

#WWDC18

# Automatic Strong Passwords and Security Code AutoFill

Session 204

Chelsea Pugh, iOS Engineer

Reza Abbasian, iOS Engineer

Harris Papadopoulos, iOS Engineer

Passwords are a pain

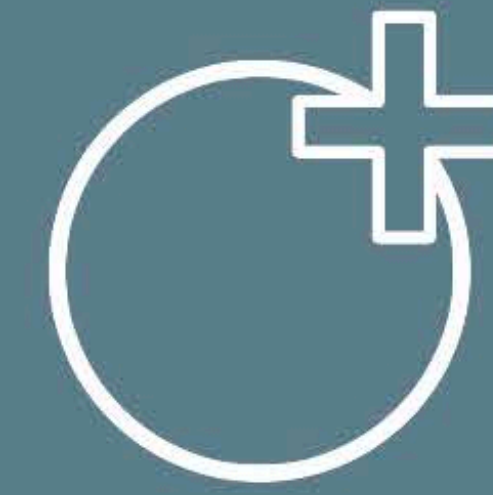
Strong, unique passwords



***Demo***



9:41



# create account

Email

chelsea@example.com

Password

nyPvyg-kogwir- Strong Password

Sign Up

iPhone created a strong password for this app.

This password will be saved to your iCloud Keychain and will AutoFill on all your devices. You can look up your saved passwords in Settings or by asking Siri.

Use Strong Password

[Choose My Own Password](#)



9:41



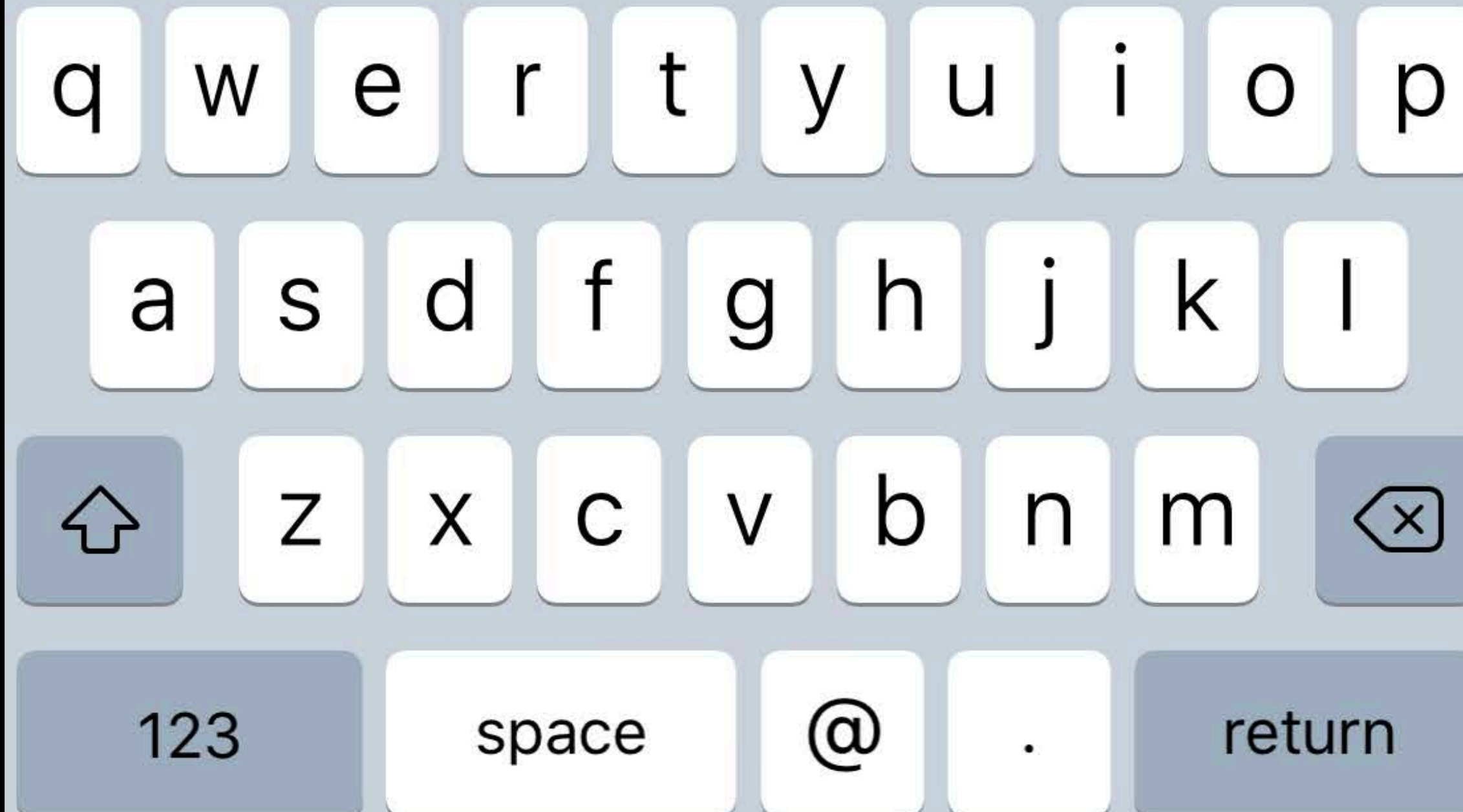
# shiny

Email

Password

Log In

password for shiny.example.com  
chelsea@example.com



Password AutoFill

Automatic Strong Passwords

Security Code AutoFill

Federated authentication

New password management features



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9:41



# shiny

Email

Password

Log In

password for shiny.example.com  
chelsea@example.com



q w e r t y u i o p  
a s d f g h j k l  
⬆ z x c v b n m ⬇  
123 space @ . return



# Password AutoFill

Associated domains

Association between app and domain is important

Credentials surfaced on QuickType bar

Changes required in app entitlements and web server



# Password AutoFill

## Content types

### For user name text field

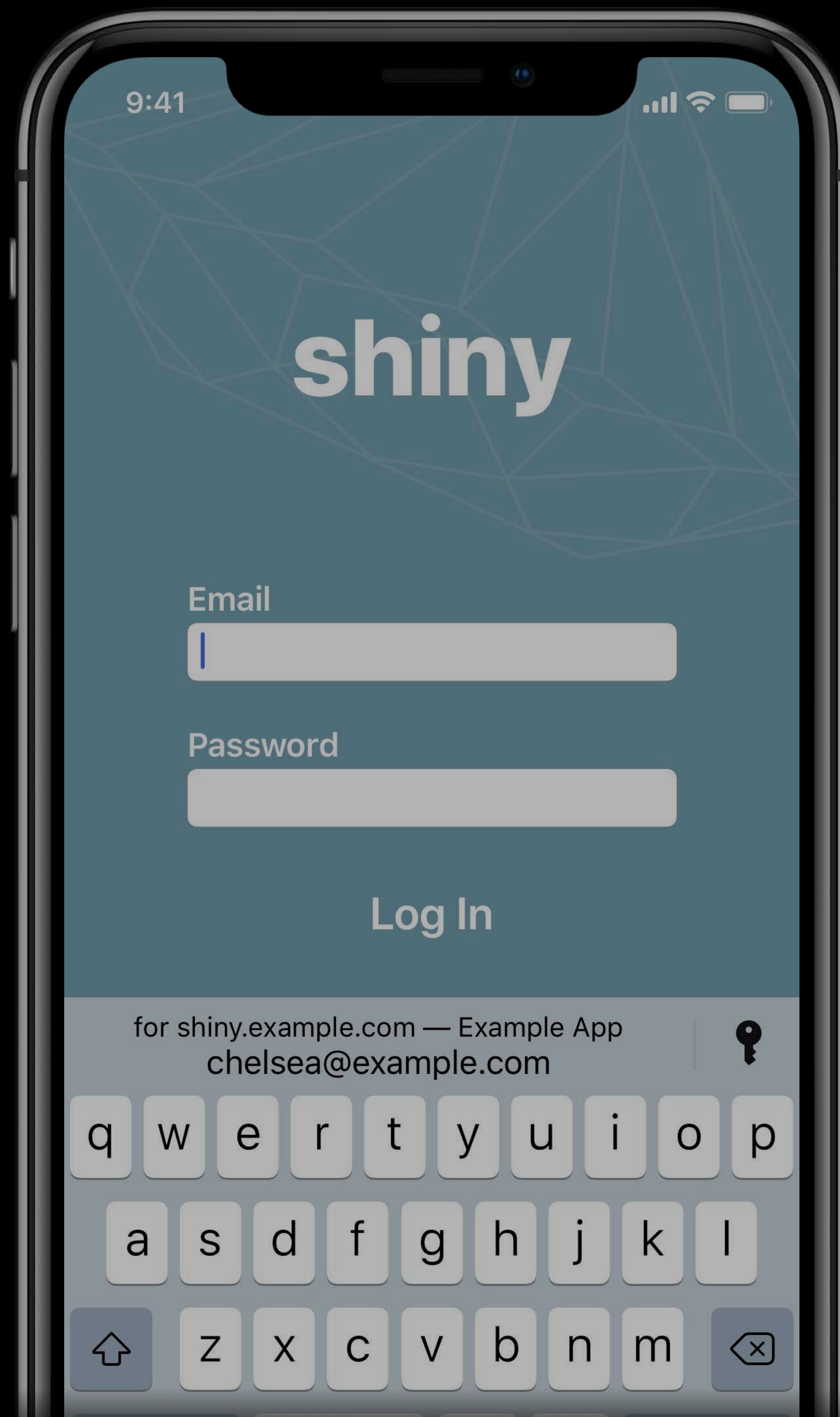
```
let userTextField = UITextField()  
userTextField.textContentType = .username
```

### For password text field

```
let passwordTextField = UITextField()  
passwordTextField.textContentType = .password
```



WKWebView supports  
Password AutoFill







NEW

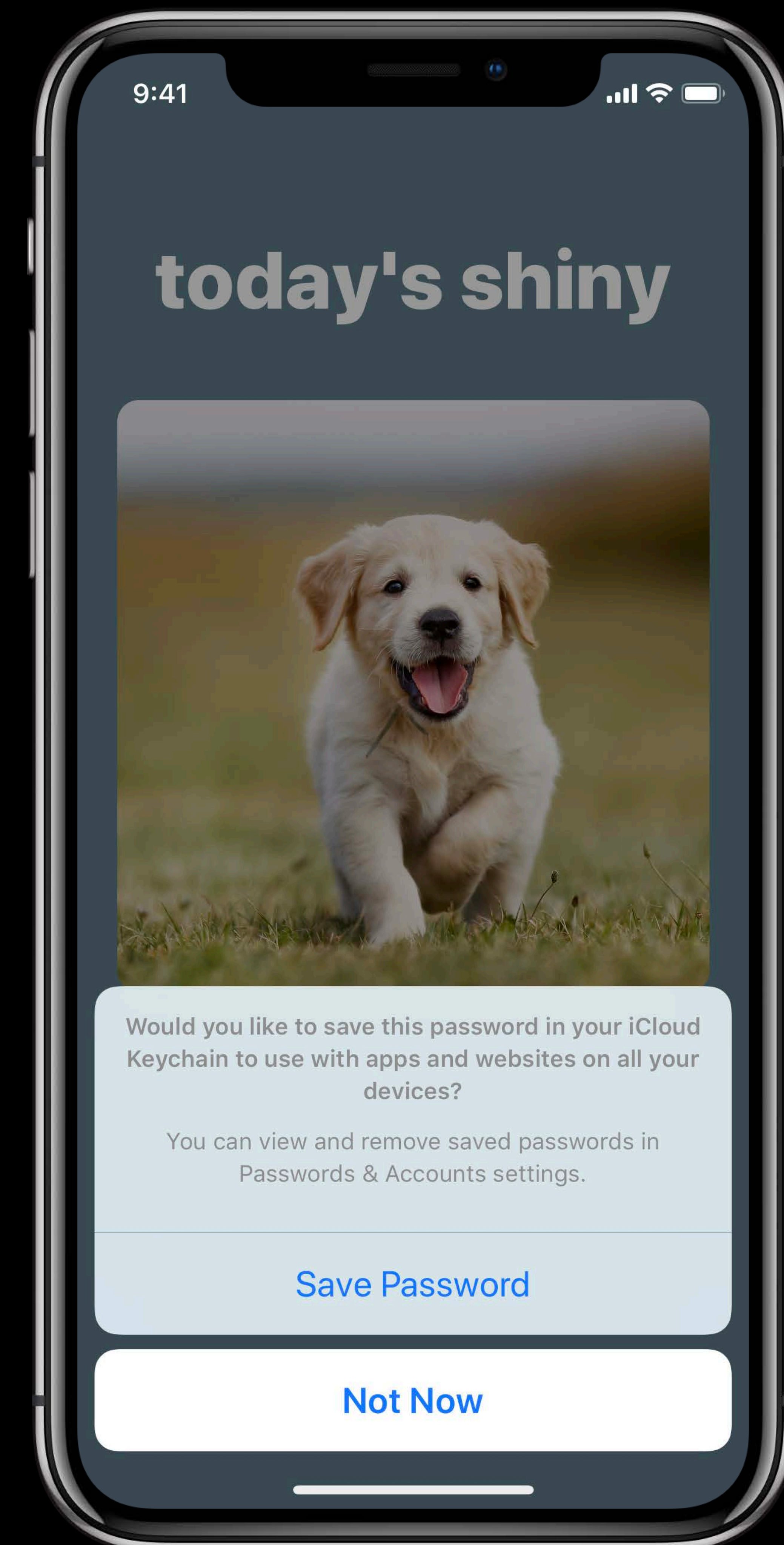


# Password Saving

How it works

AutoFill will:

- Infer login scenario
- Check eligibility based on associated domains
- Find user name and password fields
- Detect sign-in action
- Prompt to save or update password





# Password Saving

## Compatibility checklist

Tag fields with content types

Remove login fields from view hierarchy

Clear login fields only after removing from hierarchy

Check that AutoFill saved to the correct domain

May no longer need `SecAddSharedWebCredential()`

# Key Recommendations

## Password AutoFill



Associate app with domain



Tag fields



Ensure login detection

Password AutoFill

Automatic Strong Passwords

Security Code AutoFill

Federated authentication

New password management features

Password AutoFill

**Automatic Strong Passwords**

Security Code AutoFill

Federated authentication

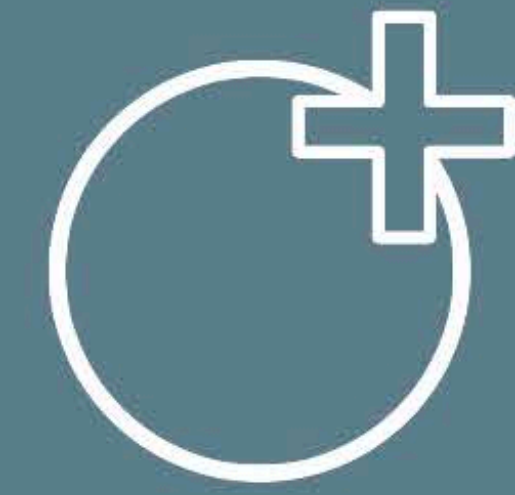
New password management features



# Automatic Strong Passwords

Reza Abbasian, iOS Engineer

9:41



# create account

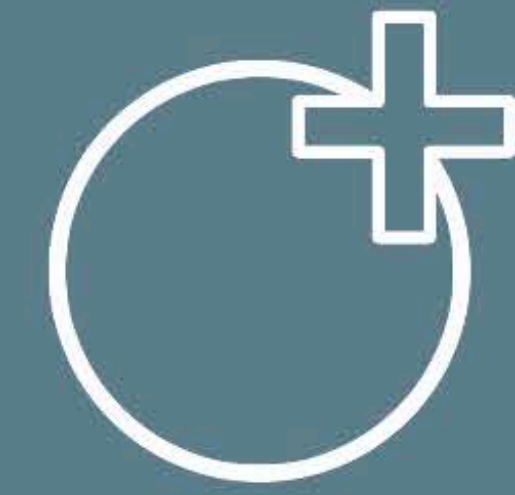
Email

Password

Sign Up

[Use Existing Account](#)

9:41



# create account

Email

reza@example.com

Password

remSa3-takpan Strong Password

Sign Up

iPhone created a strong password for this app.

This password will be saved to your iCloud Keychain and will AutoFill on all your devices. You can look up your saved passwords in Settings or by asking Siri.

Use Strong Password

[Choose My Own Password](#)

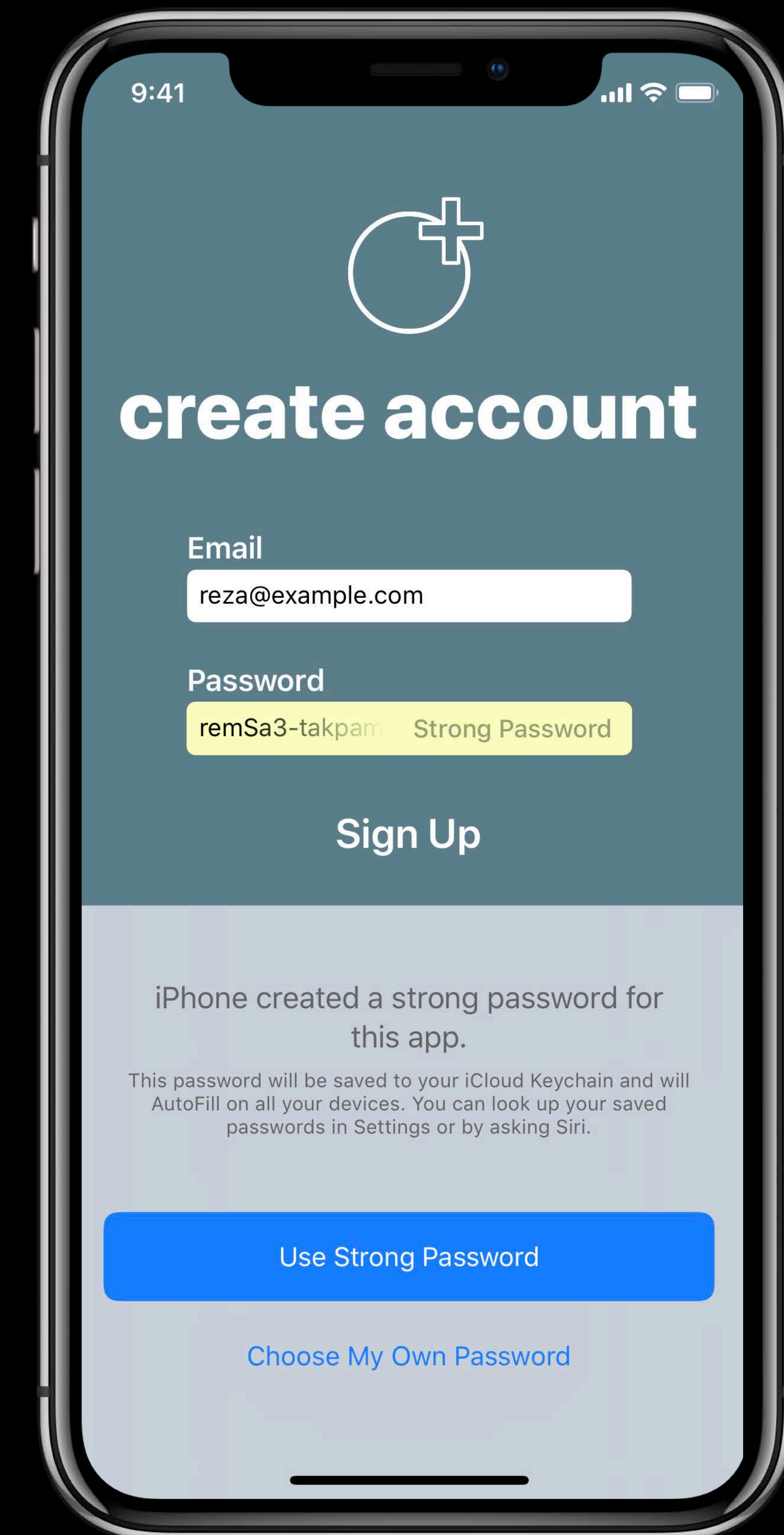


# Automatic Strong Passwords

## How it works

### AutoFill will:

- Infer the view controller type
- Check eligibility based on associated domains
- Detect relevant sign up form elements
- Suggest a user name
- Insert a strong password
- Save the password after user signs up





# Automatic Strong Passwords

## Compatibility checklist

Tag fields with content types

Remove login fields from view hierarchy

Clear login fields only after removing from hierarchy

Check that AutoFill saved to the correct domain

May no longer need `SecAddSharedWebCredential()`

# Automatic Strong Passwords

## Compatibility checklist

NEW

### For user name text field

```
let userTextField = UITextField()  
userTextField.textContentType = .username
```

### For new password text fields

```
let newPasswordTextField = UITextField()  
newPasswordTextField.textContentType = .newPassword  
  
let confirmNewPasswordTextField = UITextField()  
confirmNewPasswordTextField.textContentType = .newPassword
```

Use unique `UITextField` instances for user and password fields in table view cells

# Automatic Strong Passwords

Considerations for Change Password forms

User name and new password text fields should be on same screen

User name field can be read-only

Sign-up best practices apply here

# Generated Password Format

funrus-Hommez-kajzp7

20 characters long

Contain upper-case, digits, hyphen, and lower-case

More than 71 bits of entropy

Designed to be compatible with most services



# Custom Rules for Automatic Strong Passwords

NEW

Your app can define custom password rules

Use password rules language to define custom rules

```
let newPasswordTextField = UITextField()  
...  
let rulesDescriptor = "allowed: upper, lower, digit; required: [$];"  
newPasswordTextField.passwordRules = UITextInputPasswordRules(descriptor: rulesDescriptor)
```





Use new Password Rules Validation Tool

***Demo***

Automatic Strong Passwords

# Key Recommendations

## Automatic Strong Passwords

-  Associate app with domain
-  Tag fields
-  Ensure sign-up detection
-  Password rules

Password AutoFill

**Automatic Strong Passwords**

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Password AutoFill

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# Security Code AutoFill

Harris Papadopoulos, iOS Engineer

Your Shiny security code is 180605.

9:41



 MESSAGES now  
555-123  
Your Shiny security code is 180605.

verify

Please check your messages for a six-digit security code and enter it below.

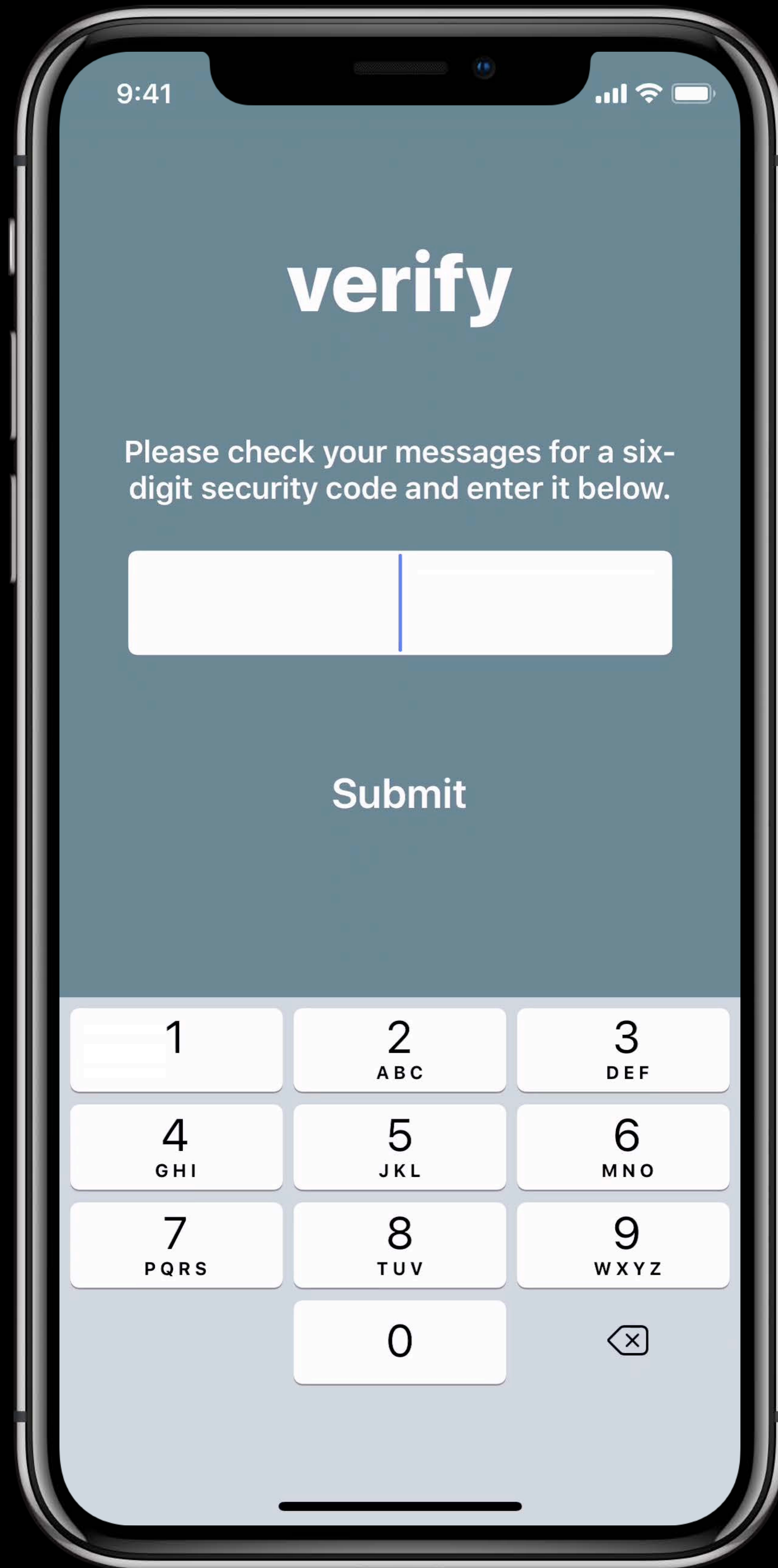
Submit

1	2 ABC	3 DEF
4 GHI	5 JKL	6 MNO
7 PQRS	8 TUV	9 WXYZ
0		





Security Code AutoFill





100

9:41



# verify

Please check your messages for a six-digit security code and enter it below.

Submit

From Messages  
180605

1	2 ABC	3 DEF
4 GHI	5 JKL	6 MNO
7 PQRS	8 TUV	9 WXYZ
0	⌫	

# Security Code AutoFill

UITextContentType.oneTimeCode



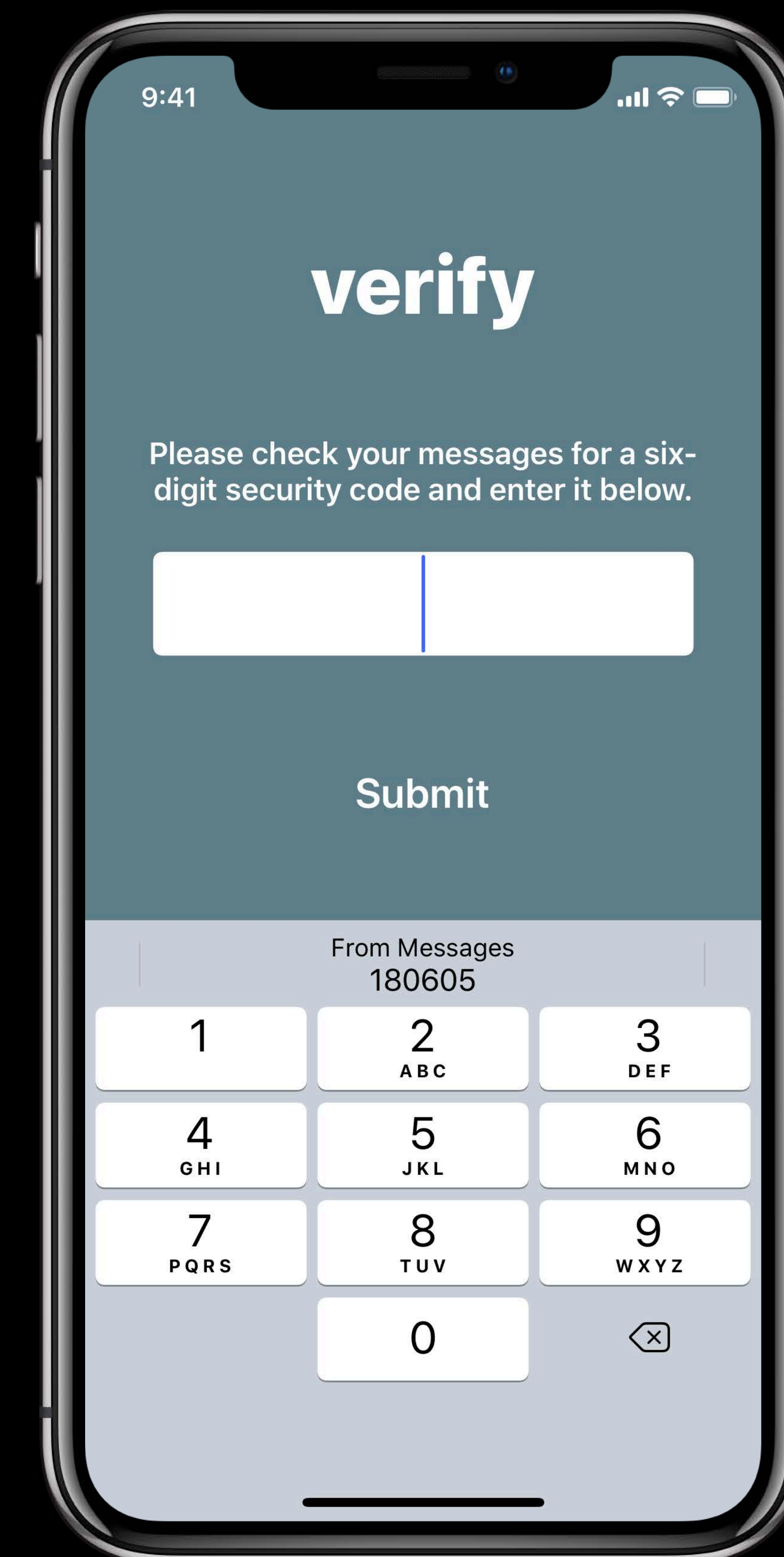
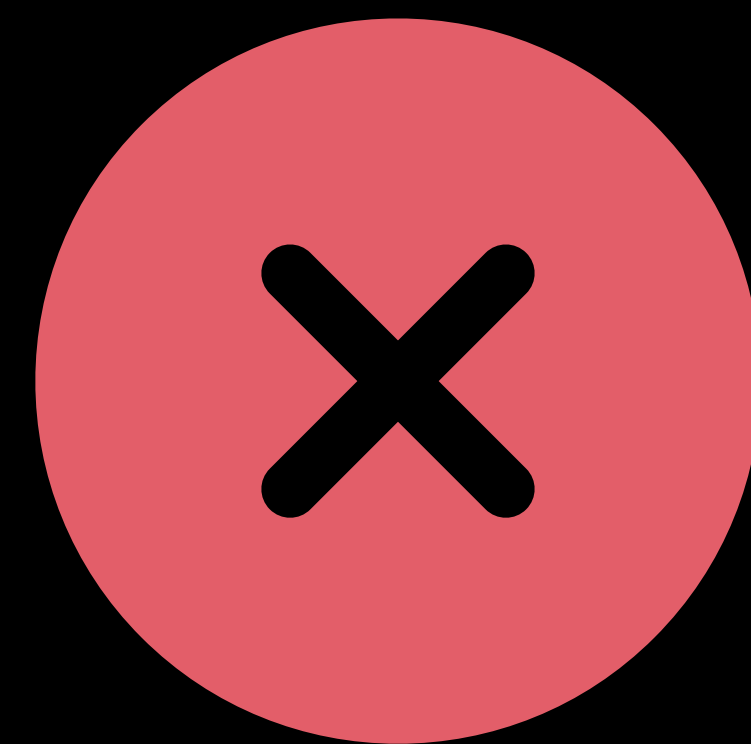
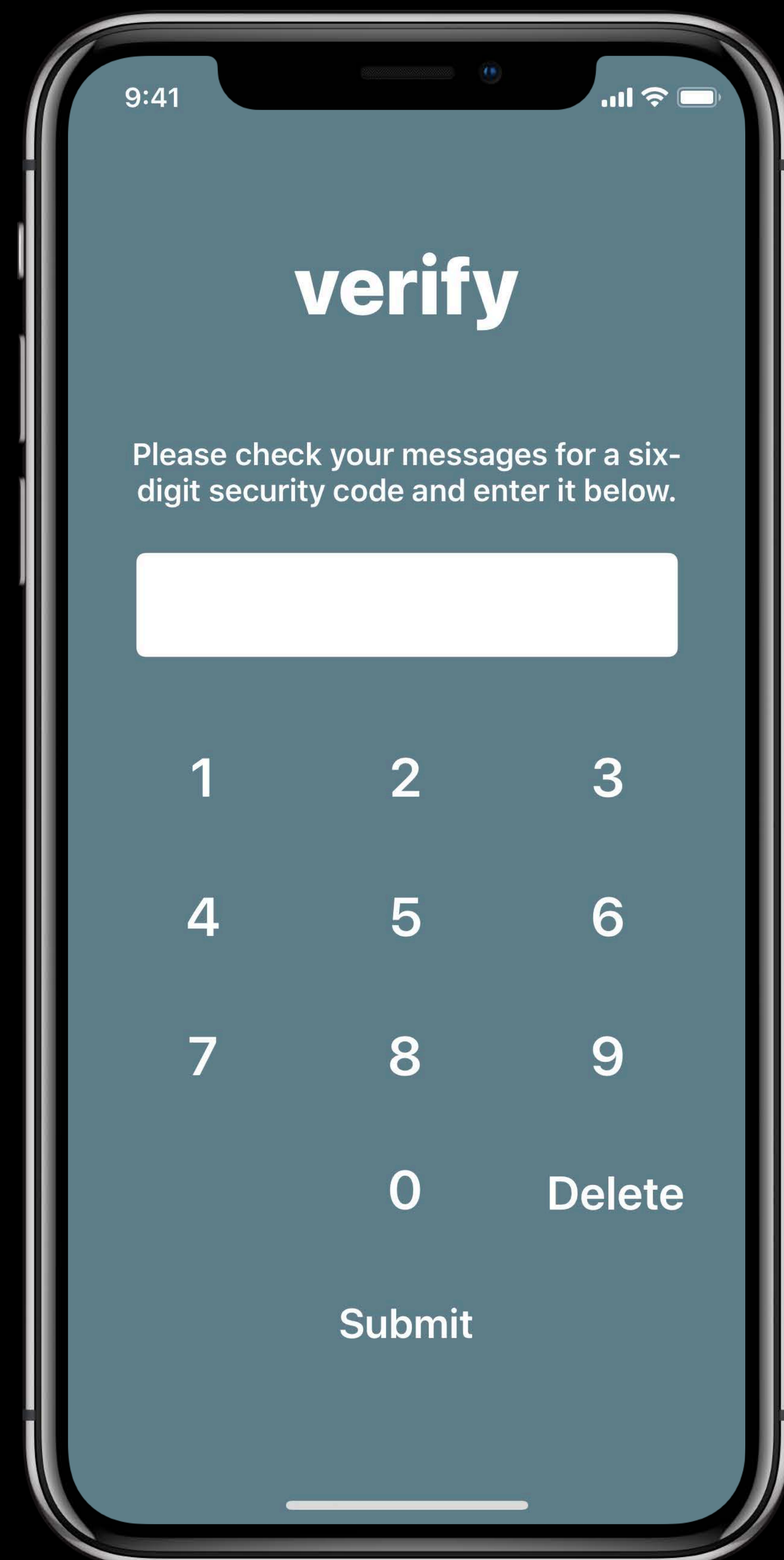
NEW

```
let securityCodeTextField = UITextField()  
securityCodeTextField.textContentType = .oneTimeCode
```



# Security Code AutoFill

Rely on the system keyboard



# Security Code AutoFill

Crafting your text message

Sample text messages

"Your Shiny code is 180506"

"De Shiny: votre code est 180506"

"Shiny passcode: 180506"



Available in all supported locales



9:41



# verify

Please check your messages for a six-digit security code and enter it below.

Submit

From Messages  
180605

1	2 ABC	3 DEF
4 GHI	5 JKL	6 MNO
7 PQRS	8 TUV	9 WXYZ
0	⌫	



9:41



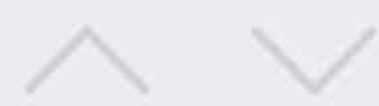
example.com



# verify

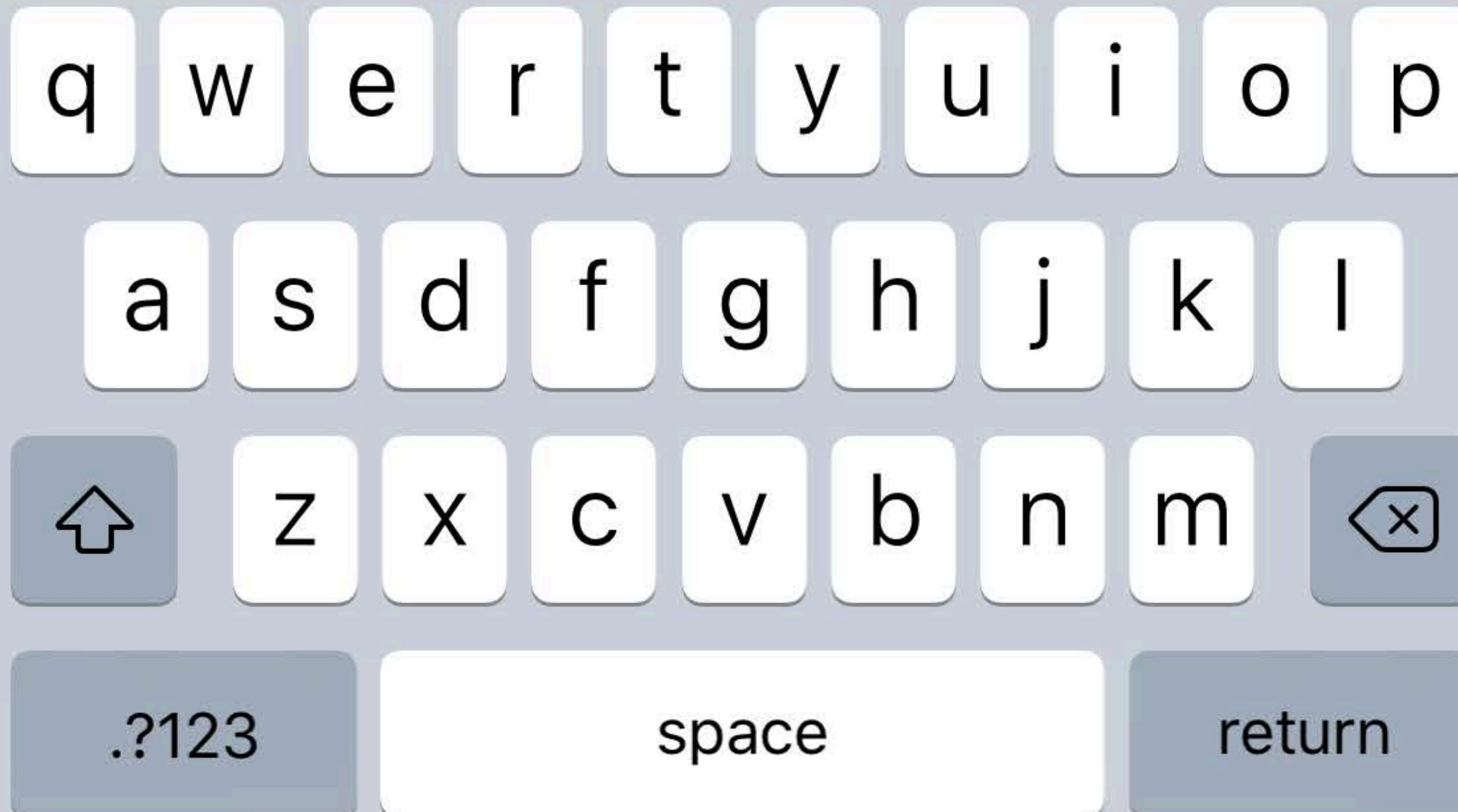
Please check your messages for a six-digit security code and enter it below.

Submit



Done

From Messages  
180605



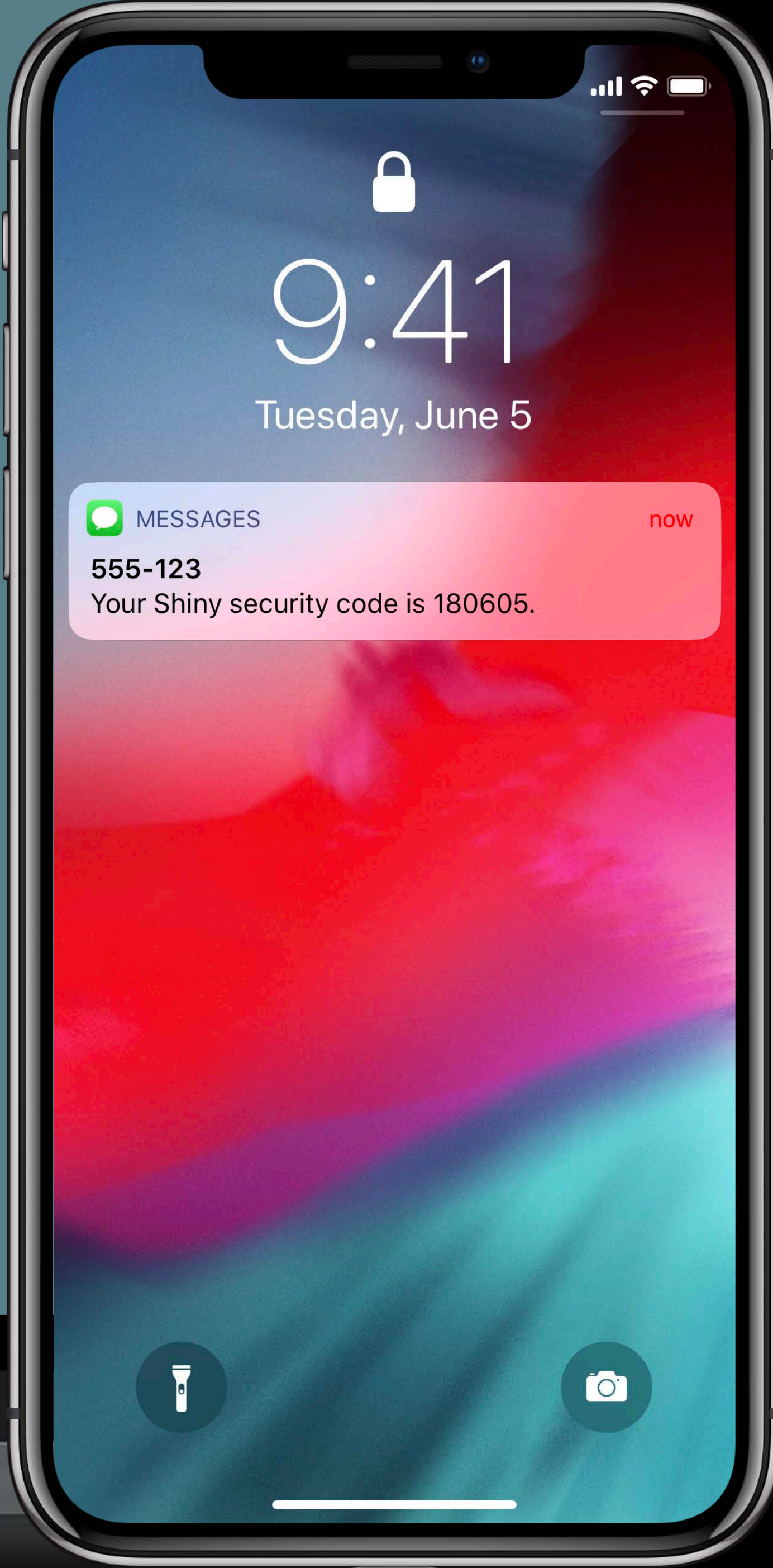


# verify

Please check your messages for a six-digit security code and enter it below.

From Messages  
Fill code 180605

Submit





# AutoFill in Safari

The autocomplete attribute

iOS 12  
UITextContentType

Safari  
<input autocomplete="value">

User Name	<code>.username</code>	<code>username</code>
Existing Password	<code>.password</code>	<code>current-password</code>
New Password (for Automatic Strong Passwords)	<code>.newPassword</code>	<code>new-password</code>
One Time Code (for Security Code AutoFill)	<code>.oneTimeCode</code>	<code>one-time-code</code>

Password AutoFill

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New password management features



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9:41



# shiny

Email

Password

Log In

Log in with [example.com](#)

[Forgot Password?](#)

[Create Account](#)

9:41



# shiny

Email

**"Shiny" Wants to Use  
"example.com" to Sign In**

This allows the app and website to  
share information about you.

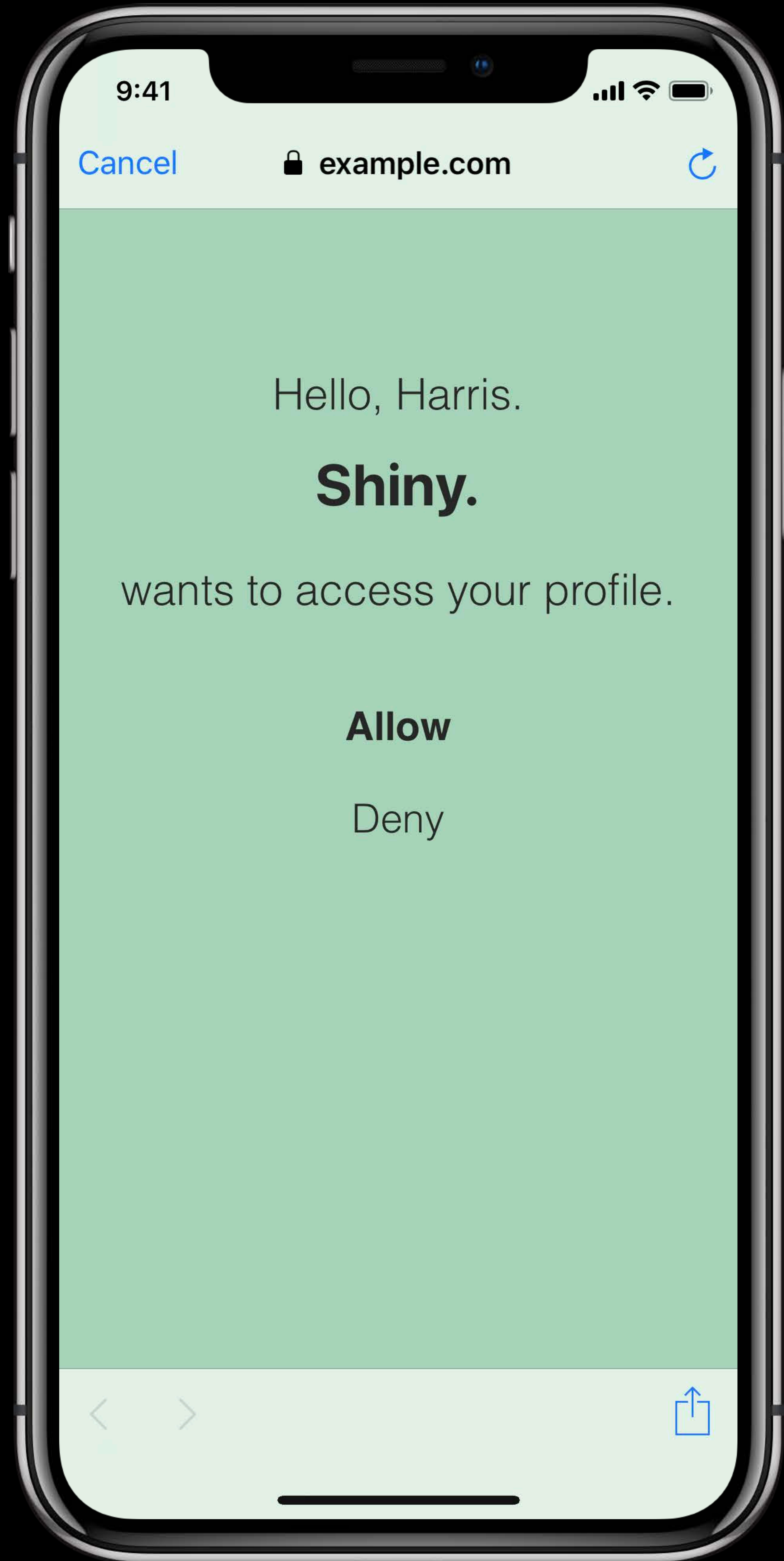
Cancel

Continue

Forgot Password?

Create Account





9:41



Cancel

example.com



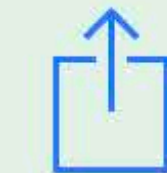
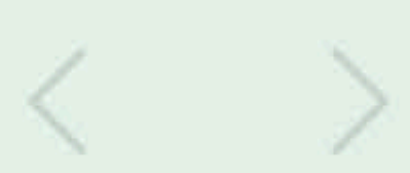
Hello, Harris.

**Shiny.**

wants to access your profile.

**Allow**

Deny

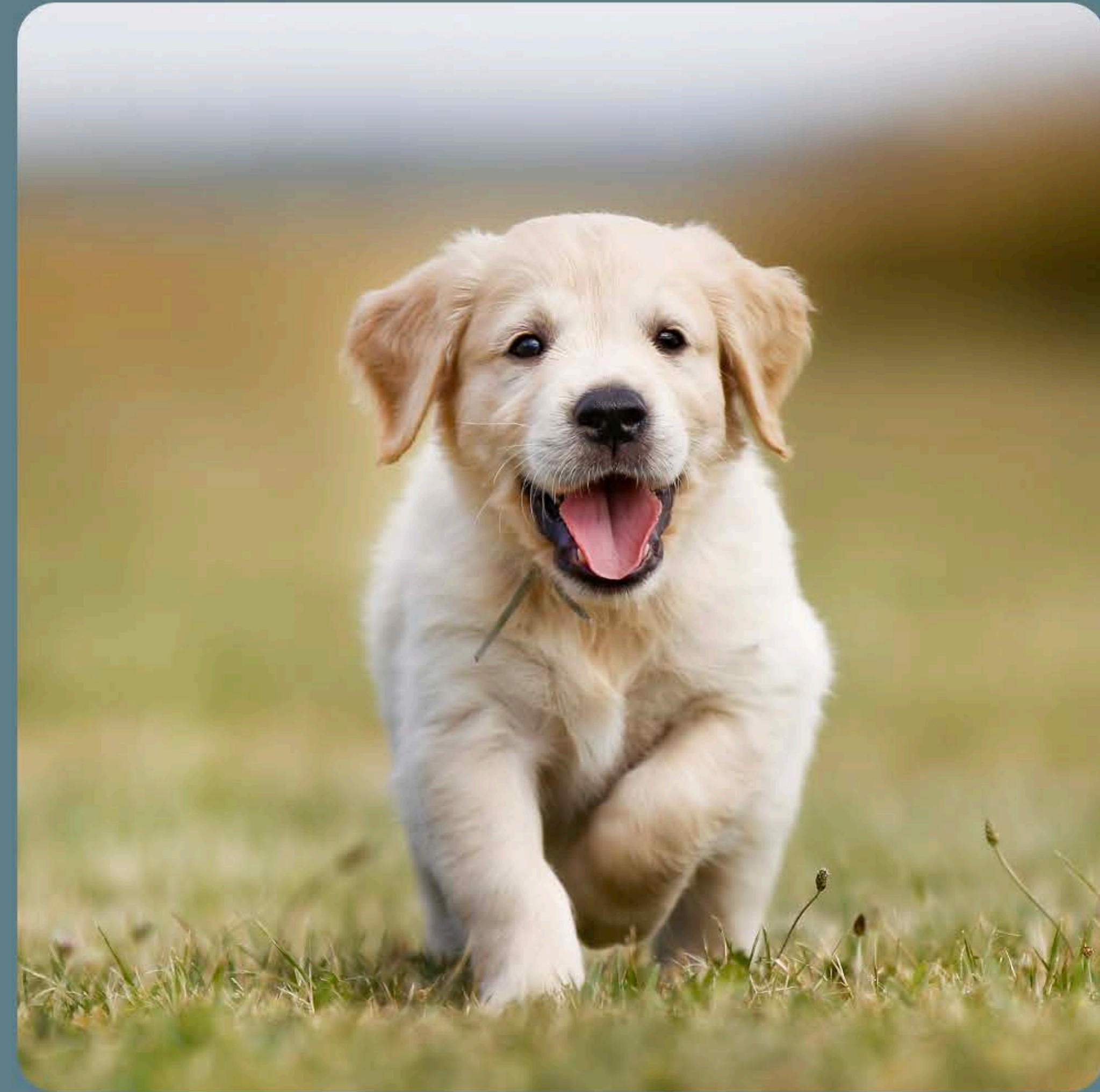




9:41



# today's shiny



Sign Out

# ASWebAuthenticationSession

## Benefits

Faster login flows

Supports Password AutoFill and Security Code AutoFill

Straightforward block-based API

# ASWebAuthenticationSession

## Usage

```
import AuthenticationServices
guard let oauthURL = URL(string: "https://www.example.com/oauth/..") else {
    return
}
self.authenticationSession = ASWebAuthenticationSession(url: oauthURL, callbackURLScheme:
nil) { (callbackURL, error) in
    guard error == nil, let callbackURL = callbackURL else {
        // Process error.
        return
    }
    // Process token.
}
self.authenticationSession.start()
```



Password AutoFill

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Password AutoFill

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**New password management features**

# New iCloud Keychain Password Management Features

Chelsea Pugh, iOS Engineer

9:41



# shiny

Email

Password

Log In

[Forgot Password?](#)

[Create Account](#)

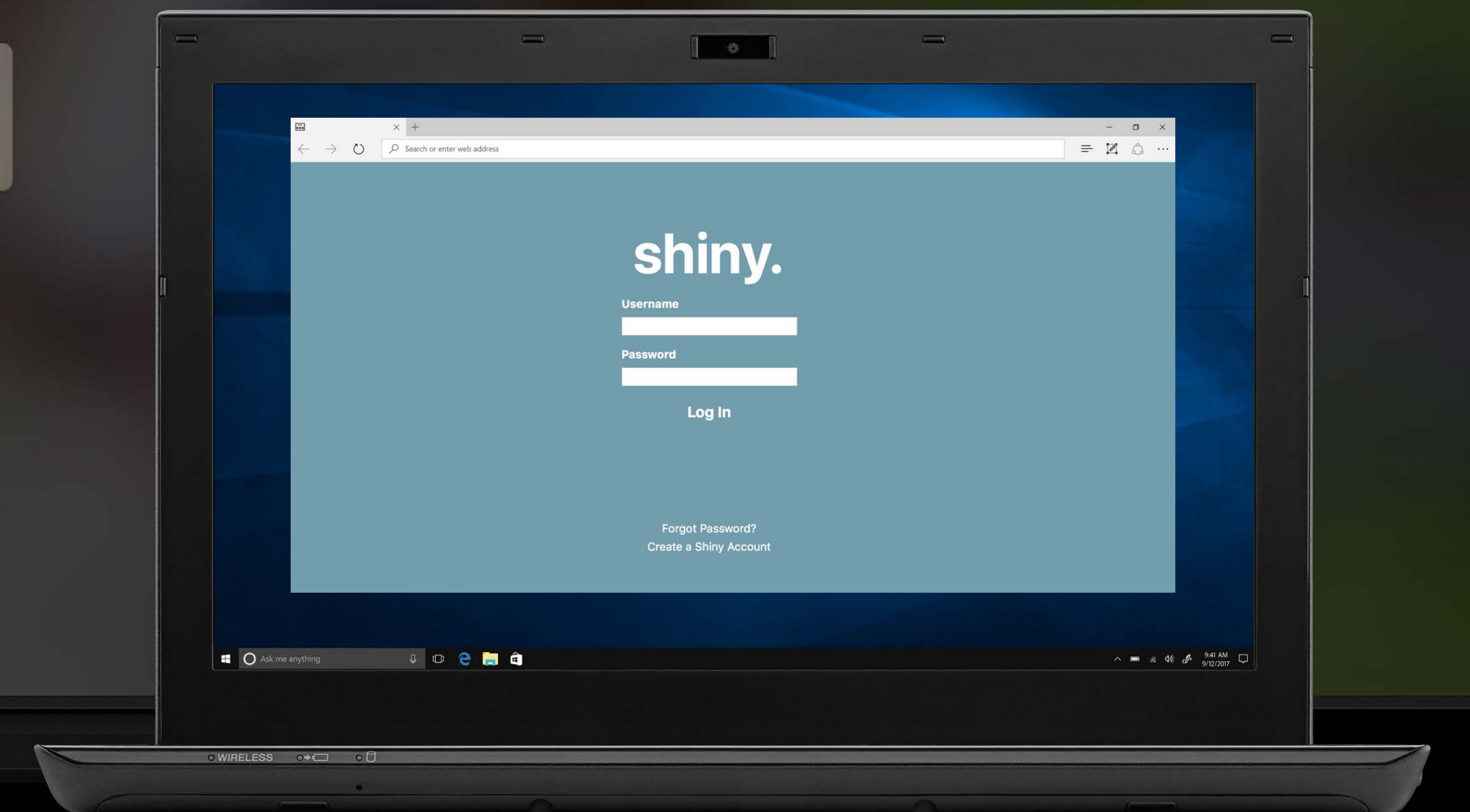
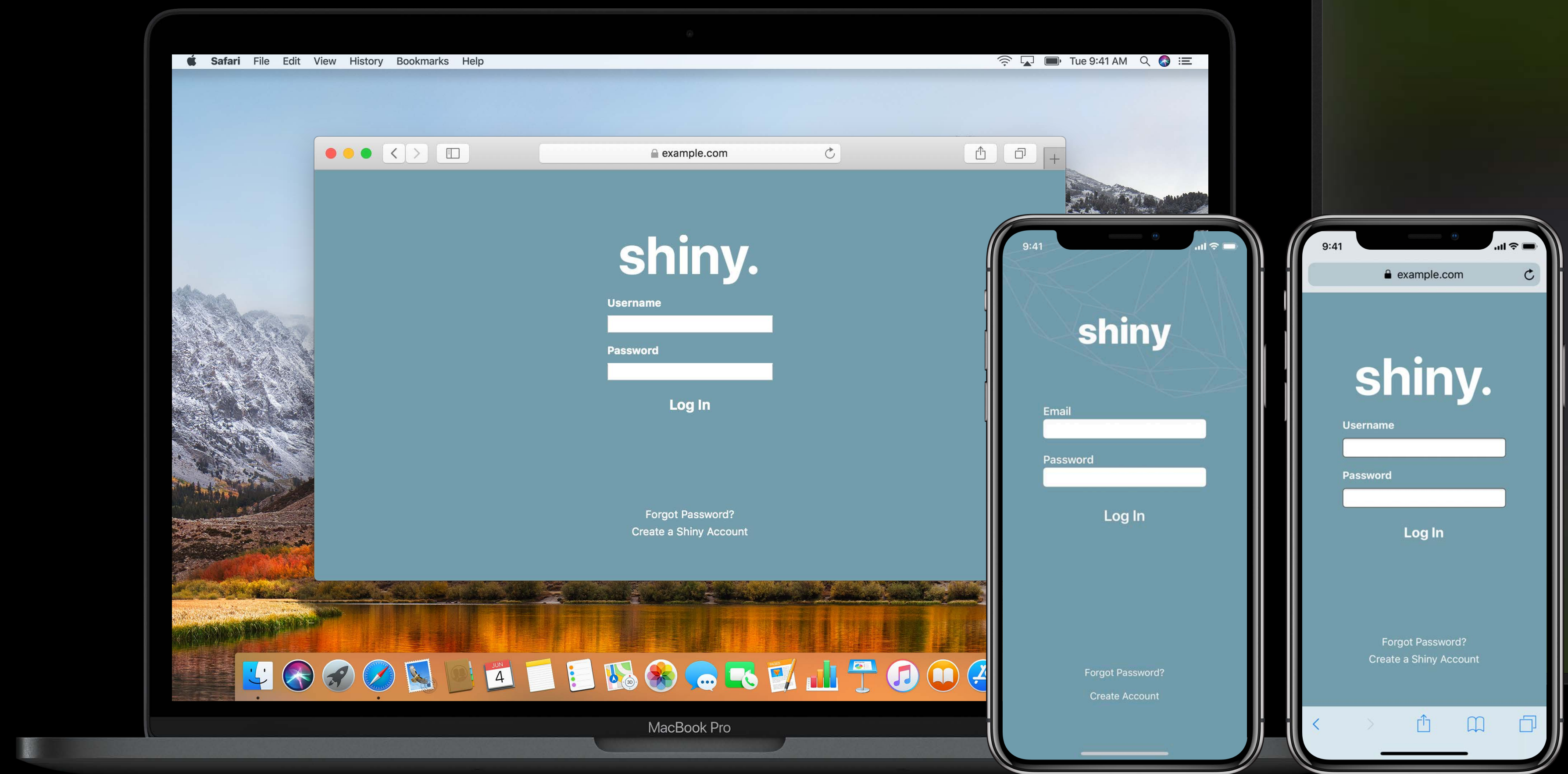


# shiny.

Email

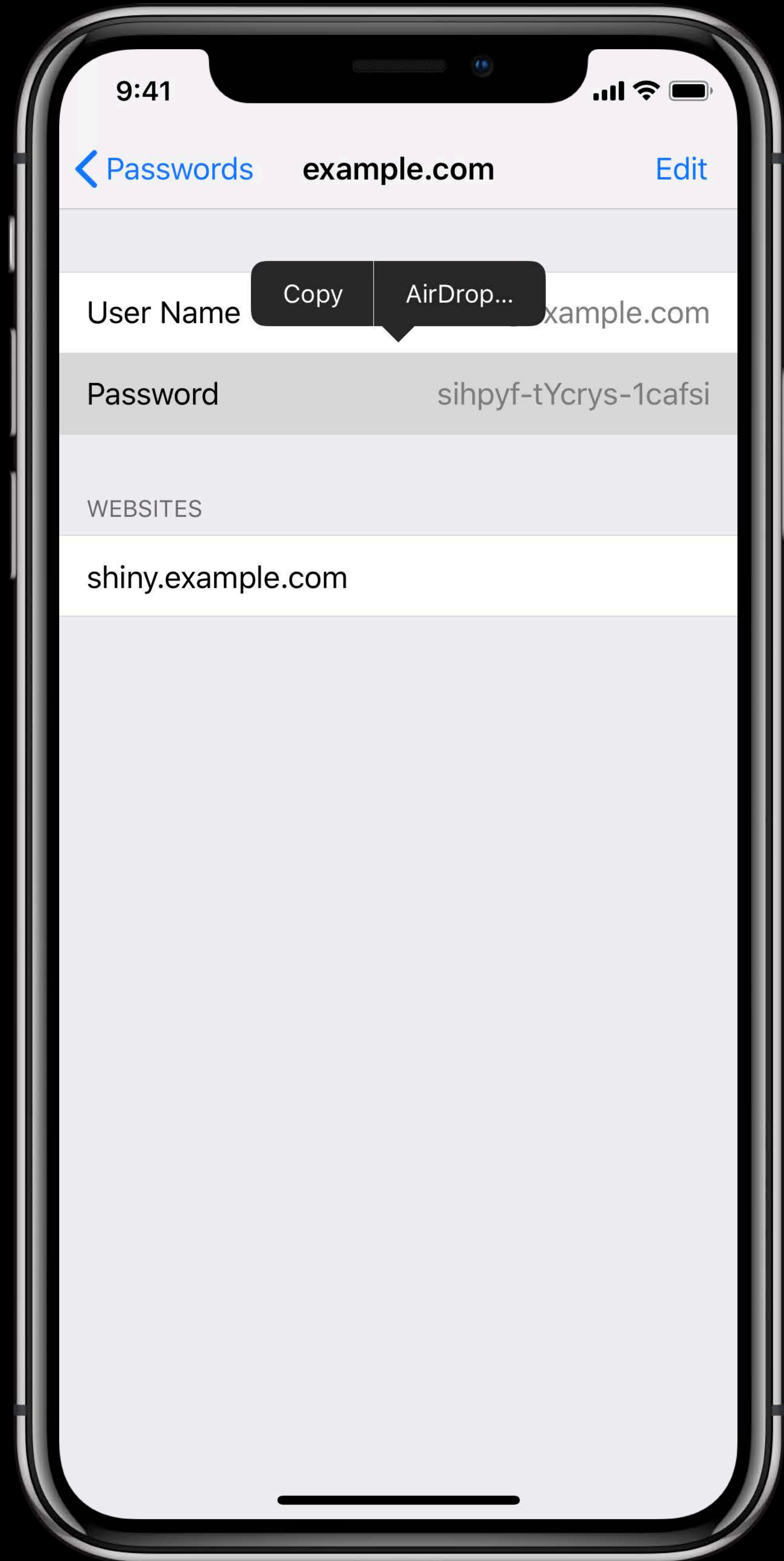
Password

Log In





“Hey Siri, show me my Shiny password”



9:41



< Passwords

example.com

Edit

User Name

Copy

AirDrop...

example.com

Password

sihpyf-tYcrys-1cafsi

WEBSITES

shiny.example.com




9:41




< Accounts Passwords + Edit

Q Search


A

 **apple.com** — chelsea@example.c...  
apple.com


 **artsy.net** — chelsea@example.com  
artsy.net

D


 **designmuseum.org** — chelsea@e...  
designmuseum.org

 **dolby.com** — chelsea@example.co...  
dolby.com


E

 **example.com** — chelsea@exampl...  
shiny.example.com

I

 **icloud.com** — chelsea@example.c...  
icloud.com

N

 **netflix.com** — chelsea@example.c...  
netflix.com

 **newyorker.com** — chelsea@exam...  
newyorker.com

P

 **pinterest.com** — chelsea@exampl...  
pinterest.com

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
O  
P  
Q  
R  
S  
T  
U  
V  
W  
X  
Y  
Z  
#



Passwords

General Tabs AutoFill Passwords Search Security Privacy Websites Extensions Advanced

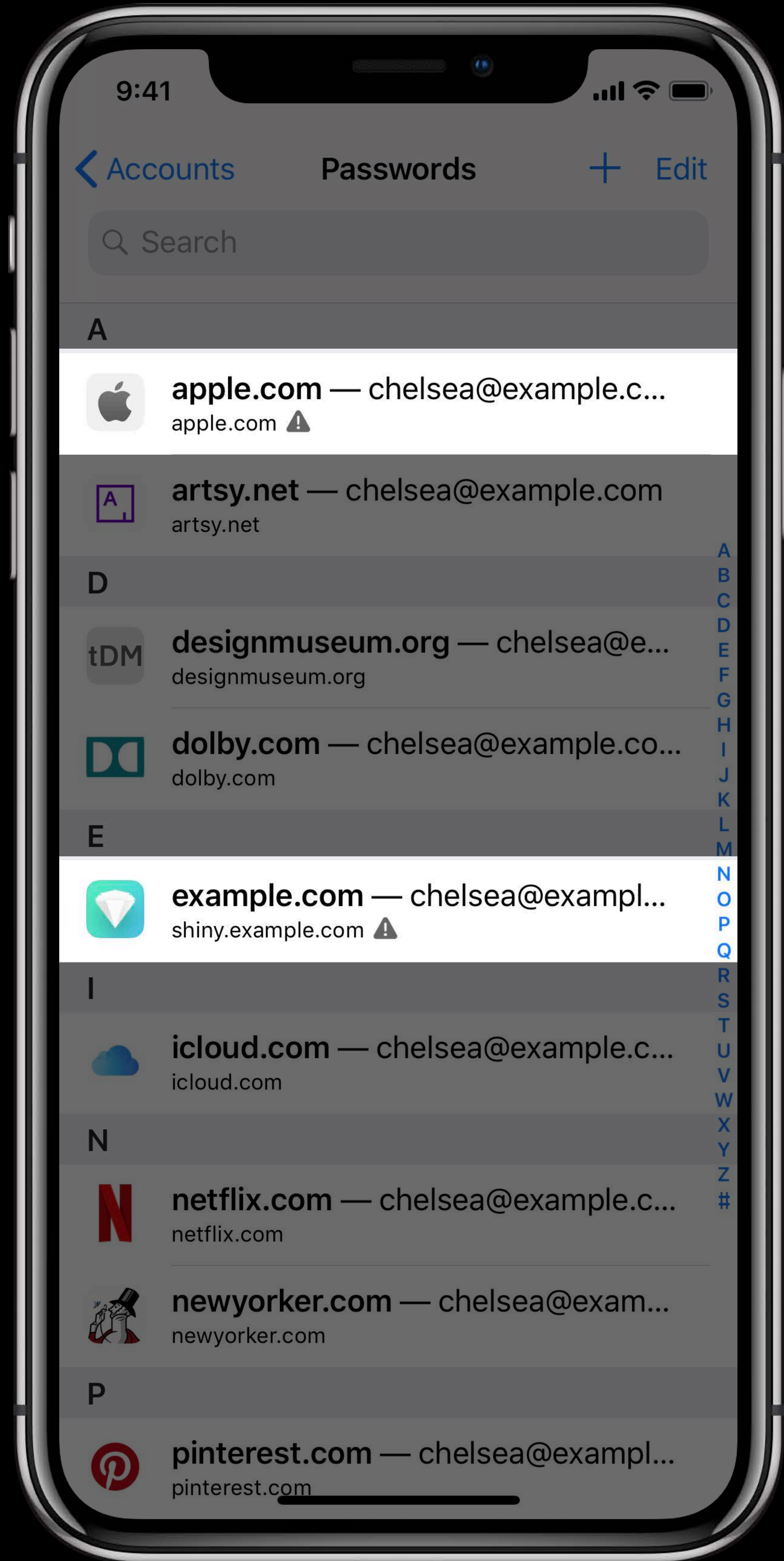
AutoFill user names and passwords

Website	User name	Password
apple.com	chelsea@example.com	.....
artsy.net	chelsea@example.com	.....
designmuseum.org	chelsea@example.com	.....
dolby.com	chelsea@example.com	.....
icloud.com	chelsea@example.com	.....
netflix.com	chelsea@example.com	.....
newyorker.com	chelsea@example.com	.....
pinterest.com	chelsea@example.com	.....
surfacemag.com	chelsea@example.com	.....
webkit.org	chelsea@example.com	.....

Details... Add Remove ?








9:41




< Accounts Passwords + Edit

Q Search


A

 **apple.com** — chelsea@example.c...  
apple.com ⚠

 **artsy.net** — chelsea@example.com  
artsy.net

D


 **designmuseum.org** — chelsea@e...  
designmuseum.org

 **dolby.com** — chelsea@example.co...  
dolby.com


E

 **example.com** — chelsea@exampl...  
shiny.example.com ⚠

I

 **icloud.com** — chelsea@example.c...  
icloud.com

N

 **netflix.com** — chelsea@example.c...  
netflix.com

 **newyorker.com** — chelsea@exam...  
newyorker.com

P

 **pinterest.com** — chelsea@exampl...  
pinterest.com

A  
B  
C  
D  
E  
F  
G  
H  
I  
J  
K  
L  
M  
N  
O  
P  
Q  
R  
S  
T  
U  
V  
W  
X  
Y  
Z  
#

9:41



< Passwords

example.com

Edit

User Name chelsea@example.com

Password password

### Change Password on Website

Reusing passwords across different websites is not safe.  
This password is also used on "apple.com".

#### WEBSITES

shiny.example.com



Passwords

General Tabs AutoFill Passwords Search Security Privacy Websites Extensions Advanced

AutoFill user names and passwords

Website	User name	Password
apple.com	chelsea@example.com	password
artsy.net	chelsea@example.com	.....
designmuseum.org	chelsea@example.com	.....
dolby.com	chelsea@example.com	.....
icloud.com	chelsea@example.com	.....
netflix.com	chelsea@example.com	.....
newyorker.com	chelsea@example.com	.....
pinterest.com	chelsea@example.com	.....
surfacemag.com	chelsea@example.com	.....
webkit.org	chelsea@example.com	.....

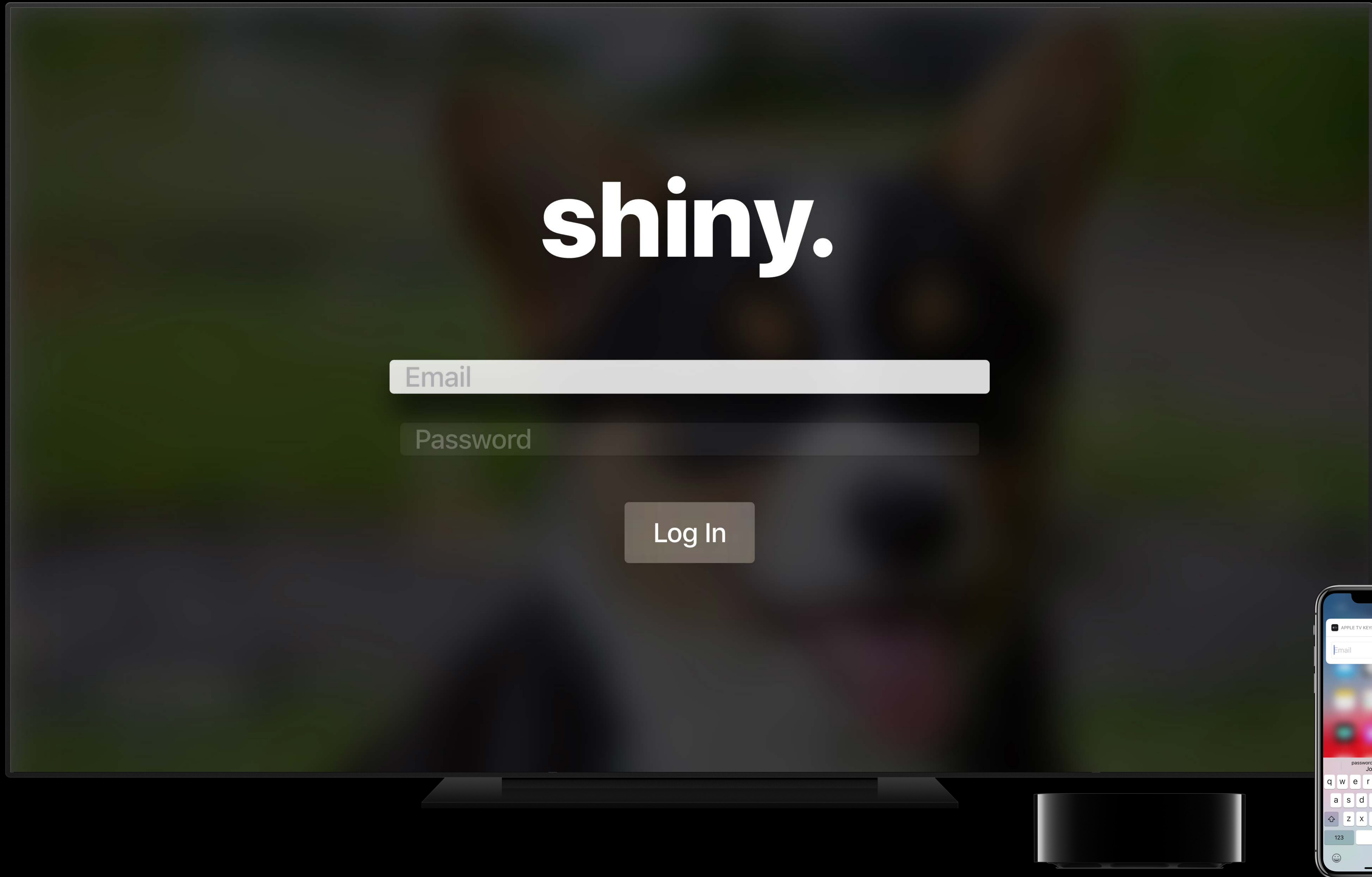
⚠ Passwords reused on multiple websites.

Reusing passwords across different websites is not safe. This password is also used on "webkit.org".









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What's New in tvOS 12

Hall 3

Tuesday 4:00PM

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# Summary

AutoFill is powerful

Features may work automatically

Test your app to ensure compatibility

# More Information

<https://developer.apple.com/password-rules>



# More Information

<https://developer.apple.com/wwdc18/204>

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Implementing AutoFill Credential Provider Extensions

WWDC 2018 Video

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Introducing Password AutoFill for Apps

WWDC 2017

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Safari, WebKit, and Password AutoFill Lab

Technology Lab 3

Tuesday 12:00PM

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 **WWDC18**