Project Report for MT to MX Conversion

Customer Credit Transfer

Zishan Ahmad

Harsh Gupta

Vatsal Sinha

Sagar Raj

Yogesh Raj

Abstract

This specification is a Payment Method specification for use with the Payment Request API. With it, merchants and payers can exchange information required for Cross Border credit transaction across payment system, by converting MT103 message (sample input file) to pacs008 MX message sample (XML file).

Abstraction

- The user will upload the MT file request in the Upload API from where the file will be uploaded in the local uploads file directory through a middleware. An upload message will be displayed.
- Then the user can verify this MT file by making the verification request in the Verification API. The verification is done in all levels: Application Header, Basic Header Validation, Block Breaker (sections of MT file input format), Text Header, User Header and Trailer Header. The validation is done on basis of the length of the message and the parenthesis checking along with reading of the instructed tags of control. If the validation fails the appropriate message will be displayed to the user.
- After the validation of the MT file format the user can request for the MT to MX file conversion and the current file will be converted to the XML format using the MT to MX conversion logic. (In the getMX function API). <<The conversion rules are predefined>>.
- This MX file is returned to the user at the requested Endpoint for completing the transaction request.

Introduction

The input message from credit sender is taken into the system in SWIFT MT message format from a file directory endpoint or a rest endpoint. Message can be received in BULK. After receiving the message, processing on this input text is done. In processing, input message shall be structurally verified as SWIFT MT message. Input message con tent shall be

semantically verified against a stimulated core banking service, all messages with errors shall be deposited in a DLQ(Dead Letter Queue). After processing the MT format input is transformed into the MX PACS.008 format, output will pass through different message integration endpoints. Final output will be in MX PACS.008 message format.

Decomposition

PHASE-1

Going through the problem statement and understanding the demand of problem statement. Going through the problem statement we have to create 5 step verification process.

1.BASIC HEADER: The only mandatory block is the basic header. The basic header contains the general information that identifies the message, and some additional control information about the transaction process. The FIN interface automatically builds the basic header.

2.APPLICATION HEADER: The application header contains information that is specific to the application in use. The application header is required for messages that the users or the system and users, exchange. Exceptions are session establishment and session closure.

3.USER HEADER: The user header is an optional header. It consists of small details like the time and date of the generation of the transaction request and the Message Input Reference address (of the device), Banking Priority flags and check flags. **NOTE:** The User Header is not a mandatory field which means it is not always available until and unless the transaction method requests for it in specific transactional requests.

4.TEXT: The text is the actual data related to the transfer. It contains the transaction id and the account connection addresses along with the amount to be transferred and the valid format file of the transaction.

5.TRAILERS: The trailer either indicates special circumstances like return message and resending details and code which is relate to message handling. It also contains security

information like the checksum of the message for error detection at the receivers end and the message authentication code (MAC value).

PHASE-2

After verification process over we will now convert MT format (generally the MT 103 format file) to MX format (generally the PACS.008 XML format file).

POINT TO REMEMBER: Message type (MT) messages are structured according to the specifications of the ISO 15022 standard, using the FIN protocol.

MT messages are followed by a three-digit number:

- The first digit indicates the message category
- The second digit indicates the message group
- The third digit specifies the message type

MX messages are structured according to the ISO 20022 standard and use the XML protocol.

The MX message is composed of four parts:

- 4 alpha characters indicate the message type
- 3 alphanumeric characters identify the message number
- 3 numeric characters highlight the message variant
- 2 numeric characters indicate the version number

PHASE-3

In this phase we will create API'S for

1)Verification (of the input file structure and then verification of the input detail from bank database as well)

2)File Upload (from the Input stream/queue)

3) To get MX file (after transforming the MT 103 format to the PACS.008 XML format)

4) Upload the MX file to the Output Endpoint Stream of requested target by the Transaction

PHASE-4

This is the last phase of the application. It includes the deployment of the APIs on the suited platforms and connected on the backend server level to work together for the completion of the transactions in the required and requested manner i.e file format in MX PACS.008 format and all verifications performed and validated both in terms of text format details and details and request verification from bank payment interface.

Feasibility Report

Pre-Requisite:

An MT103 is an international standard message format that banks and financial institutions use in the SWIFT network in order to instruct a transfer of funds from one customer to another customer.

The MX PACS.008 ISO 20022 message stands for “Financial Institution to Financial Institution Customer Credit Transfer”. The pacs.008 is the file format in which banks exchange payments with one another. Depending on the procedure, individual transfer orders (SCT Inst, SWIFT, TARGET2) or a large number of transfers in one file (SEPA SCT) are transmitted.

Feasibility of MT 103 format Conversion to MX PACS.008 XML format conversion:

- The demand by the banks and transfer service providing systems is very high.
- MX format allows faster transfers with more detailed data and larger bulks of data as well (system can send and processes multiple transfer requests from one file).
- The banking systems make mistakes in comprehending the complex and heavy files of MT format, rolling back and re-transfers cost time and money which will be avoided by using the MX format.
- Saves transaction time and load on servers thus utilizing lesser expensive resources
- XML format is easy to read and produce, thus the conversion process does not demand heavy capital to set up the new code.
- XML files are lightweight and APIs can be handled much easily thus the load on the server gets distributed and run time errors are also reduced.
- The system upgrade is to be done in multiple phases to keep the current system working and providing the services to the live customers and clients without

interruptions. This can be managed with little overwork and wise management of the banking institutions.

- As per original plan of SWIFT> MT category 1, 2 and 9 messages used in cross-border and cash reporting payments will be decommissioned in November 2025.

Conclusion:

MT to MX conversion is in demand/need, it is highly efficient, easy to code and distribute/host on the servers and it is net cost efficient as it makes more transfers and lesser errors in the transactions. The Conversion Plan of phase wise shifting to the new code base is manageable and the basic needs and infrastructure is already available around the world. Thus, this project is **HIGHLY FEASIBLE**.