

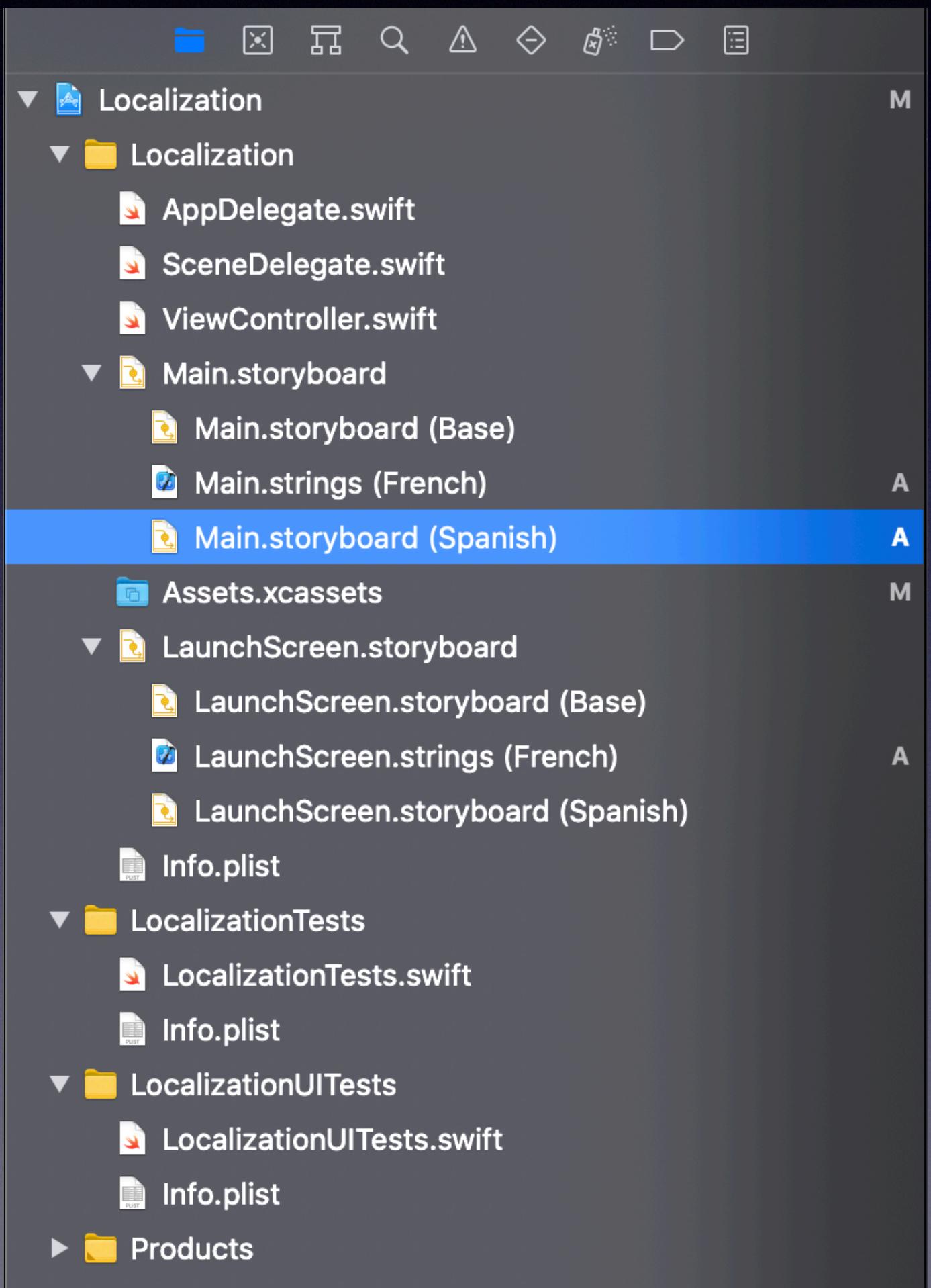
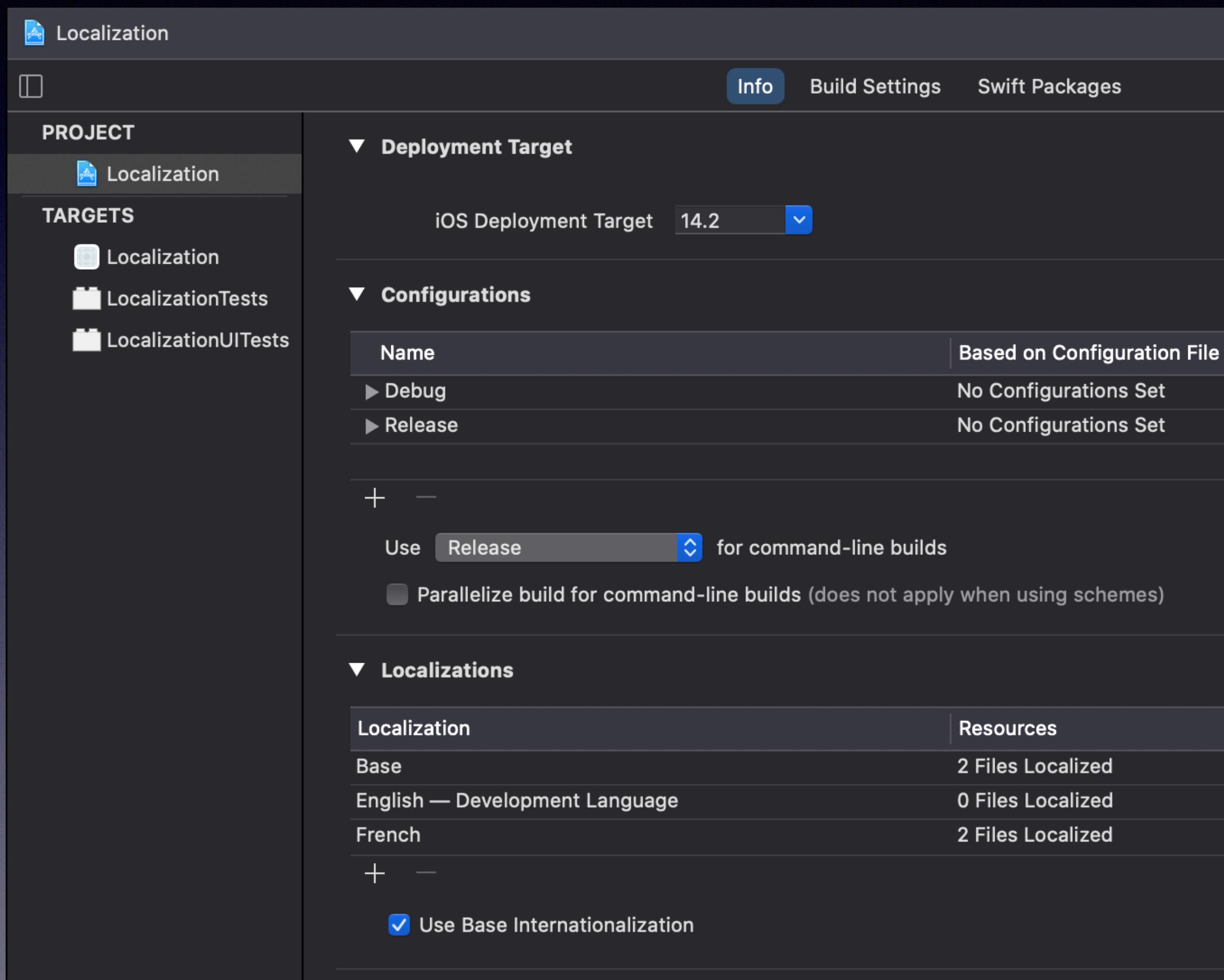
A dip into Localization

Interesting tidbits for the inquisitive mind

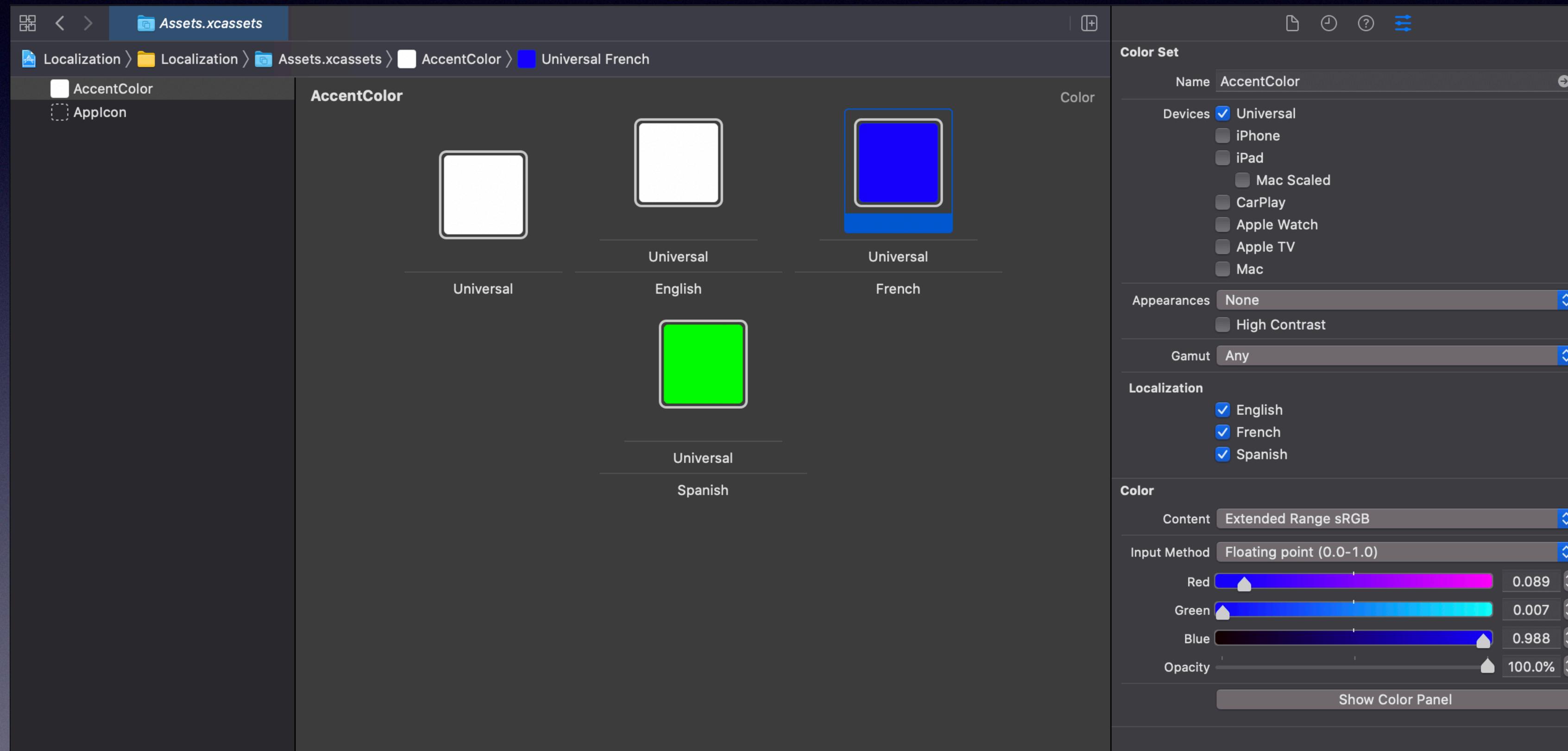
What is Localization?

What does localization entail?

Project setup



Localizing Assets (colors)



Localizing Assets (images)

Wallet

Image

Add to Apple Wallet

All

All

Universal

English

Ajouter à Apple Wallet

Añadir a Apple Wallet

All

All

Universal

Universal

French

Spanish

Memory

- 1 GB
- 2 GB
- 3 GB
- 4 GB
- 6 GB
- 8 GB
- 16 GB

Graphics

- Apple 1 (Metal 1v2)
- Apple 2 (Metal 2v2)
- Apple 3v1 (Metal 3v1)
- Apple 3 (Metal 3v2)
- Apple 4 (Metal 4v1)
- Apple 5 (Metal 5v1)
- Apple 6
- Apple 7

Apple Watch

Screen Width

Auto Scaling

Localization

- English
- French
- Spanish

Localizing Strings

`NSLocalizedString(key, comment)`

`NSLocalizedStringFromTable(key, tbl, comment)`

`NSLocalizedStringFromTableInBundle(key, tbl, bundle, comment)`

`NSLocalizedStringWithDefaultValue(key, tbl, bundle, val, comment)`

Strings file (example)

```
/* No comment provided by engineer. */
"Username" = "nom d'utilisateur";

/* {User First Name}'s Profile */
"%@'s Profile" = "profil de %1$@";
```

Localizing Strings in xib / storyboard

The screenshot shows the Xcode interface with a storyboard file open. On the left, a label with the text "Welcome" is selected. In the center, the "Document" inspector shows the label's properties: Label is set to "Xcode Specific Label", Object ID is "aOf-vy-48m", Lock is "Inherited - (Nothing)", and Localizer Hint is "Comment For Localizer". Under Accessibility, Enabled is checked, and the Label is identified as "Label". The bottom part of the screen displays two sets of NSLocalizedString declarations in Objective-C code:

```
/*
 Main.strings (fr)
 */
"a0f-vy-48m.text" = "Bienvenue!";

/*
 Main.strings (es)
 */
"a0f-vy-48m.text" = "Bienvenido!";
```

On the right, the "Identity and Type" inspector shows the storyboard's name is "Main.storyboard", type is "Default - Interface Builder Storyboard", location is "Relative to Group", full path is "/Users/kunal/Google Drive/30xi/Education/2020/Cocoaheads/Localization/Localization/Main.storyboard", and dev region is the same. The "Localization" section lists supported languages: Base (checked), English (unchecked), French (checked), and Spanish (checked). The "Target Membership" section shows the storyboard is a member of the "Localization" target.

Localizing Strings in plist

Info.plist

```
/*
  InfoPlist.strings (fr)
*/
"NSLocationUsageDescription" = "Nous avons besoin de votre emplacement car nous voulons vous suivre.!";

/*
  InfoPlist.strings (es)
*/
"NSLocationUsageDescription" = "Necesitamos su ubicación porque queremos rastrearlo./";

/*
  InfoPlist.strings (en)
*/
"NSLocationUsageDescription" = "We need your location because we want to track you.!";
```

Localizing Strings in plist

Root.plist in Settings bundle (needs StringsTable set)

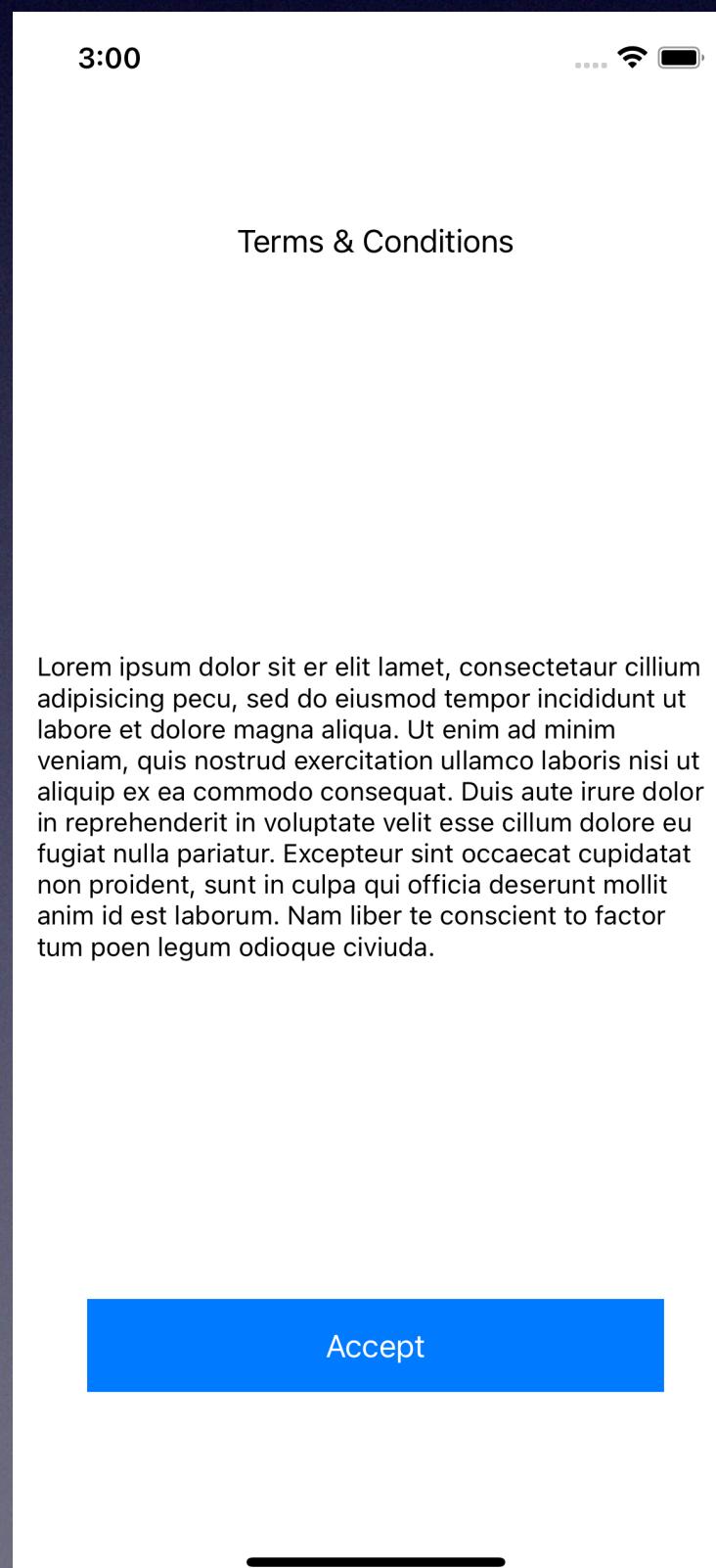
```
/*
  Root.strings (fr)
 */
"About" = "À propos";
```

```
/*
  Root.strings (es)
 */
"About" = "Acerca de";
```

```
/*
  Root.strings (en)
 */
"About" = "About";
```

Command line tools

xib / storyboard



```
ibtool Main.storyboard --generate-strings-file Main.strings
```

```
/* Class = "UITextView"; text = "Lorem ipsum dolor sit er elit lamet, consectetur cillum adipisicing pecu, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum. Nam liber te conscient to factor tum poen legum odioque civiuda.); ObjectID = "8by-u3-LId"; */  
"8by-u3-LId.text" = "Lorem ipsum dolor sit er elit lamet, consectetur cillum adipisicing pecu, sed do eiusmod tempor incididunt ut labore et dolore magna aliqua. Ut enim ad minim veniam, quis nostrud exercitation ullamco laboris nisi ut aliquip ex ea commodo consequat. Duis aute irure dolor in reprehenderit in voluptate velit esse cillum dolore eu fugiat nulla pariatur. Excepteur sint occaecat cupidatat non proident, sunt in culpa qui officia deserunt mollit anim id est laborum. Nam liber te conscient to factor tum poen legum odioque civiuda.>";  
  
/* Class = "UIButton"; normalTitle = "Accept"; ObjectID = "EvV-XX-prW"; */  
"EvV-XX-prW.normalTitle" = "Accept";  
  
/* Class = "UILabel"; text = "Terms & Conditions"; ObjectID = "nhN-JN-R9a"; */  
"nhN-JN-R9a.text" = "Terms & Conditions";
```

Command line tools

source code

```
genstrings -o directory_path_to_store_strings_files/ path_to_swift_or_objc_file
```

```
import UIKit

class ViewController: UIViewController {
    override func viewDidLoad() {
        super.viewDidLoad()

        NSLocalizedString("Key", tableName: "Localizable", bundle: .main, value: "Some Value", comment: "For the translator!")
    }
}
```

```
/* For the translator! */
"Key" = "Some Value";
```

Command line tools

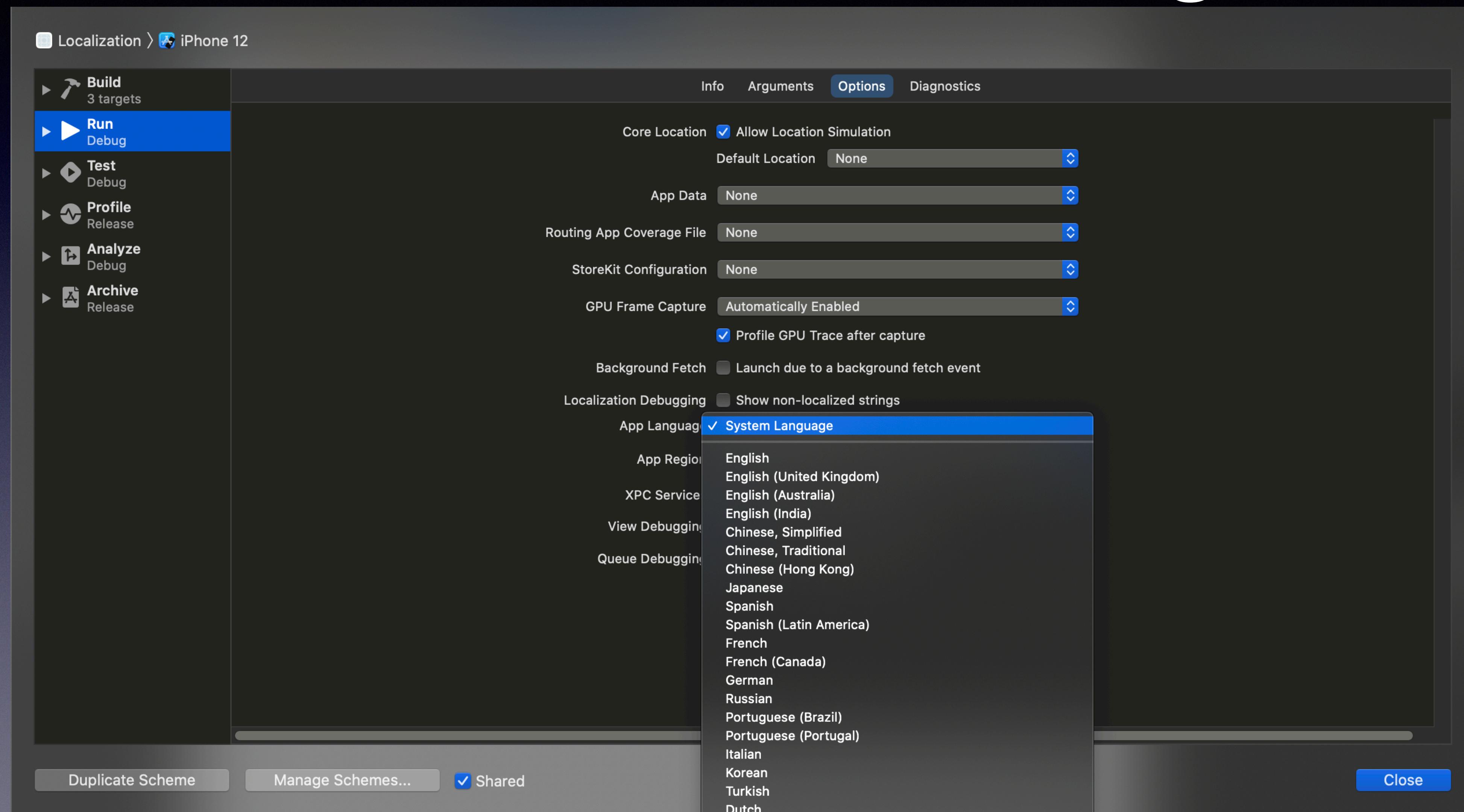
validation

```
plutil -lint -s /path/to/strings/file
```

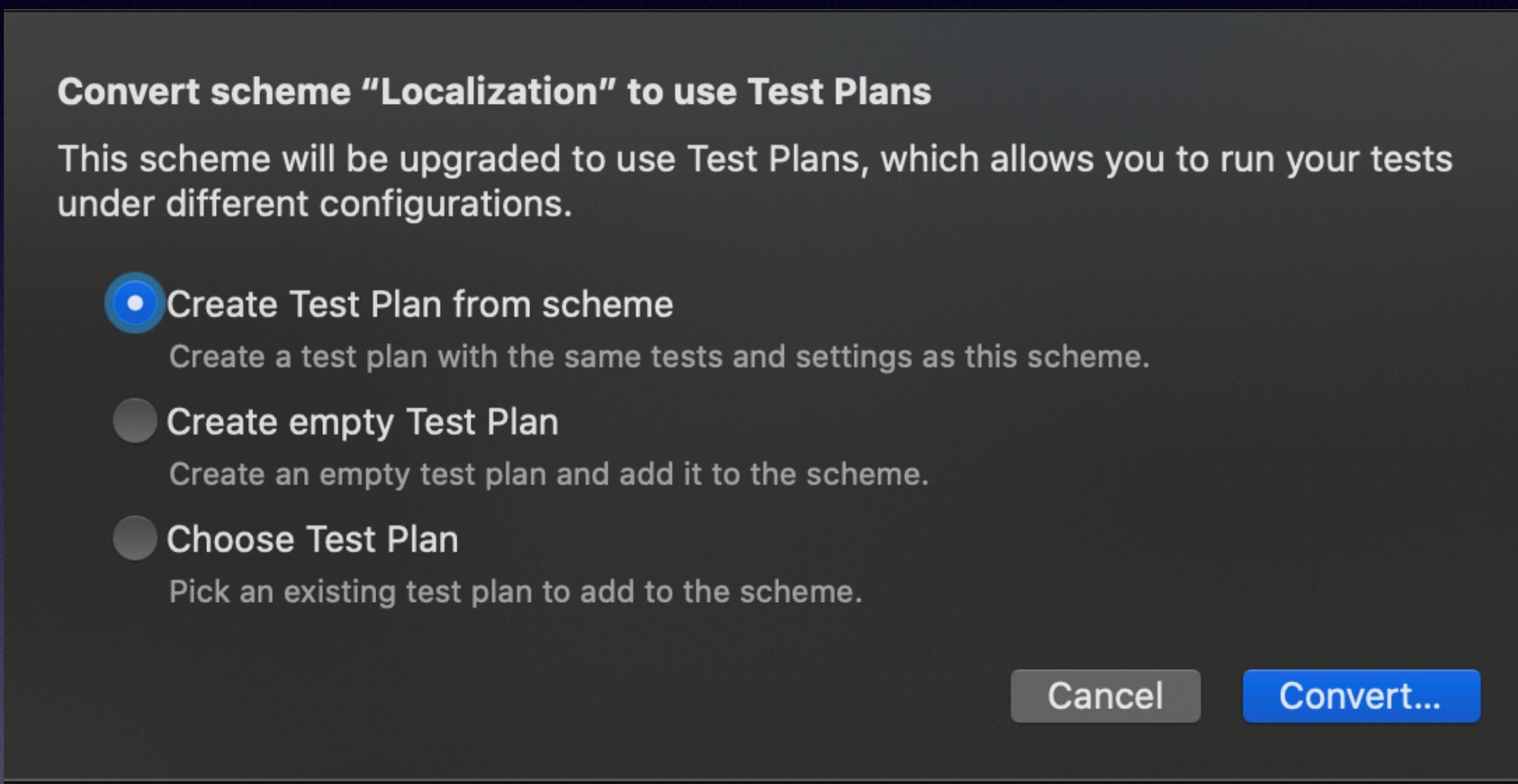
```
/* For the translator! */
"Key" = "Some Value"
"Some" = "Foo";
```

```
2020-12-05 15:40:15.851 plutil[7174:193921] CFPropertyListCreateFromXMLData(): Old-style plist parser: missing semicolon in dictionary on line 3. Parsing will be abandoned. Break on _CFPropertyListMissingSemicolon to debug
```

Localization testing



Localization testing (test plans)



The screenshot shows the Xcode interface with the file "Localization.xctestplan" selected in the top bar. The main area displays the configuration settings for this test plan. The "Configurations" tab is active. The settings are organized into sections:

Setting	Shared Settings
Arguments Passed On Launch	Localization
Environment Variables	System Language
Target for Variable Expansion	System Region
Localization	None
Application Language	On, and delete if test succeeds
Application Region	Off
Simulated Location	On, and delete if test succeeds
UI Testing	Alphabetical
Automatic Screenshots	Off
Localization Screenshots	(None)
Attachments	Off
Test Execution	Off
Execution Order	Off
Test Timeouts	600
Default Test Execution Time Allowance (s)	(None)
Maximum Test Execution Time Allowance (s)	Off
Code Coverage	Off
Code Coverage	Off
Runtime Sanitization	Off
Address Sanitizer	Off
Thread Sanitizer	Off
Undefined Behavior Sanitizer	Off

What is Pluralization?

Problem statement

You have no items in the bag.

You have 1 item in the bag.

You have n items in the bag.

Simple solution

```
var productCount = 0

private var productsInBagMessage: String {
    if productCount == 0 {
        return NSLocalizedString("products_in_bag_none", tableName: "Localizable",
bundle: .main, value: "You have no items in the bag", comment: "")
    }
    else if productCount == 1 {
        return String(format: NSLocalizedString("products_in_bag_singular", tableName:
"Localizable", bundle: .main, value: "You have %d item in the bag", comment: ""),
productCount)
    }
    return String(format: NSLocalizedString("products_in_bag_multiple", tableName:
"Localizable", bundle: .main, value: "You have %d items in the bag", comment: ""),
productCount)
}
```

Localizable.stringsdict

The screenshot shows the Xcode interface with two main windows. On the left, a modal dialog titled "Choose a template for your new file:" is displayed, showing options for iOS, macOS, watchOS, and tvOS, with "Strings File" selected. On the right, the Xcode workspace shows a file named "Localizable.stringsdict" selected in the tab bar. The file's content is displayed in a table view:

Key	Type	Value
▼ Strings Dictionary	Dictionary	(1 item)
▼ products_in_bag	Dictionary	(2 items)
NSStringLocalizedFormatKey	String	%#@productCount@
▼ productCount	Dictionary	(5 items)
NSStringFormatSpecTypeKey	String	NSStringPluralRuleType
NSStringFormatValueTypeKey	String	u
zero	String	You have no items in the bag.
one	String	You have %u item in the bag.
other	String	You have %u items in the bag.

```
var productCount = 0

private var productCountMessage: String {
    String(format: NSLocalizedString("products_in_bag", tableName: "Localizable", bundle: .main, comment: ""),
productCount)
}
```

Complex example

polish

0 okien

cardinality rule - zero

1 okno

cardinality rule - one

2 okna

cardinality rule - few



3 okna

4 okna

5..n okien

cardinality rule - many

Unicode language plural rules

[http://www.unicode.org/cldr/charts/latest/supplemental/
language_plural_rules.html](http://www.unicode.org/cldr/charts/latest/supplemental/language_plural_rules.html)

Questions?

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