

In App Language Switching

and Custom Localization

**In app language switching allows
the user to change the language
in the app's settings menu.**

Evenly GmbH, Berlin

www.evenly.io

Jörg Bühmann

@orkoden

arttA



Highlights

**Nero: Plädoyer für eine Bestie
(1/2)**

ARTE+7 52 Min.

Nero ist der Inbegriff des wahnsinnigen Tyrannen. Die Althistoriker Mischa Meier und Claudia Tiersch und der Kirchenhistoriker Christoph Marksches I...

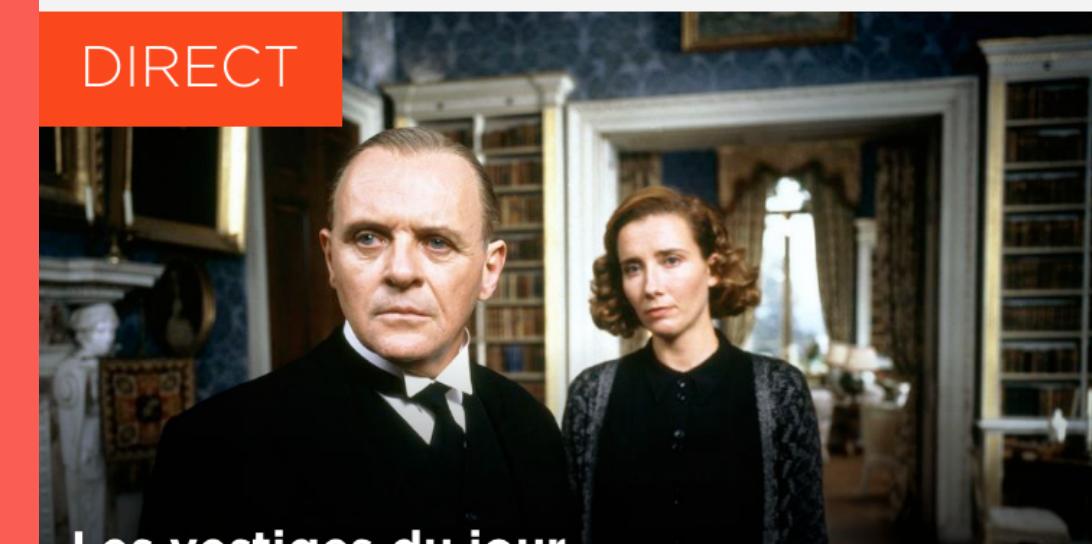
Jetzt auf ARTE >**LIVE****Was vom Tage übriglich****Highlights****Mediathek****ARTE Club****Live****TV-Programm**

Sélection

**Néron - Plaidoyer pour un monstre (1/2)**

ARTE+7 52 min.

Considéré comme un tyran sanguinaire, l'empereur romain Néron fait aujourd'hui l'objet d'une réhabilitation. Un documentaire captivant...

En ce moment sur ARTE >**DIRECT****Les vestiges du jour****Sélection****Vidéos****ARTE Club****Direct****Guide TV**

Don't do it

Your app probably doesn't need it

**bugs, subtle bugs, duplicate effort, bugs,
maintenance, complexity, testing, time, money**

what's in a locale?

Lots of things

[Général](#)

Langue et région

[Modifier](#)

ORDRE PRÉFÉRÉ DES LANGUES

Français

English

Anglais

Русский

Russe

繁體中文

Chinois (traditionnel)

[Ajouter une langue...](#)

Les apps et les sites web utiliseront la première langue de cette liste qu'ils prennent en charge.

FORMATS RÉGIONAUX

Région

Pologne >

Calendrier

Bouddhiste >

Unité de température

°F >

Exemple de format pour cette région

00:34

Mardi 5 janvier 2559 ère b.

1 234,56 PLN 4 567,89

Incomplete list of localization points

- language
- region, country
- calendar, time
- numbers
- currency
- measurement units
- punctuation

Representation examples

- en_GB, en_US, pl_PL, de_DE
- yue
- es_ES_PREEURO
- zh-Hant_HK_POSIX@collation=pinyin;currency=CNY

NSLocale

```
static var availableIdentifiers: [String] {get} // 739
static var isoLanguageCodes: [String] {get} // 594
static var isoRegionCodes: [String] {get} // 256
static var isoCurrencyCodes: [String] {get} // 299
static var commonISOCurrencyCodes: [String] {get} // 161
static var preferredLanguages: [String] {get}
```

NSLocale

```
func localizedString(forIdentifier identifier: String) -> String?
func localizedString(forLanguageCode languageCode: String) -> String?
func localizedString(forRegionCode regionCode: String) -> String?
func localizedString(forScriptCode scriptCode: String) -> String?
func localizedString(forVariantCode variantCode: String) -> String?
func localizedString(for calendarIdentifier: Calendar.Identifier) -> String?
func localizedString(forCurrencyCode currencyCode: String) -> String?
func localizedString(forCollationIdentifier collationIdentifier: String) -> String?
func localizedString(forCollatorIdentifier collatorIdentifier: String) -> String?
var identifier: String { get }
var languageCode: String? { get }
var regionCode: String? { get }
var scriptCode: String? { get }
var variantCode: String? { get }
var exemplarCharacterSet: CharacterSet? { get }
var calendar: Calendar { get }
var collationIdentifier: String? { get }
var usesMetricSystem: Bool { get }
var decimalSeparator: String? { get }
var groupingSeparator: String? { get }
var currencySymbol: String? { get }
var currencyCode: String? { get }
var collatorIdentifier: String? { get }
var quotationBeginDelimiter: String? { get }
var quotationEndDelimiter: String? { get }
var alternateQuotationBeginDelimiter: String? { get }
var alternateQuotationEndDelimiter: String? { get }
```

NSCalendar

```
case gregorian
case buddhist
case japanese
case chinese
case republicOfChina
case iso8601
case islamic
case islamicCivil
case islamicTabular
case islamicUmmAlQura
case persian
case indian
case martian
case coptic
case ethiopicAmeteMihret
case ethiopicAmeteAlem
case hebrew
```

NSNumberFormatter

```
var currencyDecimalSeparator: String! { get set }
var decimalSeparator: String! { get set }
// Determines whether the dollar sign character ($),
// decimal separator character ( . ),
// and thousand separator character ( , )
// are converted to appropriately localized characters
// as specified by the user's localization preference.
var localizesFormat: Bool { get set }
var currencySymbol: String!
var currencyCode: String!
var internationalCurrencySymbol: String! { get set }
```

Demo

Apple's APIs are great

Many take locale as a parameter

`String.init(format: String, locale: Locale?, CVarArg...)`

`String.uppercased(locale)`

`Array.description(withLocale locale: Any?, indent level: Int)`

`NumberFormatter.locale`

`NSLocale`, `NSBundle`, `NSCalendar`, `NSNumberFormatter`,

`NSDateFormatter`, ...

**Don't do it
without very very
good reasons**

**Is the language
changing or the
content?**



Canada



United States

Europa



Albania



Belarus



Belgium



Bulgaria



Croatia



Cyprus



Czech Republic



Denmark



Deutschland



España



Estonia



Finland



France



Greece



Hungary



Iceland



Ireland



Italia



Latvia



Lithuania



Luxemburg



Macedonia



Malta



Moldova



Nederland



Norway



Österreich



Poland



Portugal



Romania



Schweiz



Slovakia



Slovenia



Sverige



Turkey

arttA



Highlights

**Nero: Plädoyer für eine Bestie
(1/2)**

ARTE+7 52 Min.

Nero ist der Inbegriff des wahnsinnigen Tyrannen. Die Althistoriker Mischa Meier und Claudia Tiersch und der Kirchenhistoriker Christoph Marksches I...

Jetzt auf ARTE >**LIVE****Was vom Tage übriglich****Highlights****Mediathek****ARTE Club****Live****TV-Programm**

Sélection

**Néron - Plaidoyer pour un monstre (1/2)**

ARTE+7 52 min.

Considéré comme un tyran sanguinaire, l'empereur romain Néron fait aujourd'hui l'objet d'une réhabilitation. Un documentaire captivant...

En ce moment sur ARTE >**DIRECT****Les vestiges du jour****Sélection****Vidéos****ARTE Club****Direct****Guide TV**

Carrier 9:51 PM Carrier 9:51 PM

Highlights

Neu in dieser Version: ARTE Europe - Endlich gibt es die ARTE App auch auf Englisch, Spanisch und Polnisch.

Nero: Plädoyer für eine Bestie (1/2)
ARTE+7 52 Min.

Nero ist der Inbegriff des wahnsinnigen Tyrannen. Die Althistoriker Mischa Meier und Claudia Tiersch und der Kirchenhistoriker Christoph Marksches i...

Sélection

Néron - Plaidoyer pour un monstre (1/2)
ARTE+7 52 min.

Considéré comme un tyran sanguinaire, l'empereur romain Néron fait aujourd'hui l'objet d'une réhabilitation. Un documentaire captivant...

Highlights

Xenius: Peer Pressure
25 min

We have been social beings for millennia. This influences our actions, usually without our knowledge. Xenius goes to the social psycholog...

Selección

¿A dónde va Polonia?
51 min

En el contexto de las manifestaciones organizadas por los militantes conservadores a favor del aborto, un retrato de la tensión política...

Selekcja

USA: Welcome to Trump Country...
25 min.

Na ulicach Górnego Cumberlandu, w wiejskim regionie na północy Tennessee, poznajemy wyborców Donalda Trumpa.

En ce moment sur ARTE >

DIRECT

Les vestiges du jour

WEEKLY HIGHLIGHTS

Music on the Road 10 videos >

Music On The Road (1/10) - New York
7 min

Music On The Road (2/10) - Detroit

A FONDO

El método Ken Loach 9 vídeos >

El método Ken Loach: Encapsular la experiencia...
4 min

El método Ken Loach: La política es fundamental

TYTUŁY TYGODNIA

Czarna Ameryka 8 video >

Czarna Ameryka (1/8) - #BlackLivesMatter
4 min.

Czarna Ameryka (2/8) - Spadkobiercy Muham...

Highlights

Sélection

Highlights

Selección

Mediathek

Vidéos

Videos

Vídeos

ARTE Club

ARTE Club

Favourites

Favoritos

Live

Direct

Guide TV

Wideo

TV-Programm

Guide TV

Ulubione

Language change can affect

- available content
- features
- UI language
- UI layout

**Let's build our own
NSLocalizedString**

What are Localized.strings files?

- Big-endian UTF-16 Unicode text, with CR, LF line terminators
- Just a plist
- key value dictionary
- `/usr/libexec/PlistBuddy`

NSBundle.h

```
#define NSLocalizedString(key, comment) \
    [NSBundle mainBundle localizedStringForKey:(key) value:@"" table:nil]
#define NSLocalizedStringFromTable(key, tbl, comment) \
    [NSBundle mainBundle localizedStringForKey:(key) value:@"" table:(tbl)]
#define NSLocalizedStringFromTableInBundle(key, tbl, bundle, comment) \
    [bundle localizedStringForKey:(key) value:@"" table:(tbl)]
#define NSLocalizedStringWithDefaultValue(key, tbl, bundle, val, comment) \
    [bundle localizedStringForKey:(key) value:(val) table:(tbl)]
```

Global Swift Foundation Function

```
func NSLocalizedString(_ key: String,  
                      tableName: String? = default,  
                      bundle: Bundle = default,  
                      value: String = default,  
                      comment: String) -> String
```

NSBundle

```
func localizedString(forKey: String,  
                     value: String?,  
                     table: String?) -> String
```

table is the name of your .strings files. "fr" for fr.strings

Demo

Fighting against the system

- button styles like `.done`, `.cancel`
- `Error.localizedString`
- `MFMailComposeViewController`
- `EKEventEditViewController`
- Spotlight
- mixed language UI possible

**Actually changing the
language**

all that state!

Actually changing the language

- exit(\emptyset)
- listen to notifications
- KVO
- reactive
- throw away everything and rebuild

**Throw away
everything**

just like Springboard!

Rebuild

- exchange root view controller
- other objects (e.g. cached date formatters)
- third party SDKs
- dependency injection is your friend

Changing the root view controller without leaking

```
public extension UIWindow {
    public func at_setRootViewController(_ newRootViewController: UIViewController, transition: CATransition? = nil) {
        let previousViewController = rootViewController
        rootViewController = newRootViewController
        newRootViewController.setNeedsStatusBarAppearanceUpdate()

        if let transitionViewClass = NSClassFromString("UITransitionView") {
            for subview in subviews where subview.isKind(of: transitionViewClass) {
                subview.removeFromSuperview()
            }
        }
        if let previousViewController = previousViewController {
            previousViewController.dismiss(animated: false) {
                previousViewController.view.removeFromSuperview()
            }
        }
    }
}
```

<http://stackoverflow.com/a/27153956/849645>

Apple's API's are great
use them
customize only when you need

Questions?

Jörg Bühmann

@orkoden

www.evenly.io

www.github.com/orkoden

Show .strings file diffs in git

```
.gitconfig
```

```
[diff "localizablestrings"]
    textconv = "iconv -f utf-16 -t utf-8"
    binary = false
```