

ISO 20022

ISO 20022: A Deep Dive on the SWIFT Transaction Management Platform – Part II



From 2022 onwards, SWIFT's Transaction Manager will enable end-to-end transaction management, resulting in instant and frictionless domestic and cross-border payments. The new platform will play a fundamental role in facilitating interoperability for RTGS systems and correspondent banks during the ISO 20022 coexistence phase – the period between November 2022 and November 2025 in which both MT and MX messages will continue to be supported. As part of the 8th event in our ISO 20022 Webcast Series special guest, Stephen Lindsay, Business Lead, SWIFT Platform Evolution at SWIFT, was invited to take us through the latest developments impacting the Transaction Manager.

Strategy Delivery

SWIFT aims to work towards a payments landscape that is instant and frictionless to serve the ever-evolving needs of the user community. This includes today's needs, as well as those that are emerging – particularly from the higher growth areas of the market, such as SME and consumer payments.

Strategy delivery is underpinned by three pillars:

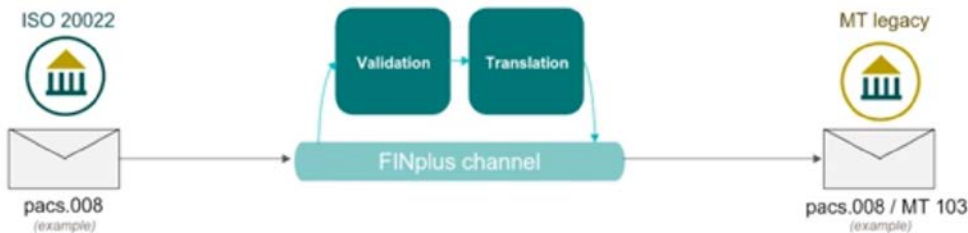
- **Rich data:** The cross-border payments industry is migrating from MT to ISO 20022 messages (or "MX messages"), with the aim of providing participants with richer data, improved insights, increased levels of automation and a host of new, value-added services. The decision to migrate to the new standard followed a consultation with the community – and was approved by the SWIFT board in 2018. One of the key outcomes of the consultation was that the move to ISO 20022 could not be achieved using a 'Big Bang' approach. It was, therefore, decided that the ISO 20022 migration would have to follow a phased approach. This brought about the notion and need for message translation – ensuring that ISO 20022 users can adopt the standard and send those messages to anyone in their network if they have the requirements, while at the same time, ensuring MT users can continue to process those messages in their back office. To achieve this, it is crucial that SWIFT is able to provide the receiver with not only the translated message, but also the original, which might contain richer data. SWIFT plans to use the InterAct protocol using the multi-format MX messages (containing the original and translated messages) – and it is mandatory that all banks update their interface to ensure they are able to receive such MX messages by November 2022.
- **API Channel:** The industry is moving from a purely messaging world to one where SWIFT is going to enable APIs to be used for payments processing. This is opt-in only – and there is no mandatory action for the end-user to take.
- **Instant and Frictionless:** SWIFT is also moving from the notion of passively tracking transactions and responding retrospectively as they move through their lifecycle, to active transaction management. This has many advantages, including end-to-end certainty on data and simplified access to data services for payment quality. This is going to be maintained centrally and that will bring systemic improvements for correspondent banking. It does not require any mandatory action from the end-user.

In-flow Translation

The in-flow translation is one of the key components of the evolved SWIFT platform. It is a generic translation service built into the messaging channel and will provide interoperability between ISO 20022 users and MT users (see Figure 1).

1. The ISO 20022 user (on the left) creates a pacs.008 message and sends it through the FINplus channel.
2. Once the message arrives centrally at SWIFT it is validated according to the validation rules for pacs.008, and also with those formulated by the CBPR+ Working Group. This ensures that the ISO 20022 message is configured and populated suitably for the cross-border use case.
3. Since the receiver is an MT user, once the validation is complete the message will then be translated into the MT equivalent, which in this case is the MT103 message.
4. The original and translated messages are then packaged together into a single, multi-format MX envelope message, which is delivered to the MT user via the FINplus channel. The MT user's interface provider – whether that is SWIFT Alliance, Alliance Messaging Hub (AMH) or a third-party equivalent – will then unpack this multi-format message and provide it to the user in whichever format they prefer, which in this case would be the MT format.

Figure 1: The concept of an in-flow translation



The purpose of this translation is to ensure that banks that are not yet ready to process ISO 20022 not only continue to receive the full data set, but also in a format that is compatible with their back-office processing. From November 2022, this service is going to be enabled for all users on an opt-out basis, with the default configuration of the interface software set to process and group the message as if it were an MT upon installation.

In-flow translation and Transaction Manager

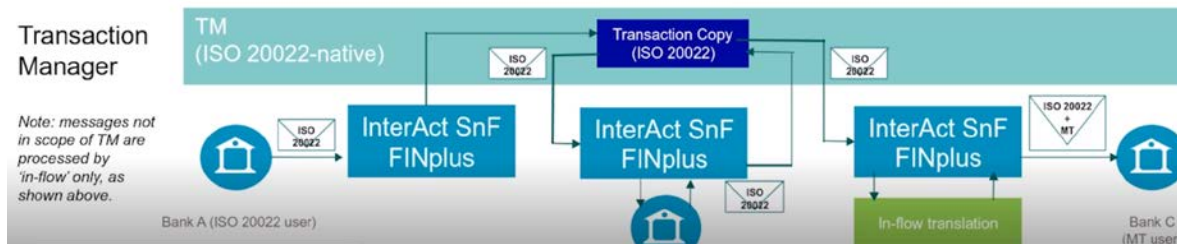
Looking at this process in more detail, Figure 2 shows a standard in-flow translation.

- In the first exchange between Bank A and Bank B, there is no translation taking place. This is because Bank B has opted out of translation – meaning that they will receive the ISO 20022 message sent by Bank A without any further embellishment.
- In the second exchange between Bank B and Bank C (an MT user) the translation is switched on. This means that the message will be routed through the translator and Bank C will receive a multi-format MX message that contains both the MT and ISO formats.

Figure 2: A standard in-flow translation



- Figure 3 shows how the Transaction Manager can be embedded into this process. The Transaction Manager provides a number of additional value-added features to the in-flow translation, making sure, for example, that the integrity of the transaction data is maintained end-to-end. In the first exchange between Bank A and Bank B the same process as above is followed, barring one additional step. Instead of the message going directly to Bank B, it is first routed through the Transaction Manager layer. Here, the various rules that apply to the transaction copy are processed and maintained ahead of the message being released and sent to Bank B.
- In the second exchange, the ISO 20022 message is sent from Bank B and it is once again routed through the Transaction Manager. In this example, Bank C is an MT user. This means that the message is still routed through the translator and – as with the above example – Bank C will then receive the multi-format MX message.



Customer Pilot

Figure 4: Customer Pilot Scope

SWIFT and the participating banks (which consisted of banks from different regions and of different sizes) conducted 11 test scenarios, which were split as follows:

- **Five “happy flows”**: scenarios where everything ran through smoothly with no data truncation or complications of any kind.
- **Six “unhappy flows”**: scenarios that necessitated truncations and warnings. For example, if an ISO 20022 message contained data that simply couldn't fit into the MT equivalent, SWIFT would send a warning of this to the receiving bank. This warning was also sent to the bank's interface – identifying the fact that some of the information needed for sanctions screening and other important back-office processes may not be available in the translated message itself.
- All test scenarios were successfully executed between June 7-13.

With the pilot complete, SWIFT is now moving ahead with the project:

- As of July 2021, the software that will deal with the multi-format MX messages has been made available for SWIFT interface customers.
- From November 2021, the pilot infrastructure will be made available to all participants, enabling customers to begin the coordinated testing phase.

Transaction Manager and gpi Tracker

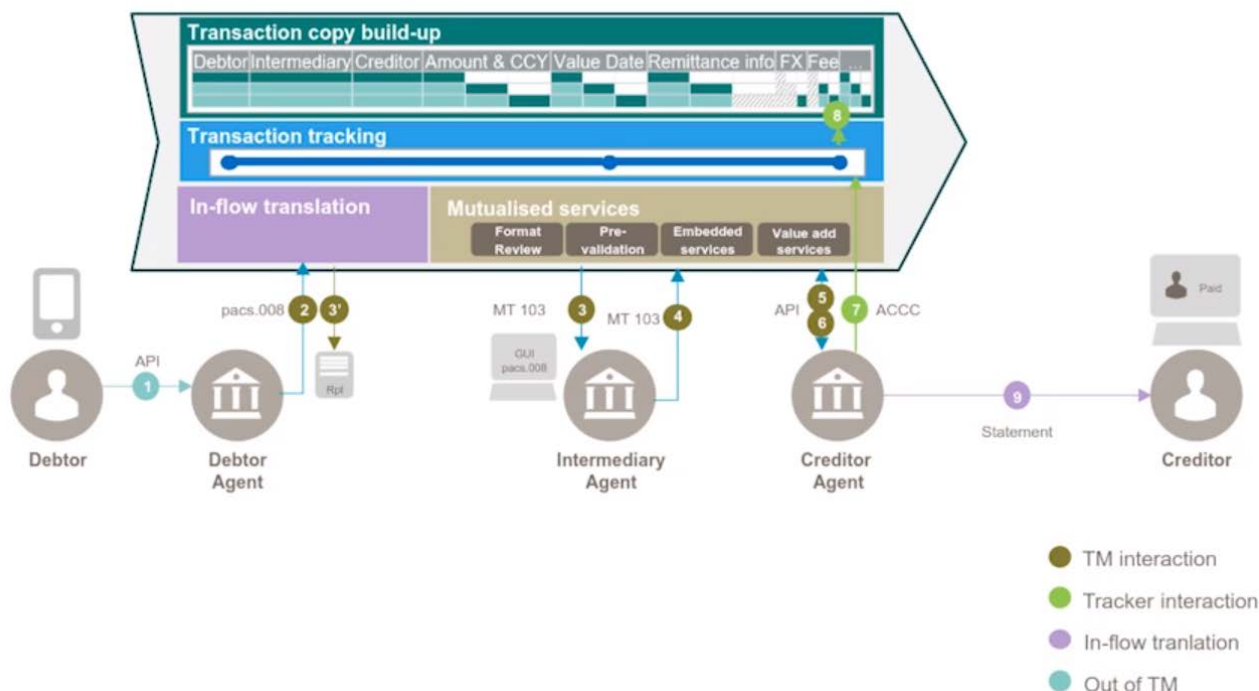
The Transaction Manager and the SWIFT gpi Tracker work together throughout the end-to-end transaction process.

- The Transaction Manager keeps and maintains a complete copy, an authoritative reference to the transaction, which is shared by all the participating parties.
- The gpi Tracker keeps track of everything that has happened to the transaction as it goes through its lifecycle, irrespective of the channel on which that update was made – whether ISO 20022 over InterAct, an MT over FIN or a message through the API gateway.

The below example of an end-to-end flow of a consumer-to-business transaction (see Figure 4) illustrates how data integrity is maintained end-to-end, as well as how the Transaction Manager relates to the gpi Tracker:

1. Debtor initiates payment.
2. Debtor agent initiates the payment using ISO 20022 MX (pacs.008) over SnF FINplus.
3. Once received by SWIFT, the payment is:
 - a. Reviewed for formatting.
 - b. When the sender/receiver is subscribed, they are screened for TSS and/or PCS. Checks are performed on the full dataset and the payment would not proceed until all hits are cleared in the FCC interface.
 - c. Run through pre-validation to verify beneficiary account accuracy and whether the payment is valid, as per the relevant currency guide.
 - d. Fed to the Tracker for tracking and SLA validations.
 - e. Stored as the initial transaction copy for its UETR.
 - f. Forwarded as a multi-format MX over SnF FINplus based on the receiver's preference, built from the transaction copy.
4. Intermediary Agent can access rich data through the Tracker, where the full dataset of the received message is available. The agent processes and sends the payment using FIN (MT103).
5. Transaction Manager captures the MT103 and the following occurs:
 - a. Steps a, b, c and d in the third step are repeated.
 - b. The payment is stored as an update to the Transaction copy.
 - c. Made available for API query, based on receiver's preference, built from the Transaction copy
6. Creditor Agent queries the full Transaction copy via API, including the information present in the original pacs.008. Typically, if an API is being used, as opposed to a standard message, only the data that has changed is sent, rather than the complete transaction.
7. Creditor Agent sends credit confirmation to the Tracker (gpi or UC)
8. The Tracker feeds confirmation to Transaction Manager into the transaction copy
9. Creditor receives statement, potentially with in-flow translation

Figure 4: Example of consumer-to-business transaction (end-to-end flow)



End-to-end integrity and data enrichment

Today, messages are sent point-to-point. A sender will send a message to the receiver, and the receiver will then process this and forward on their own message. The interaction between the two points is guaranteed and protected by a signature, meaning that strong data integrity is ensured from a point-to-point perspective. From an end-to-end perspective, however, there is nothing to stop the data being overwritten, truncated or removed – and this is something that SWIFT can neither detect nor prevent under the current model.

The Transaction Manager can perform on-the-fly validations to maintain high levels of data quality (see Figure 5) – helping to increase STP rates and prevent some of the data abuse that can occur today. Key features include:

- **“CRUD”**: Agents (Debtor Bank, Intermediary, Creditor Bank) are allowed to **Create, Read, Update or Delete** (CRUD) transaction copy data elements, but only in line with their defined role in the transaction.
- **Log + Accept/Ignore/Reject**: In order to achieve the right balance between preserving the integrity of the transaction end-to-end and allowing business to continue, the Transaction Manager will be flexible in managing exceptions. For example, if an intermediary attempts to overwrite a piece of data SWIFT can agree whether to accept the update, reject the update with a warning or stop the transaction.

Figure 5: Enabling end-to-end integrity with the Transaction Manager

Point-to-point validations	End-to-end validations	Business value
Apply syntax validations, and resolve straight-through processing issues post hoc	Extend with role-based on-the-fly validations	Provides stricter validation during payment processing, which leads to better quality
Message-level integrity (AKA sender to receiver)	Extend with end-to-end integrity preservation	Unaltered rich data across the entire transaction
Channel capabilities drive data richness	Extend to channel-agnostic data richness (based on ISO 20022)	Keep current network reach even when evolving channels

The discussions around how exactly to formulate the rules for the platform and payment data integrity, whilst minimizing disruption, are still ongoing – and SWIFT is exploring the appropriate approach together with the community.

Figure 6 highlights examples of how the Transaction Manager brings opportunities to further reduce friction.

Figure 6: Examples of how the Transaction Manager can reduce friction		
Transaction Manager's opportunities to further reduce friction	Examples	Initial group directional feedback
Replace data based on structured historical data	Transaction Manager overwrites intermediary's free text for Ordering Bank data with originator's structured data (BIC)	Valuable use case
Complement with useful payment data	Transaction Manager complements second intermediary's data by mentioning the first intermediary agent as previous instructing agent	Valuable use case
Ignore unwanted update and deliver historical data	Transaction Manager overwrites intermediary's remittance data with the data from the debtor	Conditionally supported, pending the clarification on fixed data fields

Community Readiness

To ensure timely preparation for November 2022, participants should take the following steps:

- **Upgrade your messaging interface:** The only mandatory action required for all institutions is to update their messaging interface (supporting InterAct store-and-forward). Participants must implement this release by November 2022 at the latest.
- **Decide on delivery channel and format:** Participants should decide on the channel and format that the Transaction Manager should use to deliver traffic to them. The default format is "ISO 20022 with embedded MT". Participants can change this (to ISO 20022 via InterAct or API) or define more granularity by accessing a configuration screen provided by SWIFT.
- **Consider your compliance obligations:** Participants should be prepared to perform sanctions screening for the complete dataset, even if they only consume the MT format. It may also be a requirement to archive complete data.

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