

Migrating to Swift from Flash and ActionScript



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Apress®

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ISBN-13 (pbk): 978-1-4842-1667-5
DOI 10.1007/978-1-4842-1666-8

ISBN-13 (electronic): 978-1-4842-1666-8

Library of Congress Control Number: 2016955434

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*Radoslava: To Sophia, who was born with the early chapters of this book,
and to Steve for the many hats he wears.*

*Hristo: To Dani for her endless support, Radoslava for her patience when I was behind schedule,
and the strong black coffee that kept my engine running . . . and to MS Word for the constant
crashes, which taught me to make backups.*

*Hristo and Radoslava: In loving memory of our dad, Iliyan Lesev, who first sparked our interest in
computers.*

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About the Authors



Radoslava Leseva Adams is a software developer and programming book author. Her affair with programming languages began in the early 1990s, when her father handed her a book on Basic as a form of summer holiday entertainment. Since then she has built a career out of freely jumping between different languages and platforms, including C, C++, Delphi, Java, ActionScript, Objective-C, and most recently Swift. She passionately hates wordy manuals and having to click more than once to do a build. Radoslava and her brother Hristo run EasyNativeExtensions.com and DiaDraw.com, where they help ActionScript developers do cross-platform programming with AIR Native Extensions.



Dr. Hristo Lesev is a software developer at heart, passionate speaker, educator, and entrepreneur. Having had long experience with C++, C#, and ActionScript for desktop and mobile platforms, lately he can be heard more and more often advocating for Swift as the latest and greatest. When not busy developing mobile apps, Hristo enjoys teaching other developers as an assistant professor at Plovdiv University, Bulgaria. He is obsessed with computer graphics and can often be found coding 3D stuff late at night.

About the Technical Reviewer



Robert Otani grew up in Los Angeles helping to repair cars in the family business, where got away with playing with welding torches and dangerous chemicals. He earned a B.S. in Physics from California State Polytechnic University and then entered the Ph.D. program at Arizona State University. He dropped out to pursue fortunes in the San Francisco Bay Area during the great Internet boom. Since then, he's worked as a designer and engineer for Sony Entertainment, Vitria, AvantGo (acquired by Sybase/SAP), Yahoo!, and virtual world startup IMVU. Most recently, he was iOS Lead at [Mix.com](#) (an Expa portfolio company) and is now an Engineering Lead for a yet-to-be named brand out of Silicon Valley. He's married to an amazing wife, with whom he's raising two children and a strange dog. He plans to update his site, [otanistudio.com](#), sometime within the next decade.

Acknowledgments

Deciding to write a book while running a business full time and with one of us eight months pregnant was what a lot of our friends politely called “adventurous.” They were right; working on this book was an adventure. We are indebted to our families for their support throughout this project and especially to Radoslava’s husband, Steve, for reading all chapter drafts and offering helpful advice while being on full-time dad duty every weekend.

This project would not have been possible without the hard work of the Apress editorial team. We would like to thank Steve Anglin for the idea for this book and Ben Renow Clarke and Nancy Chen for keeping us on track.

Special thanks go to Robert Otani and Chris Nelson. Robert’s constructive input ensured technical accuracy and helped us stay ahead of changes in the rapidly evolving language that is Swift and Chris burned the midnight oil to help us improve the text.

Some of our most indispensable resources have been Apple’s book *The Swift Programming Language* (<https://goo.gl/1GRVRM>) and the online project “Swift Programming Language Evolution” (<https://github.com/apple/swift-evolution>).

Last, but not least, we are grateful to all contributors on stackoverflow.com who tirelessly shine light in the darker corners of Swift and Xcode.

Introduction

The Swift programming language has eased the learning curve for iOS development, compared with the early days when one had to become familiar with Objective-C. A lot of the Swift philosophy and syntax will be familiar to an ActionScript developer and will allow a rapid transition. This book offers the quickest way not just to learn a new programming language but also to migrate your whole workflow to a new platform.

Who Is This Book For?

Migrating to Swift from Flash and ActionScript is for developers who are transitioning to Swift for iOS. In particular, it has been written with the Adobe AIR community in mind to help bridge the gap between ActionScript and Swift for mobile devices.

You do not need background in ActionScript in order to benefit from this book, however. Basic experience with any object-oriented language would ensure that you adapt to Swift in no time.

Personally we tend to learn much quicker by following screenshots and diagrams and getting our hands dirty with code, rather than from reading pages and pages of text. So we have prepared examples and tutorials for you to do the same.

How to Use This Book

There is a lot to learn when you migrate your development process to a new platform: besides a new language, you have to become familiar with new tools and a new operating system, change your workflow, and learn what the best practices are in specific situations. This book is really four books in one, each part addressing an aspect of the migration process.

You don't need to read the material from cover to cover before you start coding with Swift. When you set your teeth into making native apps, we want this book to be your companion and provide guidance by walking you through a tutorial or two or by being a quick reference.

The book shows you how to make 16 different apps. Each chapter in the first three parts of the book offers a self-contained tutorial, so you are not dependent on having read and implemented the tutorials that come before it. The chapters on debugging and releasing your app are an exception and use code you have written in previous chapters.

Here is how the book is organized:

- **Part I: Tool Migration.** We recommend that you start here and go through the four chapters of **Part I** in order. We have intentionally kept this part brief. It will help you configure your environment and development devices, so that you are on your way to making your first app with Swift.
- **Part II: Workflow Migration.** This part walks you through the main parts of the programming workflow and shows you how to structure your user interface and use Xcode’s help with layout, how to take advantage of concurrency, and how to use the debugger and automated testing tools. Apart from **Chapter 8**, which builds on the example of the preceding chapter to demonstrate debugging and testing techniques, each of the rest of the chapters comes with its own example. This means that you can go through this part in the order you find you need each topic as you migrate your workflow. Where there are new Swift concepts in the examples we have included pointers to the language reference part of this book, **Part IV**, so you can quickly find details on syntax or language idioms.
- **Part III: Making Apps with Swift—Applied Examples.** This is probably the most fun part of the book. It offers a series of tutorials that cover a lot of common scenarios you may want to include in your apps. Here you build 12 self-contained practical apps and learn how to
 - send e-mail, SMS, and make phone calls from your application.
 - post to social networks.
 - use the motion sensors and show a user’s location on a map.
 - take photos, manipulate them, and communicate with the photo gallery.
 - work with local data and iCloud.
 - connect to and communicate with network services.
 - monetize your apps with advertisements and stay in touch with your users through push notifications.
 - build 2D and 3D games with iOS SDK’s graphics frameworks.
- **Part IV: Language Migration.** This part was the most fun for us to write. In it we have tried to distill the main ideas that underpin the Swift programming language: it encourages you to be concise and at the same time forces you to be explicit and take maximum advantage of the compiler in order to ensure correct code. This is not meant to be a comprehensive Swift manual but to help you hit the ground running when it comes to language specifics. We recommend that you read the introductory **Chapter 17** first and then use the rest as a reference, which you can come back to whenever you need a Swift concept explained. There are no apps to build in this part of the book. Instead, we help you set up a Swift playground, where you can experiment with individual pieces of code. We have tried to make the explanations of the language concepts simple, so that our baba Ani can understand them too.¹

¹Baba (Bulgarian for “grandmother”) Ani doesn’t have ActionScript experience and is not even a programmer. She is one smart cookie, though.

- **Bonus Chapter: Publishing your app in the app store.** The point of making an app is to share it with the world and allow millions of users to enjoy your creation. Apple's process for releasing apps in the App Store, however, is far from intuitive. We thought that a book that shows you how to create apps for iOS devices would not be complete without a walk through this process and some tips on how to keep it as smooth as possible.

A Note on Swift Versions

To say that Swift evolves quickly would be an understatement. A lot has changed in the language itself and in the iOS SDK since the first version of Swift was released in 2014. The examples in this book are consistent with version 2.2, which is the state of the art as we are finishing the last chapter. However, with Swift 3 just around the corner, we want you to be ahead of the wave of changes, so we have added notes and extra examples where code will be affected.

Note that some of the application programming interfaces (APIs) in the iOS SDK may be renamed when Swift 3 is released. We maintain a list of changes and source code for download for each of the tutorials in this book at www.apress.com/9781484216675. If you would like to be notified when updates are made, we encourage you to join our mailing list at <http://diadraw.com/migrating-swift-flash-actionscript/>.

Now let us get on with some work, shall we? We will see you in **Chapter 1**.