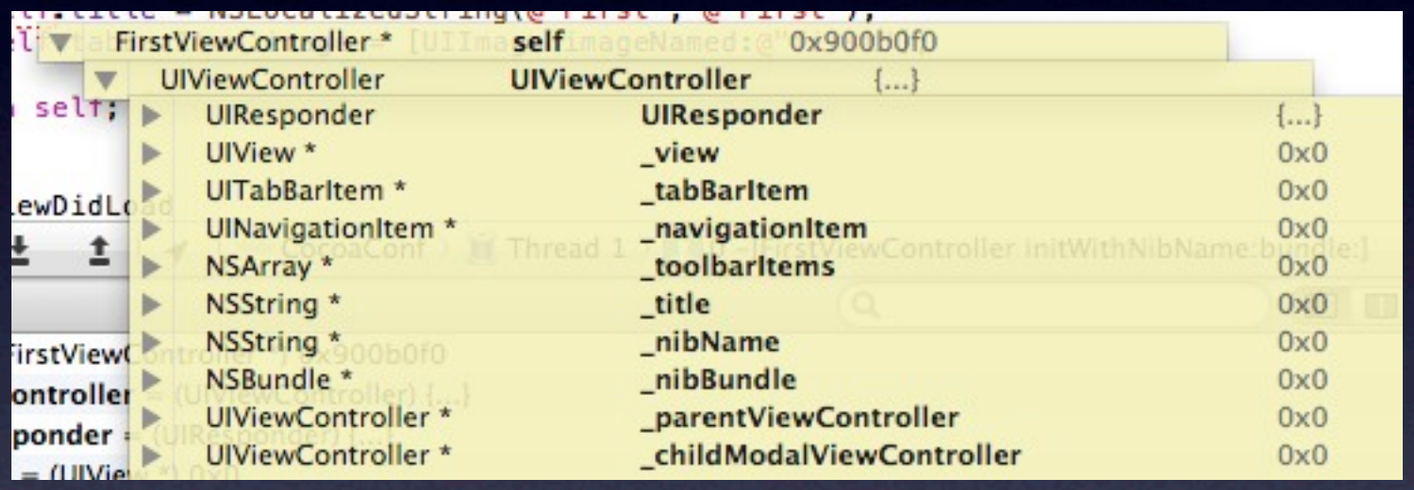


Debug Navigator

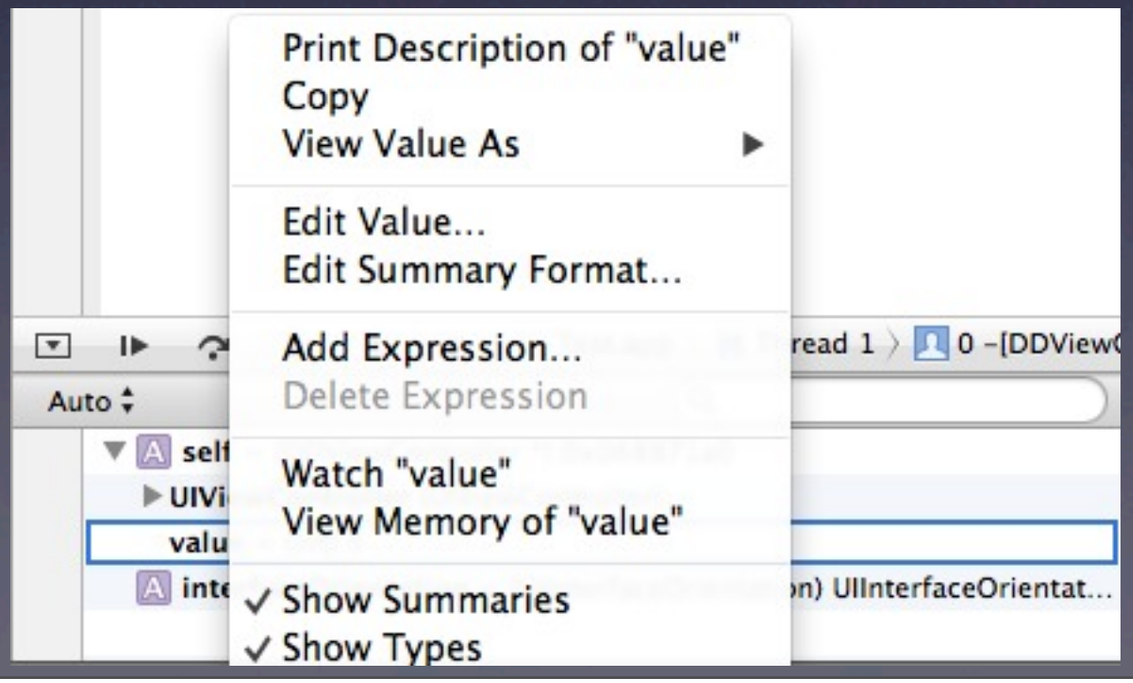


Variables

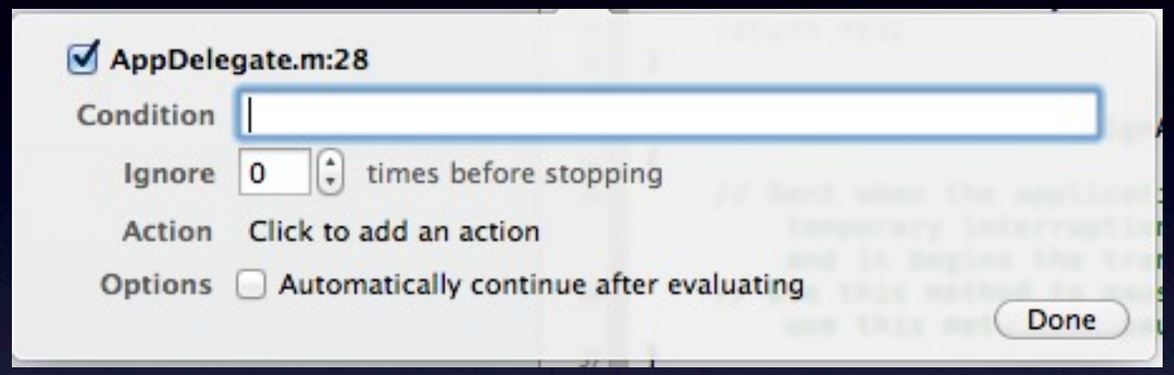
- Hover over in editor



- View Value As
- View Memory
- Watch



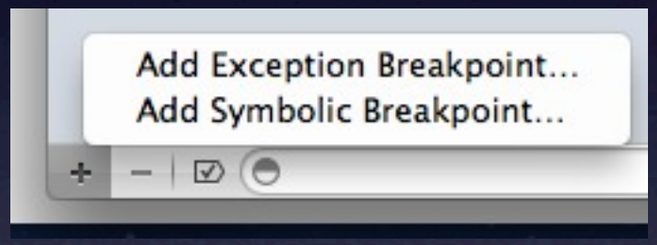
Conditional Breakpoints

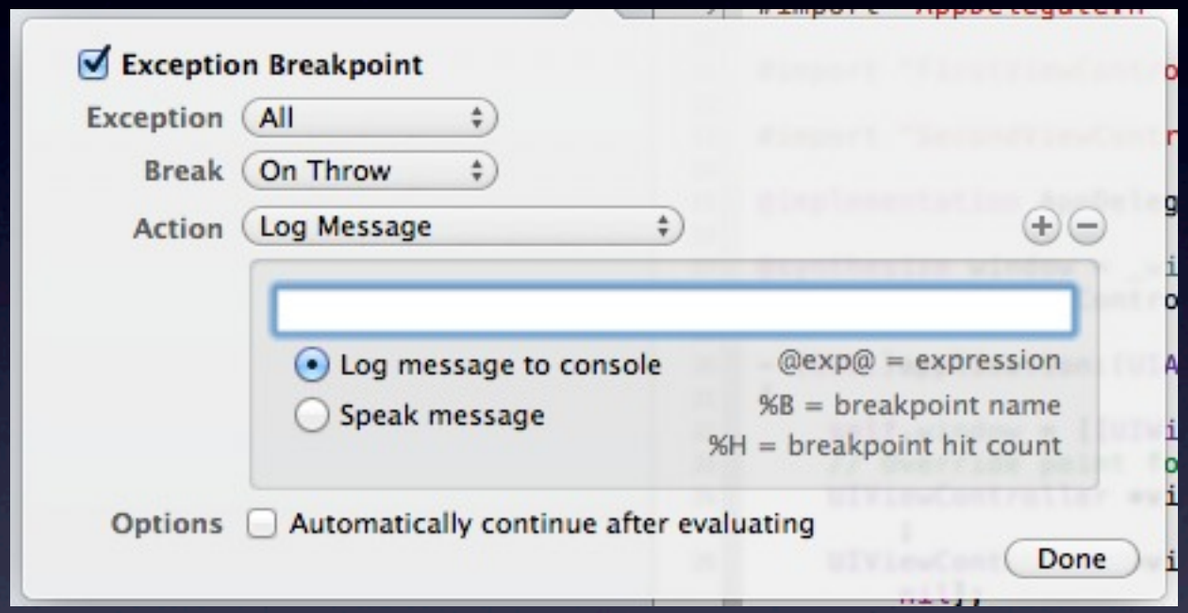


- Ignore multiple times
- Log without stopping
- Break on expression

More Breakpoints

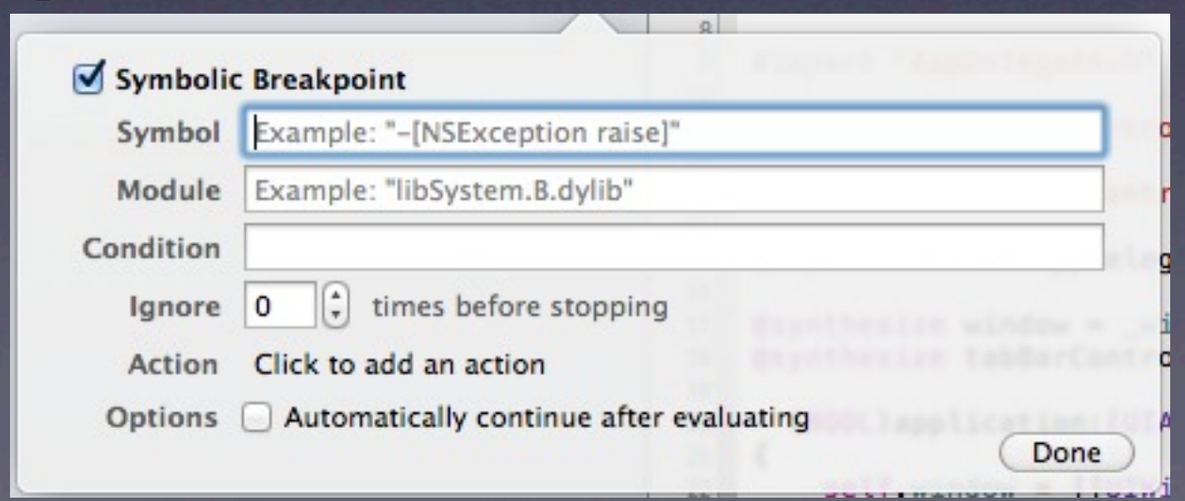
- Exception Breakpoint





- Symbolic Breakpoint

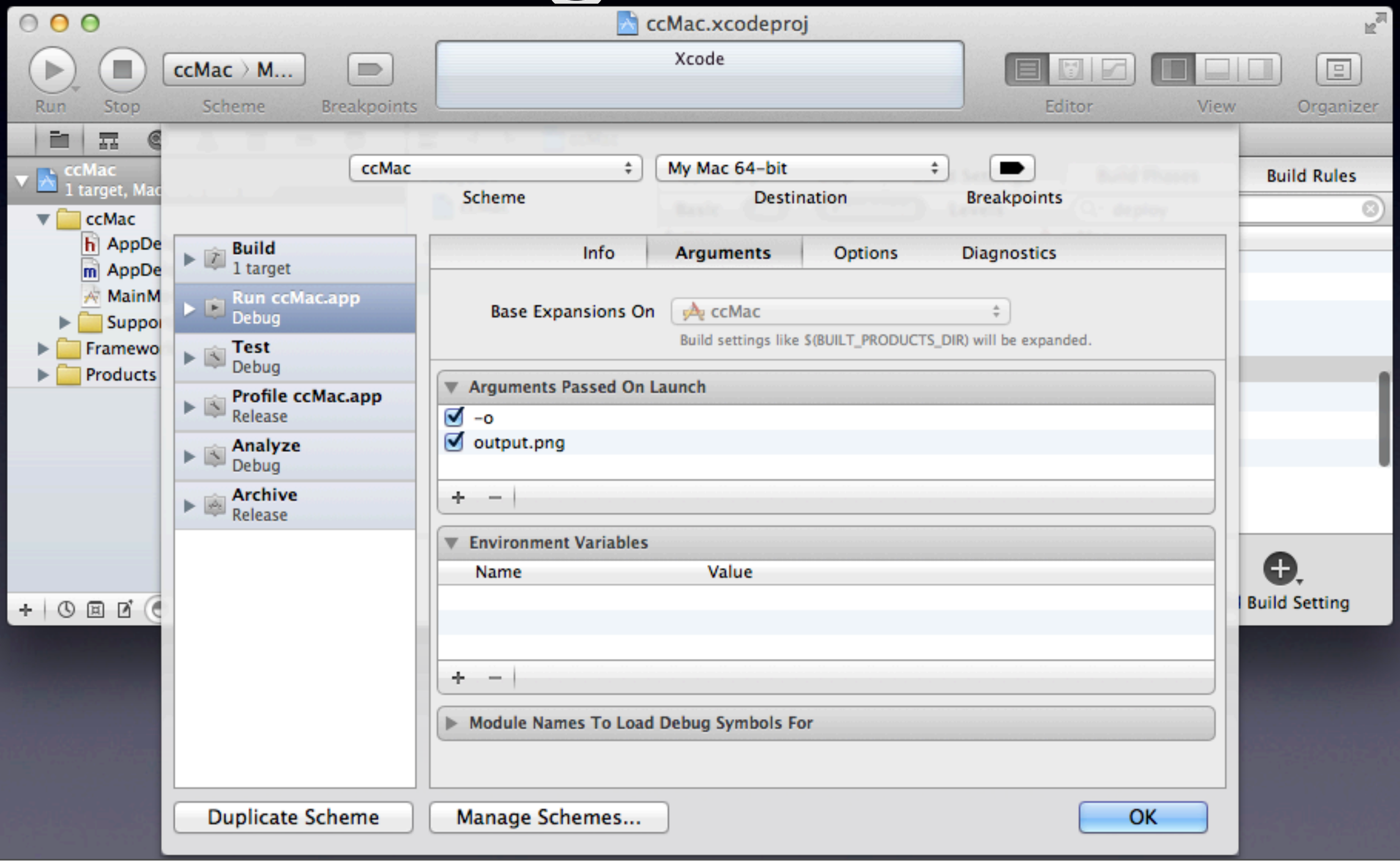
-[NSObject doesNotRecognizeSelector:]



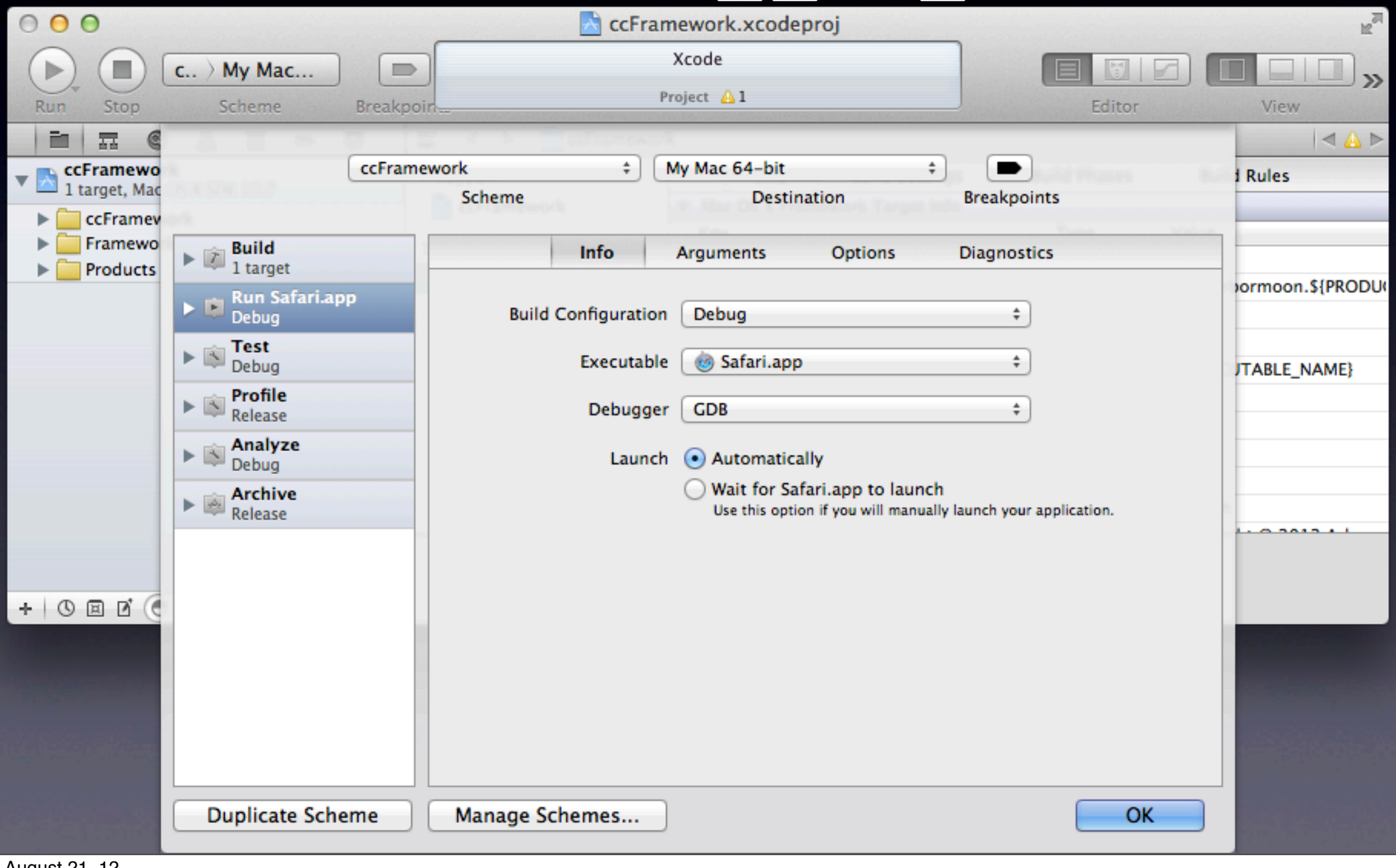
Debugger Console

- po {object} - calls description
- method calls
- p (CGRect)[[self view] frame]

Command Line Arguments



Framework/Plugin Debugging

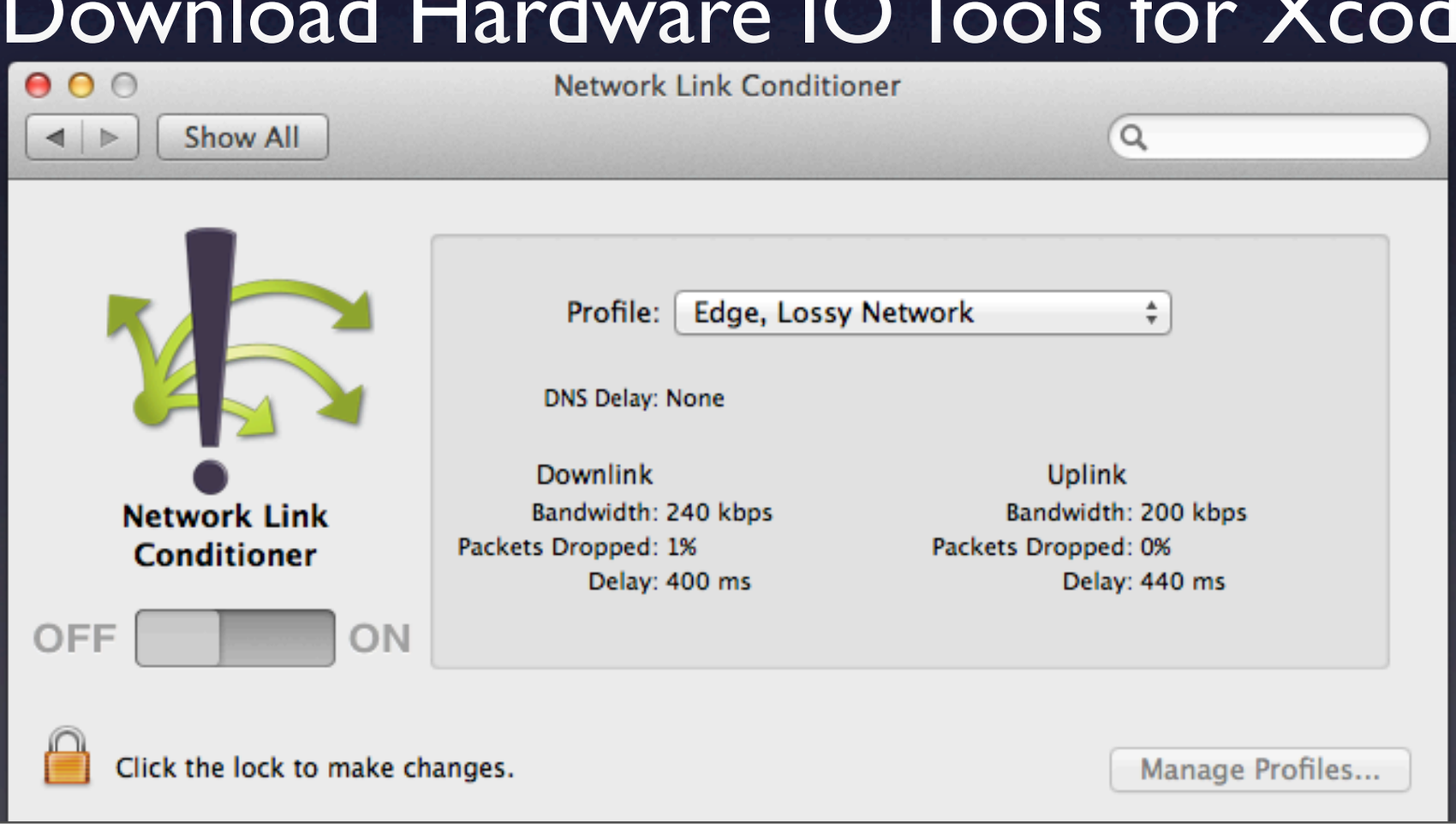


Location Debugging

- Product, Debug, Simulate Location
- GPX Files
- Edit Scheme, Options, Default Location

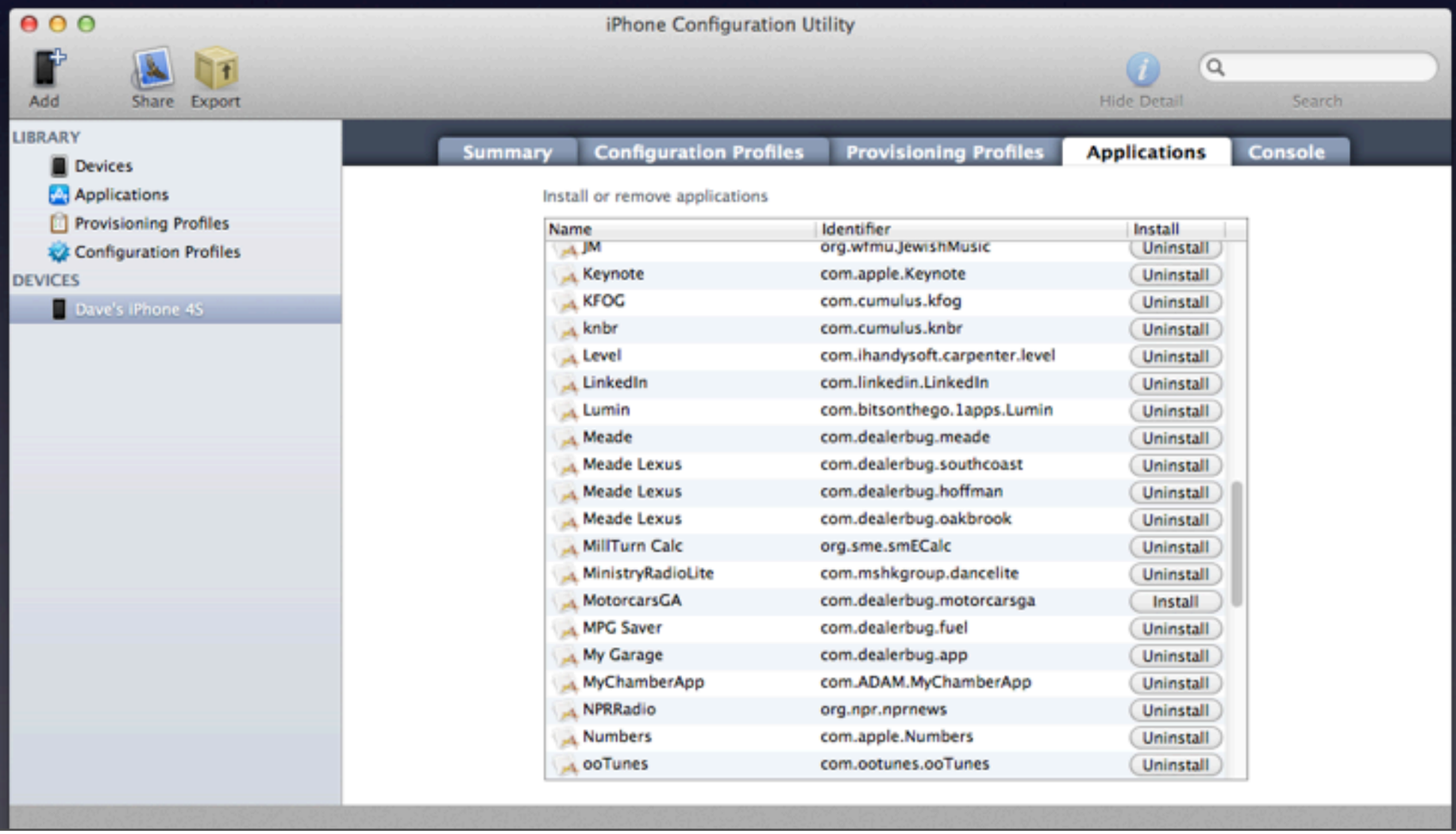
Network Link Conditioner

- Xcode, Open Developer Tool, More Developer Tools...
- Download Hardware IO Tools for Xcode



iPhone Configuration Utility

- http://support.apple.com/kb/DL1465?viewlocale=en_US&locale=en_US



Finding Crash Reports iOS

- Organzier, Devices, Device Logs
- ~/Library/Logs/CrashReporter/MobileDevice/{DeviceName}/
- iTunes Connect, Manage Your Applications, {Application}, View Details, Crash Reports, Refresh Now

Finding Crash Reports Mac

- Console.app, User Diagnostic Reports and System Diagnostic Reports
- ~/Library/Logs/DiagnosticReports/ or /Library/Logs/DiagnosticReports
- iTunes Connect, Manage Your Applications, {Application}, View Details, Crash Reports, Refresh Now ??

Anatomy of a Crash Report

- TN2123
- Symbolication

  Archive is your friend

  Drag the crash report to the organizer!

Profile (aka Instruments)

- Simulator:

  Leaks, Allocations, Zombies, Time Profiler, Automation, File Activity, Activity Monitor, System Trace, Core Data

- Device:

  Energy Diagnostics, Allocations, Leaks, Activity Monitor, Time Profiler, System Trace, Automation

Q&A