**BUSINESS REQUIREMENTS and Solution DOCUMENT**

**Till Integration**

Clarity ID:

**Version 0.5**

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# GLOSSARY

|  |  |
| --- | --- |
| **Term** | **Definition** |
|  |  |

# Introduction

* There is a requirement to create a feature of ‘TILL INTEGRATION’ on the payment app.
* Both integrated and non-integrated approaches are to be considered.

## Purpose of document

* This document will detail the requirements and process flow, for integrating merchant application through TILL.

## Scope

* To specify the current process for *different type of transactions through TILL approach* where the integration with POS system to be done.

## Exclusions for Day 1 :( These would be out of scope)

## Change control for this document

| **Version** | **Issue Date** | **Purpose** |
| --- | --- | --- |
| 0.1 | March 7th , 2018 |  |
| 0.2 | April 4th , 2018 |  |
| 0.3 | April 18th , 2018 | Updated for MRN, Convenience fee and GST details |
| 0.4 | April 23th , 2018 | Biller ID, Consumer number, UDF 1, UDF 2 new fields added and changed Types of Transactions supports. |
| 0.5 | May 9th , 2018 | EMI Flow changes and E-charge slip changes added  And auto settlement |

## Reference documents

The following reference documents are available on request

| **Subject** | **Document** |
| --- | --- |
|  |  |

# requirements

## Configuration requirements:

* TILL integration as an option to be kept enabled at the POS terminal for integrated type of solution.
* All the s/w, h/w requirements to be met to connect the merchant app and the POS terminal.
* Merchant application needs to be configured through TILL APIs to the POS.

## In Scope

* Complete TILL integrated approach where merchant app will be connected to the POS terminal.
* Platform is WINDOWS, LINUX. Android wired connection and wireless connection ( Bluetooth , WiFi )

## Out of Scope

## Types of Existing Transactions:

Transaction

* + Sale ( DCC )
  + Pre-Auth Sale ( DCC )
  + Pre-Auth Sale completion
  + Refund
  + EMI Sale
  + Transaction Status
  + Reports

1. Any Transaction details by invoice, last transaction details if no invoice entered.
2. Settlement details reports
3. Details Report

In future need to support other transactions.

## Form factors in scope

* Point of Sale terminal

# TRANSACTION FUNCTIONAL authorization FLOW:



* On the merchant billing application, the merchant enters the product details and the final total amount is populated (Auth amount + Convenience fee + CGSR+SGST).
* These details are sent to the POS terminal either through a Wi-fi connection or a Bluetooth connection.
* In the request following parameters are sent from the TILL to POS terminal
* Refer the attached excel sheet only for all the detailed parameters:

Example:

|  |  |
| --- | --- |
| **Request** | |
| **Sale** | **Proposed Samples** |
| Function Code | **01 - Sale ( Sale, DCC ), 02 - Preauth Sale,**  **03 - Preauth Completion, 04 - Refund, 05 - Void, 06 - TIP, 07 - Cash @ POS, 08 - EMI Sale, 09- Loyalty Earn, 10 - Loyalty Burn, 11- Transaction Status, 12- Reports** |
| Source | **TILL**, Mobile, ATVM, etc |
| Total Transaction amount ( Bill Amount + Convenience Fee + GST ) | Max length 10 including decimal |
| Convenience Fee | Max length 10 including decimal |
| CGST | Max length 10 including decimal |
| SGST | Max length 10 including decimal |
| Bill amount | Max length 10including decimal |
| EMI Reference Number(ERN) | EMI reference number generated on 8 byte |
| **Merchant Reference Number(MRN)** | **Unique merchant number for reconciliation. This merchant reference Number** 20 byte |
| Customer mobile/ consumer number | Customer mobile number/ consumer number 20 byte (CRN: Mandatory) |
| User defined fields | 30 byte ( PAN + UDF ) |
| biller id | Optional 10 byte |
| Terminal Invoice Number | Used for Pre-auth completion & cancellation |  |
| Card Last four digit | Used for Pre-auth completion & cancellation |
| Auth Code | Used for Pre-auth completion & cancellation |
| Email ID | Email ID on which Email needs to be received 50 bytes optional |
| DCC flag | Default 0 , if dcc transaction done we need to make flag to 1 and send it back to TILL 1 byte |
| |  |  | | --- | --- | | UDF 1 |  | |  |  | | UDF 1 |
| |  |  | | --- | --- | | UDF2 |  | | UDF 1 |

|  |  |
| --- | --- |
| **Response** | |
| **Sale** | **Proposed Samples** |
| Function Code | **01 - Sale ( Sale, DCC ), 02 - Preauth Sale,**  **03 - Preauth Completion, 04 - Refund, 05 - Void, 06 - TIP, 07 - Cash @ POS, 08 - EMI Sale, 09- Loyalty Earn, 10 - Loyalty Burn, 11- Transaction Status, 12- Reports** |
| Source | **TILL,** Mobile, ATVM, etc |
| Total Transaction amount ( Bill Amount + Convenience Fee + GST ) | Max length 10 including decimal |
| Convenience Fee | Max length 10 including decimal |
| CGST | Max length 10 including decimal |
| SGST | Max length 10 including decimal |
| Bill amount | Max length 10including decimal |
| EMI specific data | Not Applicable |
| Merchant invoice number | same as request |
| Terminal Invoice number | Terminal Invoice Number |
| Customer mobile | same as request |
| Currency selection | currency code/currency which been selected |
| Transaction ID | same as request |
| Customer name | Customer name extracted from Card |
| User defined fields | For future use |
| Masked Card Number | First Six digit & last four digit. Inbetween number should be masked |
| Application Version Number  Serial Number | This terminal application version number and the serial number |
| Date & Time | Host Date & Time |
| FMID | First Data MID |
| FTID | First Data TID |
| Response code | Host Response code |
| Batch Number | Terminal Batch Number, if applicable |
| Card Type | This will card type |
| RRN | RRN received from host |
| SE | Value would be populated incase of Amex txns |
| EMV specific Data | EMV data like TC ,Application identifier, Application Name, TSI, etc |
| DCC Yes/NO flag | DCC Conversion flag yes or no |
| Pos Entry Mode | Magstripe, Chip, Contactless, Manual entry, etc |
| Pin Verified | "Yes" when PIN was entered & "No" when pin was not prompt |
| Auth Code | Received from Issuer/host |
| |  |  | | --- | --- | | Biller Id |  | | same as request |

Attached are the entire specifications docs:

**Terminal App changes**

* Bill amount, Convenience fee, GST amounts and the total amount are to be displayed on the terminal screen.
* DE 4 contains total amount which includes Transaction amount as well as Convenience fee amount + GST Amount
* DE63 will have below table details

|  |  |  |
| --- | --- | --- |
| **Field Name** | **Length in bytes** | **Value** |
| Table ID | 2 | Token ID : 44 |
| Fee Amount | 12 | Conveyance Fee + GST Amount |

|  |  |  |
| --- | --- | --- |
| Field | Length | Values/Comments |
| Token ID | 2 | **IA** |
| MRN | 20 | Left Justify padded with spaces at right |
| PAN +UDF | 30 | Left Justify padded with spaces at right |
| CRN | 20 | Left Justify padded with spaces at right |
| Biller Id | 10 | Left Justify padded with spaces at right |
| UDF1 | 10 | Left Justify padded with spaces at right |
| UDF2 | 10 | Left Justify padded with spaces at right |

* In case, there is any connection issue / unsuccessful connectivity, between the merchant billing application and POS terminal, message to be seen on the screen of the merchant.
* Once transaction is completed, the transaction response is seen on the terminal and the charge slip is generated.
* The transaction success/ fail message response is sent through the terminal to the merchant billing application.
* The response parameters sent from the terminal are mention above.

**Menu Setting :**

1. Menu setting required for Till Integration, Using that configuration we can Enable or Disable the Till integration menu.
2. Menu setting should present in Admin Func > Configure > Config Params-> TILL Setting

Enable or Disable (default it should be disabled)

1. When we enable the TILL setting, main menu should not display Sale, Pre-auth and Refund in menu selection.

**EMI Sale Flow :**

**Multi MID configured**

When Multi MID configured flow need to handle as mention below

1. When Sale is initiated from TILL , Terminal should map internally to Master MID and continue with sale transaction
2. When Sale with EMI tenure entered, Terminal need to used Tenure mapped MID and continue the sale transaction

**Single MID configured**

When we configured single MID, flow need to handle for Java and .Net integration

1. When sale with EMI Tenure entered (EMI Reference) 2 byte ,Terminal need to use the Configured MID and amount , if any discount amount will come from Till and continue with the flow and tenure can be match internally with respective tenure configuration which are in Terminal.
2. If Sale with EMI reference( More than 2 byte ) , then transaction flow should continue with EMI reference number

When we configured single MID, flow need to handle for Android mobile

1. Transaction continues with the EMI reference number which is generated on mobile, here we are not considering any tenure.

**Last Transaction Status API :**

Transaction Status API which is used for last transaction status check for TILL to Terminal. This is same Transaction response.

**Report API**

Report API is one which will take the input and send the Report details

1. INPUT: transaction details flag 1 OUT PUT : last Transaction details
2. INPUT: transaction details flag 1, invoice Number OUT PUT : Transaction details for particular invoice
3. INPUT: transaction details flag 2 OUT PUT : Settlement details reports
4. INPUT: transaction details flag 3 OUT PUT : details reports

**Charge slip:**

Charge slips changes:

* The charge slip will be similar to the sale charge slip generated for sale.
* The TIP field should be replaced by Convenience fees. (Convenience fees, CGST, SGST).
* GST also to be shown separately i.e. both CGST and SGST for these SALE charge slips.
* The convenience fees are always calculated at the billing system end and sent to the terminal with the bill amount.
* The MRN to be shown on the charge slip
* These MRN details also need to be sent to the host during transaction authorization at the payment app

**E charge slip :**

If terminal supporting E Charge slip, then Terminal need to check the Mobile number is came from TILL,

1. If mobile number came from Till, it should continue with the transaction with mobile number and not promt for mobile number entry on terminal and continue with payment flow.
2. If Mobile number not came, it should prompt for mobile number entry and continue with payment flow.

**Auto Settlement support :**

Terminal should do Auto Settlement with specified time

1. Admin Func > Configure > Config Params-> Settlement Time Setting, default it should be zero can’t editable.
2. Auto Settlement Time details will send the in Parameter download in cloud application
3. Terminal need to set the Auto settlement time and which came from Parameter response and Set the same time for Auto settlement
4. Settlement should initiate automatically with specified time when Terminal time is match Auto settlement Time
5. If POS terminal is down on settlement time, then Settlement need to initiate the once the power up terminal.

**Transaction detail report and Settlement report:**

* The transaction detail charge slip will be printed at the payment app.
* Bill transaction amount and convenience fee+ GST details will also be seen separately in the report.
* The field details will be similar to the existing transaction detail report.

**Detail Report changes in terminal application:**

* At the end of the detail report, we need to have a Convenience fee section, which would the details of all the convenience fee transactions.
* Currently, there is a separate section for TIP report, which would now be replaced with CONV FEES section.
* The MRN of both the needs to be displayed in the charge slip for reports.
* It will be inclusive of GST.

It will have following format:

Example:

|  |  |  |
| --- | --- | --- |
| **Convenience total Card \_type** | **Count** | **Amount ( in rupees)** |
| VISA\_CARD | 0001 | 10.00 |
| RUPAY | 0002 | 29.55 |
| AMEX CARD | 0001 | 33.00 |
| **TOTAL** | 0004 | 72.55 |

Negative Scenarios:

If the Sale transaction is failed, the status should be logged and displayed at the terminal.

Some of the possible error codes are:

|  |  |  |
| --- | --- | --- |
| **Scenario** | **Error Messages** | **Description** |
| Timeout within app or  Network failure | “Payment Transaction Timed out” | Can happen during the Payment transaction is failed.  Can happen due to any technical issue /network failure for any data exchange between app and till integration.  New transaction should be initiated |
| Terminal Restart | Terminal will get restarted | Terminal restart can happen at any time for payment app |
| USB or serial connection issue or connectivity issue with Bluetooth etc. | Serial cable check or Bluetooth connectivity check etc. | Till API need to display proper message |