



**computop**  
*the payment people*

## **iOS SDK**

Integration Guide

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## Document history

Date	Change
2016-12-01	First Version
2017-02-13	Pre-final version
2017-05-15	Extended for changes in SDK version 0.3
2017-05-22	Added note about the use of Let's Encrypt SSL certificates on merchant backend
2017-06-16	Just added a new version number for first live release.

# Introduction

## 1. Overview

This is the documentation for the iOS SDK of [Computop](#) to integrate payments in your iOS app. The integration of the SDK is achieved by following a list of mandatory steps as described below:

- A. Configuration of the merchant account in the Computop's Paygate system.
- B. 'Computop' SDK pod installation.
- C. Configuration of the SDK by inserting appropriate data retrieved from Computop.
- D. Configuration of preferable payment methods.
- E. Authentication against the merchant backend.
- F. Insertion of the payment data.
- G. Checkout.
- H. Handle errors.

### 1.1 List of supported payment methods

The iOS SDK currently supports the following payment methods:

- Credit Card
- Direct Debit
- PayPal
- Apple Pay

For more information please check below chapter 4.3.

## 2. Requirements

Mandatory requirements in order to be able to use the SDK:

### Preparation

- Existing merchant account at Computop
- Merchant ID which you will receive from computop after creation of the merchant account
- a backend and the belonging URL on merchant side to create and deliver a auth token (see chapter 4.2)
- a website and the belonging URL's on merchant side to forward and show the status of a payment process in case of a success, failure or a notify event (see chapter 4.3.2).

### Development

- Installed cocoapods on the development machine - minimum version of cocoa pods is v1.1.1
- Minimum required Xcode version is Xcode 8
- iOS 8 as minimum deployment target

### Apple Pay

- Registered Apple Developer Account
- Configured app in the apple developer center - activated for Apple Pay
- Configured Apple Merchant ID
- Certificate Signing-Request-File received from Computop to create a Payment Processing Certificate

For more information see below in chapter 4.4 Apple Pay.

## 3. Installation

If not done, please install cocoapods. Here <https://guides.cocoapods.org/using/getting-started.html> you will find the HowTo for that.

When CocoaPods is installed, you need to activate your Xcode project for CocoaPods in the way that is described here: <https://guides.cocoapods.org/using/using-cocoapods.html>

That means you have to create a Podfile inside the root directory of your project. You could do this with the following command within terminal in the root folder of your project:

```
pod init
```

Then add the following line to your Podfile:

```
pod 'Computop'
```

and run the following command within terminal in the root folder of your project:

```
pod install
```

If there comes an error like “[!] Unable to find a specification for `Computop`” you should update your local CocoaPods repositories by

```
pod update
```

After them try again “pod install”.

Now you should have a configured xcode workspace with the integrated Computop Framework. From now use the workspace file to open your Xcode project.

## 4. How to implement

You could find an demo on

<https://github.com/computop/Computop-iOS/tree/master/Computop-demo>

Try the demo in order to see how it works or use the following step by step guidelines.

### 4.1 Configuration

Configure the SDK by importing the Computop class and inserting the configuration parameters you received from Computop or parameter *merchantAppleID* that you created yourself.

The `AppDelegate` class is the appropriate place to do so.

```

#import "AppDelegate.h"
#import <Computop/Computop.h>

@implementation AppDelegate

- (BOOL)application:(UIApplication *)application didFinishLaunchingWithOptions:(NSDictionary *)launchOptions
{
    CMPConfiguration.merchantID = @"YOUR_MERCHANT_ID";
    CMPConfiguration.merchantAppleID = @"YOUR_APPLE_MERCHANT_ID";

    return YES;
}

@end

```

## 4.2 Authentication

One requirement for the Mobile SDK is it to insert the respective Merchant's URL in order to be able to receive the auth token. The SDK is responsible to retrieve then the token under the hood and use it appropriately when executing payment requests. An appropriate place to do that is inside `AppDelegate` with the rest of Configuration. For more information, see the [Paygate documentation](#).

```

#import "AppDelegate.h"
#import <Computop/Computop.h>

@implementation AppDelegate

- (BOOL)application:(UIApplication *)application didFinishLaunchingWithOptions:(NSDictionary *)launchOptions
{
    CMPConfiguration.merchantID = @"YOUR_MERCHANT_ID";
    CMPConfiguration.merchantAppleID = @"YOUR_APPLE_MERCHANT_ID";
    CMPConfiguration.authURL = @"YOUR_AUTH_URL";

    return YES;
}

@end

```

## 4.3 Making a payment

Assumed your app user put some products into the basket, typed the shipment address and wants now make the payment - that means you want to provide/show different payment methods to the user, so that he could choose on.

For that you should ask the SDK for supported payment methods:

### 4.3.1 Retrieve Payment Methods

Currently the SDK returns all the available methods by calling the method in the following code snippet. Merchant can use only the methods they are activated in Paygate.

```
[[Computop sharedInstance] paymentMethodsOnSuccess:^(NSArray<CMPPaymentMethod *>
*paymentMethods) {
    // set the methods as a data source
} onFailure:^(NSError *error) {
    // do something with the error
}];
```

A good place to do this is a view controller class, which controls the view of the payment methods. So you could set this as data source for your view. In the example app we are doing this in the `PaymentViewController` class

Now in order to proceed with a payment it is necessary to configure the appropriate payment data for each payment method.

### 4.3.2 Configure Payment Data

Every received payment method holds a `CMPPaymentData` instance. You only need to insert all merchant's necessary payment data for the checkout (more details on `PaymentData` in [Paygate documentation](#)). A good way to do that is after the receive of the supported payment methods:

```
[[Computop sharedInstance] paymentMethodsOnSuccess:^(NSArray<CMPPaymentMethod *>
*paymentMethods)
{
    // set the methods as a data source
    self.paymentMethods = paymentMethods;

    for (CMPPaymentMethod *method in self.paymentMethods)
    {
        // Mandatory params
        [method.paymentData setParamWithKey:@"TransID" withValue:@"YOUR_TRANS_ID"];
        [method.paymentData setParamWithKey:@"Amount" withValue:@"YOUR_AMOUNT";
```



```

[method.paymentData setParamWithKey:@"Currency" withValue:@"YOUR_CURRENCY"];
[method.paymentData setParamWithKey:@"URLSuccess" withValue:@"YOUR_URL_SUCCESS"];
[method.paymentData setParamWithKey:@"URLNotify" withValue:@"YOUR_URL_NOTIFY"];
[method.paymentData setParamWithKey:@"URLFailure" withValue:@"YOUR_URL_FAILURE"];

// Optional params
[method.paymentData setParamWithKey:@"RefNr" withValue:@"YOUR_REF_NR"];
[method.paymentData setParamWithKey:@"OrderDesc" withValue:@"YOUR_ORDER_DESC"];
[method.paymentData setParamWithKey:@"AddrCity" withValue:@"YOUR_ADDR_CITY"];
[method.paymentData setParamWithKey:@"FirstName" withValue:@"YOUR_FIRST_NAME"];
[method.paymentData setParamWithKey:@"LastName" withValue:@"YOUR_LAST_NAME"];
[method.paymentData setParamWithKey:@"AddrZip" withValue:@"YOUR_ADDR_ZIP"];
[method.paymentData setParamWithKey:@"AddrStreet" withValue:@"YOUR_ADDR_STREET"];
[method.paymentData setParamWithKey:@"AddrState" withValue:@"YOUR_ADDR_STATE"];
[method.paymentData setParamWithKey:@"Phone" withValue:@"YOUR_PHONE"];
[method.paymentData setParamWithKey:@"eMail" withValue:@"YOUR_EMAIL"];
[method.paymentData setParamWithKey:@"ShopID" withValue:@"YOUR_SHOP_ID"];
[method.paymentData setParamWithKey:@"Subject" withValue:@"YOUR_SUBJECT"];
}
} onFailure:^(NSError *error) {
    // do something with the error
}];

```

The values of `Amount` and `Currency` will be validated during the checkout process. So you have to ensure that you are use valid data.

The currency is the currency you want to use you for the payment. You have to give up to three character (DIN/ISO 4217), e.g. "EUR".

The amount is the lowest unit of the currency you are using. That means if you are use EUR as currency the amount needs to be cents, e.g. an amount of 100 is 1 EUR.

`URLSuccess` and `URLFailure` are the URL's to which the SDK redirect the status of a payment process. These URL's normally point to a HTML site on your merchant backend to show the status to the user of your app.

### **Attention**

Currently iOS (especially the mobile Safari browser which is used by the SDK) doesn't support the execution of requests against a HTTP/2 backend which uses Let's Encrypt SSL certificates. For more infomation see

<https://community.letsencrypt.org/t/letsencrypt-cert-not-working-for-safari-with-http-2/25576/5>.

That means, when your merchant backend uses HTTP/2 (e.g. NodeJS) in combination with a Let's Encrypt certificate to show the success or failure status, this SDK is not able to do that. You should disable HTTP/2 or use another SSL certificate on your merchant backend.

For the rest of the params you should take a look into the paygate documentation. Some of them must be defined by you and are mandatory.

Now you know the available payment methods and you have configured them. It's time to show the payment methods to the user.

### 4.3.3 Show Payment Methods to the user

The `CMPPaymentMethod` object is a value object retrieved from the SDK with the above described method. It contains all vital information regarding a payment method needed from the SDK to show the respective payment form and complete a transaction. In addition it contains a *localizedDescription* and an *image*.

In the demo project, the payment methods are presented in a `tableView`, including ApplePay. In the following code snippet the population of a cell is demonstrated, providing a title and an image of the respective payment method.

```
PaymentMethodTableViewCell * cell = [self.tableView
dequeueReusableCellWithIdentifier:@"PaymentMethodTableViewCell" forIndexPath:indexPath];

CMPPaymentMethod *paymentMethod = [[self paymentMethods] objectAtIndex:indexPath.row];

cell.labelTitle.text = paymentMethod.localizedDescription;
[cell.paymentImageView setImage:paymentMethod.image];
```

### 4.3.4 Checkout

After the configuration of the SDK is completed and all necessary payment data are imported, you can proceed with the checkout for a selected payment method.

Start the checkout by instantiating a `CMPCheckout` object. The `CMPCheckout` class is a top-level class that facilitates the payment procedure. It is responsible for validating payment data and instantiating a `CMPCheckoutViewController` object when a new payment is triggered by passing the respective `paymentMethod` including the `paymentData`.

```
CMPCheckout *checkout = [[CMPCheckout alloc] init];
```

Proceed with the checkout by presenting a `CMPCheckoutViewController` which is a subclass of `UIViewController` encapsulating all the views' stack.

```
CMPPaymentMethod *paymentMethod = [[self paymentMethods] objectAtIndex:indexPath.row];

[self.checkout instantiateCheckoutViewControllerWithPaymentMethod:paymentMethod
onSuccess:^(CMPCheckoutViewController *checkoutViewController) {
    checkoutViewController.delegate = self;
```

```
        // show the new chekoutViewController
        // maybe push it on navigation stack
    } onFailure:^(NSError *error) {
        // handle the error
    }];
```

Receive results from checkout by conforming to `CMPCheckoutViewControllerDelegate` and implementing its methods:

```
- (void)checkoutDidAuthorizePaymentForPaymentData:(id<CMPPaymentDataProtocol>)paymentData
withResponse:(CMPPaymentResponse *)response

- (void)checkoutDidFailToAuthorizePaymentForPaymentData:(id<CMPPaymentDataProtocol>)paymentData
withError:(NSError *)error withResponse:(CMPPaymentResponse *)response

- (void)checkoutDidCancelForPaymentData:(CMPPaymentData *)paymentData;
```

## 4.4 Apple Pay

### 4.4.1 Configuration

#### 4.4.1.1 Apple Pay Developer page

- Enable “Apple Pay” service for the appID.
- Create “Merchant ID” (under “Identifiers”). It is recommended to use reverse domain style for the format of the “Merchant ID” that starts with merchant (i.e. for bundleID: “com.exozet.ComputopDemo” the merchantID should be something like “merchant.com.exozet.ComputopDemo”).
  - This “Merchant ID” is passed to SDK as merchantAppleID parameter
- Create a certificate for the “Merchant ID” by uploading the CSR provided by Computop and send the certificate back to Computop. (under “Identifiers/Merchant ID” select MerchantID & click edit, then create Payment Processing Certificate by uploading the CSR provided by Computop). Please contact [helpdesk@computop.com](mailto:helpdesk@computop.com) to obtain a CSR.

*\*If you see a warning in Keychain Access that the certificate was signed by an unknown authority or that it has an invalid issuer, make sure you have the WWDR intermediate certificate - G2 and the Apple Root CA - G2 installed in your keychain. You can download them from [apple.com/certificateauthority](https://apple.com/certificateauthority).*

#### 4.4.1.2 Xcode project

- To enable Apple Pay for your app in XCode, open the Capabilities pane. Select the switch in the Apple Pay row, and then select the merchant ID you want the app to use.
- Insert “Merchant ID” in the AppDelegate.

```
#import "AppDelegate.h"
#import <UIKit/UIKit.h>

@implementation AppDelegate

- (BOOL)application:(UIApplication *)application didFinishLaunchingWithOptions:(NSDictionary *)launchOptions
{
    CMPConfiguration.merchantAppleID = @"YOUR_MERCHANT_ID";

    return YES;
}

@end
```

#### 4.4.1.3 Testing Apple Pay Transactions

Use the [Apple Pay Sandbox](#) environment to test your transactions with test payment cards.

- In iTunes Connect, create a test account. This account works for both App Store and Apple Pay testing.
- On a valid test device, log into iCloud using the test account.
- In the Wallet app, add a new card using manual entry.

### 4.4.2 Usage

#### 4.4.2.1 Payment data

As described in 4.3.2 you should have configured the Apple pay payment data parameters.

#### 4.4.2.2 Present PKPaymentAuthorizationViewController

Start Apple Pay by instantiating a `CMPApplePay` object. The `CMPApplePay` class is a top-level class that facilitates the Apple Pay payment procedure. It is responsible for validating payment

data and instantiating a `PKPaymentAuthorizationViewController` object when a new payment is triggered by passing the respective `paymentData` and `paymentMethod`.

```
CMPApplePay *applePay = [[CMPApplePay alloc] init];
applePay.delegate = self;
```

Setup `PKPaymentSummaryItem` objects:

```
PKPaymentSummaryItem *paymentSummaryItem1 = [[PKPaymentSummaryItem alloc] init];
paymentSummaryItem1.label = @"SUMMARY_ITEM_1_LABEL";
paymentSummaryItem1.amount = 'SUMMARY_ITEM_1_AMOUNT';

PKPaymentSummaryItem *paymentSummaryItem2 = [[PKPaymentSummaryItem alloc] init];
paymentSummaryItem2.label = @"SUMMARY_ITEM_2_LABEL";
paymentSummaryItem2.amount = 'SUMMARY_ITEM_2_AMOUNT';

PKPaymentSummaryItem *paymentSummaryItemTotal = [[PKPaymentSummaryItem alloc] init];
paymentSummaryItemTotal.label = @"Total";
paymentSummaryItemTotal.amount = 'TOTAL_AMOUNT';
```

Present the `PKPaymentAuthorizationViewController`:

```
CMPPaymentMethod *applePayPaymentMethod = [[Computop sharedInstance] paymentMethodForID:
@"pm_applepay"];

NSArray* supportedNetworks = @[PKPaymentNetworkVisa, PKPaymentNetworkMasterCard,
PKPaymentNetworkAmex, PKPaymentNetworkDiscover];

[self.applePay
instantiatePKPaymentAuthorizationViewControllerWithPaymentMethod:self.paymentData
    withPaymentSummaryItems: /*your array with PaymentSummaryItems*/
    withSupportedNetworks:supportedNetworks
    withRequiredShippingAddressFields:self.selectedPKShipping
paymentAuthorizationViewController:^(PKPaymentAuthorizationViewController
    *applePayViewController) {
    // show apples pay view controller
    [self presentViewController:applePayViewController
        animated:true
        completion:nil];
} onFailure:^(NSError *error) {
    // handle the error
}];
```

## CMPPApplePayDelegate

Implement `CMPPApplePayDelegate` protocol's methods in order to get notified of navigation actions and on ApplePay payment's result:

```
- (void)applePayDidDismiss {
}

- (void)applePayDidAuthorizePaymentForPaymentData:(id<CMPPaymentDataProtocol>)paymentData
withResponse:(CMPPaymentResponse *)response {
}

-
(void)applePayDidFailToAuthorizePaymentForPaymentData:(id<CMPPaymentDataProtocol>)paymentData
withError:(NSError *)error withResponse:(CMPPaymentResponse *)response {
}

- (void)applePayPaymentDidSelectPaymentMethod:(PKPaymentMethod *)paymentMethod
completion:(void (^)(NSArray<PKPaymentSummaryItem *> *))completion {
}

- (void)applePayPaymentDidSelectShippingContact:(PKContact *)contact completion:(void
(^)(PKPaymentAuthorizationStatus, NSArray<PKPaymentSummaryItem *> *))completion {
}
```

### 4.4.3 iOS Human Interface Guidelines

The UI components and interactions with ApplePay should follow Apple's iOS Human Interface Guidelines. Please read the official documentation provided by Apple.