Mastering Xcode 4

DEVELOP AND DESIGN

Joshua Nozzi

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Peachpit Press

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COLIN WHEELER

Colin's Xcode shortcut cheat sheet saved me loads of tedium when creating Appendix B. You can find the original, downloadable version that Colin maintains at *http://xcodebook.com/cwheeler*.

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INTRODUCTION

This book is an intermediate-level introduction to Xcode 4, Apple's integrated development environment. It assumes you have some development experience and are familiar with the Cocoa API. It won't teach you how to write code or much at all about Cocoa. There are other books for that. This one is strictly focused on how to use Xcode itself, whatever your development endeavors.

Of course, since Xcode is most often used with the Cocoa API and Objective-C, there are basic introductions to Cocoa concepts and a few trivial code samples sprinkled here and there to illustrate various points. In these cases, I point to the documentation that Apple provides (to save you some trouble looking it up), but I only had a limited number of pages in which to show you Xcode stuff, so please keep this in mind when writing your scathing Amazon reviews.

Also, I've formed the opinion that Apple is crafty when it comes to software releases. Not only are they ultra-secretive, but they appear to know my precise schedule and plans (I blame iCloud). They seem to use this knowledge to wait until I'm almost finished and then change a bunch of stuff in a single release, necessitating the tracking down and editing of many fine details. I imagine an Apple overseer watching me through my Mac's camera, stroking a wrinkly, hairless cat and waiting until I'm almost finished. He then orders his henchmen to release the next set of random changes and leans toward the screen expectantly, muttering "Yeeesssss . . ." as I shake my fist at the sky and shout his name in dramatic fashion. The cat, of course, is hairless to avoid messing up his black turtleneck.

Whatever the case, I may say things that no longer apply to some future version or mention menus that no longer exist as such. Sorry. Blame Apple. Then buy my next edition.

WHAT YOU WILL LEARN

This book is divided into three major parts and includes four appendixes on the book's companion Web site.

Part I: The Basics: Getting Started with Xcode 4
In very short order, you'll install Xcode and get down to business building a useless application. Nobody but perhaps your mother would buy it, but it very neatly demonstrates the Xcode 4 project workflow and how to find your way around a project.

Part II: Working with Cocoa Applications
Next, you'll learn how to build and edit user interfaces, add resources, and customize the application. You'll explore all major aspects of the Xcode user interface and its primary editors. You'll learn to refactor code, to use the debugger and the Core Data modeler, and to archive builds for deployment (independently or via the App Store).

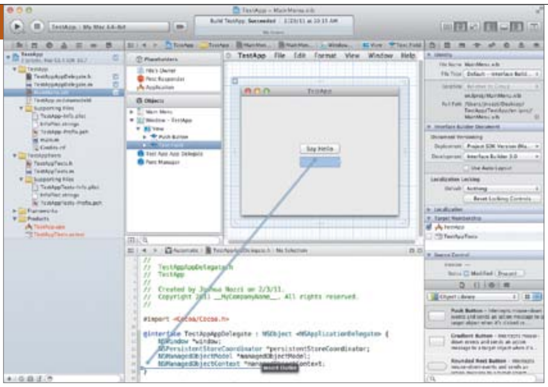
Part III: Going Beyond the Basics
Then you'll dive a little deeper and explore Xcode's build system (including the new schemes system). You'll learn how to create and use libraries and frameworks and how to combine multiple projects into a single workspace. You'll create and run unit tests and use custom scripts with the build process.

Finally, you'll take a solid tour of Instruments (Apple's profiling tool) and experience its uncanny ability to point out your mistakes and make you feel stupid. Thoroughly abashed, you'll wrap up with an overview of Xcode's integrated source code management support.

Appendixes
You'll find four appendixes on the book's companion Web site (*http://xcodebook.com/extracontent*). Appendix A helps you manage your iOS devices. Appendix B includes tables of gestures and keyboard shortcuts for frequently used tasks. Appendix C shows you how to manage Xcode documentation updates. Appendix D provides you with Apple and third-party resources for additional information.

WELCOME TO XCODE

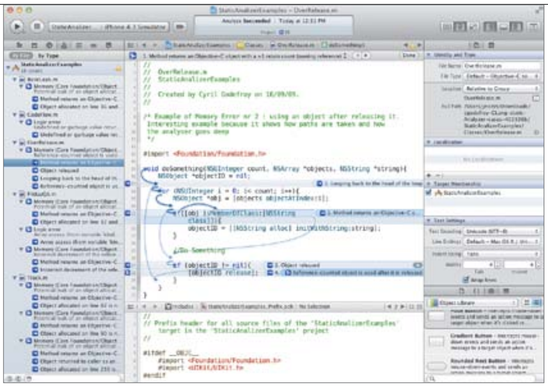
Upstart newbies. Always strolling in and making short work of stuff that used to take you hours. In your day, you *typed* all your build commands and *liked* it. Uphill. Both ways. In the snow. Then again, why let those newbies outpace you? Xcode puts the same powerful tools you know (and some new ones you may not) in your hands. Despite its shiny, easy-to-use interface, a lot of power lurks just under the



```
//
//  TestAppAppDelegate.h
//  TestApp
//
//  Created by Joshua Nozzi on 2/3/11.
//  Copyright 2011 __MyCompanyName__. All rights reserved.
//

#import <Cocoa/Cocoa.h>

@interface TestAppAppDelegate : NSObject <NSApplicationDelegate> {
    NSWindow *window;
    NSPersistentStoreCoordinator *persistentStoreCoordinator;
    NSManagedObjectModel *managedObjectModel;
    NSManagedObjectContext *managedObjectContext;
}
```



```
//
//  OverRelease.m
//  StaticAnalizerExamples
//
//  Created by Cyril Godefroy on 18/09/09.
//

/* Example of Memory Error nr 2 : using an object after releasing it.
 Interesting example because it shows how paths are taken and how
 the analyzer goes deep
 */

#import <Foundation/Foundation.h>

void doSomething(NSUInteger count, NSArray *objects, NSString *string){
    NSObject *objectID = nil;

    for (NSUInteger i = 0; i< count; i++){
        NSObject *obj = [objects objectAtIndex:i];

        if([[obj] isMemberOfClass:[NSString
            class]]){
            objectID = [[NSString alloc] initWithString:string];
        }

        //Do Something

        if (objectID != nil){
            [objectID release];
        }
    }
}
```

```
//
// Prefix header for all source files of the 'StaticAnalizerExamples'
   target in the 'StaticAnalizerExamples' project
//

#ifdef __OBJC__
    #import <Foundation/Foundation.h>
    #import <UIKit/UIKit.h>
#endif
```

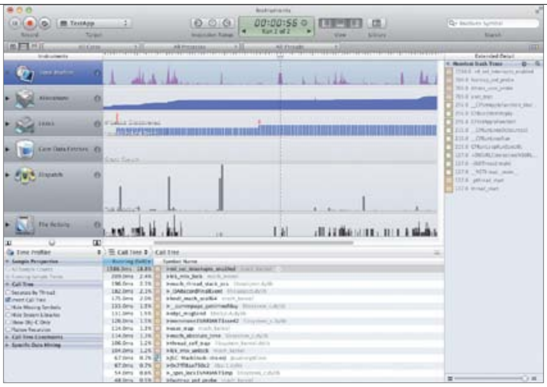
INTERFACE BUILDER

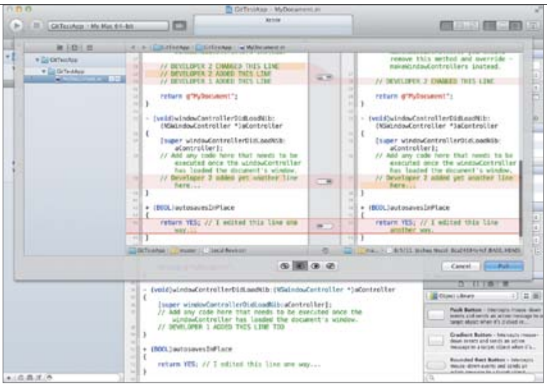
Build and edit rich user interfaces with Interface Builder. Drag and drop outlets and actions directly into your code using the Assistant editor.

CLANG STATIC ANALYZER

Find subtle errors in your programs with the Clang Static Analyzer. Follow the blue arrows through your code as the problem is broken down step by step.

surface. Xcode 4 lets you write and manage your code, design and build user interfaces, analyze and debug your apps, and more. So what if it takes you less time?





INSTRUMENTS

Trace and profile your code with Instruments. Follow your application's activity through time to find and analyze performance problems and more.

SOURCE CODE MANAGEMENT

Manage your source code with the integrated source code management features. Branch, merge, pull, push, and resolve conflicts all from within Xcode.

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4

GETTING **HELP**

You can get help in Xcode 4 for the IDE as well as the Cocoa frameworks in a number of ways. In this chapter, you'll learn how to find the answers you need.

THE **HELP** MENU

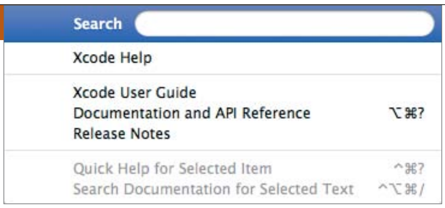

Search
Xcode Help
Xcode User Guide
Documentation and API Reference ⌥⌘?
Release Notes
Quick Help for Selected Item ^⌘?
Search Documentation for Selected Text ^⌥⌘/

FIGURE 4.1 The Xcode Help menu

You'll start with the most obvious place first. If you're familiar with Mac OS X, you should be familiar with the Help menu. Starting with Mac OS X 10.5, the Help menu (**Figure 4.1**) features a standard Search field, which shows you not only help topics but main menu items that match your search term.

Beneath the Search field are menu choices to open some of the more important help libraries with which you should familiarize yourself. A link to Xcode's release notes is also listed there. Most of these will open the Organizer window, which you saw in Chapter 3.

XCODE HELP

The Xcode User Guide menu item opens a splash page containing video and links about how to find help in Xcode.

XCODE USER GUIDE

The Xcode Help menu item opens the user manual for Xcode. Inside you'll find in-depth explanations and how-to instructions for all Xcode features.

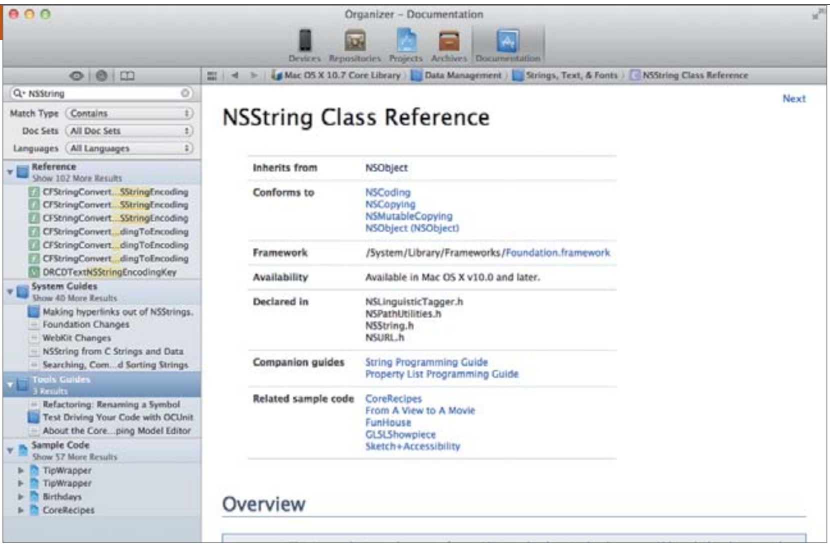
DOCUMENTATION AND API REFERENCE

The Documentation and API Reference menu item simply opens the Organizer window in Documentation mode so you can browse or search the installed documentation libraries. It will remain on the currently selected page without navigating away and simply show the window.

THE REST

The remaining menu items trigger quick help for the currently selected code in the active workspace window, and open the Organizer window in Documentation mode with the text input cursor in the search bar, respectively.

THE ORGANIZER'S **DOCUMENTATION** TAB


Organizer – Documentation
Devices
Repositories
Projects
Archives
Documentation
Mac OS X 10.7 Core Library
Data Management
Strings, Text, & Fonts
NSString Class Reference
NSString
Match Type
Contains
Doc Sets
All Doc Sets
Languages
All Languages
Reference
Show 102 More Results
CFStringConvert...SStringEncoding
CFStringConvert...SStringEncoding
CFStringConvert...SStringEncoding
CFStringConvert...dingToEncoding
CFStringConvert...dingToEncoding
CFStringConvert...dingToEncoding
DRCDTextNSStringEncodingKey
System Guides
Show 40 More Results
Making hyperlinks out of NSStrings.
Foundation Changes
WebKit Changes
NSString from C Strings and Data
Searching, Com...d Sorting Strings
Tools Guides
3 Results
Refactoring: Renaming a Symbol
Test Driving Your Code with OCUnit
About the Core...ping Model Editor
Sample Code
Show 57 More Results
TipWrapper
TipWrapper
Birthdays
CoreRecipes
Next

NSString Class Reference

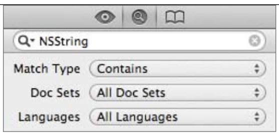
Inherits from	NSObject
Conforms to	NSCoding NSCopying NSMutableCopying NSObject (NSObject)
Framework	/System/Library/Frameworks/Foundation.framework
Availability	Available in Mac OS X v10.0 and later.
Declared in	NSLinguisticTagger.h NSPathUtilities.h NSString.h NSURL.h
Companion guides	String Programming Guide Property List Programming Guide
Related sample code	CoreRecipes From A View to A Movie FunHouse GLSLShowpiece Sketch+Accessibility

Overview

FIGURE 4.2 The Organizer's Documentation tab

The Documentation section of the Organizer is Xcode's main viewer for all SDK and developer tools documentation. Open the Organizer by choosing Window > Organizer from the main menu, and then choose the Documentation tab in the toolbar (**Figure 4.2**).

The Organizer responds by showing you a pane on the left (similar to Xcode's Navigator area) and a main viewing area. Along the top of the main viewing area, you'll see a Jump Bar similar to the one you explored in Chapter 3. This Jump Bar, however, allows you to navigate the documentation as opposed to your project. The Organizer's navigation area has three modes: Explore, Search, and Bookmarks. The button bar at the top of the pane switches between the modes.



NSString

Match Type: Contains

Doc Sets: All Doc Sets

Languages: All Languages

FIGURE 4.3 The Organizer's search options panel

EXPLORE

In Explore mode, an outline of each of the documentation sets and their sections displays. You can drill down by topic through the guides and API reference documents.

SEARCH

In Search mode, a search field appears, allowing you to search all installed documentation sets. Clicking the magnifying glass icon, then choosing Show Find Options from the context menu reveals a set of filtering options (**Figure 4.3**) that let you ignore unwanted libraries and more. The results are grouped by type (such as Reference, System Guides, Sample Code, and so on).

BOOKMARKS

In Bookmarks mode, you can jump directly to documentation pages you've bookmarked. You can set bookmarks by choosing Editor > Bookmarks from the main menu or by right-clicking anywhere in the page and choosing Add Bookmark for Current Page from the context menu. To delete a bookmark, select it and press the Delete key.

THE **SOURCE** EDITOR

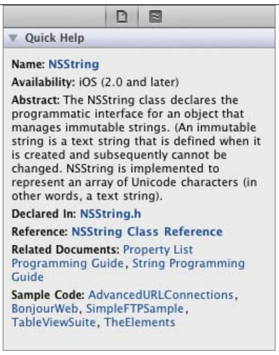
Although you'll explore the depths of the Source Editor in Part II, there are a couple of useful ways to find contextual help from within your code.

QUICK HELP IN THE UTILITY AREA

As you saw in Chapter 3, Xcode's Utility area gives you access to various properties, code snippets, user interface elements for Interface Builder, and Quick Help. The Quick Help utility continuously updates its content depending on what you've selected in the Source Editor.

To get a feel for this utility, make sure your TestApp project is open and then select the `TestAppAppDelegate.m` source file from the Classes group in the Project navigator. Open the Utility area, and select the Quick Help utility. In the Source Editor, click `window` in the `@synthesize window;` statement. Quick Help responds by showing you the name of the symbol (`window`) and the header file in which it is declared (the TestApp project's `TestAppAppDelegate.h` file).

For a more interesting example, scroll down a bit until you find the `- (NSString *) applicationSupportDirectory` method, and click the `NSString` symbol. Quick Help responds by showing a much more detailed description of the `NSString` class (**Figure 4.4**), which is part of the Cocoa frameworks and is documented by the built-in document libraries. Any text highlighted in blue is a hyperlink to the corresponding documentation. Clicking a Quick Help hyperlink opens the linked information in the Documentation section of the Organizer.

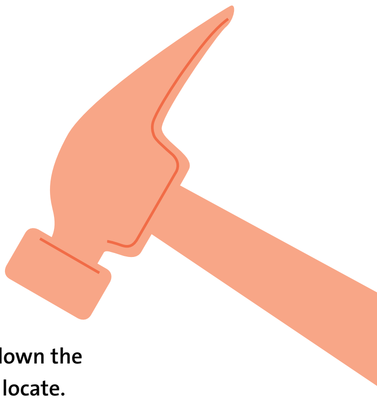


Name: NSString
Availability: iOS (2.0 and later)
Abstract: The NSString class declares the programmatic interface for an object that manages immutable strings. (An immutable string is a text string that is defined when it is created and subsequently cannot be changed. NSString is implemented to represent an array of Unicode characters (in other words, a text string).
Declared In: NSString.h
Reference: NSString Class Reference
Related Documents: Property List Programming Guide, String Programming Guide
Sample Code: AdvancedURLConnections, BonjourWeb, SimpleFTPSample, TableViewSuite, TheElements

FIGURE 4.4 The Quick Help utility

SEARCH DOCUMENTATION FOR SELECTED TEXT

Another handy way to find the documentation for symbols such as `NSString` is to select the symbol in the Source Editor and then choose Help > Search Documentation for Selected Text from the main menu. As with hyperlinks in the Quick Help pane, choosing this option will open any corresponding documentation it finds in the Documentation section of the Organizer.



TIP: It's not necessary to open the Utility pane to see Quick Help content. The same information will appear in a pop-up bubble by holding down the Option key and clicking the symbol you want to locate.

COMMUNITY **HELP** AND **FEEDBACK**

There are a number of community Web sites for finding more help than is available in the documentation, including Apple's own developer forums. See Appendix D for more information.

APPLE'S DEVELOPER FORUMS

Apple's developer forums are accessible to ADC members (*http://devforums.apple.com*). There you can receive help and advice from the Cocoa developer community as well as the occasional Apple engineer. Because this is a public forum, it's important to keep in mind that most people there are developers like you and are volunteering their time. Take extra care to search for similar questions before posting, ask detailed and clearly written questions, and be civil. As with any community, anything less than civility and courtesy will make the community less likely to help you in the future.

DOCUMENTATION ERRORS

If there is anything about Apple's documentation that is unclear, incorrect, or lacking in any way in Xcode, you are encouraged to submit feedback to Apple. At the bottom of every page of the documentation are hyperlinks that allow you to submit feedback—good, sort-of-good, and bad—to the Apple documentation team. Constructive, detailed feedback helps Apple provide better documentation, and improvements are released often.

WRAPPING UP

Xcode offers many ways to find help. Most of those ways point to the same documentation set, but even the documentation pages help you submit suggestions for improvement. In addition, you will find a number of community Web sites (one of which is Apple-hosted) and blogs a quick Google search away. Even if the built-in documentation doesn't help, the chances are quite good you'll find your answer on the World Wide Web.

You should now have your bearings in the Xcode IDE. In Part II, you'll use Xcode to expand on the TestApp project by adding some user interface elements, writing some code, defining a data model, and more. From there, you'll delve into the debugger and building the application for deployment.

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