iOS SDK UI Customization API

UI and Key Mapping Reference Suggest Edits

This article describes two different ways to customize your iOS application using the OS SDK:

- · Static Resources
- · customize the UI layout during build time.
- Programmatic Customization
- · modifies the layout at run time.

Note:

You can combine static and programmatic approaches for customization. To use the SDK in the most flexible way, combine the reference in this article with the iOSSDK.

Sample Application: Refer to the OS sample application for example code.

Layouts

How to Use the Layout Images and Index Tables

This section includes screenshots of layouts for the SDK functionality. As you review the layouts, you can cross-reference the alphanumeric tags in the images with the values in the index tables that follow this section:

- Index Table A
- Index Table B
- Index Table C

New PIN Code

Confirm PIN Code

Enter PIN Code

Security Intros

Security Questions

Select Question

Security Summary

Security Confirm

Recover PIN Code

Index Table A

Based on the layouts, table A provides the UI item named in the controller and the keys currently in use. You can get the UIViewController from WalletSdkDelegate and customize the UI items in the run time. Also, you can provide the values in static resources CirclePWLocalizable.strings and CirclePWTheme.json for customization layouts in build time.

Programmatic Customization

Static Resources CirclePWLocalizable.strings CirclePWTheme.json

Controller Item Note

font color A1 NewPINCodeViewController titleLabel1 - circlepw_new_pincode_headline semibold text_main A2

titleLabel2

subtitleLabel

circlepw_new_pincode_subhead regular text_auxiliary A4 BasePINInputViewController - dots and texts will be generated dynamically - light pin dot base / pin dot base border / pin dot activated / success / error A5

- shows ApiError.displayString - regular error A6

showPINButton show pin circlepw show pin semibold text action / text action pressed A7

hide pin circlepw_hide_pin A8 ConfirmPINCodeViewController titleLabel1 - circlepw_confirm_pincode_headline semibold text main A9

titleLabel2

circlepw confirm pincode headline 2 bold title gradients A10

subtitleLabel

circlepw_confirm_pincode_subhead regular text_auxiliary A11 EnterPINCodeViewController titleLabel1 - circlepw_enter_pincode_headline semibold text_main A12

titleLabel2

circlepw_enter_pincode_headline_2 bold title_gradients A13

subtitleLabel

circlepw_enter_pincode_subhead regular text_auxiliary A14

forgotPINButton

circlepw_enter_pincode_forgot_pin semibold text_action / text_action_pressed A15 SecurityIntrosViewController titleLabel1 - circlepw_security_intros_headline semibold text_main A16

titleLabel2

circlepw_security_intros_headline_2 bold title_gradients A17

introDescLabel

circlepw_security_intros_description regular text_auxiliary2 A18

introLinkButton

circlepw_security_intros_link regular text_action / text_action_pressed A18-1

introLink custom your url string - - - A19

continueButton text circlepw_continue semibold main_bt_text / main_bt_text_pressed / main_bt_text_disabled background

main_bt_background / main_bt_background_pressed / main_bt_background_disabled A20 SecurityQuestionsViewController baseNaviTitleLabel - circlepw_security_questions_title medium text_main A21

nextButton text circlepw next semibold main bt text / main bt text pressed / main bt text disabled background

main_bt_background / main_bt_background_pressed / main_bt_background_disabled A22 SecurityQuestionTableViewCell questionTitleLabel - circlepw_security_questions_question_header regular text_auxiliary A23

questionMarkLabel

circlepw security questions required mark regular error A24

- placeholder circlepw_security_questions_question_placeholder regular text_placeholder selected question
- regular text_main A25

answerTitleLabel

circlepw_security_questions_answer_header regular text_auxiliary A26

- placeholder circlepw security questions answer placeholder regular text placeholder input text
- regular text main view

-

input background disabled / input border / input border focused A27

hintTitleLabel

circlepw_security_questions_answer_hint_header regular text_auxiliary A28

- placeholder circlepw_security_questions_answer_hint_placeholder regular text_placeholder input text
- regular text main view

_

input background disabled / input border / input border focused A29

hintWarningLabel ApiError(.hintsMatchAnswers) - regular error A30 SelectQuestionViewController baseNaviTitleLabel - circlepw_select_question_title medium text_main A31 SelectQuestionTableViewCell titleLabel question list - regular text_main A32 SecuritySummaryViewController baseNaviTitleLabel - circlepw_security_summary_title medium text_main A33

continueButton text circlepw_continue semibold main_bt_text / main_bt_text_pressed / main_bt_text_disabled background

-

 $main_bt_background / main_bt_background_pressed / main_bt_background_disabled A34 SecuritySummaryTableViewCell \\titleLabel - \{ordinal\} + circlepw_question semibold text_main2 A35$

questionTitleLabel

circlepw_question + ":" regular text_auxiliary2 A36

-

regular text_summary A37

answerTitleLabel

circlepw_answer + ":" regular text_auxiliary2 A38

-

- semibold text summary highlight A39

hintTitleLabel

circlepw_hint + ":" regular text_auxiliary2 A40

circlepw_empty_placeholder regular text_summary A41 SecurityConfirmViewController baseNaviTitleLabel - circlepw_security_confirm_title_medium_text_main_A42

imageBgView

-

security_confirm_main_bg A43

tipsTitleLabel

circlepw_security_confirm_headline medium text_main A44

agreeTitleLabel

circlepw_security_confirm_input_headline semibold text_main2 A45

agreeTextField placeholder circlepw_security_confirm_input_placeholder regular text_placeholder input text

- regular text_main2 view

-

input background disabled / input border / input border focused A46

continueButton text circlepw_continue semibold main_bt_text / main_bt_text_pressed / main_bt_text_disabled background

-

 $main_bt_background / main_bt_background_pressed / main_bt_background_disabled A47 \ RecoverPINCodeViewController \\ titleLabel1 - circlepw_recover_pincode_headline \ semibold \ text_main \ A48$

titleLabel2

circlepw_recover_pincode_headline_2 bold title_gradients A49

- shows ApiError.displayString - regular text_main A50

errorMessageView background - - error_background A51

confirmButton text circlepw_confirm semibold main_bt_text / main_bt_text_pressed / main_bt_text_disabled background

-

main_bt_background / main_bt_background_pressed / main_bt_background_disabled A52 RecoverPINCodeTableViewCell - - - regular text main2 A53

hintTitleLabel text circlepw_hint regular recover_pin_hint_title background

-

recover pin hint title bg A54

- placeholder circlepw_empty_placeholder regular recover_pin_hint A55

answerTitleLabel

circlepw_recover_pincode_answer_input_header regular text_auxiliary A56

answerMarkLabel

circlepw security questions required mark regular error A57

- placeholder circlepw recover pincode answer input placeholder regular text placeholder input text
- regular text main view

_

input_background_disabled / input_border / input_border_focused

Index Table B

By confirming the WalletSdkLayoutProvider, you can custom layout from Table-B dynamically. See thsample Code.

WalletSdkLayoutProvider Note B1 func securityQuestions() -> [SecurityQuestion] Set security question list B2 func securityQuestionsRequiredCount() -> Int Set security question required count (default is 2) B3 func securityConfirmItems() -> [SecurityConfirmItem] Set security confirm item list B4 func displayDateFormat() -> String Set the date format for display date strings. (Default is "yyyy-MM-dd") - func imageStore() -> ImageStore Set local and remote images (more details inTable-C) - func themeFont() -> ThemeConfig.ThemeFont? Set theme font programmatically- Provide the ThemeFont structure by code. - This method will override the font setups in CirclePWTheme.json file. -

Index Table C

Used in WalletSdkLayoutProvider Used in WalletSdkDelegate

ImageStore.Img (Enum) Controller Item C1 naviClose - - C2 naviBack - - C3 securityIntroMain SecurityIntrosViewController introImageView C4 dropdownArrow SecurityQuestionTableViewCell questionTrailingButton C5 selectCheckMark SelectQuestionTableViewCell checkmarkImage C6 securityConfirmMain SecurityConfirmViewController imageView C7 errorInfo RecoverPINCodeViewController errorImageView * Use the * ImageStore.Img (Enum) * column to customize with the * WalletSdkLayoutProvider * :

Swift func imageStore() -> ImageStore { let local: [ImageStore.lmg: UIImage] = [.naviBack: UIImage(named: "ic_navi_back")!, .naviClose: UIImage(named: "ic_navi_close")!, .selectCheckMark: UIImage(named: "ic_checkmark")!, .dropdownArrow: UIImage(named: "ic_trailing_down")!, .errorInfo: UIImage(named: "ic_warning_alt")!, .securityIntroMain: UIImage(named: "img_security_intro")!, .securityConfirmMain: UIImage(named: "img_driver_blog")!]

return ImageStore(local: local, remote: remote)

} * If you set both local and remote images, the remote image will present after the image loads, and the local image will be set as the placeholder image. * The remote image formats supported include those from the Apple system (JPEG, PNG, TIFF, BMP, etc.), GIF, and APNG animated images. * The remote image formats unsupported for new image formats include HEIC, BPG, AVIF, and vector formats such as PDF and SVG. * TheController * and Item * column shows where the images are used. * Refer to the UI items If you have special customizations with * WalletSdkDelegate * (not recommended)

Static Resources

This section describes how to customize the UI for iOS statically.

Note:

Circle recommends customizing the UI using static files.

You can copy the icon images from the Sample Project .

Assets

Because the CircleProgrammableWalletSDK does not contain any image resources for the SDK; you must provide the icon images from either local assets or remote URLs.

Important:

Setting the WalletSdkLayoutProvider.imageStore in WalletSdkLayoutProvider is required for you to see icons in the layouts.

CirclePWLocalizable.strings

Setup

- 1. Create a fileCirclePWLocalizable.strings
- 2. in your main bundle.
- 3. Provide your strings. Partial override is supported.

Note:

You can provide specific keys and values you want to override and others keys will still refer to the default values.

- 1. Localization is supported. For more information, sed_ocalization | Apple Developer Documentation
- 2. .

Example CirclePWLocalizable.strings

```
Swift / * Loco ios export: iOS Localizable.strings * Project: strings.xml conversion * Release: Working copy * Locale: en,
English * Exported by: Circle * Exported at: Tue, 27 Jun 2023 23:35:22 +0800 /
// [General] "circlepw show pin" = "Show PIN"; "circlepw hide pin" = "Hide PIN"; "circlepw continue" = "Continue";
"circlepw next" = "Next"; "circlepw confirm" = "Confirm";
"circlepw question" = "Question"; "circlepw answer" = "Answer"; "circlepw hint" = "Hint"; "circlepw empty placeholder" = "-
// [Page] EnterPINCode "circlepw enter pincode headline" = "Enter your"; "circlepw enter pincode headline 2" = "Web3
PIN"; "circlepw_enter_pincode_subhead" = "Let us know if it's really you."; "circlepw_enter_pincode_forgot_pin" = "Forgot
PIN?";
// [Page] NewPINCode "circlepw new pincode headline" = "Enter your new"; "circlepw new pincode headline 2" = "Web3
PIN"; "circlepw new pincode subhead" = "Your PIN can't have repeating (e.g. 000000) or consecutive (e.g. 123456)
numbers.";
// [Page] ConfirmPINCode "circlepw confirm pincode headline" = "Re-enter your PIN to confirm";
"circlepw confirm pincode headline 2" = ""; "circlepw confirm pincode subhead" = "";
// [Page] SecurityIntros "circlepw security intros headline" = "Set up your"; "circlepw security intros headline 2" =
"Recovery Method"; "circlepw_security_intros_description" = "This is the only way to recover wallet access if you forget your
PIN. Pick 2 security questions and provide answers for access recovery."; "circlepw_security_intros_link" = "Learn more";
// [Page] SecurityQuestions "circlepw_security_questions_title" = "Recovery method";
"circlepw security questions question header" = "Choose your %@ question";
"circlepw security questions question placeholder" = "Select one question"; "circlepw security questions required mark"
= "*"; "circlepw security_questions_answer_header" = "Provide an answer";
"circlepw security questions answer placeholder" = "Type your answer here";
"circlepw security questions answer hint header" = "Provide an answer hint (optional)":
"circlepw security questions answer hint placeholder" = "Type your hint here";
// [Page] SelectQuestion "circlepw select question title" = "Select one question";
// [Page] SecuritySummary "circlepw security summary title" = "Summary":
// [Page] SecurityConfirm "circlepw security confirm title" = "Confirmation"; "circlepw security confirm headline" = "Keep
your questions safe"; "circlepw security confirm input headline" = "Type "I agree" to proceed:";
"circlepw security confirm input placeholder" = "Type "I agree" here"; "circlepw security confirm input match" = "I agree";
// [Page] RecoverPINCode "circlepw_recover_pincode_headline" = "Recover your"; "circlepw_recover_pincode_headline_2"
= "Web3 PIN"; "circlepw recover pincode subhead" = "Please enter the answer of the security questions provided below.";
"circlepw recover pincode answer input header" = "Enter your answer here";
"circlepw recover pincode answer input placeholder" = "Type your answer here";
```

CirclePWTheme.json

Setup

- · Copy the fileCirclePWTheme.json
- into your main bundle. You can use
- · Cmd + drag and drop
- •
- · Make sure you have selected the
- Target Membership
- .
- · Provide values to set thefont
- : To use a custom font, refer to this document: Adding a Custom Font to Your App | Apple Developer Documentation
- .

"#8CD521"

- · Set thecolor
- · with a hex string:

Example: CirclePWTheme.json

```
JSON { "font": { "ultraLight": "", "thin": "", "light": "", "regular": "CustomFont-Regular", "medium": "CustomFont-Medium",
"semibold": "", "bold": "", "heavy": "", "black": "" }, "color": { "background": "#FFFFFF", "divider": "#F0EFEF", "success":
"#00B14F", "error": "#F55538", "error_background": "#FDF2F2",
"text_main": "#1A1A1A",
"text_main2": "#1C1C1C'
"text_auxiliary": "#3D3D3D",
"text_auxiliary2": "#707070",
"text_summary": "#005339",
"text_summary_highlight": "#005339",
"text_placeholder": "#A3A3A3",
"text_action": "#136FD8",
"text_action_pressed": "#B3136FD8",
"pin dot base": "#FFFFFF"
"pin_dot_base_border": "#707070",
"pin dot activated": "#3D3D3D",
"input_border": "#E8E8E8",
"input_border_focused": "#00B14F",
"input_background_disabled": "#F5F5F5",
"main_bt_text": "#FFFFFF".
"main bt text pressed": "#FFFFFF".
"main_bt_text_disabled": "#BFBFBF",
"main_bt_background": "#00B14F",
"main_bt_background_pressed": "#005339",
"main_bt_background_disabled": "#F5F5F5",
"recover_pin_hint_title": "#005339",
"recover_pin_hint_title_bg": "#EEF9F9",
"recover_pin_hint": "#005339",
"security confirm main bg": "#3AB5EE",
"title_gradients": [
 "#00B14F"
 "#23B64B",
 "#35BA47".
 "#43BE43"
 "#4FC23F".
 "#59C53C"
 "#62C838",
 "#6ACA34"
 "#71CD31",
 "#77CF2D".
 "#7DD02A",
 "#82D228",
 "#85D325",
 "#88D424",
 "#8AD522".
```

Programmatic Customization

To programmatically customize the UI refers to the following documents:

- The corresponding rendered layout and the notes on Index Table B
- The Programmable Wallet iOS SDK
- .

Example Code

```
Swift extension WalletSdkAdapter: WalletSdkLayoutProvider {
func securityQuestions() -> [SecurityQuestion] {
  return [
     SecurityQuestion(title: "What is your childhood nickname?", inputType: .text),
     SecurityQuestion(title: "What is the middle name of your oldest child?", inputType: .text),
     SecurityQuestion(title: "What is your favorite team?", inputType: .text),
     SecurityQuestion(title: "When was your birthday?", inputType: .datePicker),
     SecurityQuestion(title: "When is your marriage anniversary?", inputType: .datePicker),
func securityQuestionsRequiredCount() -> Int {
  return 2
func securityConfirmItems() -> [SecurityConfirmItem] {
  return [
     SecurityConfirmItem(image: UIImage(named: "img_info"),
                 text: "This is the only way to recover my account access."),
     SecurityConfirmItem(image: UIImage(named: "img_claim_success"),
                 text: "Circle won't store my answers so it's my responsibility to remember them."),
     SecurityConfirmItem(image: UIImage(named: "img_claim_success"),
                 text: "I will lose access to my wallet and my digital assets if I forget my answers."),
func displayDateFormat() -> String {
  return "yyyy/MM/dd"
func imageStore() -> ImageStore {
  let local: [ImageStore.Img: UIImage] = [
     .naviBack: UIImage(named: "ic_navi_back")!,
     .naviClose: UIImage(named: "ic_navi_close")!,
     .selectCheckMark: UIImage(named: "ic_checkmark")!,
     .dropdownArrow: UIImage(named: "ic trailing down")!,
     .errorInfo: UIImage(named: "ic warning alt")!,
     .securityIntroMain: UIImage(named: "img_security_intro")!,
     .securityConfirmMain: UIImage(named: "img_driver_blog")!
  let remote: [ImageStore.Img: URL] = [
     .securityIntroMain: URL(string: "https://www.circle.com/hs-fs/hubfs/Sundaes/810/global-payments-810x810.png")!,
     .securityConfirmMain: URL(string: "https://www.circle.com/hs-fs/hubfs/Sundaes/810/Trust-810x810.png")!,
  1
  return ImageStore(local: local, remote: remote)
func themeFont() -> ThemeConfig.ThemeFont? {
  return ThemeConfig.ThemeFont(
     ultraLight: nil,
     thin: nil.
     light: "CustomFont-Light",
     regular: "CustomFont-Regular",
     medium: "CustomFont-Medium"
     semibold: "CustomFont-SemiBold",
     bold: "CustomFont-Bold",
     heavy: nil,
     black: nil
}
}
```

WalletSdkDelegate

By modifying the WalletSdkDelegate, you can get the current view controller and control the UI parameters in the controller at run time.

```
Swift public protocol WalletSdkDelegate: AnyObject {

/// Tells the delegate that the SDK is about to be presented in the controller.

/// You can customize the layout as you wish dynamically.

///

/// - Parameter controller: The UIViewController to be presented func walletSdk(willPresentController controller: UIViewController)

...

}
```

Example Code

```
Swift extension WalletSdkAdapter: WalletSdkDelegate {

func walletSdk(willPresentController controller: UIViewController) {

    print("willPresentController: \((controller)")\)

    if let controller = controller as? NewPINCodeViewController {
        controller.titleLabel1.text = "Hello World"
        controller.titleLabel1.textColor = .blue
        controller.titleLabel1.font = .systemFont(ofSize: 28, weight: .black)

}

if let controller = controller as? SecurityConfirmViewController {
        controller.imageBgView.backgroundColor = .blue
        controller.imageView.contentMode = .scaleAspectFill
    }
}

...
}
```

View Public Interface

Use Jump to Definition (Cmd + left click) to see the public interface of the view controller. Change the UI items as you need.

Jump to Definition

Public Interface

ErrorMessenger

ApiError

Interface

```
Swift public struct ApiError: Error {
public let errorCode: ErrorCode

/// Error string from the SDK
public let errorString: String

/// Error string for UI display
public var displayString: String
```

} By modifying the ErrorMessenger , you can customize the ApiError messages. Your customization replaces the default ApiError.displayString for UI usage. You can also manage the localized error message.

```
Swift public protocol ErrorMessenger {
func getErrorString(_ code: ApiError.ErrorCode) -> String?
}
```

Example Code

```
Swift import CircleProgrammableWalletSDK
```

WalletSdk.shared.setErrorMessenger(MyErrorMessenger())

ErrorCode and Messages Table

The following table shows the ApiError. Error Code key names and their default values:

ApiError. ErrorCode Default Value unknown(-1) Unknown error success(0) Success apiParameterMissing(1) API parameter missing apiParameterInvalid(2) API parameter invalid forbidden(3) Forbidden unauthorized(4) Unauthorized retry(9) Retry customerSuspended(10) Customer suspended pending(11) Pending invalidSession(12) Invalid session invalidPartnerId(13) Invalid partner ID invalidMessage(14) Invalid Message published to a SQS queue. invalidPhone(15) Invalid phone number %@ walletIdNotFound(156001) tokenIdNotFound(156002) transactionIdNotFound(156003) entityCredentialNotFound(156004) walletSetIdNotFound(156005) userAlreadyExisted(155101) user already existed userNotFound(155102) user not found userTokenNotFound(155103) user token not found userTokenExpired(155104) user token expired invalidUserToken(155105) invalid user token userWasInitialized(155106) user was initialized userHasSetPin(155107) user has set pin userHasSetSecurityQuestion(155108) user has set security question userWasDisabled(155109) user was disabled userDoesNotSetPinYet(155110) user does not set pin yet userDoesNotSetSecurityQuestionYet(155111) user does not set security questions yet incorrectUserPin(155112) The PIN you entered is incorrect. You have %@ attempts left. incorrectDeviceId(155113) incorrect device id incorrectAppId(155114) app id not found incorrectSecurityAnswers(155115) The answers you entered are incorrect. You have %@ attempts left. invalidChallengeId(155116) invalid challenge id invalidApproveContent(155117) invalid approve content invalidEncryptionKey(155118) invalid encryption key userPinLocked(155119) You've used up all PIN attempts. Please wait for %@ mins to retry later. securityAnswersLocked(155120) The answers you entered are incorrect. Please wait for %@ mins to retry again. walletIsFrozen(155501) Wallet is Frozen maxWalletLimitReached(155502) Max wallet limit reached walletSetIdMutuallyExclusive(155503) WalletSetId can not be used together with blockchain and address filter metadataUnmatched(155504) metadata array length does not match wallet count userCanceled(155701) User canceled launchUiFailed(155702) pinCodeNotMatched(155703) The PIN you entered is not the same as the first one. insecurePinCode(155704) Your PIN can't have repeating or consecutive numbers. hintsMatchAnswers(155705) Your hint can't be the same as the answer. networkError(155706) Network error Updated5 months ago * Table of Contents * * Layouts * * * How to Use the Layout Images and Index Tables* * * New PIN Code * * * Confirm PIN Code * * * Enter PIN Code * * * Security Intros * * * Security Questions * * * Select Question * * * Security Summary * * * Security Confirm * * * Recover PIN Code * * * Index Table A * * * Index Table B * * * Index Table C * * Static Resources * * * Assets * * * <u>CirclePWLocalizable.strings</u> * * * <u>Example CirclePWLocalizable.strings</u> * * * <u>CirclePWTheme.json</u> * * <u>Programmatic</u> Customization * * * Example Code * * * WalletSdkDelegate * * ErrorMessenger * * * ApiError Interface * * ErrorCode and Messages Table