**Document Title: Merchant Reconciliation and Settlement Automation Process**

**Product Type: UPI & Card**

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**Version: 0.1**

**Date-29-5-2025**

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1. Introduction  
This document outlines the end-to-end reconciliation and settlement automation process for UPI (Unified Payments Interface) & Card based transactions. The module will cover detailing transaction flow, file formats, naming conventions, processing schedules, reports, and auto-reconciliation mechanisms.

# 2. Current Process

Zrika is a B2B fintech firm and performing the TSP role by connecting the merchant and banks to process the digital transactions like card-based payments, UPI based payments on behalf of the merchant. Though the company is new to the industry and planning to streamline the settlement and reconciliation module easy for the client.

# 3. Scope of the document

The settlement and reconciliation module will cover below points under the current scope from Merchant point of view.

* Product Type:
  + Card Based Payment- Debit Card, Credit Card, Prepaid Card
  + UPI Based Payment- Pay in, Pay Out
* Merchant Settlement
* Merchant Dispute Management
* Automated Reconciliation

# 4. Assumption

Below are the some of the assumption while preparing the document from reconciliation and settlement module point of view.

* Merchant is onboarded via direct sponsor bank.
* Merchant Settlement Cycle – T+1 day basis

# 5.Product Wise Transaction Lifecycle

### 5.1 UPI Transaction Lifecycle

As per the industry standard, the entities involved during the UPI transactions and how the transactions life cycle flows are given below

#### 5.1.1 Entities & Roles (UPI Product)-

|  |  |
| --- | --- |
| **Entities** | **Role** |
| Customer | Initiates UPI payment from their UPI app |
| Merchant | Receives payment; onboarded by TSP/PSP |
| TSP / PSP | Manages UPI infra, transaction logs, reports |
| Bank (Acquiring) | The bank where the merchant holds account |
| Bank (Issuing) | Customer's bank |
| NPCI | UPI switch between banks |

#### 5.1.2Transaction Lifecycle Stages

NPCI notifies to Acquiring Bank

Notification to Merchant and TSP

Authorisation and Validation by Issuer

Customer Payment Initiation

**1. Payment Initiation**

* **Customer** scans merchant's UPI QR or enters UPI ID.
* Customer inputs amount and authenticates (MPIN).
* UPI transaction request is sent from customer app → issuing bank → **NPCI** → acquiring bank (merchant’s bank).

**2. Authorization & Validation**

* Issuer bank verifies balance & MPIN
* NPCI routes response to acquiring bank
* If successful, funds are debited from customer’s account.

**3. Notification to TSP & Merchant**

* Acquiring bank sends success/failure response
* NPCI returns final status
* **TSP receives response** and shows success/failure to merchant

#### 5.1.3 Reconciliation & Settlement Lifecycle Stages

Reporting & Merchant Portal

Exception Management

Settlement Processing

Reconciliation Process

**1. Reconciliation Begins** [**(Refer Section 8 “Reconciliation Process Flow” of the document)**](#Reconciliation_Process)

* TSP compares:
  + Internal logs vs.
  + Bank transaction files
  + Settlement file
* Discrepancies (e.g. mismatch, delayed status) are flagged.

**2. Settlement Processing (**[**Refer Section 6 “Settlement Cycle” of the document)**](#Merchant_Settlement)

* Settlement file from acquiring bank received by TSP
* TSP computes:
  + Gross amount
  + Fees (MDR, platform charges)
  + Net payable to merchant

**3. Reporting & Dashboard Update** [**(Refer Section 8.2.9 Report Module)**](#Report)

* Merchant gets daily reports:
  + Transaction summary
  + Settlement status
  + Failed/refund status

**4. Merchant Portal/Dashboard** [**(Refer Section 9 Reconciliation Users Journey- UI)**](#Merchant_Dashboard)

* Filters by status/date
* Downloadable CSV/XLS
* Refund action or queries

**5.Exception Management-** [**Refund / Dispute Handling (If Applicable)**](#Merchant_Dispute)

* If customer requests refund:
  + Merchant or TSP initiates UPI refund (via API or dashboard)
  + Refunds are processed via UPI Refund API (with original UTR)
  + Settled separately in refund batches

# 6. Settlement Cycle

The merchant’s settlement are dependents on the sponsor bank. The sponsor banks initiate the actual settlement to merchant account once it receives the settlement confirmation from schemes like NPCI (NPCI follows multiples settlement cycle for a day).

However, many banks follow different rules based on the merchant type, risk category, agreed SLAs and business terms and conditions. The generic merchant settlement cycle are given below

In the below table – **please refer “T” as Transactions Day** when customer initiate the payment to merchant

|  |  |  |  |
| --- | --- | --- | --- |
| **Settlement Type** | **Frequency** | **Used For** | **Settlement Files shared by Banks** |
| T+0 Day | Multiple Batch Settlement (Usually 3-4 time a day) | Large and High Value Merchants | Multiple Settlement Files as per the Batch Settlement |
| T+1 Day | Daily Once | Mid-Sized Merchant Category | Single Set of Settlement files |
| T+2 Day | Daily Once | High Risk Merchant Category | Single Set of Settlement File |

**Sample Used Case (T+1 Settlement)- Most generic practice.**

|  |  |  |
| --- | --- | --- |
| **Date & Time** | **Events** | **Entities** |
| T Day- 4.30 pm | Customer makes the UPI payment @ Pantaloon store | Customer |
| T Day- 7 pm | NPCI settles the batch processing with Acquiring bank | Acquirer – HDFC Bank |
| T+1 Day- 9.30 am | Bank prepares the settlement files | HDFC Bank- Merchant Settlement File |
| T+1 Day- 11 am | Bank settles the net amount to Merchant | HDFC Bank- Merchant Settlement A/c- DR/CR |
| T+1 Day- 12 pm | TSP shares settlement report to Merchant | TSP (Zrika) – Pantaloon |

*\*\*\* Please note: In some of the cases, acquiring banks does not wait for the settlement confirmation from NPCI and settle the merchant account as per arrangement. For the said transactions the reconciliation and back end operational process happened ay bank and TSP end separately.*

## 6.1 File Exchange Between Bank & TSP

For UPI merchant transactions, the number and types of files shared by banks to a Technology Service Provider (TSP) in a day can vary slightly based on the specific integration, but typically the following core files are shared daily:

The acquiring bank will do the segregation based on the merchant ID and generate the settlement files with TSP.

|  |  |  |  |
| --- | --- | --- | --- |
| File Name | Purpose | Content | Frequency |
| Transactions Level File | Success & Failure Transactions at transaction level for the merchant | Transaction ID, UTR, Time stamp, date, amount, payer and payee VPA, response code, source of UPI initiation mode etc | Daily |
| Settlement File | Net Credit and Net Debit, Charges, Commission, Merchant Account details etc | Account Number, Commission, fees, net cr and net dr, UTR information | Daily |
| Dispute Files | Chargeback, Refund if any | Original Transaction Date, Original Time stamp, Original Txn ID, Chargeback reason code, Refund Reason code, | Daily if present |

## 6.2 File Types & Formats

#### **6.2.1** Daily Transaction Files

* Format: CSV/JSON/XML
* Fields: Merchant ID, Txn ID, Date, Amount, Status, Payer VPA, Payee VPA, RRN, UTR, etc.
* Frequency: Daily

#### 6.2.2 Settlement Files

* Format: CSV /JSON/XML/PDF
* Includes: Merchant ID, UTR number, Net settlement amount, Transactions Count

#### 6.2.3 Refund/Chargeback Files

* Format: CSV/XML
* Includes: Refund ID, Parent Txn ID, Reason, Status

## 6.3 File Naming Conventions

The file naming conventions adopted by bank will vary from bank to bank. However, while drafting this document and purpose of reconciliation standard sample file naming convention is given below for understanding.

**<TSPCode>\_<Merchant ID>\_<FileType>\_<Date:YYYYMMDD>\_<BatchID>.csv**

* Example: Zrika\_Pantaloon\_TXN\_20250526\_B01.csv

File Types:

* TXN: Transaction
* STL: Settlement
* DIS: Dispute

## 6.4 Settlement Cycle Components

Each settlement cycle from the bank to the merchant consists of:

1. Gross Settlement Amount = Sum of all successful UPI transactions for the merchant.
2. Deductions:
   * MDR (Merchant Discount Rate) – typically 0% for UPI, but some banks/TSPs apply fees for certain categories.
   * Bank Fee – If any agreed in contract.
   * TSP/PSP Fee – Collected by the TSP for facilitating the transaction.
3. Net Settlement Amount = Gross − Deductions.

# 7. Zarika (TSP) File Generation

Internally, Zarika will log every UPI transaction with details like timestamp, transactions ID, payer/payee VPA, amount, status, device info etc in real time and stored in data base. The list of file names are given below.

* Transactions Log File
* Retry Error Log File
* Transactions Audit Log File
* Reconciliation File

#### 7.1 File Naming Convention

The sample file naming format for Zarika are given below

* Transactions Log File

Name- <Zarika>\_<MerchantID>\_<UPI>\_<Transaction>\_<DDMMYY>\_<SerialNumber>.<ExtensionFormat>

Sample- Zarika\_Pantaloon\_UPI\_Transaction\_30052025\_001.JSON / Zarika\_Pantaloon\_UPI\_Transaction\_30052025\_001.CSV

* Retry Error Log File

Name- <Zarika>\_<MerchantID>\_<UPI>\_<Retry>\_<DDMMYY>\_<SerialNumber>.<ExtensionFormat>

Sample- Zarika\_Pantaloon\_UPI\_Retry\_30052025\_001.JSON / Zarika\_Pantaloon\_UPI\_Retry\_30052025\_001.CSV

* Transactions Audit Log File

Name- <Zarika>\_<MerchantID>\_<UPI>\_<Audit>\_<DDMMYY>\_<SerialNumber>.<ExtensionFormat>

Sample- Zarika\_Pantaloon\_UPI\_Audit\_30052025\_001.JSON / Zarika\_Pantaloon\_UPI\_Audit\_30052025\_001.CSV

* Reconciliation File

Name- <Zarika>\_<MerchantID>\_<UPI>\_<Reconciliation>\_<DDMMYY>\_<SerialNumber>.<ExtensionFormat>

Sample- Zarika\_Pantaloon\_UPI\_Reconciliation\_30052025\_001.JSON / Zarika\_Pantaloon\_UPI\_Reconciliation\_30052025\_001.CSV

#### 7.2 File Format

The supported file format is XML, JSON, CSV, EXCEL, HTML ets

# 8. Reconciliation Process Flow

Following section captures an end-to-end automated reconciliation process for source file processing, matching, settlement, accounting GL update, report generation and exception handling.

Diagram

Description automatically generated

**Auto Reconciliation Mechanism**

**Matching Logic**

* Match based on UTR, Txn ID, Date, and Amount
* Status mapping in internal DB

**Exception Handling**

* Unmatched records flagged for manual review
* Notification alerts sent to ops team

**Automation Tools**

* Script based scheduler job for reconciliation.

## 8.1 Reconciliation Features

* Automated Reconciliation:
* System should consider the source file (Bank shared transaction level file, TSP transactions log), perform validation, process it, perform the matching based on matching fields and perform the reconciliation.
* Options for relax match, force match
* Re-consider unmatched transactions for matching
* Easy Categorisation of head of fees/charges
* System should have the capability to bifurcate the head of fees/charges/ profitable business model etc.
* Single Window for all products
* There should be clear visibility on all products in single page
* Realtime Business Dashboard
* Business Dashboard should be available to users to show the reconciled/un-reconciled status client wise.
* Life cycle management.
* System should allow to raise dispute in case of exceptions.
* Reporting
* System generated settlement report/files.
* Daily/monthly/quarterly/exception reports/summary reports.
* Reduce the overall settlement process times.
* Financial Monitoring.
* Management review/planning/analysis
* Data reporting for business analysis.
* Transparency.
* Automated reminder on dues/payment cycle.
* Highlighting the transactions if not received the dues/payment.

## 8.2 Reconciliation System Configuration

#### 8.2.1 File Management

Admin users should be able to select base and comparison file, file type, create parser, field mapping from data library, configure basic validation through UI configurations. User should be able to filter based on certain parameter/fields before performing the reconciliation process.

|  |  |  |
| --- | --- | --- |
| S.no | Fields | Possible Vale |
| 1 | Category\_Group | Merchant txns |
| 2 | Merchant | Pantaloon |
| 3 | Base Input File | Zarika\_Pantaloon\_UPI\_Transaction\_30052025\_001.CSV |
| 4 | Comparison File-PG1 | Zrika\_Pantaloon\_TXN\_20250526\_B01.csv |
| 5 | Recon\_Date | CurrentDate |

#### 8.2.1 File Naming Convention

System should accept the input file based on file naming convention and file format

|  |  |  |  |
| --- | --- | --- | --- |
| Sr No. | File Name | Fields | Possible Value |
| 1 | Base Input File | Naming Convention | Zarika\_Pantaloon\_UPI\_Transaction\_30052025\_001.CSV |
| File Extension Format | "CSV/EXCELS" |
| File Pick Up Mode | "Automatic/Manual Upload" |
| 2 | Comparison File-PG1 | Naming Convention | Zrika\_Pantaloon\_TXN\_20250526\_B01.csv |
| File Extension Format | "CSV/EXCELS" |
| File Pick Up Mode | "Automatic/Manual Upload" |

#### 8.2.3 Matching Module

Admin user should be able to configure the unique fields between base file and extension file as matching parameters. There should be option to configure relax matching parameters.

|  |  |  |
| --- | --- | --- |
| Name | Fields | Possible Value |
| Matching Criteria | <TXN\_ID> | Unique ID |
| <TXN\_STATUS> | Success |
| <Bank\_STATUS> | Captured |
| <TXN\_DATE> | Transaction Date |

#### 8.2.4 Settlement Update

Once the matching is performed, system should store the matched and unmatched record in different table. The unmatched record will be marked as HOLD for next day matching and settlement. The matched transactions will be marked as reconciled and eligible to settlement.

Un-reconciled transactions will be available to user to view and track the same for internal monitoring purpose.

|  |  |  |  |
| --- | --- | --- | --- |
| Sr. No | Reconciliation Status | Parameter | Settlement Status |
| 1 | Reconciled | Matching Status – Success and reconciled | Yes- Eligible for settlement |
| 2 | Un-Reconciled | Matching Failed- Hold and un-reconciled | No- Hold for next day |

#### 8.2.5 Fee/Charges Module

There should be separate configuration available for configuring the fees and charges for Payment aggregator and school.

This module should have following configurations.

* All payment mode should be configurable.
* Client wise /operator wise configuration.
* Approve/decline configuration.
* One time configuration.
* Additional Configuration.
* Amount based configuration.
* Limit based configuration.
* Offer based configuration.
* Flat/Percentage/Combined configuration.
* Gateway wise configuration.

#### 8.2.6 Tax Module

Tax should be configurable as per operator/client/region wise.

|  |  |  |  |
| --- | --- | --- | --- |
| S.no | Tax Head | Conditions | To be Calculated |
| 1 | GST | Settled Txn (Approve/Decline) | Total Fee |
| 2 | TDS/TCS | Settled Txn (Approve/Decline) | Total Fee |

#### 8.2.7 Dispute Module

User should have option to raise disputes on the un-reconciled transactions. Application should show possible disputes based on the matching status.

|  |  |
| --- | --- |
| "Action Option" | "Credit Not Received" |
|  | "Debit Adjustment" |

#### 8.2.8 Transaction Search

Transaction search screen should be available to the user to view the transactions. Search parameters should be configurable and not limited to.

* Settlement Date Range
* Transaction ID
* Customer Name
* Settlement Date
* Transaction Status

#### 8.2.9 Report Module

Following are the list of reports which should be available

|  |  |
| --- | --- |
| No of Reports | Type of Report |
| Report1 | Transactions Level Report |
| Report2 | School wise -Daily Summary Report |
| Report 3 | Payment Channel Wise Report |
| Report 4 | Payment Gateway Wise Report |
| Report 5 | Daily Settlement Summary Report |
| Report 6 | Settlement Summary |
| Report 7 | Transaction Level Report |
| Report 8 | Ageing-Report |

## 9. Reconciliation Users Journey- UI

1. Merchant will login to Zrika reconciliation Application via shared login credential
2. On the login page, user should get below option
   1. Dashboard
   2. Transaction Search
   3. Reconciliation Icon
   4. User Control
   5. Settlement Account
   6. Reports
   7. Chat
3. Dashboard page should have overall reconciliation status of the transactions. By default, the page should show the details as per last performed reconciliation information.
4. On Transaction Search Window, User should get the information based on search filters to check the transactions status
   1. Date Range
   2. Transaction ID
   3. VPA ID
   4. Transaction Status
   5. Settled /Unsettled
   6. Settled Date
5. On reconciliation Window, User should perform the reconciliation activity by selecting the required files and perform the matching and system should display the reconciled and unreconciled transactions.
6. User Control: The user should have the option to create/modify/delete the users in application to enhance the operational activity.
7. User should get the option of adding /modifying/deleting the settlement account details for settlement purpose.
8. User should get the option to download the reconciled reports at transaction level/summary level/ageing report and compare with the financial entry passed in settlement account.