Working with Schemes and Projects in Xcode

Session 408

Rick Ballard and Mirza Garibovic
Xcode Engineers

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What Is a Scheme?

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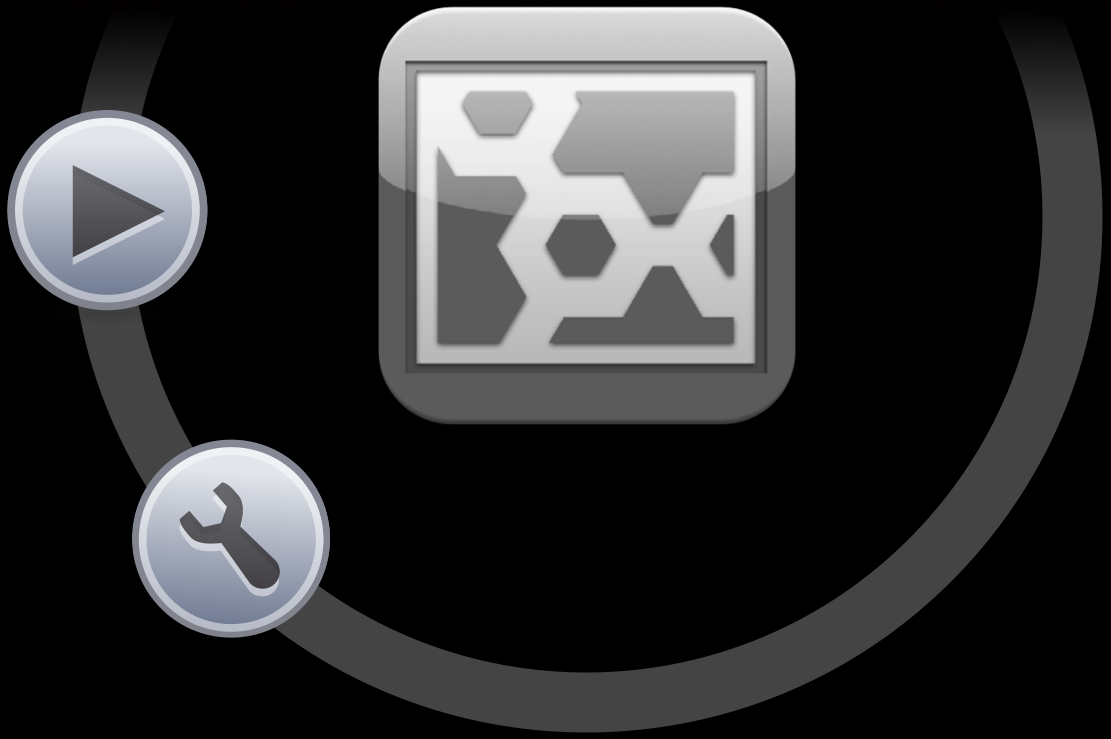
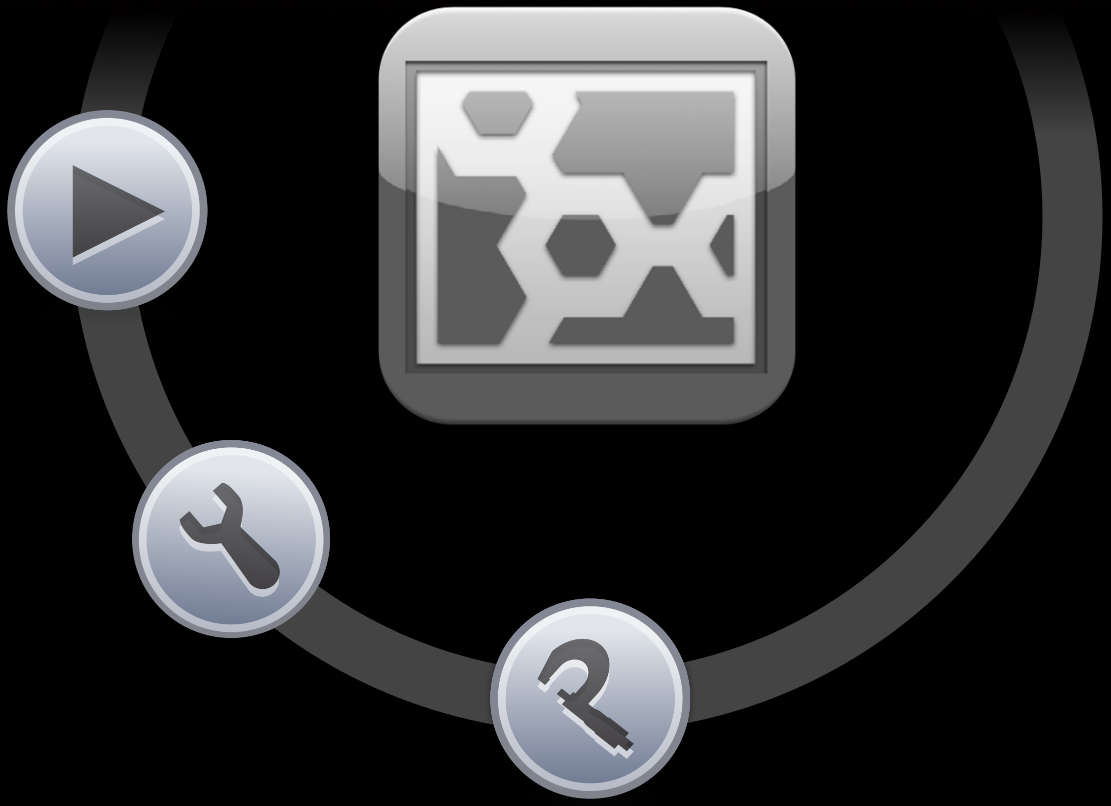
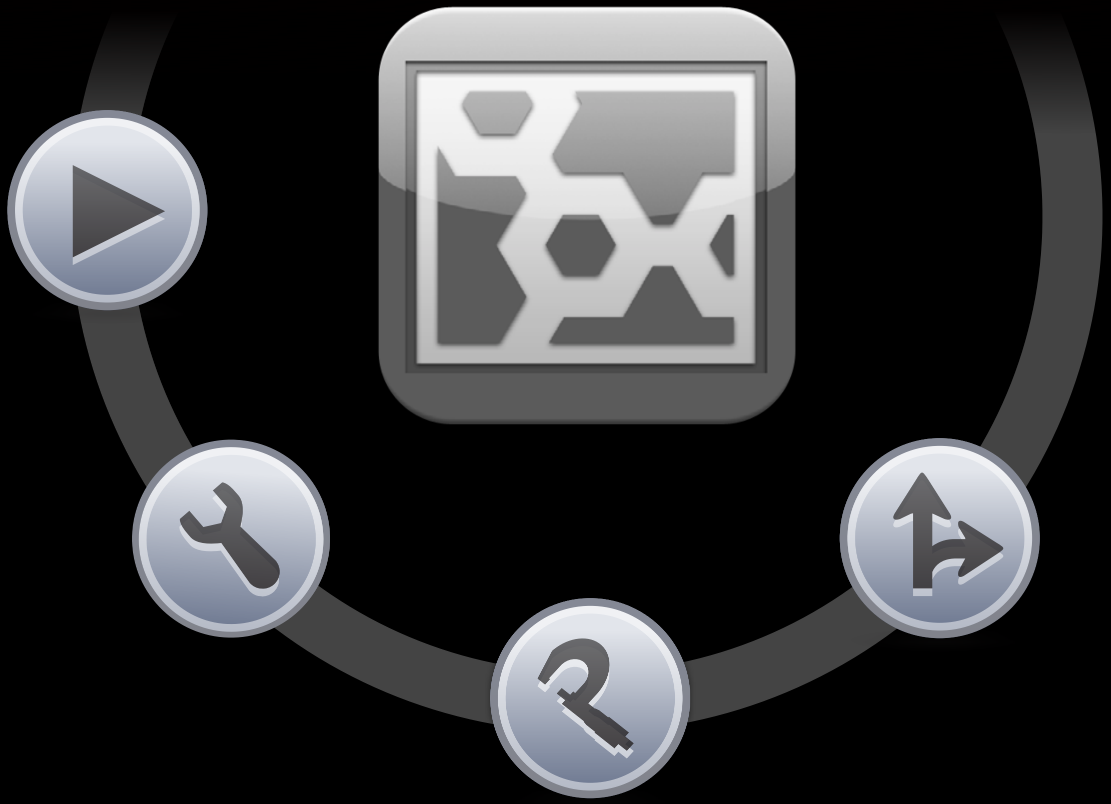


What Is a Scheme?



What Is a Scheme?



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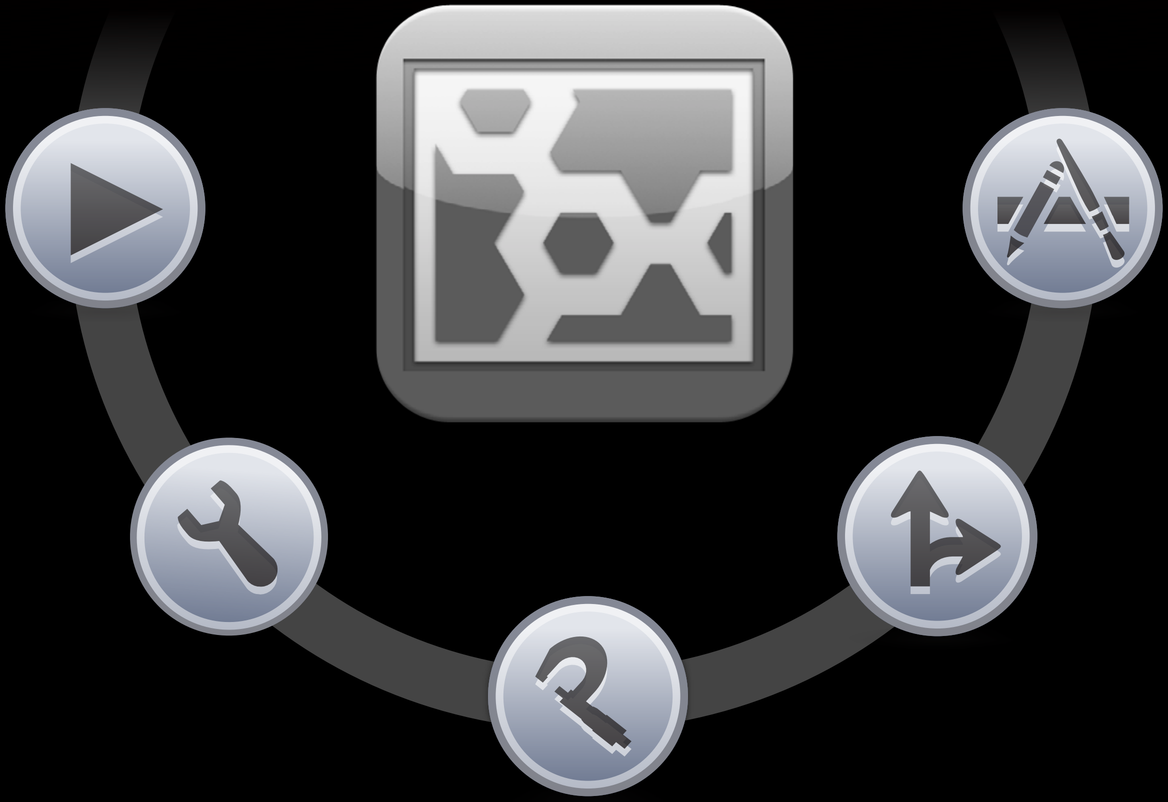

What Is a Scheme?

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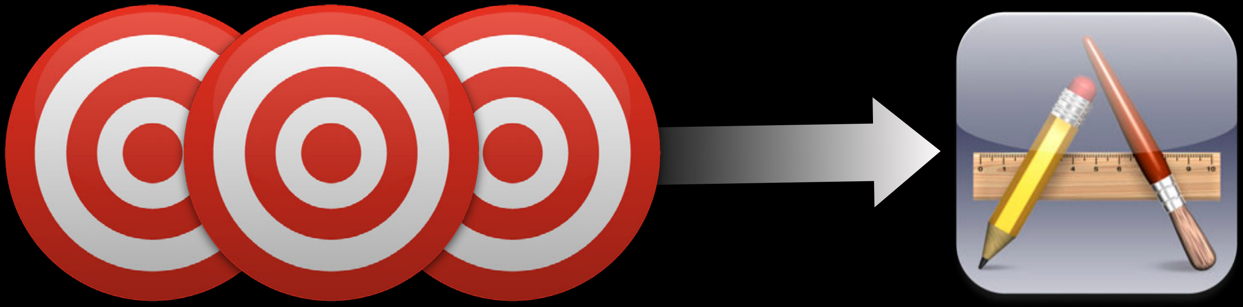

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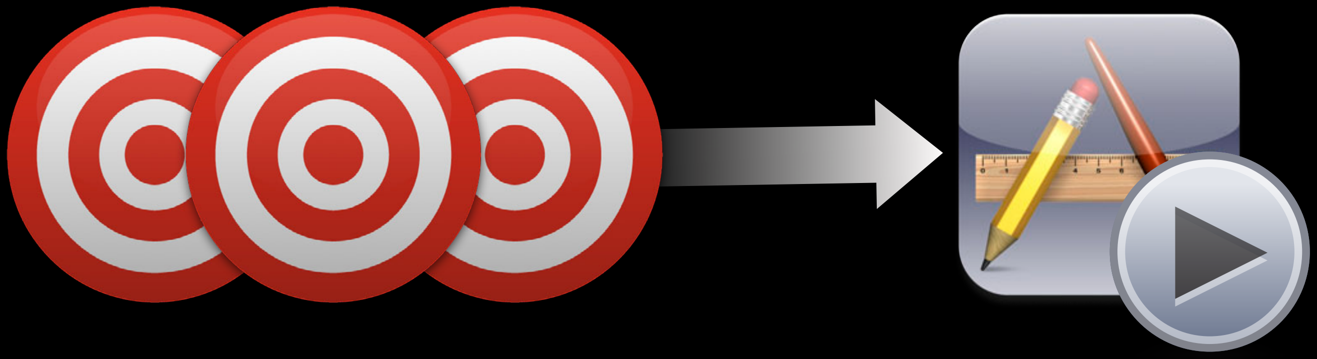

What We’ll Cover

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- The core concepts: workspaces, projects, targets, schemes, and run destinations

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- The core concepts: workspaces, projects, targets, schemes, and run destinations
- Effective use of the scheme actions
- Working with build products
- Scheme management
- Static libraries for iOS

Core Concepts

Core Concepts

- Workspaces
- Projects
  - Build configurations
- Targets
  - Build settings
  - Build phases
  - Build rules
- Schemes
- Run destinations

Core Concepts

- Workspaces
- Projects
  - Build configurations
- Targets
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What Is a Workspace?

- Contains references to projects and other files
- Groups together projects you want to use together
- Provides a unique location for state and build products
- Allows implicit dependencies to be found between targets

Project Concepts

- Workspaces
- Projects
  - Build configurations
- Targets
  - Build settings
  - Build phases
  - Build rules
- Schemes
- Run destinations

What’s in a Project?

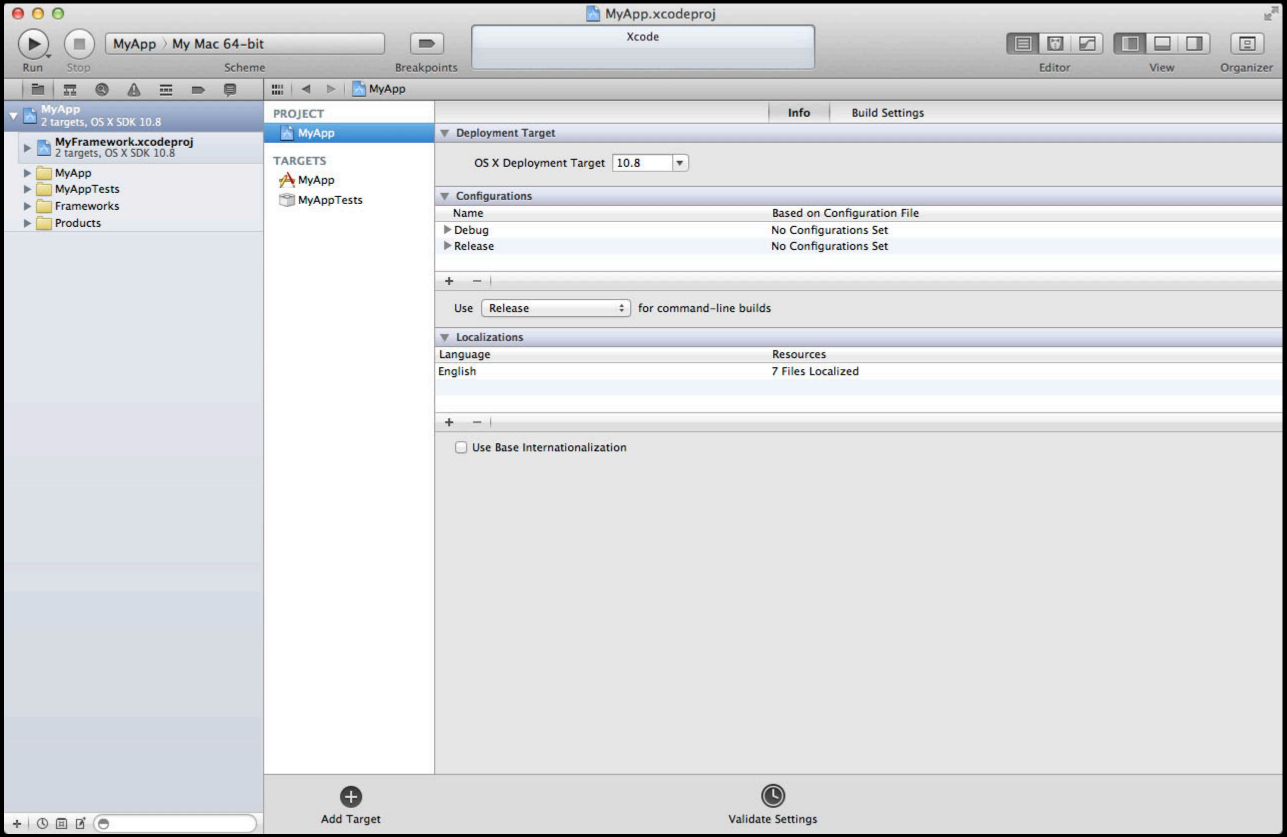
- References to source files
- Targets which build products
- Schemes which build targets and perform actions
- Build configurations which select variants of target build settings

Build Configurations

Build setting variants

- Debug and Release are the default configurations
- Build settings can have per-configuration variants
- To vary build settings for another purpose, define a new build configuration

The Project Editor



Deployment Target

OS X Deployment Target 10.8

Configurations

Name	Based on Configuration File
Debug	No Configurations Set
Release	No Configurations Set

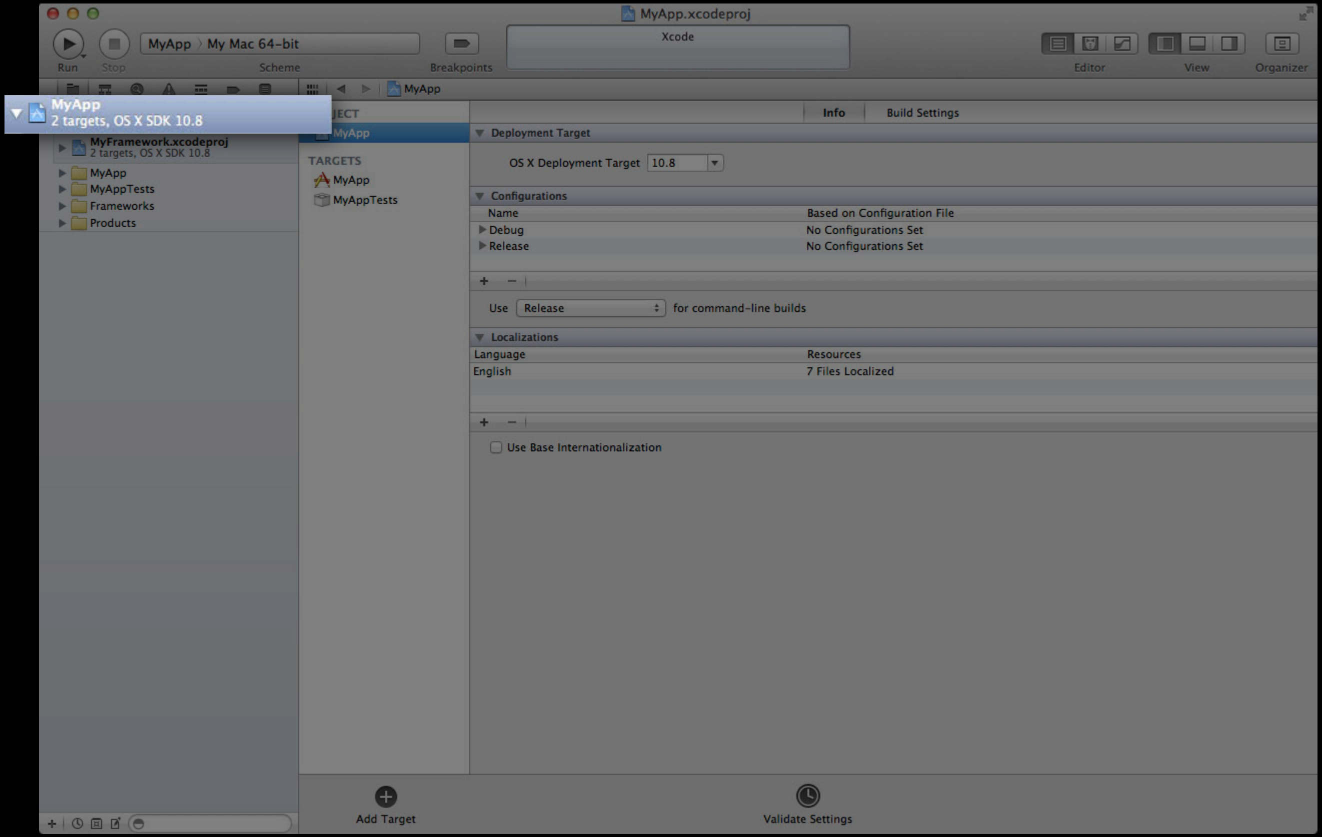
Use Release for command-line builds

Localizations

Language	Resources
English	7 Files Localized

□ Use Base Internationalization

The Project Editor



MyApp
2 targets, OS X SDK 10.8

MyFramework.xcodeproj
2 targets, OS X SDK 10.8

- MyApp
- MyAppTests
- Frameworks
- Products

PROJECT
- MyApp

TARGETS
- MyApp
- MyAppTests

Deployment Target

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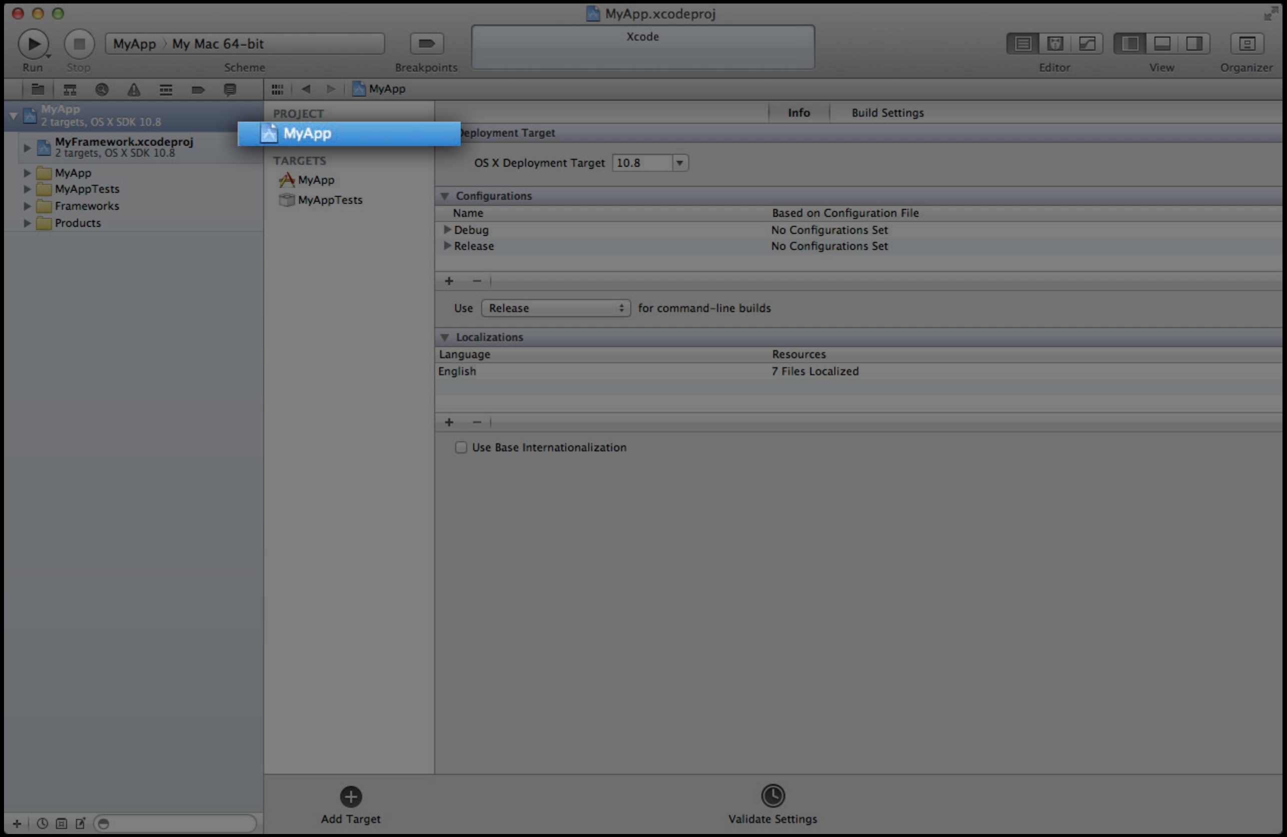

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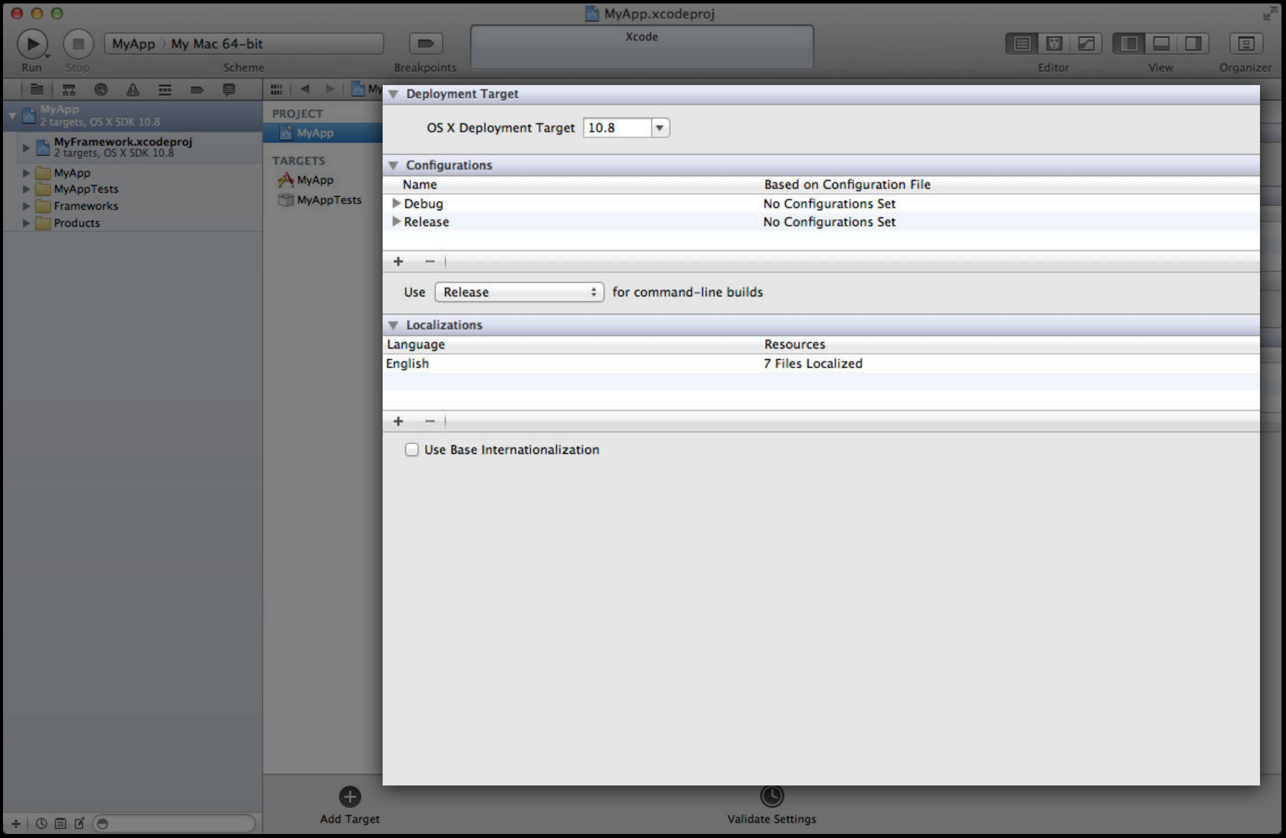

Deployment Target

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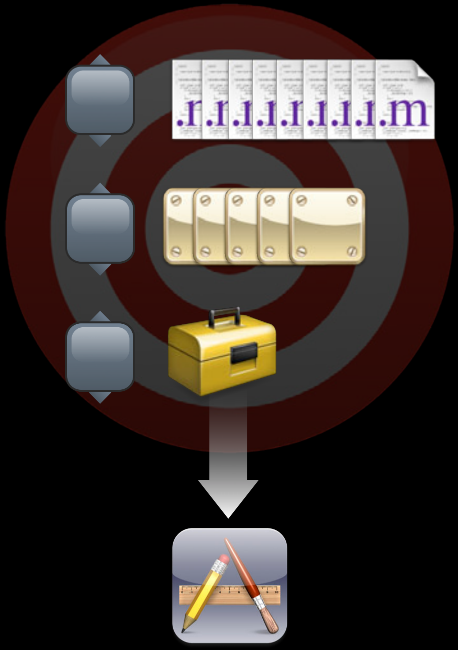
Project Concepts

- Workspaces
- Projects
  - Build configurations
- Targets
  - Build settings
  - Build phases
  - Build rules
- Schemes
- Run destinations

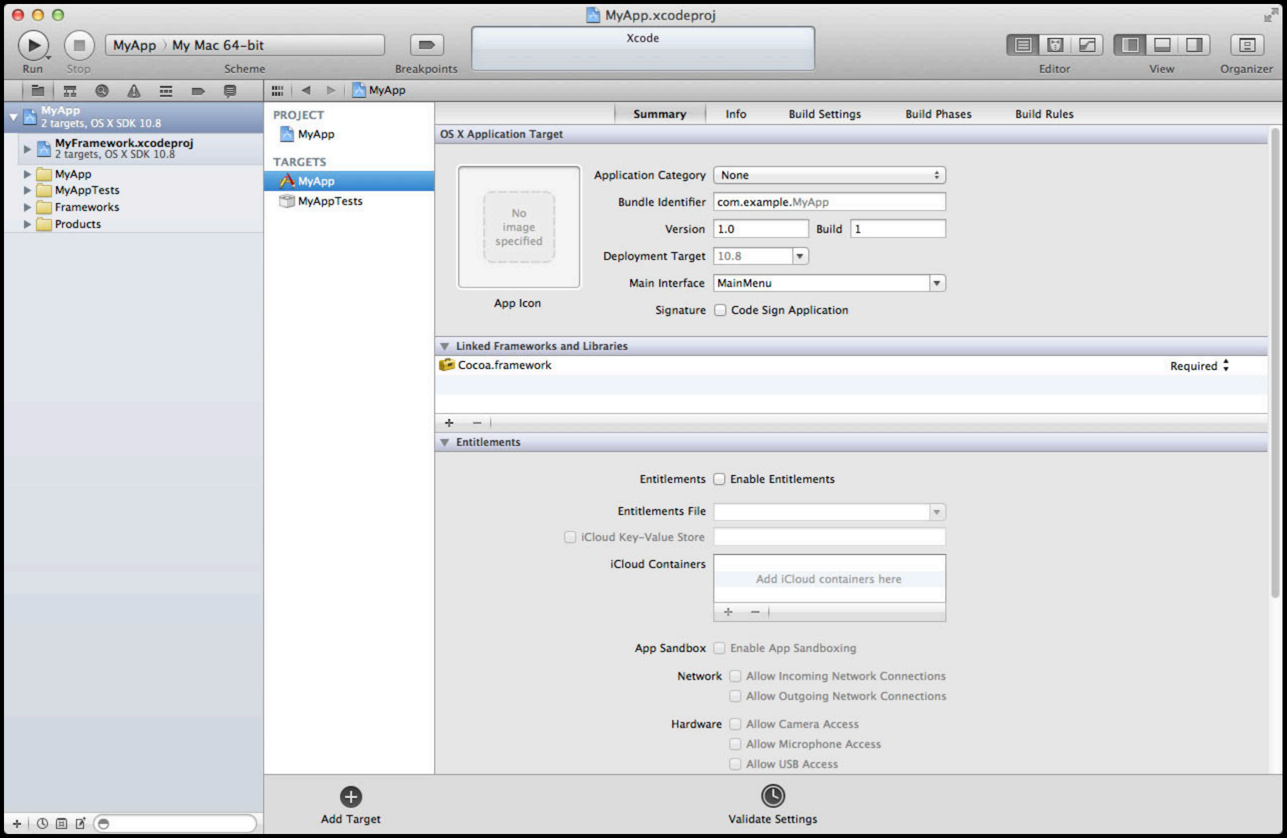
What’s in a Target?

Instructions for building one product

- References some or all source files in the project
- Contains build phases—the high-level sequence of steps
- Build rules determine how to handle each file type
- Build settings control how it is done
- Can depend on one or more other targets



Target Settings



OS X Application Target

Application Category: None
Bundle Identifier: com.example.MyApp
Version: 1.0 Build: 1
Deployment Target: 10.8
Main Interface: MainMenu
Signature: □ Code Sign Application

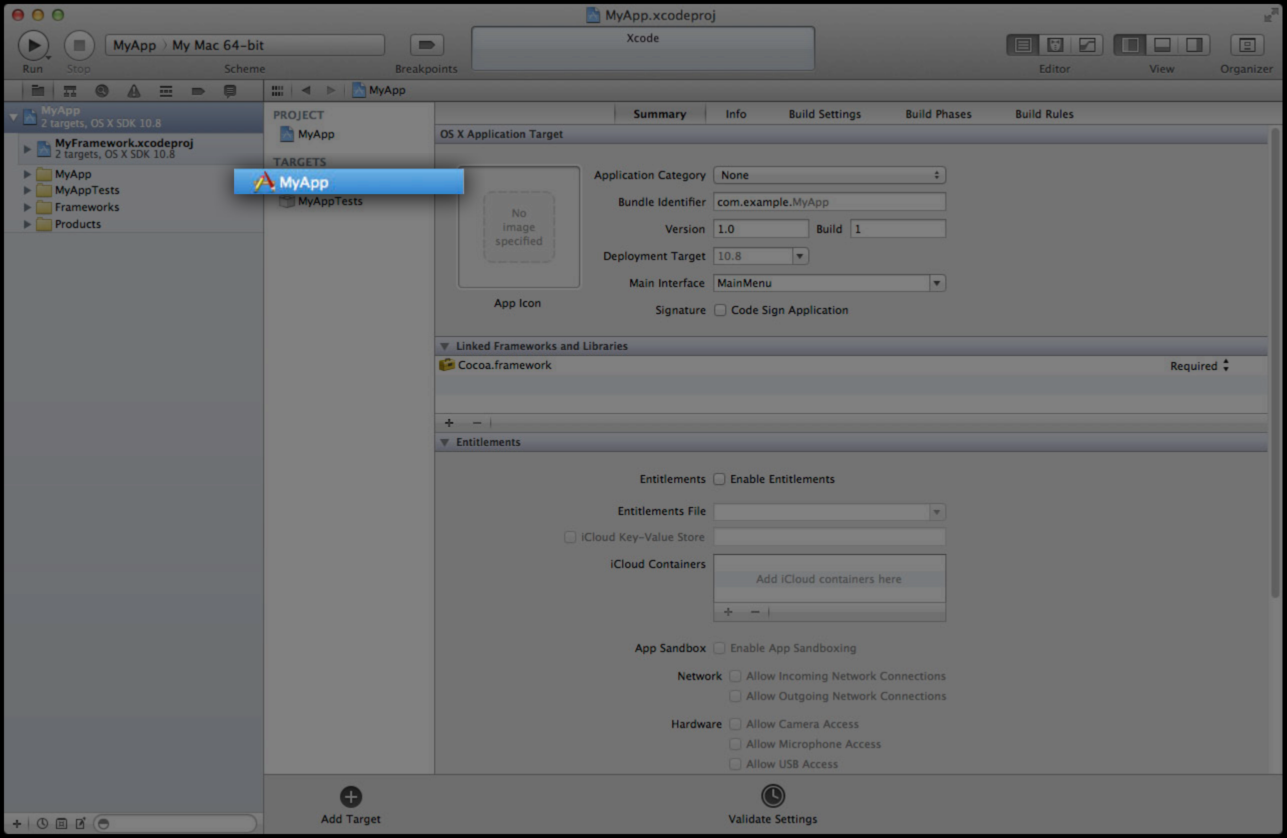
Linked Frameworks and Libraries

Cocoa.framework	Required

Entitlements

Entitlements: □ Enable Entitlements
Entitlements File:
□ iCloud Key-Value Store
iCloud Containers: Add iCloud containers here
App Sandbox: □ Enable App Sandboxing
Network: □ Allow Incoming Network Connections
□ Allow Outgoing Network Connections
Hardware: □ Allow Camera Access
□ Allow Microphone Access
□ Allow USB Access

Target Settings



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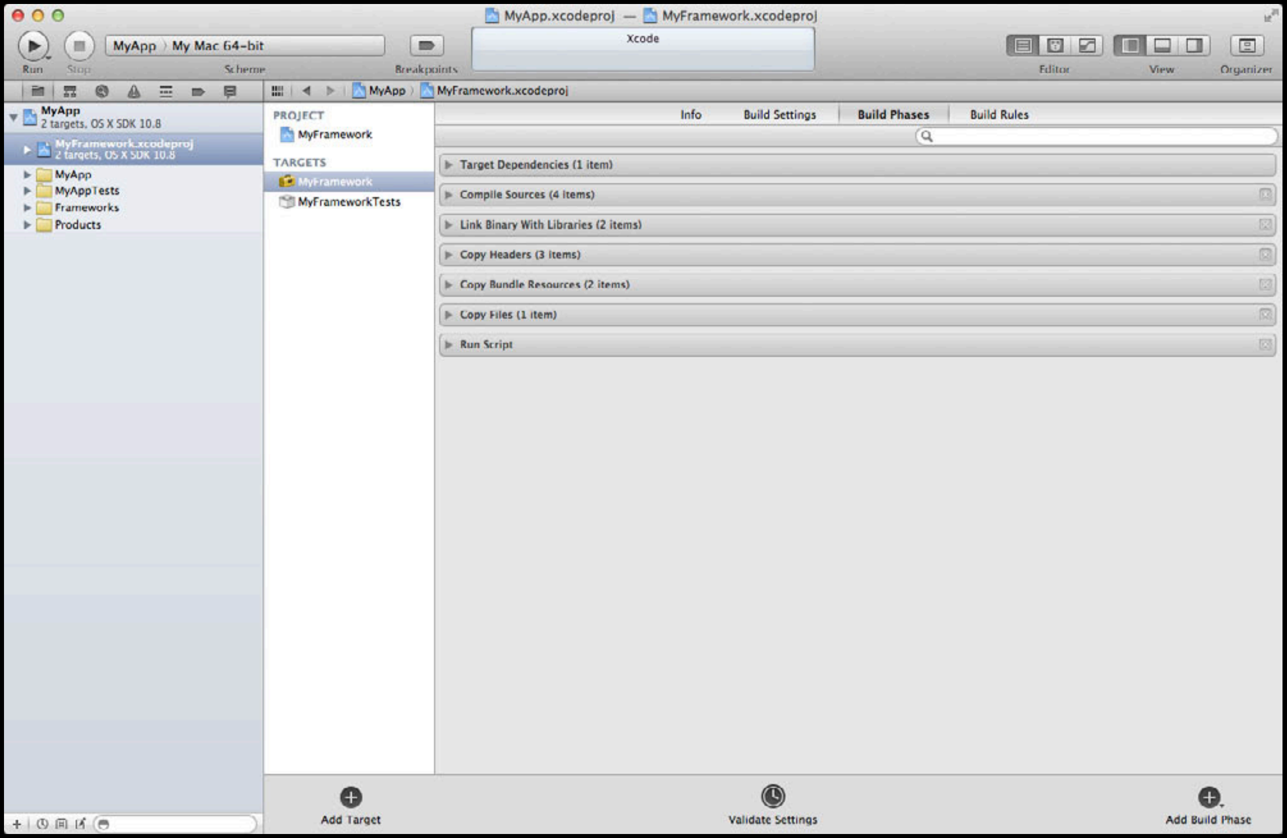
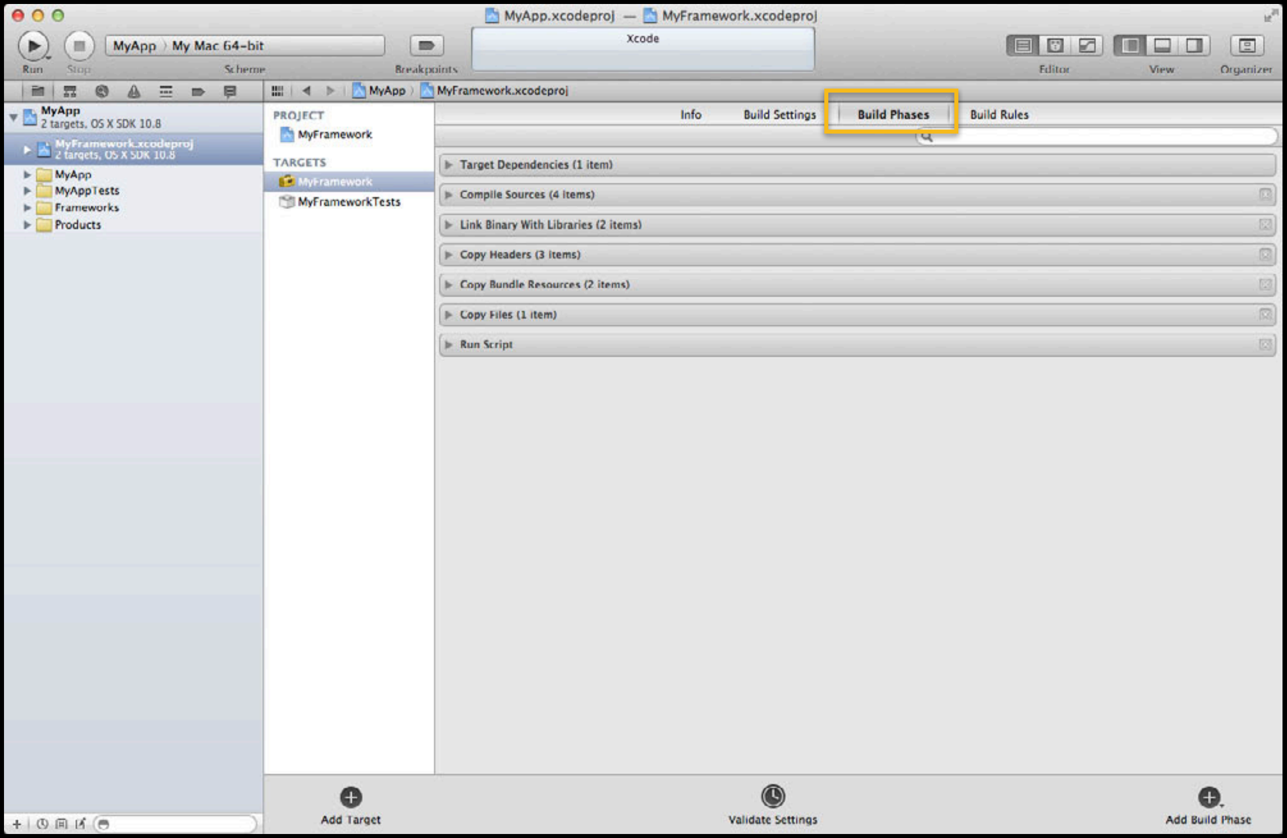
Entitlements File	
□ iCloud Key-Value Store	
iCloud Containers	Add iCloud containers here
App Sandbox	□ Enable App Sandboxing
Network	□ Allow Incoming Network Connections □ Allow Outgoing Network Connections
Hardware	□ Allow Camera Access □ Allow Microphone Access □ Allow USB Access

Build Phases

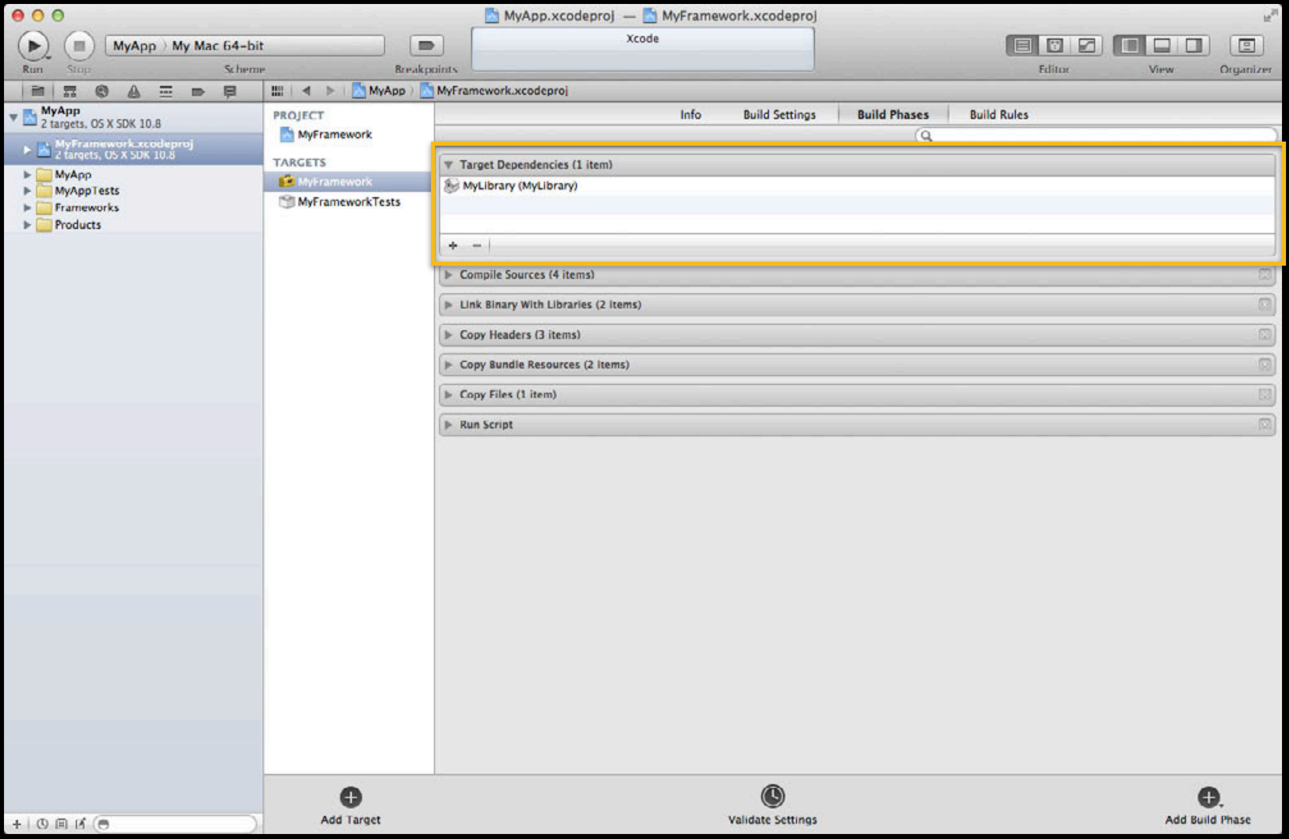


Build Phases



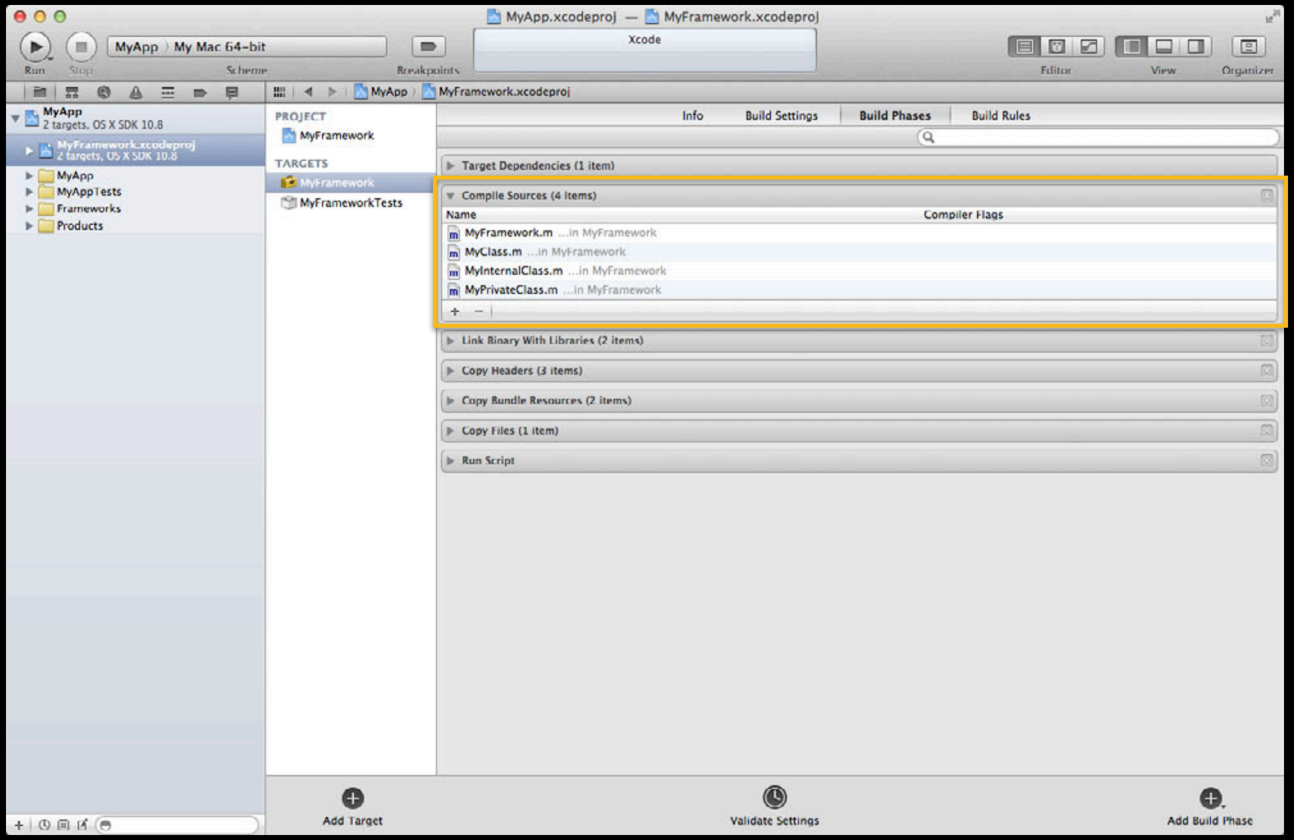
Build Phases

Target Dependencies



Build Phases

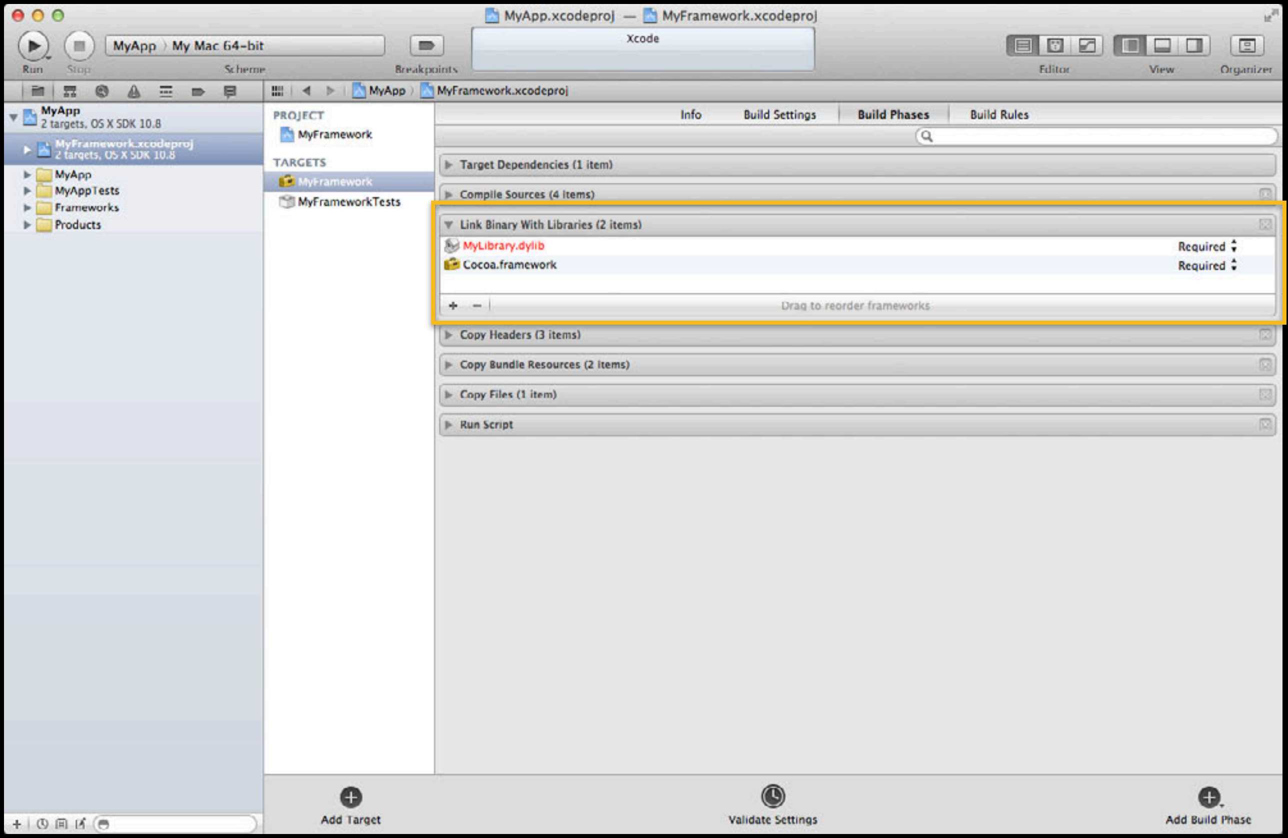
Compile Sources



Name	Compiler Flags
MyFramework.m ...in MyFramework	
MyClass.m ...in MyFramework	
MyInternalClass.m ...in MyFramework	
MyPrivateClass.m ...in MyFramework	

Build Phases

Link Binary with Libraries



Target Dependencies (1 item)

Compile Sources (4 items)

Link Binary With Libraries (2 items)

MyLibrary.dylib	Required
Cocoa.framework	Required

+ − Drag to reorder frameworks

Copy Headers (3 items)

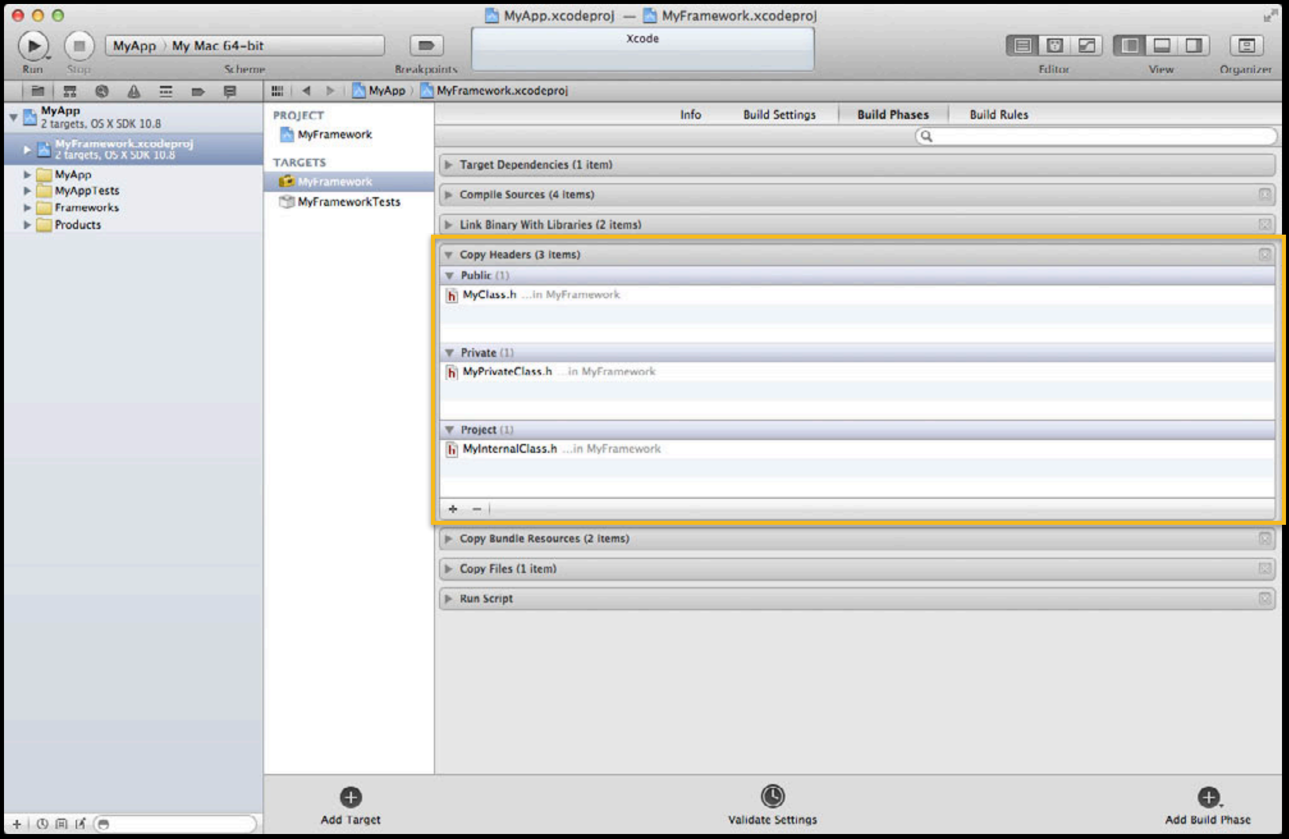
Copy Bundle Resources (2 items)

Copy Files (1 item)

Run Script

Build Phases

Copy Headers



MyApp.xcodeproj — MyFramework.xcodeproj

MyApp
2 targets, OS X SDK 10.8

MyFramework.xcodeproj
2 targets, OS X SDK 10.8

- MyApp
- MyAppTests
- Frameworks
- Products

PROJECT
- MyFramework

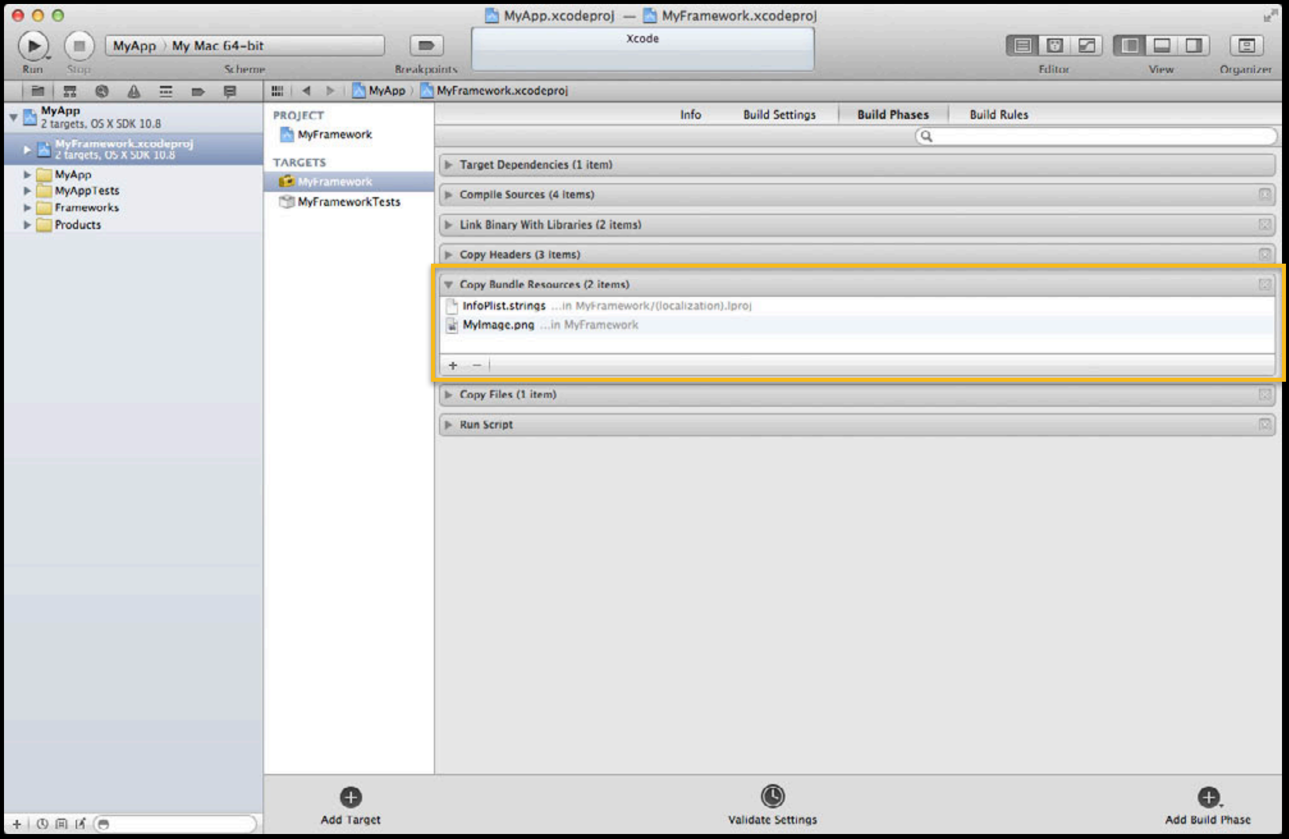
TARGETS
- MyFramework
- MyFrameworkTests

Info | Build Settings | Build Phases | Build Rules

- Target Dependencies (1 item)
- Compile Sources (4 items)
- Link Binary With Libraries (2 items)
- Copy Headers (3 items)
  - Public (1)
    - MyClass.h ...in MyFramework
  - Private (1)
    - MyPrivateClass.h ...in MyFramework
  - Project (1)
    - MyInternalClass.h ...in MyFramework
- Copy Bundle Resources (2 items)
- Copy Files (1 item)
- Run Script

Build Phases

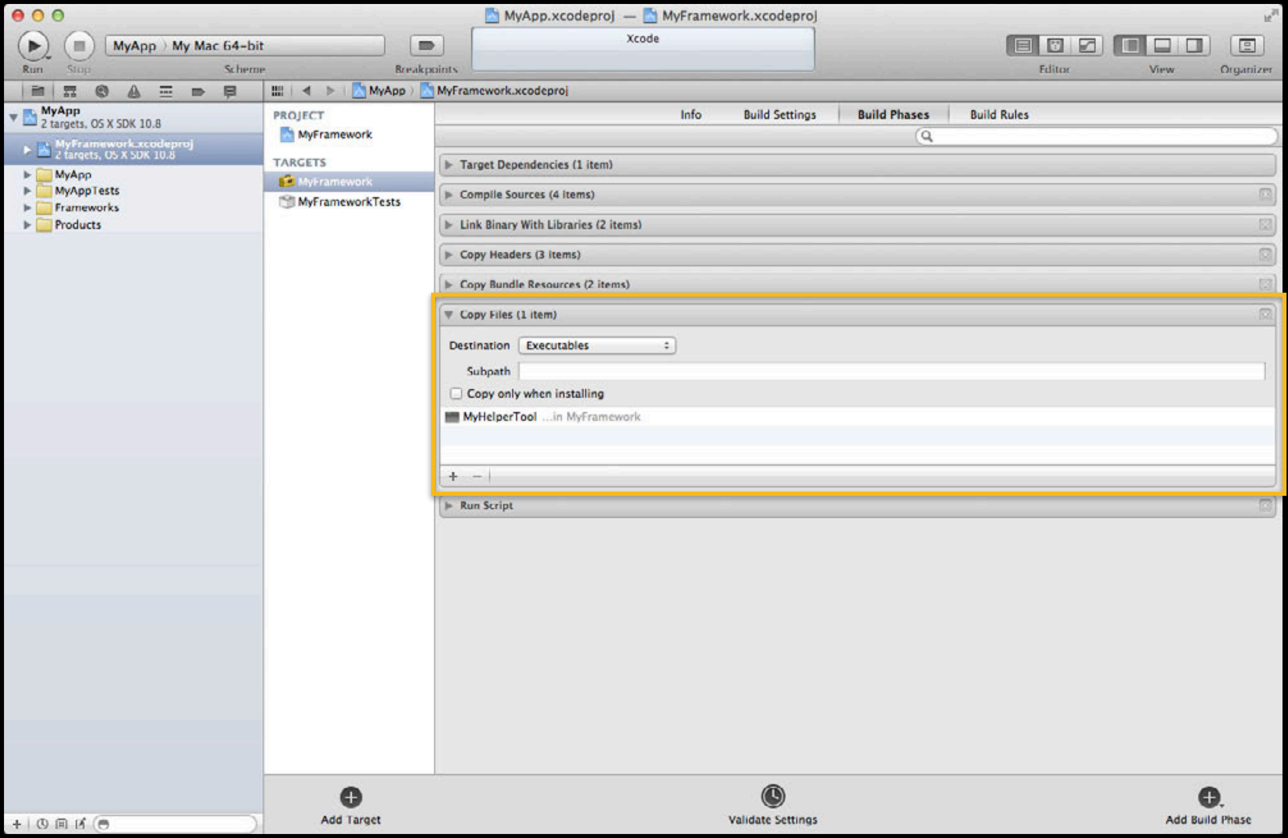
Copy Bundle Resources



- Target Dependencies (1 item)
- Compile Sources (4 items)
- Link Binary With Libraries (2 items)
- Copy Headers (3 items)
- Copy Bundle Resources (2 items)
  - InfoPlist.strings ...in MyFramework/(localization).lproj
  - MyImage.png ...in MyFramework
- Copy Files (1 item)
- Run Script

Build Phases

Copy Files



- Target Dependencies (1 item)
- Compile Sources (4 items)
- Link Binary With Libraries (2 items)
- Copy Headers (3 items)
- Copy Bundle Resources (2 items)
- Copy Files (1 item)

  Destination: Executables

  Subpath:

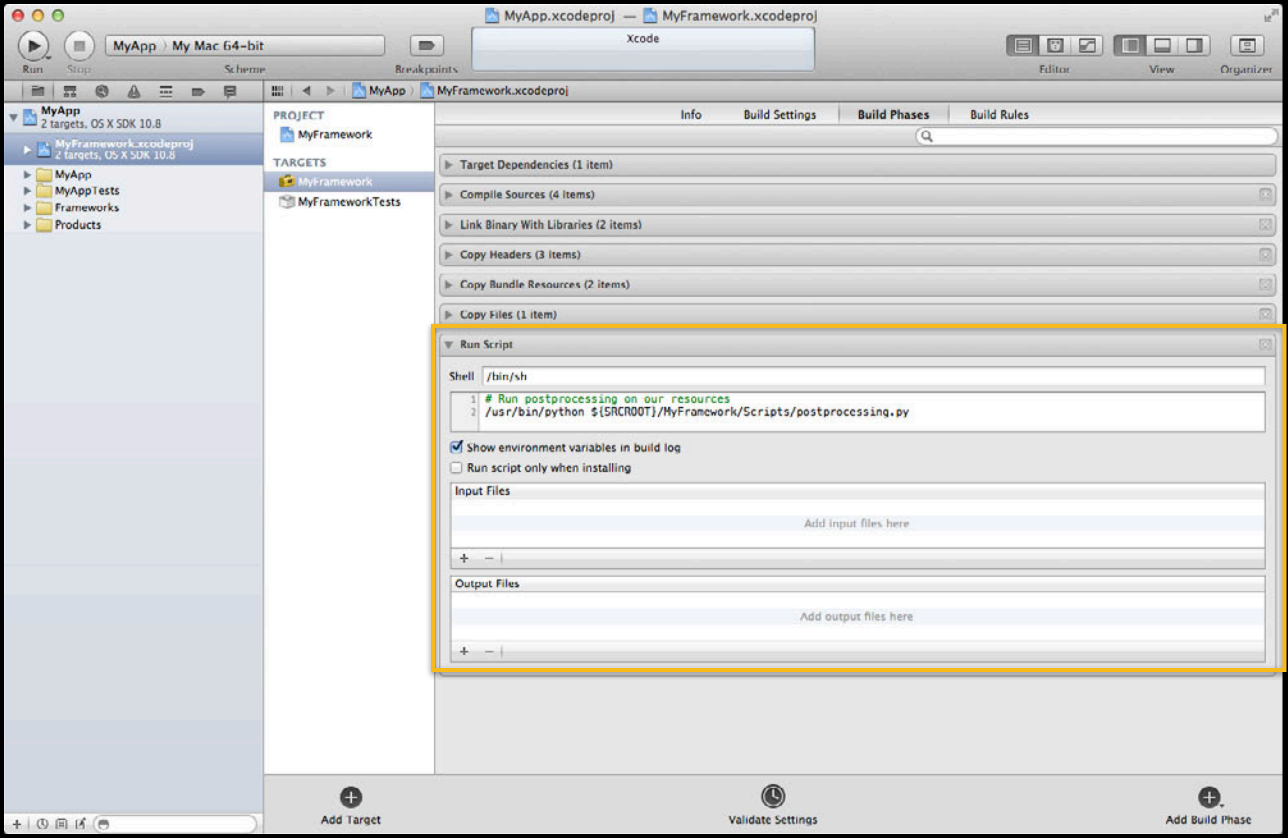
  □ Copy only when installing

  MyHelperTool ...in MyFramework

  + −
- Run Script

Build Phases

Run Script



- Target Dependencies (1 item)
- Compile Sources (4 items)
- Link Binary With Libraries (2 items)
- Copy Headers (3 items)
- Copy Bundle Resources (2 items)
- Copy Files (1 item)
- Run Script

Shell /bin/sh

```
# Run postprocessing on our resources
/usr/bin/python ${SRCROOT}/MyFramework/Scripts/postprocessing.py
```

☑ Show environment variables in build log

☐ Run script only when installing

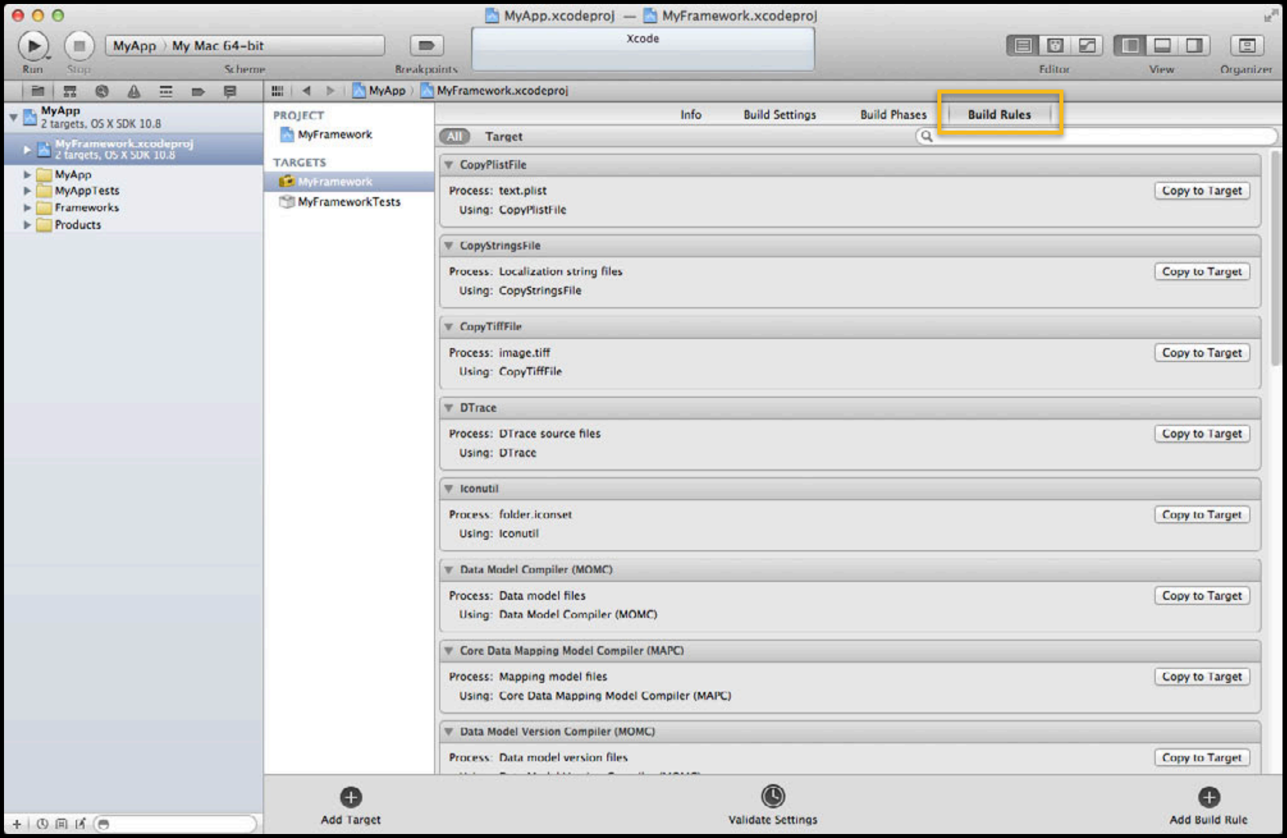
Input Files

Add input files here

Output Files

Add output files here

Build Rules



CopyPlistFile
Process: text.plist
Using: CopyPlistFile
Copy to Target

CopyStringsFile
Process: Localization string files
Using: CopyStringsFile
Copy to Target

CopyTiffFile
Process: image.tiff
Using: CopyTiffFile
Copy to Target

DTrace
Process: DTrace source files
Using: DTrace
Copy to Target

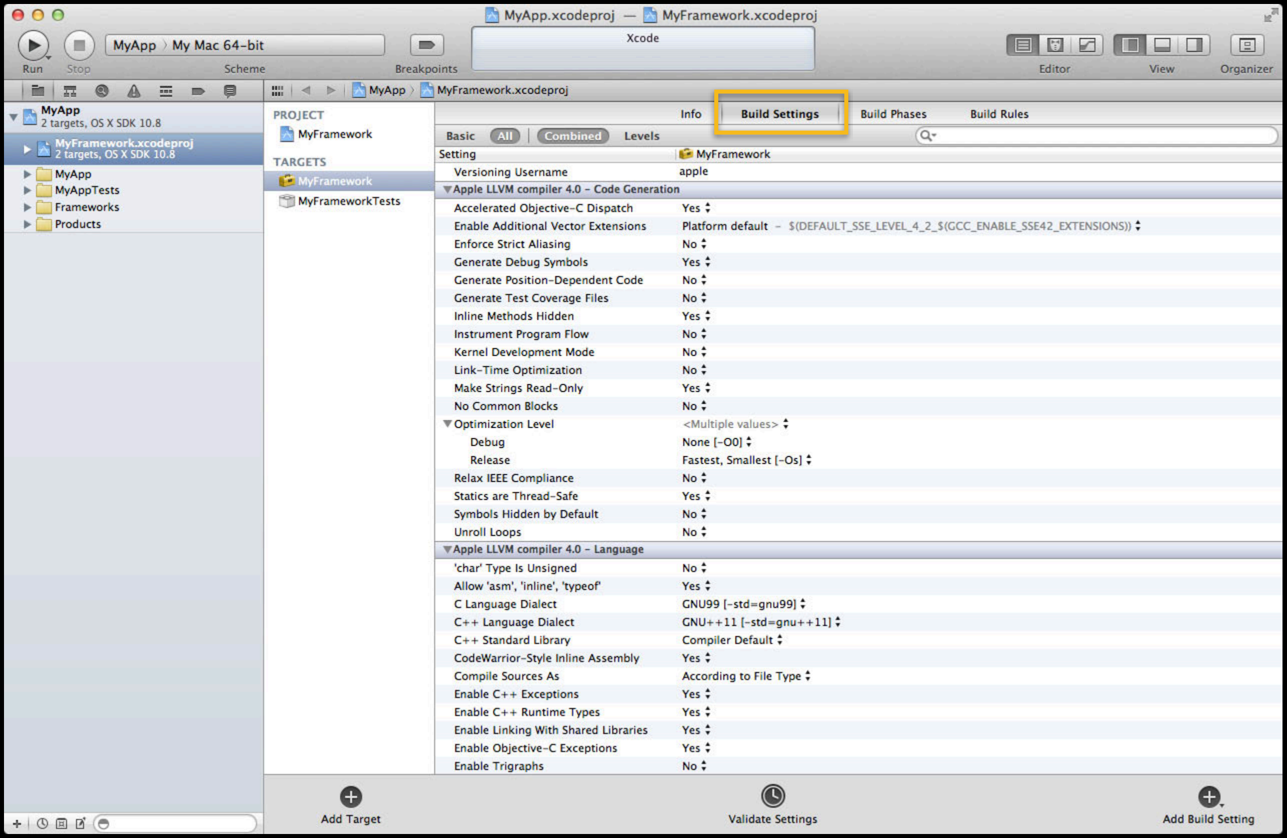
Iconutil
Process: folder.iconset
Using: Iconutil
Copy to Target

Data Model Compiler (MOMC)
Process: Data model files
Using: Data Model Compiler (MOMC)
Copy to Target

Core Data Mapping Model Compiler (MAPC)
Process: Mapping model files
Using: Core Data Mapping Model Compiler (MAPC)
Copy to Target

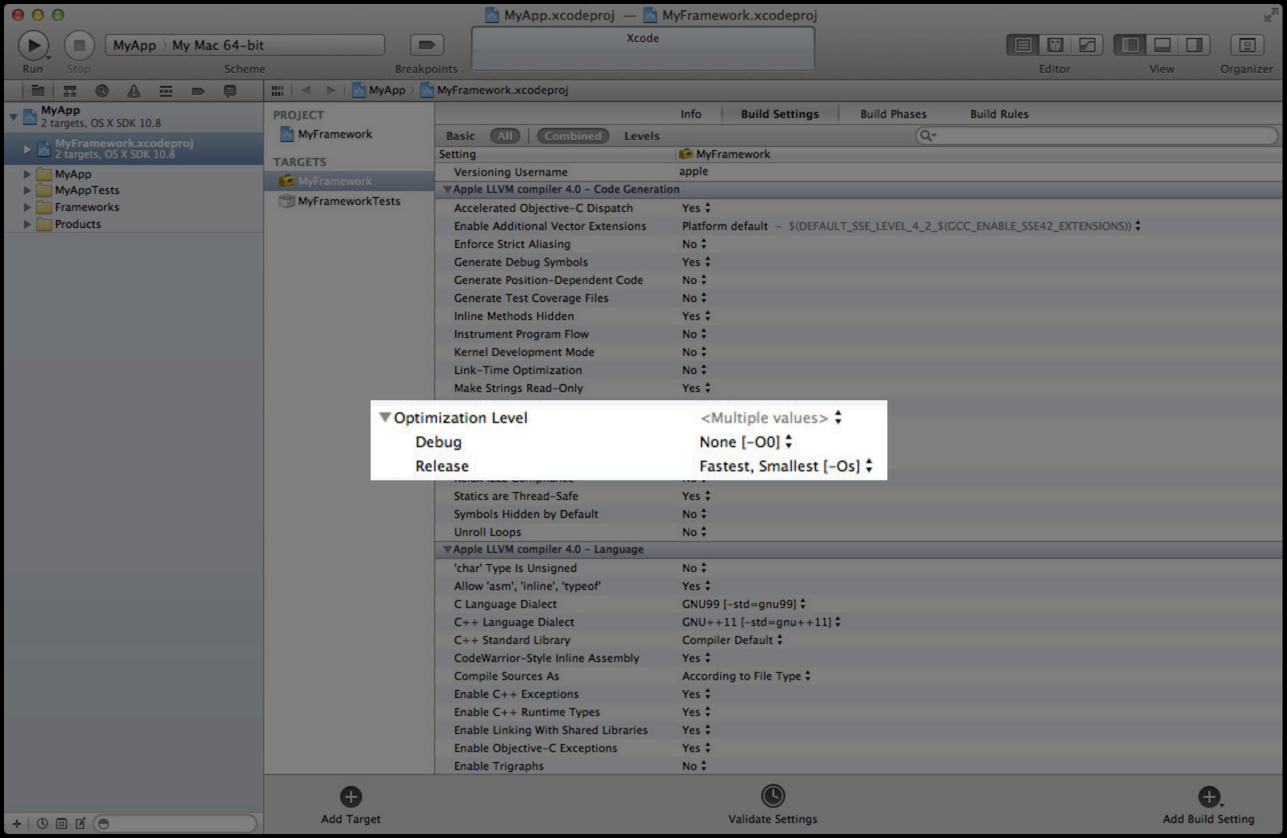
Data Model Version Compiler (MOMC)
Process: Data model version files
Copy to Target

Build Settings



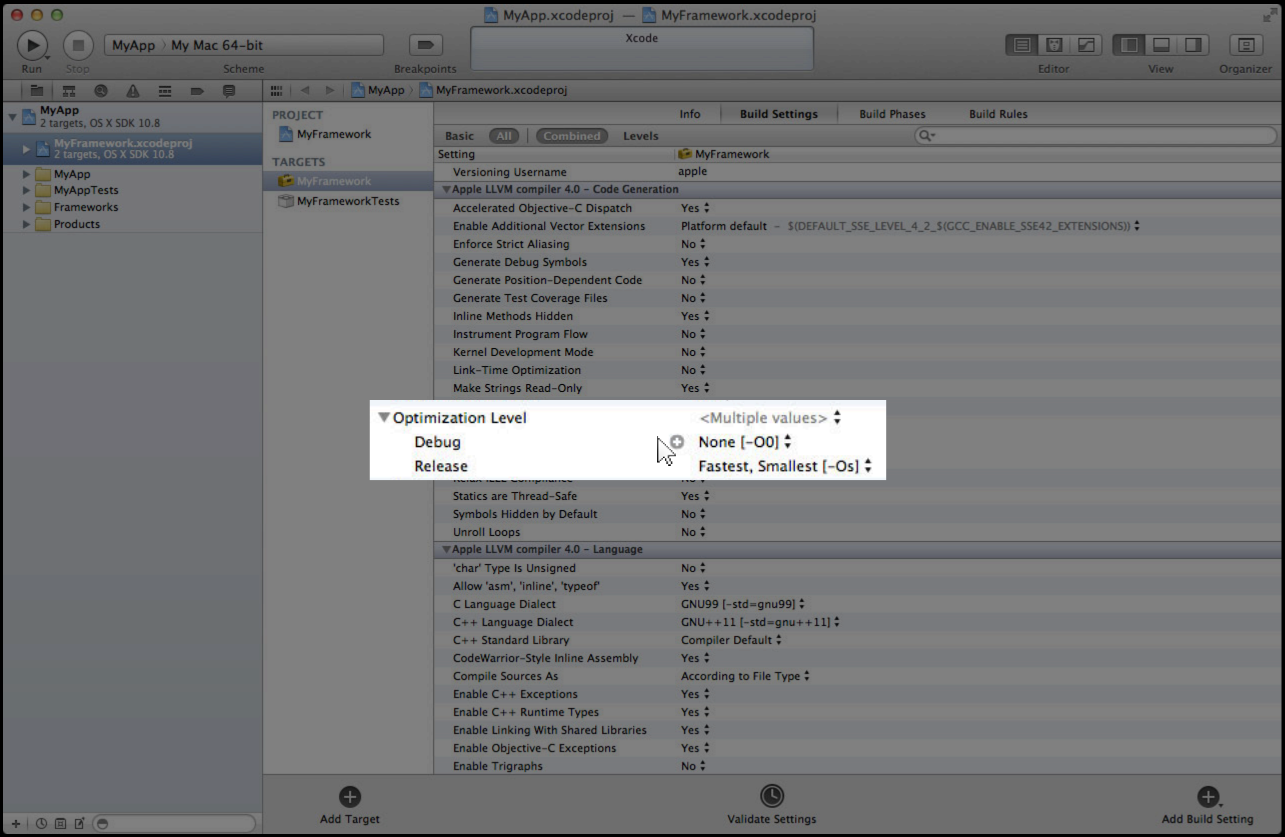
Setting	MyFramework
Versioning Username	apple
▼Apple LLVM compiler 4.0 – Code Generation	
Accelerated Objective-C Dispatch	Yes
Enable Additional Vector Extensions	Platform default – $(DEFAULT_SSE_LEVEL_4_2_$(GCC_ENABLE_SSE42_EXTENSIONS))
Enforce Strict Aliasing	No
Generate Debug Symbols	Yes
Generate Position-Dependent Code	No
Generate Test Coverage Files	No
Inline Methods Hidden	Yes
Instrument Program Flow	No
Kernel Development Mode	No
Link-Time Optimization	No
Make Strings Read-Only	Yes
No Common Blocks	No
▼Optimization Level	<Multiple values>
Debug	None [-O0]
Release	Fastest, Smallest [-Os]
Relax IEEE Compliance	No
Statics are Thread-Safe	Yes
Symbols Hidden by Default	No
Unroll Loops	No
▼Apple LLVM compiler 4.0 – Language	
'char' Type Is Unsigned	No
Allow 'asm', 'inline', 'typeof'	Yes
C Language Dialect	GNU99 [-std=gnu99]
C++ Language Dialect	GNU++11 [-std=gnu++11]
C++ Standard Library	Compiler Default
CodeWarrior-Style Inline Assembly	Yes
Compile Sources As	According to File Type
Enable C++ Exceptions	Yes
Enable C++ Runtime Types	Yes
Enable Linking With Shared Libraries	Yes
Enable Objective-C Exceptions	Yes
Enable Trigraphs	No

Build Settings



Setting	MyFramework
Versioning Username	apple
▼Apple LLVM compiler 4.0 – Code Generation	
Accelerated Objective-C Dispatch	Yes ⬍
Enable Additional Vector Extensions	Platform default – $(DEFAULT_SSE_LEVEL_4_2_$(GCC_ENABLE_SSE42_EXTENSIONS)) ⬍
Enforce Strict Aliasing	No ⬍
Generate Debug Symbols	Yes ⬍
Generate Position-Dependent Code	No ⬍
Generate Test Coverage Files	No ⬍
Inline Methods Hidden	Yes ⬍
Instrument Program Flow	No ⬍
Kernel Development Mode	No ⬍
Link-Time Optimization	No ⬍
Make Strings Read-Only	Yes ⬍
▼Optimization Level	<Multiple values> ⬍
Debug	None [-O0] ⬍
Release	Fastest, Smallest [-Os] ⬍
Statics are Thread-Safe	Yes ⬍
Symbols Hidden by Default	No ⬍
Unroll Loops	No ⬍
▼Apple LLVM compiler 4.0 – Language	
'char' Type Is Unsigned	No ⬍
Allow 'asm', 'inline', 'typeof'	Yes ⬍
C Language Dialect	GNU99 [-std=gnu99] ⬍
C++ Language Dialect	GNU++11 [-std=gnu++11] ⬍
C++ Standard Library	Compiler Default ⬍
CodeWarrior-Style Inline Assembly	Yes ⬍
Compile Sources As	According to File Type ⬍
Enable C++ Exceptions	Yes ⬍
Enable C++ Runtime Types	Yes ⬍
Enable Linking With Shared Libraries	Yes ⬍
Enable Objective-C Exceptions	Yes ⬍
Enable Trigraphs	No ⬍

Build Settings



Setting	MyFramework
Versioning Username	apple
▼Apple LLVM compiler 4.0 – Code Generation	
Accelerated Objective-C Dispatch	Yes
Enable Additional Vector Extensions	Platform default – $(DEFAULT_SSE_LEVEL_4_2_$(GCC_ENABLE_SSE42_EXTENSIONS))
Enforce Strict Aliasing	No
Generate Debug Symbols	Yes
Generate Position-Dependent Code	No
Generate Test Coverage Files	No
Inline Methods Hidden	Yes
Instrument Program Flow	No
Kernel Development Mode	No
Link-Time Optimization	No
Make Strings Read-Only	Yes
▼Optimization Level	<Multiple values>
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Release	Fastest, Smallest [-Os]
Statics are Thread-Safe	Yes
Symbols Hidden by Default	No
Unroll Loops	No
▼Apple LLVM compiler 4.0 – Language	
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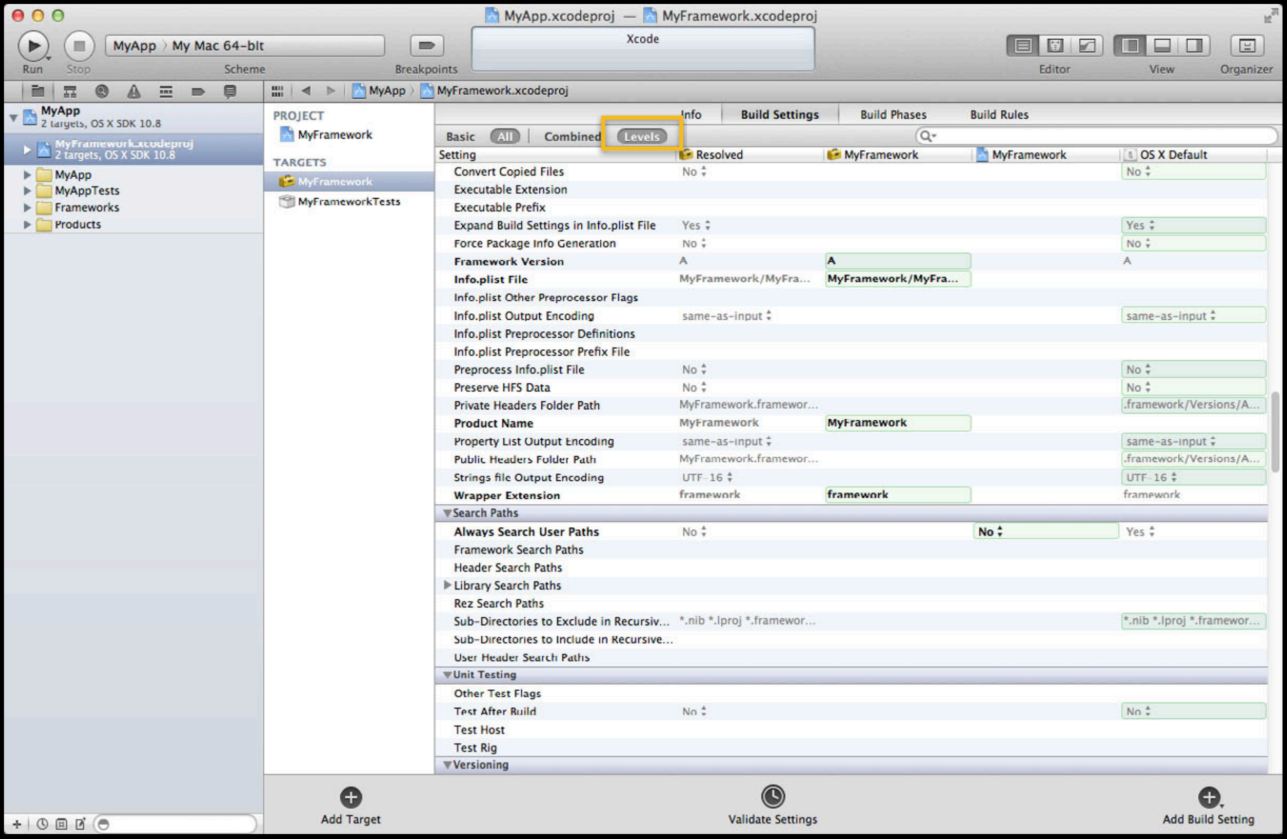
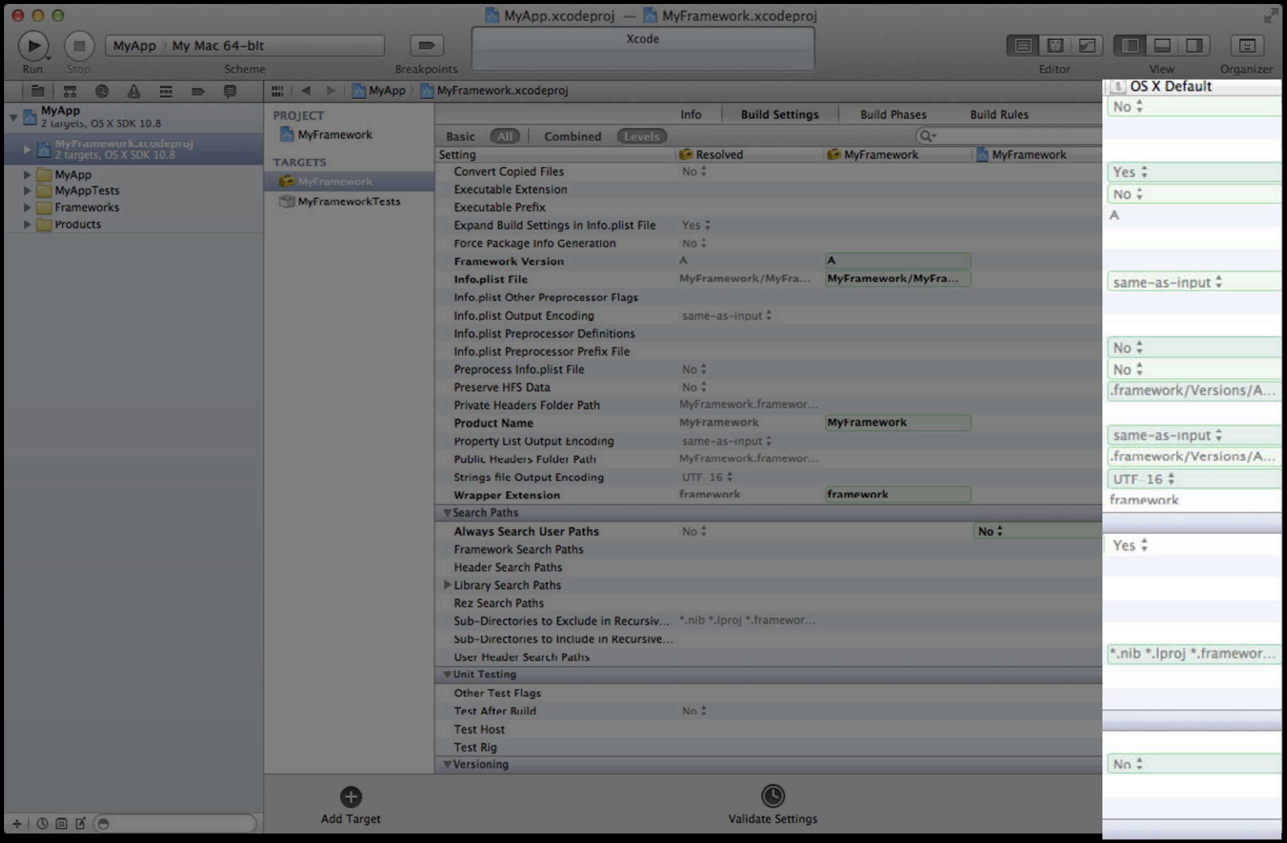
Enable C++ Runtime Types	Yes
Enable Linking With Shared Libraries	Yes
Enable Objective-C Exceptions	Yes
Enable Trigraphs	No

Build Settings



Setting	Resolved	MyFramework	MyFramework	OS X Default
Convert Copied Files	No			No
Executable Extension				
Executable Prefix				
Expand Build Settings in Info.plist File	Yes			Yes
Force Package Info Generation	No			No
Framework Version	A	**A**		A
Info.plist File	MyFramework/MyFra...	**MyFramework/MyFra...**		
Info.plist Other Preprocessor Flags				
Info.plist Output Encoding	same-as-input			same-as-input
Info.plist Preprocessor Definitions				
Info.plist Preprocessor Prefix File				
Preprocess Info.plist File	No			No
Preserve HFS Data	No			No
Private Headers Folder Path	MyFramework.framewor...			.framework/Versions/A...
Product Name	MyFramework	**MyFramework**		
Property List Output Encoding	same-as-input			same-as-input
Public Headers Folder Path	MyFramework.framewor...			.framework/Versions/A...
Strings file Output Encoding	UTF-16			UTF-16
Wrapper Extension	framework	**framework**		framework
▼Search Paths				
Always Search User Paths	No		**No**	Yes
Framework Search Paths				
Header Search Paths				
▶Library Search Paths				
Rez Search Paths				
Sub-Directories to Exclude in Recursiv...	*.nib *.lproj *.framewor...			*.nib *.lproj *.framewor...
Sub-Directories to Include in Recursive...				
User Header Search Paths				
▼Unit Testing				
Other Test Flags				
Test After Build	No			No
Test Host				
Test Rig				
▼Versioning				

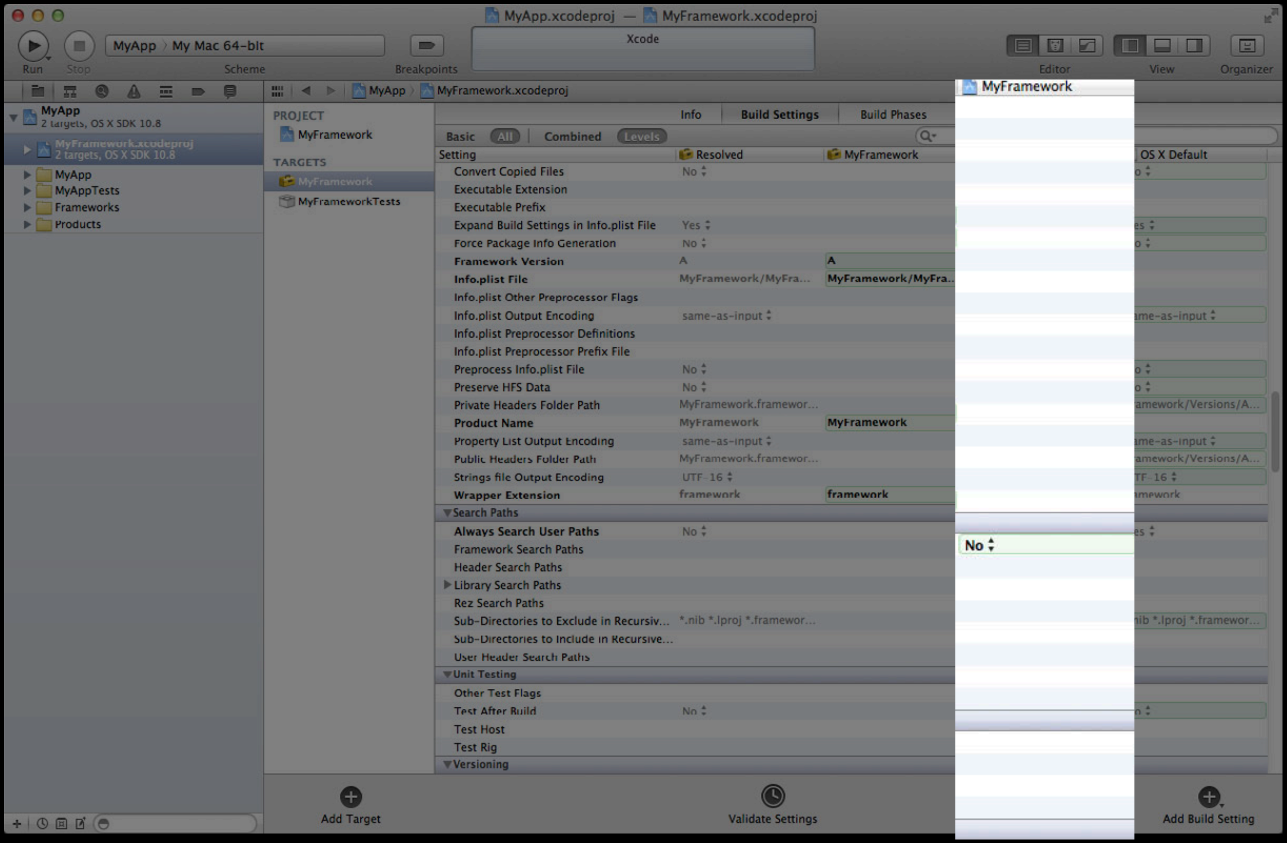
Build Settings



Setting	Resolved	MyFramework	MyFramework
Convert Copied Files	No ⇕		
Executable Extension			
Executable Prefix			
Expand Build Settings in Info.plist File	Yes ⇕		
Force Package Info Generation	No ⇕		
Framework Version	A	A	
Info.plist File	MyFramework/MyFra...	MyFramework/MyFra...	
Info.plist Other Preprocessor Flags			
Info.plist Output Encoding	same-as-input ⇕		
Info.plist Preprocessor Definitions			
Info.plist Preprocessor Prefix File			
Preprocess Info.plist File	No ⇕		
Preserve HFS Data	No ⇕		
Private Headers Folder Path	MyFramework.framewor...		
Product Name	MyFramework	MyFramework	
Property List Output Encoding	same-as-input ⇕		
Public Headers Folder Path	MyFramework.framewor...		
Strings file Output Encoding	UTF-16 ⇕		
Wrapper Extension	framework	framework	
▼Search Paths			
Always Search User Paths	No ⇕		No ⇕
Framework Search Paths			
Header Search Paths			
▶Library Search Paths			
Rez Search Paths			
Sub-Directories to Exclude in Recursiv...	*.nib *.lproj *.framewor...		
Sub-Directories to Include in Recursive...			
User Header Search Paths			
▼Unit Testing			
Other Test Flags			
Test After Build	No ⇕		
Test Host			
Test Rig			
▼Versioning			

OS X Default
No ⇕
Yes ⇕
No ⇕
A
same-as-input ⇕
No ⇕
No ⇕
.framework/Versions/A...
same-as-input ⇕
.framework/Versions/A...
UTF-16 ⇕
framework
Yes ⇕
*.nib *.lproj *.framewor...
No ⇕

Build Settings



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Executable Prefix				
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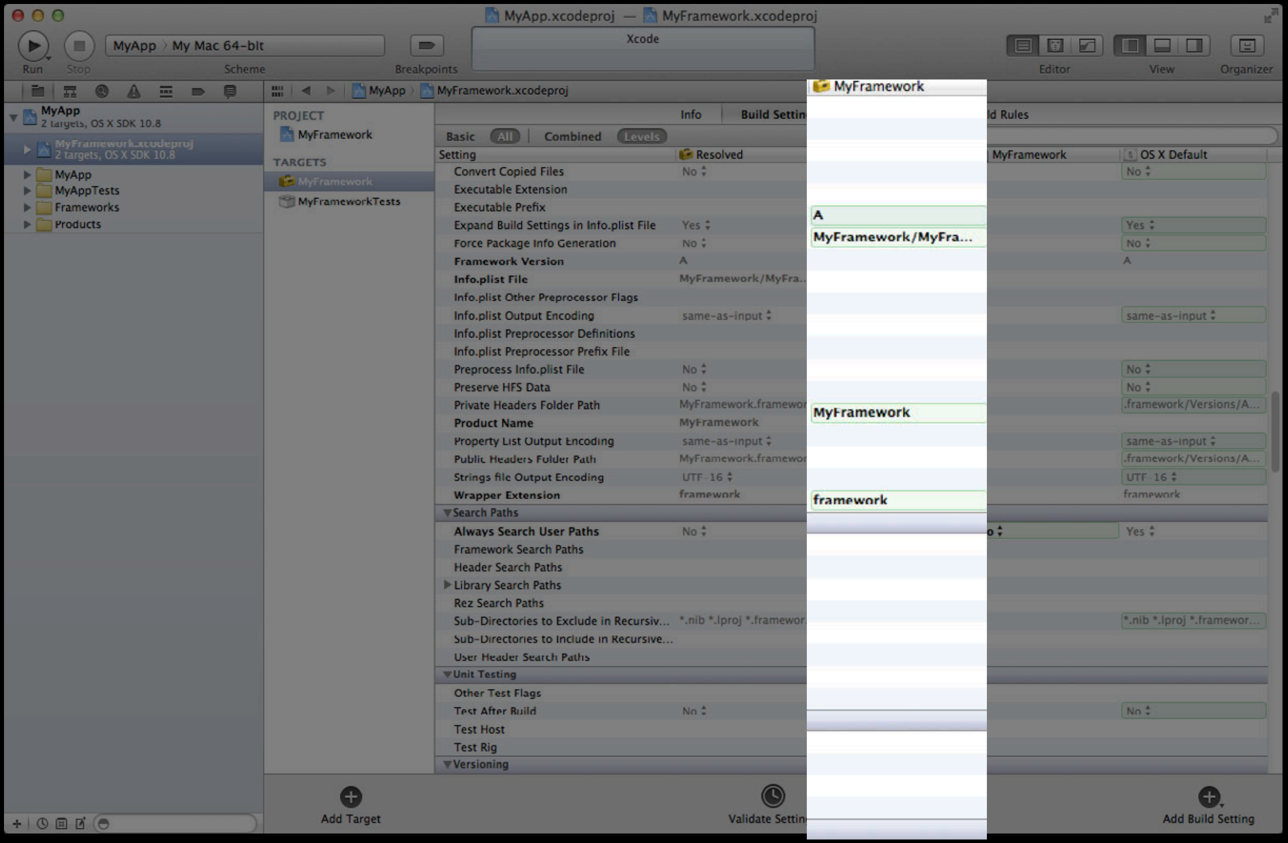
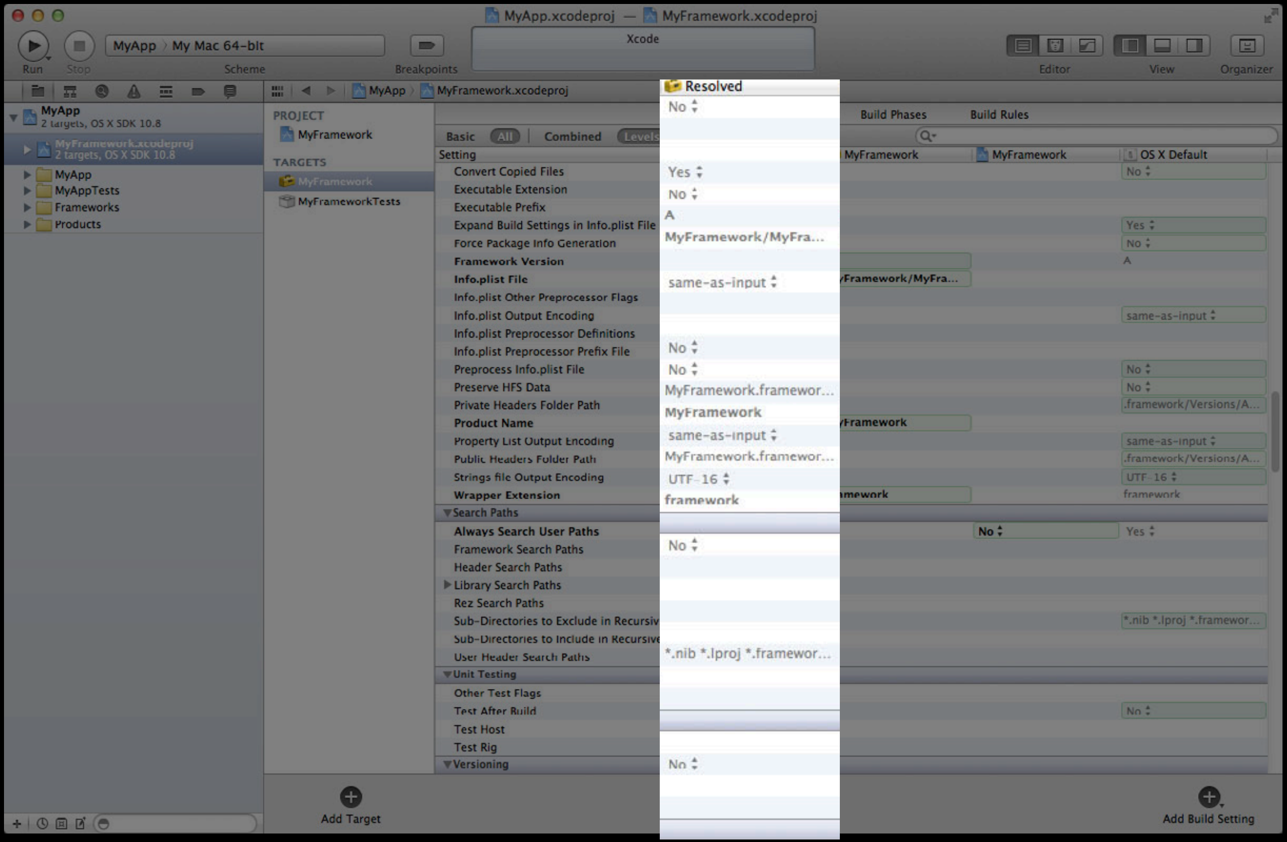
Framework Version	A	A		
Info.plist File	MyFramework/MyFra…	MyFramework/MyFra…		
Info.plist Other Preprocessor Flags				
Info.plist Output Encoding	same-as-input ⇕			ame-as-input ⇕
Info.plist Preprocessor Definitions				
Info.plist Preprocessor Prefix File				
Preprocess Info.plist File	No ⇕			o ⇕
Preserve HFS Data	No ⇕			o ⇕
Private Headers Folder Path	MyFramework.framewor…			amework/Versions/A…
Product Name	MyFramework	MyFramework		
Property List Output Encoding	same-as-input ⇕			ame-as-input ⇕
Public Headers Folder Path	MyFramework.framewor…			amework/Versions/A…
Strings file Output Encoding	UTF-16 ⇕			TF-16 ⇕
Wrapper Extension	framework	framework		amework
▼Search Paths				
Always Search User Paths	No ⇕		No ⇕	es ⇕
Framework Search Paths				
Header Search Paths				
▶ Library Search Paths				
Rez Search Paths				
Sub-Directories to Exclude in Recursiv…	*.nib *.lproj *.framewor…			nib *.lproj *.framewor…
Sub-Directories to Include in Recursive…				
User Header Search Paths				
▼Unit Testing				
Other Test Flags				
Test After Build	No ⇕			n ⇕
Test Host				
Test Rig				
▼Versioning				

Build Settings



Setting	Resolved	MyFramework	MyFramework	OS X Default
Convert Copied Files	No ↕			No ↕
Executable Extension				
Executable Prefix				
Expand Build Settings in Info.plist File	Yes ↕			Yes ↕
Force Package Info Generation	No ↕			No ↕
Framework Version	A	A		A
Info.plist File	MyFramework/MyFra…	MyFramework/MyFra…		
Info.plist Other Preprocessor Flags				
Info.plist Output Encoding	same-as-input ↕			same-as-input ↕
Info.plist Preprocessor Definitions				
Info.plist Preprocessor Prefix File				
Preprocess Info.plist File	No ↕			No ↕
Preserve HFS Data	No ↕			No ↕
Private Headers Folder Path	MyFramework.framewor			.framework/Versions/A…
Product Name	MyFramework	MyFramework		
Property List Output Encoding	same-as-input ↕			same-as-input ↕
Public Headers Folder Path	MyFramework.framewor			.framework/Versions/A…
Strings file Output Encoding	UTF-16 ↕			UTF-16 ↕
Wrapper Extension	framework	framework		framework
▼Search Paths				
Always Search User Paths	No ↕		o ↕	Yes ↕
Framework Search Paths				
Header Search Paths				
▶ Library Search Paths				
Rez Search Paths				
Sub-Directories to Exclude in Recursiv…	*.nib *.lproj *.framewor			*.nib *.lproj *.framewor…
Sub-Directories to Include in Recursive…				
User Header Search Paths				
▼Unit Testing				
Other Test Flags				
Test After Build	No ↕			No ↕
Test Host				
Test Rig				
▼Versioning				

Build Settings



Setting	MyFramework	MyFramework	OS X Default
Convert Copied Files			No ⬍
Executable Extension			
Executable Prefix			
Expand Build Settings in Info.plist File			Yes ⬍
Force Package Info Generation			No ⬍
Framework Version			A
Info.plist File	yFramework/MyFra...		
Info.plist Other Preprocessor Flags			
Info.plist Output Encoding			same-as-input ⬍
Info.plist Preprocessor Definitions			
Info.plist Preprocessor Prefix File			
Preprocess Info.plist File			No ⬍
Preserve HFS Data			No ⬍
Private Headers Folder Path			.framework/Versions/A...
Product Name	yFramework		
Property List Output Encoding			same-as-input ⬍
Public Headers Folder Path			.framework/Versions/A...
Strings file Output Encoding			UTF-16 ⬍
Wrapper Extension	amework		framework
▼Search Paths			
Always Search User Paths		**No** ⬍	Yes ⬍
Framework Search Paths			
Header Search Paths			
▶Library Search Paths			
Rez Search Paths			
Sub-Directories to Exclude in Recursiv			*.nib *.lproj *.framewor...
Sub-Directories to Include in Recursive			
User Header Search Paths			
▼Unit Testing			
Other Test Flags			
Test After Build			No ⬍
Test Host			
Test Rig			
▼Versioning			

Resolved

No ⬍

Yes ⬍

No ⬍

A

MyFramework/MyFra...

same-as-input ⬍

No ⬍

No ⬍

MyFramework.framewor...

MyFramework

same-as-input ⬍

MyFramework.framewor...

UTF-16 ⬍

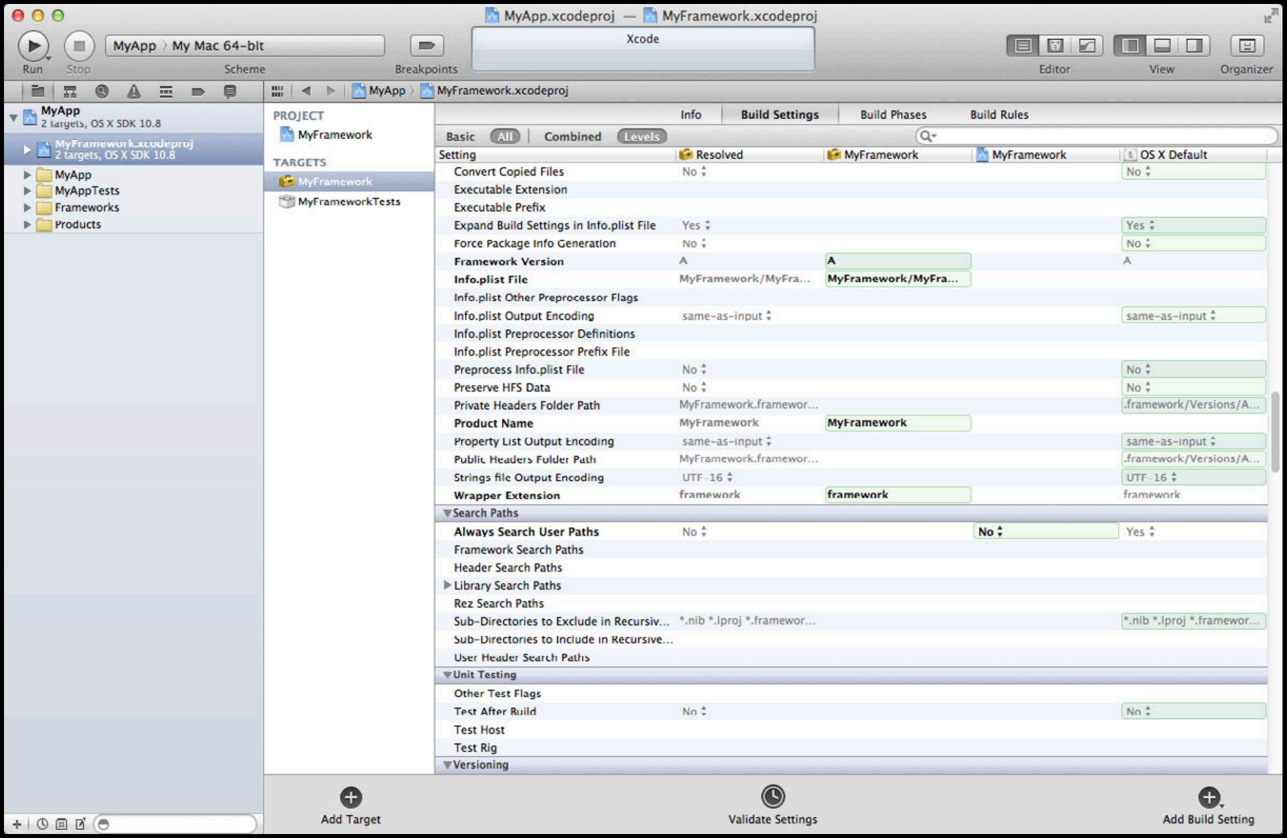
framework

No ⬍

*.nib *.lproj *.framewor...

No ⬍

Build Settings



Setting	Resolved	MyFramework	MyFramework	OS X Default
Convert Copied Files	No ⇕			No ⇕
Executable Extension				
Executable Prefix				
Expand Build Settings in Info.plist File	Yes ⇕			Yes ⇕
Force Package Info Generation	No ⇕			No ⇕
Framework Version	A	**A**		A
Info.plist File	MyFramework/MyFra...	**MyFramework/MyFra...**		
Info.plist Other Preprocessor Flags				
Info.plist Output Encoding	same-as-input ⇕			same-as-input ⇕
Info.plist Preprocessor Definitions				
Info.plist Preprocessor Prefix File				
Preprocess Info.plist File	No ⇕			No ⇕
Preserve HFS Data	No ⇕			No ⇕
Private Headers Folder Path	MyFramework.framewor...			.framework/Versions/A...
Product Name	MyFramework	**MyFramework**		
Property List Output Encoding	same-as-input ⇕			same-as-input ⇕
Public Headers Folder Path	MyFramework.framewor...			.framework/Versions/A...
Strings file Output Encoding	UTF-16 ⇕			UTF-16 ⇕
Wrapper Extension	framework	**framework**		framework
▼Search Paths				
Always Search User Paths	No ⇕		**No ⇕**	Yes ⇕
Framework Search Paths				
Header Search Paths				
▶Library Search Paths				
Rez Search Paths				
Sub-Directories to Exclude in Recursiv...	*.nib *.lproj *.framewor...			*.nib *.lproj *.framewor...
Sub-Directories to Include in Recursive...				
User Header Search Paths				
▼Unit Testing				
Other Test Flags				
Test After Build	No ⇕			No ⇕
Test Host				
Test Rig				
▼Versioning				

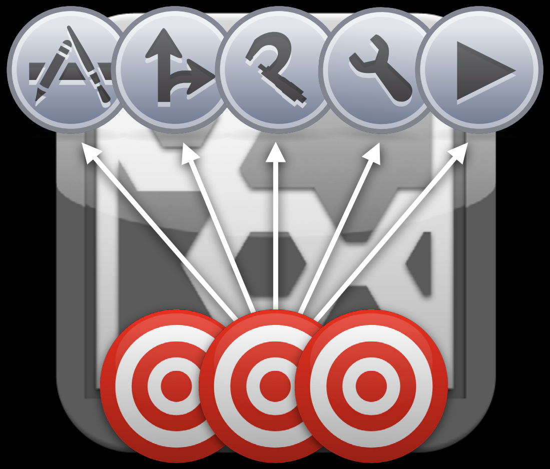
Project Concepts

- Workspaces
- Projects
  - Build configurations
- Targets
  - Build settings
  - Build phases
  - Build rules
- Schemes
- Run destinations

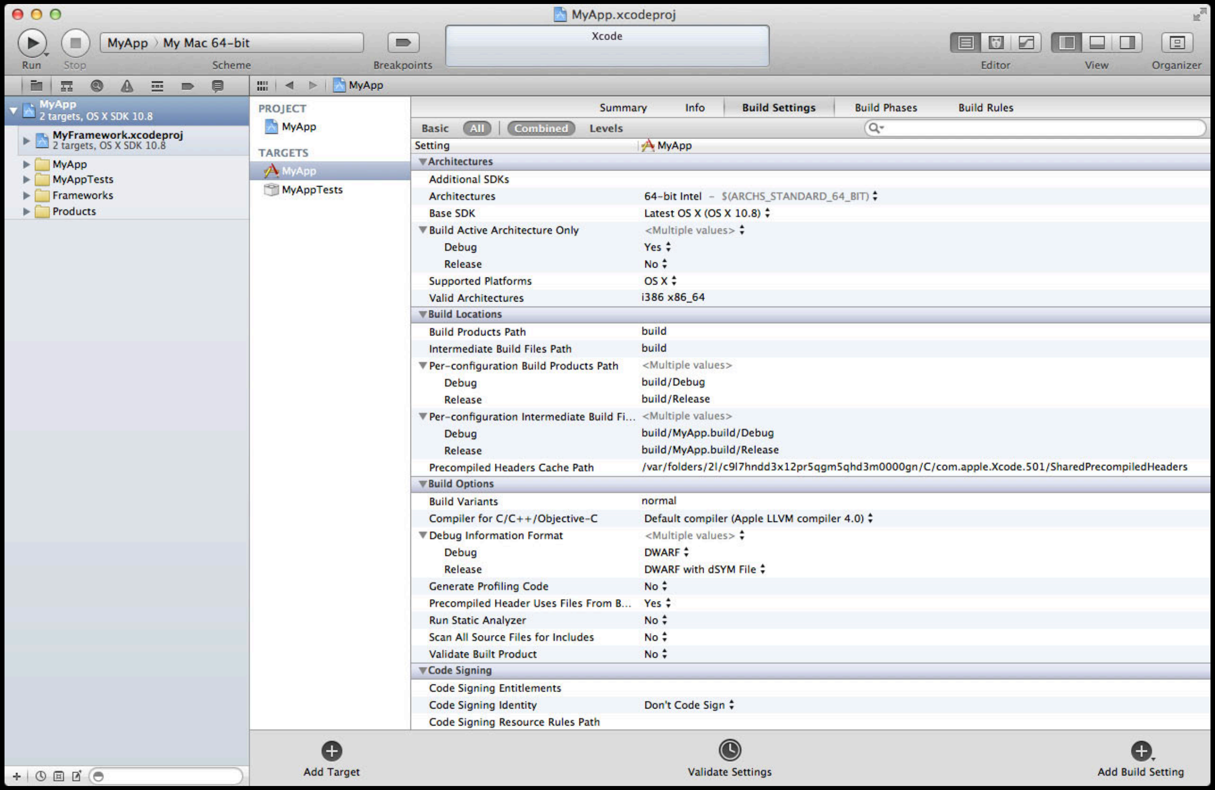
What’s in a Scheme?

Instructions for building targets and performing actions

- Actions for running, testing, profiling, analyzing, and archiving products
- A specification of targets to build for each action

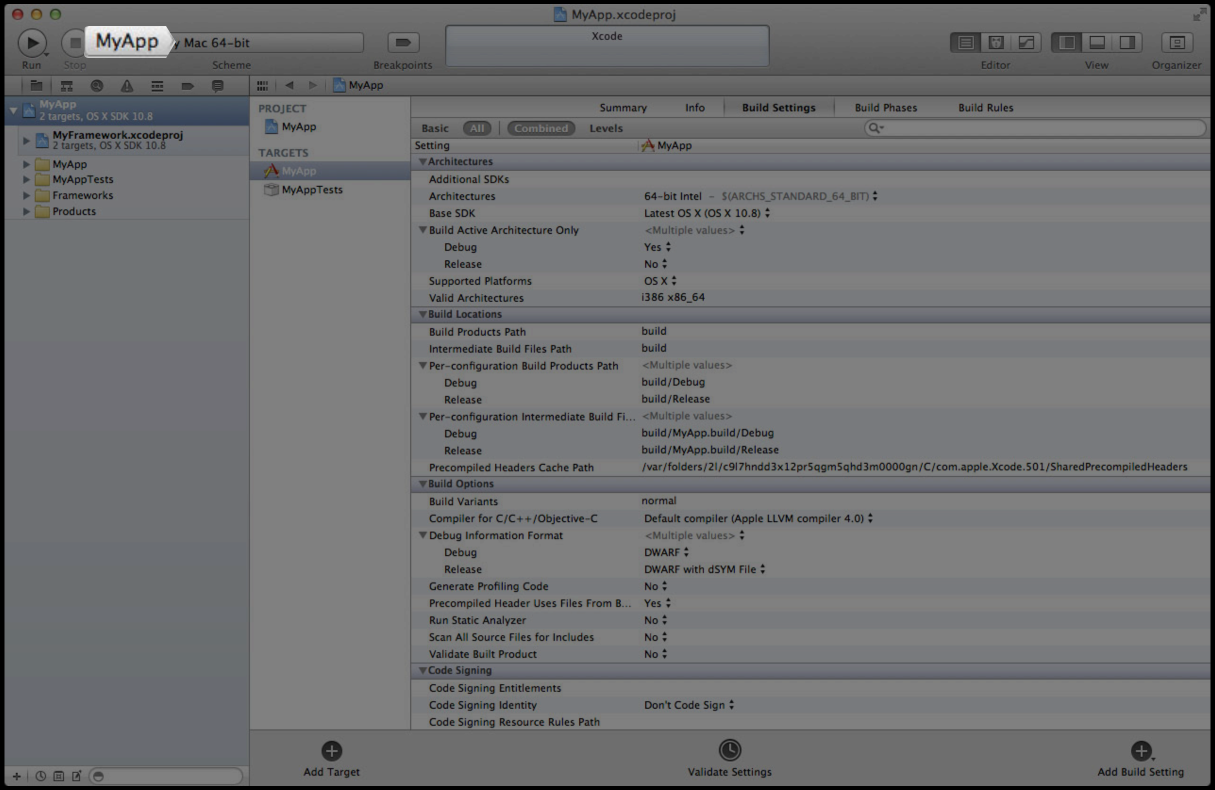


Schemes



Setting	MyApp
▼Architectures	
Additional SDKs	
Architectures	64-bit Intel – $(ARCHS_STANDARD_64_BIT) ⇕
Base SDK	Latest OS X (OS X 10.8) ⇕
▼ Build Active Architecture Only	<Multiple values> ⇕
Debug	Yes ⇕
Release	No ⇕
Supported Platforms	OS X ⇕
Valid Architectures	i386 x86_64
▼Build Locations	
Build Products Path	build
Intermediate Build Files Path	build
▼ Per-configuration Build Products Path	<Multiple values>
Debug	build/Debug
Release	build/Release
▼ Per-configuration Intermediate Build Fi...	<Multiple values>
Debug	build/MyApp.build/Debug
Release	build/MyApp.build/Release
Precompiled Headers Cache Path	/var/folders/2l/c9l7hndd3x12pr5qgm5qhd3m0000gn/C/com.apple.Xcode.501/SharedPrecompiledHeaders
▼Build Options	
Build Variants	normal
Compiler for C/C++/Objective-C	Default compiler (Apple LLVM compiler 4.0) ⇕
▼ Debug Information Format	<Multiple values> ⇕
Debug	DWARF ⇕
Release	DWARF with dSYM File ⇕
Generate Profiling Code	No ⇕
Precompiled Header Uses Files From B...	Yes ⇕
Run Static Analyzer	No ⇕
Scan All Source Files for Includes	No ⇕
Validate Built Product	No ⇕
▼Code Signing	
Code Signing Entitlements	
Code Signing Identity	Don't Code Sign ⇕
Code Signing Resource Rules Path	

Schemes



Setting	MyApp
▼Architectures	
Additional SDKs	
Architectures	64-bit Intel – $(ARCHS_STANDARD_64_BIT) ⇕
Base SDK	Latest OS X (OS X 10.8) ⇕
▼Build Active Architecture Only	<Multiple values> ⇕
Debug	Yes ⇕
Release	No ⇕
Supported Platforms	OS X ⇕
Valid Architectures	i386 x86_64
▼Build Locations	
Build Products Path	build
Intermediate Build Files Path	build
▼Per-configuration Build Products Path	<Multiple values>
Debug	build/Debug
Release	build/Release
▼Per-configuration Intermediate Build Fi...	<Multiple values>
Debug	build/MyApp.build/Debug
Release	build/MyApp.build/Release
Precompiled Headers Cache Path	/var/folders/2l/c9l7hndd3x12pr5qgm5qhd3m0000gn/C/com.apple.Xcode.501/SharedPrecompiledHeaders
▼Build Options	
Build Variants	normal
Compiler for C/C++/Objective-C	Default compiler (Apple LLVM compiler 4.0) ⇕
▼Debug Information Format	<Multiple values> ⇕
Debug	DWARF ⇕
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Run Static Analyzer	No ⇕
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Code Signing Entitlements	
Code Signing Identity	Don't Code Sign ⇕
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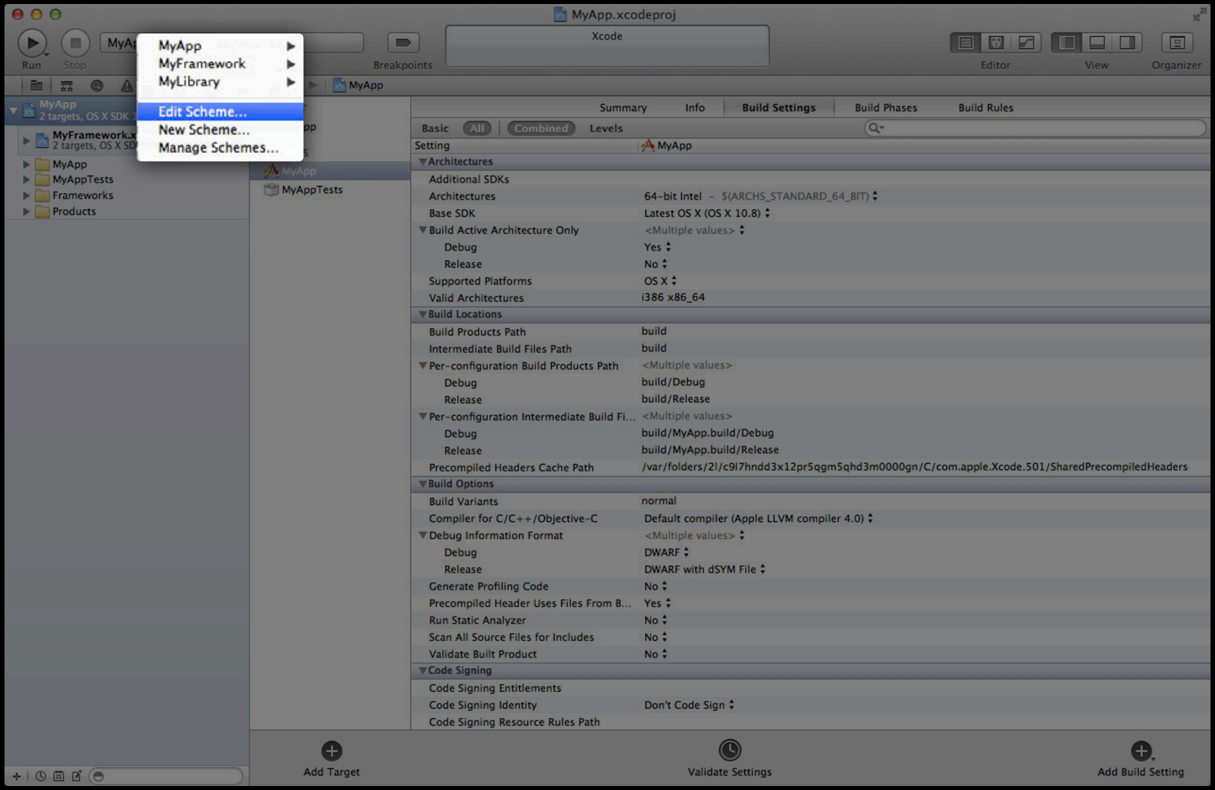
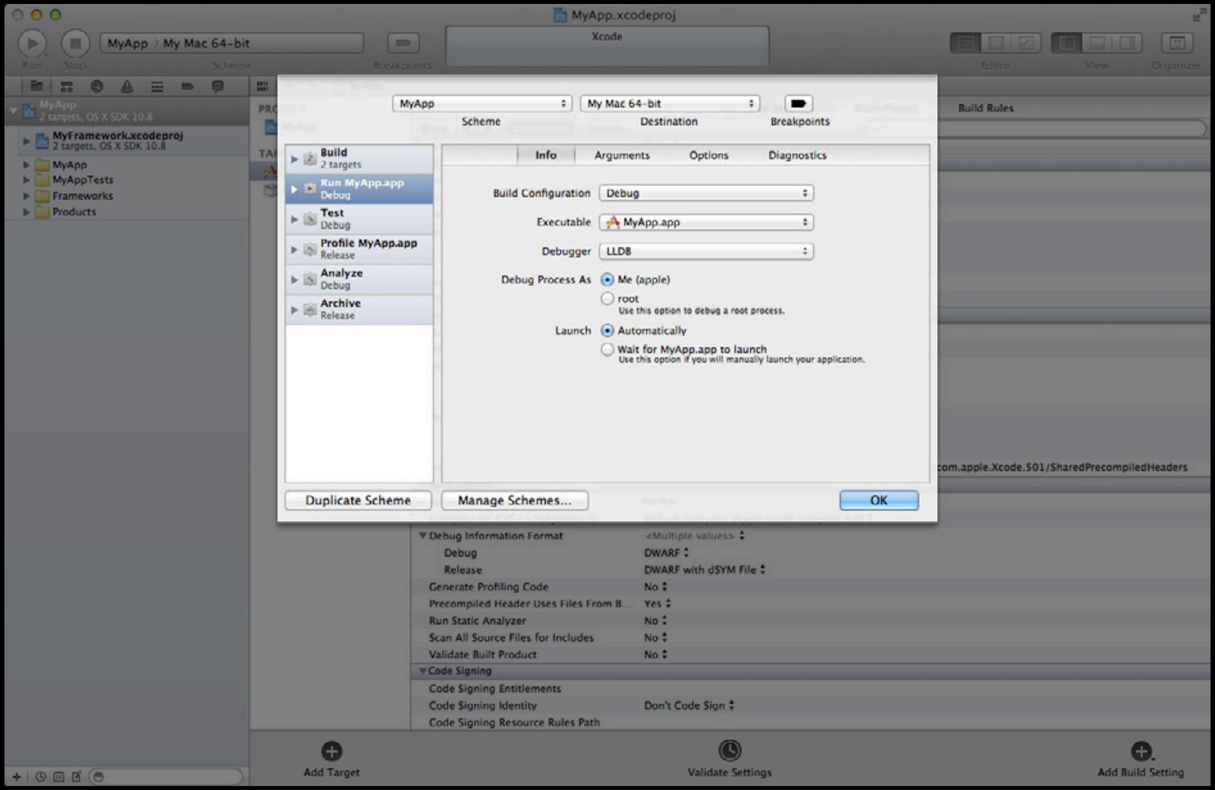
Schemes



Setting	MyApp
▼Architectures	
Additional SDKs	
Architectures	64-bit Intel – $(ARCHS_STANDARD_64_BIT)
Base SDK	Latest OS X (OS X 10.8)
▼Build Active Architecture Only	<Multiple values>
Debug	Yes
Release	No
Supported Platforms	OS X
Valid Architectures	i386 x86_64
▼Build Locations	
Build Products Path	build
Intermediate Build Files Path	build
▼Per-configuration Build Products Path	<Multiple values>
Debug	build/Debug
Release	build/Release
▼Per-configuration Intermediate Build Fi…	<Multiple values>
Debug	build/MyApp.build/Debug
Release	build/MyApp.build/Release
Precompiled Headers Cache Path	/var/folders/2l/c9l7hndd3x12pr5qgm5qhd3m0000gn/C/com.apple.Xcode.501/SharedPrecompiledHeaders
▼Build Options	
Build Variants	normal
Compiler for C/C++/Objective-C	Default compiler (Apple LLVM compiler 4.0)
▼Debug Information Format	<Multiple values>
Debug	DWARF
Release	DWARF with dSYM File
Generate Profiling Code	No
Precompiled Header Uses Files From B…	Yes
Run Static Analyzer	No
Scan All Source Files for Includes	No
Validate Built Product	No
▼Code Signing	
Code Signing Entitlements	
Code Signing Identity	Don't Code Sign
Code Signing Resource Rules Path	

Schemes



Scheme: MyApp

Destination: My Mac 64-bit

Build Configuration: Debug

Executable: MyApp.app

Debugger: LLDB

Debug Process As: ● Me (apple)

○ root
Use this option to debug a root process.

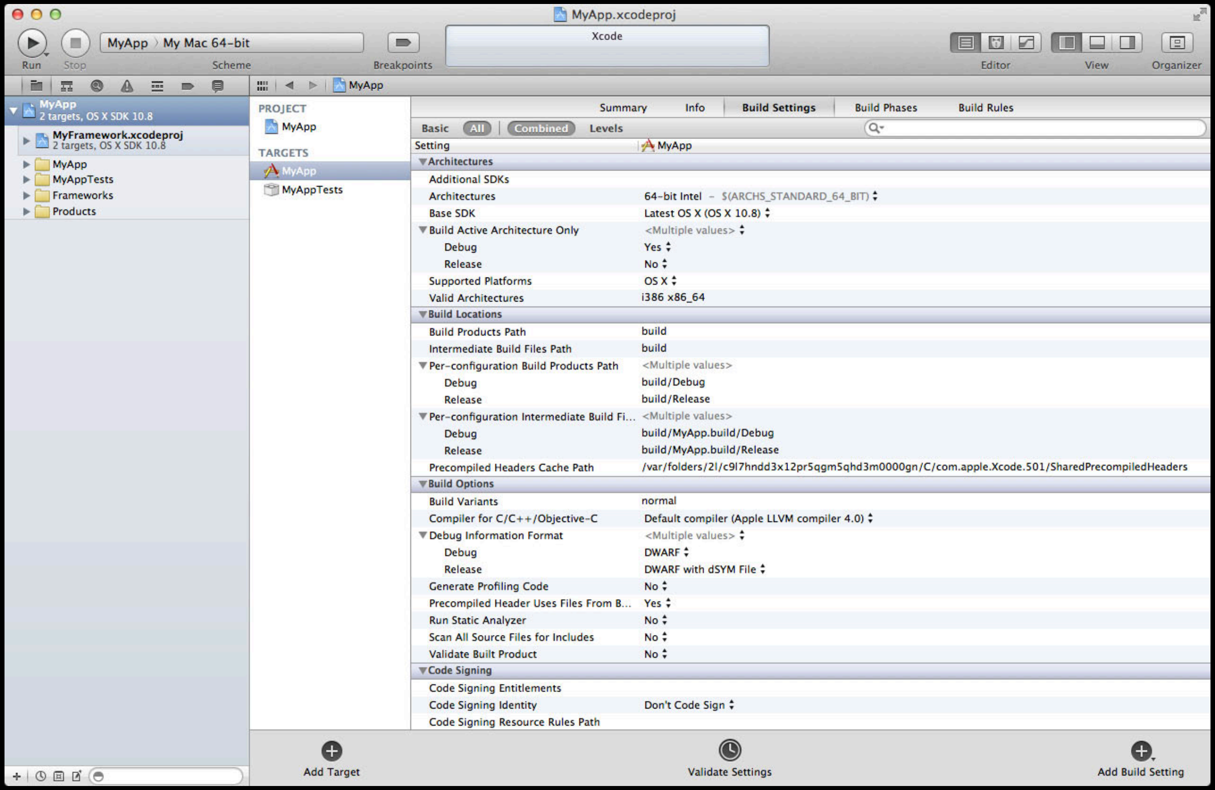
Launch: ● Automatically

○ Wait for MyApp.app to launch
Use this option if you will manually launch your application.

com.apple.Xcode.501/SharedPrecompiledHeaders

▾ Debug Information Format	<Multiple values>
Debug	DWARF
Release	DWARF with dSYM File
Generate Profiling Code	No
Precompiled Header Uses Files From B...	Yes
Run Static Analyzer	No
Scan All Source Files for Includes	No
Validate Built Product	No
▾ Code Signing	
Code Signing Entitlements	
Code Signing Identity	Don't Code Sign
Code Signing Resource Rules Path	

Schemes



Setting	MyApp
▼Architectures	
Additional SDKs	
Architectures	64-bit Intel – $(ARCHS_STANDARD_64_BIT) ⬍
Base SDK	Latest OS X (OS X 10.8) ⬍
▼Build Active Architecture Only	<Multiple values> ⬍
Debug	Yes ⬍
Release	No ⬍
Supported Platforms	OS X ⬍
Valid Architectures	i386 x86_64
▼Build Locations	
Build Products Path	build
Intermediate Build Files Path	build
▼Per-configuration Build Products Path	<Multiple values>
Debug	build/Debug
Release	build/Release
▼Per-configuration Intermediate Build Fi…	<Multiple values>
Debug	build/MyApp.build/Debug
Release	build/MyApp.build/Release
Precompiled Headers Cache Path	/var/folders/2l/c9l7hndd3x12pr5qgm5qhd3m0000gn/C/com.apple.Xcode.501/SharedPrecompiledHeaders
▼Build Options	
Build Variants	normal
Compiler for C/C++/Objective-C	Default compiler (Apple LLVM compiler 4.0) ⬍
▼Debug Information Format	<Multiple values> ⬍
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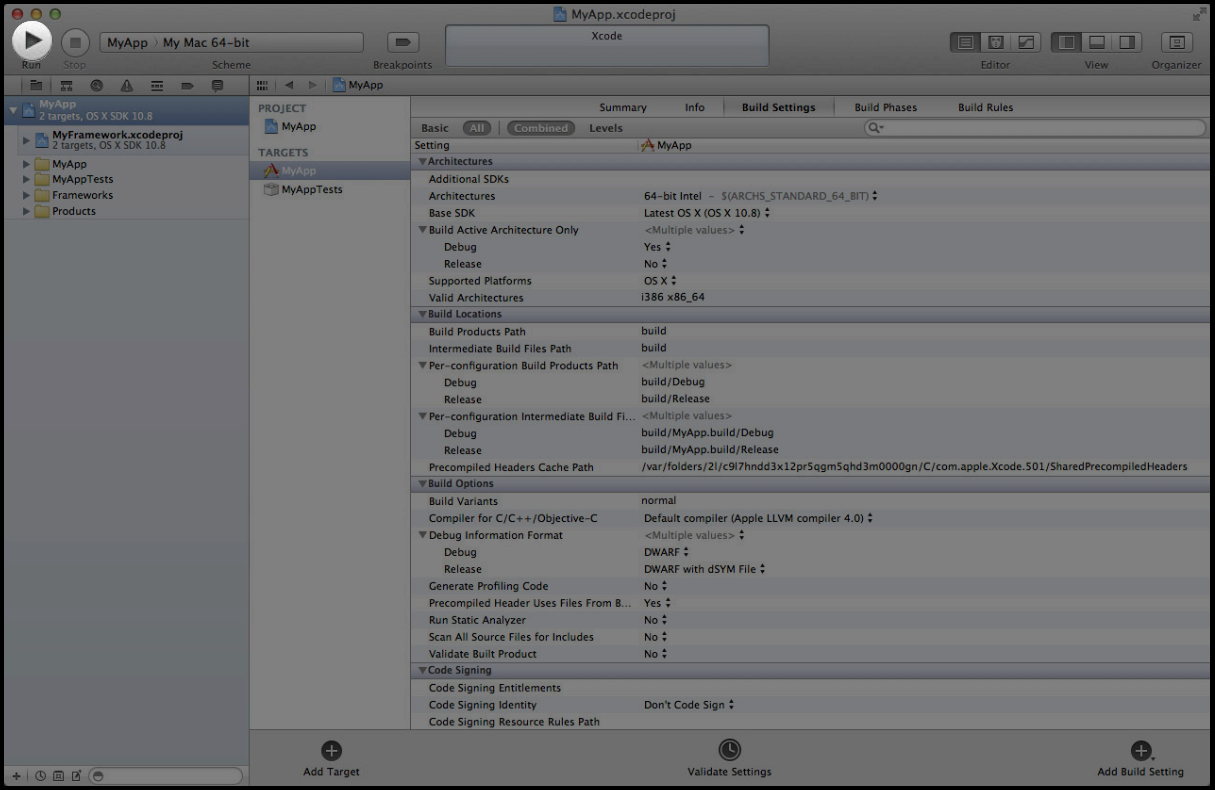
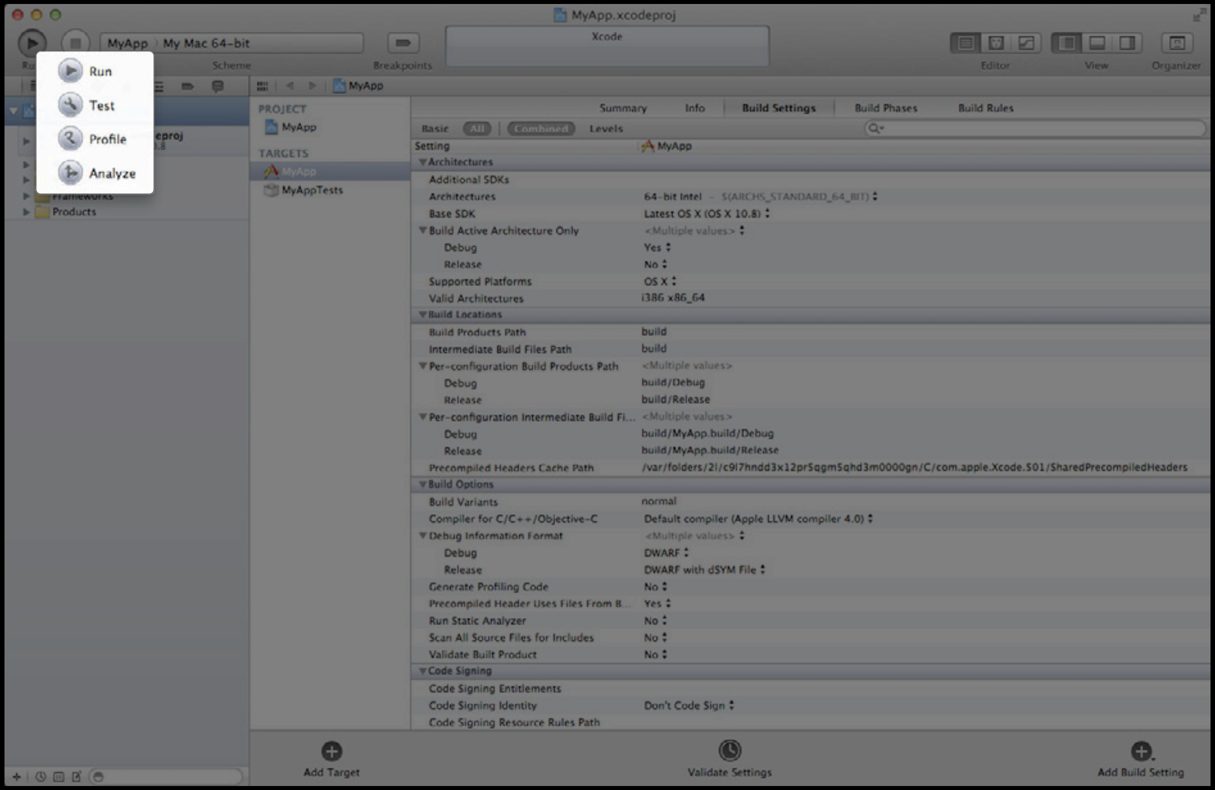
Release	DWARF with dSYM File ⬍
Generate Profiling Code	No ⬍
Precompiled Header Uses Files From B…	Yes ⬍
Run Static Analyzer	No ⬍
Scan All Source Files for Includes	No ⬍
Validate Built Product	No ⬍
▼Code Signing	
Code Signing Entitlements	
Code Signing Identity	Don't Code Sign ⬍
Code Signing Resource Rules Path	

Schemes



Setting	MyApp
▼Architectures	
Additional SDKs	
Architectures	64-bit Intel – $(ARCHS_STANDARD_64_BIT)
Base SDK	Latest OS X (OS X 10.8)
▼Build Active Architecture Only	<Multiple values>
Debug	Yes
Release	No
Supported Platforms	OS X
Valid Architectures	i386 x86_64
▼Build Locations	
Build Products Path	build
Intermediate Build Files Path	build
▼Per-configuration Build Products Path	<Multiple values>
Debug	build/Debug
Release	build/Release
▼Per-configuration Intermediate Build Fi...	<Multiple values>
Debug	build/MyApp.build/Debug
Release	build/MyApp.build/Release
Precompiled Headers Cache Path	/var/folders/2l/c9l7hndd3x12pr5qgm5qhd3m0000gn/C/com.apple.Xcode.501/SharedPrecompiledHeaders
▼Build Options	
Build Variants	normal
Compiler for C/C++/Objective-C	Default compiler (Apple LLVM compiler 4.0)
▼Debug Information Format	<Multiple values>
Debug	DWARF
Release	DWARF with dSYM File
Generate Profiling Code	No
Precompiled Header Uses Files From B...	Yes
Run Static Analyzer	No
Scan All Source Files for Includes	No
Validate Built Product	No
▼Code Signing	
Code Signing Entitlements	
Code Signing Identity	Don't Code Sign
Code Signing Resource Rules Path	

Schemes



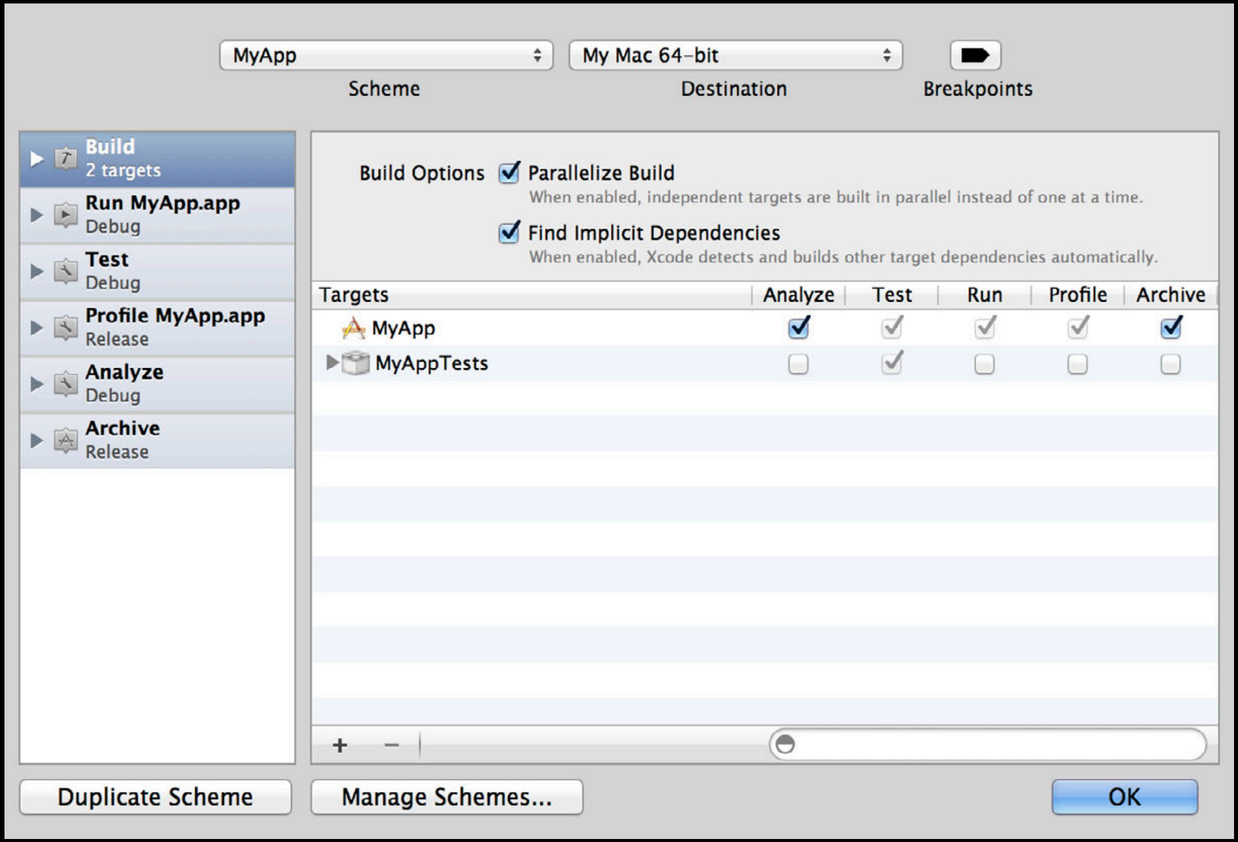
Setting	MyApp
▼Architectures	
Additional SDKs	
Architectures	64-bit Intel – $(ARCHS_STANDARD_64_BIT) ⇕
Base SDK	Latest OS X (OS X 10.8) ⇕
▼Build Active Architecture Only	<Multiple values> ⇕
Debug	Yes ⇕
Release	No ⇕
Supported Platforms	OS X ⇕
Valid Architectures	i386 x86_64
▼Build Locations	
Build Products Path	build
Intermediate Build Files Path	build
▼Per-configuration Build Products Path	<Multiple values>
Debug	build/Debug
Release	build/Release
▼Per-configuration Intermediate Build Fi...	<Multiple values>
Debug	build/MyApp.build/Debug
Release	build/MyApp.build/Release
Precompiled Headers Cache Path	/var/folders/2l/c9l7hndd3x12pr5qgm5qhd3m0000gn/C/com.apple.Xcode.501/SharedPrecompiledHeaders
▼Build Options	
Build Variants	normal
Compiler for C/C++/Objective-C	Default compiler (Apple LLVM compiler 4.0) ⇕
▼Debug Information Format	<Multiple values> ⇕
Debug	DWARF ⇕
Release	DWARF with dSYM File ⇕
Generate Profiling Code	No ⇕
Precompiled Header Uses Files From B...	Yes ⇕
Run Static Analyzer	No ⇕
Scan All Source Files for Includes	No ⇕
Validate Built Product	No ⇕
▼Code Signing	
Code Signing Entitlements	
Code Signing Identity	Don't Code Sign ⇕
Code Signing Resource Rules Path	

A Scheme Builds Targets

Building is a step performed before each action

- You always build with a purpose
- The action you perform specifies targets and a configuration
- The default Build command builds for the Run action

Building

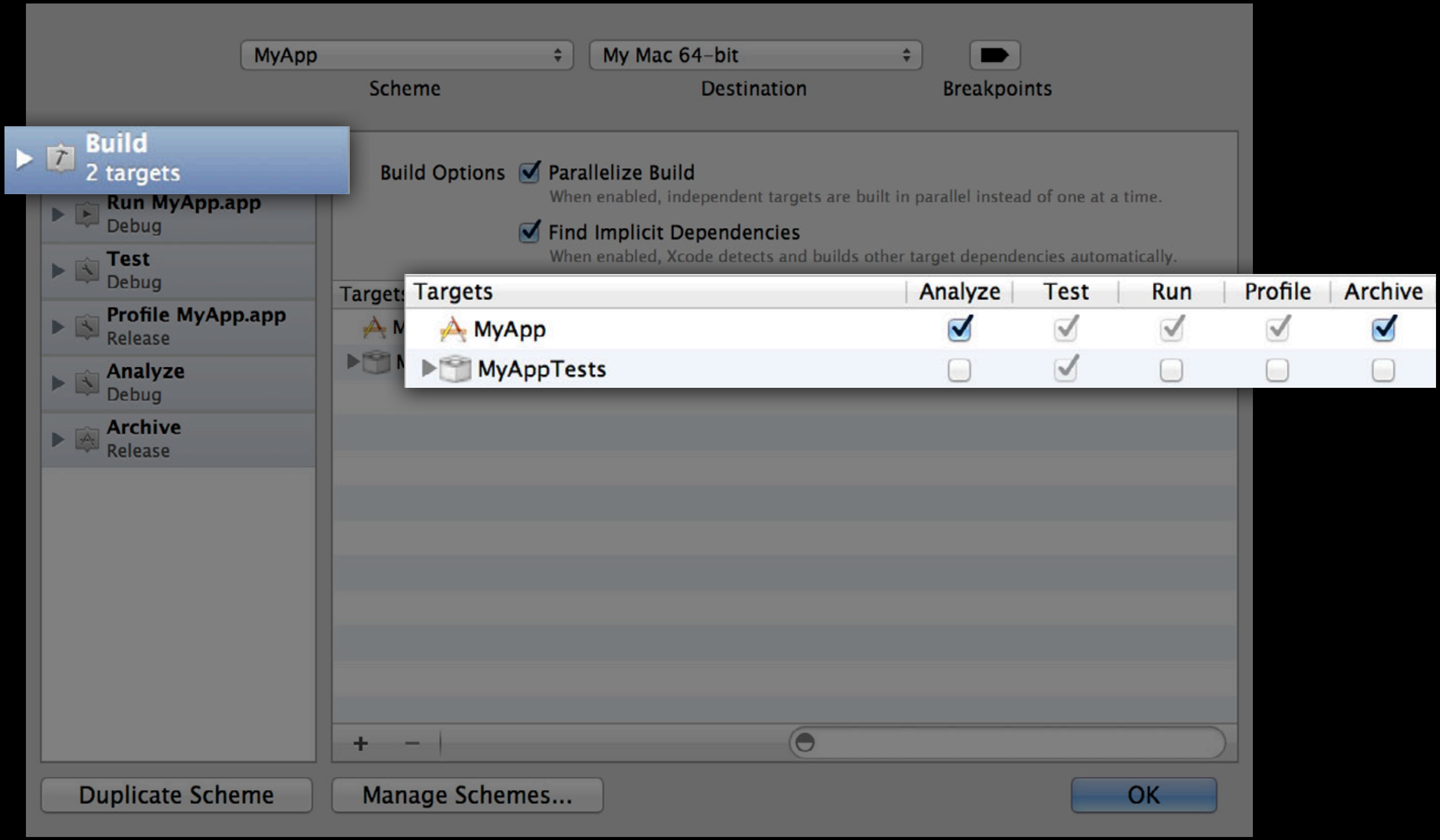


Build Options ☑ Parallelize Build
When enabled, independent targets are built in parallel instead of one at a time.

☑ Find Implicit Dependencies
When enabled, Xcode detects and builds other target dependencies automatically.

Targets	Analyze	Test	Run	Profile	Archive
MyApp	☑	✓	✓	✓	☑
▶ MyAppTests	□	✓	□	□	□

Building



Scheme: MyApp

Destination: My Mac 64-bit

Build Options ☑ Parallelize Build

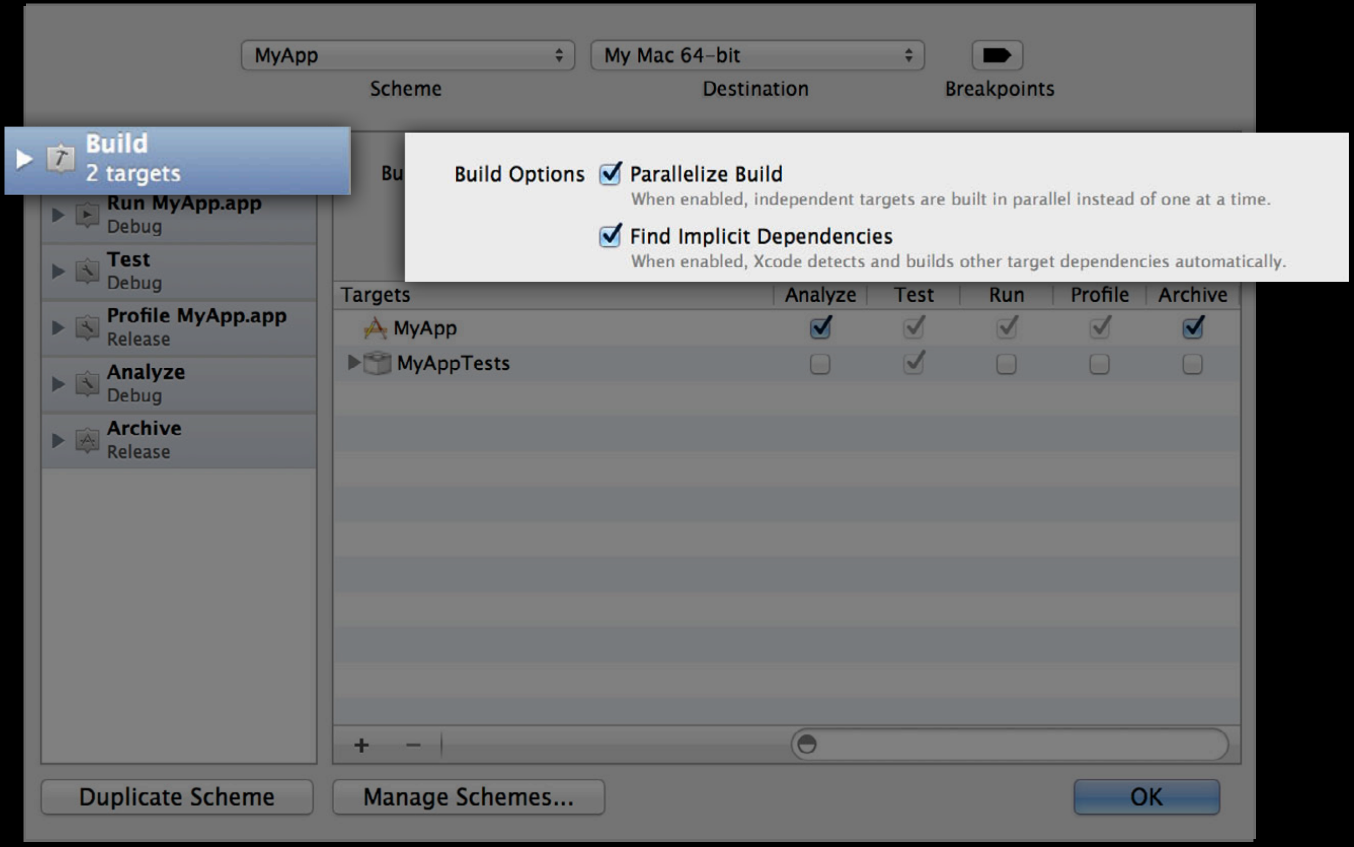
When enabled, independent targets are built in parallel instead of one at a time.

☑ Find Implicit Dependencies

When enabled, Xcode detects and builds other target dependencies automatically.

Targets	Analyze	Test	Run	Profile	Archive
MyApp	☑	✓	✓	✓	☑
MyAppTests	☐	✓	☐	☐	☐

Building Options



Build Options ☑ Parallelize Build

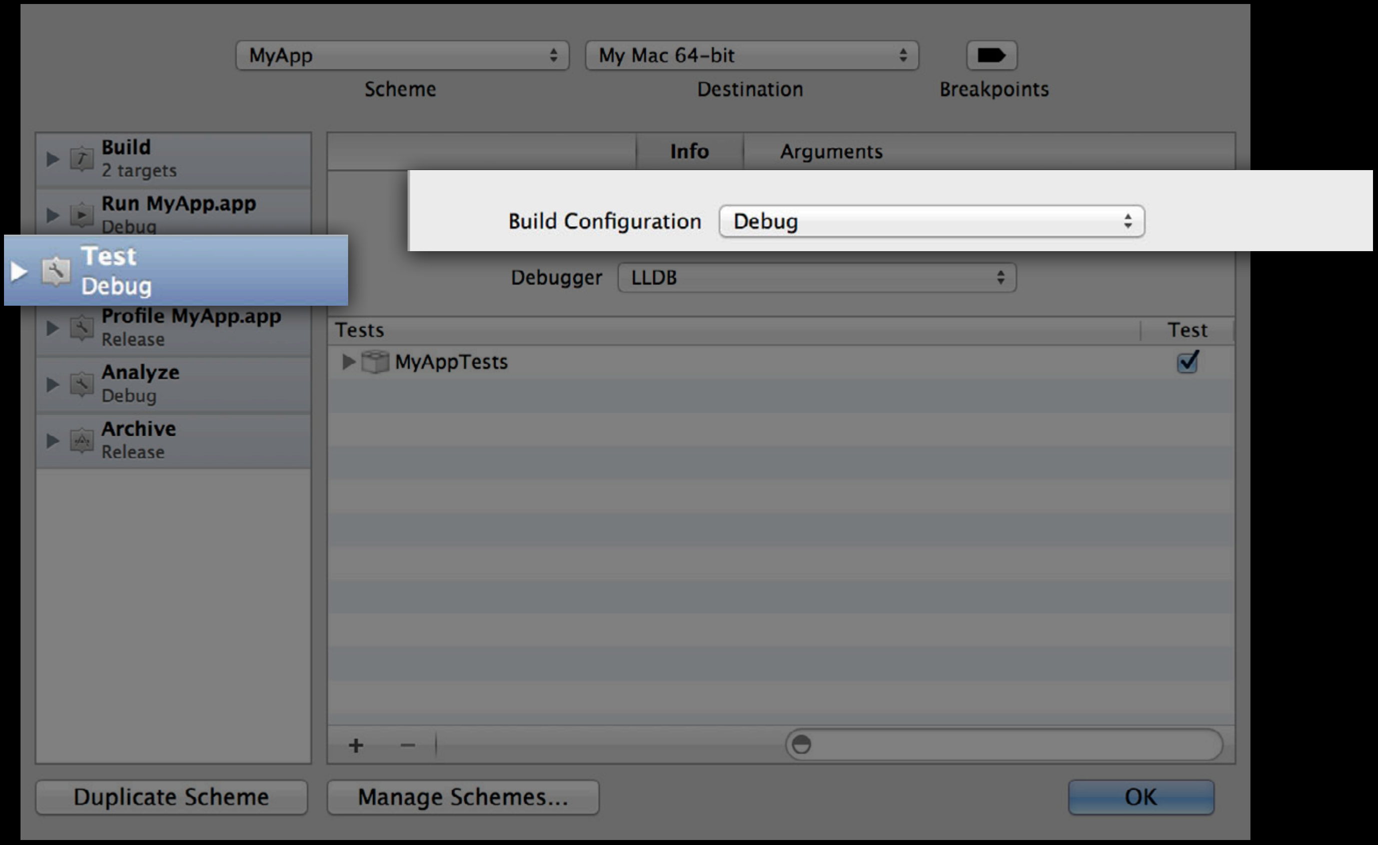
When enabled, independent targets are built in parallel instead of one at a time.

☑ Find Implicit Dependencies

When enabled, Xcode detects and builds other target dependencies automatically.

Targets	Analyze	Test	Run	Profile	Archive
MyApp	☑	☑	☑	☑	☑
MyAppTests	□	☑	□	□	□

Scheme Action Build Configuration



Scheme: MyApp

Destination: My Mac 64-bit

Build Configuration: Debug

Debugger: LLDB

Tests	Test
MyAppTests	☑

Project Concepts

- Workspaces
- Projects
  - Build configurations
- Targets
  - Build settings
  - Build phases
  - Build rules
- Schemes
- Run destinations

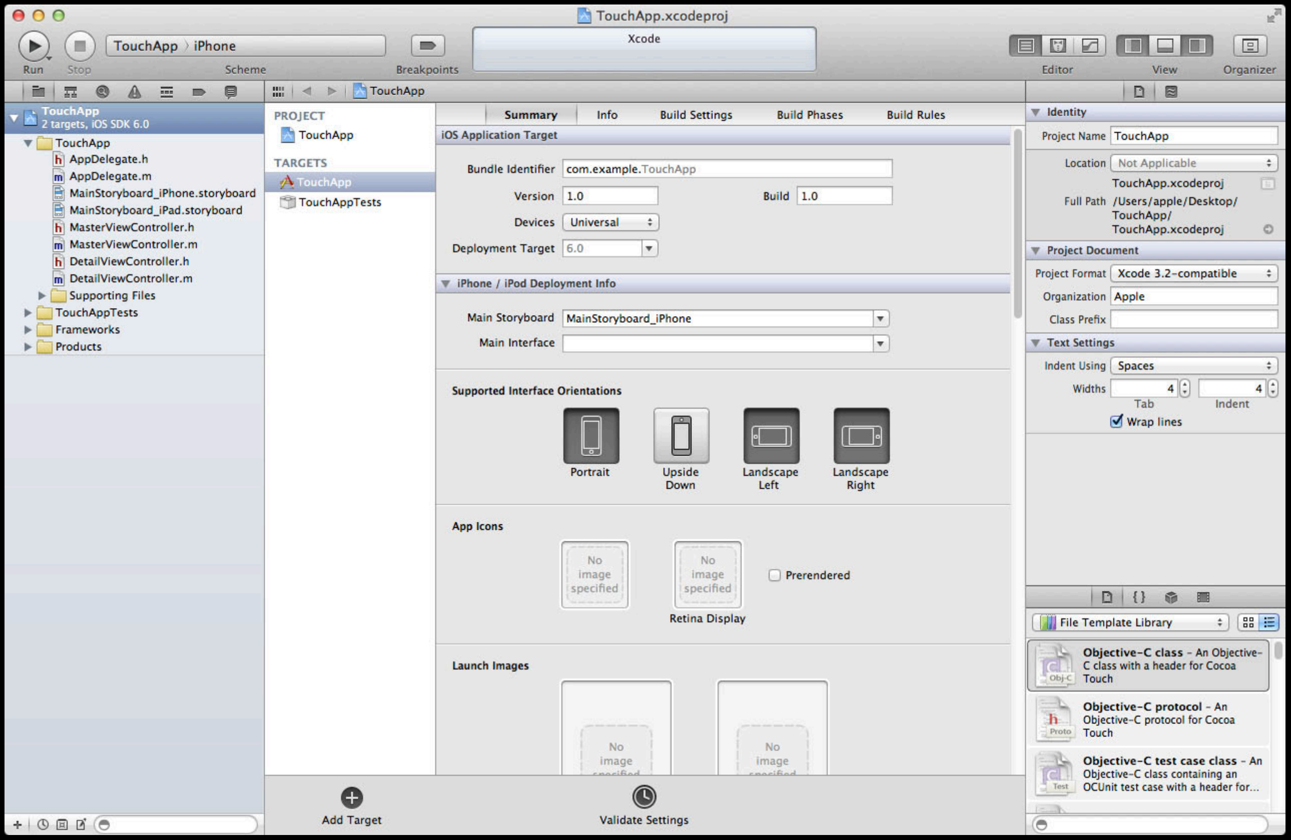
What Is a Run Destination?

- The device you want to build for and run on

What Is a Run Destination?

- The device you want to build for and run on
  - Choose among plugged-in iOS devices configured for development, available simulators, and the local Mac
  - Only devices compatible with your targets' Base SDK and Deployment Target

Run Destinations



TouchApp.xcodeproj

TouchApp › iPhone

TouchApp
2 targets, iOS SDK 6.0

- TouchApp
  - AppDelegate.h
  - AppDelegate.m
  - MainStoryboard_iPhone.storyboard
  - MainStoryboard_iPad.storyboard
  - MasterViewController.h
  - MasterViewController.m
  - DetailViewController.h
  - DetailViewController.m
  - Supporting Files
- TouchAppTests
- Frameworks
- Products

PROJECT
TouchApp

TARGETS
TouchApp
TouchAppTests

iOS Application Target

Bundle Identifier: com.example.TouchApp

Version: 1.0 Build: 1.0

Devices: Universal

Deployment Target: 6.0

iPhone / iPod Deployment Info

Main Storyboard: MainStoryboard_iPhone

Main Interface:

Supported Interface Orientations

App Icons

□ Prerendered

Launch Images

Identity

Project Name: TouchApp

Location: Not Applicable

TouchApp.xcodeproj

Full Path: /Users/apple/Desktop/TouchApp/TouchApp.xcodeproj

Project Document

Project Format: Xcode 3.2-compatible

Organization: Apple

Class Prefix:

Text Settings

Indent Using: Spaces

Widths: 4 (Tab) 4 (Indent)

☑ Wrap lines

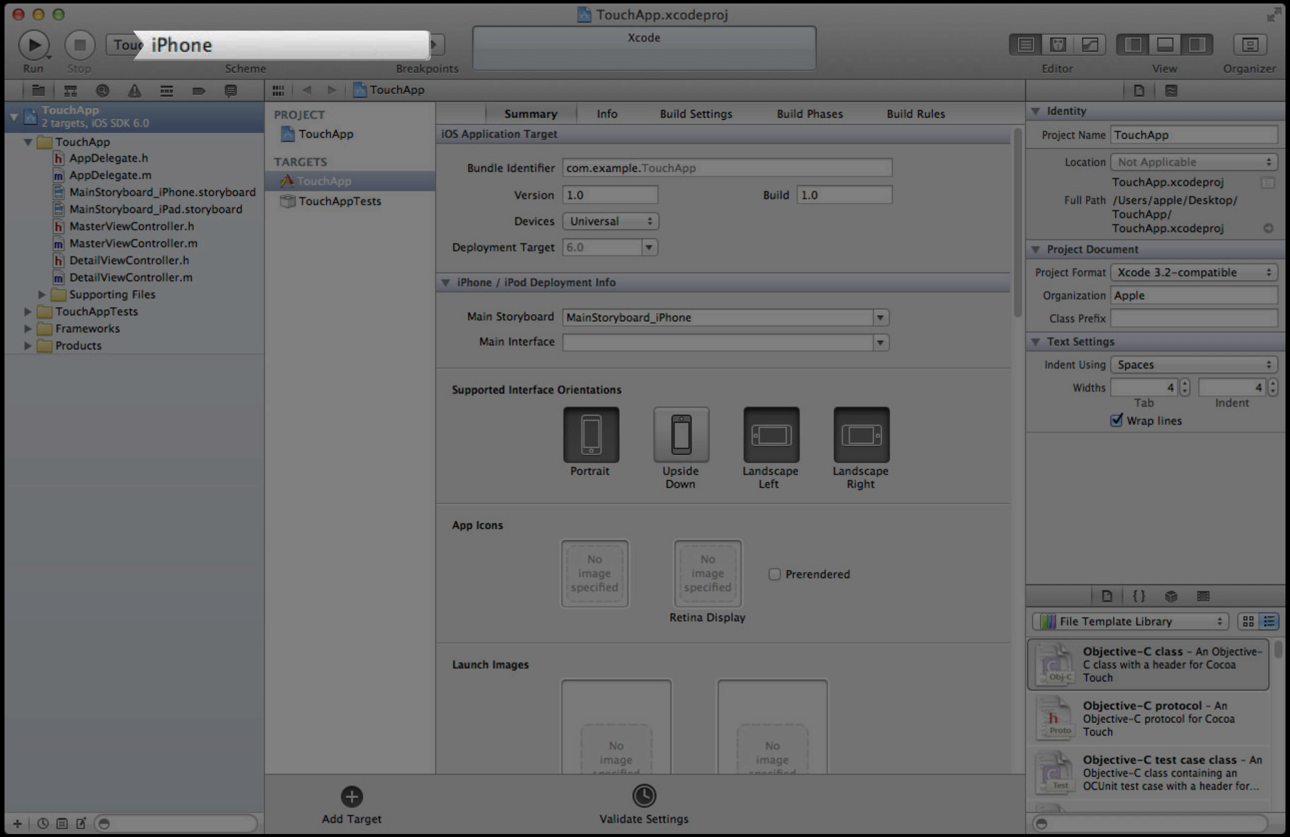
File Template Library

Objective-C class – An Objective-C class with a header for Cocoa Touch

Objective-C protocol – An Objective-C protocol for Cocoa Touch

Objective-C test case class – An Objective-C class containing an OCUnit test case with a header for…

Run Destinations



iOS Application Target

Bundle Identifier: com.example.TouchApp

Version: 1.0

Build: 1.0

Devices: Universal

Deployment Target: 6.0

iPhone / iPod Deployment Info

Main Storyboard: MainStoryboard_iPhone

Main Interface:

Supported Interface Orientations

App Icons

☐ Prerendered

Launch Images

Identity

Project Name: TouchApp

Location: Not Applicable

Full Path: /Users/apple/Desktop/TouchApp/TouchApp.xcodeproj

Project Document

Project Format: Xcode 3.2-compatible

Organization: Apple

Class Prefix:

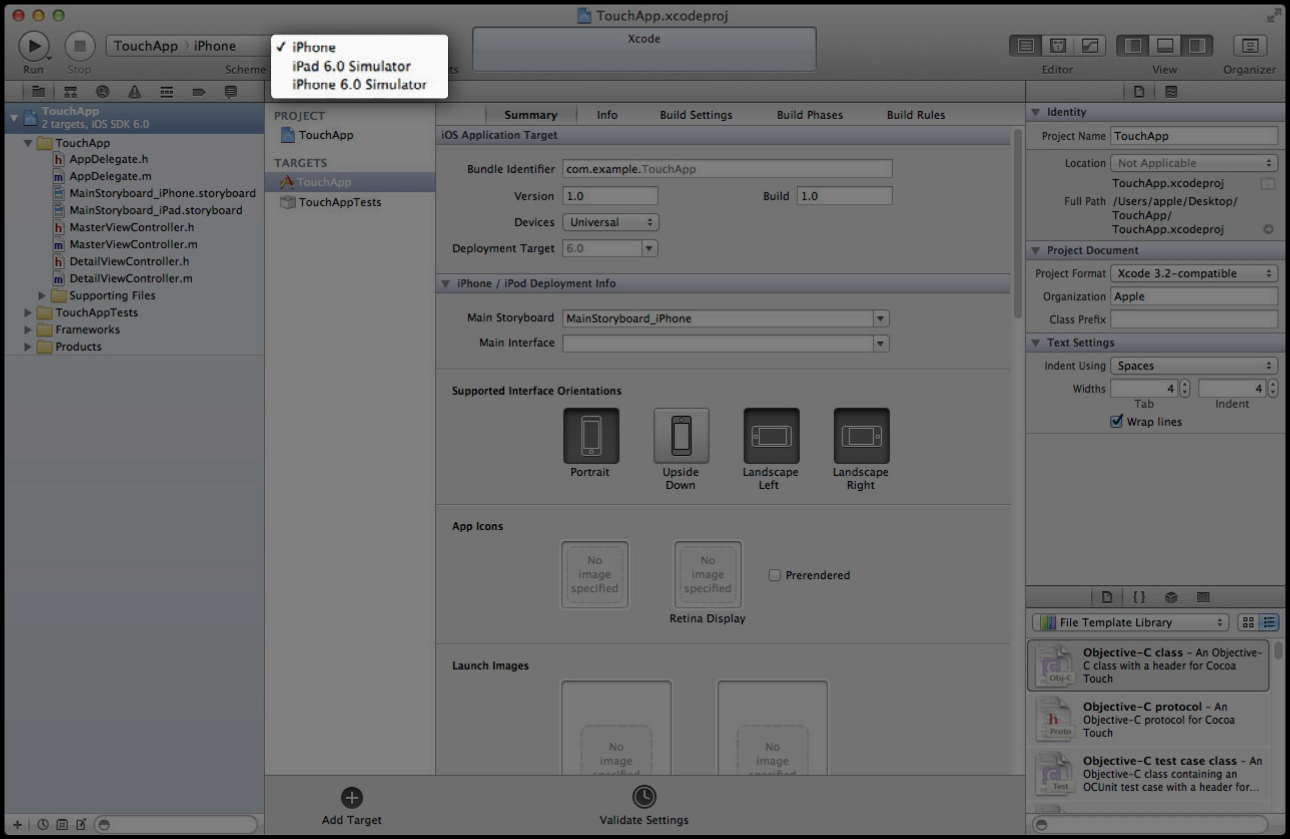
Text Settings

Indent Using: Spaces

Widths: 4 (Tab), 4 (Indent)

☑ Wrap lines

Run Destinations



iOS Application Target

Bundle Identifier: com.example.TouchApp

Version: 1.0

Build: 1.0

Devices: Universal

Deployment Target: 6.0

iPhone / iPod Deployment Info

Main Storyboard: MainStoryboard_iPhone

Main Interface:

Supported Interface Orientations: Portrait, Upside Down, Landscape Left, Landscape Right

App Icons: No image specified; No image specified (Retina Display); □ Prerendered

Launch Images: No image specified; No image specified

Identity

Project Name: TouchApp

Location: Not Applicable

TouchApp.xcodeproj

Full Path: /Users/apple/Desktop/TouchApp/TouchApp.xcodeproj

Project Document

Project Format: Xcode 3.2-compatible

Organization: Apple

Class Prefix:

Text Settings

Indent Using: Spaces

Widths: 4 (Tab) 4 (Indent)

☑ Wrap lines

Demo

Scheme actions

The Archive Action

What is an archive?

- A timestamped bundle with:
  - An install-style build of your application
  - Your application’s debug symbols, in a separate dSYM file
  - Verification and submission status for your application
  - Your own comments

The Archive Action

Application archives

- Contain only a single application
- Archives containing anything else cannot be submitted to the Mac or iOS App Store

The Archive Action

Application archives

- Your application should embed libraries and frameworks
  - Static libraries are always incorporated into your application
  - Use a Copy Files build phase for frameworks and dynamic libraries
- Turn on the Skip Install build setting for library and framework targets

Demo

Scheme actions

Build Products

Derived Data

- Every workspace has its own derived data directory
- Workspaces are distinguished by path
  - Different copies of the same workspace have their own derived data directories

Demo

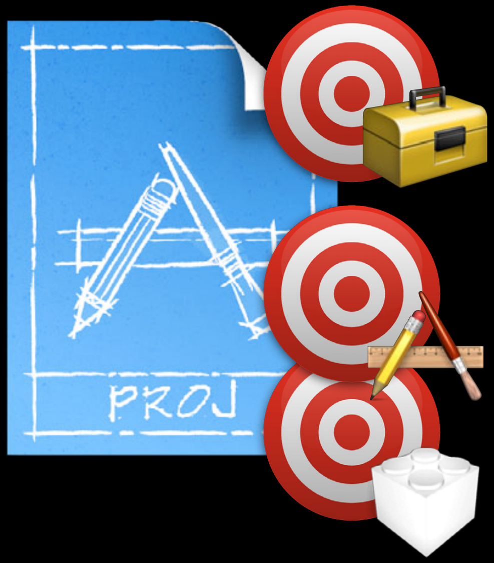
Working with Build Products

Scheme Management

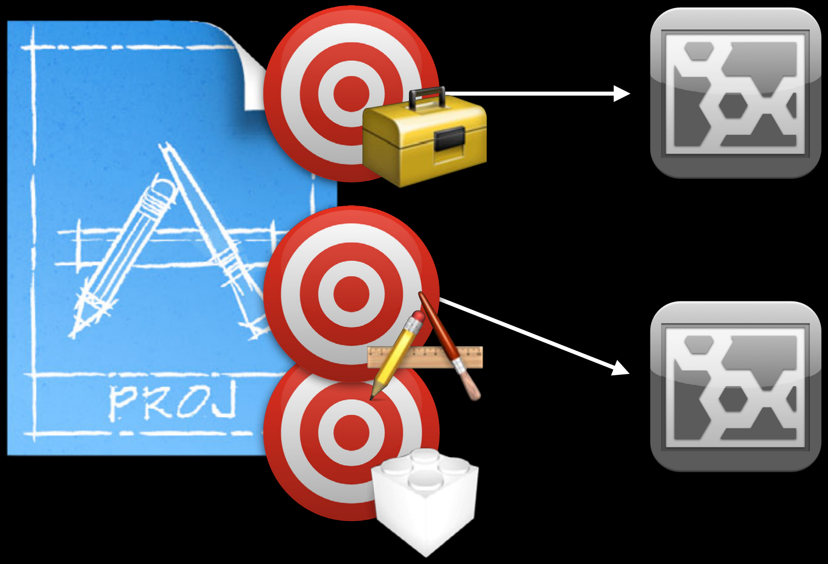
When Are Schemes Created?

- Manually by the user
- Automatically:
    - When creating a new target or project
    - When opening a project or workspace for the first time

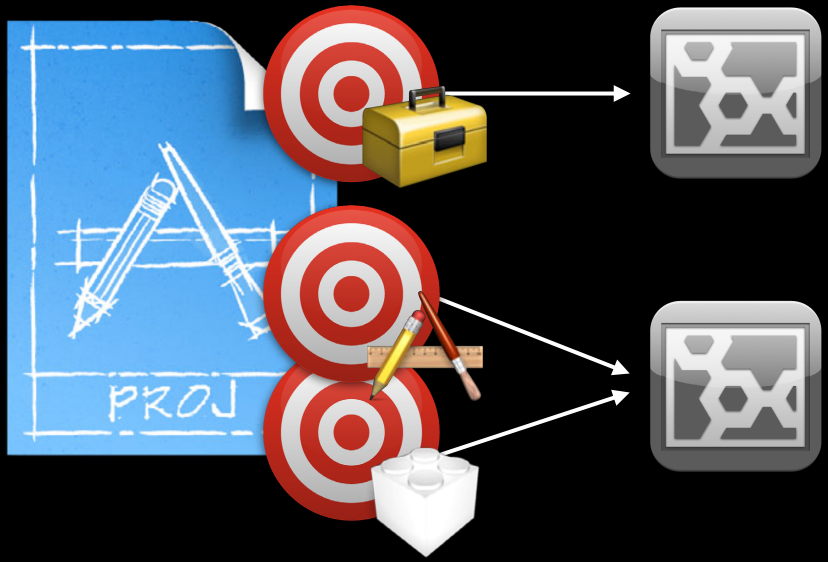
What Schemes Are Created?



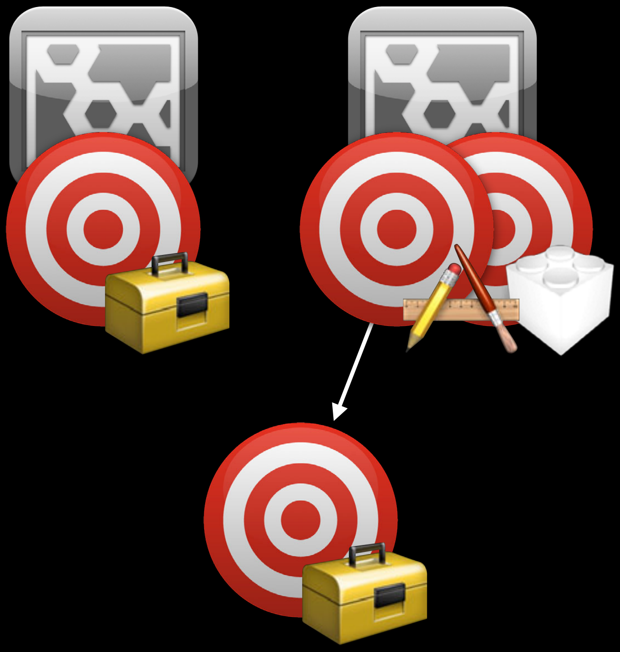
What Schemes Are Created?



What Schemes Are Created?

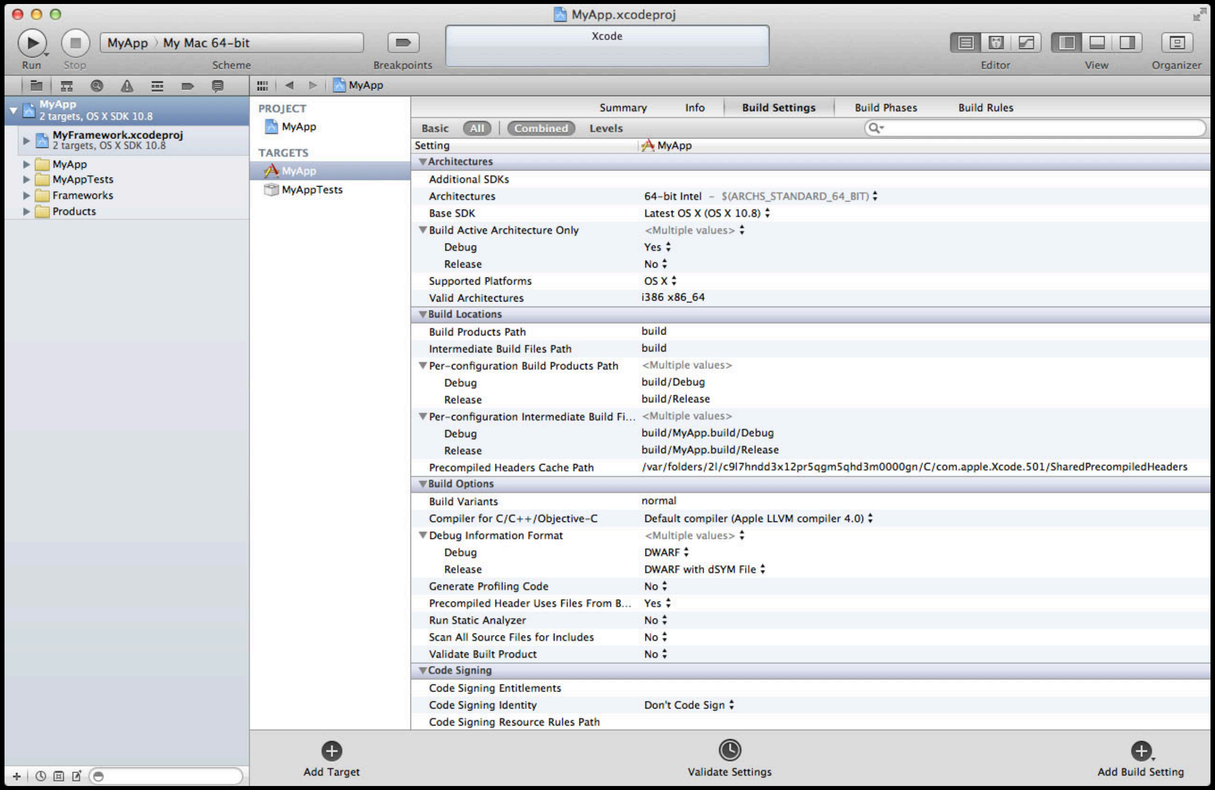


What Schemes Should You Keep?



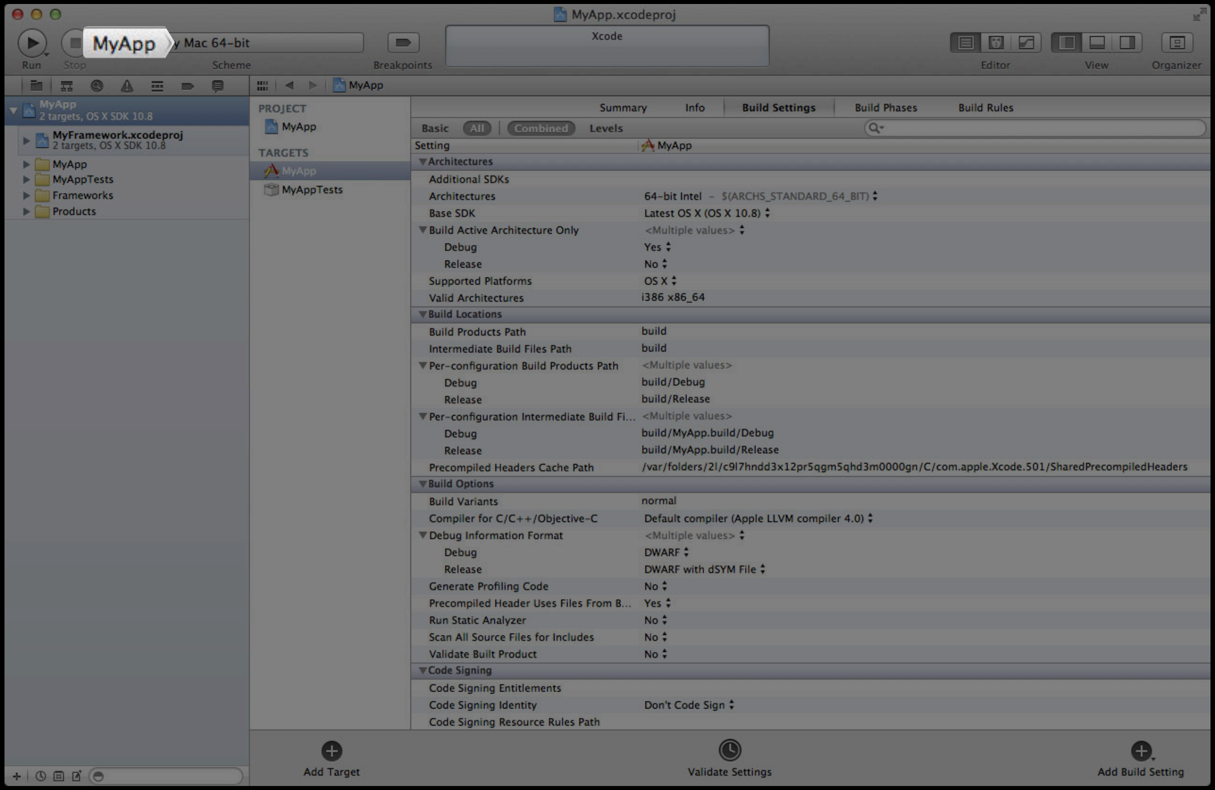
What Schemes Should You Keep?

Managing Schemes



Setting	MyApp
▼Architectures	
Additional SDKs	
Architectures	64-bit Intel – $(ARCHS_STANDARD_64_BIT) ⇕
Base SDK	Latest OS X (OS X 10.8) ⇕
▼Build Active Architecture Only	<Multiple values> ⇕
Debug	Yes ⇕
Release	No ⇕
Supported Platforms	OS X ⇕
Valid Architectures	i386 x86_64
▼Build Locations	
Build Products Path	build
Intermediate Build Files Path	build
▼Per-configuration Build Products Path	<Multiple values>
Debug	build/Debug
Release	build/Release
▼Per-configuration Intermediate Build Fi…	<Multiple values>
Debug	build/MyApp.build/Debug
Release	build/MyApp.build/Release
Precompiled Headers Cache Path	/var/folders/2l/c9l7hndd3x12pr5qgm5qhd3m0000gn/C/com.apple.Xcode.501/SharedPrecompiledHeaders
▼Build Options	
Build Variants	normal
Compiler for C/C++/Objective-C	Default compiler (Apple LLVM compiler 4.0) ⇕
▼Debug Information Format	<Multiple values> ⇕
Debug	DWARF ⇕
Release	DWARF with dSYM File ⇕
Generate Profiling Code	No ⇕
Precompiled Header Uses Files From B…	Yes ⇕
Run Static Analyzer	No ⇕
Scan All Source Files for Includes	No ⇕
Validate Built Product	No ⇕
▼Code Signing	
Code Signing Entitlements	
Code Signing Identity	Don't Code Sign ⇕
Code Signing Resource Rules Path	

Managing Schemes



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Additional SDKs	
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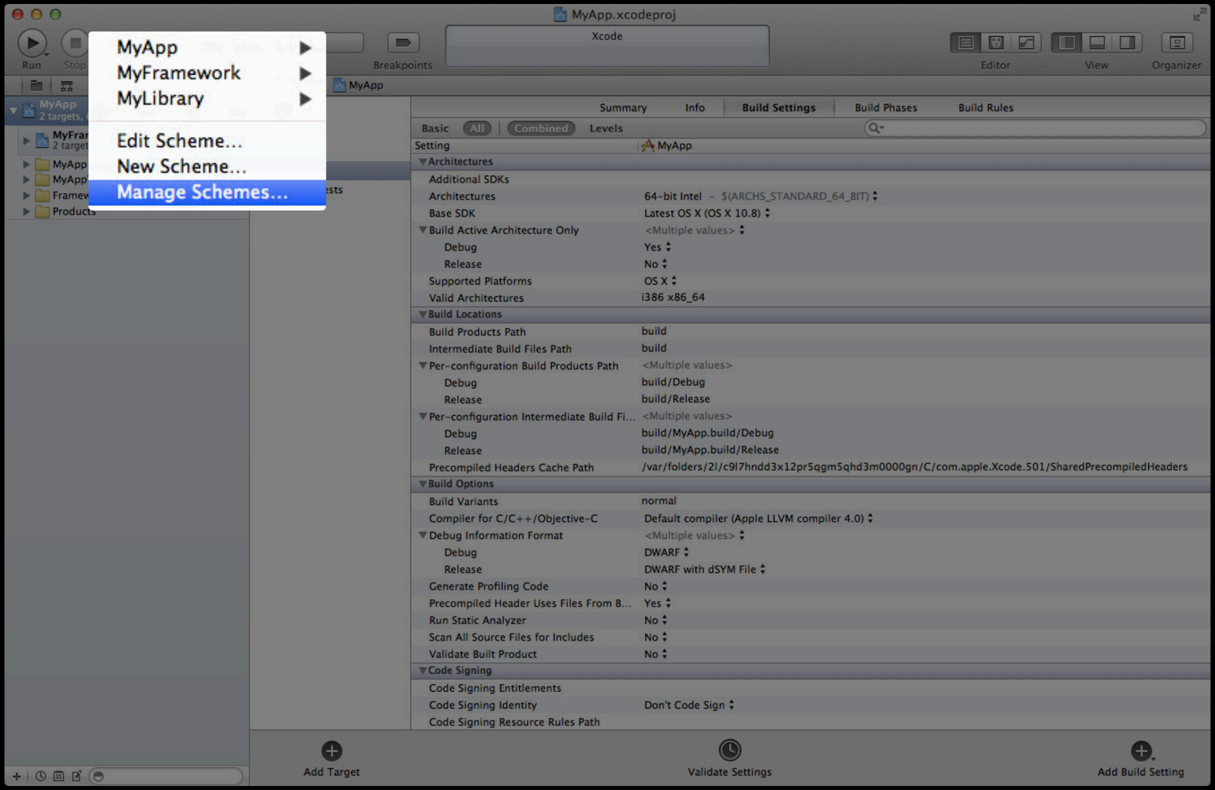
Release	No
Supported Platforms	OS X
Valid Architectures	i386 x86_64
▼Build Locations	
Build Products Path	build
Intermediate Build Files Path	build
▼Per-configuration Build Products Path	<Multiple values>
Debug	build/Debug
Release	build/Release
▼Per-configuration Intermediate Build Fi...	<Multiple values>
Debug	build/MyApp.build/Debug
Release	build/MyApp.build/Release
Precompiled Headers Cache Path	/var/folders/2l/c9l7hndd3x12pr5qgm5qhd3m0000gn/C/com.apple.Xcode.501/SharedPrecompiledHeaders
▼Build Options	
Build Variants	normal
Compiler for C/C++/Objective-C	Default compiler (Apple LLVM compiler 4.0)
▼Debug Information Format	<Multiple values>
Debug	DWARF
Release	DWARF with dSYM File
Generate Profiling Code	No
Precompiled Header Uses Files From B...	Yes
Run Static Analyzer	No
Scan All Source Files for Includes	No
Validate Built Product	No
▼Code Signing	
Code Signing Entitlements	
Code Signing Identity	Don't Code Sign
Code Signing Resource Rules Path	

Managing Schemes



Setting	MyApp
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Supported Platforms	OS X
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Intermediate Build Files Path	build
▼Per-configuration Build Products Path	<Multiple values>
Debug	build/Debug
Release	build/Release
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Debug	build/MyApp.build/Debug
Release	build/MyApp.build/Release
Precompiled Headers Cache Path	/var/folders/2l/c9l7hndd3x12pr5qgm5qhd3m0000gn/C/com.apple.Xcode.501/SharedPrecompiledHeaders
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Build Variants	normal
Compiler for C/C++/Objective-C	Default compiler (Apple LLVM compiler 4.0)
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Scan All Source Files for Includes	No
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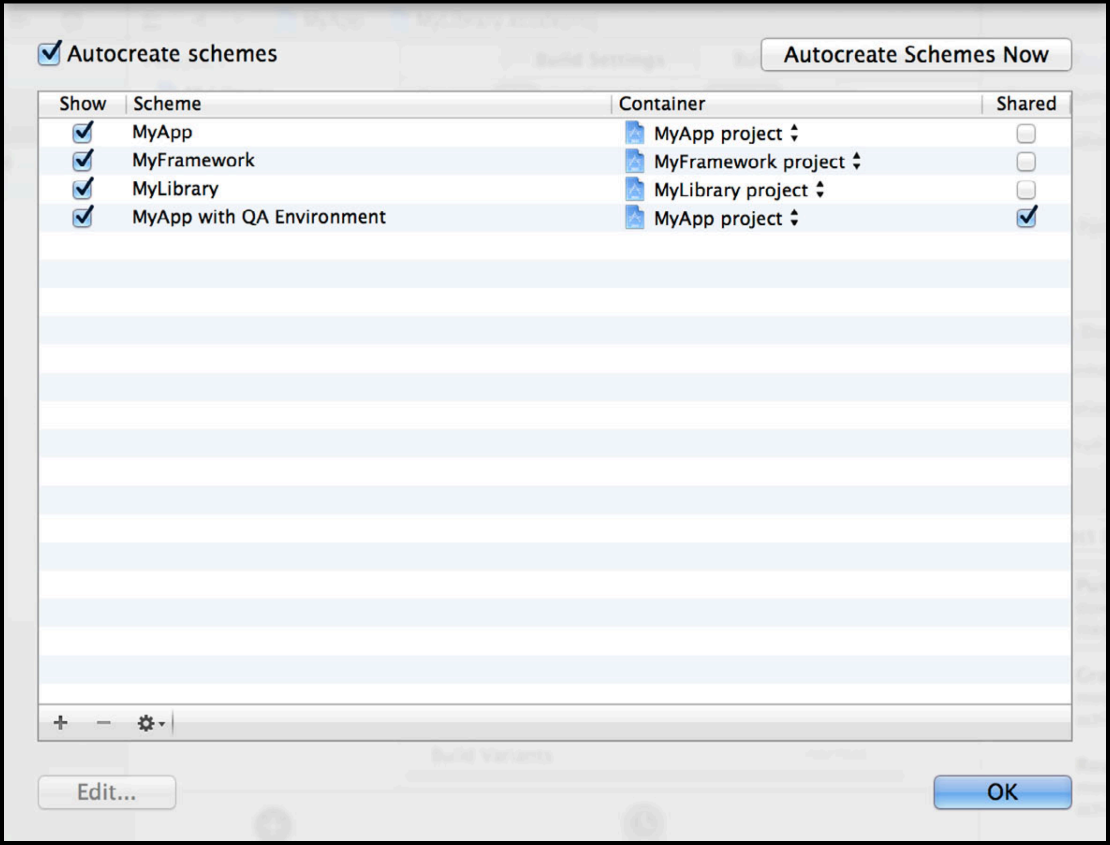
▼Code Signing	
Code Signing Entitlements	
Code Signing Identity	Don't Code Sign
Code Signing Resource Rules Path	

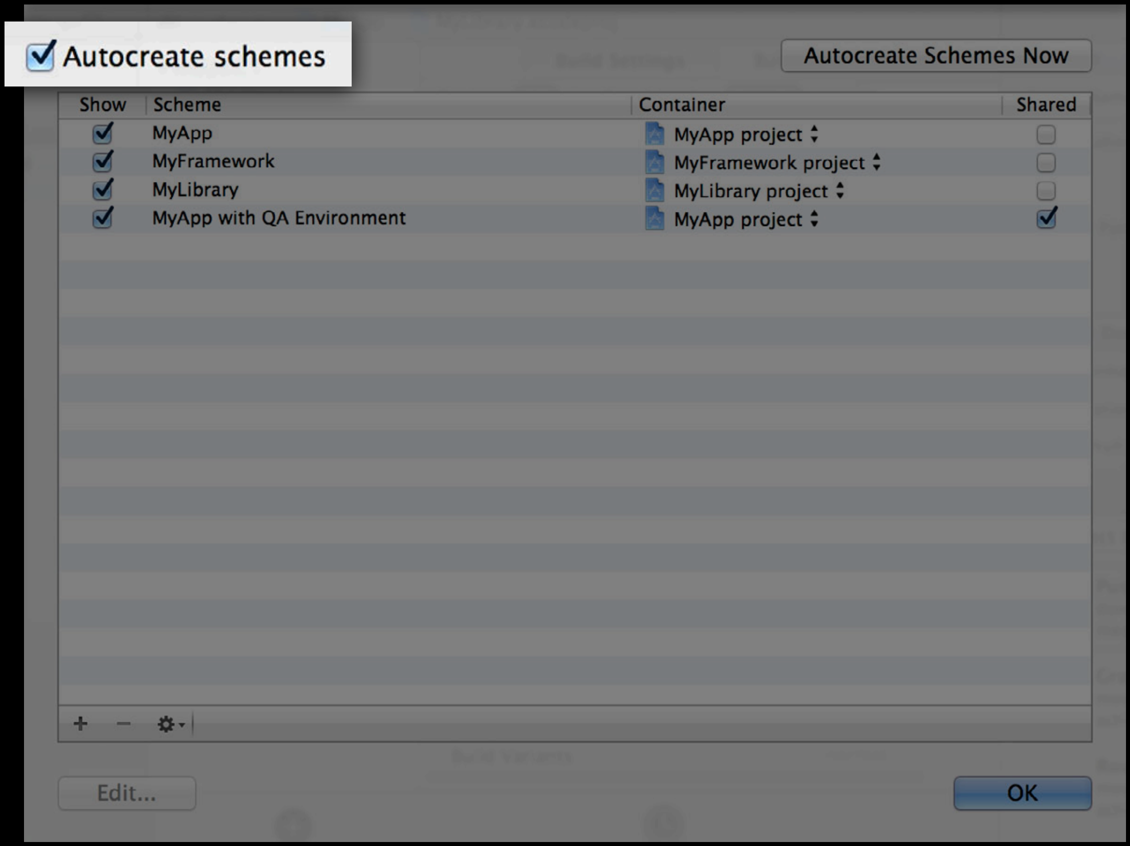
Managing Schemes Autocreation



☑ Autocreate schemes

Show	Scheme	Container	Shared
☑	MyApp	MyApp project	□
☑	MyFramework	MyFramework project	□
☑	MyLibrary	MyLibrary project	□
☑	MyApp with QA Environment	MyApp project	☑

Managing Schemes Autocreation



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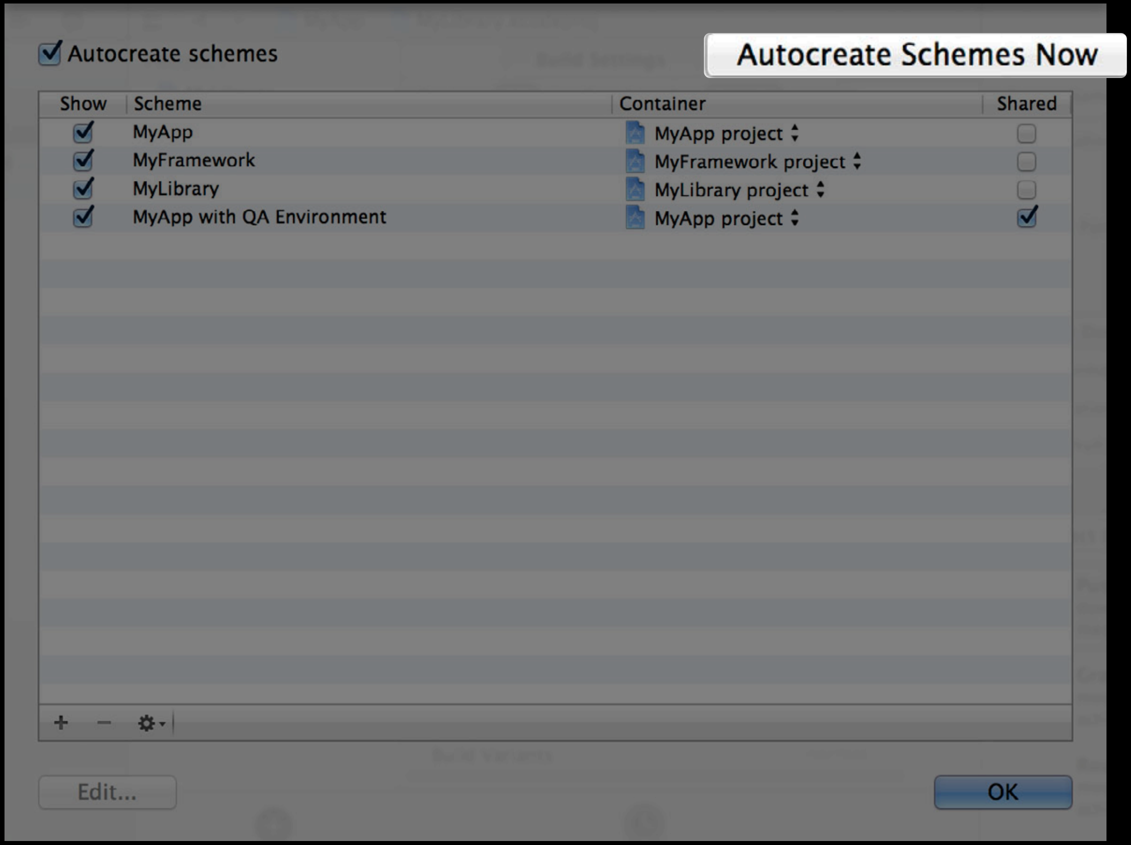
Managing Schemes Autocreation



☑ Autocreate schemes

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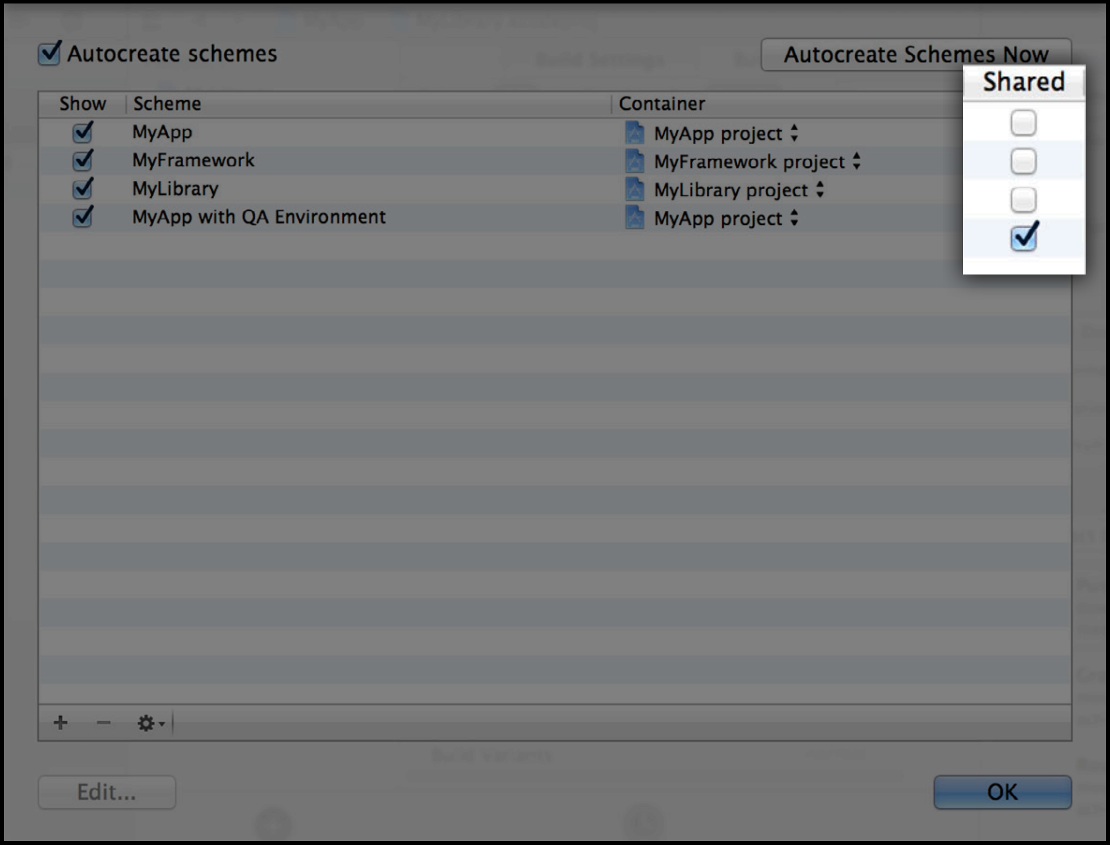
☑	MyApp	MyApp project	☐
☑	MyFramework	MyFramework project	☐
☑	MyLibrary	MyLibrary project	☐
☑	MyApp with QA Environment	MyApp project	☑

Sharing Schemes



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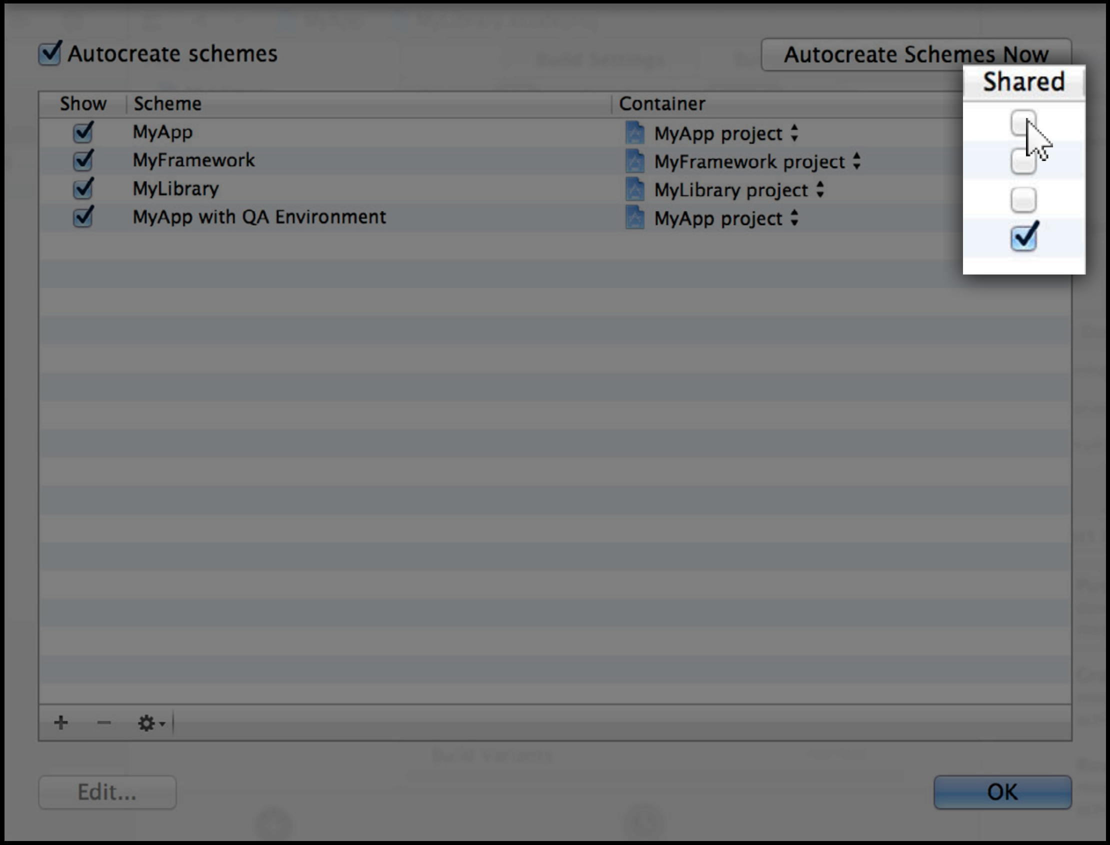

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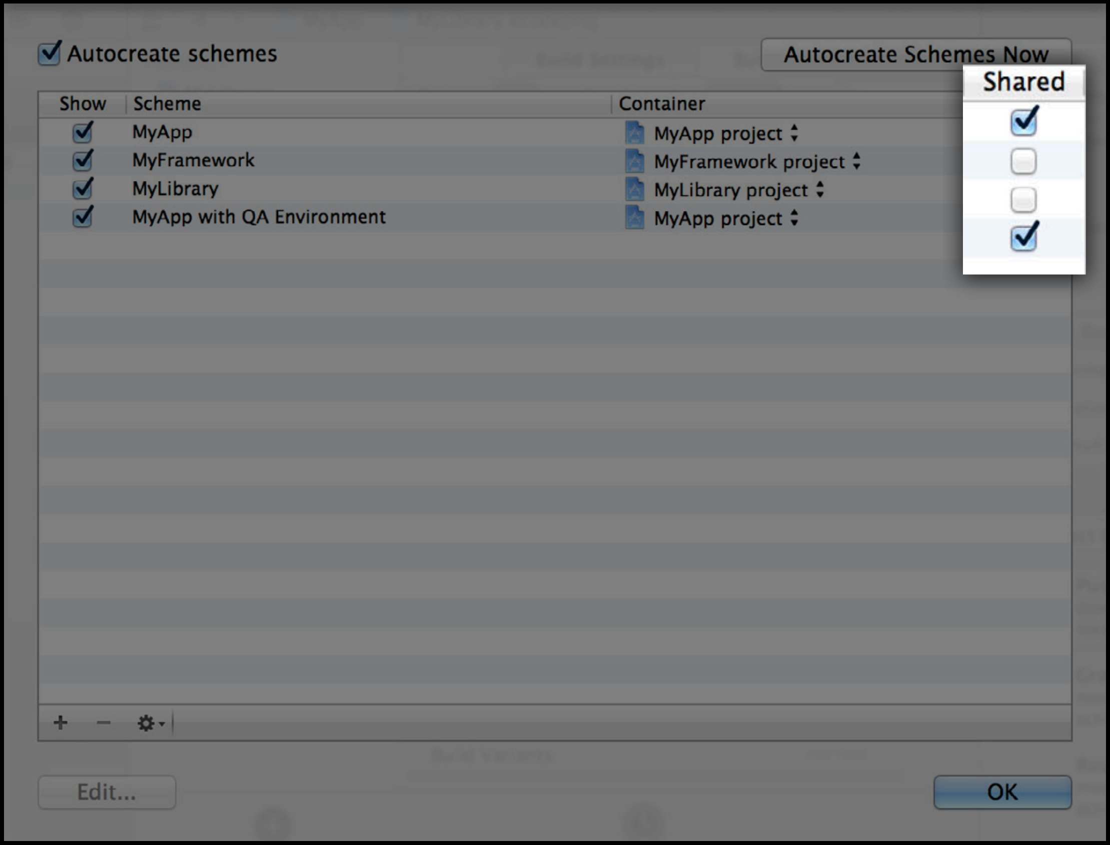
☑	MyFramework	MyFramework project	☐
☑	MyLibrary	MyLibrary project	☐
☑	MyApp with QA Environment	MyApp project	☑

Sharing Schemes



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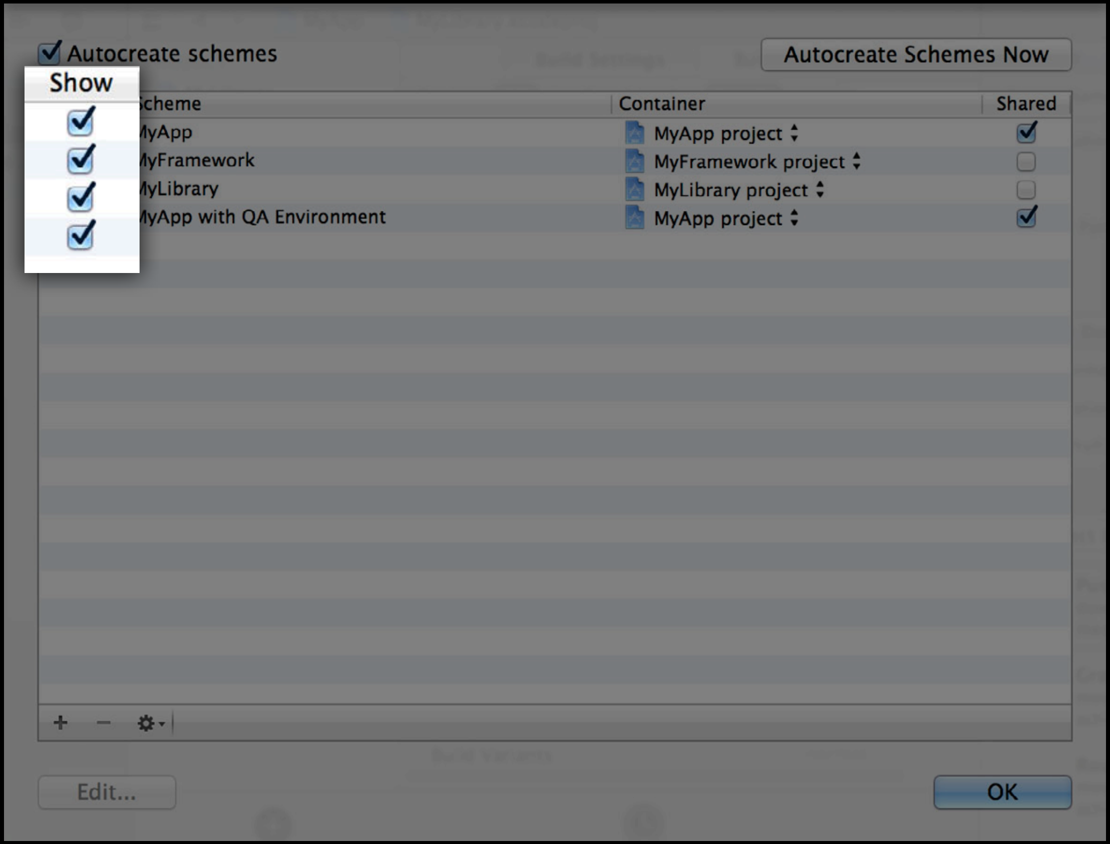
☑	MyFramework	MyFramework project	□
☑	MyLibrary	MyLibrary project	□
☑	MyApp with QA Environment	MyApp project	☑

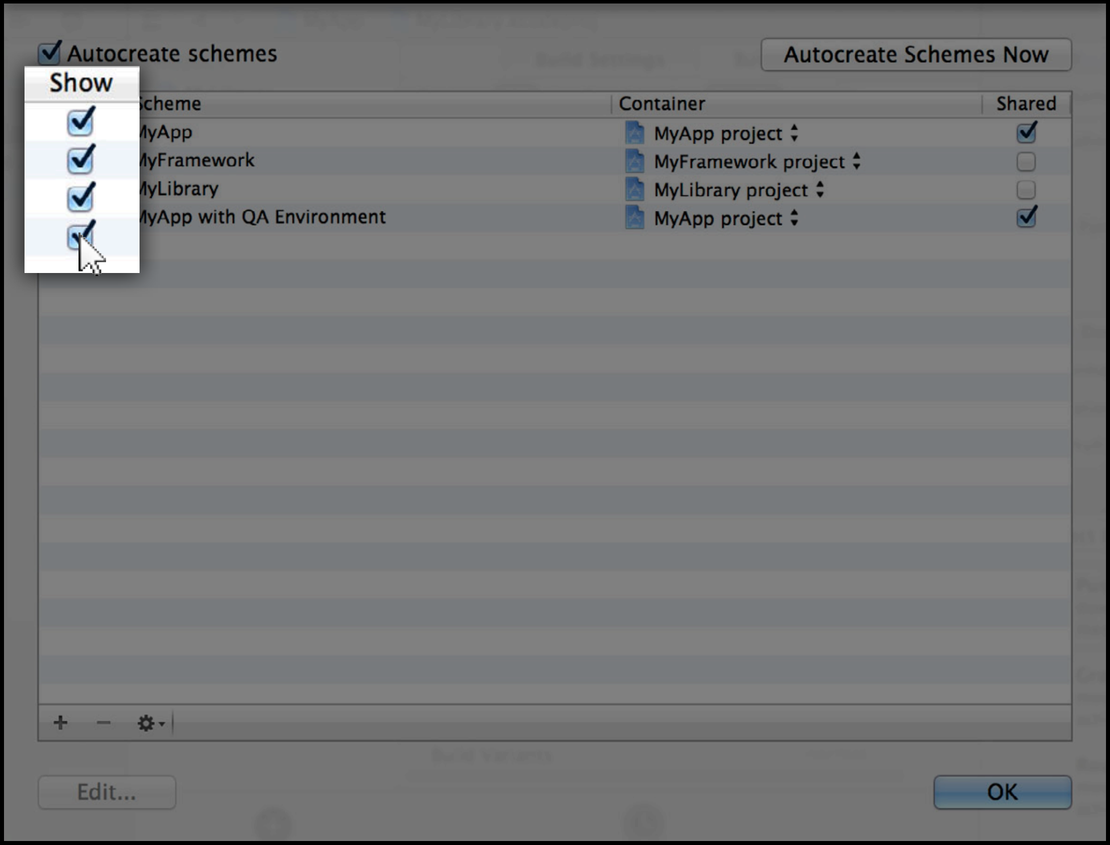
Hiding Schemes



☑ Autocreate schemes

Show	cheme	Container	Shared
☑	yApp	MyApp project	☑
☑	yFramework	MyFramework project	□
☑	yLibrary	MyLibrary project	□
☑	yApp with QA Environment	MyApp project	☑

Hiding Schemes



☑ Autocreate schemes

Show	Scheme	Container	Shared
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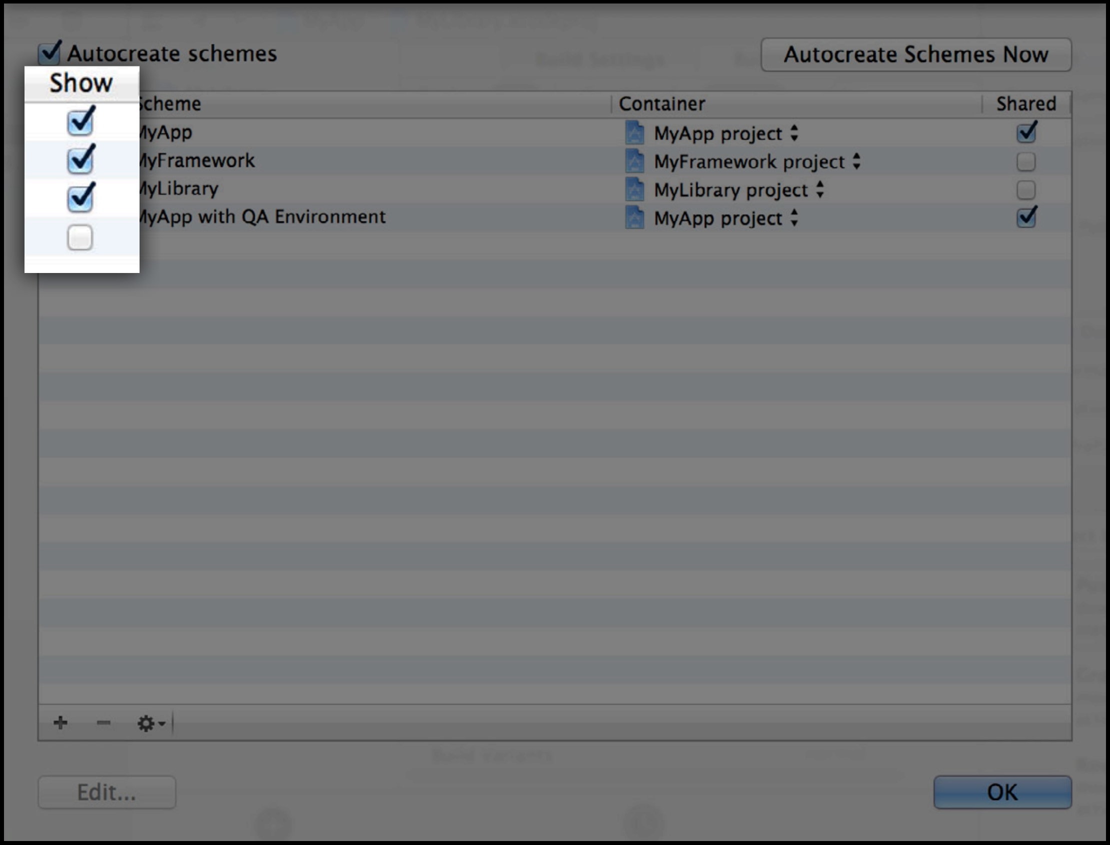
☑	MyFramework	MyFramework project	□
☑	MyLibrary	MyLibrary project	□
☑	MyApp with QA Environment	MyApp project	☑

Hiding Schemes



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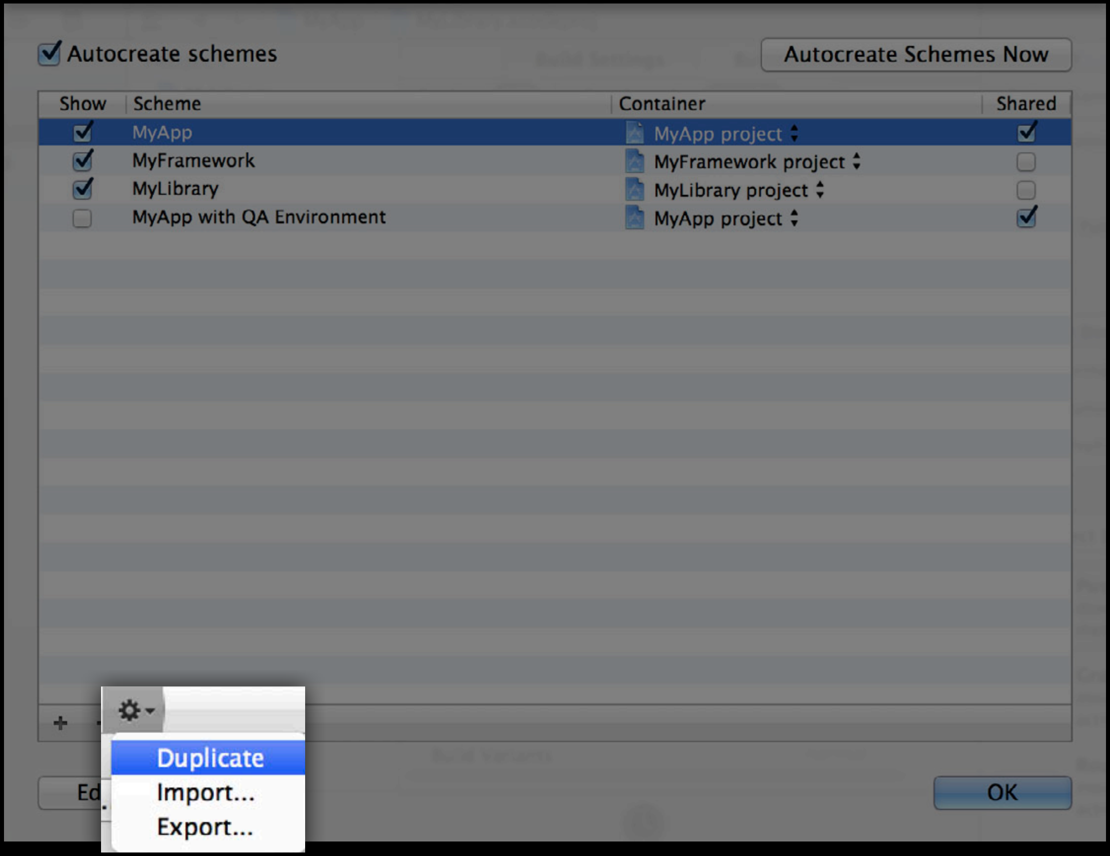
Show	cheme	Container	Shared
☑	yApp	MyApp project	☑
☑	yFramework	MyFramework project	□
☑	yLibrary	MyLibrary project	□
□	yApp with QA Environment	MyApp project	☑

Duplicating Schemes



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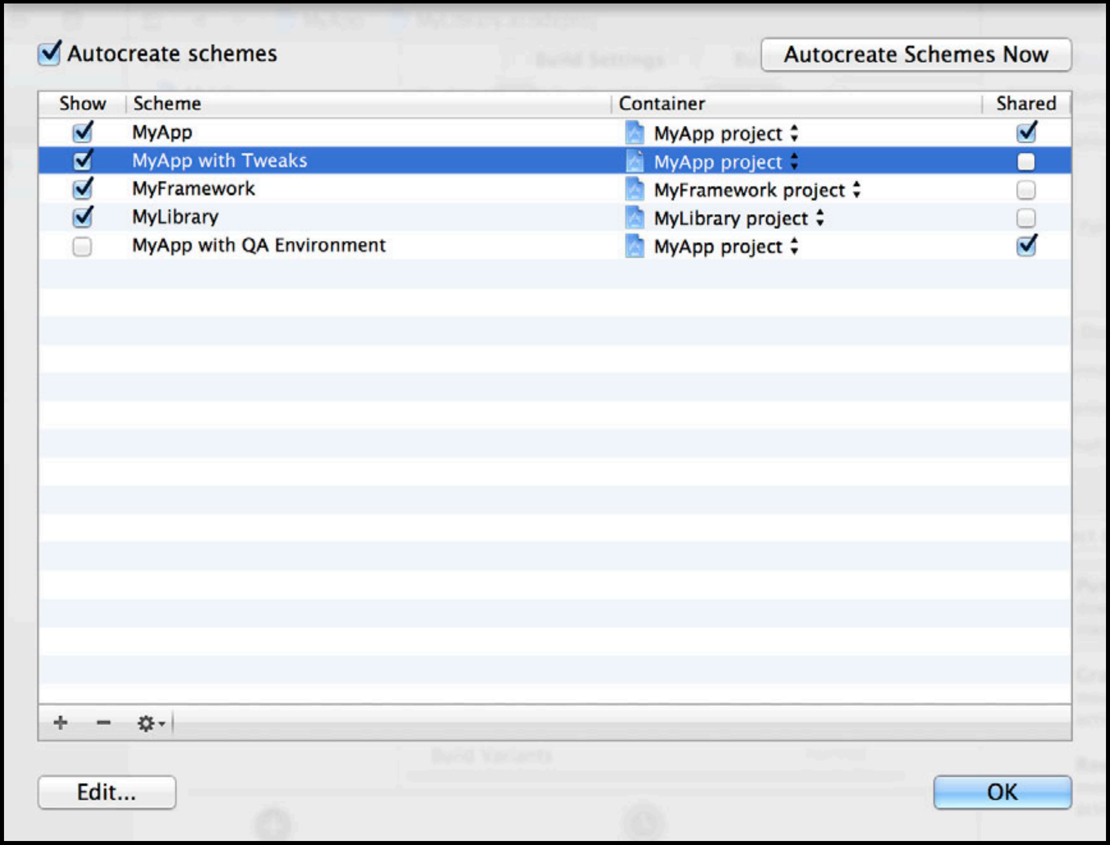

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Show	Scheme	Container	Shared
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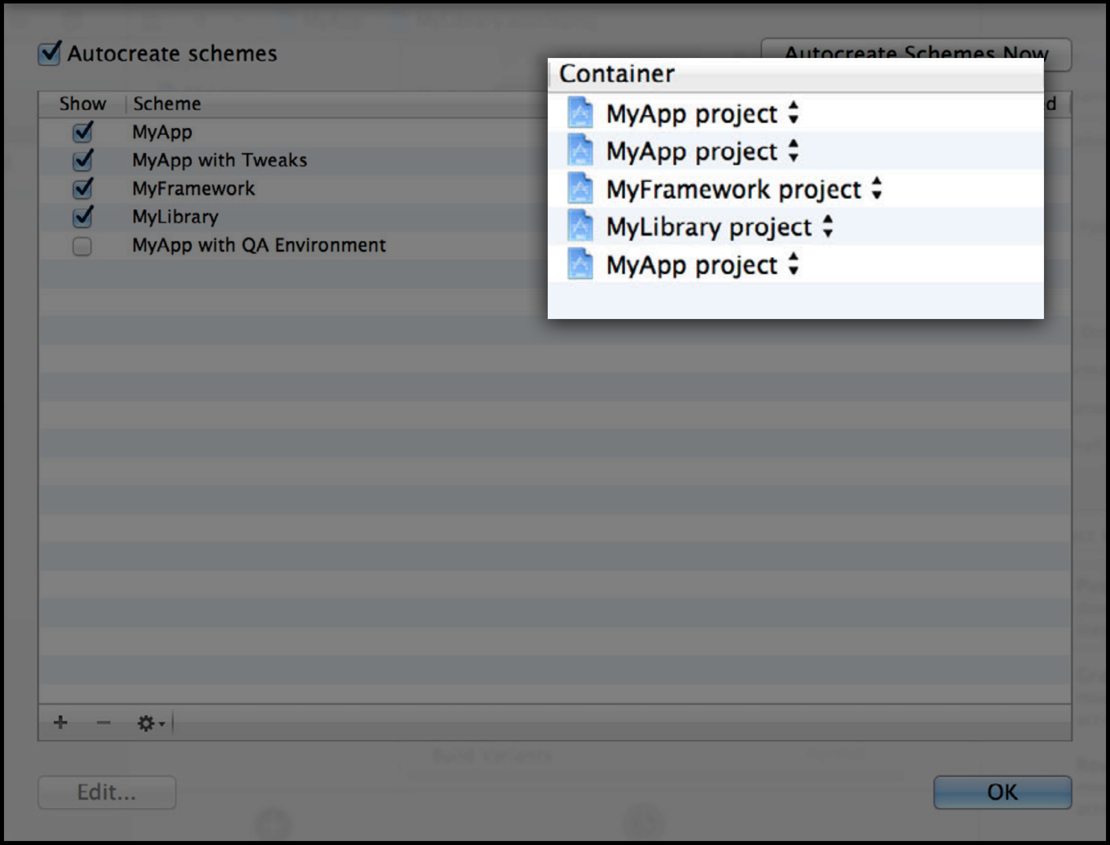
☑	MyApp with Tweaks	MyApp project	□
☑	MyFramework	MyFramework project	□
☑	MyLibrary	MyLibrary project	□
□	MyApp with QA Environment	MyApp project	☑

Where Schemes Are Stored



☑ Autocreate schemes

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☑	MyApp	MyApp project
☑	MyApp with Tweaks	MyApp project
☑	MyFramework	MyFramework project
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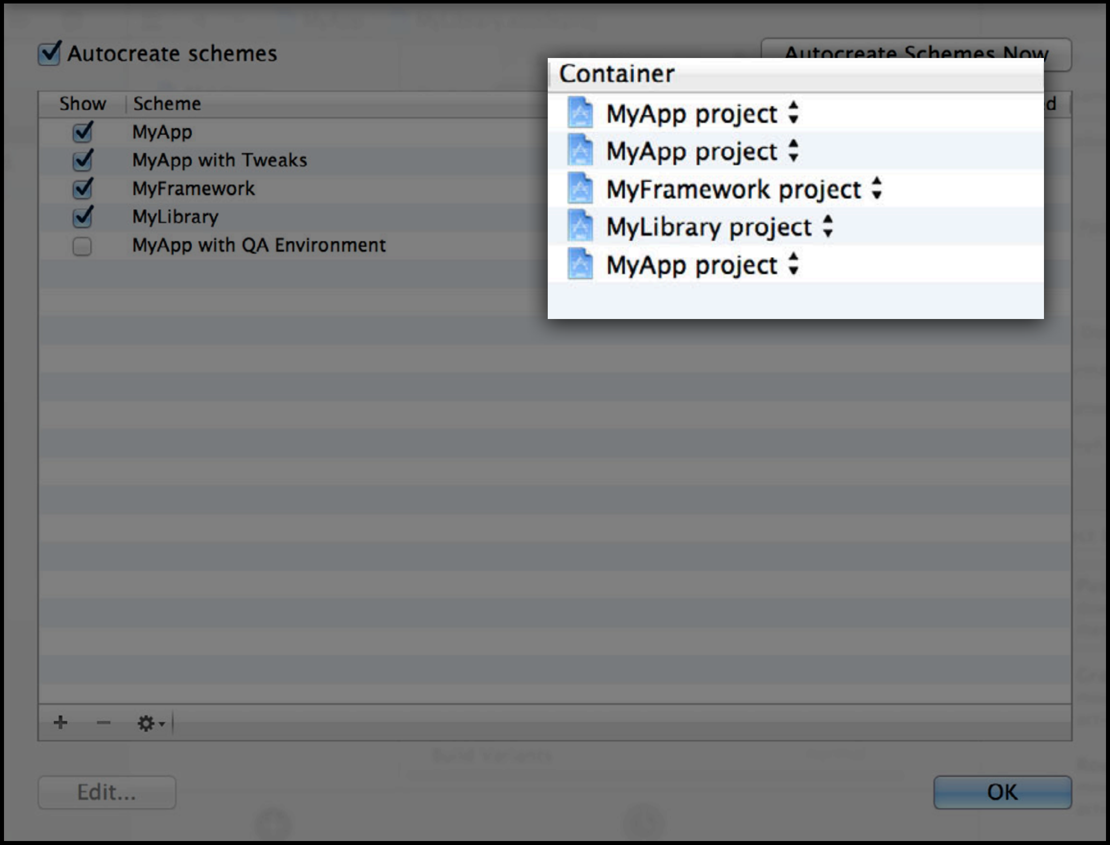

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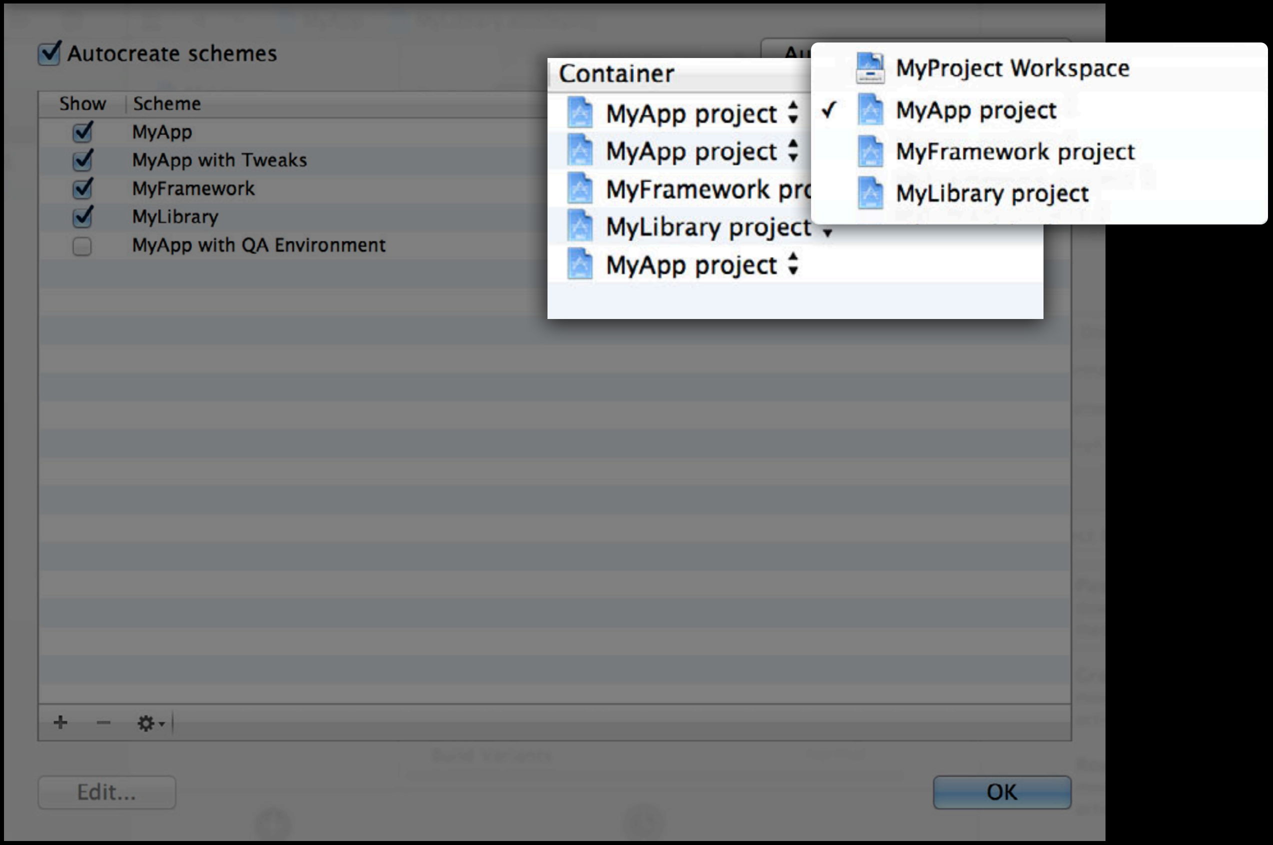


☑ Autocreate schemes

Show	Scheme
☑	MyApp
☑	MyApp with Tweaks
☑	MyFramework
☑	MyLibrary
□	MyApp with QA Environment

Container
MyApp project
MyApp project
MyFramework pro
MyLibrary project
MyApp project

Where Schemes Are Stored

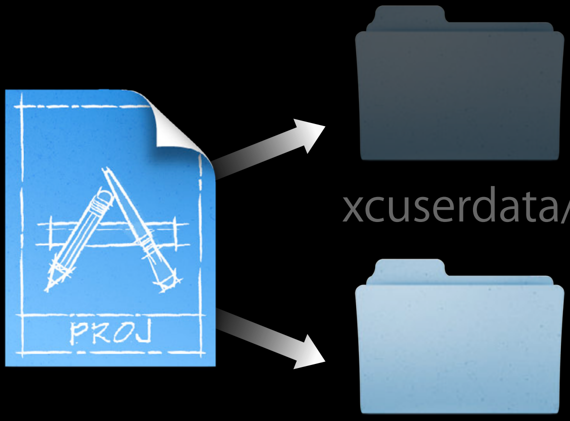
Where Schemes Are Stored

MyApp.xcodeproj/

Where Schemes Are Stored

MyApp.xcodeproj/

Where Schemes Are Stored

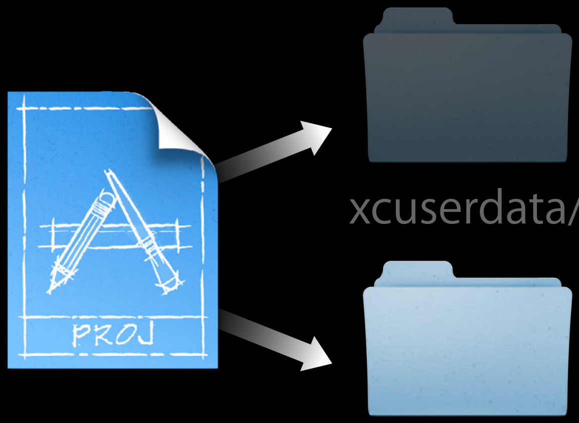


xcuserdata/

MyApp.xcodeproj/

xcshareddata/

Where Schemes Are Stored



xcuserdata/

MyApp.xcodeproj/

xcsharedata/

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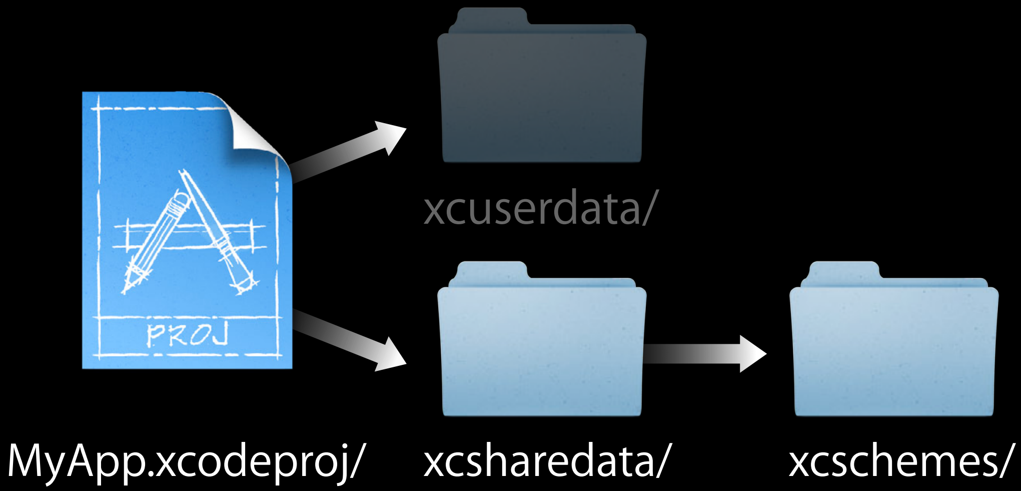

MyApp.xcodeproj/

xcuserdata/

xcshareddata/

xcschemes/

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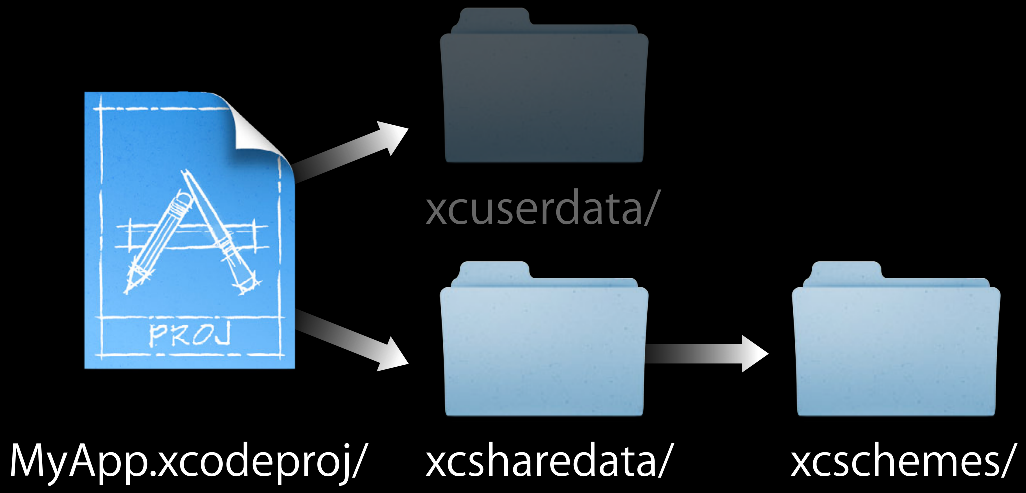

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MyApp.xcodeproj/

xcsharedata/

xcschemes/

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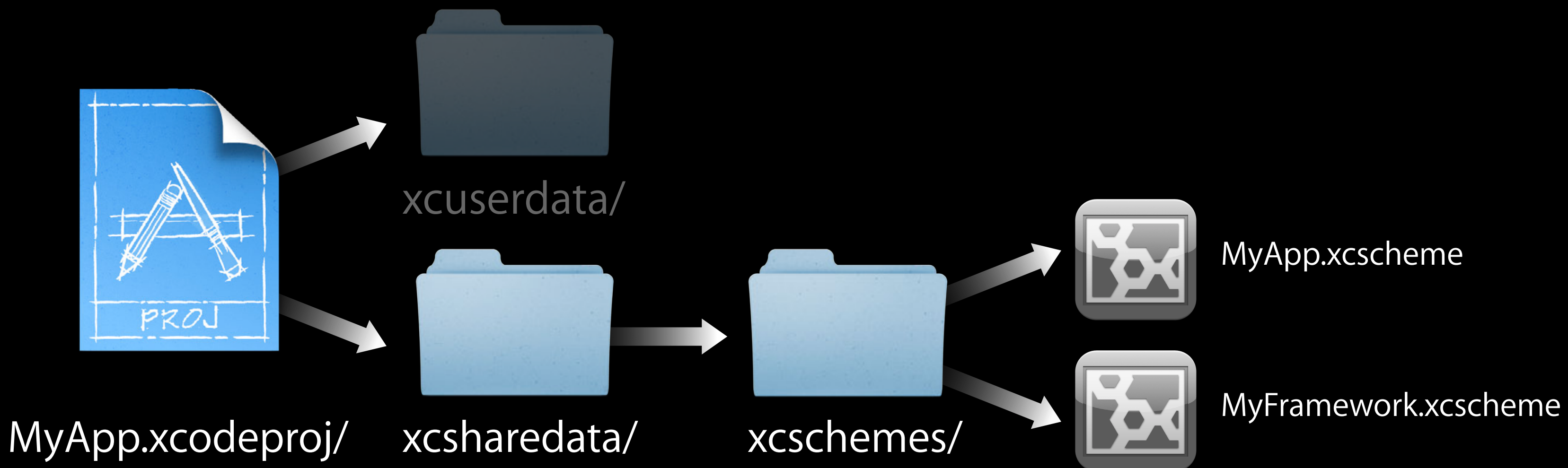

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xcuserdata/

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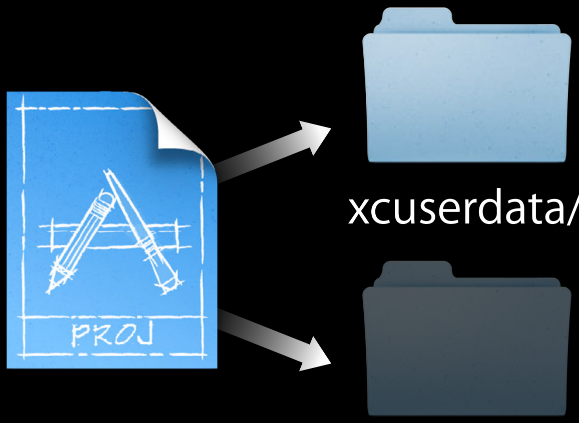
MyApp.xcscheme

MyFramework.xcscheme

Where Schemes Are Stored



xcuserdata/

MyApp.xcodeproj/

xcsharedata/

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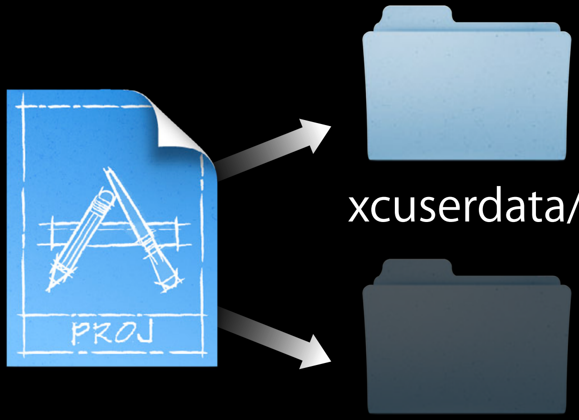

xcuserdata/

MyApp.xcodeproj/

xcsharedata/

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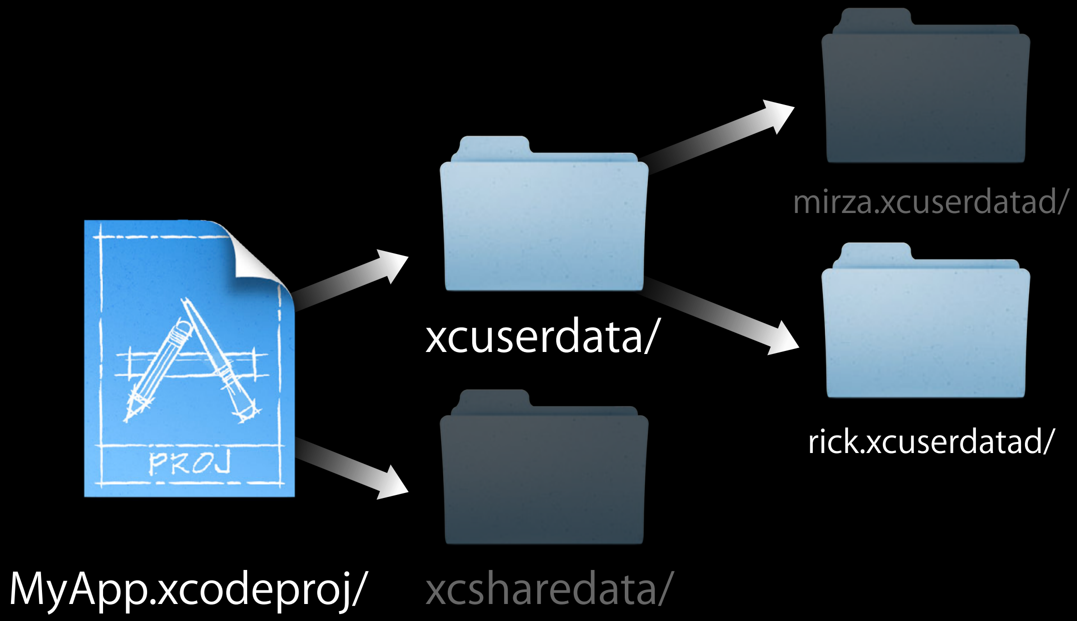


mirza.xcuserdatad/

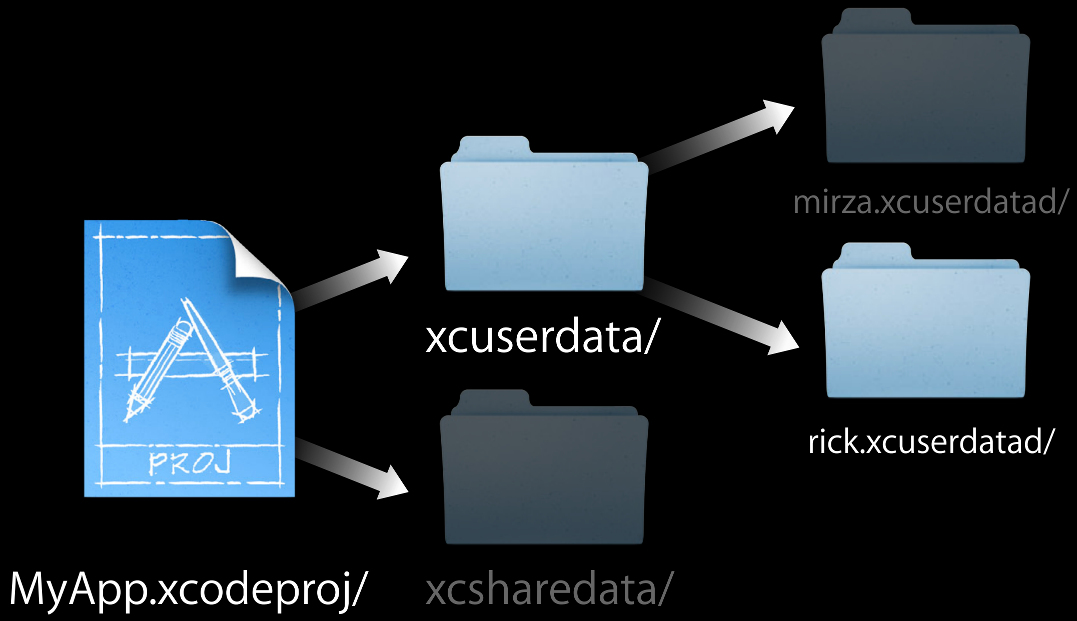
xcuserdata/

rick.xcuserdatad/

MyApp.xcodeproj/

xcshareddata/

Where Schemes Are Stored



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rick.xcuserdatad/

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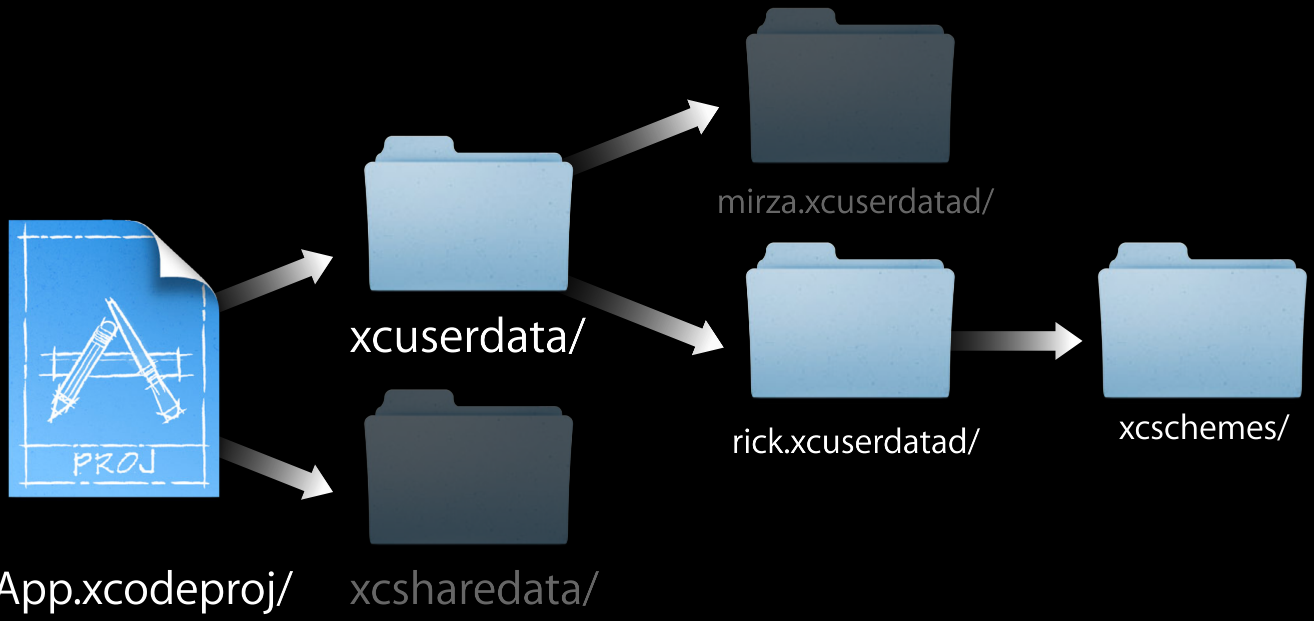

MyApp.xcodeproj/

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xcschemes/

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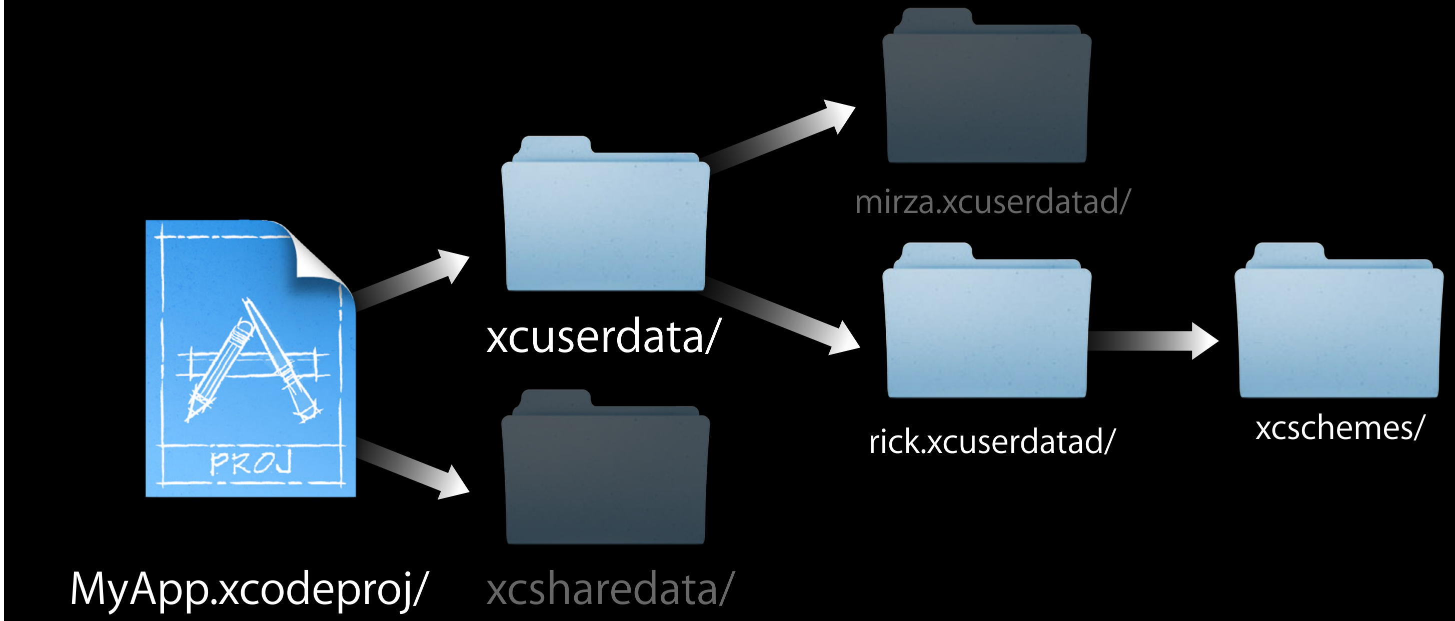

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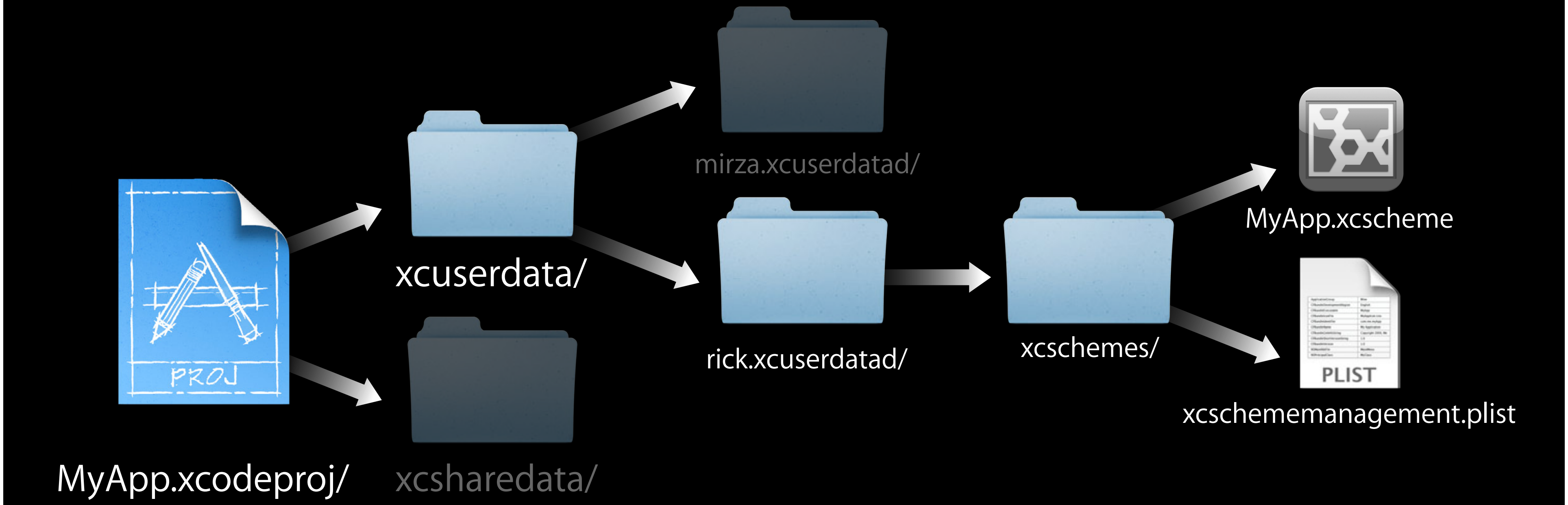


MyApp.xcodeproj/

xcuserdata/

xcshareddata/

mirza.xcuserdatad/

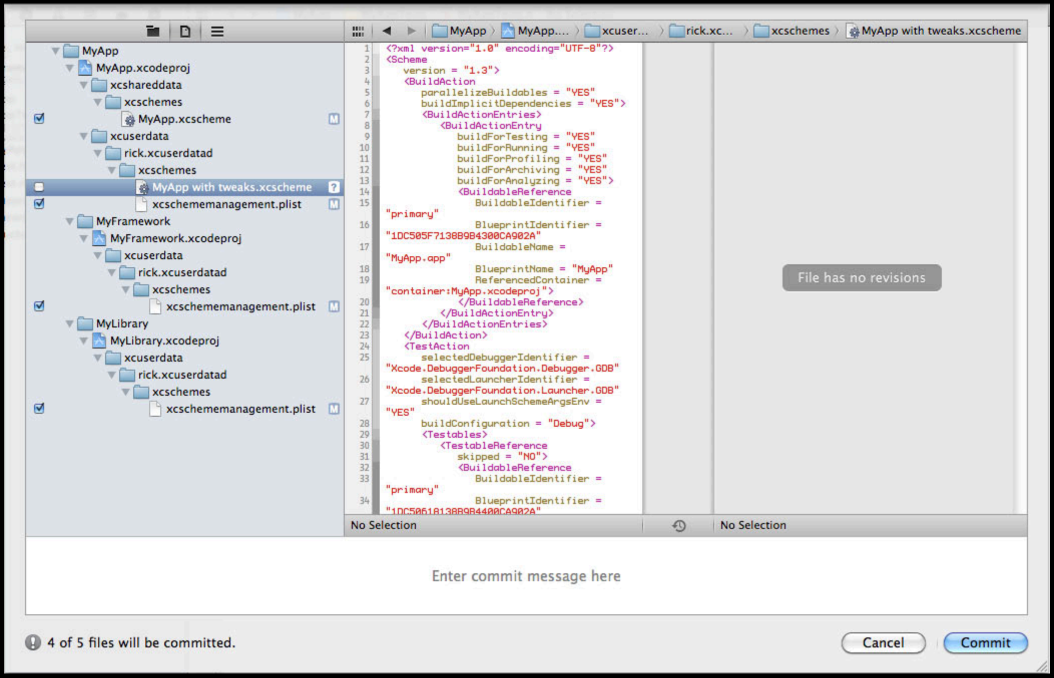
rick.xcuserdatad/

xcschemes/

MyApp.xcscheme

xcschememanagement.plist

Managing Schemes in Source Control



MyApp › MyApp.... › xcuser... › rick.xc... › xcschemes › MyApp with tweaks.xcscheme
No Selection
File has no revisions
No Selection
Cancel
Commit

```
    MyApp
      MyApp.xcodeproj
        xcshareddata
          xcschemes
☑           MyApp.xcscheme                      M
        xcuserdata
          rick.xcuserdatad
            xcschemes
□             MyApp with tweaks.xcscheme        ?
☑             xcschememanagement.plist          M
      MyFramework
        MyFramework.xcodeproj
          xcuserdata
            rick.xcuserdatad
              xcschemes
☑               xcschememanagement.plist        M
      MyLibrary
        MyLibrary.xcodeproj
          xcuserdata
            rick.xcuserdatad
              xcschemes
☑               xcschememanagement.plist        M
```

```
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      parallelizeBuildables = "YES"
      buildImplicitDependencies = "YES">
      <BuildActionEntries>
         <BuildActionEntry
            buildForTesting = "YES"
            buildForRunning = "YES"
            buildForProfiling = "YES"
            buildForArchiving = "YES"
            buildForAnalyzing = "YES">
            <BuildableReference
               BuildableIdentifier =
"primary"
               BlueprintIdentifier =
"1DC505F7138B9B4300CA902A"
               BuildableName =
"MyApp.app"
               BlueprintName = "MyApp"
               ReferencedContainer =
"container:MyApp.xcodeproj">
            </BuildableReference>
         </BuildActionEntry>
      </BuildActionEntries>
   </BuildAction>
   <TestAction
      selectedDebuggerIdentifier =
"Xcode.DebuggerFoundation.Debugger.GDB"
      selectedLauncherIdentifier =
"Xcode.DebuggerFoundation.Launcher.GDB"
      shouldUseLaunchSchemeArgsEnv =
"YES"
      buildConfiguration = "Debug">
      <Testables>
         <TestableReference
            skipped = "NO">
            <BuildableReference
               BuildableIdentifier =
"primary"
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"1DC50618138B9B4400CA902A"
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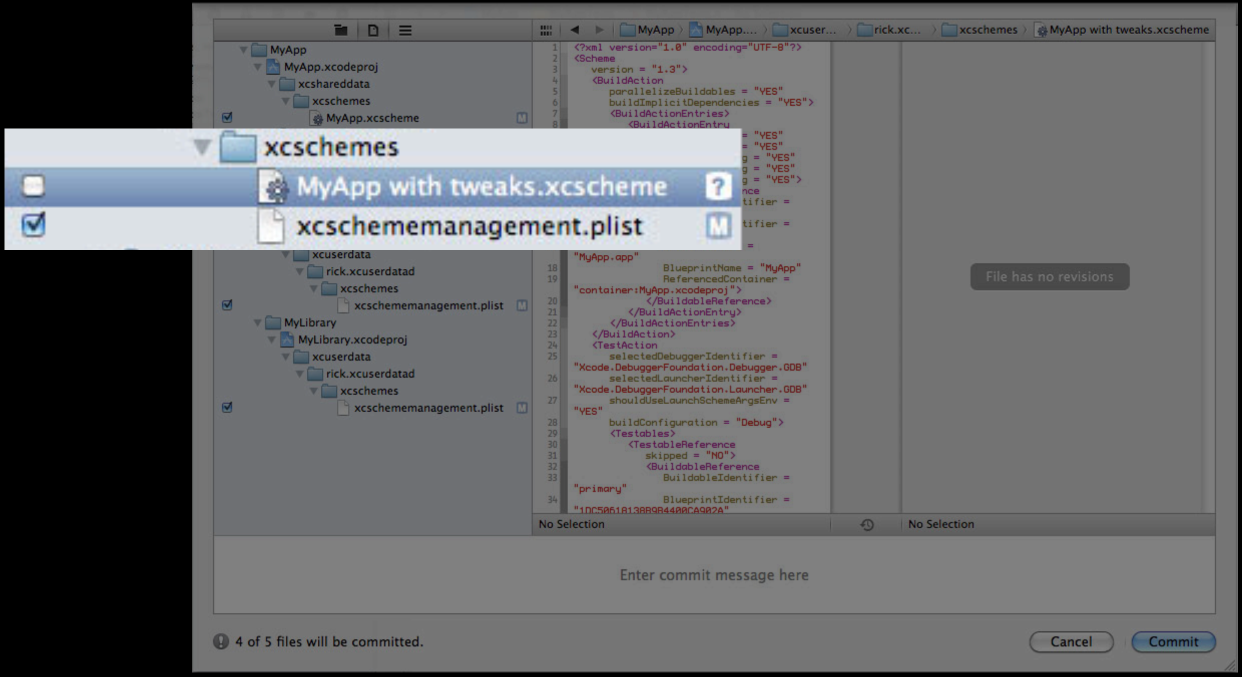
Enter commit message here

4 of 5 files will be committed.

Managing Schemes in Source Control



MyApp > MyApp.... > xcuser... > rick.xc... > xcschemes > MyApp with tweaks.xcscheme

- MyApp
  - MyApp.xcodeproj
    - xcshareddata
      - xcschemes
        - ☑ MyApp.xcscheme M
    - xcuserdata
      - rick.xcuserdatad
        - xcschemes
          - ☑ xcschememanagement.plist M
- MyLibrary
  - MyLibrary.xcodeproj
    - xcuserdata
      - rick.xcuserdatad
        - xcschemes
          - ☑ xcschememanagement.plist M

- xcschemes
  - □ MyApp with tweaks.xcscheme ?
  - ☑ xcschememanagement.plist M

```
<?xml version="1.0" encoding="UTF-8"?>
<Scheme
   version = "1.3">
   <BuildAction
      parallelizeBuildables = "YES"
      buildImplicitDependencies = "YES">
      <BuildActionEntries>
         <BuildActionEntry
                       = "YES"
                       = "YES"
                      g = "YES"
                      g = "YES"
                      g = "YES">
                      nce
                      tifier =

                      tifier =

                             =
"MyApp.app"
               BlueprintName = "MyApp"
               ReferencedContainer =
"container:MyApp.xcodeproj">
            </BuildableReference>
         </BuildActionEntry>
      </BuildActionEntries>
   </BuildAction>
   <TestAction
      selectedDebuggerIdentifier =
"Xcode.DebuggerFoundation.Debugger.GDB"
      selectedLauncherIdentifier =
"Xcode.DebuggerFoundation.Launcher.GDB"
      shouldUseLaunchSchemeArgsEnv =
"YES"
      buildConfiguration = "Debug">
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            <BuildableReference
               BuildableIdentifier =
"primary"
               BlueprintIdentifier =
"1DC5061813889B4400CA902A"
```

File has no revisions

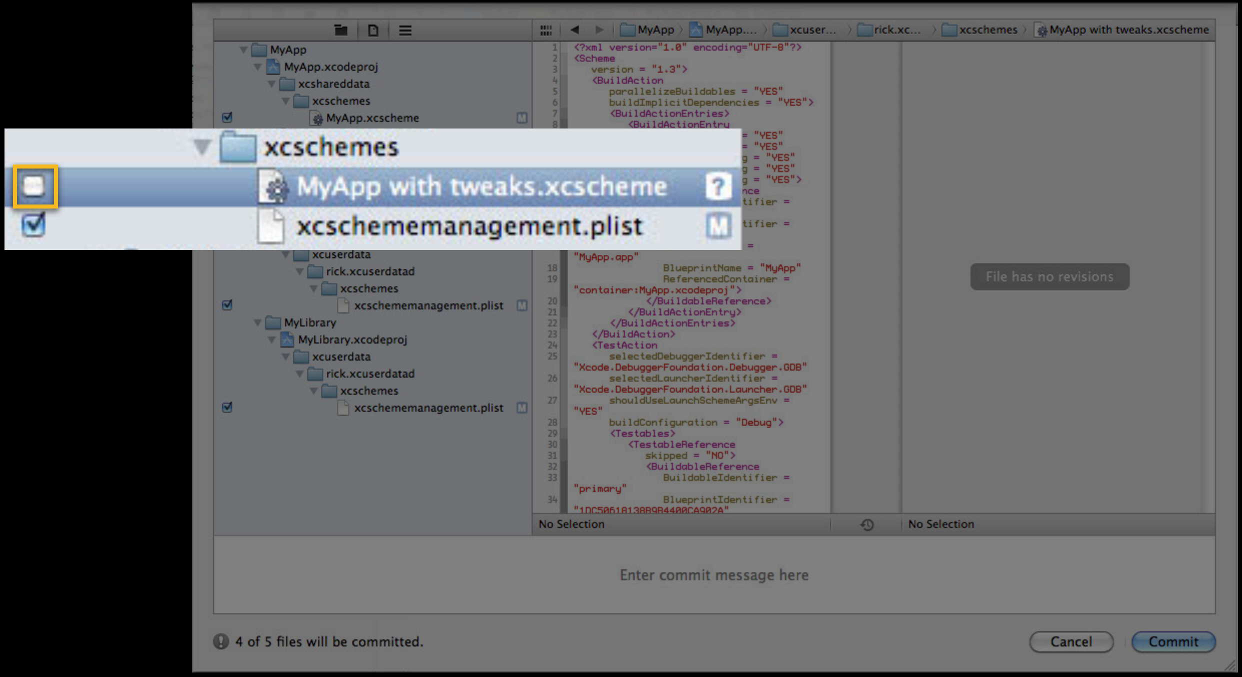
No Selection

No Selection

Enter commit message here

4 of 5 files will be committed.

Managing Schemes in Source Control



```
▼ MyApp
  ▼ MyApp.xcodeproj
    ▼ xcshareddata
      ▼ xcschemes
☑         MyApp.xcscheme                    M
      ▼ xcschemes
□         MyApp with tweaks.xcscheme        ?
☑         xcschememanagement.plist          M
    ▼ xcuserdata
      ▼ rick.xcuserdatad
        ▼ xcschemes
☑           xcschememanagement.plist        M
▼ MyLibrary
  ▼ MyLibrary.xcodeproj
    ▼ xcuserdata
      ▼ rick.xcuserdatad
        ▼ xcschemes
☑           xcschememanagement.plist        M
```

MyApp › MyApp.... › xcuser... › rick.xc... › xcschemes › MyApp with tweaks.xcscheme

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<Scheme
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      buildImplicitDependencies = "YES">
      <BuildActionEntries>
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                                    = "YES"
                                    g = "YES"
                                    g = "YES"
                                    g = "YES">
                                    nce
                                    tifier =
                                    tifier =
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"MyApp.app"
               BlueprintName = "MyApp"
               ReferencedContainer =
"container:MyApp.xcodeproj">
            </BuildableReference>
         </BuildActionEntry>
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   </BuildAction>
   <TestAction
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"Xcode.DebuggerFoundation.Debugger.GDB"
      selectedLauncherIdentifier =
"Xcode.DebuggerFoundation.Launcher.GDB"
      shouldUseLaunchSchemeArgsEnv =
"YES"
      buildConfiguration = "Debug">
      <Testables>
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"primary"
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"1DC5061813889844000CA902A"
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File has no revisions

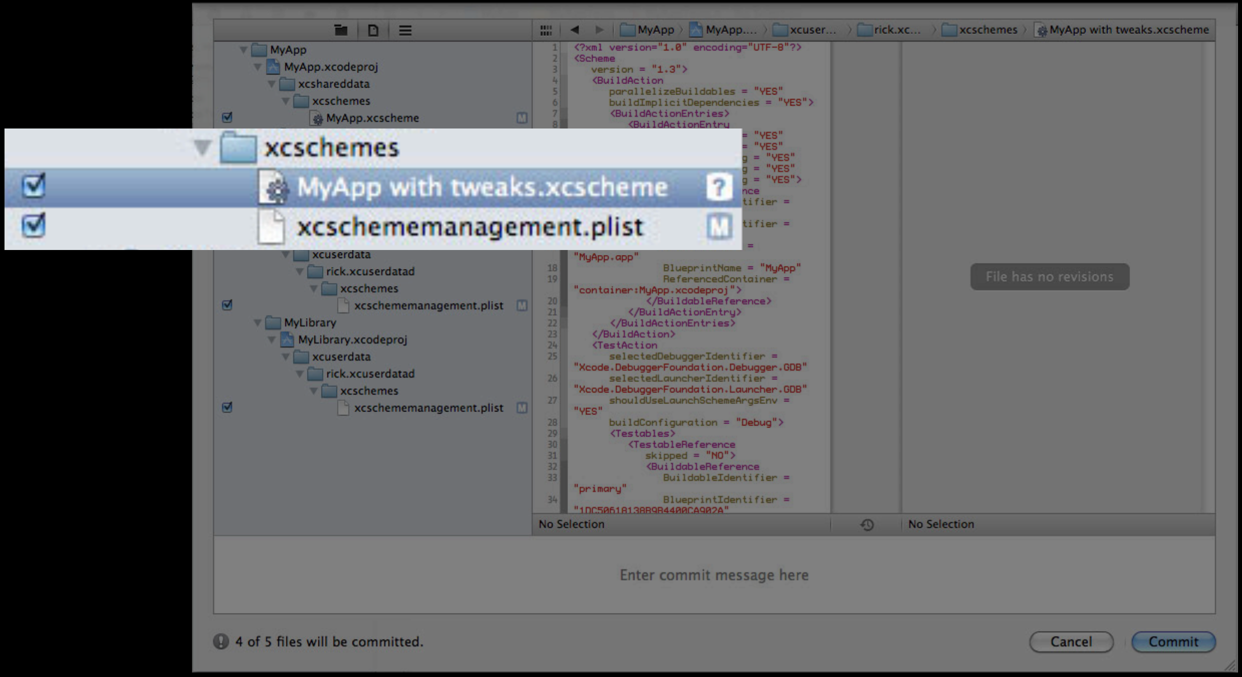
No Selection

No Selection

Enter commit message here

4 of 5 files will be committed.

Managing Schemes in Source Control



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"primary"
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Demo

Working with Static Libraries for iOS

More Information

Michael Jurewitz
Developer Tools Evangelist
jury@apple.com

Documentation
Xcode 4 User Guide
http://developer.apple.com/library/ios/#documentation/ToolsLanguages/Conceptual/Xcode4UserGuide/

Apple Developer Forums
http://devforums.apple.com

Related Sessions

Working Efficiently with Xcode	Marina Tuesday 11:30AM
Building from the Command Line with Xcode	Russian Hill Tuesday 4:30PM
Learning Instruments	Presidio Wednesday 4:30PM
Source Control Management in Xcode	Nob Hill Thursday 10:15AM
Debugging in Xcode	Pacific Heights Thursday 2:00PM
Building, Archiving, and Submitting Your App	Pacific Heights Thursday 4:30PM

Labs

Xcode Lab	Developer Tools Lab B Ongoing

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