**PROJECT DOCUMENT**

**1. Document Overview**

This document describes the functionality and user-interface that is required.

**2. Definition, Acronym and abbreviation**

|  |  |
| --- | --- |
| **Word** | **Description** |
| MID | Merchant Identification Number |
| POS | Point of sale |
| Off-line | A transaction that does not require communication with the server |
| On-line | A transaction that does require communication with the server |
| Server | Remote application server which the POS communicates with |
| UI | User interface of the TPE |
| IP | Internet Protocol |
| Remote stock | An amount of airtime PIN stored on the remote server |
| Local stock | An amount of airtime PIN stored on TPE memory |
| MTI | Message Type Indicator |
| ACK | Acknowledgement |
| Operator | Person that handles TPE |
| APN | Access Point Name |
|  |  |

**3. Application Overview**

Basically, the all system functionality is described below:

* The POS has an account on the server.
* The account is associated with a certain amount of airtime PIN.
* POS downloads PIN from his account (remote stock) and stores them in device memory (local stock).
* POS prints PIN on demand from his local stock (it’s a sales transaction).
* All sales transactions are reported to server for synchronisation purpose.

**4. POS Functionality**

The POS must provide the functionality listed below

* Download stock from server (Provisioning)
* Check local stock (inside TPE)
* Check remote stock (account in server)
* Print airtime PIN
* Report sales
* Return stock (per face value)

|  |  |  |
| --- | --- | --- |
| **FUNCTION** | **DESCRIPTION** | **ONLINE** |
| Download stock | Provision local stock by downloading PIN from server | YES |
| Check local stock | Check status of local stock on POS | NO |
| Check remote stock | Check status of remote stock on server | YES |
| Print PIN | Print requested number of PIN from local stock | NO |
| Report sales | Report sold PIN to remote server to reflect sales | YES |
| Return stock | Send back local stock to server | YES |

**5. Protocol**

Exchange between POS and server is based on ISO 8583 over TCP/IP.

ISO 8583 message is made of 3 parts:

* **Message Type Indicator (MTI)**

It’s a 4 digit numeric field that will be used to bring request and response code during transaction. Each function has its own range of MTI as described later.

* **Bitmap**

It’s 8 bytes of binary data which indicates which of Data Element 1 to 64 are present.

This project use only Primary Bitmap.

* **Data Element**

Data element is the individual field carrying the transaction information. As only primary bitmap is used, a message can contain up to 64 data elements.

Each data element is described in a standard format that defines the permitted content of the field and the field length (variable or fixed)

|  |  |
| --- | --- |
| **ABBREVIATION** | **MEANING** |
| a | Alpha, including blanks |
| n | Numeric values only |
| s | Special characters only |
| an | Alphanumeric |
| as | Alpha & special characters only |
| ns | Numeric and special characters only |
| ans | Alphabetic, numeric and special characters. |
| b | Binary data |
| . or .. or ... | variable field length indicator, each . indicating a digit. |

Below is the definition of data elements

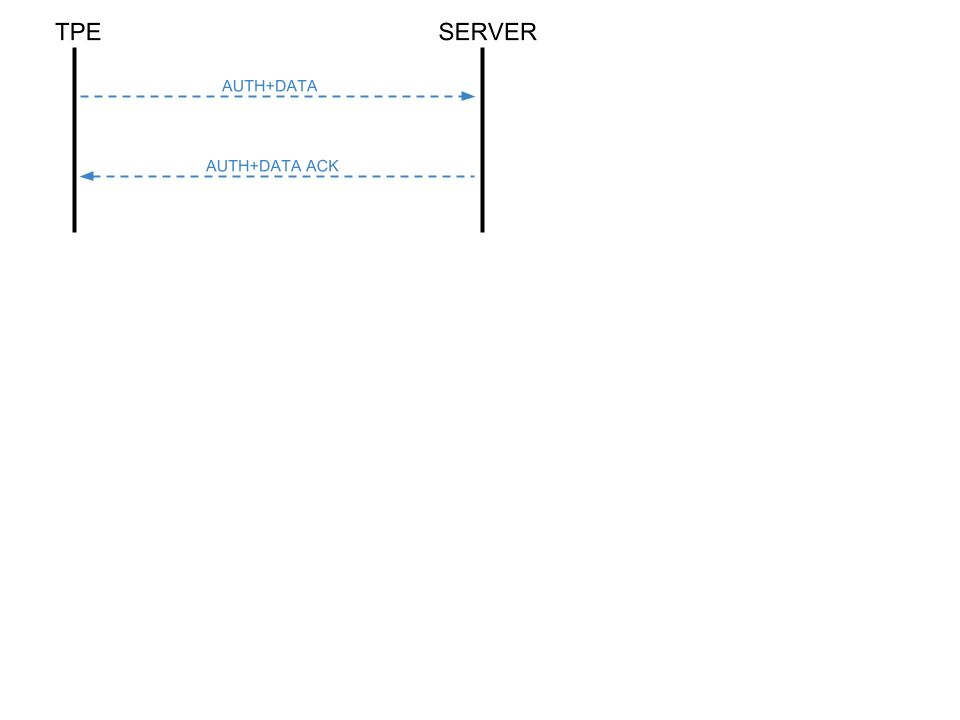
|  |  |  |
| --- | --- | --- |
| **Data Field** | **Type** | **Usage** |
| 1 | b 64 | Bitmap |
| 5 | b 64 | MDI (Merchant Identification Number) |
| 6 | ans … 999 | Password |
| 10 | an 10 | Face value |
| 14 | an 25 | Response description |
| 20 | n 3 | Number of vouchers for face value 500 XAF |
| 21 | n 3 | Number of vouchers for face value 1000 XAF |
| 22 | n 3 | Number of vouchers for face value 2500 XAF |
| 23 | n 3 | Number of vouchers for face value 5000 XAF |
| 24 | n 3 | Number of vouchers for face value 10000 XAF |
| 25 | n 3 | Number of vouchers for face value 25000 XAF |
| 26 | n 3 | Number of vouchers for face value 50000 XAF |
| 30 | an 160 | Personalized message |
| 40 | ans … 999 | Voucher details / Serial number list (encrypted) |
| 41 | ans … 999 | Voucher details / Serial number list (encrypted) |
| 42 | ans … 999 | Voucher details / Serial number list (encrypted) |
| 43 | ans … 999 | Voucher details / Serial number list (encrypted) |
| 44 | ans … 999 | Voucher details / Serial number list (encrypted) |
| 45 | ans … 999 | Voucher details / Serial number list (encrypted) |
| 46 | ans … 999 | Voucher details / Serial number list (encrypted) |
| 47 | ans … 999 | Voucher details / Serial number list (encrypted) |
| 48 | ans … 999 | Voucher details / Serial number list (encrypted) |
| 49 | ans … 999 | Voucher details / Serial number list (encrypted) |
| 50 | ans … 999 | Voucher details / Serial number list (encrypted) |
| 51 | ans … 999 | Voucher details / Serial number list (encrypted) |
| 52 | ans … 999 | Voucher details / Serial number list (encrypted) |
| 53 | ans … 999 | Voucher details / Serial number list (encrypted) |
| 54 | ans … 999 | Voucher details / Serial number list (encrypted) |
| 55 | ans … 999 | Voucher details / Serial number list (encrypted) |
| 56 | ans … 999 | Voucher details / Serial number list (encrypted) |
| 57 | ans … 999 | Voucher details / Serial number list (encrypted) |
| 58 | ans … 999 | Voucher details / Serial number list (encrypted) |
| 59 | ans … 999 | Voucher details / Serial number list (encrypted) |
| 60 | ans … 999 | Voucher details / Serial number list (encrypted) |
| 61 | ans … 999 | Voucher details / Serial number list (encrypted) |
| 62 | ans … 999 | Voucher details / Serial number list (encrypted) |
| 63 | ans … 999 | Voucher details / Serial number list (encrypted) |
| 64 | ans … 999 | Voucher details / Serial number list (encrypted) |

**6. Type of transaction**

This project use Single Message Transaction, which means POS submits a single message containing all data for authorization and transaction.

**NB:**

Dialog is always initiated by POS and never by the server.



**6.1. Request stock from server (download pin stock)**

This feature is used to provision TPE with PIN.

The operator sends request to server with the type of face value and the number of PIN needed.

PIN are taken from operator remote stock, downloaded to TPE and stored in its memory (local stock).

Only one type of face value per download is permitted.

The maximum number of PIN that can be downloaded is 25.

This is an ON-LINE transaction.

**6.1.1. Request**

Below are the arguments of request message sent to server

|  |  |  |
| --- | --- | --- |
| **Field** | **Value** | **Description** |
| MTI | 0100 | PIN download request |
| 1 | Bitmap | Indicates which fields contain data |
| 5 | MID | Merchant Identification Number |
| 6 | Password | Password of operator |
| 10 | Face value | Face value of the PIN requested |
| 12 | Number of PIN | Number of PIN of requested face value |

The following section details UI and action sequences when downloading PIN to TPE.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  | | --- | | MAIN MENU | | 1 CHECK LOCAL STOCK | | 2 CHECK REMOTE STOCK | | 3 PRINT PIN | | 4 DOWNLOAD PIN | | 5 REPORT SALES | | 6 RETURN STOCK | | Form Main Menu, use scroll to **‘DOWNLOAD PIN’** and press **[OK]**, or press the **[4]** key |
|  |  |
| |  | | --- | | SELECT FACE VALUE | | 1 XAF 500 | | 2 XAF 1000 | | 3 XAF 2500 | | 4 XAF 5000 | | 5 XAF 10000 | | 6 XAF 25000 | | 7 XAF 50000 | | Use scroll to select the requested face value then press **[OK]**, or press the number that identify the face value |
|  |  |
| |  | | --- | | VOUCHER [face-value] XAF | | Enter Number of PIN | |  | | 0.00 | | Enter the number of PIN for the specified face value and press **[OK]** |
|  |  |
| |  | | --- | | DOWNLOAD | | Voucher XAF [face-value] | | Number [nb-of-pin] | |  | | Press OK to confirm | | Summary of the transaction is displayed. Press **[OK]** to confirm.  For correction, press **[CORR]** key to return to Face value selection.  Any other key return to Main Menu |
|  |  |
| |  | | --- | | DOWNLOAD | | Enter Password | | + OK | |  | | | | | Enter password and press **[OK]** |
|  |  |
| |  | | --- | | DOWNLOAD | | [Various Text] | |  | |  | |  | | The terminal displays several messages indicating it is communicating with the host. These include **‘Sending’**, **‘Receiving’** and **‘Processing’** |

**NB:**

The MTI and MID are automatically put inside the ISO message by the device

**6.1.2. Reponse**

Field configuration and displayed UI are described below for each response case.

6.1.2.1. Download successful

This case happens when both authentication and PIN download are successful.

The response from server is as following

|  |  |  |
| --- | --- | --- |
| **Field** | **Value** | **Description** |
| MTI | 0110 | PIN download success |
| 1 | Bitmap | Indicates which fields contain data |
| 10 | Face value | Face value of the PIN requested |
| 12 | Number of PIN | Number of PIN of requested face value |
| 14 | OPERATION SUCCESS | Response description |
| 40 to 64 | PIN details | Details of PIN separated by pipe **|** |

Only the requested number of PIN are returned by server.

Each field contains only one PIN details separated by pipe.

The format of PIN details is:

<serial number> **|** <face value> **|** <PIN code> **|** <validity DD/MM/YYYY>

Each PIN details is stored in TPE memory with a status **‘FREE’**.

It becomes part of device local stock.

The UI description is shown below:

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  | | --- | | DOWNLOAD | | OPERATION SUCCESS | |  | | Date DD/MM/YYYY HH:mm | | Voucher XAF [face\_value] | | Number [nb\_of\_pin] | |  | | Press OK to print | | CANCEL for MAIN MENU | | Summary if download operation is successful.  Press **[OK]** to print.  Press any other key to return to Main Menu |

6.1.2.2. Authentication error

This case happens when password is wrong or TPE is not authorized to access server.

The response from server is as following

|  |  |  |
| --- | --- | --- |
| **Field** | **Value** | **Description** |
| MTI | 0120 | Authentication error |
| 1 | Bitmap | Indicates which fields contain data |
| 14 | AUTHENTICATION ERROR | Response description |

The UI description is shown below:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  | | --- | | DOWNLOAD | | OPERATION FAILURE | |  | | REASON: | | AUTHENTICATION ERROR | |  | |  | | Press OK to return to menu | | Press any key to return to Main Menu |

6.1.2.3. No provision error

This case happens when authentication is successful but remote stock is insufficient to satisfy the request.

In other word, the number of PIN requested is greater than the number of PIN in operator remote stock.

The response from server is as following

|  |  |  |
| --- | --- | --- |
| **Field** | **Value** | **Description** |
| MTI | 0130 | No provision error |
| 1 | Bitmap | Indicates which fields contain data |
| 14 | NO PROVISION ERROR | Response description |

The UI description is shown below:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  | | --- | | DOWNLOAD | | OPERATION FAILURE | |  | | REASON: | | REMOTE STOCK IS NOT ENOUGH TO SATISFY REQUEST | |  | |  | | Press OK to return to menu | | Press any key to return to Main Menu |

6.1.2.4. Requested number above maximum error

This case happens when authentication is successful but the number of PIN requested is above allowed number in server side.

The response from server is as following

|  |  |  |
| --- | --- | --- |
| **Field** | **Value** | **Description** |
| MTI | 0140 | Above maximum error |
| 1 | Bitmap | Indicates which fields contain data |
| 14 | ABOVE MAX ERROR | Response description |

The UI description is shown below:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  | | --- | | DOWNLOAD | | OPERATION FAILURE | |  | | REASON: | | NUMBER ENTERED IS ABOVE MAXIMUM ALLOWED | |  | |  | | Press OK to return to menu | | Press any key to return to Main Menu |

6.1.2.5. Connexion error

This case happens when connexion error happens between TPE and server.

The response from server is as following

|  |  |  |
| --- | --- | --- |
| **Field** | **Value** | **Description** |
| MTI | 0180 | Connexion error |
| 1 | Bitmap | Indicates which fields contain data |
| 14 | CONNEXION ERROR | Response description |

The UI description is shown below:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  | | --- | | DOWNLOAD | | OPERATION FAILURE | |  | | REASON: | | CONNEXION ERROR DURING TRANSACTION | |  | |  | | Press OK to return to menu | | Press any key to return to Main Menu |

6.1.2.6. Other error

This case happens when an error (not describer above) happens during a transaction.

The response from server is as following

|  |  |  |
| --- | --- | --- |
| **Field** | **Value** | **Description** |
| MTI | 0190 | Other error |
| 1 | Bitmap | Indicates which fields contain data |
| 14 | OTHER ERROR | Response description |

The UI description is shown below:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  | | --- | | DOWNLOAD | | OPERATION FAILURE | |  | | REASON: | | AN ERROR HAPPENS DURING TRANSACTION | |  | |  | | Press OK to return to menu | | Press any key to return to Main Menu |

**6.2. Check local stock**

This feature is used to verify the number of free voucher stored in TPE memory.

This is an OFF-LINE transaction.

The UI and action sequences is shown below:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  | | --- | | MAIN MENU | | 1 CHECK LOCAL STOCK | | 2 CHECK REMOTE STOCK | | 3 PRINT PIN | | 4 DOWNLOAD PIN | | 5 REPORT SALES | | 6 RETURN STOCK | | Form Main Menu, use scroll to **‘CHECK LOCAL STOCK’** and press **[OK]**, or press the **[1]** key |
|  |  |
| |  | | --- | | LOCAL STOCK | | Enter Password | | + OK | |  | | | | | Enter password and press **[OK]**  Any other key returns to Main Menu |
|  |  |
| |  | | --- | | LOCAL STOCK | |  | | XAF 500 [nb-of-pin] | | XAF 1000 [nb-of-pin] | | XAF 2500 [nb-of-pin] | | XAF 5000 [nb-of-pin] | | XAF 10000 [nb-of-pin] | | XAF 25000 [nb-of-pin] | | XAF 50000 [nb-of-pin] | |  | | Press OK to print | | CANCEL for MAIN MENU | | Summary of free PIN stored in device memory is displayed.  Press **[OK]** to print.  Press any other key to return to Main Menu |

The format of printed ticket is:

|  |
| --- |
| **STOCK STATUS** |
|  |
| LOCATION DEVICE |
| TPE [MID] |
| DATE [DD/MM/YYYY HH:mm:ss] |
|  |
|  |
| XAF 500 **[nb-of-pin]** |
| XAF 1000 **[nb-of-pin]** |
| XAF 2500 **[nb-of-pin]** |
| XAF 5000 **[nb-of-pin]** |
| XAF 10000 **[nb-of-pin]** |
| XAF 25000 **[nb-of-pin]** |
| XAF 50000 **[nb-of-pin]** |
|  |
|  |

**6.3. Check remote stock**

This feature is used to verify the status of remote stock.

In other word, it’s the number of voucher allocated to the TPE and is available for download on the server

This is an ON-LINE transaction.

**6.3.1. Request**

Below are the arguments of request message sent to server

|  |  |  |
| --- | --- | --- |
| **Field** | **Value** | **Description** |
| MTI | 0200 | Check status request |
| 1 | Bitmap | Indicates which fields contain data |
| 5 | MID | Merchant Identification Number |
| 6 | Password | Password of operator |

The following section details UI and action sequences when checking remote stock.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  | | --- | | MAIN MENU | | 1 CHECK LOCAL STOCK | | 2 CHECK REMOTE STOCK | | 3 PRINT PIN | | 4 DOWNLOAD PIN | | 5 REPORT SALES | | 6 RETURN STOCK | | Form Main Menu, use scroll to **‘CHECK REMOTE STOCK’** and press **[OK]**, or press the **[1]** key |
|  |  |
| |  | | --- | | REMOTE STOCK | | Enter Password | | + OK | |  | | | | | Enter password and press **[OK]**  Any other key returns to Main Menu |
|  |  |
| |  | | --- | | REMOTE STOCK | | [Various Text] | |  | |  | |  | | The terminal displays several messages indicating it is communicating with the host. These include **‘Sending’**, **‘Receiving’** and **‘Processing’** |

**NB:**

The MTI and MID are automatically put inside the ISO message by the device

**6.3.2. Reponse**

Field configuration and displayed UI are described below for each response case.

6.3.2.1. Check stock successful

This case happens when both authentication and stock checking are successful.

The response from server is as following

|  |  |  |
| --- | --- | --- |
| **Field** | **Value** | **Description** |
| MTI | 0210 | Stock checking success |
| 1 | Bitmap | Indicates which fields contain data |
| 14 | OPERATION SUCCESS | Response description |
| 20 | Status of XAF 500 | Number of available XAF 500 on the server |
| 21 | Status of XAF 1000 | Number of available XAF 1000 on the server |
| 22 | Status of XAF 2500 | Number of available XAF 2500 on the server |
| 23 | Status of XAF 5000 | Number of available XAF 5000 on the server |
| 24 | Status of XAF 10000 | Number of available XAF 10000 on the server |
| 25 | Status of XAF 25000 | Number of available XAF 25000 on the server |
| 26 | Status of XAF 50000 | Number of available XAF 50000 on the server |

The UI description is shown below:

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  | | --- | | REMOTE STOCK | |  | | XAF 500 [nb-of-pin] | | XAF 1000 [nb-of-pin] | | XAF 2500 [nb-of-pin] | | XAF 5000 [nb-of-pin] | | XAF 10000 [nb-of-pin] | | XAF 25000 [nb-of-pin] | | XAF 50000 [nb-of-pin] | |  | | Press OK to print | | CANCEL for MAIN MENU | | Summary of PIN allocated to TPE on the server.  Press **[OK]** to print.  Press any other key to return to Main Menu |

The format of printed ticket is:

|  |
| --- |
| **STOCK STATUS** |
|  |
| LOCATION SERVER |
| TPE [MID] |
| DATE [DD/MM/YYYY HH:mm:ss] |
|  |
|  |
| XAF 500 **[nb-of-pin]** |
| XAF 1000 **[nb-of-pin]** |
| XAF 2500 **[nb-of-pin]** |
| XAF 5000 **[nb-of-pin]** |
| XAF 10000 **[nb-of-pin]** |
| XAF 25000 **[nb-of-pin]** |
| XAF 50000 **[nb-of-pin]** |
|  |
|  |

6.3.2.2. Authentication error

This case happens when password is wrong or TPE is not authorized to access server.

The response from server is as following

|  |  |  |
| --- | --- | --- |
| **Field** | **Value** | **Description** |
| MTI | 0220 | Authentication error |
| 1 | Bitmap | Indicates which fields contain data |
| 14 | AUTHENTICATION ERROR | Response description |

The UI description is shown below:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  | | --- | | REMOTE STOCK | | OPERATION FAILURE | |  | | REASON: | | AUTHENTICATION ERROR | |  | |  | | Press OK to return to menu | | Press any key to return to Main Menu |

6.3.2.3. Connexion error

This case happens when connexion error happens between TPE and server.

The response from server is as following

|  |  |  |
| --- | --- | --- |
| **Field** | **Value** | **Description** |
| MTI | 0280 | Connexion error |
| 1 | Bitmap | Indicates which fields contain data |
| 14 | CONNEXION ERROR | Response description |

The UI description is shown below:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  | | --- | | REMOTE STOCK | | OPERATION FAILURE | |  | | REASON: | | CONNEXION ERROR DURING TRANSACTION | |  | |  | | Press OK to return to menu | | Press any key to return to Main Menu |

6.3.2.4. Other error

This case happens when an error (not describer above) happens during a transaction.

The response from server is as following

|  |  |  |
| --- | --- | --- |
| **Field** | **Value** | **Description** |
| MTI | 0290 | Other error |
| 1 | Bitmap | Indicates which fields contain data |
| 14 | OTHER ERROR | Response description |

The UI description is shown below:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  | | --- | | DOWNLOAD | | OPERATION FAILURE | |  | | REASON: | | AN ERROR HAPPENS DURING TRANSACTION | |  | |  | | Press OK to return to menu | | Press any key to return to Main Menu |

**6.4. Sell Voucher**

This feature is used to sell voucher to end-user.

Voucher is taken from local stock and printed.

This is an OFF-LINE transaction.

The UI and action sequences is shown below:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  | | --- | | MAIN MENU | | 1 CHECK LOCAL STOCK | | 2 CHECK REMOTE STOCK | | 3 PRINT PIN | | 4 DOWNLOAD PIN | | 5 REPORT SALES | | 6 RETURN STOCK | | Form Main Menu, use scroll to **‘SELL PIN’** and press **[OK]**, or press the **[3]** key |
|  |  |
| |  | | --- | | SELECT FACE VALUE | | 1 XAF 500 | | 2 XAF 1000 | | 3 XAF 2500 | | 4 XAF 5000 | | 5 XAF 10000 | | 6 XAF 25000 | | 7 XAF 50000 | | Use scroll to select the requested face value then press **[OK]**, or press the number that identify the face value |
|  |  |
| |  | | --- | | VOUCHER [face-value] XAF | | Enter Number of Voucher | |  | | 0.00 | | Enter the number of voucher for the specified face value and press **[OK]** |
|  |  |
| |  | | --- | | SALES SUMMARY | |  | | XAF [face-value] [nb-of-pin] | | XAF [face-value] [nb-of-pin] | |  | |  | | Press OK to confirm | | Press F1 to add voucher | | CANCEL for MAIN MENU | | Summary of the transaction is displayed. Press **[OK]** to confirm.  Press **[F1]** key to add another face value and return to Face value selection.  Any other key return to Main Menu |
|  |  |
| |  | | --- | | SALES TRANSACTION | | Enter Password | | + OK | |  | | | | | Enter password and press **[OK]** |

**Case 1** There is enough free vouchers in local stock.

Print requested vouchers (which status is **‘FREE’**).

Change status of printed voucher to **‘SOLD’**.

Report sales to server (using previous password). The feature ‘report sales’ is described later.

The format of printed ticket is:

|  |
| --- |
| [FACE-VALUE] FCFA |
|  |
| [PIN CODE] |
|  |
|  |
| Expiry Date [expiry-date] |
| Serial No [serial-number] |
|  |
| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* |
| [pub-message] |
|  |
| \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* |

The variable [pub-message] is assigned when operator reports sales.

The following UI is displayed

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  | | --- | | SELL VOUCHER | | TRANSACTION SUCCESS | |  | | XAF [face-value] [nb-of-pin] | | XAF [face-value] [nb-of-pin] | |  | |  | | Press OK | | Press any key to return to Main Menu |

**Case 2** Some of requested face value are insufficient.

The following UI is displayed

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  | | --- | | SELL VOUCHER | | OPERATION FAILURE | |  | | REASON: | | Voucher [face-value], [face-value], … are insufficient | |  | |  | | Press OK to return to menu | | List of insufficient face value are displayed.  Press any key to return to main menu. |

**6.5. Report sales**

This feature is used to report all voucher sold to server.

The serial number of all sold voucher are sent to server for synchronisation.

This feature is also used to download personalized message [pub-message] printed on vouchers.

This is an ON-LINE transaction.

**6.5.1. Request**

Below are the arguments of request message sent to server

|  |  |  |
| --- | --- | --- |
| **Field** | **Value** | **Description** |
| MTI | 0300 | Report sales request |
| 1 | Bitmap | Indicates which fields contain data |
| 5 | MID | Merchant Identification Number |
| 6 | Password | Password of operator |
| 40 to 64 | Serial number | List of serial number separated by pipe |

Only vouchers which status is ‘SOLD’ are reported to server.

The format of serial numbers is:

<serial no 1> **|** <serial no 2> **|** <serial no 3> | … … … **|** <serial no 10>

The maximum serial number in a field is 10.

If more serials must be reported, it will be put in next field.

Bitmap shows which field contains data.

The UI description is:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  | | --- | | MAIN MENU | | 1 CHECK LOCAL STOCK | | 2 CHECK REMOTE STOCK | | 3 PRINT PIN | | 4 DOWNLOAD PIN | | 5 REPORT SALES | | 6 RETURN STOCK | | Form Main Menu, use scroll to **‘REPORT SALES’** and press **[OK]**, or press the **[5]** key |
|  |  |
| |  | | --- | | REPORT SALES | | Enter Password | | + OK | |  | | | | | Enter password and press **[OK]** |

**NB:**

The MTI and MID are automatically put inside the ISO message by the device

**6.5.2. Response**

Field configuration and displayed UI are described below for each response case.

6.5.2.1. Report successful

This case happens when both authentication and sales report are successful.

The response from server is as following

|  |  |  |
| --- | --- | --- |
| **Field** | **Value** | **Description** |
| MTI | 0310 | Report sales success |
| 1 | Bitmap | Indicates which fields contain data |
| 14 | OPERATION SUCCESS | Response description |
| 30 | Personalized message | Personalized message to put on printed voucher |

The actions are:

* Remove PIN details which serial number has been reported successfully to server.
* Store data from field 30 to variable [pub-message].
* The UI below is displayed.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| |  | | --- | | REPORT SALES | | OPERATION SUCCESS | |  | |  | |  | | Press OK to return to menu | | Press any key to return to Main Menu |

6.5.2.2. Authentication error

This case happens when password is wrong or TPE is not authorized to access server.

The response from server is as following

|  |  |  |
| --- | --- | --- |
| **Field** | **Value** | **Description** |
| MTI | 0320 | Authentication error |
| 1 | Bitmap | Indicates which fields contain data |
| 14 | AUTHENTICATION ERROR | Response description |

The UI description is shown below:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  | | --- | | REPORT SALES | | OPERATION FAILURE | |  | | REASON: | | AUTHENTICATION ERROR | |  | |  | | Press OK to return to menu | | Press any key to return to Main Menu |

6.5.2.3. Connexion error

This case happens when connexion error happens between TPE and server.

The response from server is as following

|  |  |  |
| --- | --- | --- |
| **Field** | **Value** | **Description** |
| MTI | 0380 | Connexion error |
| 1 | Bitmap | Indicates which fields contain data |
| 14 | CONNEXION ERROR | Response description |

The UI description is shown below:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  | | --- | | REPORT SALES | | OPERATION FAILURE | |  | | REASON: | | CONNEXION ERROR DURING TRANSACTION | |  | |  | | Press OK to return to menu | | Press any key to return to Main Menu |

6.5.2.4. Other error

This case happens when an error (not describer above) happens during a transaction.

The response from server is as following

|  |  |  |
| --- | --- | --- |
| **Field** | **Value** | **Description** |
| MTI | 0390 | Other error |
| 1 | Bitmap | Indicates which fields contain data |
| 14 | OTHER ERROR | Response description |

The UI description is shown below:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  | | --- | | REPORT SALES | | OPERATION FAILURE | |  | | REASON: | | AN ERROR HAPPENS DURING TRANSACTION | |  | |  | | Press OK to return to menu | | Press any key to return to Main Menu |

**6.6. Return stock**

This feature is used to return all vouchers of a specific face value to server.

All returned vouchers are removed from TPE memory and restored to remote stock.

This is an ON-LINE transaction.

**6.6.1. Request**

Below are the arguments of request message sent to server

|  |  |  |
| --- | --- | --- |
| **Field** | **Value** | **Description** |
| MTI | 0400 | Return stock request |
| 1 | Bitmap | Indicates which fields contain data |
| 5 | MID | Merchant Identification Number |
| 6 | Password | Password of operator |
| 40 to 64 | Serial number | List of serial number separated by pipe |

For a specific face value, **all** vouchers with status **‘FREE’** are returned to server.

The format of serial numbers is:

<serial no 1> **|** <serial no 2> **|** <serial no 3> | … … … **|** <serial no 10>

The maximum serial number in a field is 10.

If more serials must be reported, it will be put in next field.

Bitmap shows which field contains data.

The UI sequence is:

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  | | --- | | MAIN MENU | | 1 CHECK LOCAL STOCK | | 2 CHECK REMOTE STOCK | | 3 PRINT PIN | | 4 DOWNLOAD PIN | | 5 REPORT SALES | | 6 RETURN STOCK | | Form Main Menu, use scroll to **‘RETURN STOCK’** and press **[OK]**, or press the **[6]** key |
|  |  |
| |  | | --- | | SELECT FACE VALUE | | 1 XAF 500 | | 2 XAF 1000 | | 3 XAF 2500 | | 4 XAF 5000 | | 5 XAF 10000 | | 6 XAF 25000 | | 7 XAF 50000 | | Use scroll to select the requested face value then press **[OK]**, or press the number that identify the face value |
|  |  |
| |  | | --- | | RETURN STOCK | | Voucher XAF [face-value] | | Number [nb-of-pin] | |  | | Press OK to confirm | | Summary of the transaction is displayed. Press **[OK]** to confirm.  For correction, press **[CORR]** key to return to Face value selection.  Any other key return to Main Menu |
|  |  |
| |  | | --- | | RETURN STOCK | | Enter Password | | + OK | |  | | | | | Enter password and press **[OK]** |
|  |  |
| |  | | --- | | DOWNLOAD | | [Various Text] | |  | |  | |  | | The terminal displays several messages indicating it is communicating with the host. These include **‘Sending’**, **‘Receiving’** and **‘Processing’** |
|  |  |

**NB:**

The MTI and MID are automatically put inside the ISO message by the device

**6.6.2. Response**

Field configuration and displayed UI are described below for each response case.

6.6.2.1. Report successful

This case happens when both authentication and return stock are successful.

The response from server is as following

|  |  |  |
| --- | --- | --- |
| **Field** | **Value** | **Description** |
| MTI | 0410 | Return stock success |
| 1 | Bitmap | Indicates which fields contain data |
| 14 | OPERATION SUCCESS | Response description |

The actions are:

* Remove PIN details which serial number has been returned successfully to server.
* The UI below is displayed.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| |  | | --- | | RETURN STOCK | | OPERATION SUCCESS | |  | |  | |  | | Press OK to return to menu | | Press any key to return to Main Menu |

6.6.2.2. Authentication error

This case happens when password is wrong or TPE is not authorized to access server.

The response from server is as following

|  |  |  |
| --- | --- | --- |
| **Field** | **Value** | **Description** |
| MTI | 0420 | Authentication error |
| 1 | Bitmap | Indicates which fields contain data |
| 14 | AUTHENTICATION ERROR | Response description |

The UI description is shown below:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  | | --- | | RETURN STOCK | | OPERATION FAILURE | |  | | REASON: | | AUTHENTICATION ERROR | |  | |  | | Press OK to return to menu | | Press any key to return to Main Menu |

6.6.2.3. Connexion error

This case happens when connexion error happens between TPE and server.

The response from server is as following

|  |  |  |
| --- | --- | --- |
| **Field** | **Value** | **Description** |
| MTI | 0480 | Connexion error |
| 1 | Bitmap | Indicates which fields contain data |
| 14 | CONNEXION ERROR | Response description |

The UI description is shown below:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  | | --- | | RETURN STOCK | | OPERATION FAILURE | |  | | REASON: | | CONNEXION ERROR DURING TRANSACTION | |  | |  | | Press OK to return to menu | | Press any key to return to Main Menu |

6.6.2.4. Other error

This case happens when an error (not describer above) happens during a transaction.

The response from server is as following

|  |  |  |
| --- | --- | --- |
| **Field** | **Value** | **Description** |
| MTI | 0390 | Other error |
| 1 | Bitmap | Indicates which fields contain data |
| 14 | OTHER ERROR | Response description |

The UI description is shown below:

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  | | --- | | RETURN STOCK | | OPERATION FAILURE | |  | | REASON: | | AN ERROR HAPPENS DURING TRANSACTION | |  | |  | | Press OK to return to menu | | Press any key to return to Main Menu |

**6.7. LOG IN FUNCTION**

POS locks down automatically after 1 minute of inactivity and sits in idle state.

On operator stimulus, log in interface is displayed.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| |  | | --- | | LOG IN | |  | |  | | 1 MUNI POS | | 2 ADMIN | |  | | To enter POS functionality, use scroll to **‘MUNI POS’** and press **[OK]**, or press the **[1]** key  To enter Administrative functionality, use scroll to **‘ADMIN’** and press **[OK]**, or press the **[2]** key |
|  |  |
| |  | | --- | | LOG IN | | Enter Password | | + OK | |  | | | | | Enter password and press **[OK]** |

6.7.1. Log in success

If MUNI POS was selected and password is correct, the Main menu is displayed.

|  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  | | --- | | MAIN MENU | | 1 CHECK LOCAL STOCK | | 2 CHECK REMOTE STOCK | | 3 PRINT PIN | | 4 DOWNLOAD PIN | | 5 REPORT SALES | | 6 RETURN STOCK | | Use scroll to needed functionality and press **[OK]**, or press the corresponding number key |

If ADMIN was selected and password is correct, Administration Menu is displayed.

6.7.2. Log in error

On wrong password, error message is displayed

|  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| |  | | --- | | LOG IN | | OPERATION FAILURE | |  | | REASON: | | WRONG PASSWORD | |  | |  | | Press OK to return to menu | | Press any key to return to Log in interface |

10 successive login failure will lock the device.

Only admin can unlock it.

**6.8. ADMINISTRATIVE FUNCTION**

There should be an administrative menu to manage :

* Server IP
* Server port number
* APN
* Date / Hour
* Reset operator password
* Unlock device
* Personalized message