Cash Out Interface Specification Low Level Design Document

**EIDIKOSYSTEMS INTEGRATORS**



Version: 1.0

Release Date:11 -08 -2020

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Document Classification: CONFIDENTIAL

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**Approval**

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**Revision History**

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| Date | Description | Version | Author |
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# Introduction

## General Description

This Interface Design document outlines the integration requirements for the Cash Out ***(Request and Response)***interface used as banking operations. It summarizes the business processes, which use this interface. It also covers error handling and exception scenarios.

# Purpose

The purpose of this document is to capture events that trigger the interface, main steps within the interface and the integration architecture. This document is intended for use by the developers of the applications identified, the integration development team, and by the test organizations responsible for the testing of these applications.

# Scope

## In Scope

This document focuses on outlining the interface design for the Cash Out***(Request and Response)***interface. Central to this document are the following:

* Overview of the business process that drives the need for the interface
* Proposed integration approach
* Trigger events and business dependencies on this interface
* Sequence /Flow Chart diagram of the interface
* Data mapping between the source and the target
* Error handling and exception scenarios
* Validation and backup requirements

# Channels Involved

The following table lists Cash Out channels

|  |  |
| --- | --- |
| **Item #** | **Channel Name** |
| 1 | Branch |

# Interface Dependencies

## External Dependencies

The following table lists interface specific External requirements.

|  |  |
| --- | --- |
| **Item #** | **External Requirements** |
| 1 | ORADSN Data Base |
| 2 | Core Banking System |

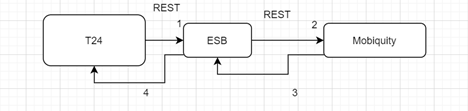
## Internal Dependencies

The following table lists interface specific internal requirements.

|  |  |
| --- | --- |
| **Item #** | **Internal Requirements** |
| 1 | HTTP Router Interface |
| 2 | HTTP Retry Interface |
| 3 | DB Logging App |
|  |  |

# Business Process Summary

## Process Overview



### Figure:1 Process flow Approach for Cash Out Transfer.

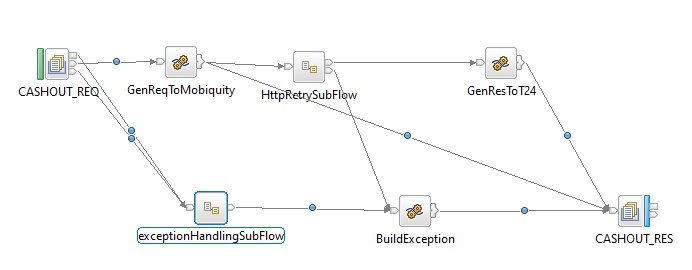
### Cash Out Step

|  |  |
| --- | --- |
| **S. No** | **Activities** |
| 1 | ESB receives the request from channel(T24). |
| 2 | Request channel is the http request accepts the request from the channel |
| 3 | ESB frames the Request According to the Mobiquity requires and send to the Mobiquity. |
| 4 | Mobiquity will Respond back to the ESB with Response |
| 5 | The same Mobiquity Response, ESB will send back to the T24 |
| 6 | On Successfull calls of Mobiquity and T24 Request and Response will be placed in the RAW\_LOG\_SB\_REQ to log the request in Data Base (RAW\_AUDIT\_LOGGING) |
| 7 | On Unsuccessfull calls of Mobiquity and T24 Request and Response will be placed in the ERROR\_LOG\_SB\_REQ to log the request in Data Base (ERR\_AUDIT\_LOGGING) |

# IIB Implementation Process Flow

## Cash Out Successful Request Response Flow

### Process Diagram



**Figure:2 Cash Out Flow**

### Process Flow Steps

|  |  |
| --- | --- |
| **S. No** | **Activities** |
| 1. | ESB receives the request from the channel(T24) using the HTTP Router Application based on processingcode trigs the Business Application(CASHOUT) using Business Queue (CO\_SB\_HTTP\_REQ) i.e Request from channel. |
| 2 | Initial request and response are logged in the RAW\_LOG\_SB\_REQ and is insert in Data Base (RAW\_AUDIT\_LOGGING) |
| 3 | After logging of request and response ESB frames the Request to backend server i.e Mobiquity server |
| 4 | After Framing the Mobiquity Request is logged in RAW\_LOG\_SB\_REQ and is insert in Data Base(RAW\_AUDIT\_LOGGING) |
| 5 | If the Mobiquity call is successful, then JSON response is generate. |
| 6 | Mobiquity Response in JSON Format is logged in RAW\_LOG\_SB\_REQ and insert in Data Base (RAW\_AUDIT\_LOGGING) |
| 7 | After ever the Response is generated by Mobiquity call same response is sending back to Channel with the help of HTTP Router Application. Here ESB frames the Channel Response (T24 Response) |
| 8 | T24 Response is logged in RAW\_LOG\_SB\_REQ and is insert in Data Base (RAW\_AUDIT\_LOGGING) |
| 9 | On Unsuccessful calls of Mobiquity and T24 Request and Response will be placed in the ERROR\_LOG\_SB\_REQ to log the request in Data Base (ERR\_AUDIT\_LOGGING) |

## Retry Process workflow

### Process Flow Diagram



**Figure:3 HTTP Retry for Cash Out**

### Process Flow steps

|  |  |
| --- | --- |
| **S. No** | **Activities** |
| 1 | HTTP Retry call is used to call the backend service for multiple times |
| 2 | On Successful call of backend service, response will be generated and send back to Business Application For further process |
| 3 | On Unsuccessful call of backend service it Retry for 3 times and sends error message to Business Application for further Process |

**7.3 Raw\_Audit Process Flow:**

**7.3.1 Process Flow Diagram:**



**Figure:4 Raw\_Audit\_Logging Flow**

**7.3.2 Process Flow Steps:**

|  |  |
| --- | --- |
| **S. No** | **Activities** |
|  | The RAW\_AUDIT locks the input Request and Response |
|  | After the query is executed the record is inserted into the Data Base. |
|  | Final Response is inserted into the Data Base and then Response is logged into the RAW\_LOG\_SB\_REQ. |

**7.4 HTTP Router Process Flow**

**7.4.1 Incoming Router Process Flow Diagram:**



**Figure:5 Incoming Router Flow**

**7.4.2 Process Flow Steps:**

|  |  |
| --- | --- |
| **S. No** | IIB receives the request from channel. |
|  | ESB receives the request from channel. |
|  | Request channel is the http request accepts the request from the channel |
|  | The request message is placed in the RAW\_LOG\_SB\_REQ to log the request in Data Base (RAW\_AUDIT\_LOGGING) |
|  | According to the Channel Request message fields such as channel and processing code it picks the queue name of the business flow from INTEGRATION\_SOL\_DETAILS table and propagates it to the business flow. |
|  | It validates the processingCode, Channel and domain of input from INTEGRATION\_SOL\_DETAILS if it fails to validate the error response is logged in the logs and in Data Base (ERROR\_AUDIT\_LOG) |
|  | After the validation Request message is passed through ESB. If the queue name presents in MQ manager the ESB business flow triggers otherwise the error response is sent to the front end as Unable to open queue. |
|  | If it is success or failure response will store them in RAW\_AUDIT\_LOG table or ERROR\_AUDIT\_LOG and logging into log file. |
|  | The request from channel is sent to ESB CashOut Flow |

**7.4.3 Integration Solution Details**

**Table Name: INTEGRATION\_SOL\_DETAILS**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Item #** | **DB Field Name** | **Field Description** | **Data Type** | **Length** | **Mandatory(Yes/No)** | **Comments** |
| 1 | PROC\_CODE | Processing Code | Varchar | 20 | Y | From input request |
| 2 | REQ\_QUEUE | TCPIP Request Queue | Varchar | 20 | N | This Request Queue Name field is used for ISO Related Application |
| 3 | RES\_QUEUE | TCPIP Response Queue | Varchar | 20 | N | This Response Queue Name field is used for ISO Related Application |
| 4 | HTTP\_REQ | HTTP Request Queue | Varchar | 20 | Y | This Request Queue Name field is used for REST Related Application |
| 5 | HTTP\_RES | HTTP Response Queue | Varchar | 20 | Y | This Response Queue Name field is used for REST Related Application |
| 6 | CHANNEL | Channel | Varchar | 20 | Y | Channel Name |
| 7 | MSGDOMAIN | Message Domain | Varchar | 20 | Y | Request Message Format |

**7.4.4 Outgoing Router Process Flow Diagram**



**Figure:6 Outgoing Router Flow**

**7.4.5 Process Flow Steps:**

|  |  |
| --- | --- |
| **S. No** | **Activities** |
|  | The OutgoingHttpRes brings the Channel Response |
|  | Channel Response will be logged in RAW\_LOG\_SB\_REQ and insert in Data Base. |
|  | Finally Channel Response will be send to the Front End. |

**7.5 Error\_Audit Process Flow**

**7.5.1 Process Flow Diagram:**



**Figure:7** **Exception Subflow**



**Figure:8** **Error\_Audit\_Logging Flow**

**7.5.2 Process Flow Steps:**

|  |  |
| --- | --- |
| **S. No** | **Activities** |
|  | The ERROR\_AUDIT\_Q locks the input Request. |
|  | After the query is executed the record is inserted into the Data Base. |
|  | Final Response is inserted into the Data Base and then Response is logged into the ERR\_LOG\_SB\_REQ. |

# Interface Definitions

## Request Message Definition

### T24 Request Message Structure /Schema

**Request Type:** HTTP

**Request Format:** JSON

**Request URL:** <http://IPAddress:Port/v1/stewardBank/>

### 8.1.2 T24 Request Message Details

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Item #** | **Tag Name/ Field Name** | **Data Type** | **Mandatory(Yes/No)** | **Comments** |
| 1 | CashOut |  | Y | Root Tag |
| 2 | Header |  | Y | Header Tag |
| 3 | Channel | String | Y | Channel Name |
| 4 | processingCode | String | Y | Processing Code |
| 5 | Body |  | Y | Body Tag |
| 6 | transactionAmount | String | Y | Amount of Transaction |
| 7 | Initiator | String | Y | Initiator |
| 8 | Currency | Decimal | Y | Currency |
| 9 | BearerCode | String | Y | Code of Bearer |
| 10 | Language | String | Y | Language |
| 11 | externalReferenceId | String | Y | External Reference Id |
| 12 | Remarks | String | Y | Remarks |
| 13 | transactionMode | String | Y | Transaction Mode |
| 14 | Transactor |  | Y | Transactor Tag |
| 15 | UserRole | String | Y | Role of User |
| 16 | IdType | String | Y | Type of Id |
| 17 | Productid | String | Y | Id of Product |
| 18 | IdValue | String | Y | Value of Id |
| 19 | Mpin | String | Y | MPIN Value |
| 20 | Password | String | Y | Password |
| 21 | Pin | String | Y | Pin |
| 22 | Withdrawer | String | Y | With Drawer Tag |
| 23 | UserRole | String | Y | Role of User |
| 24 | IdType | String | Y | Id of Type |
| 25 | Productid | String | Y | Id of Product |
| 26 | idValue | String | Y | Value of Id |
| 27 | Mpin | String | Y | MPIN Number |
| 28 | Tpin | String | Y | TPIN Number |
| 29 | Pin | String | Y | Pin |

### 8.1.3 T24 Sample Source Messages

|  |
| --- |
| {      "CashOut": {          "header": {              "channel": "Branch",              "processingCode": "020000"          },          "body": {              "transactionAmount": "2",              "initiator": "withdrawer",              "currency": "101",              "bearerCode": "USSD",              "language": "en",              "externalReferenceId": "",              "remarks": "",              "transactionMode": "",              "transactor": {                  "userRole": "Channel",                  "idType": "mobileNumber",                  "productId": "12",                  "tpin": "",                  "idValue": "783759396",                  "mpin": "",                  "password": "",                  "pin": ""              },              "withdrawer": {                  "userRole": "Customer",                  "idType": "mobileNumber",                  "productId": "12",                  "idValue": "771222810",                  "mpin": "4827",                  "tpin": "",                  "pin": ""              }          }      }  } |

### 

### 8.1.4 Mobiquity Request Message Structure /Schema

**Request Type:** HTTP

**Request Format:** JSON

**Request URL:** http://IPAddress:Port/jigsaw/serviceRequest/CASHOUT

### 8.1.5 Mobiquity Request Message Details

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Item #** | **Tag Name/ Field Name** | **Data Type** | **Mandatory(Yes/No)** | **Comments** |
| 1 | transactionAmount | String | Y | Amount of Transaction |
| 2 | Initiator | String | Y | Initiator |
| 3 | Currency | Decimal | Y | Currency |
| 4 | bearerCode | String | Y | Code of Bearer |
| 5 | Language | String | Y | Language |
| 6 | externalReferenceId | String | Y | External Reference Id |
| 7 | Remarks | String | Y | Remarks |
| 8 | transactionMode | String | Y | Transaction Mode |
| 9 | Transactor |  | Y | Transactor Tag |
| 10 | userRole | String | Y | Role of User |
| 11 | idType | String | Y | Type of Id |
| 12 | Productid | String | Y | Id of Product |
| 13 | idValue | String | Y | Value of Id |
| 14 | Mpin | String | Y | MPIN Value |
| 15 | Password | String | Y | Password |
| 16 | Pin | String | Y | Pin |
| 17 | Withdrawer |  | Y | With Drawer Tag |
| 18 | userRole | String | Y | Role of User |
| 19 | idType | String | Y | Id of Type |
| 20 | Productid | String | Y | Id of Product |
| 21 | idValue | String | Y | Value of Id |
| 22 | Mpin | String | Y | MPIN Number |
| 23 | Tpin | String | Y | TPIN Number |
| 24 | Pin | String | Y | Pin |

### 8.1.6 Mobiquity Sample Source Messages

|  |
| --- |
| {  transactionAmount": "2",              "initiator": "withdrawer",              "currency": "101",              "bearerCode": "USSD",              "language": "en",              "externalReferenceId": "",              "remarks": "",              "transactionMode": "",              "transactor": {                  "userRole": "Channel",                  "idType": "mobileNumber",                  "productId": "12",                  "tpin": "",                  "idValue": "783759396",                  "mpin": "",                  "password": "",                  "pin": ""              },              "withdrawer": {                  "userRole": "Customer",                  "idType": "mobileNumber",                  "productId": "12",                  "idValue": "771222810",                  "mpin": "4827",                  "tpin": "",                  "pin": ""              }          } |

### 8.1.7 Data Base Response Codes

001 = "Fatal Exception";

002 = " Recoverable Exception ";

003 = "Configuration Exception";

004 = "Security Exception";

005 = "Parser Exception";

006 = "Conversion Exception";

007 = "Data Base Exception";

008 = "User Exception";

009 = "Cast Exception";

010 = "Message Exception";

011 = "SQL Exception";

012 = "Socket Exception";

013 = "Socket Timeout Exception";

014 = "Unknown Exception";

015 = "Failure";

## Response Message Definition

### T24 Response Message Structure/Schema

**Response Type:** JSON

### Mobiquity Response Message Details

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Item #** | **Tag Name/Field Name** | **Data Type** | **Mandatory(Yes/No)** | **Comments** |
| 1 | ReceiverLastName | String | Y | Receiver Last Name |
| 2 | senderMobileNumber | String | Y | Sender Mobile Number |
| 3 | ServiceRequestId | String | Y | Service Request Id |
| 4 | MfsTenantId | String | Y | Mfs Tenant Id |
| 5 | SenderFirstName | String | Y | Sender First Name |
| 6 | ServiceFlow | String | Y | Service Flow |
| 7 | TransactionId | String | Y | Transaction Id |
| 8 | Message | String | Y | Message |
| 9 | originalServiceRequestId | String | Y | Request Id of Original Service |
| 10 | TxnStatus | String | Y | Status of Transaction |
| 11 | receiverMobileNumber | String | Y | Mobile Number of Receiver |
| 12 | ReceiverFirstName | String | Y | Receiver Last Name |
| 13 | SenderLastName | String | Y | Sender Last Name |
| 14 | Remarks | String | Y | Remarks |
| 15 | Status | String | Y | Status |

### 8.2.3 Mobiquity Sample Response Messages

|  |
| --- |
| {  "receiverLastName": "VHENEKA",  "senderMobileNumber": "771222810",  "serviceRequestId": "fe41aad7-e133-410f-a732-a1f94222074e",  "mfsTenantId": "mfsPrimaryTenant",  "senderFirstName": "Vimbai",  "serviceFlow": "CASHOUT",  "message": "Cash Out transaction of RTGS$ 2 has been successfully completed between the sender: 771222810 VimbaiNhira and receiver: DAYTAL INVEST VHENEKA. Txn ID: CO200729.1245.000633",  "transactionId": "CO200729.1245.000633",  "originalServiceRequestId": "fe41aad7-e133-410f-a732-a1f94222074e",  "txnStatus": "TS",  "receiverMobileNumber": "783759396",  "receiverFirstName": "DAYTAL INVEST",  "senderLastName": "Nhira",  "remarks": "",  "status": "SUCCEEDED  }          } |

### 8.2.4 T24 Response Message Details

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Item #** | **Tag Name/Field Name** | **Data Type** | **Mandatory(Yes/No)** | **Comments** |
| 1 | CashOut | String | Y | Root Tag |
| 2 | Header | String | Y | Header Tag |
| 3 | channel | String | Y | Channel Name |
| 4 | processingCode | String | Y | Processing Code |
| 5 | Status | String | Y | Status |
| 6 | ResponseCode | String | Y | Response Code |
| 7 | Body | String | Y | Body Tag |
| 8 | ReceiverLastName | String | Y | Receiver Last Name |
| 9 | senderMobileNumber | String | Y | Sender Mobile Number |
| 10 | ServiceRequestId | String | Y | Service Request Id |
| 11 | MfsTenantId | String | Y | Mfs Tenant Id |
| 12 | SenderFirstName | String | Y | Sender First Name |
| 13 | ServiceFlow | String | Y | Service Flow |
| 14 | TransactionId | String | Y | Transaction Id |
| 15 | Message | String | Y | Message |
| 15 | originalServiceRequestId | String | Y | Request Id of Original Service |
| 16 | TxnStatus | String | Y | Status of Transaction |
| 17 | receiverMobileNumber | String | Y | Mobile Number of Receiver |
| 18 | ReceiverFirstName | String | Y | Receiver Last Name |
| 19 | SenderLastName | String | Y | Sender Last Name |
| 20 | Remarks | String | Y | Remarks |
| 21 | Status | String | Y | Status |

### 8.2.5 T24 Sample Response Messages

|  |
| --- |
| {      "CashOut": {          "header": {              "channel": "Branch",              "processingCode": "020000",              "status": "SUCCESS",              "responseCode": "200"          },          "body": {  "receiverLastName": "VHENEKA",  "senderMobileNumber": "771222810",  "serviceRequestId": "fe41aad7-e133-410f-a732-a1f94222074e",  "mfsTenantId": "mfsPrimaryTenant",  "senderFirstName": "Vimbai",  "serviceFlow": "CASHOUT",  "message": "Cash Out transaction of RTGS$ 2 has been successfully completed between the sender: 771222810 VimbaiNhira and receiver: DAYTAL INVEST VHENEKA. Txn ID: CO200729.1245.000633",  "transactionId": "CO200729.1245.000633",  "originalServiceRequestId": "fe41aad7-e133-410f-a732-a1f94222074e",  "txnStatus": "TS",  "receiverMobileNumber": "783759396",  "receiverFirstName": "DAYTAL INVEST",  "senderLastName": "Nhira",  "remarks": "",  "status": "SUCCEEDED"          }      }  } |

# 

# Logging Mechanism

**9.1 Insert into Raw\_Audit\_Table**

**Table Name: RAW\_AUDIT\_TABLE**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Item #** | **DB Field Name** | **Field Description** | **Data Type** | **Length** | **Mandatory(Yes/No)** | **Comments** |
| 1 | MSGID | MessageID | Varchar | 100 | Y | From input request |
| 2 | LOGGING\_TIME | Logging Time | TimeStamp | 6 | Y | Name |
| 3 | MESSAGE | Message(Request/Response) | Clob | - | Y | Request from channel |
| 4 | MESSAGETYPE | Type of Message(Request/Response) | Varchar | 100 | Y | Type of message either Request or Response |
| 5 | APPNAME | Application Name | Varchar | 100 | Y | Name of the Application |
| 6 | BROKER | Broker Name | Varchar | 100 | Y | Broker Name |
| 7 | TIME\_LOCAL\_TRANSACTION | Transaction Time | Varchar | 20 | Y | Time of the Transaction |
| 8 | DATE\_LOCAL\_TRANSACTION | Transaction Date | Varchar | 20 | Y | Date of the Transaction |
| 9 | RETRIEVAL\_REFERENCE\_NUMBER | Retrieval Reference Number | Varchar | 20 | Y |  |

**9.2 Insert into Error\_Audit\_Table**

**Table Name: ERROR\_AUDIT\_TABLE**

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
| **Item #** | **DB Field Name** | **Field Description** | **Data Type** | **Length** | **Mandatory(Yes/No)** | **Comments** |
| 1 | MSGID | MessageID | Varchar | 50 | Y | From input request |
| 2 | LOGGING\_TIME | Application Name | Timestamp | 50 | Y | Time of the logging |
| 3 | MESSAGE | Message Type(Request/Response) | Clob | 50 | Y | Request of the Message |
| 4 | MESSAGETYPE | Message Type | Varchar | 50 | Y | Type of message either Request or Response |
| 5 | APPNAME | Application Name | Varchar | 4000 | Y | Name of the Application |
| 6 | BROKER | Broker Name | Varchar | - | Y | Name of the Broker |
| 7 | ERRORDESCRIPTION | Exception | Clob | 4000 | Y | Exception Information |
| 8 | TIME\_LOCAL\_TRANSACTION | Transaction Time | Varchar | 20 | Y | Time of the Transaction |
| 9 | DATE\_LOCAL\_TRANSACTION | Transaction Date | Varchar | 20 | Y | Date of the Transaction |
| 9 | RETRIEVAL\_REFERENCE\_NUMBER | Retrieval Reference Number | Varchar | 20 | Y | Retrieval Reference Number |
| 10 | BORKER\_ERROR\_CODE | Broker Error Code | Varchar |  | Y | Error code generate by Broker |
| 11 | USER\_DEFINE\_ERROR\_CODE | User Defined Error Code | Varchar |  | Y | User Defined Code |

## 9.3 File Based Logging

### 9.3.1 Log4j

As part of auditing the request we have to use Log4j mechanism in the application to log the request in the file.

File Path: To be specified, while deploying the application