**Discovery Report**

ORIENT COMMERCIAL BANK

Volume 11 - EMV Acquiring

Way4 Implementation

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# History of Changes

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| 1.0 | 09.06.2018 | Initial Version. | Tu B. Nguyen |  |
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# Introduction

## Introduction

This document contains the flow of ATM/POS EMV transaction which the Way4 system will be configured for the Business Requirements of Orient Commercial Bank. It covers the different sections of the Way4 system and Configuration needed to be done in them.

The technical solution, setup and configuration needed to be done in Way4 to satisfy OCB’s ATM acquiring requirements. These solutions are internal to Way4 and are based on expertise and knowledge of OpenWay staff. The solution will be updated and finalized during system build phase by OpenWay.

## Notations used

The formats of the file fields are as follows:

| Ref | Description |
| --- | --- |
| A | Alphabetic characters A through Z and a through z |
| N | Numeric digits 0 through 9. A numeric field containing only digits; the field is right-aligned and should to be appended with leading zeros to reach the specified length. |
| An | Alphabetic and Special Characters. A character field containing any printable characters; the field is left aligned, it is appended with trailing spaces to reach the specified length |
| Ns | Numeric and Special Characters |
| Ans | Alphabetic, Numeric and Special Characters |
| MM | Month, 01 through 12 |
| DD | Day, 01 through 31 |
| YY | Year, 00 through 99 |
| YYYY | Year, 0000 through 9999 |
| HH | Hour, 00 through 23 |
| MI | Minute, 00 through 59 |
| SS | Second, 00 through 59 |
| B | Binary representation of data. A binary field only used to store line delimiter characters |
| ..nn | Variable length data up to nn characters. There will be two or three character length (depending upon whether maximum data length is 99 or 999) at the beginning of the element to identify the number of positions following to the end of the data element |
| S | Single Value Field |
| MV | Multi-value Field/Multiline data |
| O | Optional |
| M | Mandatory |
| C | Conditional |
| MR | Copy from request |
| CR | Copy if present in request |
| ATM | Auto Teller Machine |
| CCDM | Cheque and Cash Deposit Machine |
| SML | SmartLink |
| Napas | Vietnam Nation Financial Switching Joint Stock Company |
| OCB | Orient Commercial Bank |

## Data Elements

The final component of a message consists of a number of 'data elements'. Data elements may be of fixed or variable length. No delimiters are used between data elements. Their order and presence is indexed by the associated bit map(s). Variable length data starts with length specified, indicating the length of that particular data element. Each data element is characterized by:

* **No** is a running number
* **Data Element Name** is name of field
* **Position** is starting position of the field.
* **Size** is the length of the field. For example: Position = 6 and length = 3 mean the field content starts at 6 spaces/ characters/ digits from the left and occupies 3 spaces/ characters/ digits.
* **M/C/O** is a value represents mandatory or conditional or optional. The following flags specify if the entry of data in the field is mandatory:
  + **M** - the data entry is mandatory,
  + **O**- the data entry is optional,
  + **C** - the data entry depends on other field values.
* **Description** is additional explanation of the field. It should clarify
  + whether the field is expecting a fixed value
  + the field is running number
  + the field existence depends on other field/ fields
  + termination symbol
  + delimiter; for example 0x0D, 0x0A (CRLF).

# REQC0001 - ATM EMV Acquiring

## Transaction Initialization





Note: This process (transaction initiation) will not be shown on all of the following transaction flows because this will be repeated once cardholder inserts the card.

**Description:**

1. Cardholder inserts card. If card is ok then next screen will be displayed.
2. Cardholder selects language.
3. ATM tries to do “Begin ICC Initialization” step. If not successful then transaction will be switch to fallback mode.
4. Next ATM do “Complete ICC Initialization” step. If not successful then transaction will be switch to fallback mode.
5. Next ATM do “Begin ICC Application Selection and Initialization” step. If successful then ATM will display all applications which store in CHIP card for Cardholder selection. Otherwise transaction will be switch to fallback mode.
6. Next ATM do “Complete ICC Application Selection and Initialization” step. If not successful then transaction will be switch to fallback mode.
7. Cardholder enters pin. At this screen, Cardholder can use keypad to press CANCEL key to cancel transaction; press CLEAR key to re-enter PIN; press OK key to continue.
8. If On-us card is doing at ATM then:
   * If Way4 verifies PIN successfully then Cardholder will select transaction.
   * If Way4 verifies PIN and get Response code to request first PIN change then next screen will ask cardholder to do change PIN. PIN change flow is written in the following section.
   * If Way4 verifies PIN unsuccessfully then ATM will ask cardholder to re-enter PIN or not?
9. Otherwise ATM will move to main function for Cardholder select transaction.

## EMV Transaction Support

For the EMV Chip cards, we support JCB and MasterCard’s transactions.

# REQC0002 - POS EMV Acquiring

## Online Transaction Flow

1. Merchant will insert chip card on OCB POS terminal. Once the card is inserted chip initialization will take place
2. POS terminal will display transaction menu
3. Merchant will select Purchase transaction from the menu
4. Merchant will enter the purchase amount and confirm
5. POS will send transaction request to WAY4 switch with ARQC
6. After receiving transaction request, WAY4 switch will identify that card belongs to MasterCard/JCB network. WAY4 switch will route the transaction to MasterCard/JCB for authorization. MasterCard/JCB will forward the transaction to corresponding issuer for authorization
7. Issuer will perform authorization and send response to MasterCard/JCB network with ARPC
8. MasterCard will forward the response received from issuer to WAY4 switch
9. WAY4 switch will forward the response to POS
10. On receiving the response, card will validate the ARPC
    1. If ARPC validation is successful, POS will display approved response and print the receipt to complete the transaction
    2. If ARPC validation is unsuccessful, transaction will be rejected. In this case if successful response is received, reversal will be generated and sent to MasterCard/JCB.
11. In case of time out between WAY4 switch and MasterCard, WAY4 switch will send reject response to POS and reversal to MasterCard/JCB network

In case of time out with POS, POS will reject the transaction and send reversal to WAY4 switch. WAY4 switch will forward reversal to MasterCard/JCB network.

## EMV Transaction Support

For the EMV Chip cards, we support JCB and MasterCard’s transactions.