BOI
Payment Acceptance

A division of EVO

BOIPA Gateway

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Document Control

Document Purpose

This specification provides Small/Medium Enterprise (SME) merchant developers with the necessary information to integrate their sales systems with the BOIPA Gateway Application Programming Interfaces (APIs).

Intended Audience

This API Operations Overview is intended enable planning and integration with the BOIPA Gateway APIs by:

- Merchant business and technology staff
- Shopping Cart Plugin providers

The document defines the external interfaces to the BOIPA Gateway necessary to:

- Request payment card tokens
- Integrations with 3DS versions 1.0 or 2.0 for payment card authentication
- Submit authorisation transactions
- Submit purchases/sales transactions
- Capture (full or partial) funds from customers’ accounts as a result of successful authorisation transactions
- Void authorised payment requests
- Refund (full or partial) purchases (captured payments)
- Request transactions statuses
- Integrate PCI Compliant Payment Forms
- Receive Transaction Call results

The reader should have the knowledge and understanding of the payments industry processes, and the role of the payment processer (the BOIPA Gateway) in those payment processes.

1 Merchant Integration Methods

Merchants' integration methods are agreed with their Acquirer during the on-boarding process. It is essential that the merchant informs the BOIPA Gateway about which integration method will be employed. This is to assist with correctly configuring the merchant account in the BOIPA Gateway and for future support purposes.

The BOIPA Gateway supports three integration methods:

1.1 Direct API Integration

Direct API Integration is designed for the merchant that has a fully functional, PCI Compliant payment environment.

The primary feature of this integration method is the merchant's capability to develop their own payment form, where their customers to input their sensitive payment card information and expose alternate non-card payment methods to their customers.

In this scenario the merchant is using the BOIPA Gateway to process payment, integrate with 3DS (version 1.0 or 2.0) and supporting transactions through their acquirer.

This method is intended for more technologically sophisticated merchants who manage complex systems that provide a full customer shopping experience.

1.2 Hosted Payment Page Integration

Hosted Payment Page Integration is designed for the merchant that wants to focus on providing an ecommerce web presence to offer their goods or services to their customers, and not concern themselves with the complexities of managing PCI Compliant environments that are required to manage sensitive customer payment card information in secure, often encrypted environments. Features include:

The primary feature of this integration method is that the BOIPA Gateway manages a Level-1 PCI Compliant environment that is certified and regularly audited. The merchant will integrate the BOIPA Gateway's own hosted payment form into their checkout pages. The payment form is loaded in such a way that all the processing takes place on the BOIPA Gateway servers, hidden from the merchant's webpages and servers, and 3DS authentication (version 1.0 or 2.0) is invoked when required. The payment card data will not be exposed to the merchant's system.

The BOIPA Gateway can also provide other Alternate Payment Methods (APM), non-card payment methods to merchants. The BOIPA Gateway manages all the integrations with the APM providers, returning transaction results to the merchants' systems. In some, instances, the merchant will have been required to register accounts with these APM providers, and to supply their credentials to the BOIPA Gateway, where the data is stored securely and confidentially.

1.3 Shopping Cart Plugins

Shopping Cart Plugins simplify the creation and building of a merchant ecommerce web pages by providing streamlined application that integrates with a merchant's website.

The primary feature of this integration method is that the BOIPA Gateway payment processing is already incorporated into the Shopping Cart Plugin. The merchant integrates with the best suited to their purposes. Shopping Cart Plugins reduce the requirement for merchants to understand the complexities of web design and development by supplying a ready-made method of presenting their goods and services to their customers and enabling the taking of payments, card or alternate methods, and 3DS authentication (version 1.0 or 2.0) is invoked when required.

The BOIPA Gateway provides its own shopping cart plugins and is integrated into many other third-party providers.

The reader should refer to the Shopping Cart Plugins supplier for the integration methods.

2 API Operations Overview

This section contains the list and descriptions of the API Operations that are available in the BOIPA Gateway.

2.1 TOKENIZE

The TOKENIZE API Operation is only used by Direct API Integration merchants.

The TOKENIZE API Operation provides a hexadecimal string that represents the customer's payment card in the BOIPA Gateway. Only Card Token can be used in all other API Operations, not the actual payment card data. The TOKENIZE API Operation is the only operation that accepts real card data.

The payment card details are provided to the BOIPA Gateway in the TOKENIZE API Operation and stored in the BOIPA Gateway's own PCI Level 1 compliant environment, in which the card details are encrypted.

The TOKENIZE API Operation is described in the *BOIPA Gateway – 1 – TOKENIZE* document

2.2 AUTH/PURCHASE/VERIFY

The AUTH/PURCHASE/VERIFY API Operation combines the Authorise, Purchase and Verify actions into one API Operation, due to the similarities between them.

The AUTH/PURCHASE/VERIFY API Operation processes merchant's customers' payments taken either in the merchant's own payment form or in the BOIPA Gateway Hosted Payment Page.

Depending on the configuration of the merchant's payment form or the BOIPA Gateway Hosted Payment Page, the AUTH/PURCHASE/VERIFY API Operation will cater for payment card and non-payment card payment processing. Some non-payment card method, also known as Alternate Payment Methods (APMs) have their own API Operations that bypass or do not require processing through the BOIPA Gateway.

Direct API Integration merchants must manage the processing differences between the payment methods offered. This may not require the AUTH/PURCHASE/VERIFY API Operation at all.

BOIPA Gateway Hosted Payment Page Integration merchants will loaded the payment pages that are preconfigured in the BOIPA Gateway. When the merchant's customer selects a payment method the BOIPA Gateway will react appropriately.

The differences between Direct API Integration merchants and Hosted Payment Page Integration merchants require a different internal AUTH/PURCHASE/VERIFY API Operation process:

1. The Direct API Integration merchants will
   a. Take the customer's payment details
   b. Send the Session Token Request, and receive the Session Token Response
   c. Merchant, transaction and customer data is used to invoke 3DS Authentication if required
   d. Send an Authorise/Purchase/Verify Request on receipt of the Session Token, and receive the appropriate Response files
2. The Hosted Payment Page Integration merchants will:
   a. Send the Session Token Request, and receive the Session Token Response
   b. Send a Load Payment Form Request
   c. The BOIPA Gateway Hosted Payment Page loads into the merchant's web page (a parameter in the Session Token Request)
   d. The customer inputs their payment card data or selects an APM
   e. Merchant, transaction and customer data is used to invoke 3DS Authentication if required
   f. The BOIPA Gateway Hosted Payment Page processes the payment as selected and returns the appropriate Authorise/Purchase/Verify Response and Transaction Result Call
   g. The merchant's webpage and system will receive and process the response as required

These differences are documented in the *BOIPA Gateway – 2 – AUTH-PURCHASE-VERIFY – Direct API* and *BOIPA Gateway – 2 – AUTH-PURCHASE-VERIFY – Hosted Payment Page* documents.

2.3 REFUND

The REFUND API Operation is available to Direct API Integration, Hosted Payment Page Integration and Shopping Cart Plugins merchants. The functionality is also available in the BOIPA Gateway Back-Office (section 5).

The REFUND API Operation should not be a merchant customer-facing function. It is used either:

- By Direct API Integration, Hosted Payment Page Integration merchants who have built their own back-office application
- By Shopping Cart Plugins, where the functionality has been built into the plugin

The REFUND API Operation can be performed on all Purchase transactions and captured Authorise transactions.

The BOIPA Gateway offers full or partial refunds. More than one partial refund can be performed up to the full amount of the original transaction amount.

The REFUND API Operation is described in the *BOIPA Gateway – 3 – REFUND* document

2.4 VOID

The VOID API Operation is available to Direct API Integration, Hosted Payment Page Integration and Shopping Cart Plugins merchants. The functionality is also available in the BOIPA Gateway Back-Office (section 5).

The VOID API Operation should not be a merchant customer-facing function. It is used either:

- By Direct API Integration, Hosted Payment Page Integration merchants who have built their own back-office application.
- By Shopping Cart Plugins, where the functionality has been built into the plugin

The VOID API Operation can be performed on unsettled Purchase transactions and un-captured Authorise transactions.

The VOID API Operation is described in the *BOIPA Gateway – 4 – VOID* document

2.5 CAPTURE

The CAPTURE API Operation is available to Direct API Integration, Hosted Payment Page Integration and Shopping Cart Plugins merchants. The functionality is also available in the BOIPA Gateway Back-Office (section 5).

The CAPTURE API Operation should not be a merchant customer-facing function. It is used either:

- By Direct API Integration, Hosted Payment Page Integration merchants who have built their own back-office application
- By Shopping Cart Plugins, where the functionality has been built into the plugin

The CAPTURE API Operation can be performed on un-captured Authorise transactions.

The BOIPA Gateway offers full or partial captures. Currently, only one partial capture can be performed on an Authorise transaction, where the residual amount is released back to the customer's account.

The CAPTURE API Operation is described in the *BOIPA Gateway – 5 – CAPTURE* document

2.6 TRANSACTION RESULT CALL

The TRANSACTION RESULT CALL is not an API Operation, but a result of the above API Operations.

The TRANSACTION RESULT CALL is a server-to-server call between the BOIPA Gateway and the merchant's server. In the all the above API Operations the *merchantNotificationUrl* parameter tells the BOIPA Gateway where to send the TRANSACTION RESULT CALL.

If this parameter is left empty or not included in the API Call from the merchant a TRANSACTION RESULT CALL is not sent by the BOIPA Gateway.

The TRANSACTION RESULT CALL is described in the *BOIPA Gateway – 6 – TRANSACTION RESULT CALL* document

2.7 GET STATUS

The GET STATUS API Operation is a utility available to the merchants.

The GET STATUS API Operation allows the merchant to send a transaction reference to the BOIPA Gateway to check the status of the transaction in the BOIPA Gateway.

The Operation can be used to reconcile transactions statuses between the merchant's transactions database and the BOIPA Gateway database.

The GET STATUS API Operation is described in the *BOIPA Gateway – 7 – GET STATUS* document.

2.8 GET AVAILABLE PAYMENT SOLUTIONS

The GET AVAILABLE PAYMENT SOLUTIONS API Operation is a utility to the merchants.

The GET AVAILABLE PAYMENT SOLUTIONS API Operation allows the merchant to dynamically query the BOIPA Gateway as to which payment solutions are available to a merchant's customer depending on the currency, country and merchant's brand.

The GET AVAILABLE PAYMENT SOLUTIONS API Operation is described in the *BOIPA Gateway – 7 – GET AVAILABLE PAYMENT SOLUTIONS* document.

2.9 ONECLICK

The ONECLICK functionality allows the merchant to present back to a customer a payment card that the customer has previous requested to be saved for future purchases. The customer must actively choose to save the card and has the facility to remove a card from the function. Thus, regulatory requirements are met.

By its nature, ONECLICK functionality is only available to eCommerce merchants and *must* be initiated by the customer/cardholder. It must *not* be incorporated into a merchant's own Back-Office function.

2.9.1 Saving a Payment Card for OneClick

The customer elects to save the card during the payment process in the payment page:

Direct API Integration merchants can use this BOIPA Gateway functionality by providing the customer choices in their own payment forms, then set the appropriate value in the *setOneClickValueSettingForCard* parameter in the Authorise or Purchase Request (see *BOIPA Gateway - 2 - AUTH-PURCHASE-VERIFY - Direct API*)

Hosted Payment Page Integration merchants who have been configured to use the function have no integration requirements as it is built into the BOIPA Gateway Hosted Payment Page as a checkbox

Shopping Cart Plugins merchants can use this functionality in the same as Hosted Payment Page Integration merchants if the plugin supports OneClick

2.9.2 GET ONECLICK PAYMENT METHODS

Direct API Integration and Hosted Payment Page Integration merchants can retrieve a customer's OneClick payment cards and design their own UI. The GET ONECLICK PAYMENT METHODS API Operation retrieves the card data from the BOIPA Gateway that is required to initiate a payment. The BOIPA Gateway Card Token is returned, not the real payment card number. Notes:

1. The merchant's webpage *must* have a method of securely and positively identifying the customer, as the API Operation requires the *customerId* as stored in the BOIPA Gateway.
2. When the customer clicks on the OneClick payment method, as presented by the merchant webpage, the action is to initiate the AUTH/PURCHASE/VERIFY API Operation to initiate an authorise or purchase transaction using the card data retrieved.
3. The GET ONECLICK PAYMENT METHODS API Operation is an independent operation, from the Hosted Payment Page, for example, to allow the merchant to use the method as a "Buy-It-Now" type feature on a product page, not just in the checkout page.

The GET ONECLICK PAYMENT METHODS API Operation is described in the *BOIPA Gateway – 9 – GET ONECLICK PAYMENT METHODS* document.

2.9.3 REMOVE ONECLICK PAYMENT METHOD

The REMOVE ONECLICK PAYMENT METHOD API Operation compliments the GET ONECLICK PAYMENT METHODS API Operation. The customer *must* have the option to remove a payment card from the OneClick method. Therefore, the merchant's solution *must* provide this function and use the REMOVE ONECLICK PAYMENT METHOD API Operation when required.

The REMOVE ONECLICK PAYMENT METHOD API Operation is described in the *BOIPA Gateway – 10 – REMOVE ONECLICK PAYMENT METHODS* document.

2.9.4 LOAD ONECLICK BUTTONS

The BOIPA Gateway provides a pre-designed form containing the customers chosen OneClick payment cards using the LOAD ONECLICK BUTTONS API Operation.

The LOAD ONECLICK BUTTONS API Operation loads the OneClick Buttons Form securely into the merchant's webpage in the same way that the Payment Form is loaded for Hosted Payment Page Integration merchants. This is because all the processing is performed on the BOIPA Gateway servers, removing the need for API Calls when the customer selects a OneClick payment card or wishes to remove the card from OneClick.

The LOAD ONECLICK BUTTONS API Operation is described in the *BOIPA Gateway – 11 – LOAD ONECLICK BUTTONS* document.

Note: when the cardholder clicks the OneClick button to make a purchase/sale, the merchant system **must** send an Auth/Purchase/Verify Request as described in the *BOIPA Gateway - 2 - AUTH-PURCHASE-VERIFY - Direct API* regardless of the integration method employed.

This is one event where a Hosted Payment Page integrated merchant will use the Direct API Integration method instead of loading a hosted payment page:

- If the Hosted Payment Page has been loaded, the same Session Token can be used to send the Auth/Purchase/Verify Request API Operation
- If the Hosted Payment Page has not been loaded, a Session Token will need to be requested as described in the *BOIPA Gateway - 2 - AUTH-PURCHASE-VERIFY - Direct API*)

3 Card On File Functionality

Card On File (COF) Transactions are those that are initiating or are initiated from stored payment card data.

By their nature, COF transactions will not have payment card or cardholder authentication data accompanying the transactions. To enable the Schemes and Issuers to assess risk and determine potential fraud accurately, indicators and processes have been introduced to provide greater clarity into transactions using stored credentials.

In all COF scenarios explicit customer consent for the future use of the payment card data must be gained through an initial transaction, where the cardholder is made aware of the potential use of their data. This is usually done during the first Authorise or Purchase transaction, but can also be done in a Verify action.

Subsequent COF Transactions can be initiated by the cardholder or the merchant, all initial transactions must involve the cardholder:

- Cardholder Initiated Transactions (CITs): Anonymised payment card data is presented to the cardholder to select a payment card to initiate a transaction. The cardholder is not required to input the card details.
  CITs do not require the card security code (CSC/CVV) to be entered and 3DS is not required.
  The cardholder must be positively identified using suitable authentication in the merchant's shopping website before the card data is presented to the customer.
- Merchant Initiated Transactions (MITs): Transactions are periodically initiated by merchants on behalf of the cardholder with prior agreement from the cardholder.
  MIT do not require CVV/CSC, which must never be stored, and 3DS is not required.

The following Card On File eCommerce[1] scenarios are offered by the BOIPA Gateway that require the *'cardOnFile'* prefixed parameters to be included in the Session Token Request:

- Merchant Managed Recurring Payments Plans transactions: are MITs where the merchant sends payment requests to the BOIPA Gateway using stored payment card data. The merchant manages the timing/frequency and amount of the payment request and is simply using the BOIPA Gateway to execute the payment.
  These types of transactions use the *'cardOnFile'* and *'mmrp'* parameters (section 3.1).
- BOIPA Gateway Managed Recurring Payments Plans transactions: are MITs where the BOIPA Gateway creates payment requests using stored payment card data. The BOIPA Gateway manages the frequency and amounts on behalf of the merchant set up in the initial transaction.
  The merchant will use the AUTH/PURCHASE/VERIFY API Operation to create the initial transaction using the *'rpPlan'* parameters. This is the only transaction the merchant submits to the BOIPA Gateway.
  These types of transactions use the *'cardOnFile'* and *'rpPlan'* parameters (section 3.2).
- OneClick transactions: are CITs where the merchant provides a method for the cardholder to pay for an item or group of items with one click of a button. The payment card data associated with that button is then used to build the AUTH/PURCHASE/VERIFY API Operation Session Token Request.
  Note: The cardholder ***must*** be positively identified in the merchant's website before the OneClick buttons are presented to them
  These types of transactions only use the *'cardOnFile'* parameters
- Stored Credentials transactions: are CITs where the anonymised payment card data is presented. The cardholder can select a card to pre-fill the Payment Form's fields.
  The CVV/CSC may be entered, but it is not necessary. 3DS processing is also not required.
  Note: The cardholder ***must*** be positively identified in the merchant's website before the Stored Credentials are presented to them
  These types of transactions only use the *'cardOnFile'* parameters

Note: Each scenario must have its own unique initiating transaction. For example, an initial transaction cannot be used to gain the customer consent for a recurring payment plan and OneClick series of transactions. Similarly, each recurring payment plan for a cardholder must have its own initiating transaction.

[1] BOIPA Gateway and Merchant MOTO scenarios are not covered here: the BOIPA Gateway manages its Virtual Terminal COF transactions scenarios. Merchants supplying their own MOTO functionality *must* be aware when COF data is required to be sent with the transaction details

3.1 Merchant Managed Recurring Payment Plans

Merchants may manage their own recurring payment plans with their customers and simply use the BOIPA Gateway to execute the payments.

A Recurring Payment Plan is an agreement between the merchant and the cardholder, where the cardholder provides explicit consent for a merchant to periodically charge his/her account number for recurring goods or services. These may include payment of charges such as insurance premiums, subscriptions, membership fees, tuition, utility charges or a loan on a large amount purchase.

A Merchant Managed Recurring Payment Plan can be created and maintained using:

- The Direct API Integration (Section 1.1) only, where the merchant takes the first payment using their own payment form and sends the first and subsequent payment requests using the API operation described in the *IPG Gateway - 2 - AUTH-PURCHASE-VERIFY - Direct API* document
- A combination of the Hosted Payment Page Integration (Section 1.2) and Direct API Integration (Section 1.1), where the merchant:
    - Takes the first payment using the BOIPA Gateway's Hosted Payment Page described in the *IPG Gateway - 2 - AUTH-PURCHASE-VERIFY – Hosted Payment Page* document, and
    - Sends the subsequent payment requests using the API operation described in the *IPG Gateway - 2 - AUTH-PURCHASE-VERIFY - Direct API* document
      Note: in this scenario the Payment Card Token will have been received in the first payment response

Merchant must complete the '*cardOnFile*' and '*mmrp*' prefixed fields in the Session Token Request appropriately for all Merchant Managed Recurring Payment Plan Transactions Requests. These data are required by the Acquirer, Issuers and Card Schemes to recognise that:

- A Recurring Payment Plan is being created (*cardOnFileType* = "First"), and
- Subsequent transactions are related to the initiating transaction (*cardOnFileType* = "Repeat")

3.2 BOIPA Gateway Managed Recurring Payment Plans

The BOIPA Gateway offers the facility to manage Recurring Payment Plan on behalf of their merchants. This is an automated service that creates payment requests using the cardholder data using the frequency and amount data provided by the merchant in the initial transaction.

The fields prefixed with '*rpPlan*', in the Session Token Request of the AUTH/PURCHASE/VERIFY API Operation (*IPG Gateway - 2 - AUTH-PURCHASE-VERIFY - Direct API* and *IPG Gateway - 2 - AUTH-PURCHASE-VERIFY - Hosted Payment Page* documents), are provided for the merchant to be able to set up an BOIPA Gateway Managed Recurring Payment Plan.

Merchant must complete the '*cardOnFile*' and '*rpPlan*' prefixed fields appropriately for all BOIPA Gateway Managed Recurring Payment Plan Transactions Requests. These data are required by the Acquirer, Issuers and Card Schemes to recognise that a Recurring Payment Plan is being created (*cardOnFileType* = "First").

The data must only be sent once in the Session Token Request for the transaction that initiates the Recurring Payment Plan. All subsequent payment requests will be generated by the BOIPA Gateway.

The transaction results for the subsequent payments are returned to the merchant in a Transaction Result call. The BOIPA Gateway Managed Recurring Payment Plans created by this process can be seen and managed in the BOIPA Gateway Back-Office/Virtual Terminal Recurring Payments menu option.

Note: a Session Token Response – Not Processed will be returned with an error stating that the merchant is not authorised for Recurring Payments and the payment will not be processed:

1. If the merchant has not been configured for Recurring Payments in the BOIPA Gateway and the *'rpPlan'* fields have been completed
2. If *quickSale* = True and the '*rpPlan*' fields have been completed

4 Gateway Interface

Detailed below are the URL access points for all API Calls to the BOIPA Gateway applications:

- **Session Token Request URL**: All Session Token Requests must be sent to this URL regardless of the API Action type being executed. All Session Token Requests must
  - Contain a valid Merchant ID and Merchant Password in the *merchantId* and *password* parameters, which will have been provided at the time of on-boarding in the BOIPA Gateway
  - Be received from an IP Address that has been whitelisted in the BOIPA Gateway, which will have been done at the time of on-boarding
- **Action Request URL**: All Action Requests must be sent to this URL (except the Load Payment Form Request – see below). All Action Requests must
  - Contain the same Merchant ID sent in the Session Token Request
  - Contain the Session Token received in the Session Token Response – Processed
  - Be received from an IP Address that has been whitelisted in the BOIPA Gateway, which will have been done at the time of on-boarding
The IP Address does not need to be the same address used in the Session Token Request
- **Payment Form URL**: For Hosted Payment Page integrations, the Load Payment Form Request is sent to its own application. The Load Payment Form Request must
  - Contain the same Merchant ID sent in the Session Token Request
  - Contain the Session Token received in the Session Token Response – Processed
  - Be received from an IP Address that has been whitelisted in the BOIPA Gateway, which will have been done at the time of on-boarding
The IP Address does not need to be the same address used in the Session Token Request
- **Back-Office URL**: Is used by a merchant to access the Merchant's instance of the BOIPA Gateway Back-Office (see section 5). The application is a public application that is accessed using username and password credentials supplied at the time of on-boarding

4.1 User Acceptance Testing Endpoints

Session Token:	https://apiuat.test.boipapaymentgateway.com/token
Action Request:	https://apiuat.test.boipapaymentgateway.com/payments
Payment Form:	https://cashierui-apiuat.test.boipapaymentgateway.com/
Javascript Payment Form UI API:	https://cashierui-api.boipapaymentgateway.com/js/api.js
Back-Office:	https://backofficeui-apiuat.test.boipapaymentgateway.com/

4.2 Production Endpoints

Session Token:	https://api.boipapaymentgateway.com/token
Action Request:	https://api.boipapaymentgateway.com/payments
Payment Form:	https://cashierui-api.boipapaymentgateway.com
Javascript Payment Form UI API:	https://cashierui-api.boipapaymentgateway.com/js/api.js
Back-Office:	https://backofficeui-api.boipapaymentgateway.com

4.3 HTTP Specification

- Protocol: https
- Method: POST
- Content Type: application/x-www-form-urlencoded

4.4 Example HTTP Request

- POST: https://api.boipapaymentgateway.com/token
- Content-Type: application/x-www-form-urlencoded
- Content-Length: 415
- POST data:

merchantId=160001&action=PURCHASE&password=password&allowOriginUrl=www.merchantsite.com&timestamp=1459767453376&channel=ECOM&userDevice=DESKTOP&amount=25.96&currency=EUR&country=IE&paymentSolutionId=500&specinCreditCardToken=123456781111&customerId=9876543&brandId=670&merchantNotificationUrl=https%3A%2F%2Fwww.posttestserver.com%2Fpost.php%2FipgTesting%3Fdir%3DJCTesting&merchantLandingPageUrl=https://www.merchantsite.com%2FlandingPage&forceSecurePayment=true

5 BOIPA Gateway Back-Office

The BOIPA Gateway Back-Office compliments the API Operations by providing some API Operations functionality, namely:

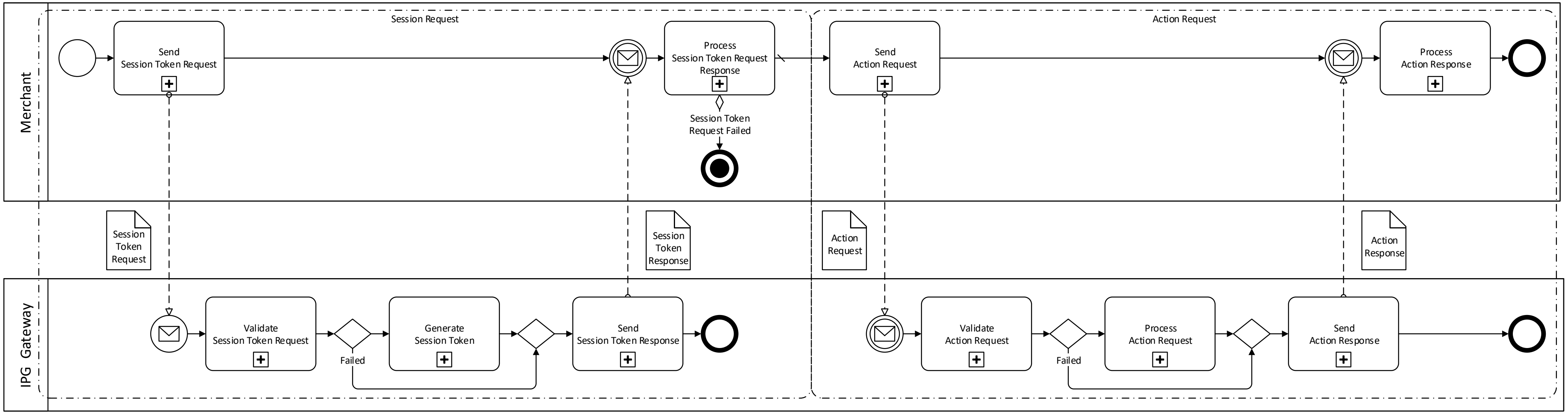
- Transaction Management provides a list of all customers' transactions that can be filtered, sorted and searched; a transaction can be selected from the list to show the full detail
- Refund both full and partial on the initial Purchase transaction amount; multiple refunds can be performed on a single transaction up to the full amount
- Void for both Authorise and Purchase transactions
- Capture both full and partial on the initial Authorise transaction amount; multiple captures are not yet supported
- Recurring Payments Management allows for plan amendment and changes to the payment card used in the plan
- Recurring Payments Scheme allows for the creation and management of template recurring payment plans that are offered to the merchant's customers
- Summary Reports and Detailed Reports that show summary and detailed reports of the transaction over time

The above functionality can be replicated by the merchants' systems, if required, by using the API Operations or managing the data received from their customers and the BOIPA Gateway. The BOIPA Gateway Back-Office provides for an initial or permanent solution to customer transaction management.

6 API Operations Overview

6.1 Process Overview

Shown below is a generic view of how all BOIPA Gateway API processes operate. The primary feature to note is that each API Operation has two components: the Session Token Request that authenticates the merchant system in the BOIPA Gateway before the Action Request can be processed by the BOIPA Gateway.



6.2 Process

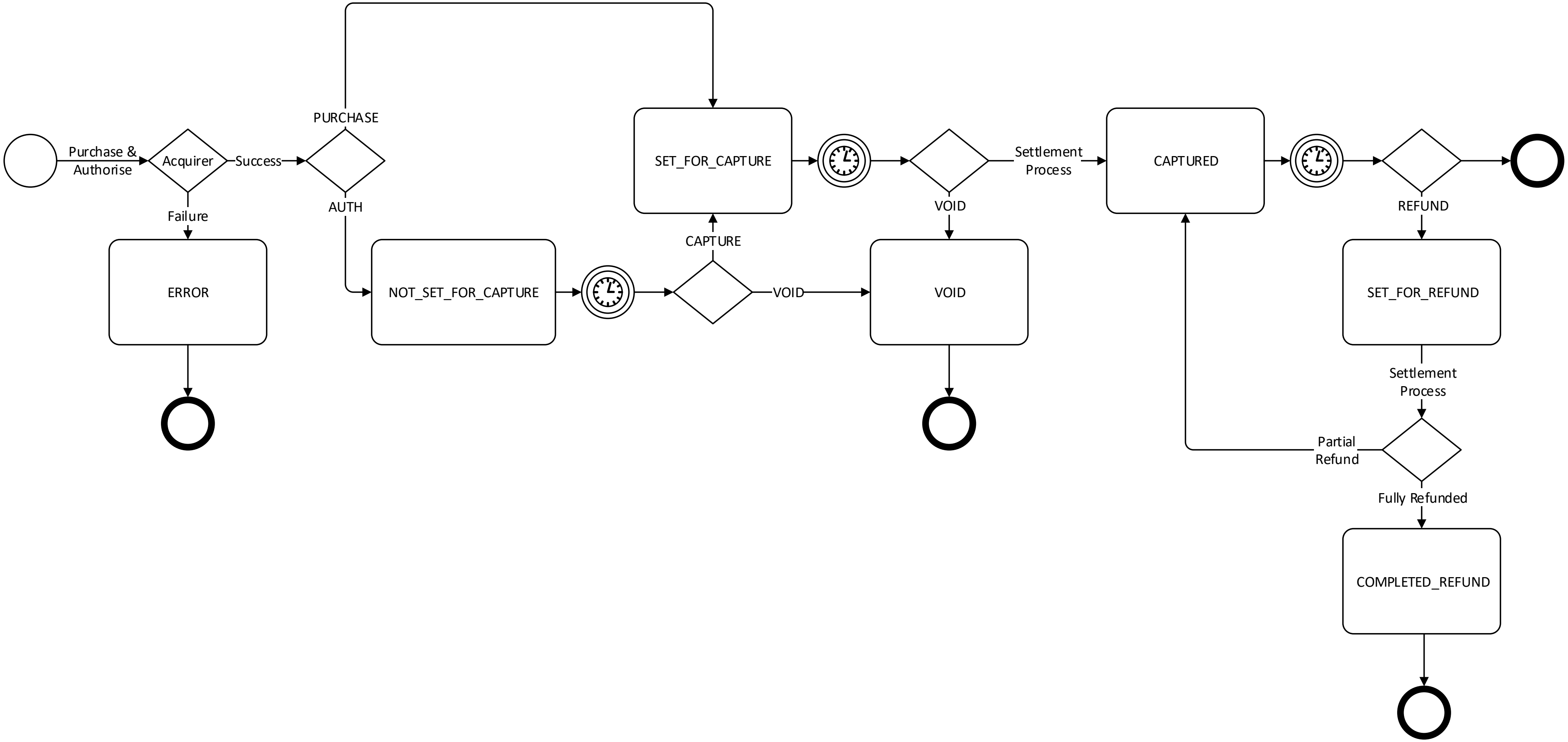
1. The merchant system sends the appropriate Session Token Request for the API Operation to the BOIPA Gateway
2. The BOIPA Gateway validates the Session Token Request and authenticates the merchant
    a. If the validation or authentication fails:
        i. The BOIPA Gateway returns a Session Token Response – Not Processed to the merchant system
        ii. The merchant system must process the error
        iii. The Process Terminates Here
        iv. The merchant must rectify the issues and submit a new Session Token Request
    b. If the validation and authentication succeed:
        i. The BOIPA Gateway generates a Session Token
        ii. The BOIPA Gateway returns a Session Token Response –Processed to the merchant system that contains the Session Token in the *token* parameter
3. The merchant system sends the required Action Request for the API Operation to the BOIPA Gateway
4. The BOIPA Gateway validates the Action Request and authentications the Action Request to the *action* parameter
    a. If the validation or authentication fails:
        i. The BOIPA Gateway returns an Action Response – Not Processed to the merchant system
        ii. The merchant system must process the error
        iii. The merchant must rectify the issues and submit a new Session Token Request, i.e. restart the process from the beginning
    b. If the validation and authentication succeed:
        i. The BOIPA Gateway processes the Action Request
        ii. The BOIPA Gateway returns an Action Response – Processed to the merchant system that contains the results of the processing
        The Action Response – Processed may also contain errors in the *errors* parameter. These are errors from the payment transaction process, not the internal BOIPA Gateway processes.
        The merchant system must react appropriately
        For some API Operations a Transaction Result Call will be sent to the merchant's servers, provided in the *merchantNotificationUrl* parameter.

6.3 Transaction Statuses

Payment Transactions in the BOIPA Gateway are acted upon by the API Operations during the payments process. At the end of operation, the transaction acquires a status, provided the operation process ended correctly. If the API Operation did not process correctly, there is no change to the transaction's status.

All transactions are created by the AUTH/PURCHASE/VERIFY API Operation (see section 2.2).

The following diagram shows the status flow of a transaction – statuses are the boxes, the operations that act on the transaction are the connectors:



7 3rd Domain Secure Authentication

7.1 Version 1.0

3rd Domain Secure (3DS) is used by the Issuing Banks to provide an additional Authentication Layer to prevent payment card fraud and misuse. The BOIPA Gateway is integrated with a number of third-party suppliers to present a 3DS challenge window to the cardholder, at the point of sale, when required.

Integration is based on the following key factors:

- The Issuing Bank supports 3DS
- The merchant is enrolled in the scheme
- The transaction meets criteria that require 3DS Authentication
- Is 3DS enforced in the BOIPA Gateway, a choice by the Acquirer based on the merchant's preference and risk

If 3DS is enabled/required when the payment card data is received, the BOIPA Gateway identifies redirects the customer's browser to the Issuing Bank's Customer Authentication Window (CAW). The cardholder is required to input their security data, registered with the Issuing Bank. This is processed by the Issuing Bank, and neither the BOIPA Gateway nor the merchant's webpages can detect or read the data input by the cardholder.

If a successful response is received from the Issuing Bank's authentication processes, the payment process continues to the authorisation of the transaction. If a failed response is returned, the transaction fails and no authorisation attempt is made by the BOIPA Gateway. The appropriate AUTH/PURCHASE/VERIFY Response is returned to the merchant's webpage, and a matching Transaction Result Call follows.

7.2 Strong Customer Authentication (3DS Version 2.0)

Strong Customer Authentication (SCA) is in the process of being implemented to strengthen the authentication of a cardholder at the point of sale. 3DS Version 2.0 is the upgrade to Version 1.0 in support of this initiative.

SCA is defined as 'authentication based on the use of two or more elements categorised as:

- Knowledge: something only the cardholder knows, such as Pass-Phrase, PIN or Password, etc.
- Possession: something only the cardholder possesses, such as providing a one-time password (OTP) to a cardholder's registered a mobile telephone, or reading a hardware token on the cardholder's device
- Inherence: something the user is, such as facial or fingerprint recognition

SCA has required the integration of the new flows to the Acquirers and Issuing Banks' existing Payment Processes. The BOIPA Gateway has implemented these new processes on behalf of the merchants. However, additional data is required from the merchants in the AUTH/PURCHASE/VERIFY API Operation to enable the new processes, which will be detailed in updates to the *IPG Gateway - 2 - AUTH-PURCHASE-VERIFY - Direct API* and *IPG Gateway - 2 - AUTH-PURCHASE-VERIFY - Hosted Payment Page* documents.

Appendix A API Operations Definitions

Acronym or term	Description
Processed	In this document, the Response sections that are defined as Processed indicate that the BOIPA Gateway processed the transaction Request. The transaction status will change. Although the <result> field = "success", the outcome may result in a transaction failure. For example, a CAPTURE Request may result in a successful capture of the funds, or it may fail, because the funds are unavailable, or the requested amount may not equal the original amount of the AUTH transaction. The exception is the Session Token Responses. A Session Token will always be successfully issued if the Request was processed.
Not Processed	In this document, the Response sections that are defined as Not Processed indicate that the *BOIPA Gateway* failed to process the transaction Request. The status of the transaction will not change as a result. Processing failures are generally due to technical issues. The request should be re-submitted.
Merchant's Server IP Addresses	When the merchant is set up, the IP Addresses of the merchant's servers that will make the HTTP POST Requests, are stored in the BOIPA Gateway. During the API Operation, the IP Address of the requesting server is validated against that stored in the BOIPA Gateway for the Merchant ID, along with the Password provided. If the IP Address does not match, the request is rejected.
Session Tokens	All API Operations require a Session Token before a payment API Operation can be performed. The Session Token that is a one-time use, hexadecimal string that must only be used for the Action Request, that is used by the BOIPA Gateway to validate an incoming request and to connect the Session Token Request with the API Operation Request. The subsequent API Operation Request must contain the Session Token that is associated with the API Operation. Session Tokens are valid for 3600 second (1 hour) after which they expire Any requests with expired session tokens will be rejected and ignored by the BOIPA Gateway
Result IDs	The Result ID is included in all Response JSON files, received from the BOIPA Gateway. The Result ID is a randomly generated, 18-character, hexadecimal string. The Result ID should be retained by the merchant's system for any queries about the API Operation in the future, should problems arise. This provides low-level detail about the overall transaction. Combined with the Session Token it provides a complete reference to the transaction in the BOIPA Gateway.
Customer IDs	A merchant may have a customer management system that has customer account identifiers. These identifiers should be included in relevant Request files. The Response files will reference the *customerId* provided, thus enabling the merchant to associate the transaction with the customer in their own system. • If the *customerId* is provided, the customer will be set up in the BOIPA Gateway once, and all subsequent transactions will be associate with that same customer. • If the *customerId* field is left blank/empty, the BOIPA Gateway will generate a random number identifier that will only be relevant to the API operation in the *BOIPA Gateway*. Therefore, a single customer can appear in the BOIPA Gateway database several times. In the BOIPA Gateway Back-Office application, the *customerId* field can be used for filtering and searching, along with other customer details. It is more efficient to find a customer using the merchant's known identifier than the one randomly generated by the BOIPA Gateway.