Debugging Strange Exceptions in XCode

It will inevitabally happen. You will be testing an iOS app out and XCode will crash with a strange, cryptic error. You will see a series of memory addresses, code that doesn't make a lick of sense, and a green line with a very unhelpful comment. In the screenshot below, it says "SIGBART". Technically speaking, this is called an "exception". This tutorial will show you how to identify what is going on and how to easily get help on the forums.

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| 32 | | | - | | | | | | |
| 33 | | | - | | | | | | |
| 34 | #im | nort <td></td> | | | | | | | |
| 36 | 11 2.00 | | - | | | | | | |
| 37 | int | main(int argc, char *argv[]) { | <u> </u> | | | | | | |
| 38 | | <pre>//return animatedsplashtest_appDelegate as UIApplicationMain</pre> | | | | | | | |
| 39 | | NSAutoreleasePool * pool = [[NSAutoreleasePool alloc] init]; | | | | | | | |
| 40 | · | Int retvate utapplicationmain(argc, argv,@"utapplication",@"animateosplashtest_appuelega | Thread 1: signal SICARPT | | | | | | |
| 42 | | return retVal: | Thread 1. Signal Sturbert | | | | | | |
| 43 | } | | | | | | | | |
| | ₽ | 🖕 🛨 📋 🖌 📔 animatedsplashtest > 🥫 Thread 1 > 🔟 14 main | | | | | | | |
| All | All Output \$ | | | | | | | | |
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| ſ | | | | | | | | | |
| 1 | 1 An unhelpful exception in XCode | | | | | | | | |
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Preparing XCode

The first thing to do when you receive an exception like this is to make the sure the app is not running. Press the "Stop" button.



Setting up a breakpoint exception

Next, we will set up a breakpoint exception. To do so, we will open up the breakpoint navigator and click the 'add breakpoint' button:



Creating the breakpoint

Create the exception breakpoint as follows:

| Run Stop Schem | hone 6.0 Simulator Breakpoints | | | | | | | |
|---|--|--|--|--|--|--|--|--|
| Image: Second state st | IIII ▲ ▶ Animatedsplashtest 100 UIColor *gradBgColorBc screenData nameOfP 101 //sub-view for gradier | | | | | | | |
| IIIView *boGradientView Exception Breakpoint Exception All # Break On Throw ‡ Action Add Action Options Automatically continue after evaluating | | | | | | | | |
| Add the exception breakpoint, making sure that the "Exception" drop-down is set to "All". Press "Done". | | | | | | | | |

Apply Breakpoint to All Projects

Optionally, you can apply the breakpoint you created to all XCode projects. This way, you won't have to repeat the steps in this tutorial for your other apps.



- 1. Right click on the "All Exceptions" breakpoint you created.
- 2. Hover over the menu option "Move Breakpoint To".
- 3. Select "User" from the submenu.

Run the app again

Run the app again to get your improved debugging results



Identify source of error

When you run the app again, it will still crash. However, this time it will (hopefully) present a different error message in XCode. In this case, we see that XCode identified the exception occurred on line 118 of the file "CR_animated_splash.m". The error message is "Thread 1: breakpoint 1.3", which is not helpful by itself. But the statement that caused the exception is very helpful. It should be enough to diagnose the problem by others on the forum, if you can't diagnose it yourself.

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| Run | Stop | | | | Schem | e | | Breakpoints | | Р | roject 🔒 1 | | | | . E |
| Ē | - | • | = | | p | | • | animatedsplashtest |) 🚞 BT_Plug | ins) 🚞 cr_ani | mated_splash | n > 🖻 CR_anima | ted_splash.m) | No Selectio | n 🛛 🛋 🔺 🕨 |
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| 1. A more detailed error causing your app to crash. In this case, the statement causing the problems is: [BT_debugger showlt:self:@"ff"]; This error was caused by an improperly formatted line of code. The code should read: [BT_debugger showlt:self theMessage:@"ff"]; | | | | | | | | | | | | | | | |

Exceptions not covered by breakpoint

Occasionally, you may still get a crash that doesn't go to the line of code with the problem. In the example below, we see an exception of "EXC_BAD_ACCESS", even though we previously set up the breakpoint.

| 00 | | 📩 animatedsplas | shtest.xcodeproj | | | | | |
|---|--|---|---|--|--|--|--|--|
| (animatedsplashtest) iPh | none 6.0 Simulator | Running animatedsplashtest | t on iPhone 6.0 Simulato | | | | | |
| Run Stop Scheme | e Breakpoir | No Issu | ies | | | | | |
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| ▼ ■ animatedsplashtest E. | 1 libobjc.A.dylib`objc_r 2 0x2e1d08c: movl 8(% | sgSend: | | | | | | |
| Thread 1 com.apple.main-thread 0 objc_msgSend | 4 0x2e1d094: testl %ea 5 0x2e1d096: je 0x2 6 0x2e1d098: movl (%ea | csp7, seax x, %eax eld0e8 ; objc_m ax). %edx | isgSend + 92 | | | | | |
| 10 -[UIView(Hierarchy) addSubview:] 11 -[CR_animated_splash viewDi | 7 0x2e1d09a: pushl %e 8 0x2e1d09b: movl 8(% 9 0x2e1d09e: pushl %e | i edx), %edi i | | | | | | |
| 12 - [UlViewController loadViewlf 13 - [UlViewController view] 14 - [BT_application buildInterface] 15 - [animatedsplashtest_appDele 16 - [animatedsplashtest_appDele 17 - [animatedsplashtest_appDele 18 - [UlApplication_handleDeleaa | 10 0x2e1d09f: movl (%) 11 0x2e1d0a1: movl %) 12 0x2e1d0a3: shrl \$2 13 0x2e1d0a6: andl %) 14 0x2e1d0a6: movl 8(s) 15 0x2e1d0a6: testl %) 16 0x2e1d0a6: je 0x1 17 0x2e1d0b6: cmpl (%) | di), %esi x, %edx %edx i, %edx edi,%edx,4), %eax x, %eax eld0b9 ; objc_m ax), %ecx | Thread 1: EXC_BAD_ACCESS (code=1, address=0x616c4372) | | | | | |
| 32 UIApplicationMain 33 main | 18 0x2e100D2: je 0x. 19 0x2e1d0b4: addl \$1, 20 0x2e1d0b7: jmp 0x. 21 0x2e1d0b9: popl %er 22 0x2e1d0ba: popl %er | %edx %edx i i i | isgSend + 26 | | | | | |
| Thread 3 | 23 0x2e1d0bb: movl 4(% 24 0x2e1d0bf: movl (% | esp), %edx dx), %eax | | | | | | |
| 1. Exception not caught by breakpoint. | | | | | | | | |

Other Ways to Find Error

Fret not, our cause is not lost. XCode still gives us the tools to find the line of code causing the error. On the left hand side of XCode, you will see a series of options under "Thread 1"



Finding the exception

Success! Clicking on the plugin gives us a screen that shows the offending line of code. In this case, the exception was in the "cr_animated_splash" plugin.



Get help for your error

Once you've identified the code causing your app to crash, it's time to ask for help on the Buzztouch.com forums. Ideally, you should take a screenshot of XCode and save it on an online storage site (e.g., Dropbox), and link to the image in your forum post. On a Mac, you can hold CMD+Shift and press "3" to take a screenshot. Or you can hold CMD+Shift and press "4" to select just a section of the screen for the screenshot.