

# Saving Data in iOS

Working with Property Lists



# What are Property Lists?

Key	Type	Value
▼ Information Property List	⊕ Dictionary	(14 items)
Localization native development r...	String	en
Bundle display name	String	\${PRODUCT_NAME}
Executable file	String	\${EXECUTABLE_NAME}
Bundle identifier	String	com.razeware.\${PRODUCT_NAME:rfc1034identifier}
InfoDictionary version	String	6.0
Bundle name	String	\${PRODUCT_NAME}
Bundle OS Type code	String	APPL
Bundle versions string, short	String	1.0
Bundle creator OS Type code	String	????
Bundle version	String	1.0
Application requires iPhone envir...	Boolean	YES
Main storyboard file base name	String	Main
Item 1	String	Portrait (bottom home button)
Item 2	String	Landscape (left home button)
Item 3	String	Landscape (right home button)

Property lists organize data into named values and lists of values using several object types. These types give you the means to produce data that is meaningfully structured, transportable, storable, and accessible, but still as efficient as possible.

The property-list programming interfaces allow you to convert hierarchically structured combinations of basic types of objects to and from standard XML. You can save the XML data to disk and later use it to reconstruct the original objects.

# Different Types of Property Lists

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- ⚙ XML Property List
  - ⚙ Standard property list
  - ⚙ Editable by hand
  - ⚙ Device Independent
- ⚙ Binary Property List
  - ⚙ Fast loading
- ⚙ ASCII Legacy Property List
  - ⚙ Read only

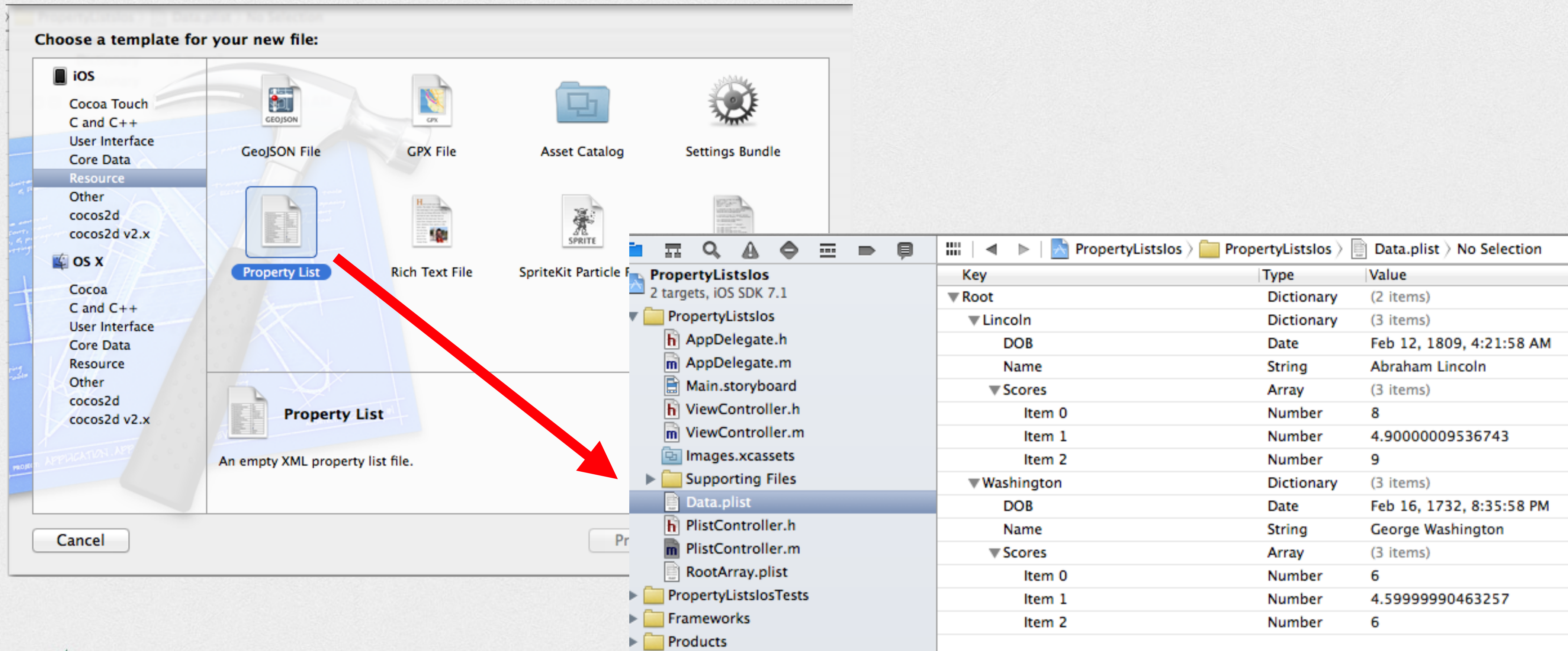
```
<plist version="1.0">
  <dict>
    <key>DOB</key>
    <date>1809-02-12T09:18:00Z</date>
    <key>Name</key>
    <string>Lincoln</string>
    <key>Age</key>
    <integer>56</integer>
    <key>Height</key>
    <real>1.93</real>
  </dict>
</plist>
```

# Supported Types

type	XML Element	Objective C Object	Core Foundation
array	<array>	NSArray	CFArray
dictionary	<dict>	NSDictionary	CFDictionary
string	<string>	NSString	CGString
data	<data>	NSData	CFData
date	<date>	NSDate	CFDate
integer	<integer>	NSNumber	CFNumber
float	<real>	NSNumber	CFNumber
boolean	<true/> or <false/>	NSNumber	CFBoolean

# How To Create a Property List

Choose a template for your new file:



Property List  
An empty XML property list file.

PropertyListslos  
2 targets, iOS SDK 7.1

- PropertyListslos
  - AppDelegate.h
  - AppDelegate.m
  - Main.storyboard
  - ViewController.h
  - ViewController.m
  - Images.xcassets
  - Supporting Files
    - Data.plist
  - PlistController.h
  - PlistController.m
  - RootArray.plist
- PropertyListslosTests
- Frameworks
- Products

Key	Type	Value
▼ Root	Dictionary	(2 items)
▼ Lincoln	Dictionary	(3 items)
DOB	Date	Feb 12, 1809, 4:21:58 AM
Name	String	Abraham Lincoln
▼ Scores	Array	(3 items)
Item 0	Number	8
Item 1	Number	4.90000009536743
Item 2	Number	9
▼ Washington	Dictionary	(3 items)
DOB	Date	Feb 16, 1732, 8:35:58 PM
Name	String	George Washington
▼ Scores	Array	(3 items)
Item 0	Number	6
Item 1	Number	4.59999990463257
Item 2	Number	6

# Demo

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- ⚙ Start a new project
- ⚙ Create a new property list
- ⚙ Demonstrate all the various data types
- ⚙ Show the source view of the property list
- ⚙ Discuss the concept of a root object in the property list



# Reading Property Lists in Code

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- ⚙️ Property Lists included with bundles are read only

```
[NSDictionary dictionaryWithObjectsAndKeys:  
    [NSPropertyListSerialization dictionaryWithData:  
        data  
        options: NSPropertyListImmutable  
        format: &format  
        error: &error];
```

- ⚙️ Options

- ⚙️ NSPropertyListMutableContainers
- ⚙️ NSPropertyListMutableContainersAndLeaves

# Reading Property Lists in Code

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- ⚙ Property Lists included with bundles are read only

```
[NSDictionary dictionaryWithObjectsAndKeys:  
    [NSPropertyListSerialization dictionaryWithData:  
        data  
        options: NSPropertyListImmutable  
        format: &format  
        error: &error];
```

- ⚙ Format

- ⚙ NSPropertyListOpenStepFormat
- ⚙ NSPropertyListXMLFormat\_v1\_0
- ⚙ NSPropertyListBinaryFormat\_v1\_0



# Writing Property Lists in Code

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```
[NSPropertyListSerialization dataWithPropertyList:plist  
                             format:NSPropertyListXMLFormat_v1_0  
                             options:0  
                             error:&error];
```

- ⚙ The options parameter is currently unused
- ⚙ Your property list must have one object as the root object.
- ⚙ Unsupported types will fail with an error.

# Working with ASCII Property Lists

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```
NSDictionary *format = NSDictionaryFromPropertyListOpenStepFormat  
[NSDictionaryFromPropertyListSerialization dictionaryWithData:data  
options:NSPropertyListMutableContainers  
format:&format  
error:&error];
```

- ⚙ Supports only four types: NSData, NSArray, NSDictionary, NSString
- ⚙ Read only



# Best Practices

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- ⚙ Try to use binary property lists
- ⚙ Store in XML if you need often need to manually edit the property list
- ⚙ Avoid using Property Lists:
  - ⚙ Avoid large amount data, especially binary data
  - ⚙ Saving complex object graphs

# Demo

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- ⚙ Read an existing property file from disk
- ⚙ Populate UI based off property file
- ⚙ Create new object and save object to a new property list
- ⚙ Open up property list outside of xcode to show the result.



# Challenge Time

Key	Type	Value
▼ Root	Array	(10 items)
▼ Item 0	Dictionary	(4 items)
Name	String	Minecraft
Genre	String	Worldbuilding FPS
Rating	Number	5
Synopsis	String	Build your own voxel based world v
▼ Item 1	Dictionary	(4 items)
Name	String	Bioshock Infinite
Genre	String	Narrative FPS
Rating	Number	5
Synopsis	String	While the shooting is bland, the sto
▼ Item 2	Dictionary	(4 items)
Name	String	Day Z
Genre	String	Survival
Rating	Number	4
Synopsis	String	Try to survive in a post apocalyptic w
▶ Item 3	Dictionary	(4 items)