



# INTEGRATION GUIDELINES FOR PCS E-PAYMENT GATEWAY

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**Release History**

Release Number	Date (mm,yyyy)	Brief Summary of changes
0.1	29.10.07	Draft Version
0.2	09.11.07	Incorporating the review comments given by project manager.
1.0	09.11.07	Release version
1.1	16.11.07	Incorporating the review comments
1.2	18.11.07	Incorporating the review comments
1.3	19.11.07	Updated section 3.1.3 as per comments from IDBI
1.4	20.11.07	Updates section 3.1.1, 3.1.3 as per comments from IDBI
1.5	04, 2008	Updates section 2, 3 as per the comments from IPA and Bank.
1.6	24.04.2008	Few Parameter names are changed as per the discussion held between CrimsonLogic, IPA & Banks on April 23 2008.

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## 1 INTRODUCTION

### 1.1 Introduction About the Project

Centralized Port Community System (PCS) is an initiative by Indian ports association (IPA) intended to provide a single window system for the port communities in India to securely exchange the documents and information electronically with their stakeholders involved in the maritime transport and logistics chain including the trading partners and government agencies. IT also expected to provide visibility and excess to the central database to all its stakeholders through internet bases interfaces.

### 1.2 Purpose and Scope

The document describes in detail about the functionality and integration guidelines of PCS e-Payment Gateway with any banks that PCS is going to interact to facilitate electronic payment for the stakeholders.

The target audience for this document is project team members, the e-Payment technical team from the integrating banks and the PCS technical working group.

### 1.3 Abbreviations

SL.No	Abbreviation	Description
1	PCS	Port Community System
2	IPA	Indian Port Association
3	PD	Port Deposit Account
4	INR	Indian Rupees
5	SSL	Secure Socket Layer

## 2 PCS ePayment Gateway

### 2.1 Overview

PCS e-Payment Gateway facilitates the integration with payment gateway system of the banks so that stakeholder can do direct bank transfer and top up their port deposit account.

This payment gateway can be used for two kinds of payments:

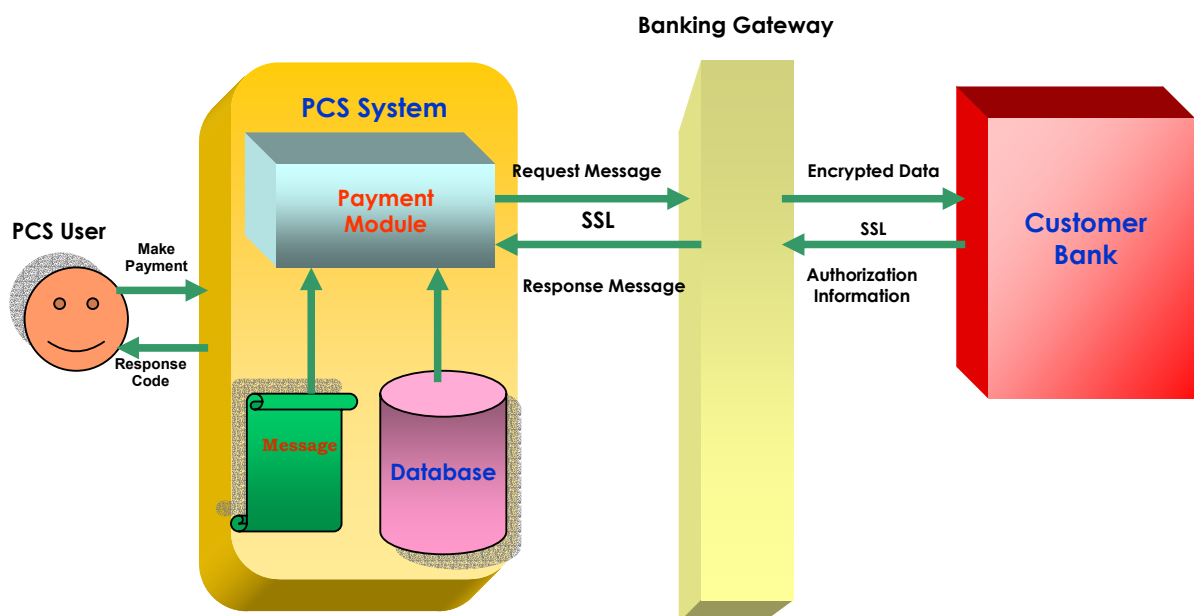
- Online Banking Transfer
- Top up deposit account

### 2.2 Technology Used

PCS e-Payment is developed in Java and J2EE technology. It is developed as a component that can be integrated with any e-commerce application irrespective of the technology used by them.

### 2.3 Payment Types

#### 2.3.1 ONLINE BANKING TRANSFER



## **PAYMENT FLOW**

- PCS User logs into PCS application to make the payment by online bank transfer.
- All the information required for the payment will be acquired from PCS database Such as Bill Number, Amount to be paid.
- Once the information is confirmed by the user, the option to select the bank from the list of banks will be provided to the user.
- After selection of the bank, PCS payment gateway would send the information as per the specification given in the section 3.1 through the request parameter to the corresponding bank gateway.
- Once the bank process the transaction the response will be sent to PCS through the PCS payment gateway.
- During the bank gateway transaction, the SSL protocol would be used to ensure high level of security.
- Once the status is received by PCS, PCS generates the "PAYMENT STATUS" message and send the same to the stakeholder and the Port

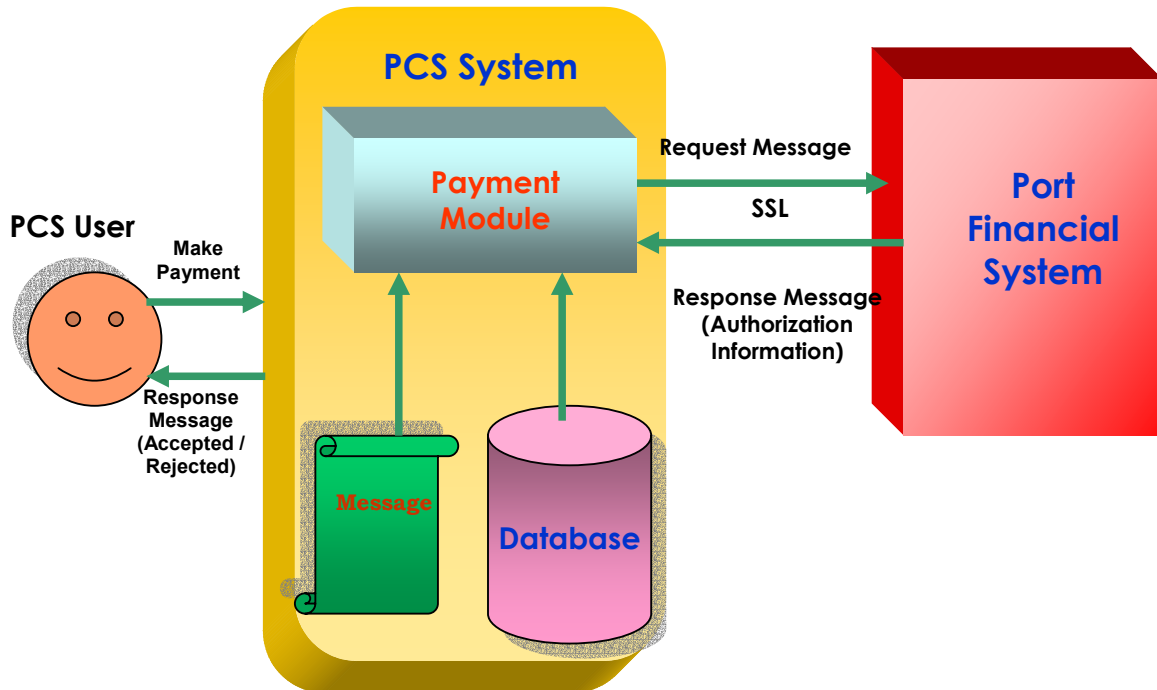
## **VERIFICATION FLOW**

In case of communication failure and other technical difficulties, if the response is not received from Bank, The status in PCS application will be kept pending. It is the user's responsibility to get the bank reference id and pass the same for the verification process.

The Verification Process is as follows

- PCS user Logs into PCS application to verify the transaction details
- Following inputs are required by the user
  - Bill Number(Unique Number)
  - Bank Reference Id (Stakeholder as to collect this reference id from Bank).
- Once the information is confirmed by the user, the option to select the bank from the list of banks will be provided to the user.
- After selection of the bank, PCS payment gateway would send the information as per the specification given in the section 3.1 through the request parameter to the corresponding bank gateway.
- The response will be sent by Bank to PCS through the PCS payment gateway.
- During the bank gateway transaction, the SSL protocol would be used to ensure high level of security.
- Once the status is received by PCS, PCS generates the "PAYMENT STATUS" message and send the same to the stakeholder and the Port.

## DEPOSIT ACCOUNT



- PCS user will have the option to top up their PD (Port Deposit) Account using the payment gateway.
- Initially they need to select the port and then their PD account corresponding to the service category to which the amount will be debited.
- The total amount to be added to their PD account along with PD account number is the input required from the user. PCS Generates the Unique Reference Number for this transaction and all other required information will be acquired from the PCS database.
- Once the information is confirmed by the user, the option to select from the listed bank will be provided to the user.
- After selection of the bank, PCS payment gateway would send the information as per the specification given in the section 3.1 through the request parameter to the corresponding bank gateway.
- Once the bank process the transaction the response Message will be sent back to PCS through PCS E-Payment gateway.

- During the bank gateway transaction, the SSL protocol would be used to ensure high level of security
- Once the status is received by PCS, PCS generates the "PAYMENT STATUS" message and send the same to the stakeholder and the Port

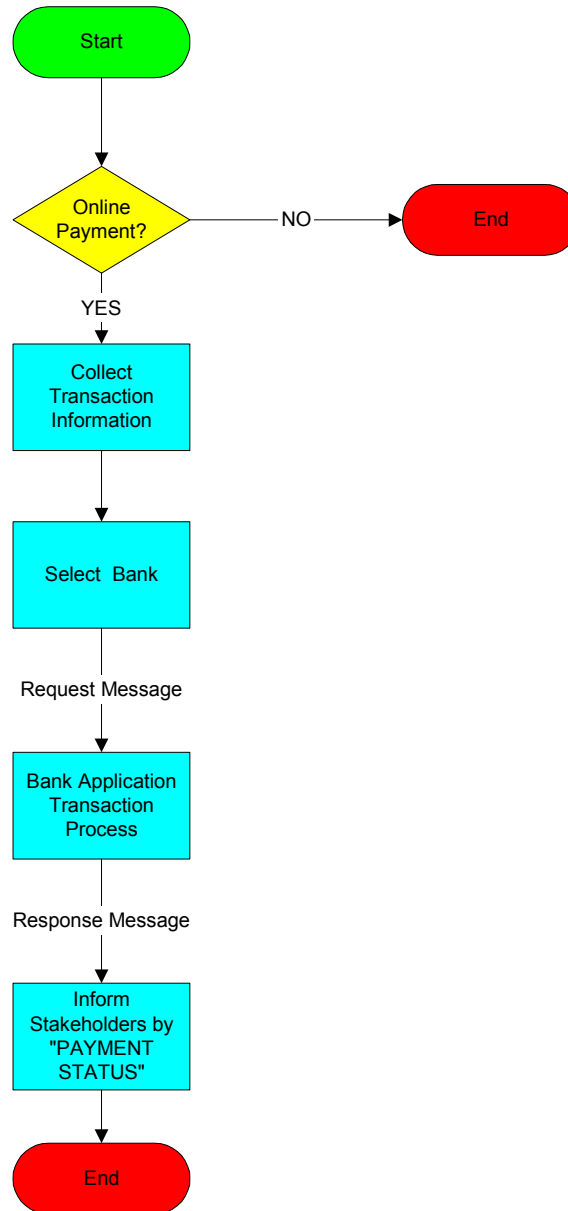
### **VERIFICATION FLOW FOR PD A/C TOPUP**

The Verification Process for PD Account Top up is as follows

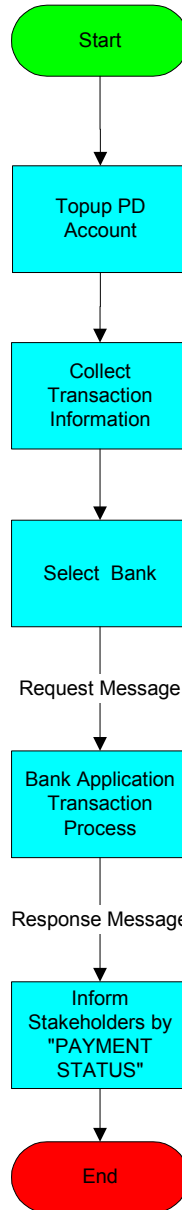
- PCS user Logs into PCS application to verify the transaction details
- Following inputs are required by the user
  - Bill Number(Unique Number)
  - Bank Reference Id (Stakeholder as to collect this reference id from Bank).
  - PD Account Number.
- Once the information is confirmed by the user, the option to select the bank from the list of banks will be provided to the user.
- After selection of the bank, PCS payment gateway would send the information as per the specification given in the section 3.1 through the request parameter to the corresponding bank gateway.
- The response will be sent by Bank to PCS through the PCS payment gateway.
- During the bank gateway transaction, the SSL protocol would be used to ensure high level of security.
- Once the status is received by PCS, PCS generates the "PAYMENT STATUS" message and send the same to the stakeholder and the Port

## 2.3.2 PAYMENT WORKFLOW

### 2.3.2.1 Payment workflow



### 2.3.2.2PD Account



### 3 Message Specification

This section describes about the string message that will be exchanged between PCS and banks. Bank will send the same message as response with all the fields.

#### 3.1 Message Structure

##### 3.1.1 PARAMETER DETAILS

S. No.	Field Name	Type	Size	Status	Description
1.	Merchant ID	C	15	M	The unique ID given to each Port by the bank
2.	Unique Number (Bill Number)	C	22	M	The unique number supplied by PCS for each transaction. This will be unique for each and every transaction irrespective of any port. This ID will be sent by the bank back to PCS for tracking the same request and response.
3.	Total Amount	N	14	M	The total amount in INR that has to be debited from the customer account
4.	PCS URL(for bank)	C	255	M	The PCS Application URL that will be used by the bank to redirect once the transaction is completed  <b>Note:</b> As per the discussion on 23 <sup>rd</sup> April, Bank to confirm whether this URL is required during every transaction.
5.	Transaction Mode(P/V)	C	1	M	It is the parameter required by the bank to differentiate the type of transaction. P-Payment would be used for transaction and V-Verify would be used to ensure that the transaction is carried out successfully.
6.	Bank Reference ID	C	15	C	This is the transaction reference ID sent by the Bank as receipt. This would be used by the user for verification purpose. It will be optional while making the payment.  <b>Format:</b> Banks will prefix 3 digit MICR bank code <3 digit unique bank code of MICR ><Transaction ref id>
7.	Bank Transaction Date & Time	Date		C	Date and Time of Transaction by Bank. It will be optional while

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					making the payment.
8.	Bank Transaction Status Code	C	1	C	S- Success, F-Failure  It will be optional while making the payment.

### 3.1.2 PARAMETER NAMES

PCS have adopted to follow standard names for the parameters that will be supplied in the URL string to all banks. The banks have to process the request by using the same parameters names.

S. No.	Field Name	Parameter name PCS uses to send the field data to banks through the URL
1.	Merchant ID	<b>MerchantCode</b> PID
2.	Unique Number (Bill Number)	<b>MerchantRefNo</b> PRN
3.	Total Amount	<b>TxnAmount</b> Amt
4.	PCS URL(for bank)	<b>MerchantURL</b>
5.	Transaction Mode(P/V)	<b>TransactionMode</b>
6.	Bank Reference ID	<b>Referenceld</b>
7.	Bank Transaction Date & Time	<b>TransactionDate</b>
8.	Bank Transaction Status Code	<b>TransactionStatusCode</b>

## 3.2 Request Message

### 3.2.1 MESSAGE STRUCTURE

All the parameter names and its values will be passed to Bank in the request using Post method as mentioned below.

#### 3.1.3.1 Payment Mode:

```
<form method="post" action="https://<<Bank URL>>">
  <input type="hidden" name="PID" value="IPA Mumbai">
  <input type="hidden" name="PRN" value="AX0000991">
  <input type="hidden" name="Amt" value="200000">
  <input type="hidden" name="MerchantURL" value="Http://<PCS URL>">
  <input type="hidden" name="TransactionMode" value="P">
  <input type="submit" value="Make Payment">
</form>
```

### 3.1.3.2 Verification Mode:

Please note that only the value of "TransactionMode" is changed

```
<form method="post" action="https://<<Bank URL>>">
  <input type="hidden" name="PID" value="IPA Mumbai">
  <input type="hidden" name="PRN" value="AX0000991">
  <input type="hidden" name="Ami" value="200000">
  <input type="hidden" name="MerchantURL" value="Http://<PCS URL>">
  <input type="hidden" name="TransactionMode" value="V">
  <input type="hidden" name="Referenceld" value="000000212121">
  <input type="submit" value="Verify Payment">
</form>
```

### 3.2.2 MESSAGE VALIDATION

All the message values will be validated by PCS before passing to the bank

The payment summary will be shown to the user and be confirmation by the user before request is send to the bank.

## 3.3 Response Message

### 3.3.1 MESSAGE STRUCTURE

The bank has to redirect the PCL URL using the Post method as mentioned below.

```
<form method="post" action="http://<<PCS URL>>">
  <input type="hidden" name="PID" value="IPA Mumbai">
  <input type="hidden" name="PRN" value="AX0000991">
  <input type="hidden" name="Ami" value="200000">
  <input type="hidden" name="MerchantURL" value="Http://<PCS URL>">
  <input type="hidden" name="TransactionMode" value="P">
  <input type="hidden" name="Referenceld" value="000000212121">
  <input type="hidden" name="TransactionDate" value="08042008:21:34">
  <input type="hidden" name=" TransactionStatusCode" value="S">
</form>
```