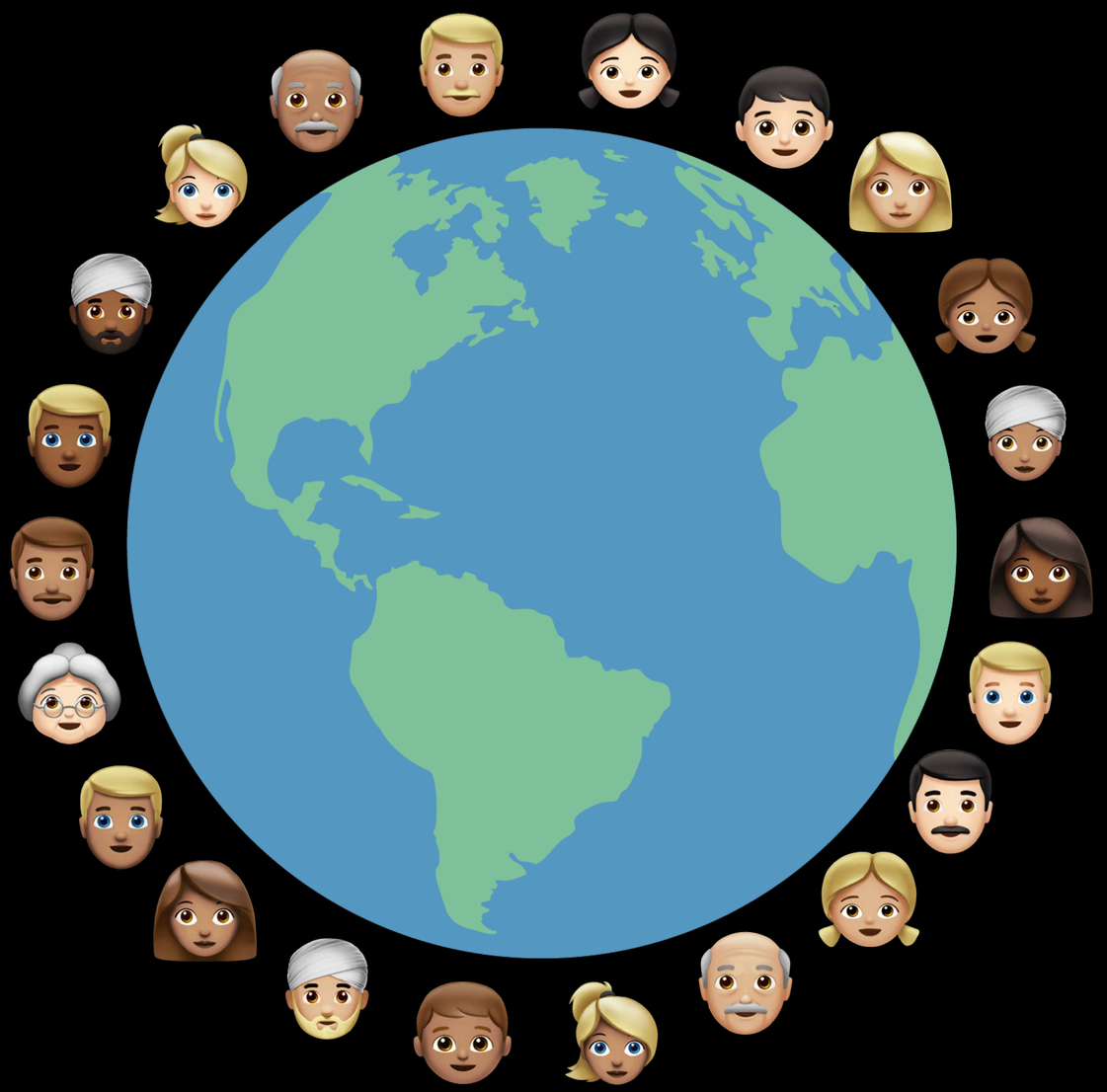
Developer Tools

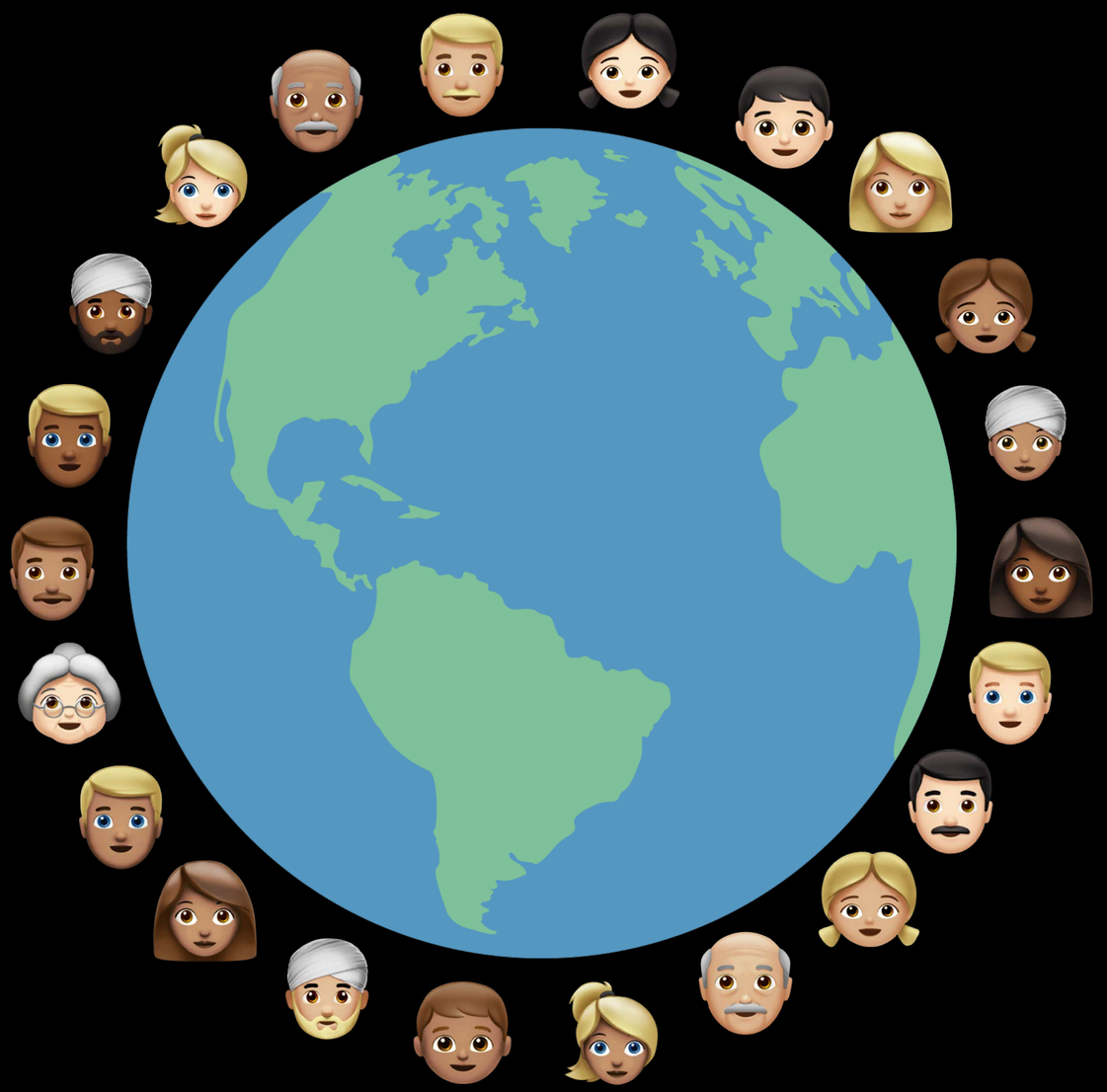
#WWDC17

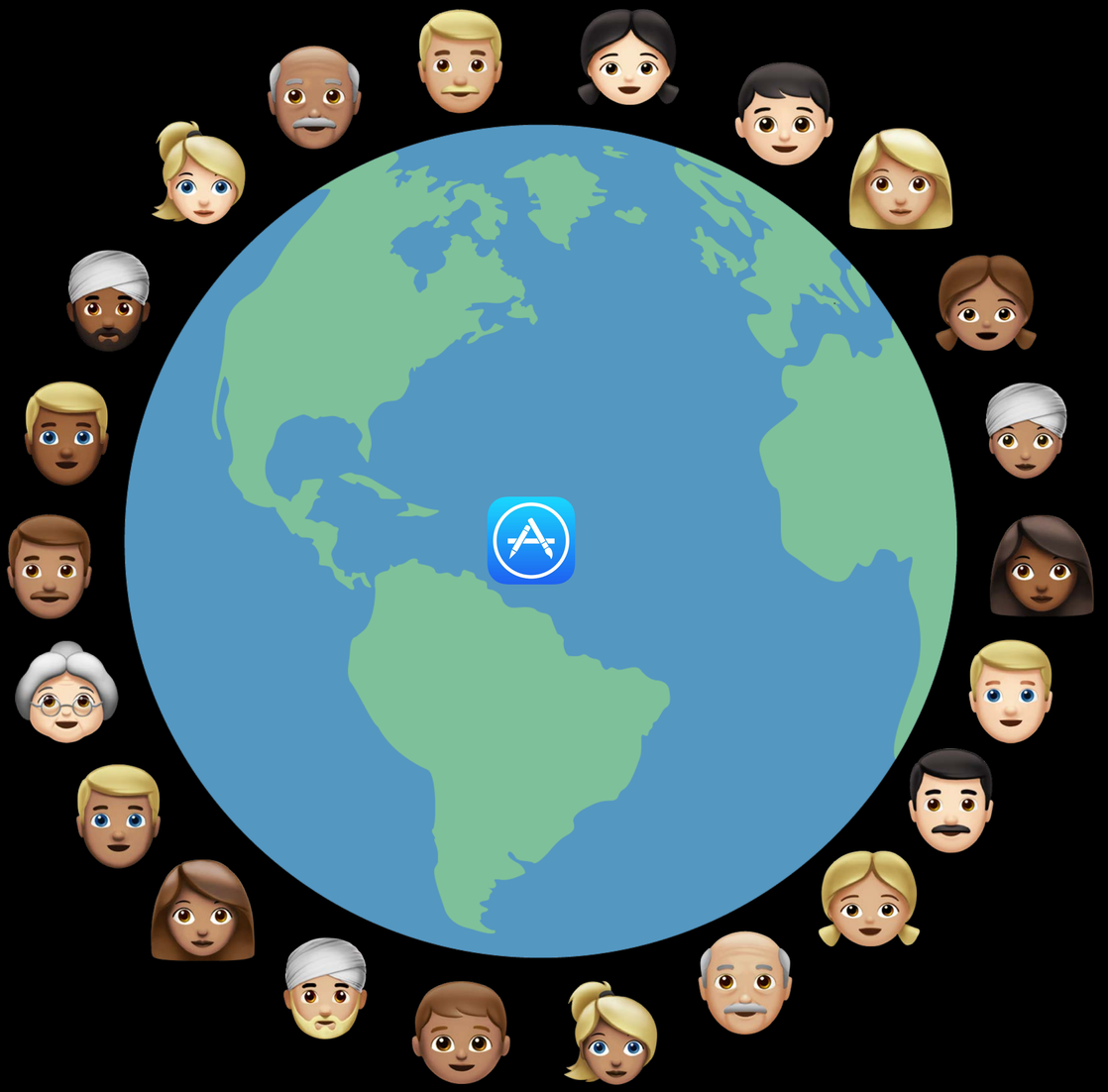
Localizing with Xcode 9

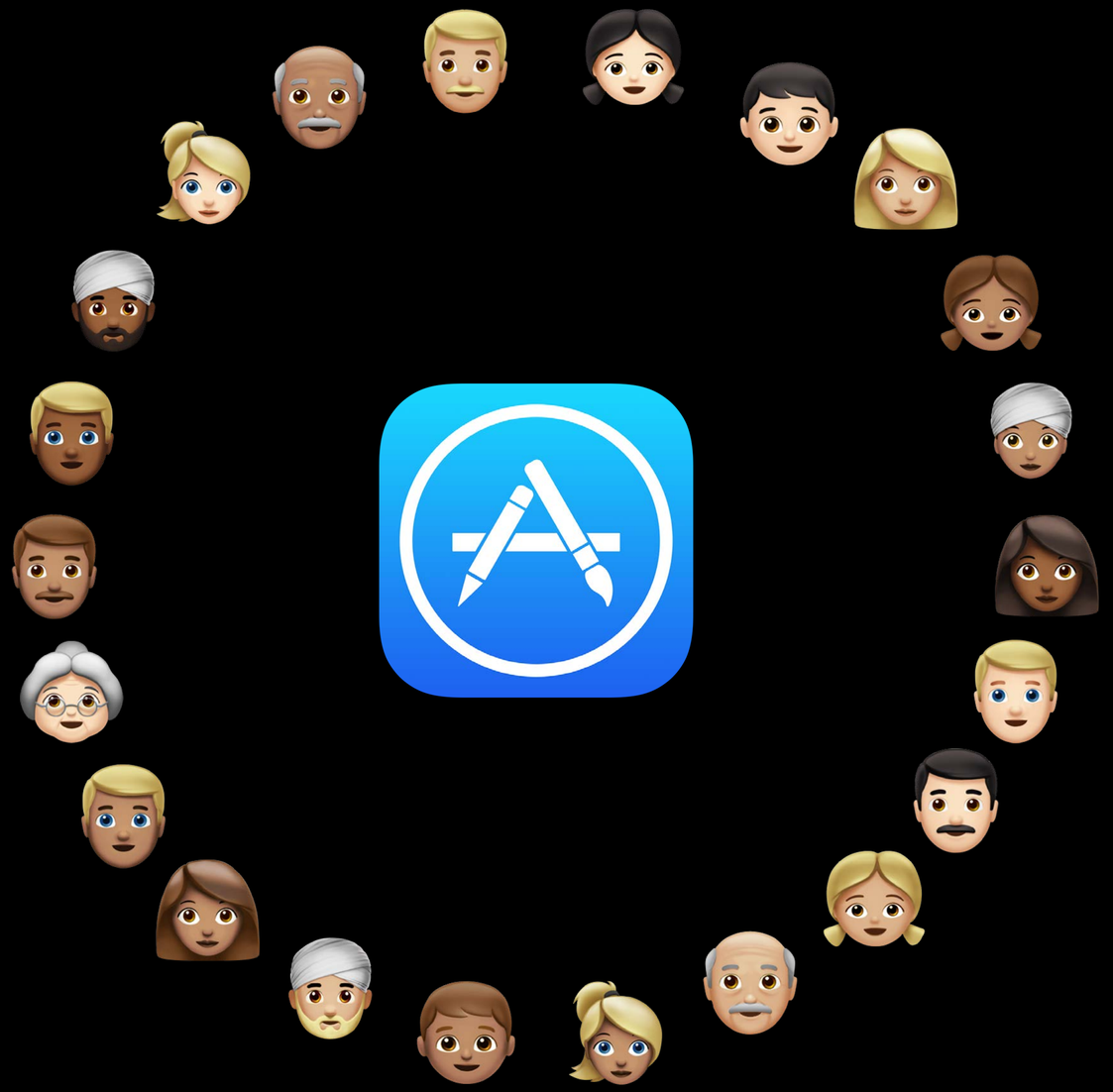
Session 401

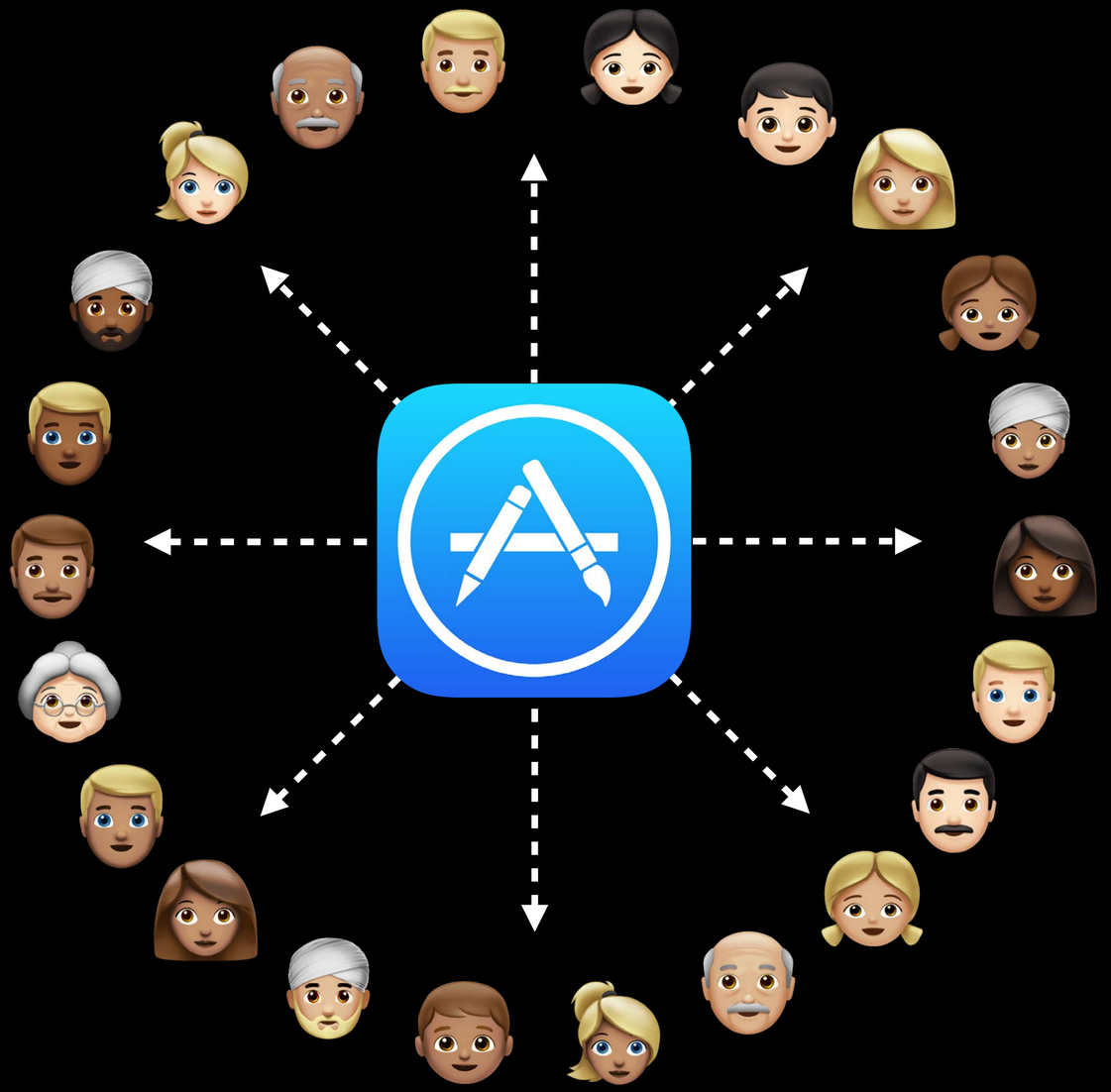
Sara Radi, Software Engineer
Aya Siblini, Software Engineer
Chris Hanson, Software Engineer











Agenda

Agenda

Internationalization

Agenda

Internationalization

Xcode Localization Workflow

Agenda

Internationalization

Xcode Localization Workflow

Testing

Internationalization

Sara Radi, Software Engineer


9:41 AM
100%
Cupertino
Mostly Sunny
82°
Sunday Today 90 56
10AM 11AM 12PM 1PM 2PM
75° 80° 84° 87° 89°
Monday 91 58
Tuesday 86 54
Wednesday 81 54
Thursday 70 52
Friday 69 50
Saturday 74 50
The Weather Channel


上午9:41
100%
库比提诺
晴间多云
28°
星期日 今天 32 13
上午10时 上午11时 下午12时 下午1时
24° 27° 29° 31°
星期一 33 14
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The Weather Channel


9:41 AM
100%
Cupertino
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10AM 11AM 12PM 1PM 2PM
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Monday 91 58
Tuesday 86 54
Wednesday 81 54
Thursday 70 52
Friday 69 50
Saturday 74 50
The Weather Channel


9:41 πμ
100%
Cupertino
Κυρίως ηλιοφάνεια
28°
Κυριακή Σήμερα 32 13
Τώρα 7 μμ 8 μμ 8:15 μμ 9 μμ
28° 28° 24° Δύση 22°
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Τρίτη 30 12
Τετάρτη 27 12
Πέμπτη 21 11
Παρασκευή 21 10
Σάββατο 23 10
The Weather Channel


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09:41
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Cupertino
แดดออกเป็นส่วนมาก
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10 11 12 13 14 15
24° 26° 29° 30° 32° 32°
วันจันทร์ 33 14
วันอังคาร 30 13
วันพุธ 27 12
วันพฤหัสบดี 22 12
วันศุกร์ 21 11
วันเสาร์ 23 11
The Weather Channel


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كوبرتينو
مشمس أغلب الوقت
°٢٨
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الاثنين ١٤ ٣٣
الثلاثاء ١٢ ٣٠
الأربعاء ١٢ ٢٧
الخميس ١١ ٢١
الجمعة ١٠ ٢١
السبت ١٠ ٢٣
The Weather Channel

Strings Management

Formatting

User Interface

Strings Management

Strings Management

Prepare your strings for translation

Strings Management

Prepare your strings for translation

Use `NSLocalizedString` to load strings in code

Strings Management

Prepare your strings for translation

Use `NSLocalizedString` to load strings in code

Use `localizedStringWithFormat` to get a localized formatted string

```
// Set a label's text

label.text = "Population"


// Set a label's text to a localized string

label.text = NSLocalizedString("Population", comment: "Label preceding the population value")


// Load localized string from a specific table

label.text = NSLocalizedString("Population", tableName: "Localizable", bundle: .main, value:
nil, comment: "Label preceding the population value")


// Create a formatted string

let format = NSLocalizedString("%d popular languages", comment: "Number of popular languages")
label.text = String.localizedStringWithFormat(format, popularLanguages.count)
```

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```

Strings Management

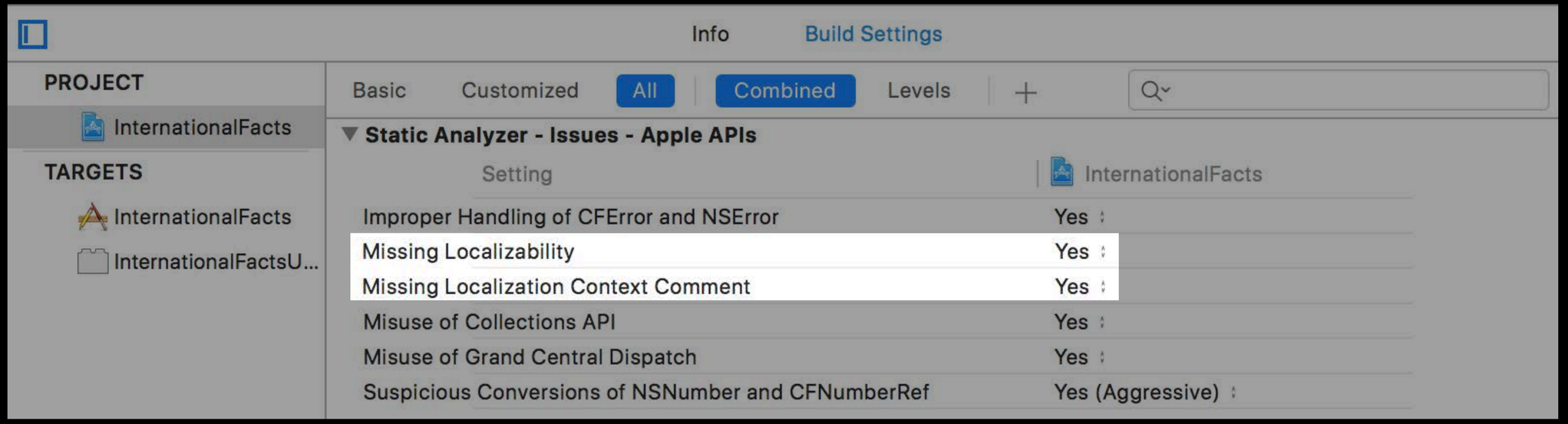
fr.lproj/Localizable.strings

```
/* Title label's text */
"International Facts" = "Faits Internationaux";

/* Label prompting a user to choose a territory */
"Territory" = "Territoire";
```

Strings Management

Static analyzer



Strings Management

Static analyzer

```
- (UITableViewCell *)tableView: (UITableView *)tableView cellForRowAtIndexPath:
    (NSIndexPath *)indexPath {
    UITableViewCell *cell = [tableView dequeueReusableCellWithIndentifier:@"Cell"
        forIndexPath:indexPath];

    cell.textLable.text = @"Details";

    return cell;
}
```

User-facing text should use localized string macro

Strings Management

Formatting

User Interface


100%
6:40
Monday, June 5
100%
18:40
Lundi 5 juin


9:41 AM
100%
June
S M T W T F S
4 5 6 7 8 9 10
Monday, Jun 5, 2017
Activity
Activity
Jun 5, 2017
Move
12/310CAL
Exercise
0/30MIN
Stand
1/12HRS
Resting Energy
2,672 kcal
6/6, 12:44 AM
Stand Hours
1 hr
6/5, 7:00 PM
Active Energy
12.8 kcal
6/5, 6:44 PM
Vitals
Heart Rate
63 bpm
6/5, 6:44 PM
Today
Health Data
Sources
Medical ID

Formatters

Date and time

```
let formatter = DateFormatter()
formatter.dateFormat = "EEEE, MMMM d, yyyy"
let str = formatter.string(from: date)
```

Formatters

Date and time

```
let formatter = DateFormatter()
formatter.dateFormat = "EEEE, MMMM d, yyyy"
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```

Formatters

Date and time

```
let formatter = DateFormatter()
formatter.dateFormat = "EEEE, MMMM d, yyyy"
let str = formatter.string(from: date)
```

```
let formatter = DateFormatter()
formatter.dateStyle = .full
let str = formatter.string(from: date)
```


9:41 AM
100%
June
S M T W T F S
4 5 6 7 8 9 10
Monday, Jun 5, 2017
Activity
Activity
Jun 5, 2017
Move
12/310CAL
Exercise
0/30MIN
Stand
1/12HRS
Resting Energy
2,672 kcal
6/6, 12:44 AM
Stand Hours
1 hr
6/5, 7:00 PM
Active Energy
12.8 kcal
6/5, 6:44 PM
Vitals
Heart Rate
63 bpm
6/5, 6:44 PM
Today
Health Data
Sources
Medical ID


9:41 AM
100%
juin
D L M M J V S
4 5 6 7 8 9 10
Lundi 5 juin 2017
Activité
Activité
5 juin 2017
Bouger
12 CAL/310
M'entraîner
0 MN/30
Me lever
1 H/12
Énergie au repos
2 672 kcal
06/06 à 00:44
Heures debout
1 h
05/06 à 19:00
Énergie en activité
12,8 kcal
05/06 à 18:44
Signes vitaux
Rythme cardiaque
63 bpm
05/06 à 18:44
Aujourd'hui
Données Santé
Sources
Fiche médicale

Formatters

- `DateFormatter`
- `DateComponentsFormatter`
- `DateIntervalFormatter`
- `PersonNameComponentsFormatter`
- `NumberFormatter`
- `ByteCountFormatter`
- `EnergyFormatter`
- `LengthFormatter`
- `MassFormatter`
- `MeasurementFormatter`

Measurements and Units	WWDC 2016
Internationalization Best Practices	WWDC 2016

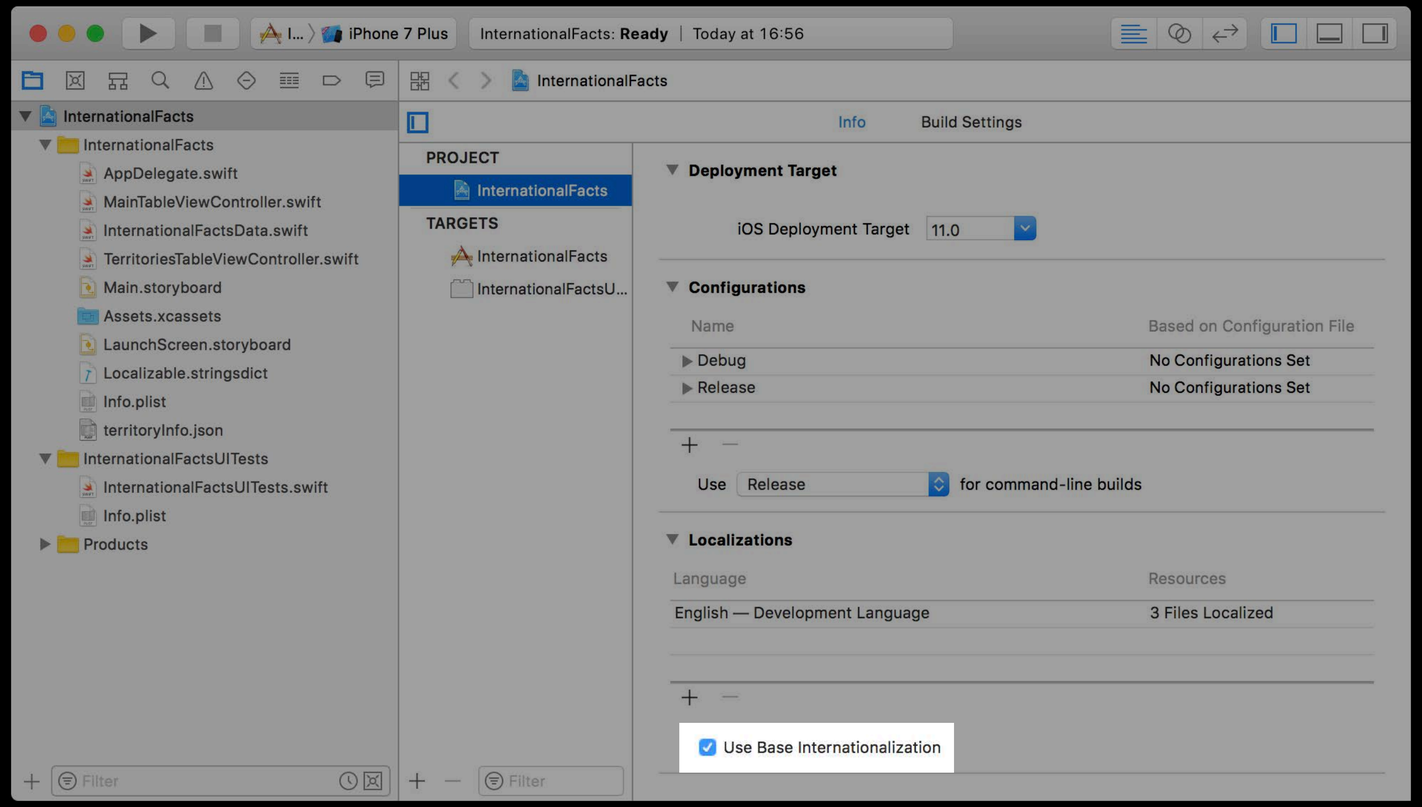
Strings Management

Formatting

User Interface

User Interface

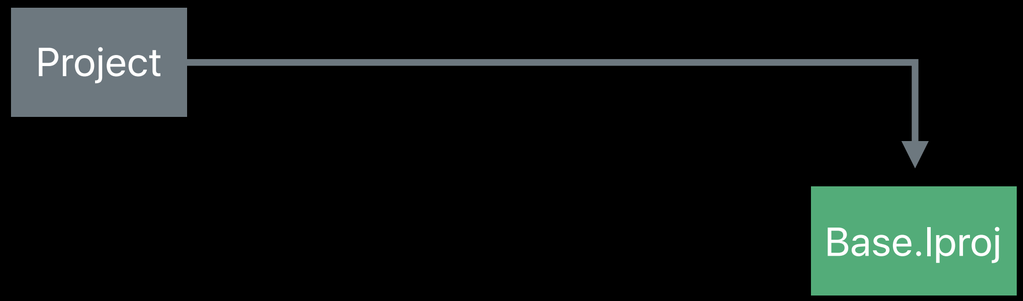
Base internationalization



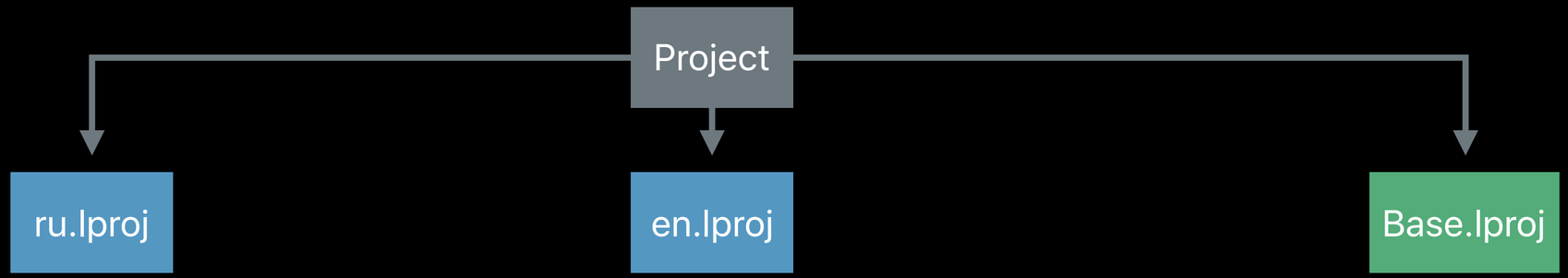
Localized Resources Structure

Localized Resources Structure

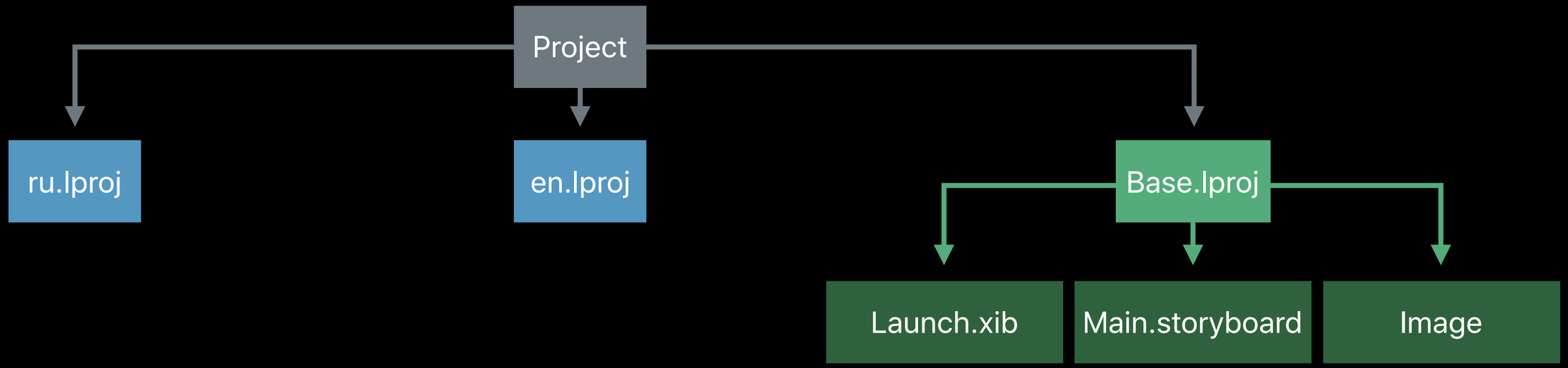
Localized Resources Structure



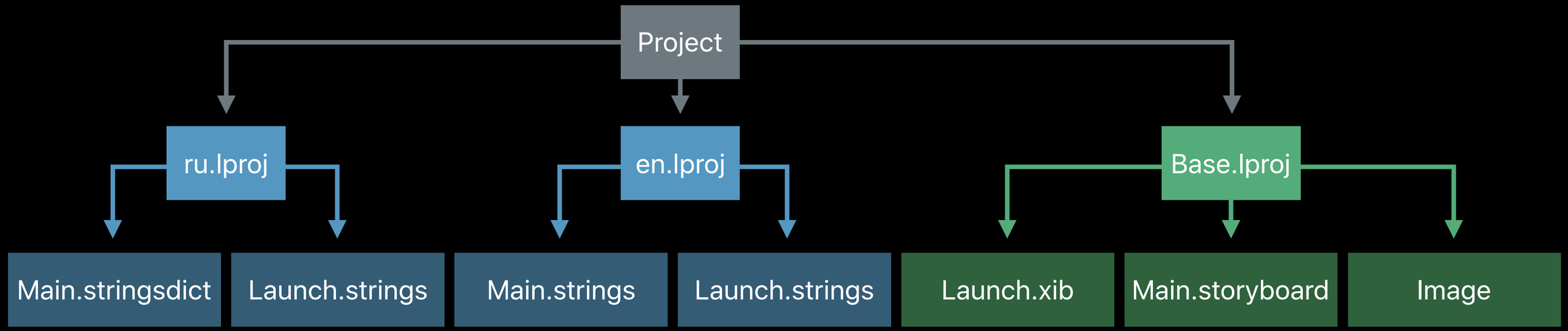
Localized Resources Structure



Localized Resources Structure

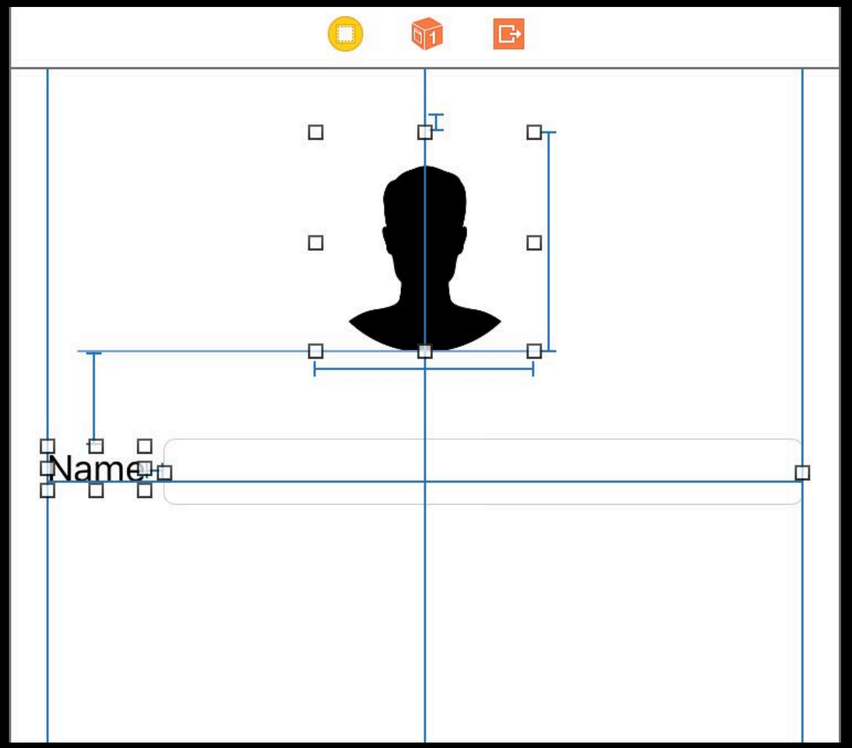


Localized Resources Structure



User Interface

Auto Layout

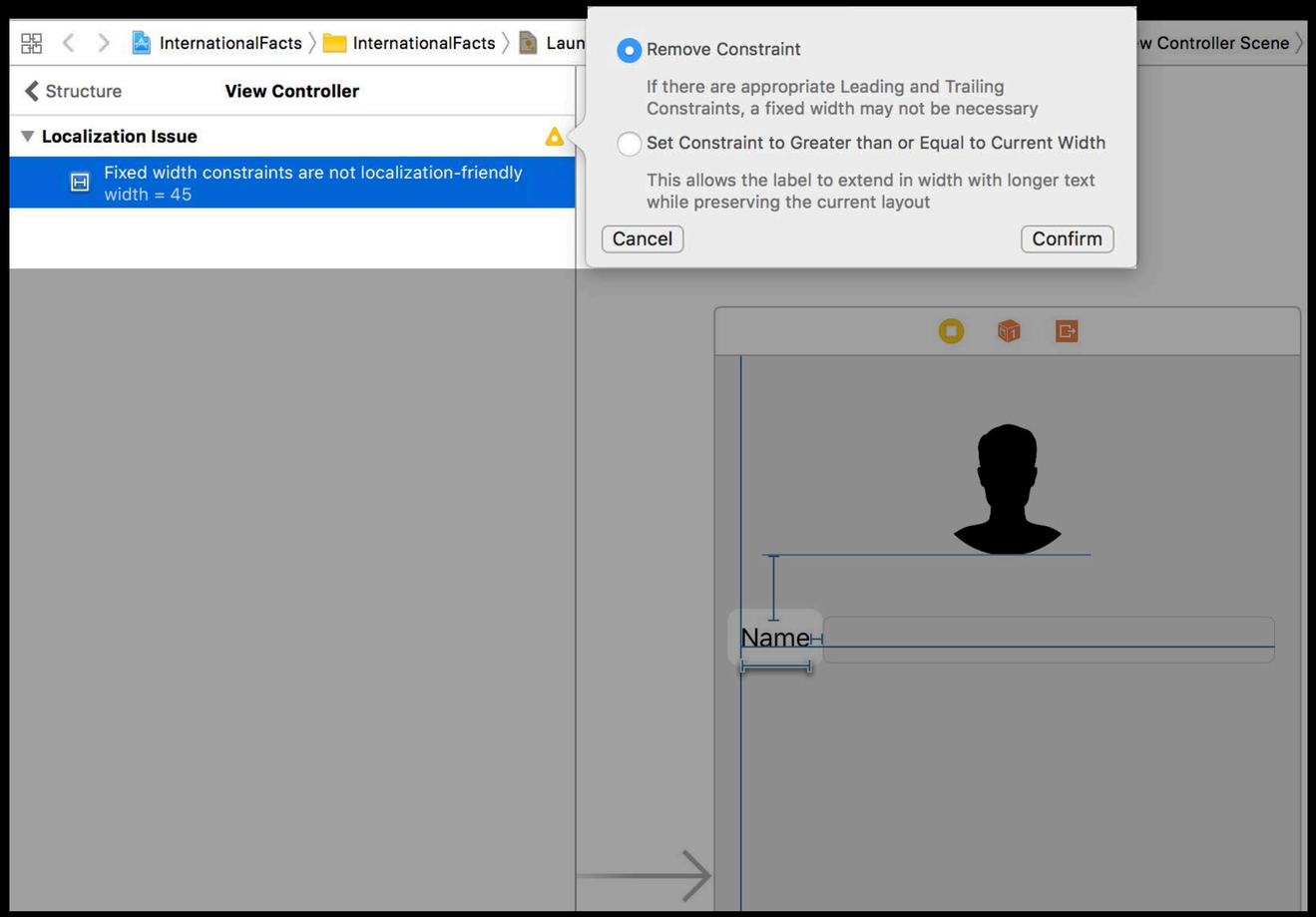


What’s New in Auto Layout	WWDC 2016
Auto Layout Techniques in Interface Builder	WWDC 2016

User Interface

Localization warnings

NEW



User Interface

Pseudolocalization

NEW

Default	Lorem Ipsum
Double Length	Lorem Ipsum Lorem Ipsum
Accented Latin	L̊ọr̀ëm̧ Įp̊şụm̧
Affixed Strings	[#Lorem Ipsum#]
Right to Left	muspl meroL

Demo

Prepare your app for localization

Aya Siblini, Software Engineer

Summary

Summary

Use standard APIs to handle the complexity of data formatting

Summary

Use standard APIs to handle the complexity of data formatting

Use base internationalization and Auto Layout

Summary

Use standard APIs to handle the complexity of data formatting

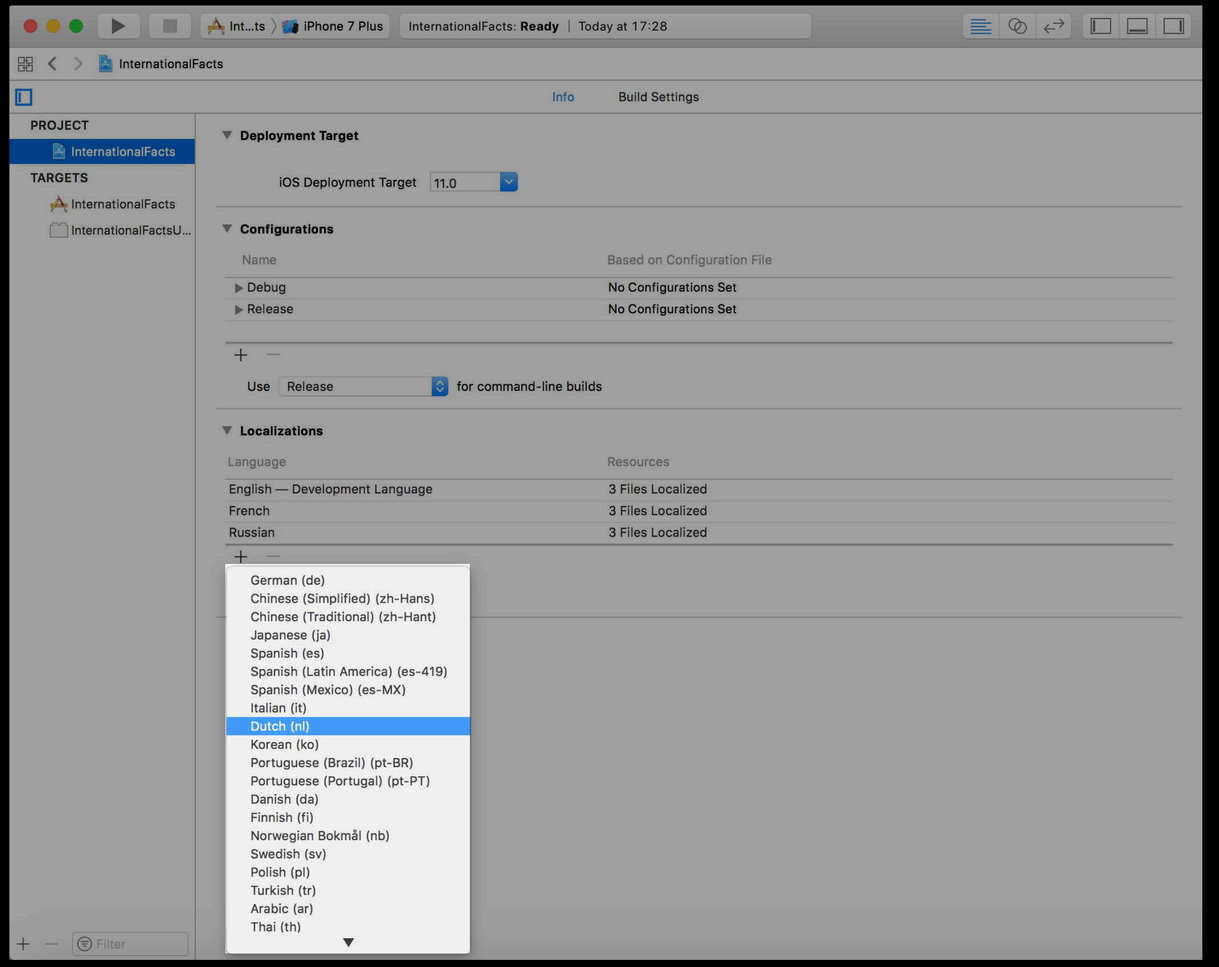
Use base internationalization and Auto Layout

Validate your strings and UI

Localization Workflow

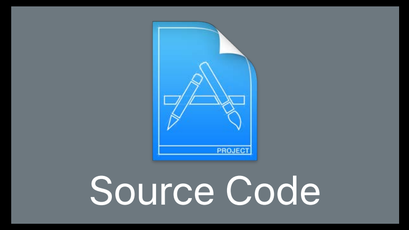
Sara Radi, Software Engineer

Localization



Localization Process

Localization Process



Localization Process

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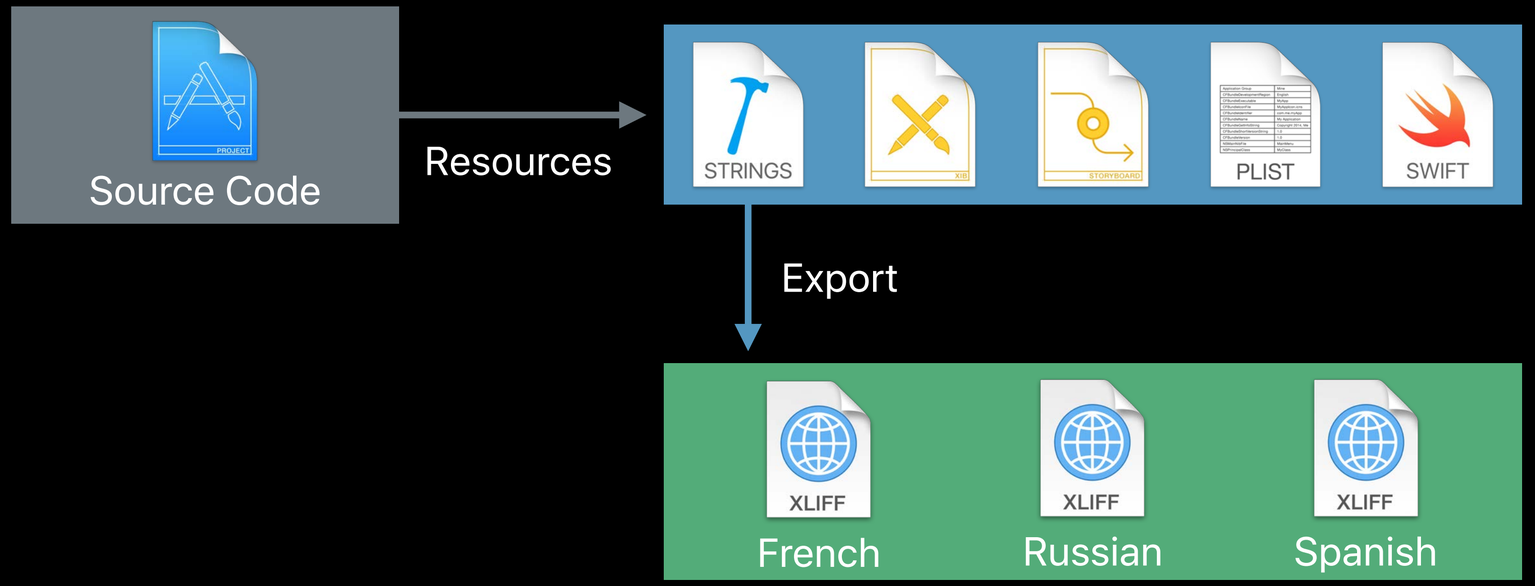
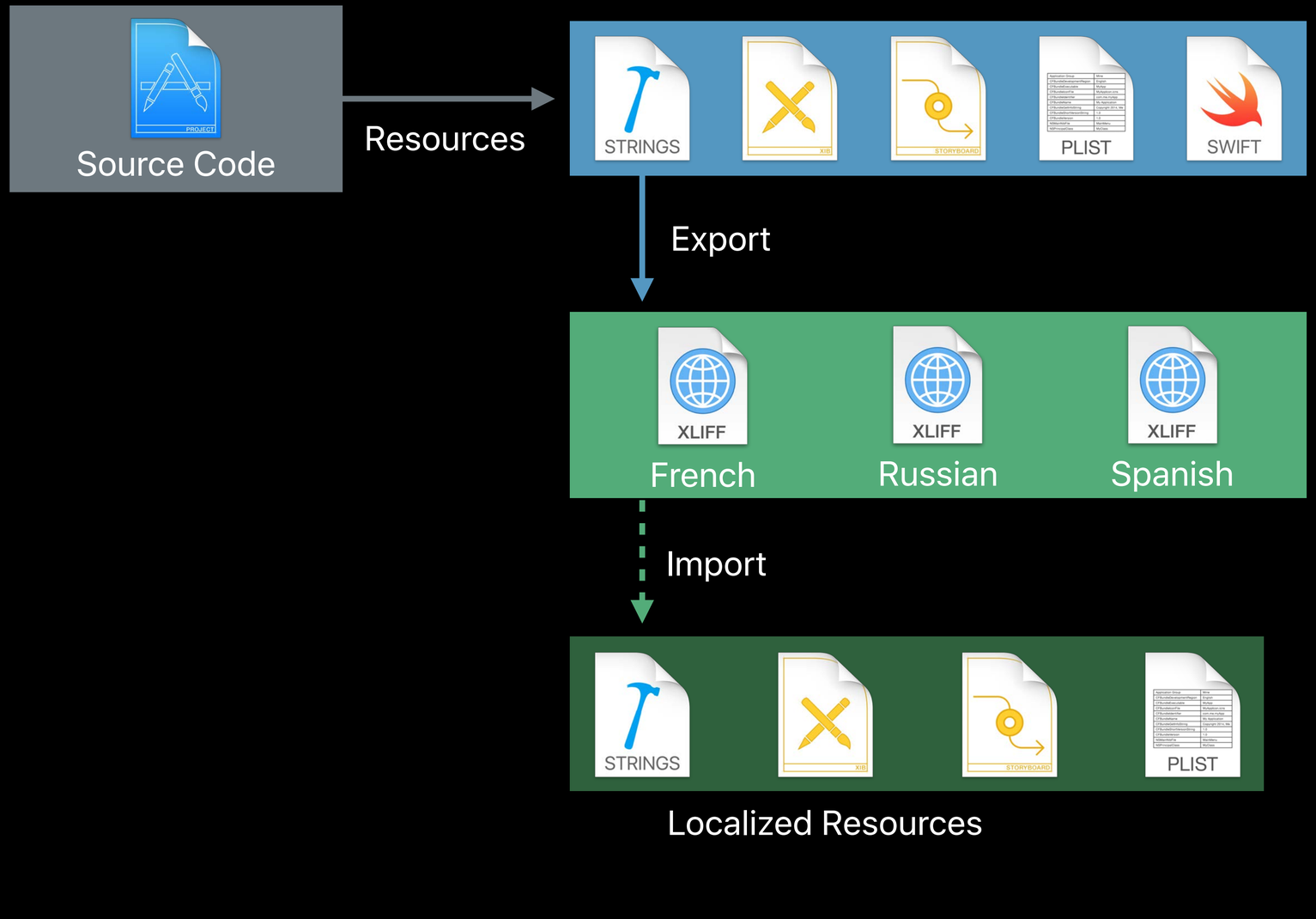
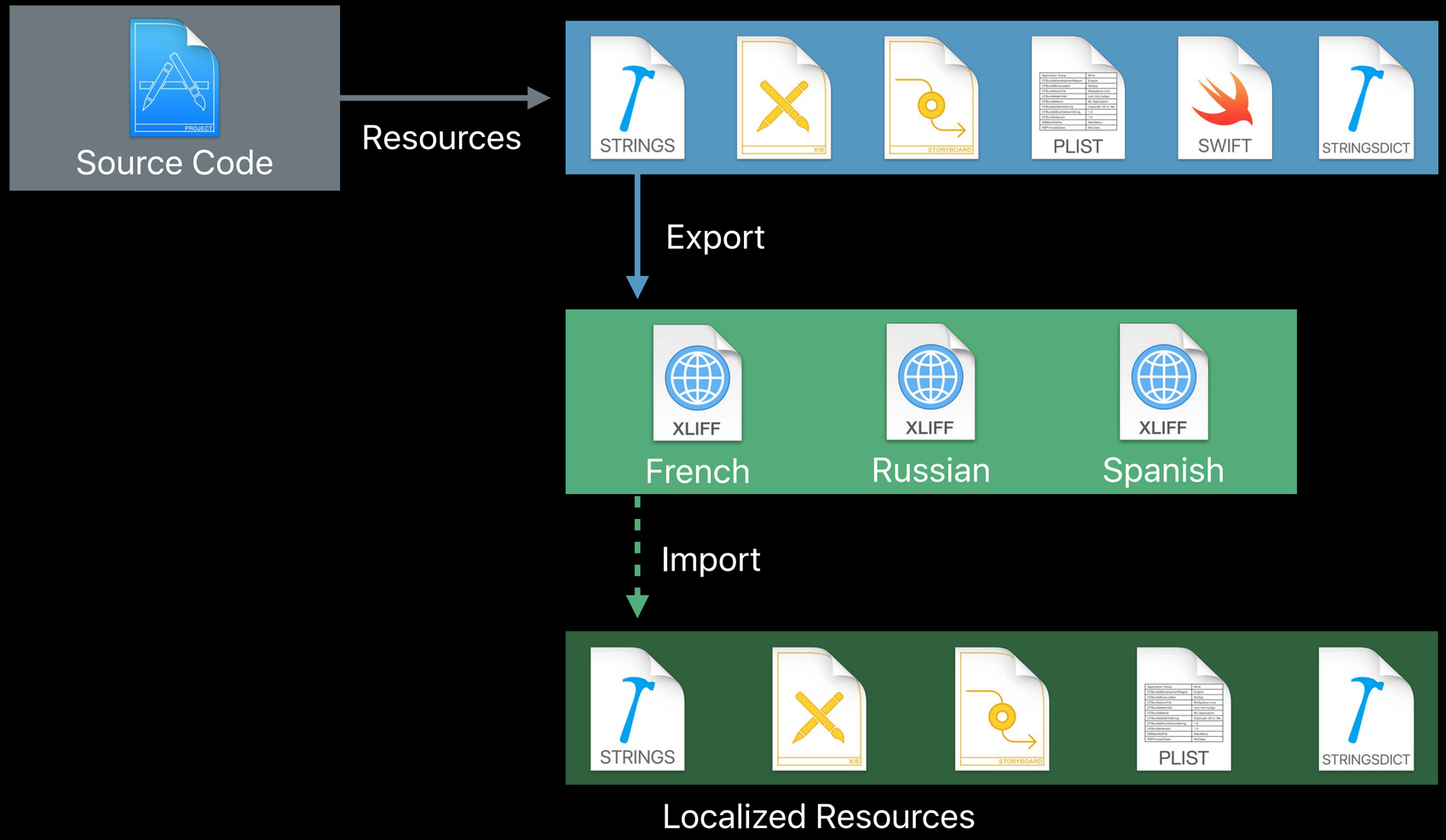


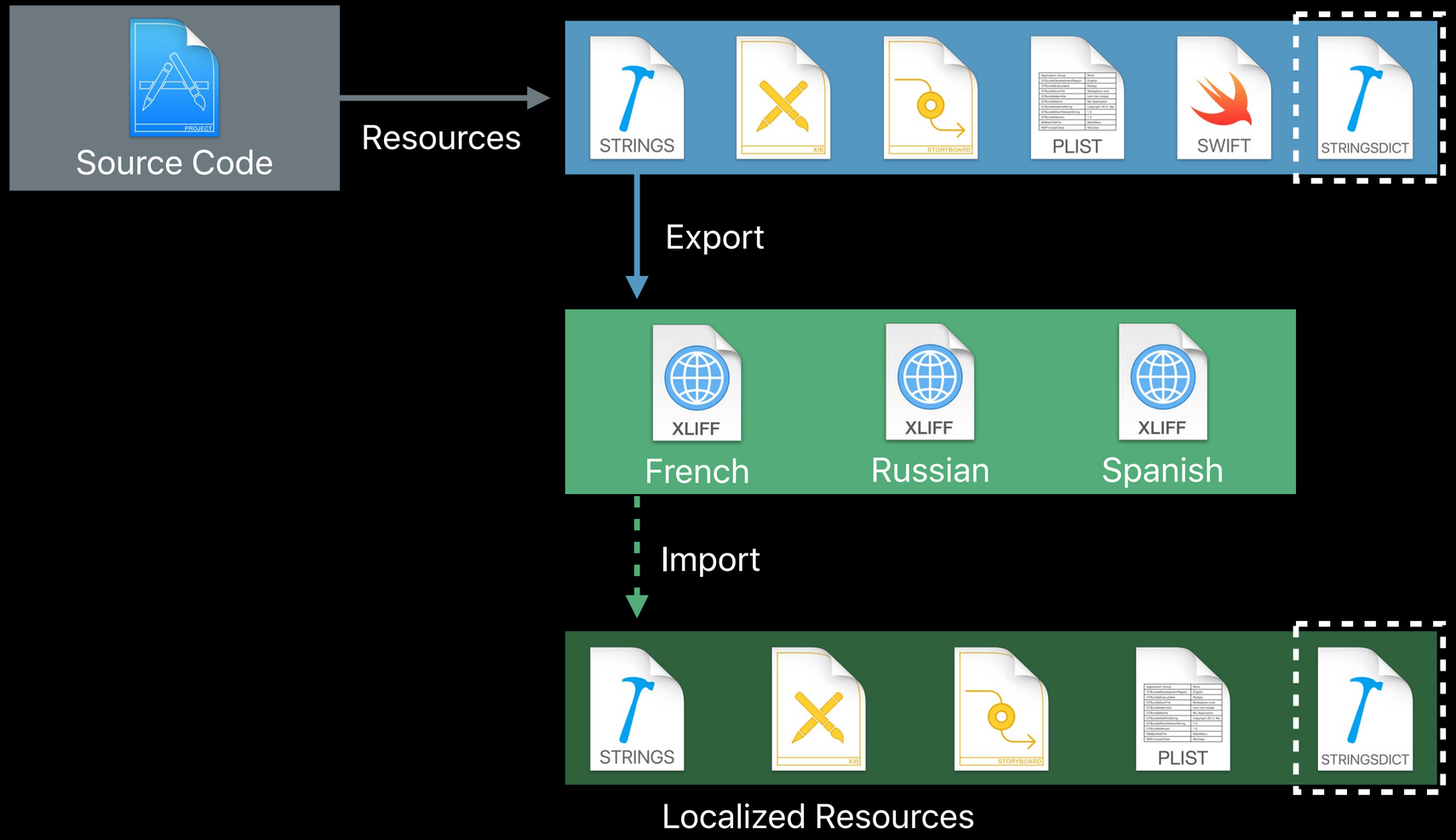
Localization Process



Localization Process

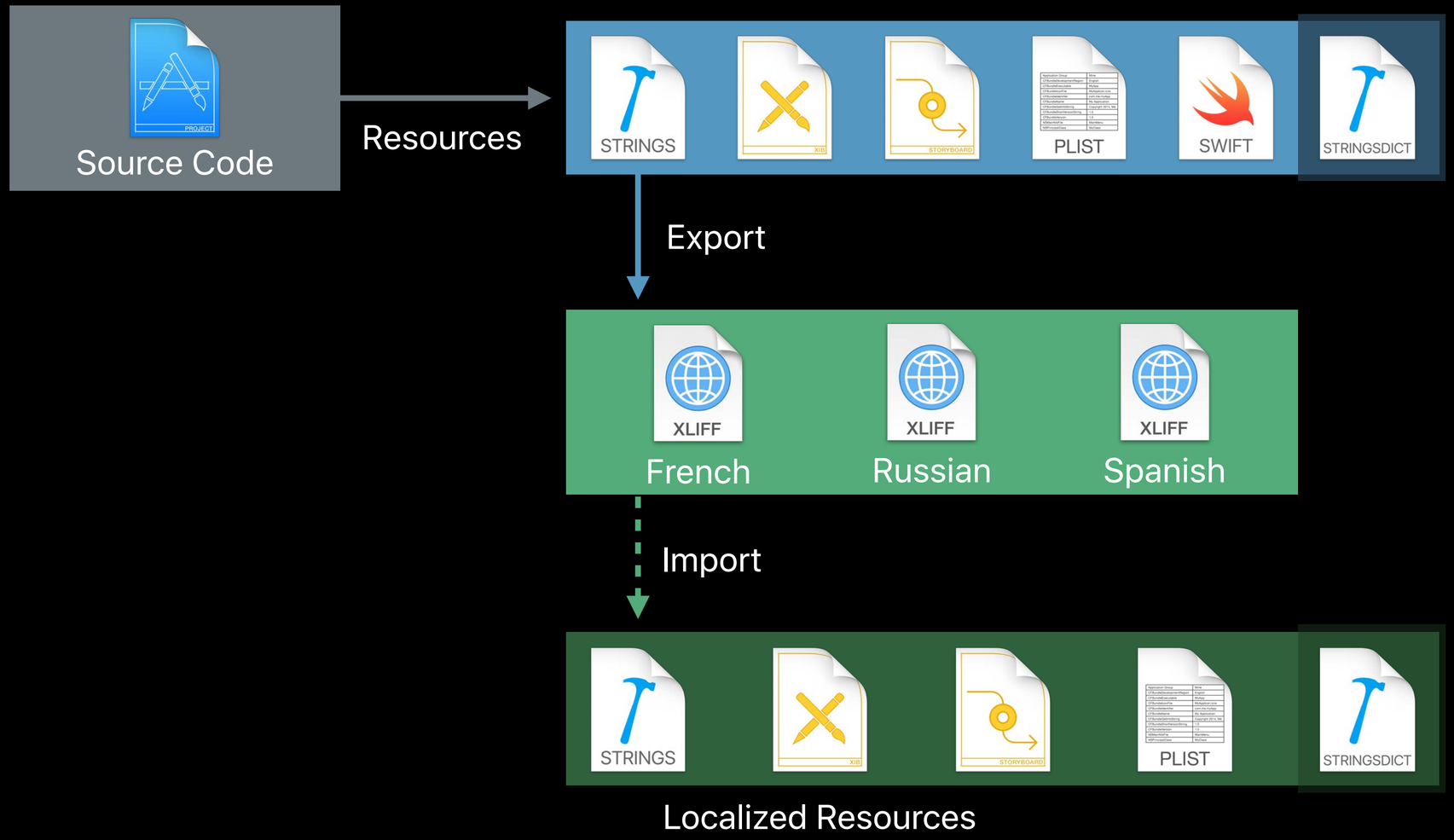


Localization Process



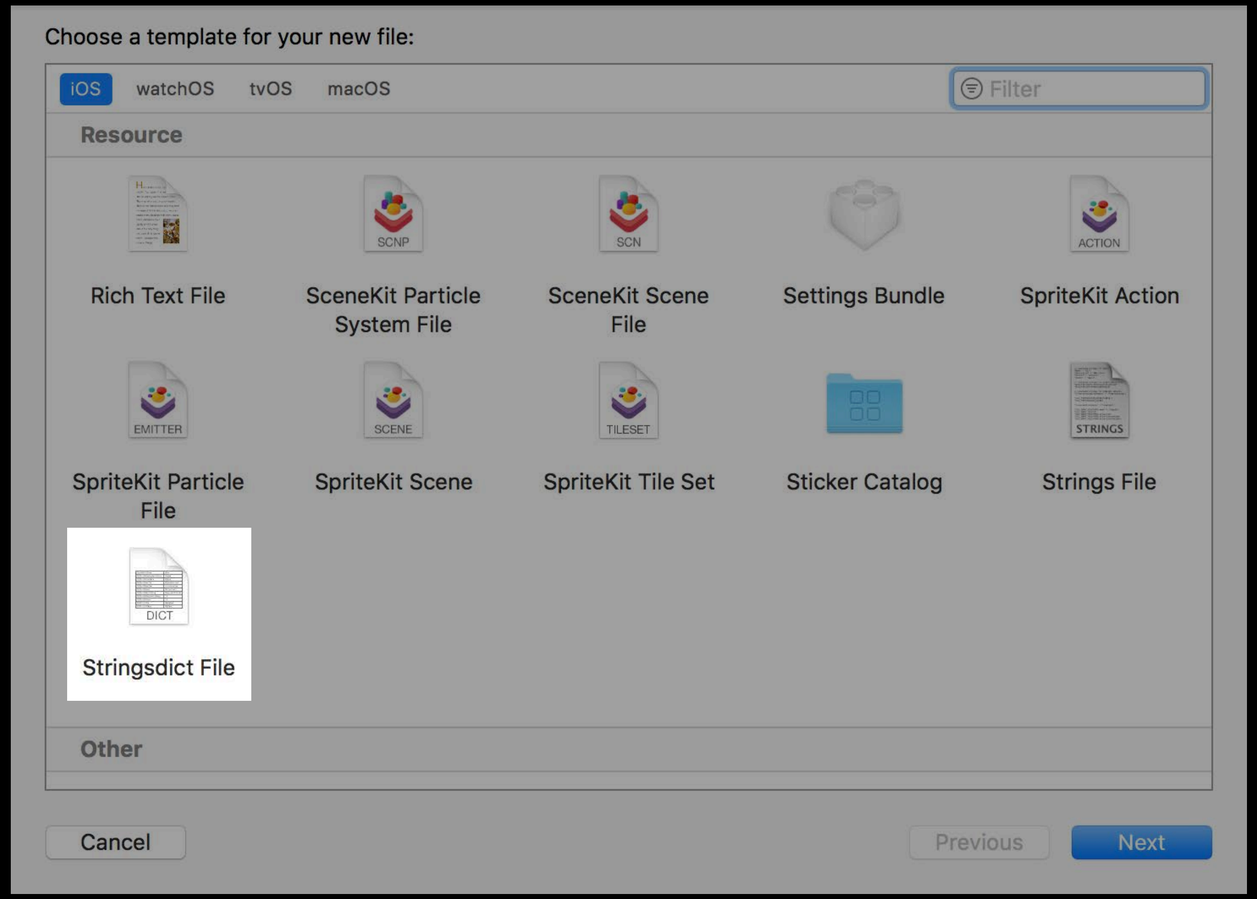
Localization Process

NEW



Stringsdict

NEW



Handling Plurals

Adaptive Strings

Localization Export and Import

Other Resources

Stringsdict

Plurals

```
if popularLanguages.count == 1 {
    label.text = String.localizedStringWithFormat(NSLocalizedString("1 popular language",
comment: "The list contains only one language"))
} else {
    label.text = String.localizedStringWithFormat(NSLocalizedString("%d popular languages",
comment: "The list contains more than one language"), popularLanguages.count)
}
```

Stringsdict

Plurals

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Stringsdict

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} else {
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comment: "The list contains more than one language"), popularLanguages.count)
}
```

Stringsdict

Plurals

Stringsdict

Plurals

English

1 popular language

2 popular languages

...

5 popular languages

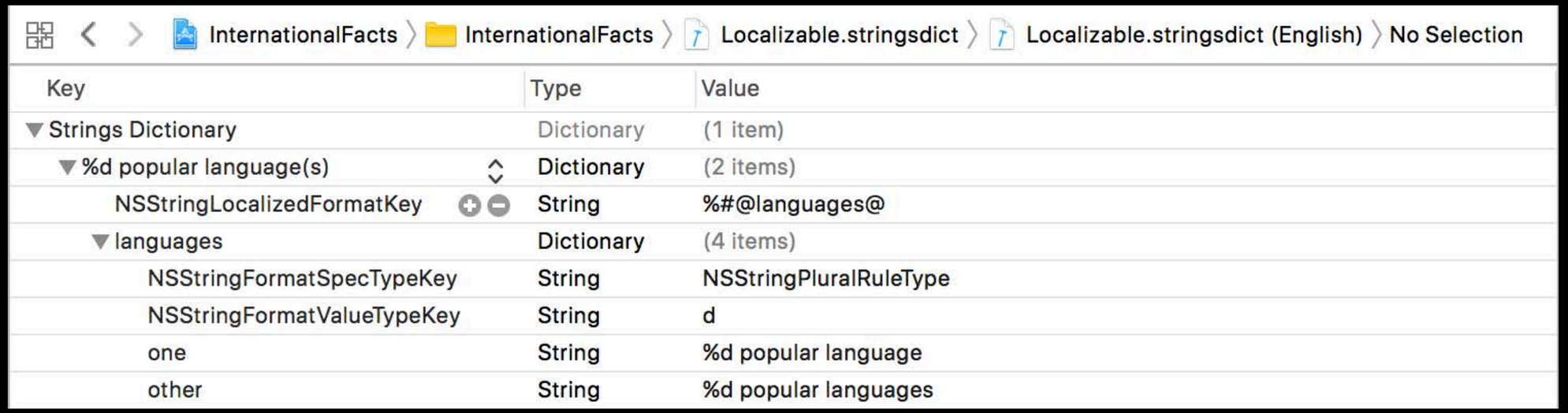
Stringsdict

Plurals

English	Russian
1 popular language	Распространенных языков: 1
2 popular languages	Распространенных языков: 2
…	…
5 popular languages	Распространенных языков: 5

Stringsdict

Plurals

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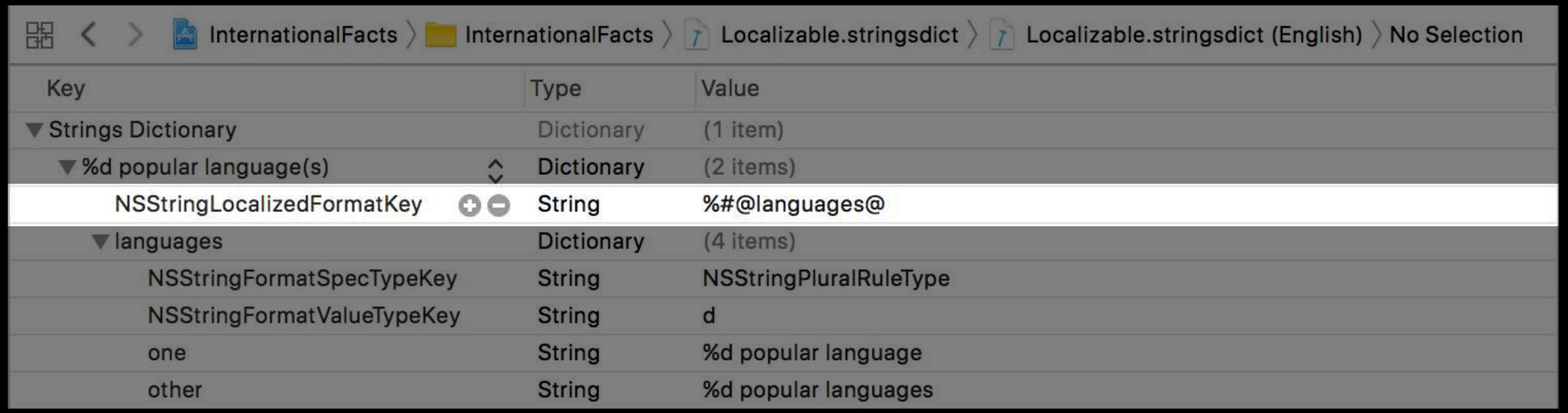
Stringsdict

Plurals

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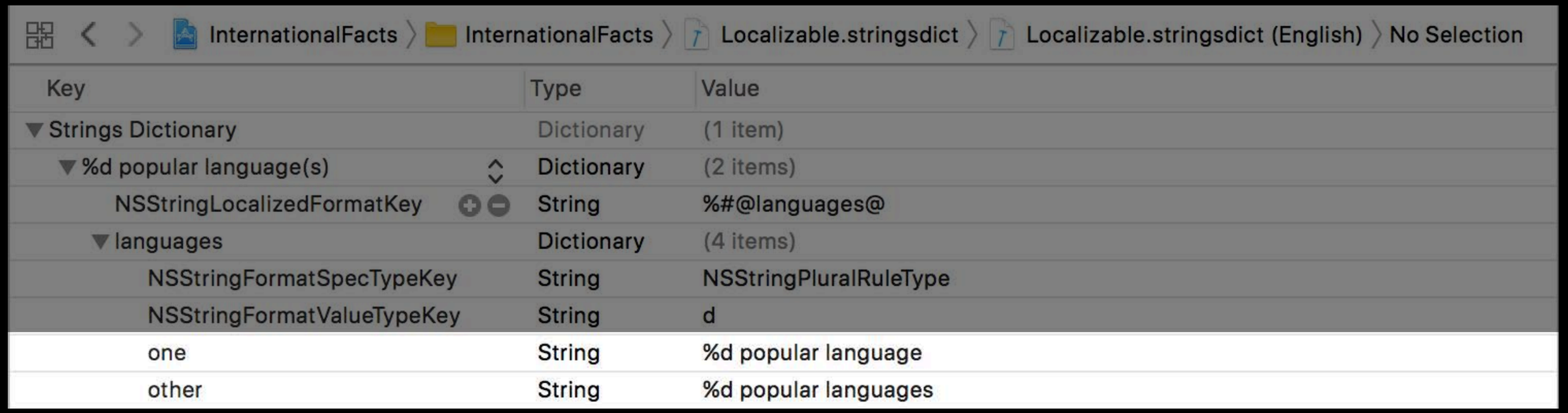
Stringsdict

Plurals




```
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```

Stringsdict

Plurals

Stringsdict

Plurals

Russian

Распространенных языков: 1

Распространенных языков: 2

...

Распространенных языков: 5

Stringsdict

Plurals

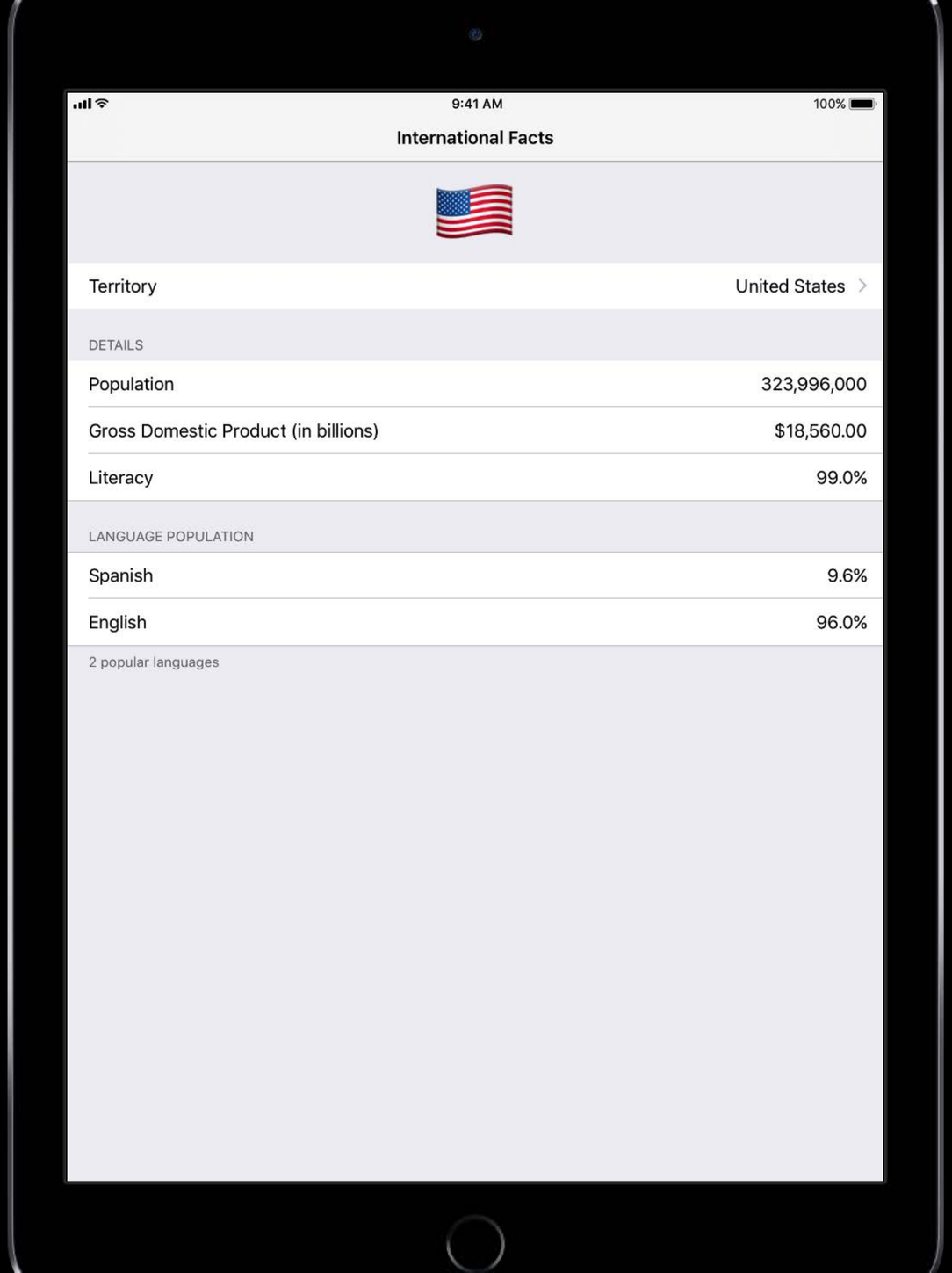
Russian	Russian
Распространенных языков: 1	1 распространенный язык
Распространенных языков: 2	2 распространенных языка
…	…
Распространенных языков: 5	5 распространенных языков

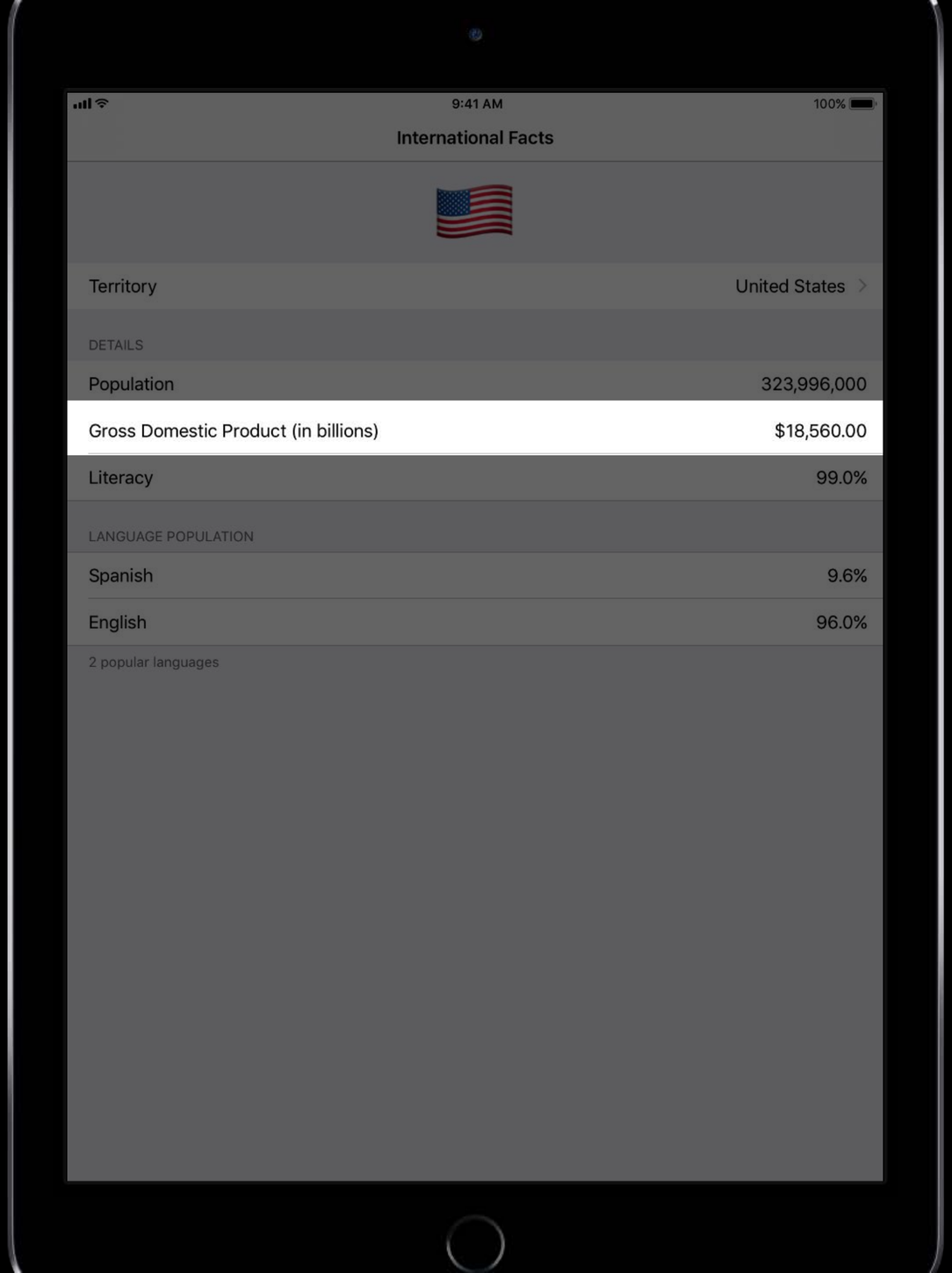
Handling Plurals

Adaptive Strings

Localization Export and Import

Handling Other Resources


9:41 AM
100%
International Facts
Territory
United States
DETAILS
Population
323,996,000
Gross Domestic Product (in billions)
$18,560.00
Literacy
99.0%
LANGUAGE POPULATION
Spanish
9.6%
English
96.0%
2 popular languages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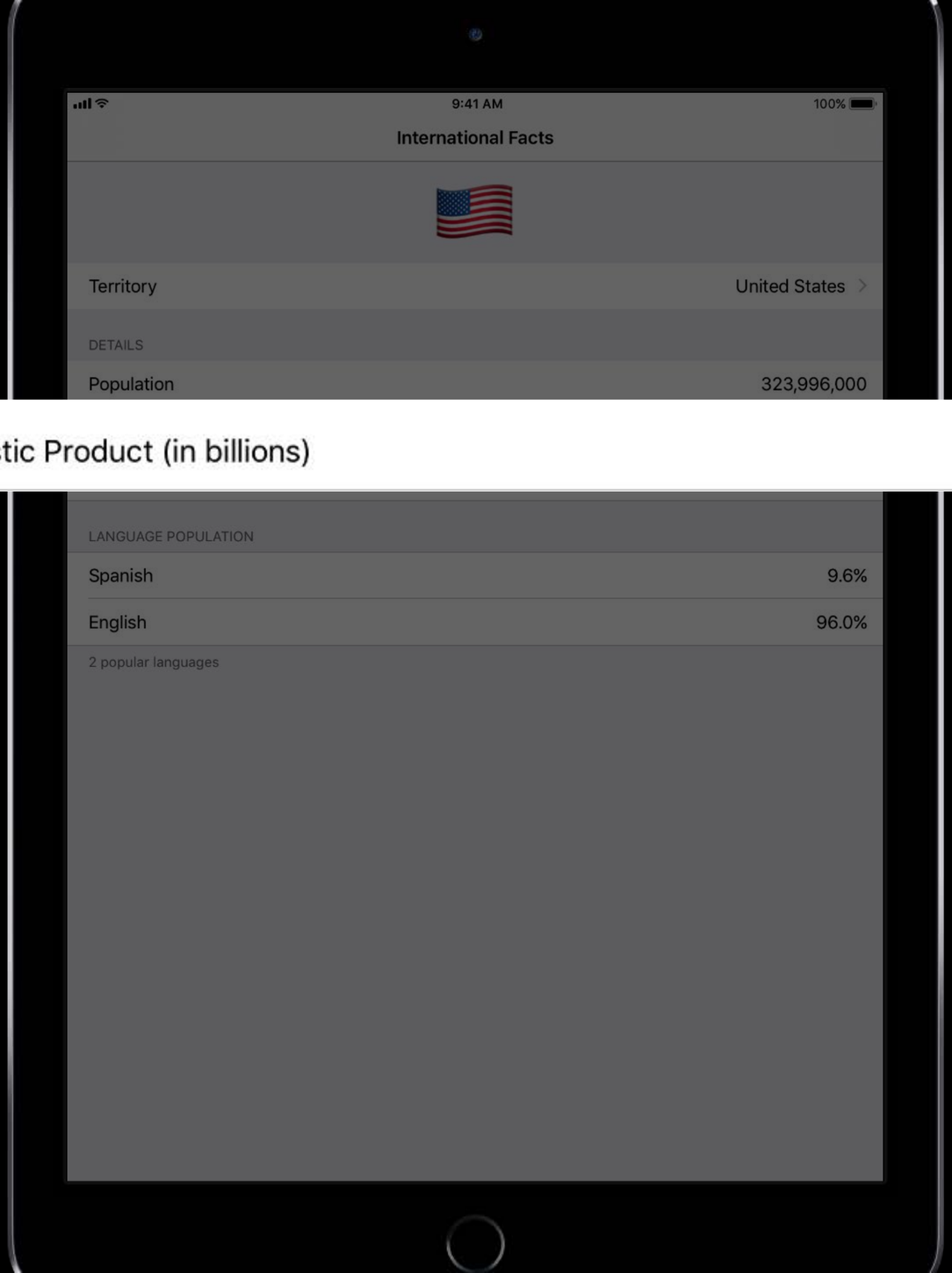
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Population
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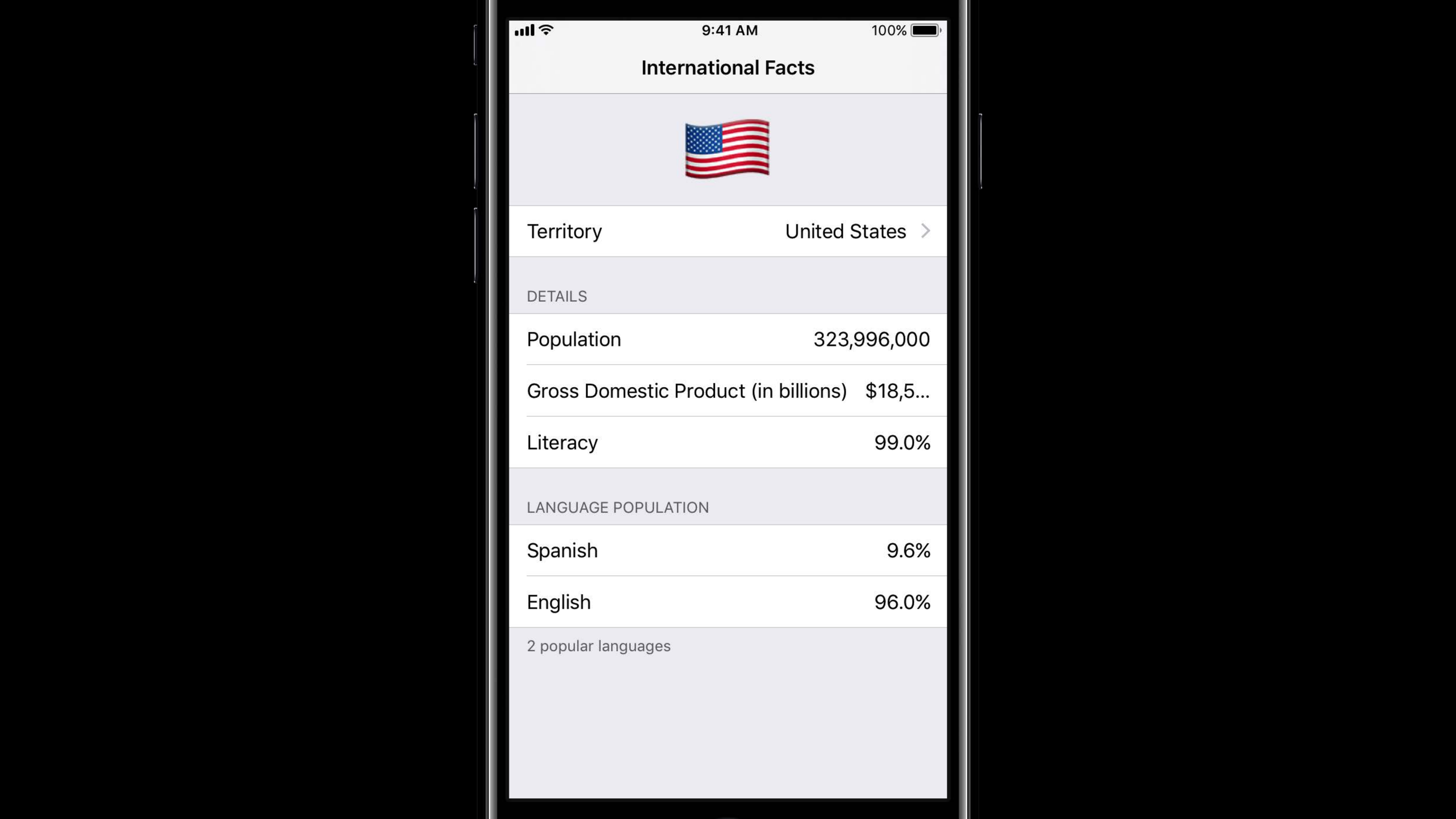
9:41 AM
100%
International Facts
Territory
United States
DETAILS
Population
323,996,000
Gross Domestic Product (in billions)
$18,5...
Literacy
99.0%
LANGUAGE POPULATION
Spanish
9.6%
English
96.0%
2 popular languages

9:41 AM 100%

International Facts

Territory	United States

DETAILS

Population	323,996,000
Gross Domestic Product (in billions)	$18,5...
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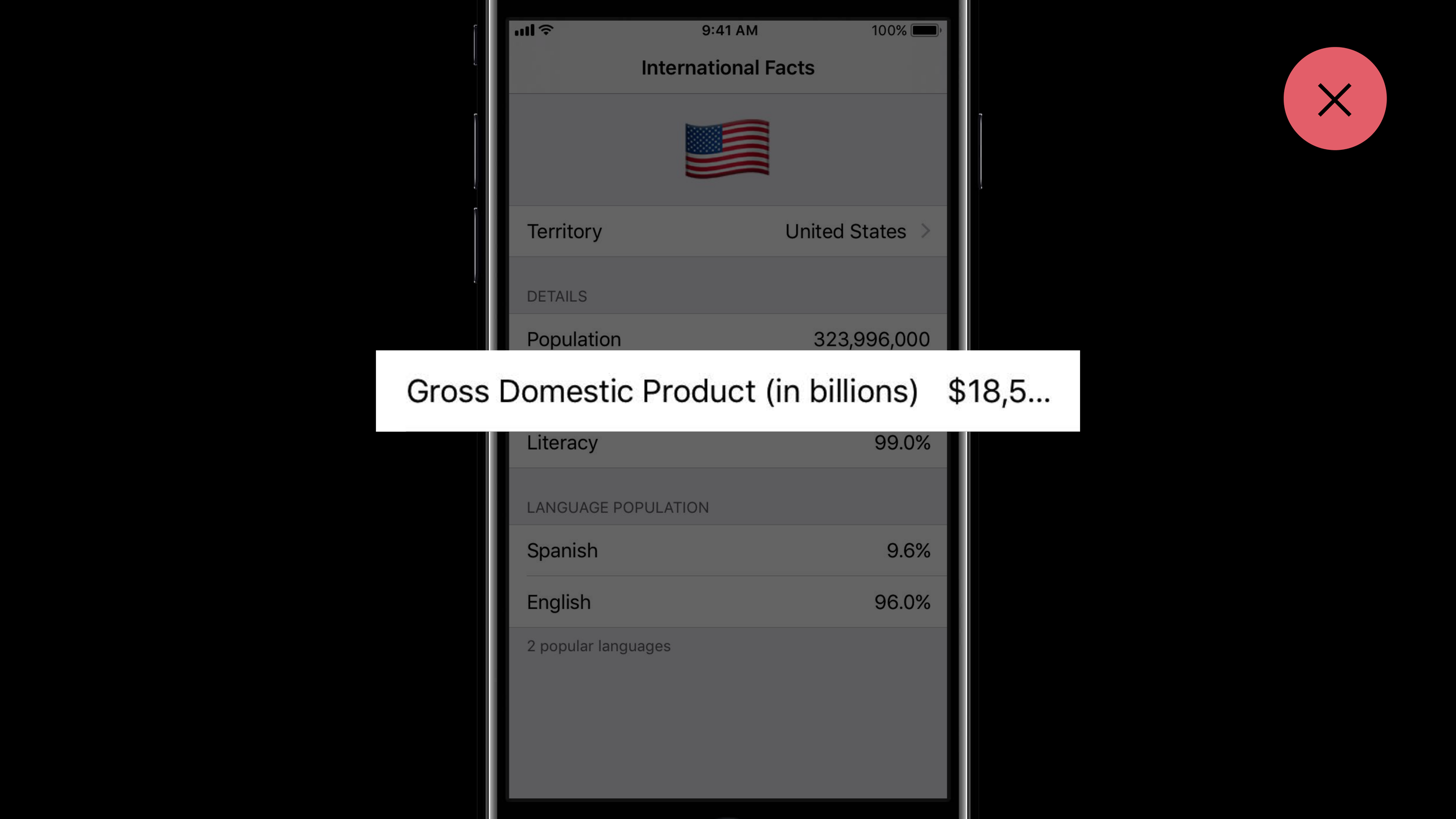
9:41 AM
100%
International Facts
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Stringsdict

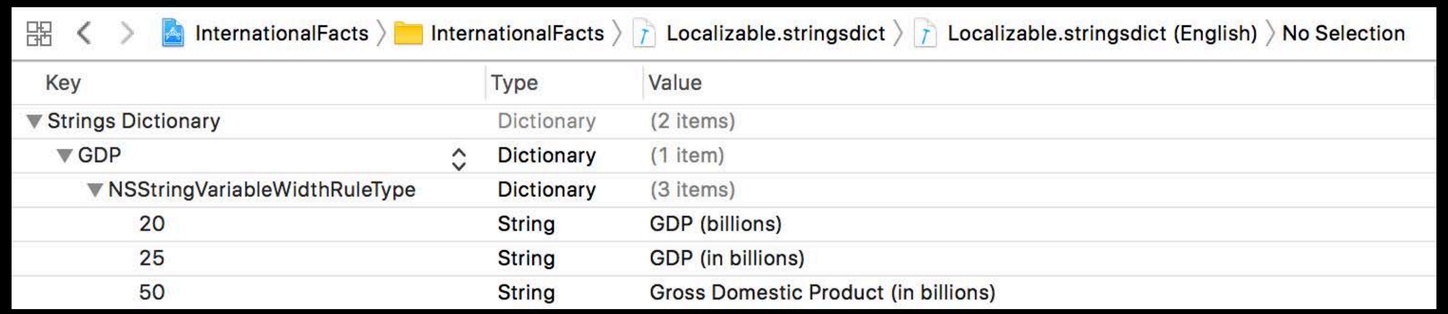
Adaptive Strings

NEW

Stringsdict

Adaptive Strings

NEW




```
label.text =  NSLocalizedString("GDP", comment: "A territory's GDP (Gross Domestic Product)")
```

Stringsdict

Adaptive Strings

NEW


```
label.text =  NSLocalizedString("GDP", comment: "A territory's GDP (Gross Domestic Product)")
```

```
let widthFormattedString =  string.variantFittingPresentationWidth(20)
```

Stringsdict

Adaptive Strings

NEW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label.text =  NSLocalizedString("GDP", comment: "A territory's GDP (Gross Domestic Product)")
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let widthFormattedString =  string.variantFittingPresentationWidth(20)
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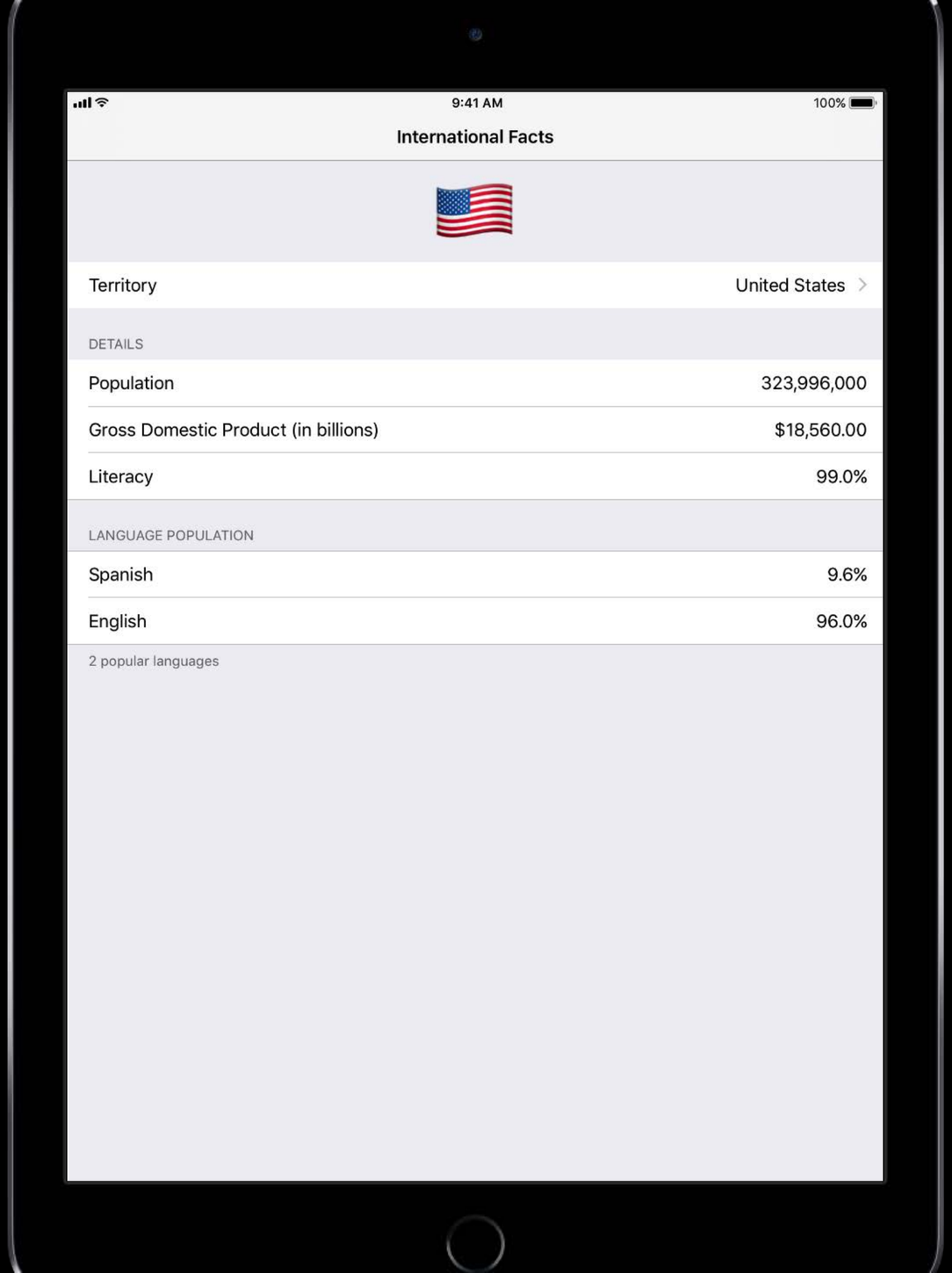
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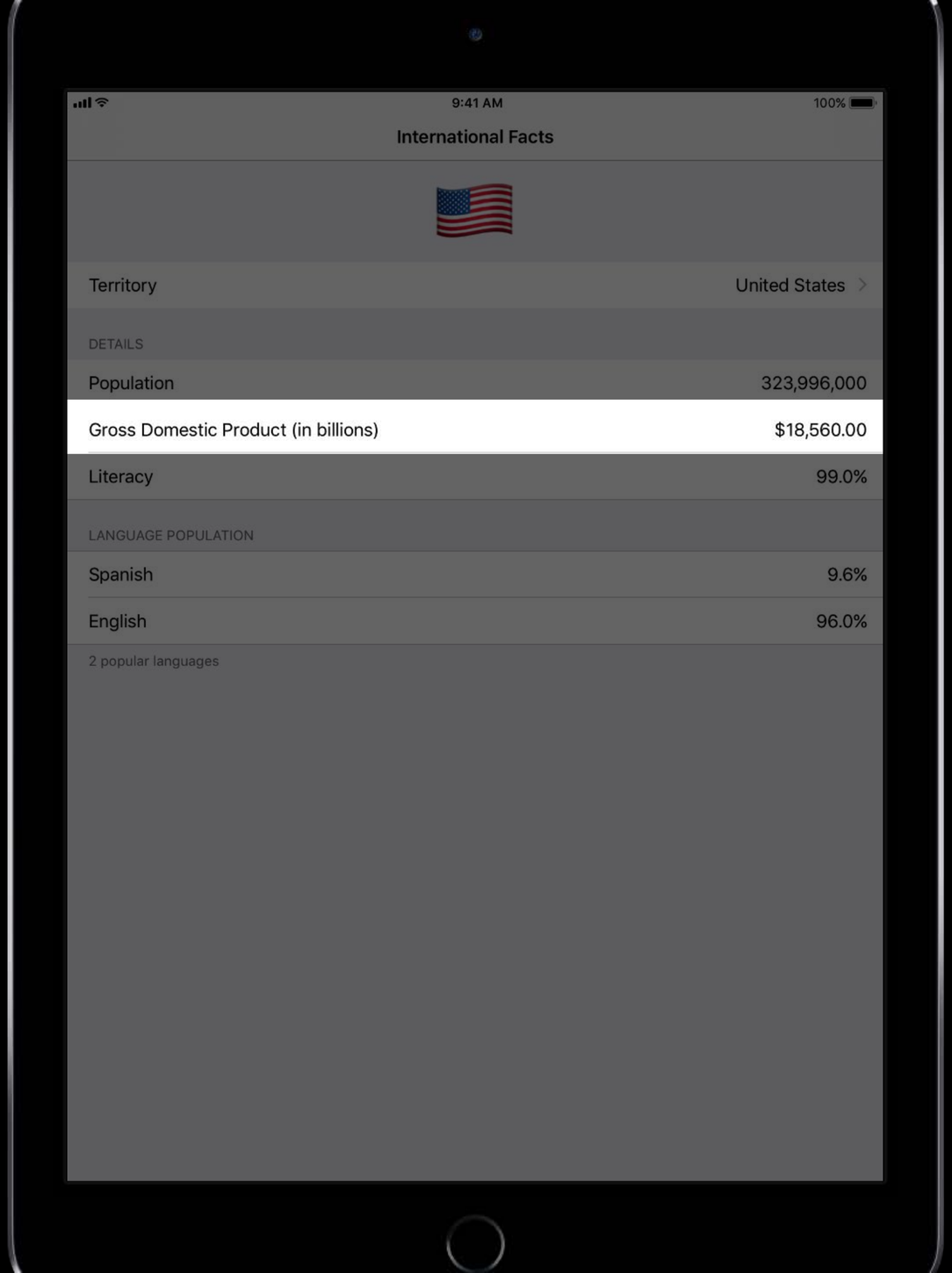
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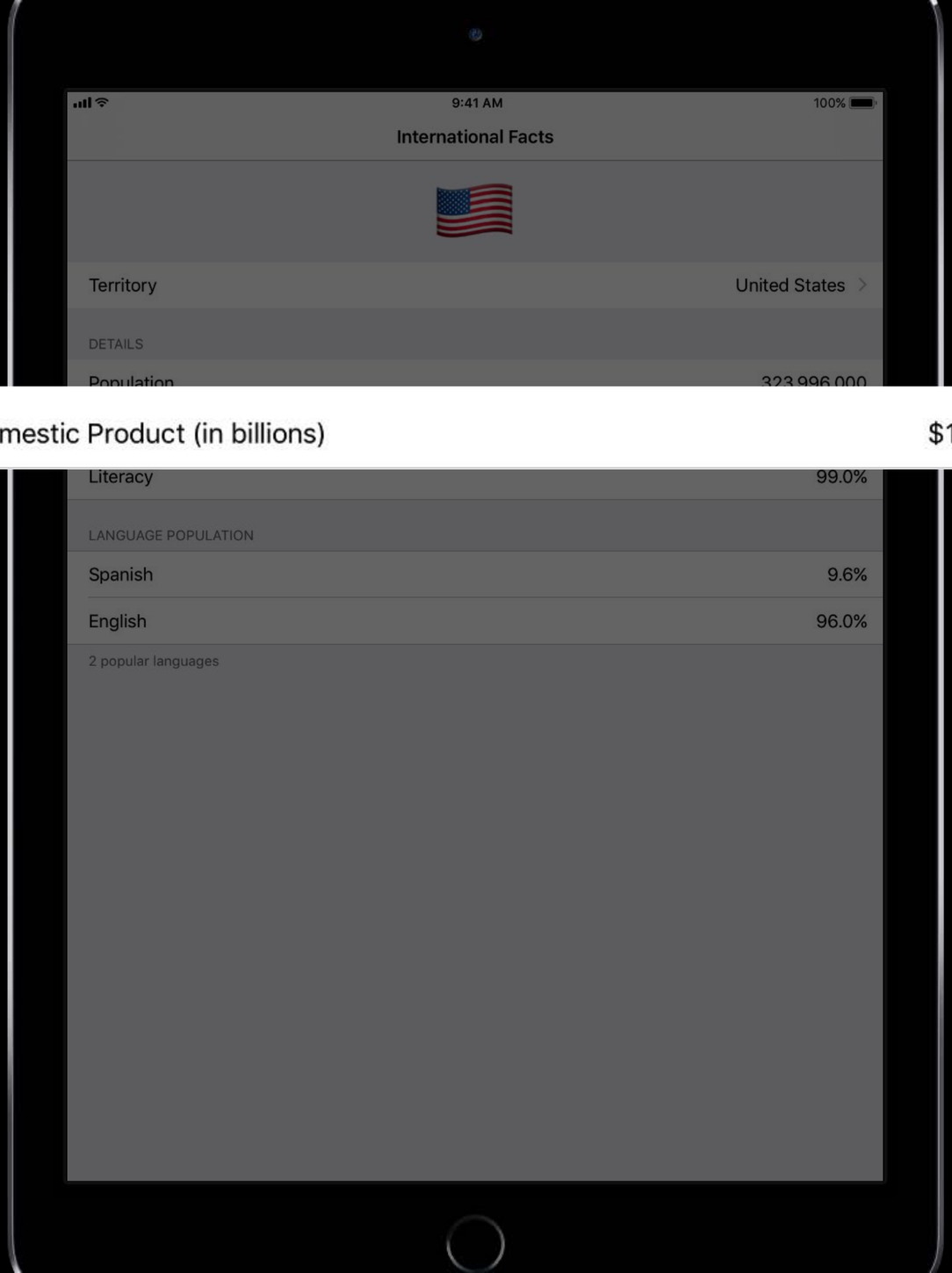
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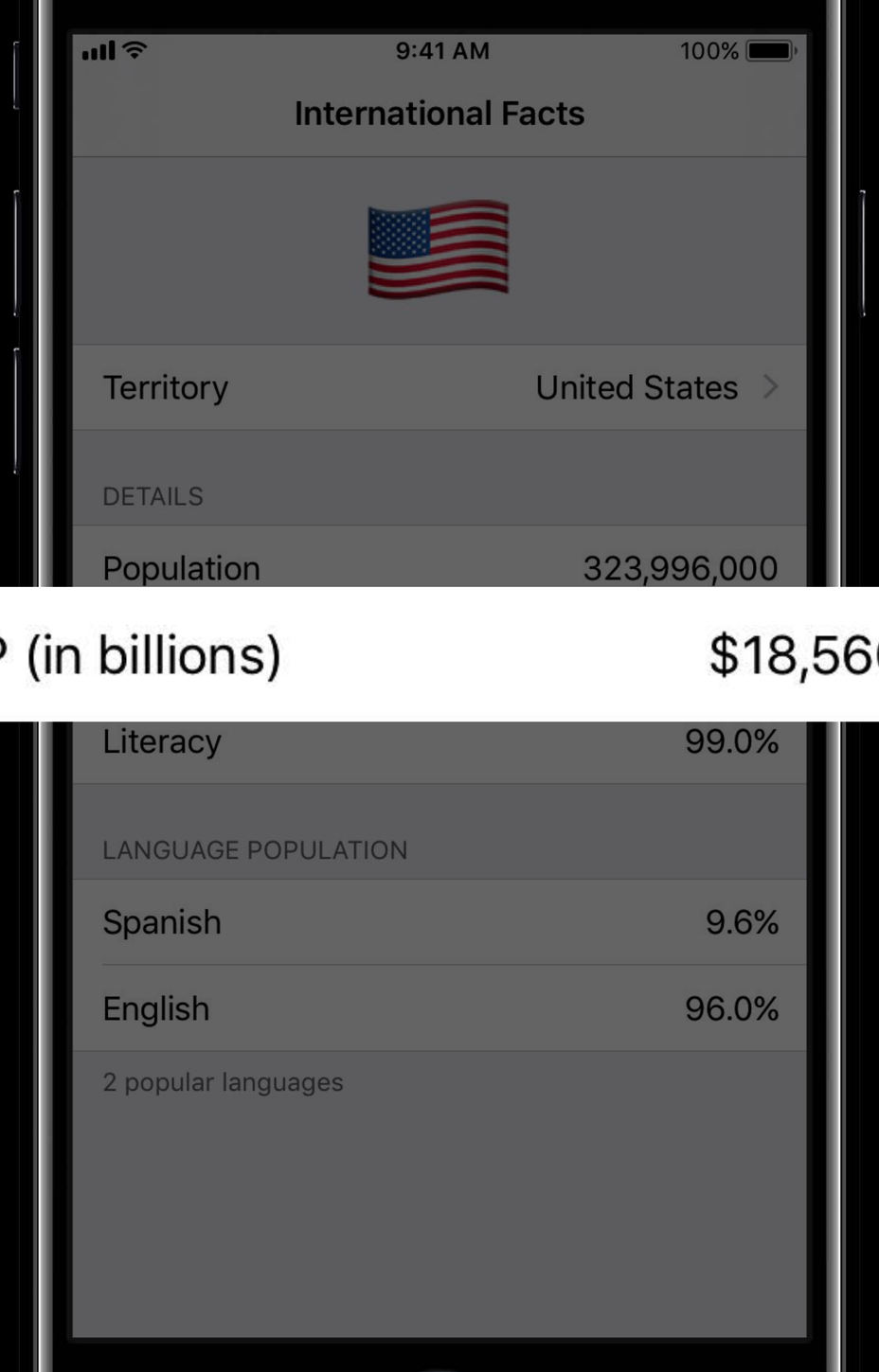
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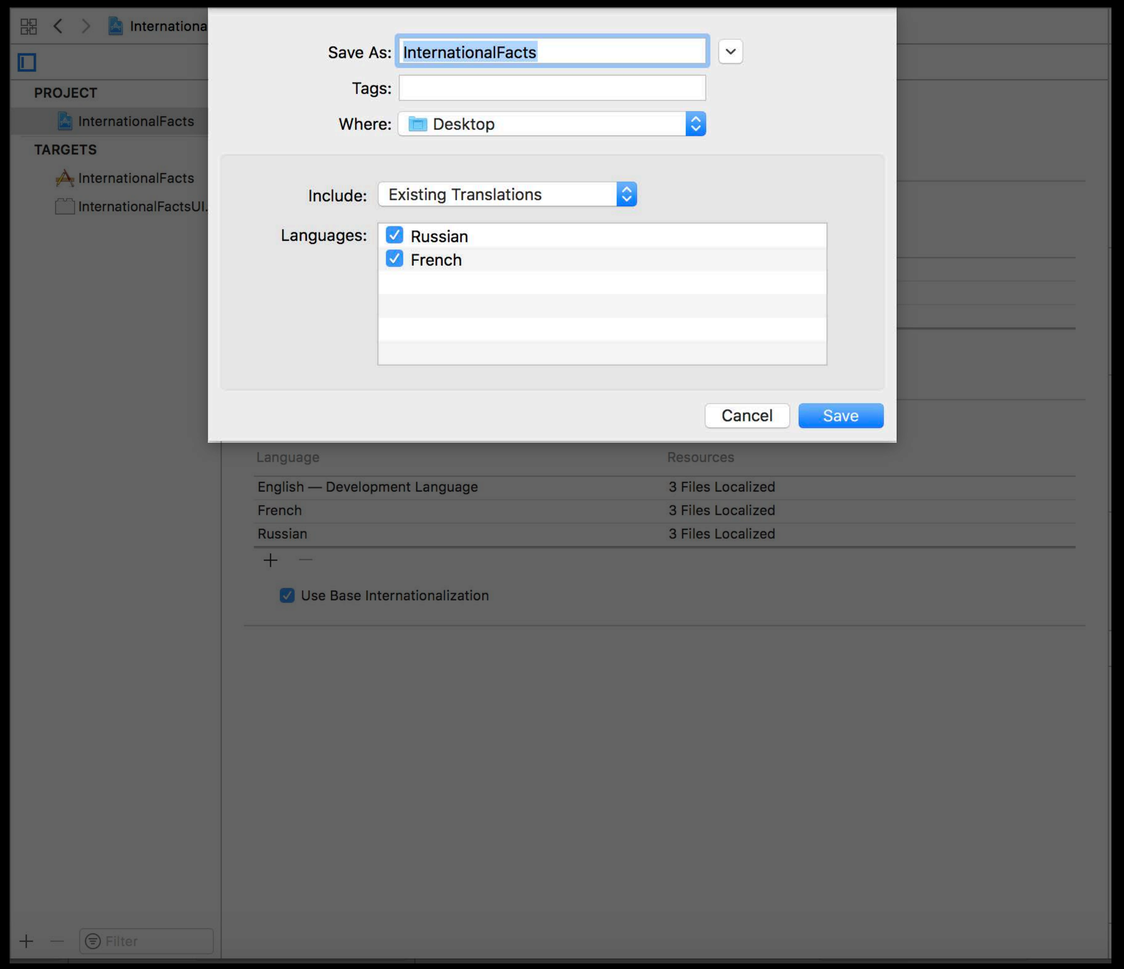
Handling Plurals

Adaptive Strings

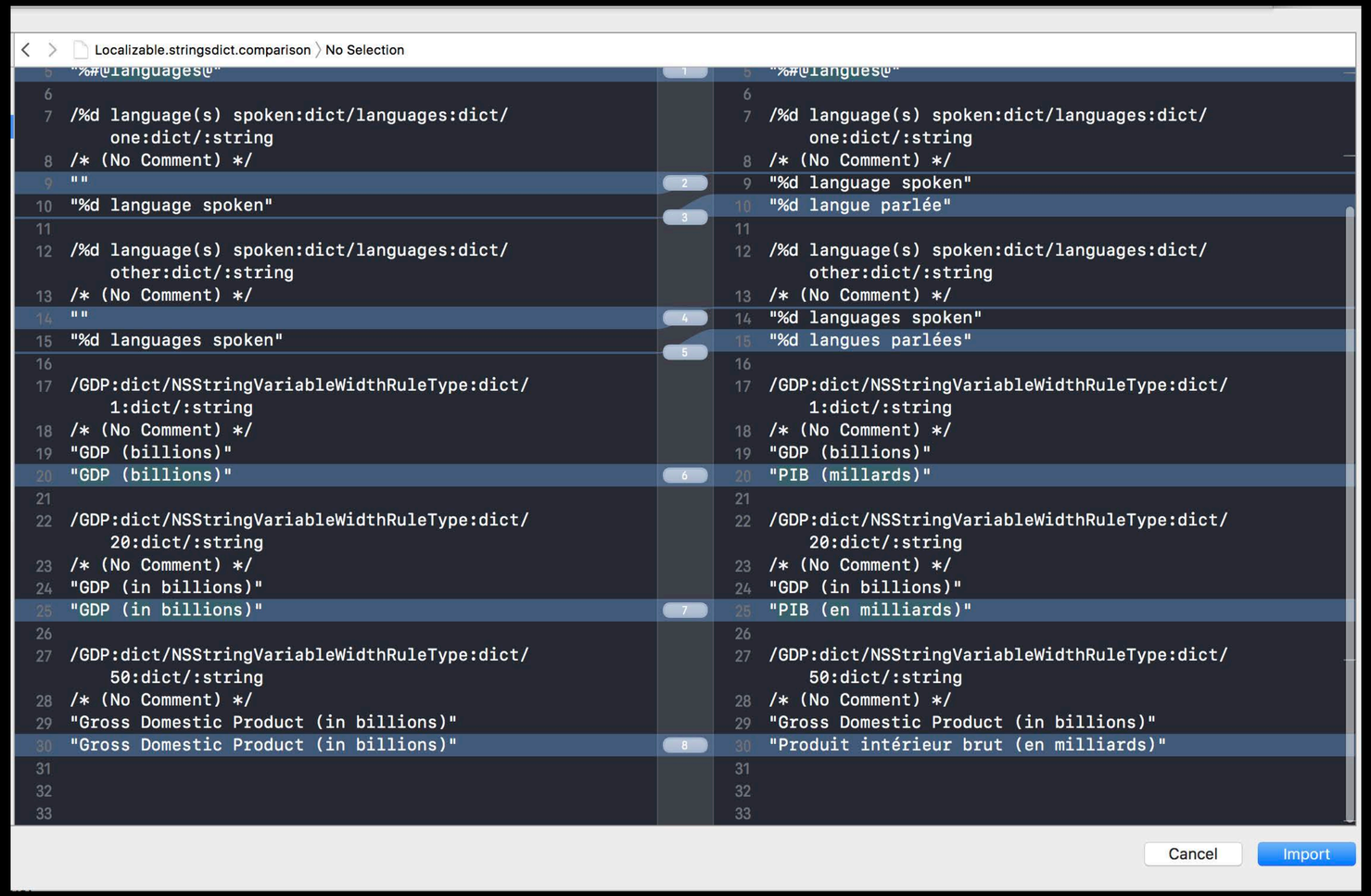
Localization Export and Import

Other Resources

Export XLIFF



Import XLIFF



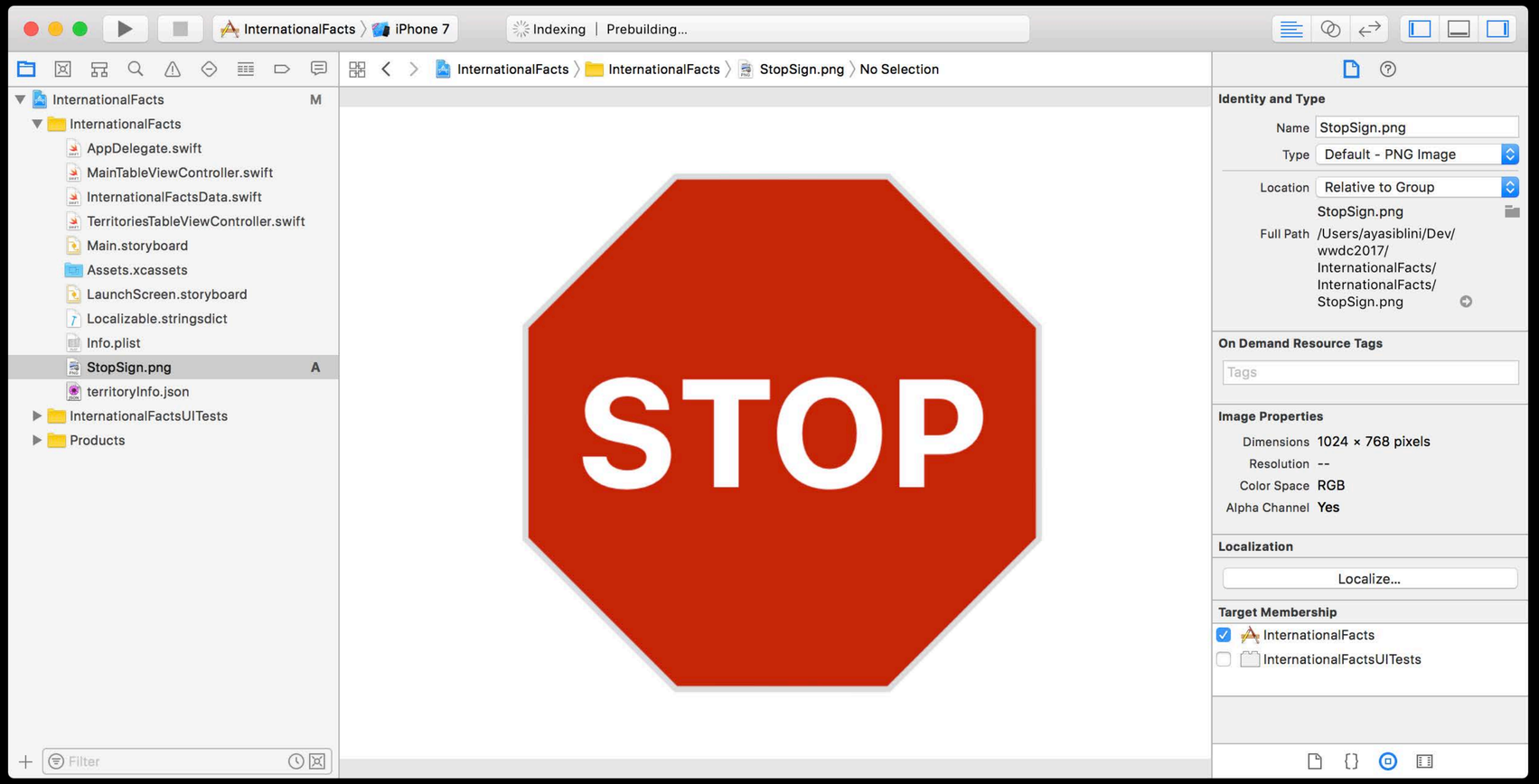
Handling Plurals

Adaptive Strings

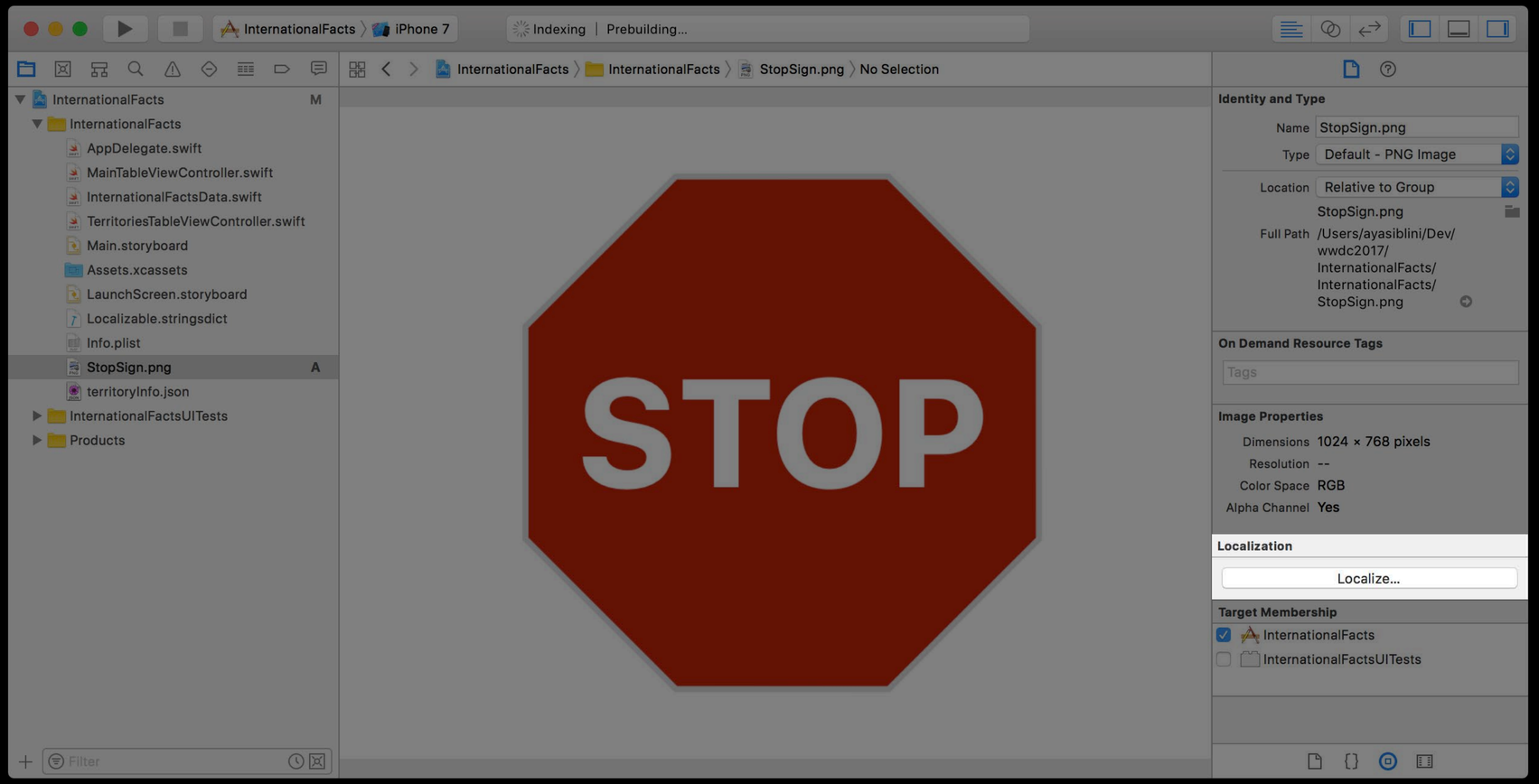
Localization Export and Import

Other Resources

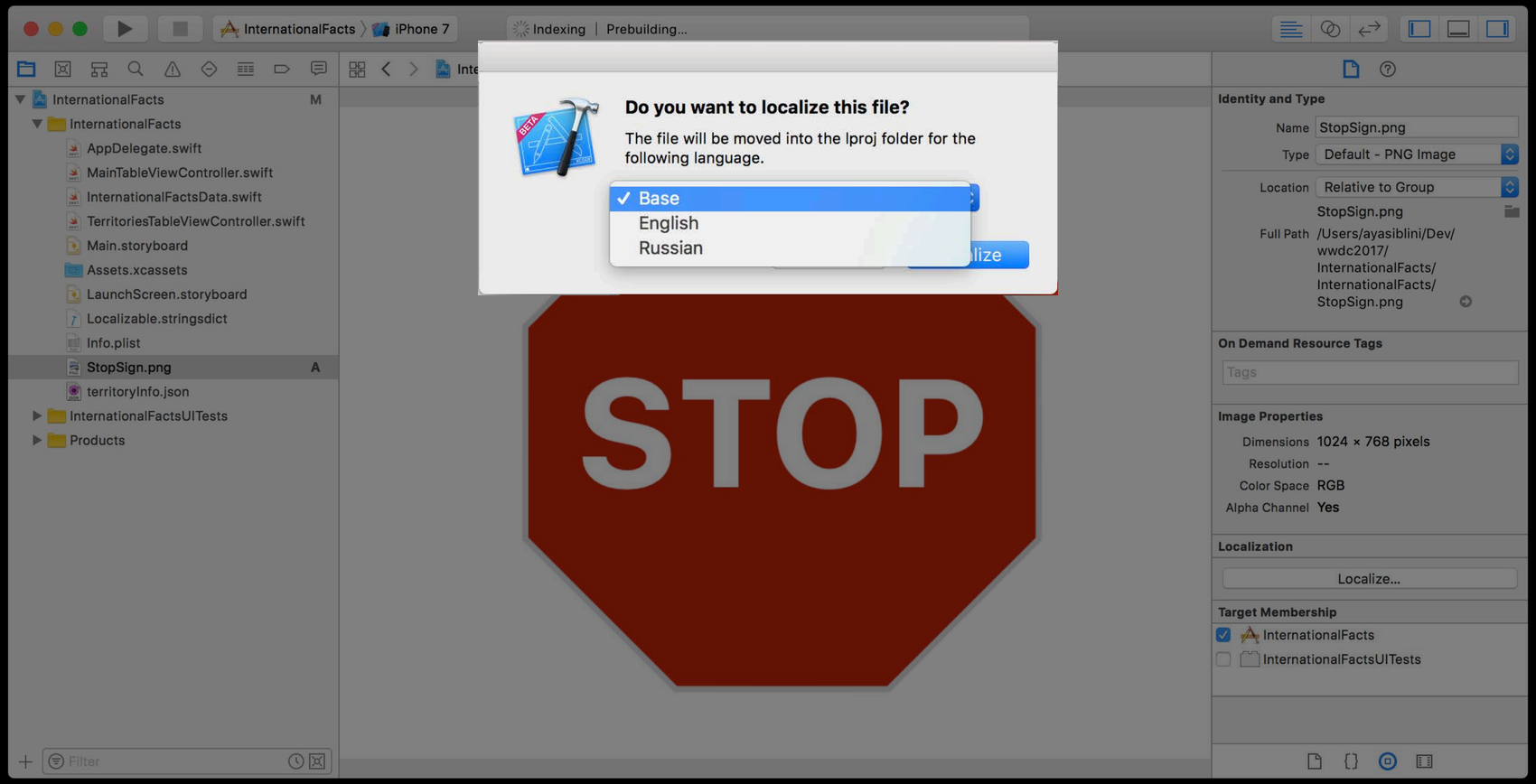
Other Resources



Other Resources



Other Resources



Demo

Localization export and import

Chris Hanson, Software Engineer

Summary

Summary

Use stringsdict for plurals and width variants

Summary

Use stringsdict for plurals and width variants

Export XLIFF for localization

Summary

Use stringsdict for plurals and width variants

Export XLIFF for localization

Import localized XLIFF

Summary

Use stringsdict for plurals and width variants

Export XLIFF for localization

Import localized XLIFF

Localize non-string resources in Xcode

Summary

Use stringsdict for plurals and width variants

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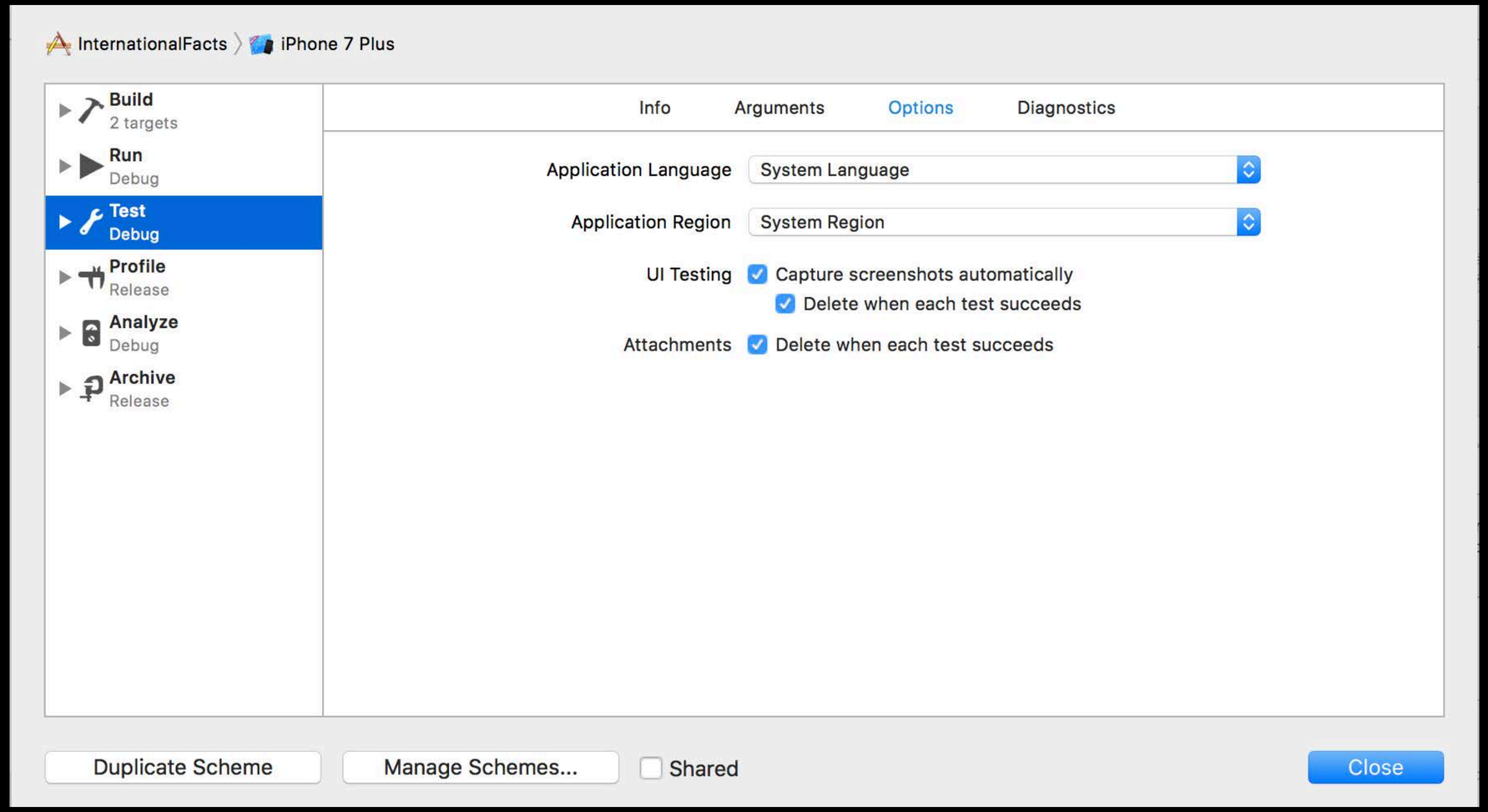
Testing

Aya Siblini, Software Engineer

Testing

XCTest

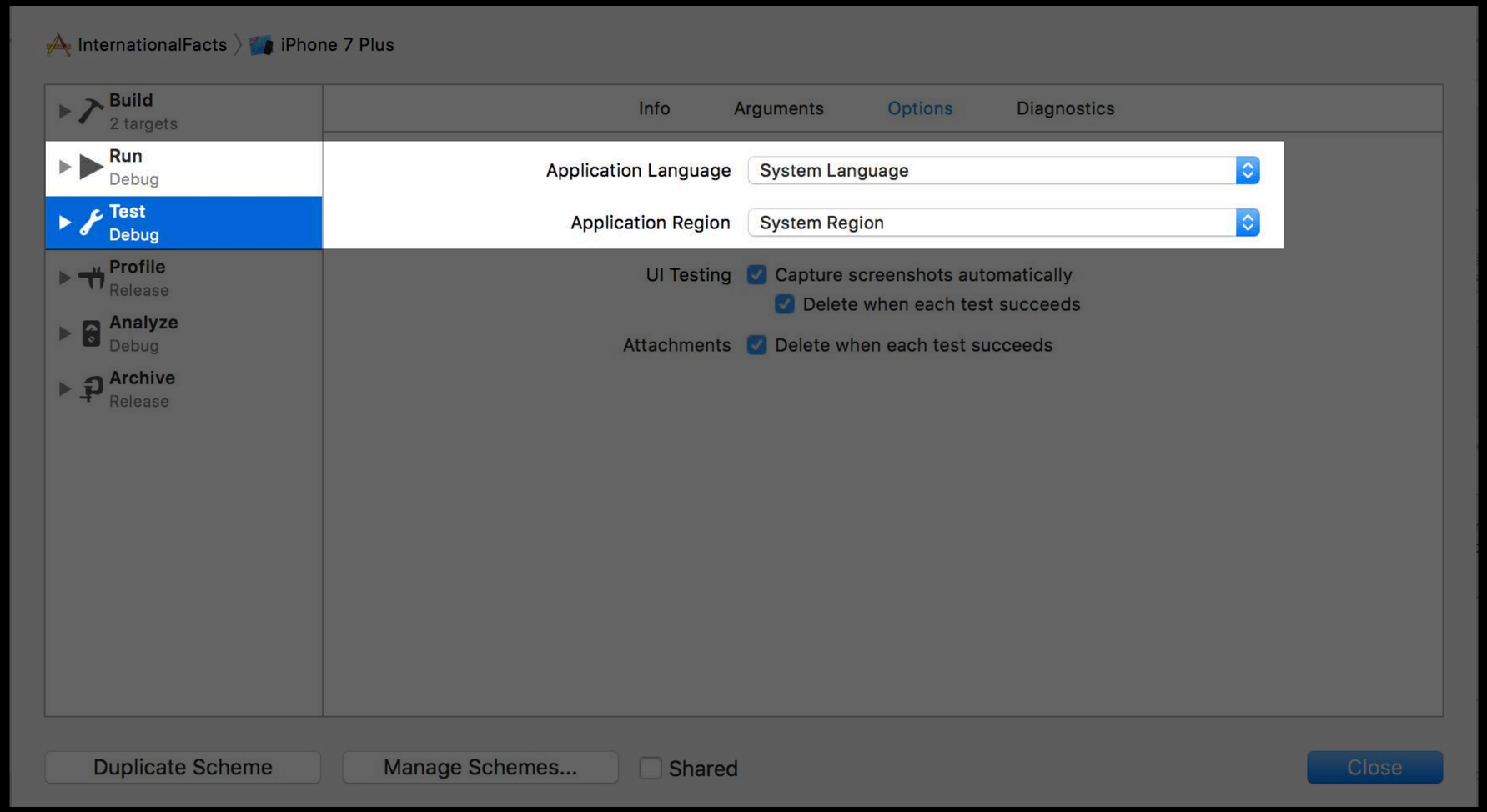
NEW



Testing

XCTest

NEW



Testing

UI testing

Testing

UI testing

```
app.tables.cells.staticTexts["Territory"].tap()
```

Testing

UI testing

Testing

UI testing

```
app.tables.cells.staticTexts["Territory"].tap()
```

Use `accessibilityIdentifier`

```
app.tables.cells["territoryTableCell"].tap()
```

Testing

UI testing

```
app.tables.cells.staticTexts["Territory"].tap()
```

Use `accessibilityIdentifier`

```
app.tables.cells["territoryTableCell"].tap()
```

Testing

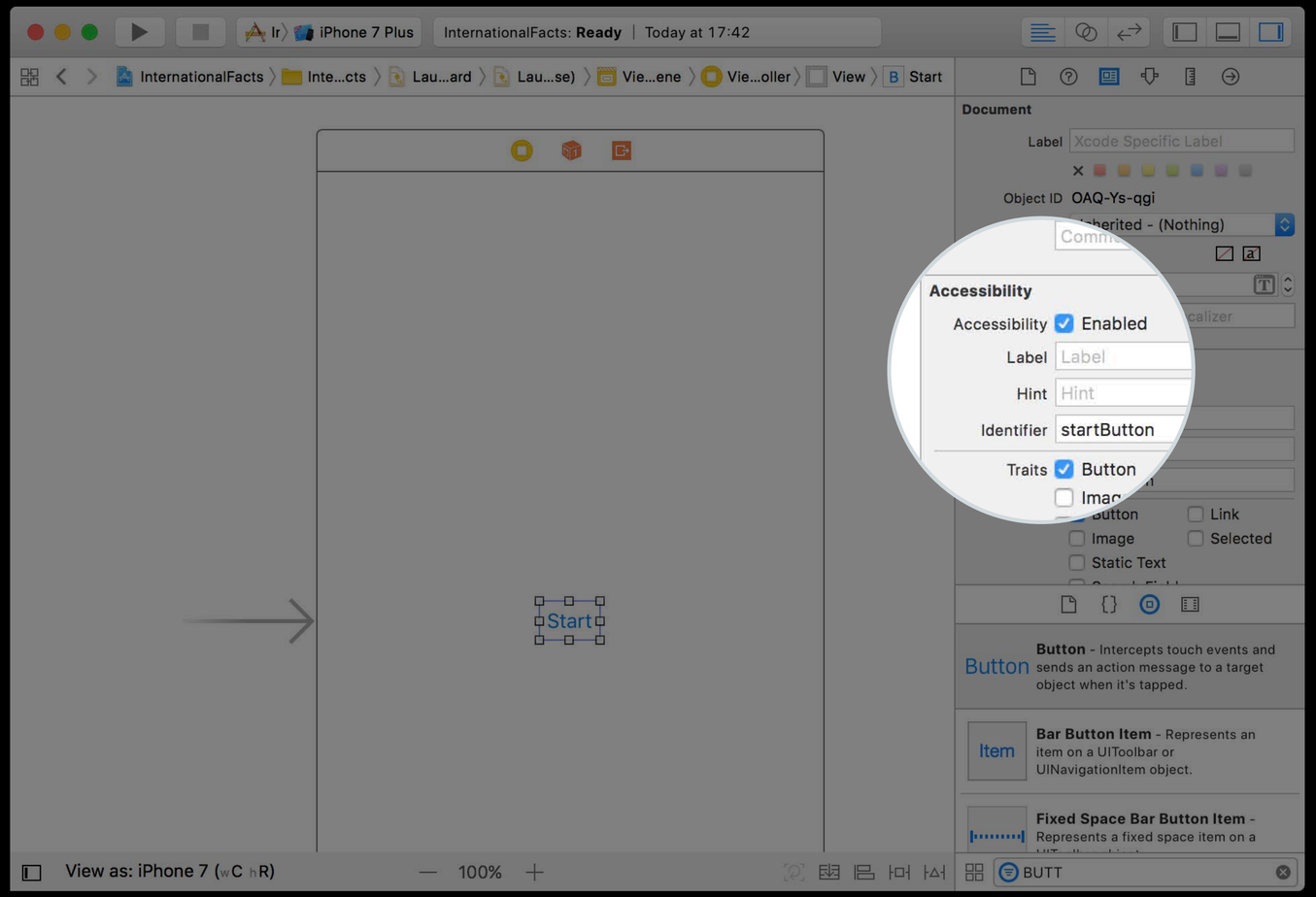
UI testing

Set accessibilityIdentifier

```
button.accessibilityIdentifier = "startButton"
```

Testing

UI testing



Testing

UI testing

NEW

Use accessibility identifiers

Use `XCTAttachment` to collect screenshots

Get full coverage of UI for all localizations

What's New in Testing	Hall 2	Thursday 3:10PM
Engineering for Testability	Hall 3	Friday 1:50PM

Demo

Testing

Aya Siblini, Software Engineer

Summary

Summary

Prepare your app for localization

Summary

Prepare your app for localization

Validate your app’s readiness

Summary

Prepare your app for localization

Validate your app’s readiness

Export localizable content to be translated

Summary

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Validate your app’s readiness

Export localizable content to be translated

Import localized content

Summary

Prepare your app for localization

Validate your app’s readiness

Export localizable content to be translated

Import localized content

Use `XCTest` to test your localized app

More Information

https://developer.apple.com/wwdc17/401

Related Sessions

Advances in TVMLKit	Grand Ballroom B	Tuesday 11:20AM
What's New in Testing	Hall 2	Thursday 3:10PM
Localizing Content for Swift Playgrounds	Grand Ballroom A	Thursday 3:10PM
Auto Layout Techniques in Interface Builder	Hall 3	Friday 9:00AM
The Keys to a Better Text Input Experience	Grand Ballroom B	Friday 11:00AM
Building Apps with Dynamic Type	Executive Ballroom	Friday 1:50PM
Engineering for Testability	Hall 3	Friday 1:50PM
Localization Best Practices on tvOS		WWDC 2017 Video

Labs

Introduction to Interface Builder Lab	Technology Lab E	Tue 12:00PM-3:10PM
Internationalization Lab	Technology Lab I	Tue 1:50PM-4:10PM
Advanced Interface Builder and Auto Layout Lab	Technology Lab K	Wed 3:10PM-6:00PM
Internationalization Lab	Technology Lab I	Fri 9:00AM-1:50PM
Advanced Interface Builder and Auto Layout Lab	Technology Lab K	Fri 12:00PM-1:50PM


WWDC17