

EXTENDING XCODE

COCOAHEADS HAMBURG, APRIL 2014

BORIS BÜGLING - @NEONACHO





OH HI THERE!

zipmeme

AGENDA

- ▶ Xcode
- ▶ Use plugins
- ▶ Develop your own plugin

APPCODE?

NeoNacho
@NeoNacho

Cool story, bro. So this is the legendary AppCode :) pic.twitter.com/GhSWZWXauB

Reply Delete Favorite Instapaper More

```
for (NSDictionary* item in responseObject[@"items"]) {  
    [items addObject:[self.modelClass modelObjectFromDictionary:item]];  
}  
Parameter type mismatch: Incompatible types 'id' and 'instancetype'
```

RETWEETS 2 FAVORITES 5

11:38 PM - 7 Feb 2014

Flag media



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.



ContentfulSDK

~/Projects/contentful.objc



Guide

~/Projects/guide-app



TestApp

~/Temp



Open Other...

Plugins!

| Name | Date Modified | Size | Kind |
|---|-------------------|---------|---------------|
| DebuggerLLDBService.ideplugin | 22 Feb 2014 03:07 | 175 KB | Xcode...lug-i |
| DebuggerUI.ideplugin | 22 Feb 2014 03:08 | 2,2 MB | Xcode...lug-i |
| DVTCorePlistStructDefs.dvtplugin | 29 Jan 2014 03:15 | 124 KB | Xcode...lug-i |
| DVTiOSPlistStructDefs.dvtplugin | 8 Feb 2014 03:14 | 42 KB | Xcode...lug-i |
| GPUDebuggerFoundation.ideplugin | 3 Feb 2014 12:58 | 1,4 MB | Xcode...lug-i |
| GPUDebuggerKit.ideplugin | 3 Feb 2014 12:59 | 1 MB | Xcode...lug-i |
| GPURenderTargetEditor.ideplugin | 3 Feb 2014 12:59 | 1,3 MB | Xcode...lug-i |
| GPUTraceDebugger.ideplugin | 3 Feb 2014 12:59 | 50 KB | Xcode...lug-i |
| GPUTraceDebuggerUI.ideplugin | 3 Feb 2014 12:59 | 2,5 MB | Xcode...lug-i |
| HexEditor.ideplugin | 22 Feb 2014 03:07 | 88 KB | Xcode...lug-i |
| iCloudSupport.ideplugin | 22 Feb 2014 03:07 | 1 MB | Xcode...lug-i |
| IDEAppleScriptCore.ideplugin | 22 Feb 2014 03:08 | 28 KB | Xcode...lug-i |
| IDEAppleScriptEditor.ideplugin | 22 Feb 2014 03:08 | 22 KB | Xcode...lug-i |
| IDEDevkitRefactoring.ideplugin | 18 Jan 2014 05:32 | 1,5 MB | Xcode...lug-i |
| IDEDocViewer.ideplugin | 22 Feb 2014 03:08 | 3,5 MB | Xcode...lug-i |
| IDEGit.ideplugin | 22 Feb 2014 03:08 | 201 KB | Xcode...lug-i |
| IDEInstrumentsService.ideplugin | 22 Feb 2014 03:08 | 58 KB | Xcode...lug-i |
| IDEInterfaceBuilder...tegration.ideplugin | 20 Feb 2014 03:46 | 7,9 MB | Xcode...lug-i |
| IDEInterfaceBuilderKit.ideplugin | 20 Feb 2014 03:45 | 12,1 MB | Xcode...lug-i |
| IDEModelEditor.ideplugin | 22 Feb 2014 03:07 | 2,4 MB | Xcode...lug-i |
| IDEModelFoundation.ideplugin | 22 Feb 2014 03:07 | 1,1 MB | Xcode...lug-i |
| IDEPDFViewer.ideplugin | 22 Feb 2014 03:08 | 62 KB | Xcode...lug-i |

Macintosh HD ▶ Applications ▶ Xcode.app ▶ Contents ▶ Plugins

POSSIBILITIES

- ▶ Color Schemes
- ▶ File Templates
- ▶ Project Templates
- ▶ Plugins

A woman with blonde hair tied back, wearing a yellow hard hat and blue jeans, is holding a blue and red power drill. She is looking directly at the camera with a neutral expression. The background is slightly blurred, showing what appears to be a construction or workshop environment.

USE PLUGINS

WHAT I'M DOING

HOW DO I EVEN...

A man with spiky brown hair and sunglasses is leaning forward, looking out over a dense city skyline. His right arm is extended, with his hand resting against the glass of a window. The city below is filled with numerous skyscrapers and buildings.

@_supermarin

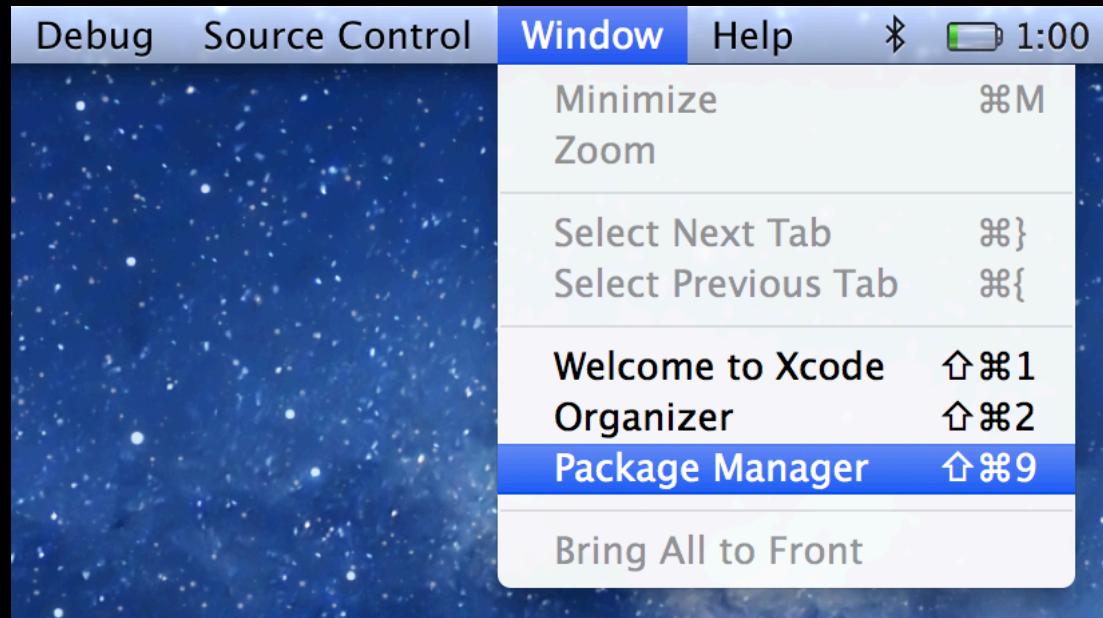
ALCATRAZ

The Xcode package
manager

<http://alcatraz.io>



```
curl -fsSL https://raw.github.com/supermarin/Alcatraz/  
master/Scripts/install.sh | sh
```



opens

Package Manager v1.0

All

ClangFormat
Xcode plug-in to use clang-format from in Xcode and consistently format your code with Clang

Cobalt
Cobalt color theme for Xcode

CocoaPods
CocoaPods integration right in Xcode

CSSEdit Tribute
CSSEdit Tribute color theme for Xcode

DerivedData Exterminator
Button for quickly deleting derived data. Makes Xcode happy.

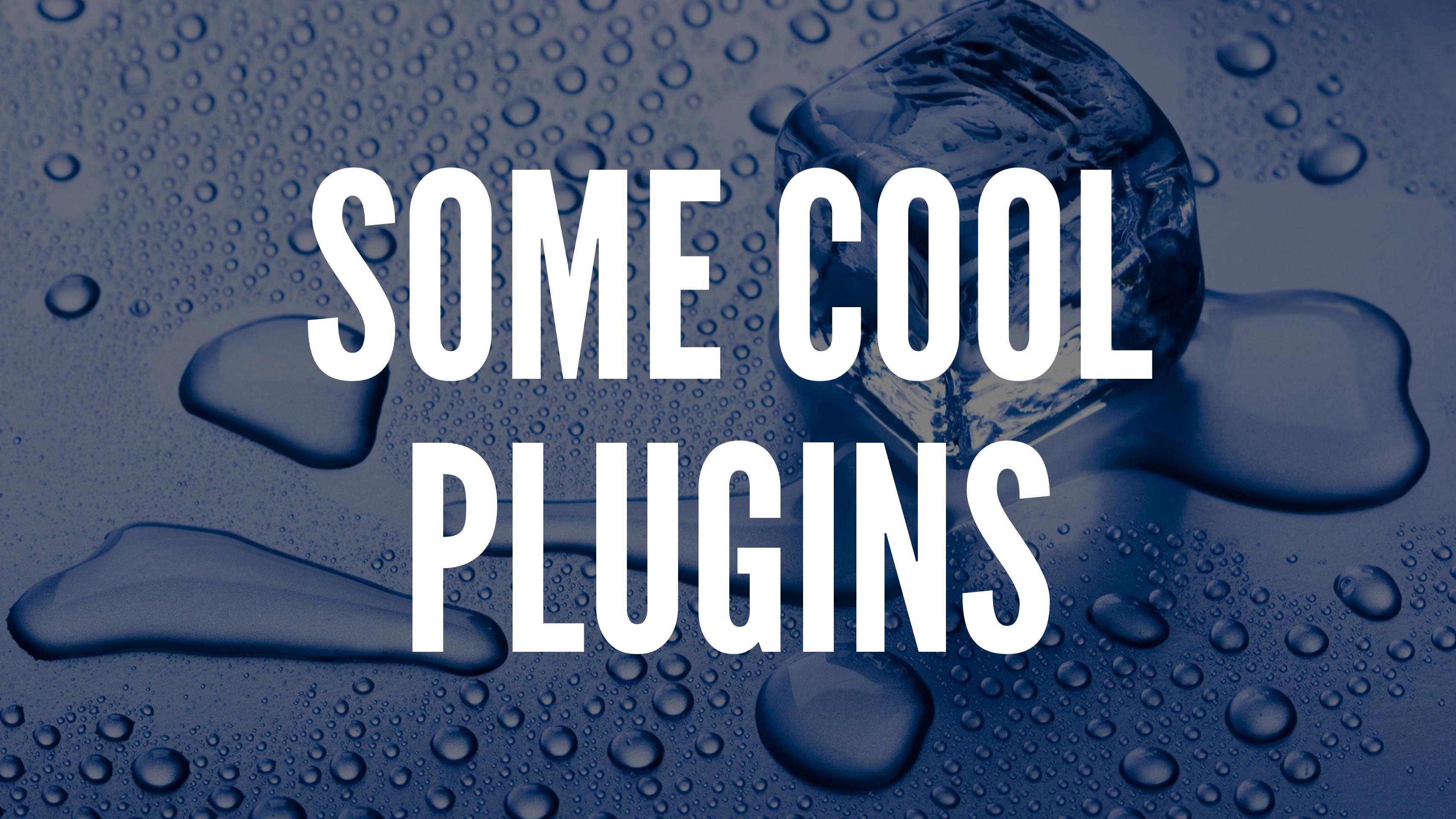
EGO v2
EGO v2 theme, favorite theme for xCode 4.

FuzzyAutocomplete
Enables fuzzy matching in Xcode's autocomplete, using the 'Open Quickly' algorithm.

GHUnit Templates

HOW DOES IT WORK?

- ▶ packages.json contains GitHub URL
- ▶ Clones the repository
- ▶ Runs xcodebuild with some parameters



**SOME COOL
PLUGINS**



travis jeffery

CLANGFORMAT

makin software, math, business, math, literature.

36 chambers · travisjeffery.com

TWEETS

5.314

FOLLOWING

778

FOLLOWERS

1.120

Following





chendo

@chendo
FUZZYAUTOCOMPLETE

Problem solver, gadget enthusiast, video game nerd, stuff at @LIFX. Sometimes the creator of @shortcatapp and the FuzzyAutocomplete Xcode plugin

Melbourne, Australia · chen.do

TWEETS

27.5K

FOLLOWING

406

FOLLOWERS

10.3K

Following





Kent Sutherland

KSIMAGENAMEDE

Co-Founder of Flockbits. MIT '08 Cornell grad.

Boston · ksuther.com

TWEETS

810

FOLLOWING

44

FOLLOWERS

843

+ Follow





Ole Zorn

@clemoritz
OMCOLORSENSE

Indie app developer · Pythonista · Blog: clemoritz.net

Berlin · omz-software.com

TWEETS

2,540

FOLLOWING

233

FOLLOWERS

3,652

Following





Lars Schneider
SHOWINGITHUB

Berlin · larsxschneider.github.io

TWEETS

169

FOLLOWING

37

FOLLOWERS

38

+ Follow





王巍(Wei Wang)

VVDOCUMENTER-XCODE

iOS developer from China. Made Qibla Story, CorePoker, Texas Poker King
and @PomodoroDo. Working for Kayac as programmer in Yokohama.

Kawasaki, Japan · about.me/onevcat

TWEETS

420

FOLLOWING

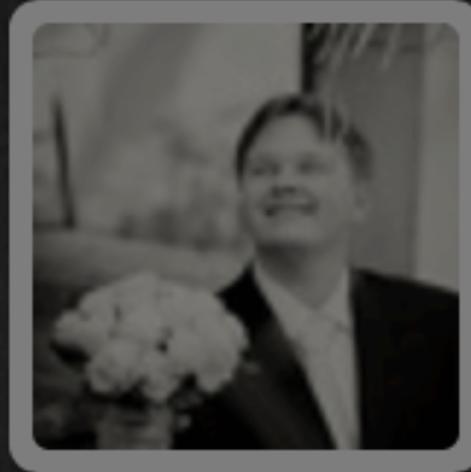
176

FOLLOWERS

281

+
 Follow





Sergei Cherepanov

XCODE BEGINNING OF LINE

Saint Petersburg, Russia · careers.stackoverflow.com/ihunter

TWEETS

2.041

FOLLOWING

104

FOLLOWERS

256

+
Follow



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Popular repositories

[CocoaAsyncSocket](#) 2,355 ★

Asynchronous socket networking library ...

[CocoaHTTPServer](#) 1,697 ★

A small, lightweight, embeddable HTTP ...

[XMPPFramework](#) 1,587 ★

An XMPP Framework in Objective-C for ...

[XcodeColors](#) 530 ★

XcodeColors allows you to use colors in ...

[KissXML](#) 389 ★

A replacement for Cocoa's NSXML clust...

Public contributions

Repositories contributed to

[yaptv/YapDatabase](#)

YapDatabase layer

[CocoaLumberjack/CocoaLumberj...](#)

A fast & simple, yet powerful & flexib...

[John-Lluch/SWRevealViewCo...](#)

A UIViewController subclass for pres...

nson

spot.com/

, 2010



Xcode quit unexpectedly.

Click Reopen to open the application again. This report will be sent to Apple automatically.

▼ Comments

Project Assistant Configuration

Scheme: Use: 61470 DC0-4C81-EA-C81

Crashed Thread: 0 Dispatch queue: com.apple.main-thread

Exception Type: EXC_CRASH (SIGABRT)

Exception Address: 0x0000000000000000

Application Specific Information:
ProductBuildVersion: 712
UNCAUGHT EXCEPTION (NSInternalInconsistencyException): -[NSObject(NSObject) doesNotRecognizeSelector:] unrecognized selector instance

0x7fd494680

User Info:

Hints: No

Backtrace:

```
0 0x00007fff8f3b4400 _exceptionPreprocess (in CoreFoundation)
1 0x00007fff8f3a60ed NTF_VerifyHandlerExceptionPreprocessor (in CoreFoundation)
2 0x00007fff8e266e75 objc_exception_throw (in libobjc.A.dylib)
3 0x00007fff8f3b72ed -[NSObject(NSObject) doesNotRecognizeSelector:] (in CoreFoundation)
4 0x00007fff8f3125b2 __forwarding__ (in CoreFoundation)
5 0x00007fff8f312138 _CF_forwarding_prep_0 (in CoreFoundation)
```

Hide Details

OK

Reopen

DEVELOP YOUR OWN PLUGIN

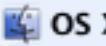
GETTING STARTED

- ▶ Clone <https://github.com/kattrali/Xcode5-Plugin-Template>
- ▶ Put it into `~/Library/Developer/Xcode/Templates/Project Templates/Application Plug-in/Xcode5 Plugin.xctemplate`

Choose a template for your new project



iOS
Application
Framework & Library
Other



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



Automator Action



Address Book Action
Plug-in



Installer Plug-in



Quartz Composer
Plug-in



Xcode4 Plugin



Xcode5 Plugin



Xcode5 Plugin

This template builds an Xcode5-compatible plugin.

Cancel

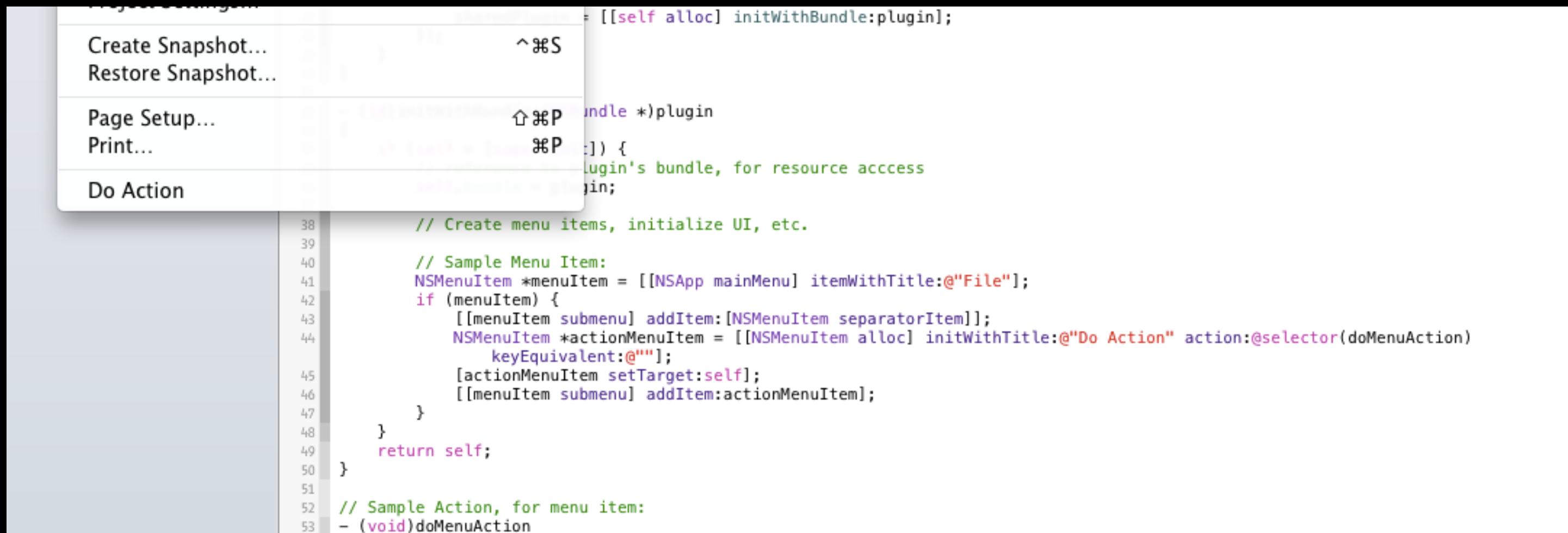
Previous

Next

PLUGIN TEMPLATE

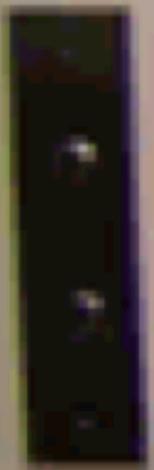
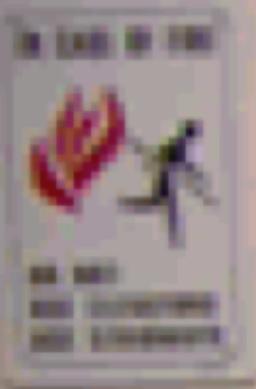
- ▶ Xcode 5.1 compatible
- ▶ Shows a menu item for testing
- ▶ On build, plugin ends up here: `~/Library/Application Support/Developer/Shared/Xcode/Plug-ins/`
- ▶ Just restart and it shows up

ONCE YOU BUILD AND RESTART XCODE



A screenshot of the Xcode interface. A context menu is open at the bottom left, listing options: "Create Snapshot...", "Restore Snapshot...", "Page Setup...", "Print...", and "Do Action". The "Do Action" option is highlighted with a white background and black text. Below the menu, the Xcode code editor shows a portion of Objective-C code. The code includes comments for initializing a plugin and creating menu items. It defines a method that initializes the plugin, creates a submenu under the File menu, adds a separator item, creates an action menu item, sets its target to self, and adds it to the submenu. Finally, it returns self. There is also a note about a sample action for a menu item.

```
37     = [[self alloc] initWithBundle:plugin];
38
39
40     // Create menu items, initialize UI, etc.
41
42     // Sample Menu Item:
43     NSMenuItem *menuItem = [[NSApp mainMenu] itemWithTitle:@"File"];
44     if (menuItem) {
45         [[menuItem submenu] addItem:[NSMenuItem separatorItem]];
46         NSMenuItem *actionMenuItem = [[NSMenuItem alloc] initWithTitle:@"Do Action" action:@selector(doMenuAction)
47             keyEquivalent:@""];
48         [actionMenuItem setTarget:self];
49         [[menuItem submenu] addItem:actionMenuItem];
50     }
51
52     // Sample Action, for menu item:
53     - (void)doMenuAction
```



LET'S BUILD SOMETHING USEFUL...



orta
@orta

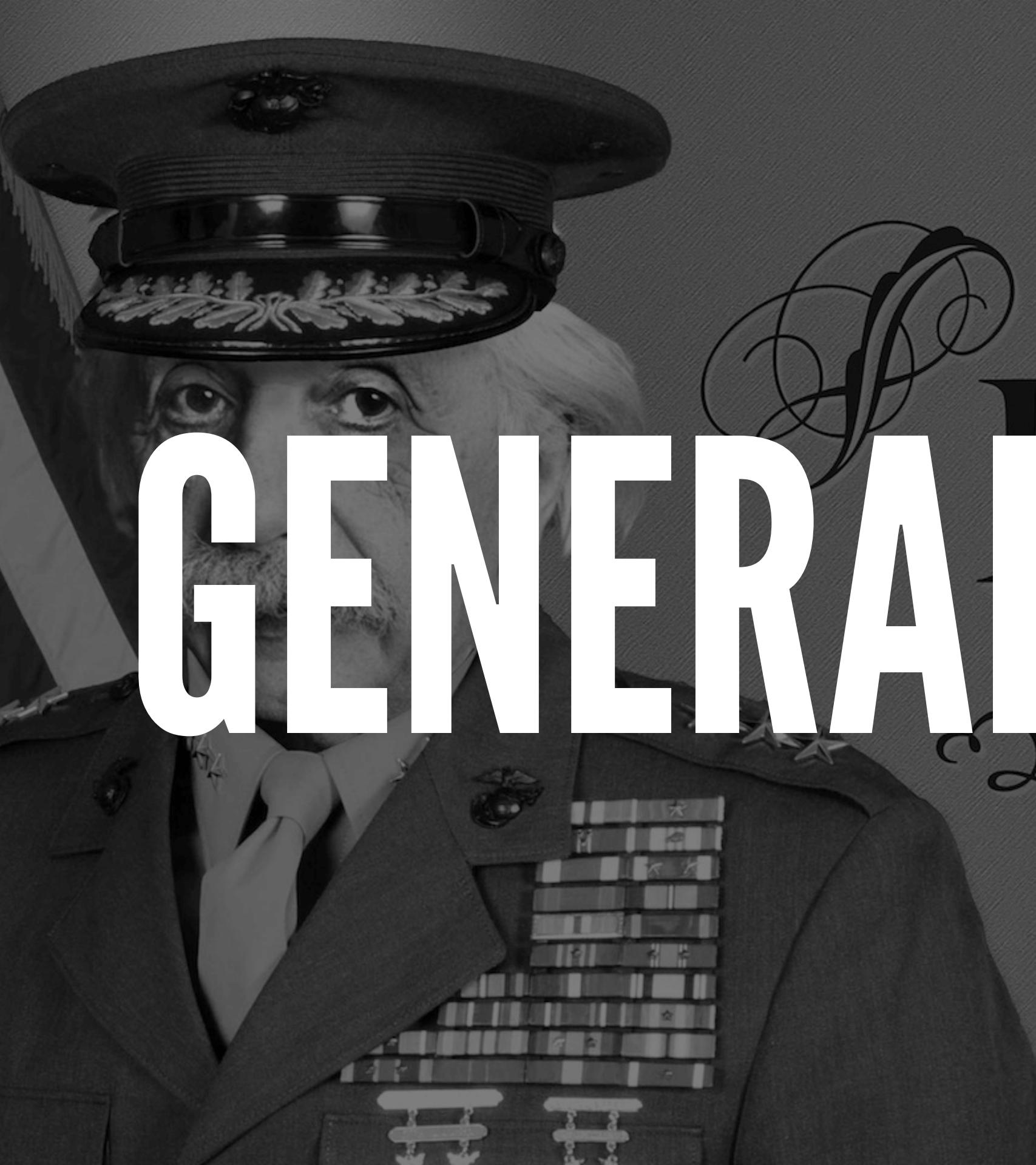
Following

Xcode extension idea: If I've returned from the simulator and have started writing in the text editor, hide the debugger.

Reply Retweet Favorite More

6 RETWEETS 11 FAVORITES

12:35 PM - 31 Dec 2013 from Kirklees, Kirklees



GENERAL POINTS

$$R_{\mu\nu} - \frac{1}{2}g_{\mu\nu}R + g_{\mu\nu}\Lambda = \frac{\pi G}{c^4}T_{\mu\nu}$$

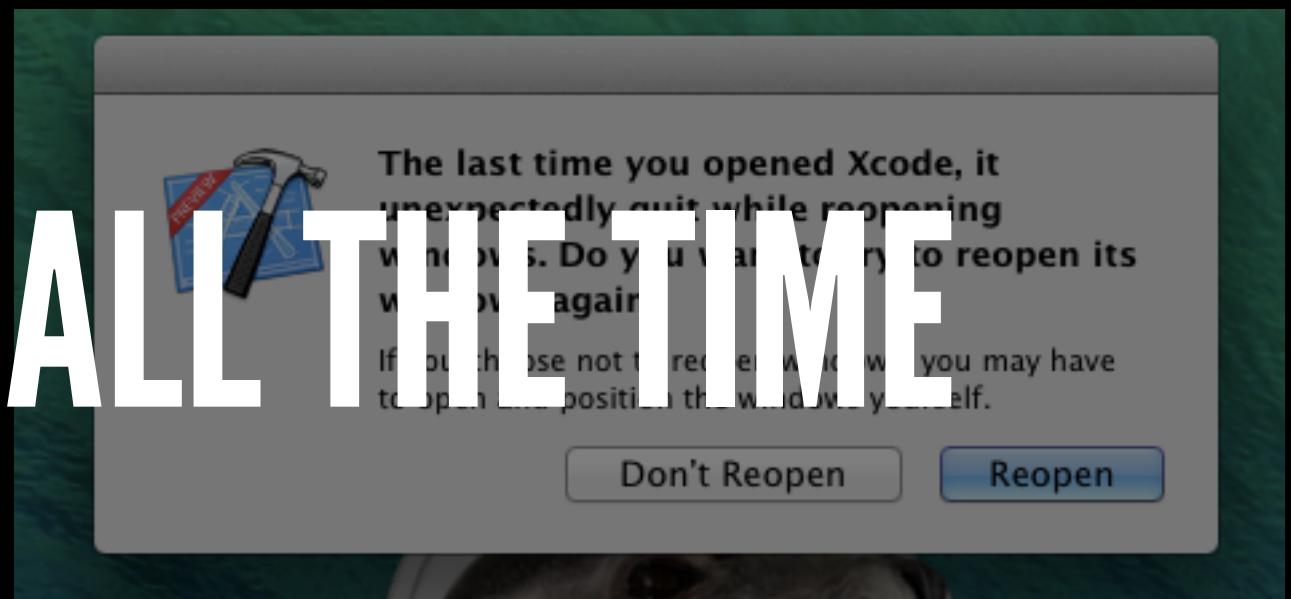
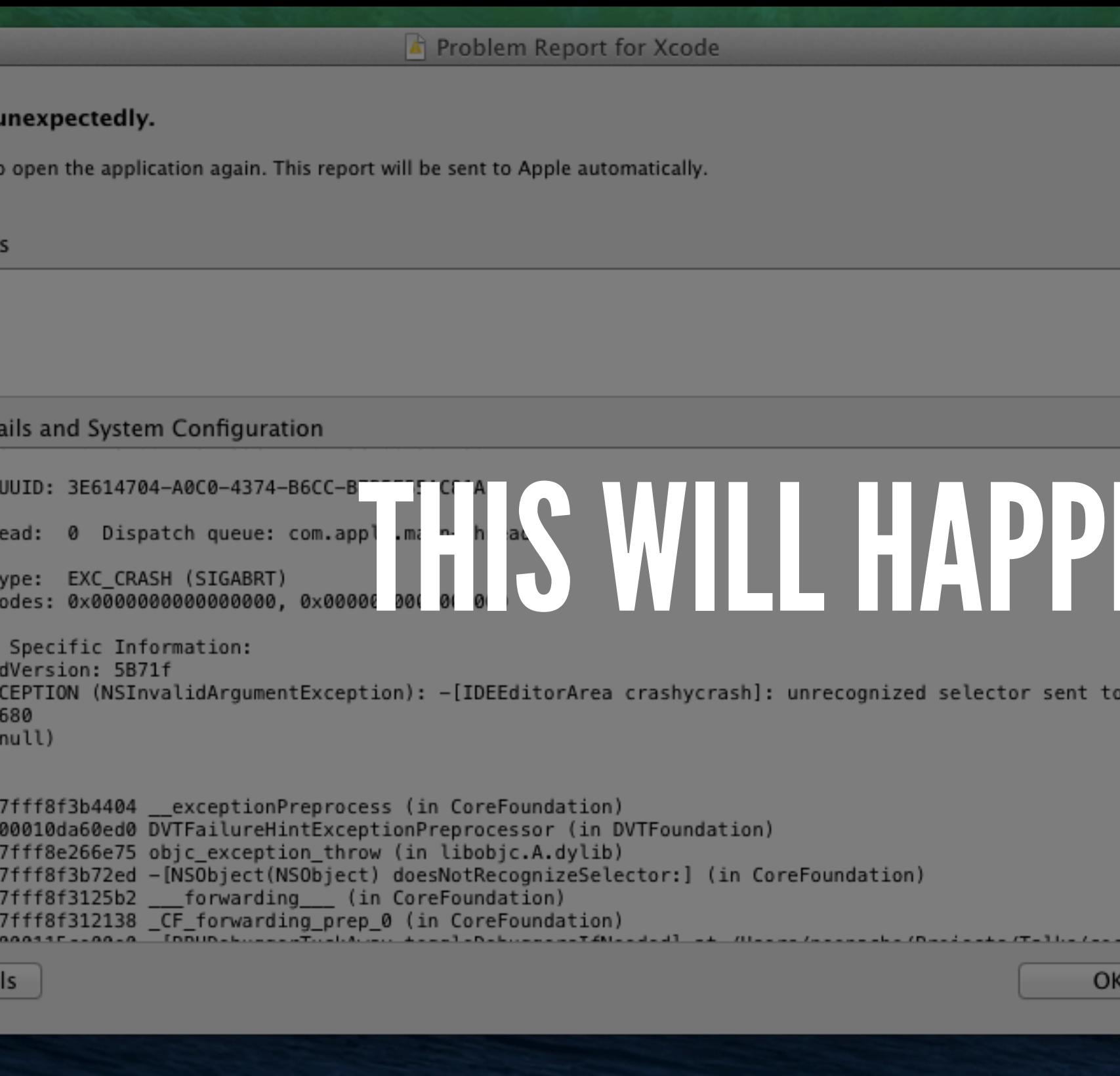
COMPATIBILITY UUIDS

THIS MIGHT APPEAR IN YOUR SYSTEM.LOG

```
[MT] PluginLoading: Required plug-in compatibility UUID 640F884E-CE55-4B40-87C0-8869546CAB7A  
for plug-in at path '~/Library/Application Support/Developer/Shared/Xcode/Plug-ins/CocoaPodsPlugIn.xcplugin'  
not present in DVTPPlugInCompatibilityUUIDs
```

```
$ defaults read /Applications/Xcode51-DP2.app/Contents/Info DVTPPlugInCompatibilityUUID  
640F884E-CE55-4B40-87C0-8869546CAB7A
```

ADD THAT UUID TO YOUR PLUGIN'S INFO.PLIST



YOUR ONLY FRIENDS...

```
$ tail -f /var/log/system.log
```

```
$ rm -rf ~/Library/Application Support/Developer/Shared/Xcode/Plug-ins/*
```

- ▶ Debug from the command line with lldb...
- ▶ or with a second instance of Xcode

HEADERS

Use class-dump yourself, or just grab
<https://github.com/luisobo/Xcode5-RuntimeHeaders>

WHAT WE ARE LOOKING FOR

- ▶ How to detect if the user types in the editor?
- ▶ How to hide the debug pane?

grep -ri editor *

```
@interface IDEWorkspaceWindowController : NSWindowController  
    <NSWindowDelegate,  
     IDEEditorAreaContainer,  
     DVTStatefulObject,  
     DVTTabbedWindowControlling,  
     DTEditor,  
     DVTInvalidation>
```

[...]

```
@property(readonly) IDEEditorArea *editorArea;
```

[...]

```
@end
```

```
@interface IDEEditorArea : IDEViewController <IDEDebuggerBarEditorInfoProvider>  
[...]  
- (void)toggleDebuggerVisibility:(id)arg1;  
- (void)activateConsole:(id)arg1;  
@property BOOL showDebuggerArea;  
[...]  
@end
```

```
- (void)toggleDebuggersIfNeeded {
    for (NSWindowController *workspaceWindowController in
        [objc_getClass("IDEWorkspaceWindowController")
         workspaceWindowControllers]) {
        id editorArea = [workspaceWindowController editorArea];
        if ([editorArea showDebuggerArea]) {
            [editorArea toggleDebuggerVisibility:nil];
        }
    }
}
```

```
@interface NS0bject (ShutUpWarnings)

-(id)editorArea;
-(BOOL)showDebuggerArea;
-(void)toggleDebuggerVisibility:(id)arg;
-(NSArray*)workspaceWindowControllers;

@end
```

GREPPING THROUGH _SUBTREEDESCRIPTION

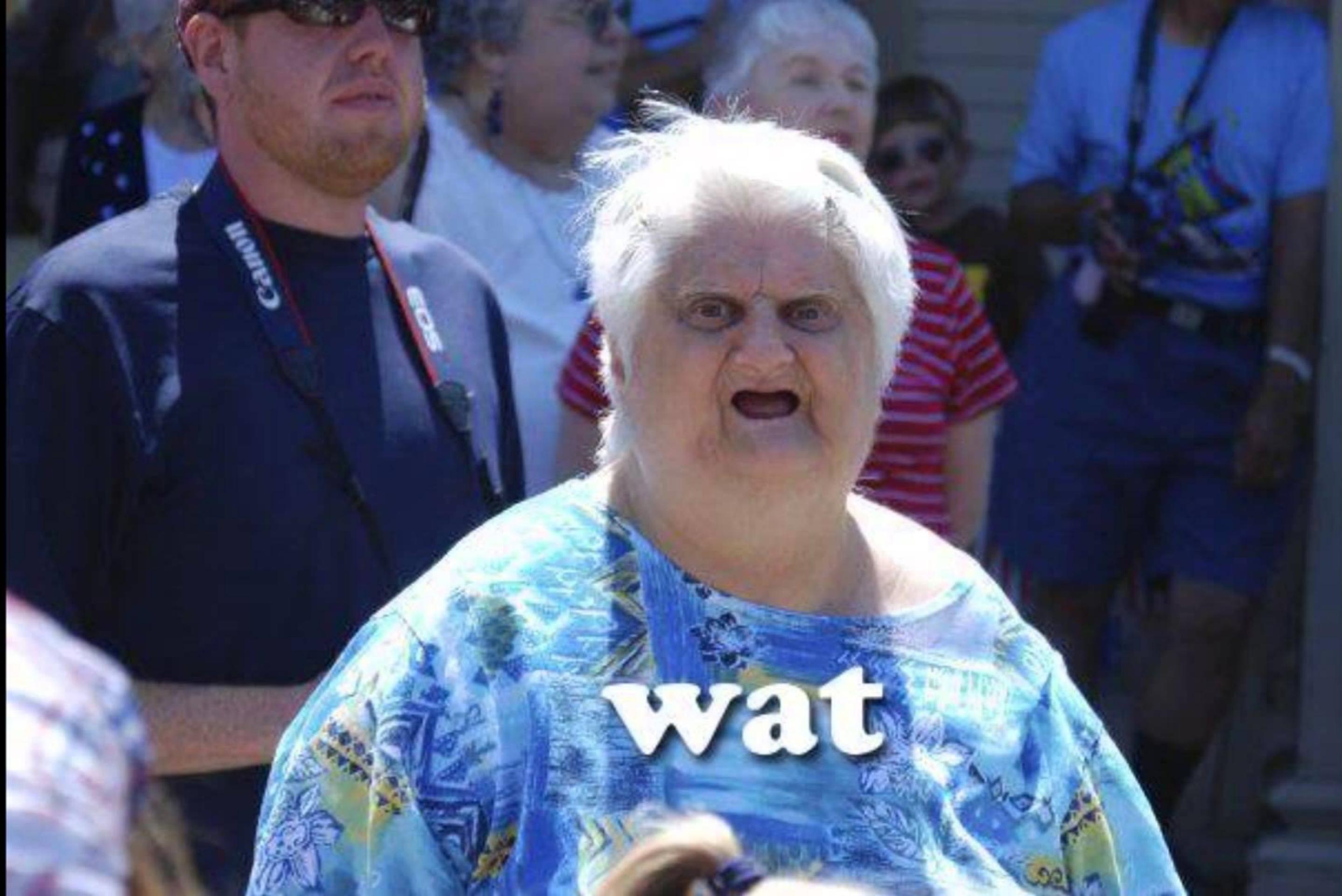
```
grep -i source *
```

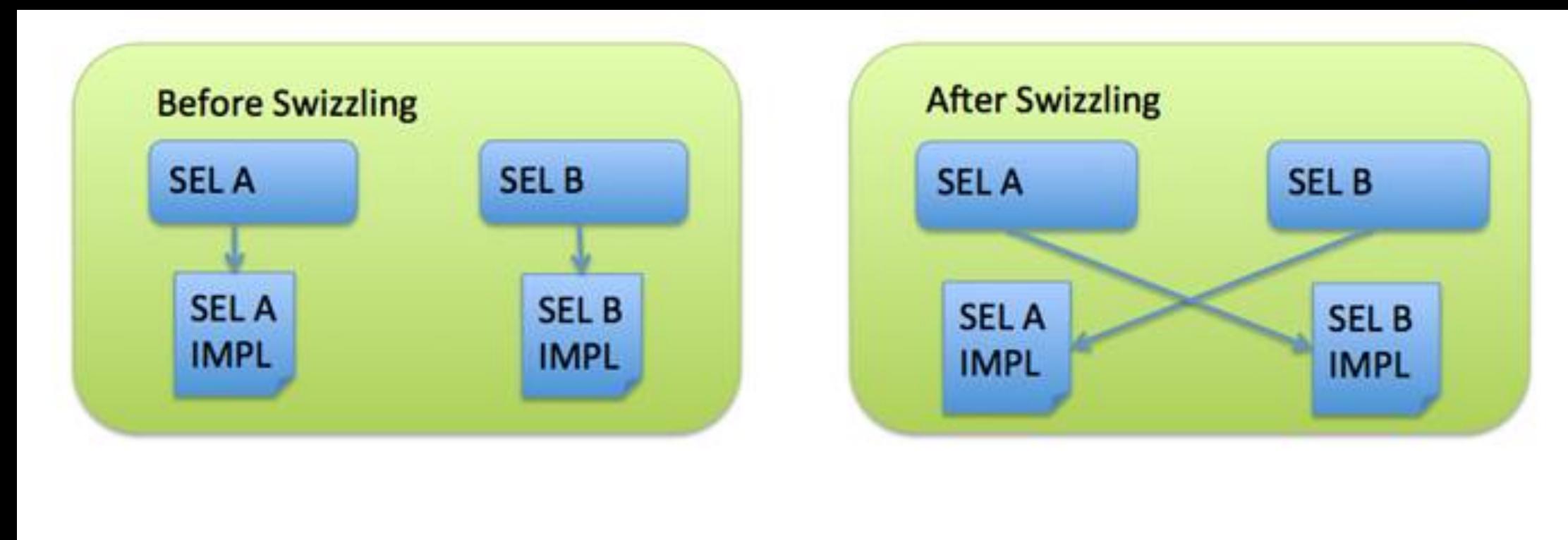
```
[ AF 0 P LU ] h=--- v=--- NSClipView 0x7f822e93e990 f=(35,0,885,662) b=(0,637,-,-)
TIME drawRect: min/mean/max 0.00/0.00/0.00 ms
[ AF 0 LU ] h=-&- v=-&- DVTSourceTextView 0x7f822c723f00 f=(0,0,885,1339) b=(-)
TIME drawRect: min/mean/max 0.00/0.00/0.00 ms
[ A LU ] h=--- v=--- DVTMessageBubbleView 0x7f822eb5c080 f=(638,975,247,12) b=(-)
TIME drawRect: min/mean/max 0.23/0.42/0.68 ms
```

DVTSourceTextView

```
- (void)swizzleDidChangeTextInSourceTextView {
    [[objc_getClass("DVTSourceTextView") new]
     yl_swizzleSelector:@selector(didChangeText)
     withBlock:^void(id ssself) {
        [self toggleDebuggersIfNeeded];

        [ssself yl_performSelector:@selector(didChangeText)
                  returnAddress:NULL
         argumentAddresses:NULL];
    }];
}
```





```
@interface NSObject (YOLO)

-(void)yl_performSelector:(SEL)aSelector
    returnAddress:(void *)result
    argumentAddresses:(void *)arg1, ...;
-(void)yl_swizzleSelector:(SEL)originalSelector
    withBlock:(id)block;

@end
```

```
- (void)swizzleDidChangeTextInSourceTextView {
    [[objc_getClass("DVTSourceTextView") new]
     yl_swizzleSelector:@selector(didChangeText)
     withBlock:^void(id ssself) {
        [self toggleDebuggersIfNeeded];

        [ssself yl_performSelector:@selector(didChangeText)
             returnAddress:NULL
             argumentAddresses:NULL];
    }];
}
```

```
21 -(NSArray*)workspaceWindowControllers;
22
23 @end
24
25 #pragma mark -
26
27 @implementation BBUDebuggerTuckAway
28
29 + (void)pluginDidLoad:(NSBundle *)plugin
30 {
31     static id sharedPlugin = nil;
32     static dispatch_once_t onceToken;
33     NSString *currentApplicationName = [[NSBundle mainBundle] infoDictionary][@"CFBundleName"];
34     if ([currentApplicationName isEqualToString:@"Xcode"]) {
35         dispatch_once(&onceToken, ^{
36             sharedPlugin = [[self alloc] initWithBundle:plugin];
37         });
38     }
39 }
40
41 - (id)initWithBundle:(NSBundle *)p
42 {
43     if (self = [super init]) {
44         [self performSelector:@selector(swizzleDidChangeTextInSourceTextView) withObject:nil afterDelay:5.0];
45     }
46     return self;
47 }
48
49 - (void)swizzleDidChangeTextInSourceTextView
50 {
51     [[objc_getClass("DVTSourceTextView") new] yl_swizzleSelector:@selector(didChangeText)
52                                         withBlock:^void(id sself) {
53         [self toggleDebuggersIfNeeded];
54
55         [sself yl_performSelector:@selector(didChangeText)
56              returnAddress:NULL
57              argumentAddresses:NULL];
58     }];
59 }
60
61 - (void)toggleDebuggersIfNeeded
62 {
63     for (NSWindowController *workspaceWindowController in [objc_getClass("IDEWorkspaceWindowController")
64                                                       workspaceWindowControllers])
65     {
66         id editorArea = [workspaceWindowController editorArea];
67         if ([editorArea showDebuggerArea]) {
68             [editorArea toggleDebuggerVisibility:nil];
69         }
70     }
71 }
```

No Selection

Auto |

All Output

| |
|--|
| Name |
| Type |
| Location |
| Full Path |
| Target Member |
| <input checked="" type="checkbox"/> BBUD |
| Text Setting |
| Text Encoding |
| Line Ending |
| Indent Using |
| Width |
| Source Control |
| Repository |
| Type |
| Current Branch |
| Version |
| Status |
| Obj-C |
| C/C++ |
| Test |
| Obj-C |
| Obj-C |
| Test |
| Obj-C |
| Obj-C |
| Test |

SHIP IT

```
{  
  "name": "My Life-Changing Xcode Plugin",  
  "url": "https://github.com/me/xcode-life-changing-plugin",  
  "description": "Makes Xcode stop, collaborate and listen."  
}
```

Send a pull request to the Alcatraz packages repo

<https://github.com/supermarin/alcatraz-packages>

USING DTRACE

- ▶ Powerful dynamic tracing framework
- ▶ Can be used to log any objc_msgSend()
- ▶ Useful for seeing call trees of a specific class
- ▶ <http://chen.do/blog/2013/10/22/reverse-engineering-xcode-with-dtrace/>

<https://github.com/kattrali/xcode-devtools>

<https://coderwall.com/p/-mgtww>

A photograph of a man with spiky brown hair and sunglasses, looking out over a dense city skyline. He is wearing a teal shirt. The city below is filled with numerous skyscrapers and buildings.

alcatraz.io

A stylized illustration of Iron Man's torso and arms in his signature red and gold suit. He is wearing a blue and white striped shirt underneath. His hands are clenched into fists. The background is a solid grey.

<https://github.com/neonichu/extending-xcode/>

<https://github.com/neonichu/BBUDebuggerTuckAway/>