

Introducing Password AutoFill for Apps

Reducing friction for your users

Session 206

Ricky Mondello, iOS Engineer

Logging in to apps is hard.

In iOS 11, Password AutoFill can help.





9:41 AM

100%

example.com



shiny.

Username

rmondello

Password

••••••••••••••••

Log In

Would you like to save this password?

You can view and remove saved passwords in Safari settings.

Save Password

Never for This Website

Not Now



9:41 AM

100%

example.com



shiny.

Username

rmondello

Password

●●●●●●●●●●●●●●●●

Log In

[Forgot Password?](#)

[Create a Shiny Account](#)





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[Settings](#) Accounts & Passwords



App & Website Passwords



ACCOUNTS

Add Account



Fetch

sh



Touch ID for "Settings"

View Passwords

Cancel





https://apple.com/business/docs/iOS_Security_Guide.pdf



Demo

Password AutoFill



9:41 AM

100%

shiny.

Username

Password

Log In

password for shiny.example.com
rmondello





9:41 AM

100%

shiny.

Username

Password

Log In

[Forgot Password?](#)

[Create a Shiny Account](#)



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Make the QuickType bar appear

Ensure credentials are filled properly

Make QuickType show the right credentials

Authenticating against a third-party service

Make the QuickType Bar Appear

As easy as setting a property

Make the QuickType Bar Appear

Make the QuickType Bar Appear

Requires that you have saved passwords

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UITextField and UITextView are eligible

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Fields conforming to `<UITextInput>` are also eligible

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iOS uses heuristics to determine which fields show the bar

Make the QuickType Bar Appear

Requires that you have saved passwords

UITextField and UITextView are eligible

Fields conforming to `<UITextInput>` are also eligible

iOS uses heuristics to determine which fields show the bar

You can tell iOS to make the bar appear

```
// UITextFieldTraits Protocol
// Indicates the semantic meaning of a text-entry area
optional var textContentType: UITextContentType! { get set }
```

```
// UITextInputTraits Protocol
// Indicates the semantic meaning of a text-entry area
optional var textContentType: UITextContentType! { get set }

.name                .addressCity
.namePrefix          .addressState
.givenName           .addressCityAndState
.middleName          .sublocality
.familyName          .countryName
.nameSuffix          .postalCode
.nickname            .telephoneNumber
.jobTitle            .emailAddress
.organizationName    .URL
.typeLocation        .creditCardNumber
.fullStreetAddress
.streetAddressLine1
.streetAddressLine2
```




NEW

```
// UITextFieldTraits Protocol
// Indicates the semantic meaning of a text-entry area
optional var textContentType: UITextContentType! { get set }

.name                .addressCity
.namePrefix          .addressState
.givenName           .addressCityAndState
.middleName          .sublocality
.familyName          .countryName
.nameSuffix          .postalCode
.nickname            .telephoneNumber
.jobTitle            .emailAddress
.organizationName    .URL
.typeLocation        .creditCardNumber
.fullStreetAddress   .username
.streetAddressLine1 .password
.streetAddressLine2
```

Make the QuickType Bar Appear

Use `UITextContentType`



Make the QuickType Bar Appear

Use `UITextContentType`



Deploy content types to guarantee AutoFill is available

Make the QuickType Bar Appear

Use `UITextContentType`



Deploy content types to guarantee AutoFill is available

Can set in code or through Interface Builder

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`UITextContentType.username` enables AutoFill for two-screen login

Make the QuickType Bar Appear

Use `UITextContentType`



Deploy content types to guarantee AutoFill is available

Can set in code or through Interface Builder

`UITextContentType.username` enables AutoFill for two-screen login

You can combine `UITextContentType.username` and `UIKeyboardType.emailAddress`

Make the QuickType Bar Appear

Use `UITextContentType`



Deploy content types to guarantee AutoFill is available

Can set in code or through Interface Builder

`UITextContentType.username` enables AutoFill for two-screen login

You can combine `UITextContentType.username` and `UIKeyboardType.emailAddress`

`UITextContentType.password` enables AutoFill for “revealed” passwords



9:41 AM

100%

shiny.

Username

Password

Log In





9:41 AM

100%

shiny.

Username



Touch ID for "Shiny"

View All Passwords

Cancel

[Forgot Password?](#)

[Create a Shiny Account](#)



9:41 AM

100%

[Cancel](#)

AutoFill Password

Search

apple.com — rmondello
apple.com



bbc.co.uk — rmondello
bbc.co.uk



bing.com — rmondello
bing.com



example.com — rmondello
shiny.example.com



icloud.com — rmondello
icloud.com



twitter.com — rmondello
mobile.twitter.com



weather.com — rmondello
weather.com



webkit.org — rmondello
webkit.org



wikipedia.org — rmondello
wikipedia.org





9:41 AM

100%

shiny.

Username

Password

Log In



Ensure Credentials are Filled Properly

Validating UI and logging in

Ensure Information Is Filled Properly

What to know

Ensure Information Is Filled Properly

What to know

iOS fills both the user name and password fields

Ensure Information Is Filled Properly

What to know

iOS fills both the user name and password fields

Even if your app prevents changing the first responder

Ensure Information Is Filled Properly

What to know

iOS fills both the user name and password fields

Even if your app prevents changing the first responder

Touch ID will make your app become inactive

Ensure Information Is Filled Properly

Best practices



Don't tear down login UI when becoming inactive

Ensure Information Is Filled Properly

Best practices



Don't tear down login UI when becoming inactive

Use "did change" delegate methods or notifications to validate UI

Ensure Information Is Filled Properly

Best practices



Don't tear down login UI when becoming inactive

Use "did change" delegate methods or notifications to validate UI

```
UITextFieldTextDidChange: NSNotification.Name
```

```
UITextViewTextDidChange: NSNotification.Name
```

```
protocol UITextViewDelegate { optional public func textViewDidChange(...) }
```

```
protocol UITextFieldDelegate { public func textDidChange(...) }
```

Ensure Information Is Filled Properly

Best practices



Don't tear down login UI when becoming inactive

Use "did change" delegate methods or notifications to validate UI

```
UITextFieldTextDidChange: NSNotification.Name
```

```
UITextViewTextDidChange: NSNotification.Name
```

```
protocol UITextViewDelegate { optional public func textViewDidChange(...) }
```

```
protocol UITextFieldDelegate { public func textDidChange(...) }
```

Read information from your text field's `text` property

Make QuickType Show the Right Credentials

Associating your app and website



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100%

shiny.

Username

Password

Log In





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100%

shiny.

Username

Password

Log In

password for shiny.example.com
rmondello



Associating Your App and Website



iOS



Associating Your App and Website



example.com



Associating Your App and Website



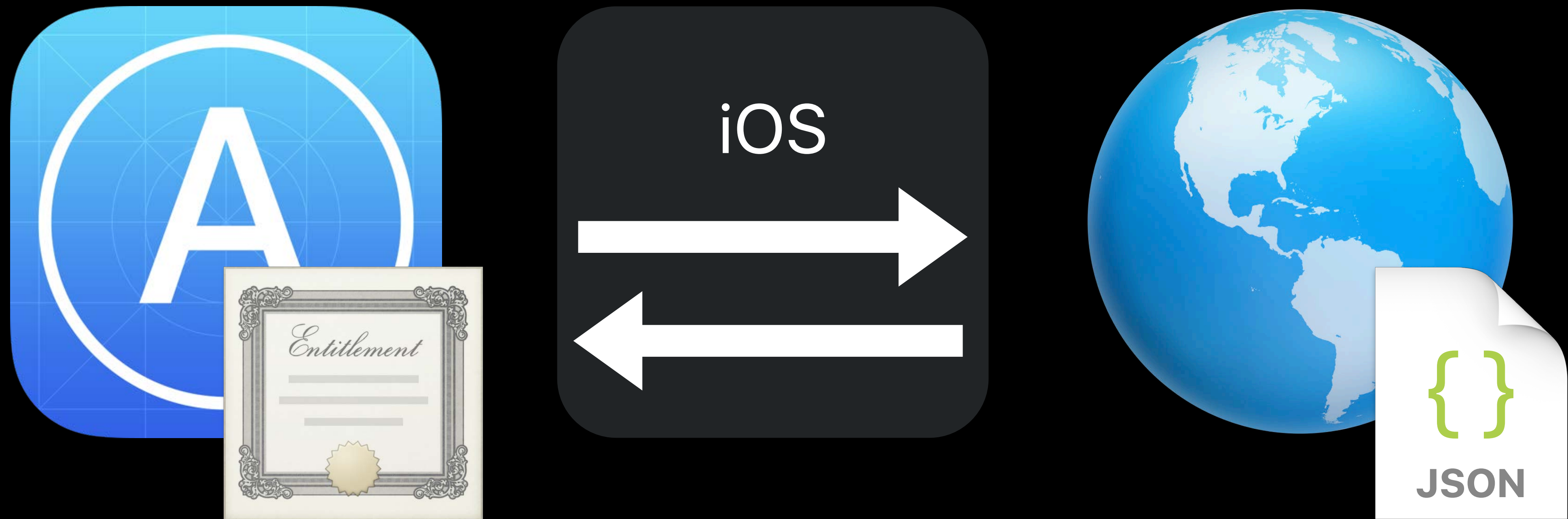
<https://example.com/.well-known/apple-app-site-association>

Associating Your App and Website



<https://example.com/.well-known/apple-app-site-association>

Associating Your App and Website



Associating Your App and Website



Demo

Integrating with Password AutoFill

Maureen Daum, iOS Engineer

Generi...Device | Shiny | Build Shiny: **Succeeded** | Today at 12:31 PM

Main.storyboard

Shiny > Shiny > Mai...ard > Mai...se) > Log...ene > Log...ller > View > F Username Text Field

Placeholder Placeholder Text

+ Background Background Image

+ Disabled Disabled Background Image

Border Style

Clear Button Never appears
 Clear when editing begins

Min Font Size 17
 Adjust to Fit

Text Input Traits

Content Type Username

Capitalization None

Correction Default

Smart Dashes Default

Smart Insert Default

Smart Quotes Default

Spell Checking Default

Keyboard Type Default

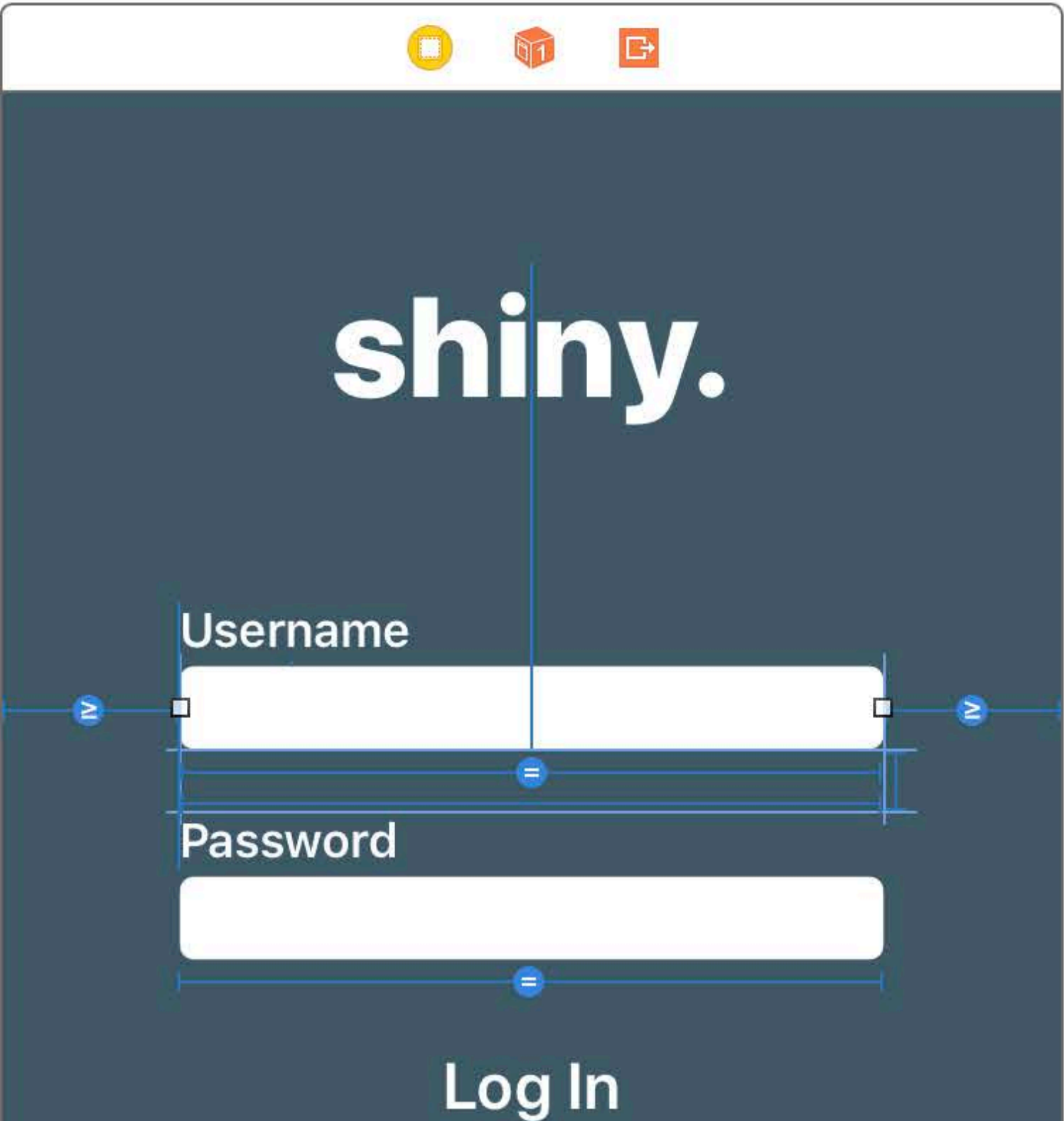
Keyboard Look Default

View as: iPhone 7 (wC hR) | 100%

Generi...Device | Shiny | Build Shiny: **Succeeded** | Today at 12:31 PM

Main.storyboard

Shiny > Shiny > Mai...ard > Mai...se) > Log...ene > Log...ller > View > F Username Text Field



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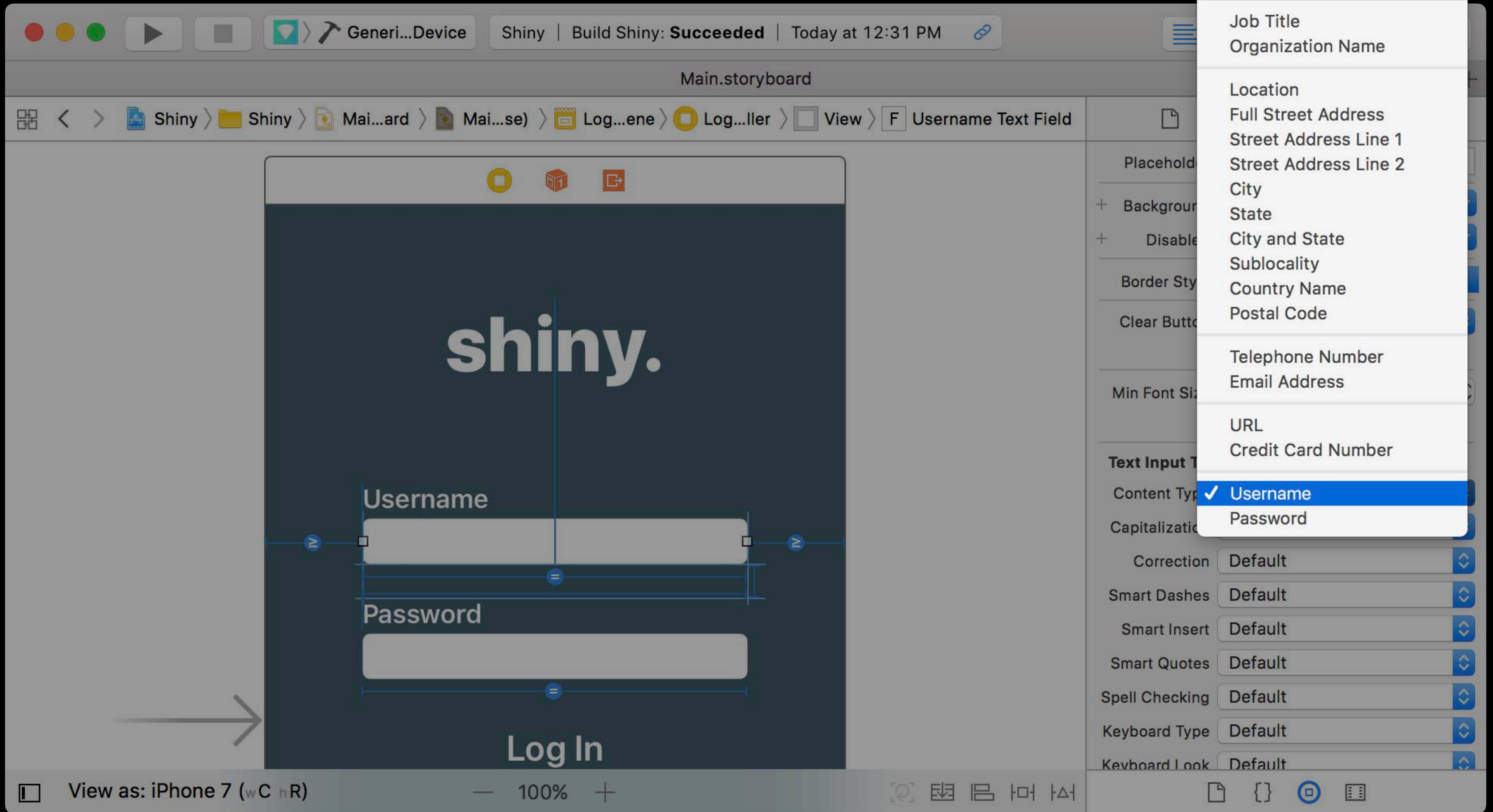
Smart Quotes Default

Spell Checking Default

Keyboard Type Default

Keyboard Look Default

View as: iPhone 7 (wC hR) | 100%



- Name Prefix
- Given Name
- Middle Name
- Family Name
- Name Suffix
- Nickname
- Job Title
- Organization Name
- Location
- Full Street Address
- Street Address Line 1
- Street Address Line 2
- City
- State
- City and State
- Sublocality
- Country Name
- Postal Code
- Telephone Number
- Email Address
- URL
- Credit Card Number
- Username
- Password

Placeholder

+ Background

+ Disabled

Border Style

Clear Button

Min Font Size

Text Input Type

Content Type

Capitalization

Correction Default

Smart Dashes Default

Smart Insert Default

Smart Quotes Default

Spell Checking Default

Keyboard Type Default

Keyboard Look Default

Mac OS window title bar: Shiny | Build Shiny: **Succeeded** | Today at 12:31 PM

Project Name: Shiny.xcodeproj

Navigation: Shiny

Capabilities Tab: General, **Capabilities**, Resource Tags, Info, Build Settings, Build Phases, Build Rules

- Keychain Sharing** OFF
- Associated Domains** ON
 - Domains: webcredentials:shiny.example.com
 - + -
 - Steps:
 - ✓ Add the Associated Domains entitlement to your entitlements file
 - ✓ Add the Associated Domains feature to your App ID.
- App Groups** OFF
- Data Protection** OFF
- HomeKit** OFF

Program Resources

Overview

Membership

People

Certificates, IDs & Profiles

iTunes Connect

CloudKit Dashboard

Code-Level Support

Additional Resources

Documentation

Downloads

Forums

Example Inc.

Apple Developer Program



People

Send invitations to your development team so they can take advantage of membership resources.



Certificates, Identifiers & Profiles

Manage the certificates, identifiers, profiles, and devices you need to develop and distribute apps.



iTunes Connect

Publish and manage your apps on the App Store with iTunes Connect.

Program Resources

- Overview
- Membership
- People
- Certificates, IDs & Profiles**
- iTunes Connect
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Example Inc.

Apple Developer Program



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Send invitations to your development team so they can take advantage of membership resources.



Certificates, Identifiers & Profiles

Manage the certificates, identifiers, profiles, and devices you need to develop and distribute apps.



iTunes Connect

Publish and manage your apps on the App Store with iTunes Connect.

Apple Inc.

iOS, tvOS, watchOS

iOS App IDs

2 App IDs total.

Name	ID
Shiny	com.example.Shiny
XC Wildcard	*

Certificates

- All
- Pending
- Development
- Production
- APNs Auth Key

Identifiers

- App IDs**
- Pass Type IDs
- Website Push IDs
- iCloud Containers
- App Groups
- Merchant IDs

Devices

- All
- Apple TV
- Apple Watch
- iPad
- iPhone

- Pending
 - Development
 - Production
 - APNs Auth Key
-
- ID Identifiers
- App IDs
 - Pass Type IDs
 - Website Push IDs
 - iCloud Containers
 - App Groups
 - Merchant IDs
-
- Devices
- All
 - Apple TV
 - Apple Watch
 - iPad
 - iPhone
 - iPod Touch
-
- Provisioning Profiles
- All
 - Development

Shiny com.example.Shiny



Name: Shiny
Prefix: E5336VM85F
ID: com.example.Shiny

Application Services:

Service	Development	Distribution
App Groups	<input type="radio"/> Disabled	<input type="radio"/> Disabled
Apple Pay	<input type="radio"/> Disabled	<input type="radio"/> Disabled
Associated Domains	<input type="radio"/> Disabled	<input type="radio"/> Disabled
Data Protection	<input type="radio"/> Disabled	<input type="radio"/> Disabled
Personal VPN	<input type="radio"/> Disabled	<input type="radio"/> Disabled
Push Notifications	<input type="radio"/> Disabled	<input type="radio"/> Disabled
SiriKit	<input type="radio"/> Disabled	<input type="radio"/> Disabled
Wallet	<input type="radio"/> Disabled	<input type="radio"/> Disabled
Wireless Accessory Configuration	<input type="radio"/> Disabled	<input type="radio"/> Disabled

Edit

Apple Inc.

Certificates

- All
- Pending
- Development
- Production
- APNs Auth Key

Identifiers

- App IDs**
- Pass Type IDs
- Website Push IDs
- iCloud Containers
- App Groups
- Merchant IDs




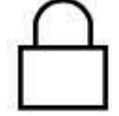
Devices

- All
- Apple TV
- Apple Watch
- iPad
- iPhone
- iPod Touch

Provisioning Profiles

Setup and configure services for this App ID.

ID: com.example.Shiny
Name: Shiny

Enable	Service	
<input type="checkbox"/>	 App Groups ● Disabled	Edit
<input type="checkbox"/>	 Apple Pay ● Disabled	Edit
<input checked="" type="checkbox"/>	 Associated Domains ● Enabled	
<input type="checkbox"/>	 Data Protection ● Disabled	

Sharing and Permissions

- Complete Protection
- Protected Unless Open
- Protected Until First User Authentication

```
apple-app-site-association
apple-app-site-association > No Selection
1 {
2     "webcredentials": {
3         "apps": [ "E5336VM85F.com.example.Shiny" ]
4     }
5 }
6
```


Associated Domains File

Where to serve the file

<https://example.com/.well-known/apple-app-site-association>

<https://example.com/apple-app-site-association>

Debugging Associated Domains

swcd Console output when running your app



```
swcd Request for 'https://wrong.example.com/  
apple-app-site-association' denied: 404/0x194 Not Found
```

Debugging Associated Domains

swcd Console output when running your app



```
swcd Request for 'https://wrong.example.com/  
apple-app-site-association' denied: 404/0x194 Not Found
```



```
swcd Updated app ID 'E5336VM85F.ios.Shiny',  
domain 'shiny.example.com',  
flags 0x0 < > -> 0x2 < SiteApproved > on check
```



9:41 AM

100%

shiny.

Username

Password

Log In

password for shiny.example.com
mdaum@example.com



Viewing, Changing, and Adding Saved Passwords



9:41 AM

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Settings



Battery



Privacy



iTunes & App Store



Wallet & Apple Pay



Accounts & Passwords



Mail



Contacts



Calendar



Notes



Reminders



Phone



Messages





9:41 AM

100%

Settings



Battery



Privacy



iTunes & App Store



Wallet & Apple Pay



Accounts & Passwords



Mail



Contacts



Calendar



Notes



Reminders



Phone



Messages





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100%

[Settings](#) Accounts & Passwords



App & Website Passwords



ACCOUNTS

Add Account



Fetch

sh



Touch ID for "Settings"

View Passwords

Cancel



9:41 AM

100%

[← Accounts](#)

Passwords

[Edit](#)

Search

apple.com — rmondello
apple.com



example.com — rmondello
shiny.example.com



webkit.org — rmondello
webkit.org



[Add Password](#)



9:41 AM

100%

[← Passwords](#)

example.com

[Edit](#)

User name

rmondello

Password

5Ts-C2M-XDn-576

WEBSITES

shiny.example.com

Authenticating Against a Third-Party Service

Use Safari View Controller



9:41 AM

100%

Cancel

login.example.com



Example 3rd Party Service

rmondello

●●●●●●●●●●●●●●●●

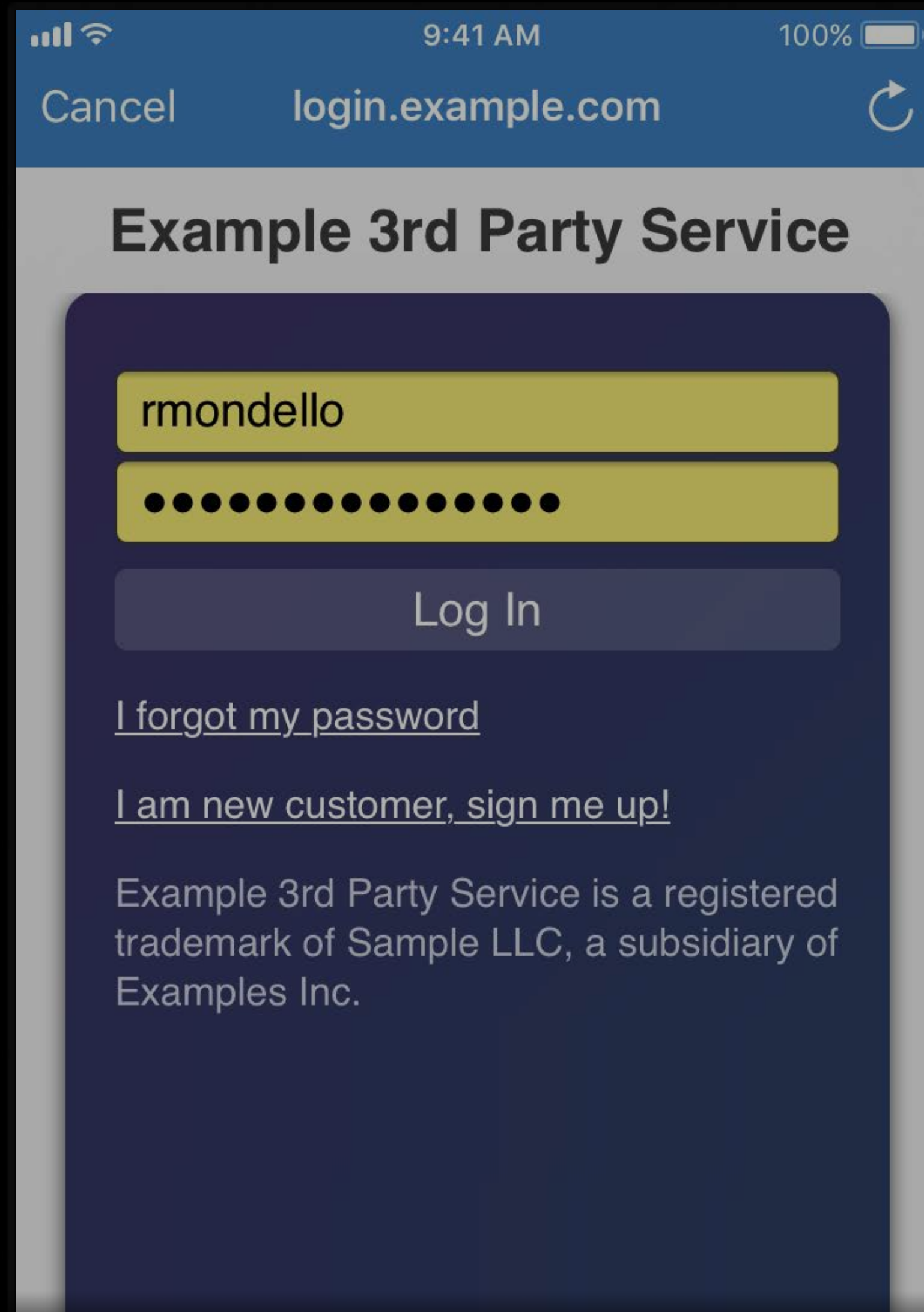
Log In

[I forgot my password](#)

[I am new customer, sign me up!](#)

Example 3rd Party Service is a registered trademark of Sample LLC, a subsidiary of Examples Inc.





Summary

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Friction when logging in can lead users to abandon your app

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Password AutoFill uses heuristics to work automatically in some apps

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You can guarantee that it works by

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Password AutoFill uses heuristics to work automatically in some apps

You can guarantee that it works by

- Testing your app

Summary

Friction when logging in can lead users to abandon your app

Password AutoFill uses heuristics to work automatically in some apps

You can guarantee that it works by

- Testing your app
- Adopting `UITextContentType.username` and `UITextContentType.password`

Summary

Friction when logging in can lead users to abandon your app

Password AutoFill uses heuristics to work automatically in some apps

You can guarantee that it works by

- Testing your app
- Adopting `UITextContentType.username` and `UITextContentType.password`
- Adopting the webcredentials Associated Domains service

More Information

<https://developer.apple.com/wwdc17/206>

Related Sessions

[What's New in Safari View Controller](#)

Executive Ballroom

Thursday 10:00AM

[The Keys to a Better Text Input Experience](#)

Grand Ballroom B

Friday 11:00AM

[Introducing Safari View Controller](#)

WWDC 2015

Labs

Safari, WebKit, and Password AutoFill Lab

Technology Lab D

Wed 10:00AM–12:00PM

Safari, WebKit, and Password AutoFill Lab

Technology Lab B

Wed 5:10PM–6:10PM

Safari, WebKit, and Password AutoFill Lab

Technology Lab K

Thurs 11:00AM–1:00PM

 **WWDC17**