



VERSION **3.0**

swiftmessagingcenter

A MIDDLEWARE WITH A LOGIC

SEAMLESSLY
CONNECTING
YOUR SYSTEMS
USING **SMC**®



SMEX
technology solutions

2014 - version 14.09.06



VERSION **3.0**
swiftmessagingcenter
A MIDDLEWARE WITH A LOGIC

The Swift Messaging Center or SMC is a client-server middleware application capable of seamlessly integrating hybrid environments and systems that use different data formats, without any need to alter the source or destination.

More specifically, SMC empowers banks and financial organizations to efficiently use the Straight Through Processing capabilities, transforming data to/from their back-end applications and the various standard messaging systems.

The power behind SMC lies in:

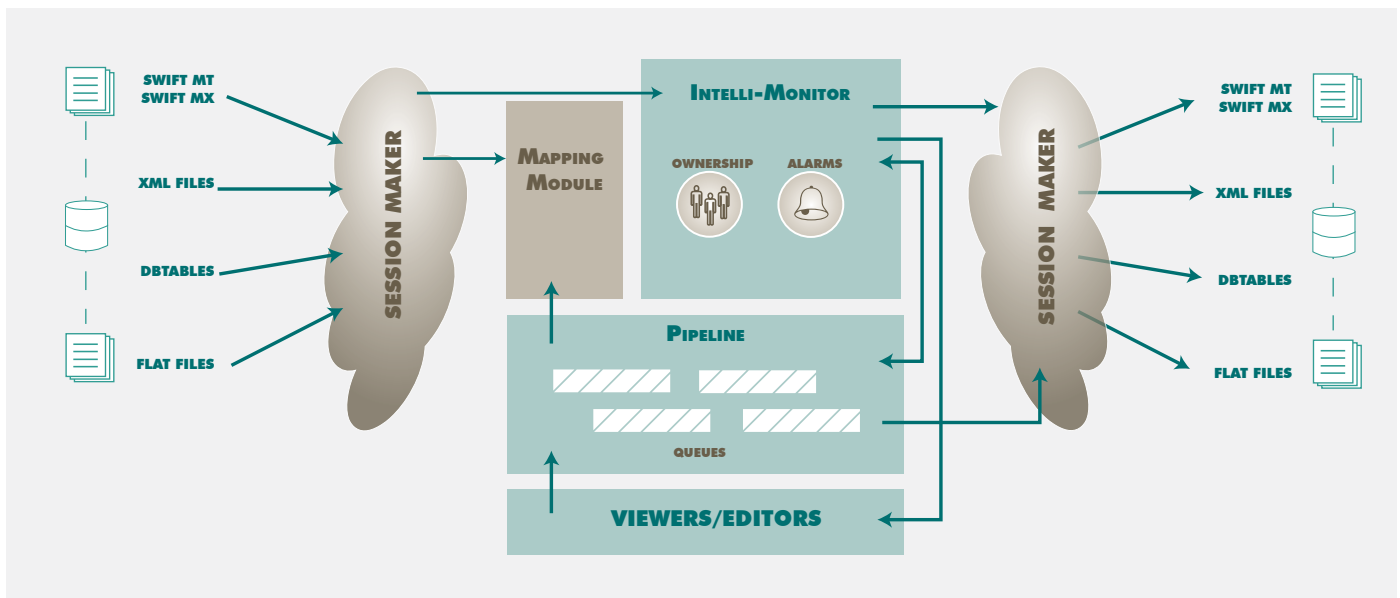
- » transforming SWIFT messages into data that maps directly to your business
- » integrating your own business rules
- » monitoring and tracking information in and out of your systems
- » empowering straight-through-processing (STP) capabilities directly into your data center
- » segregating ownership of data
- » offering customized search and reporting based on your business needs

Features

SMC offers a full range of features required to act as a complete middleware application:

- generates and receives SWIFT-compliant messages (MT and MX)
- transforms SWIFT messages to / from proprietary formats and business structures
- integrates with back-office applications seamlessly, avoiding the need of modification on your back-end system
- supports simultaneously multiple message syntax tables versions (MSTV)
- validates incoming message formats
- supports format normalization and field calculation in mapping
- provides automatic processing of notification messages (successful / rejected payments)
- supports multi-threading for maximum performance and speed
- empowers straight-through-processing (STP) capabilities through custom mapping
- offers the possibility for automatic message enrichment (generation of NPS-specific codes)
- allows for real time monitoring of incoming and outgoing data
- creates customized search queries and reports based on your business needs
- data archiving
- message printing
- accounts for system management including:
 - full event logging
 - error monitoring
 - config backup
- enables business logic by using customizable pipelines (queuing)

SMC LOGICAL DIAGRAM



Data Handling

- handles all types of NPS-related data flows:
 - incoming /outgoing payments
 - payment confirmations
 - reversal payments
 - reconciliation messages
- supports the following data formats (incoming and outgoing):
 - Swift MT and MX
 - Flat Files
 - XML
 - DbTables
- connects using any of the following data transfer methods
 - FTP
 - Windows folders
 - Webshpere MQ
 - Database
 - Script-driven
 - SOAP * (under development)
- preserves data integrity by restricting any direct / manual data manipulation

Mapping

Mapping Modules scan through the text block of the messages and extract the fields that will be monitored, filtered upon and stored in data tables that can be accessed by the user's legacy system. In addition to these fields, the message is stored in its integrity for reference.

The data extraction process is fully configurable. Mapping Modules can be reconfigured by the user to account for any changes that might occur on the original/destination message format.

SMC's Mapping Module can handle the transformation between any two of the supported formats, with the following features:

- Parent-Child Mapping
- Mapping schemes
- Fully customizable data type conversion
- Embedded Scripting
- Many-to-one type mapping (many sources converging into one target)
- On-the-fly reference data fetching (external data sources)

SMC CORE

The Core of the SMC has four basic modules:

Session Makers

Represent the boundary of SMC and their type can either be "Input" that has the function of "listening" to various sources for input data and importing this data in structures onto the SMC database; or "Output" that can channel message instances to different destinations (files on folders, MQ etc...).

Message Type Formats & Field Formats

These designers allow the user to view/build any message type from Swift (ISO 7775, 15022 & 20022). Multiple message syntax versions are supported.

Business Structures

This defines the "business" metadata part of imported SWIFT messages. Each business structure reflects the pure business service that the user is offering or working with.

Parser Engine

Here the messages are browsed and decoded into their basic blocks (Header, Text & Trailer in case of SWIFT MT) and copies of the source files are stored in a backup folder structure.

The Text part of the message is also internally organized according to supported Message Type Formats (SMC has license specific messages)

User policies

User policies define access permissions based on user profiles. It also defines reporting and search views available to different user groups, offering custom results based on message ownership and user profiles mapping.

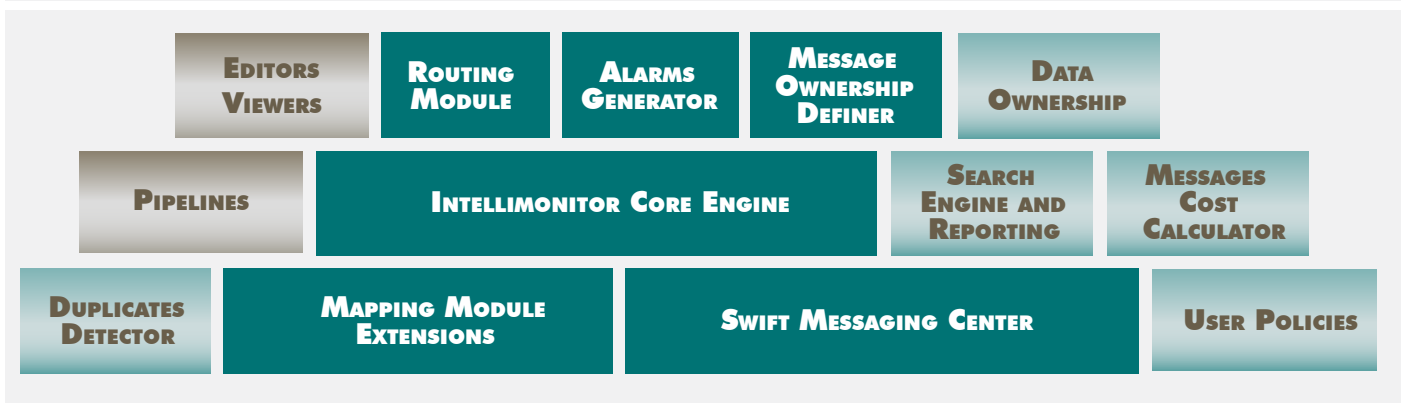
Monitor View

This module allows for monitoring results, checking on the status of messages, and showing summary data based on Queries defined by the user and in accordance with data ownership.

Multithreading

SMC Supports multithreading to maximize the use of the server resources, which enables better performance and speed.

SMC CORE & INTELLIMONITOR MODULES



INTELLIMONITOR

The IntelliMonitor Core Application is a message monitoring and filtering application that is built on top of the SMC core application to process business messages based on defined rules creating different messages pools.

The IntelliMonitor:

- Receives preparation messages (authorized messages prepared by the client's legacy system) or real messages (depending the type on the input session maker).
- Defines conditioning rules and exception rules based on which messages are filtered. Rules can relate to the message or to any related message (child or parent message) that is critical to filtering.
- Defines an action to be applied on messages that satisfy the filter rule and another in case of violation. The three actions available so far include: routing, alarm generation, ownership definition.

IntelliMonitor modules include:

Routing

This modules allows for routing filtered messages to pipelines, output sessions or folders:

- Messages can be sent automatically if all rules are satisfied, and forwarded to the pool of SENT items.
- Messages that are detected to answer any violation rule will be tagged for manual processing, and forwarded to special pools based on blocking rule.
- The logic of each rule can be coded directly using native Visual Basic TM language inside SMC's Code Manager.
- The Routing Module can be customized to allow special data extraction and manipulation.

Alarm Generation

This module allows for generating alarms when messages matching certain criteria are detected during the filtering process. The action will be to generate an alarm based on specific policies for alarm generation. Each Alarm is coupled with a delivery object capable of sending emails to a single or a group of persons

Message Ownership Definer

Another action that can be applied based on message filtering criteria is to define ownership for message, allowing for message visibility by specific user groups. This feature requires User Policies to be enabled.

PIPELINES

SMC pipelines represent the queuing engine of the software. Basically they enable the workflow management of data instances. The user can choose to manually or automatically route the message instances from one pipeline to another.

Each pipeline can be configured to accept certain types of the data (i.e. MT, MX or Flat files ... etc).

Pipelines are also ownership driven. So access can be given to certain user groups with specific allowed destinations when accepting or rejecting message instances. This enables the multi-level authorization management.

Routing

Pipelines allow for the following operations to be performed on stored instances:

1. **Accept:** the status of the instance is changed from Ready to Accepted, then routed out
2. **Reject:** the status of the instance is changed from Ready to Accepted, then routed out
3. **Redirect:** the instance is redirected to another pipeline. The list of destinations is configurable
4. **Exit:** The instance is deleted from the pipeline

Destinations

Once an instance is exited out, the allowed destinations can be one of the following:

- One or more maps
- IntelliMonitors
- Another pipeline
- Output session maker
- Exit (deleted)

Processing

Once an instance is introduced to a pipeline, the way it exits it can be configured to either:

1. **Manual:** a user with the right permission will need to perform one of the above mentioned Routing operations
2. **Automatic:** the server automatically accepts or rejects all instances in the pipeline with status "Ready". This can happen either on an 'now' basis, or as dictated by a schedule.

ADDITIONAL MODULES

Name-to-Code Convertor

This add-on utility performs the automatic naming conversion from Institution Names to their corresponding BICs – Bank Identifier Codes (Example Field 58D converted to 58A).

Duplicates Detector

SMC is equipped with an optional Duplicates Detector module, which automatically detects possible duplicates within incoming SWIFT messages and as well as allows the user to manually confirm these duplicates.

NEW MODULE

Cost Calculator Module

A UNIQUE STATE-OF-THE-ART MODULE THAT WILL CALCULATE SWIFT MESSAGE COSTS ON THE SENDER'S SIDE WITH AN ACCURACY OF 99.9 %.

Cost can be calculated real-time, based on different clustering:

- periodic (monthly)
- geographic (department)
- ownership (issuer)
- message type

or any combination of the above.

Adding the search and reporting module will allow the generation of any custom reporting or search required to produce data for decision making.

TECHNICAL REQUIREMENTS

SMC can be installed in a 3-tier environment

Hardware

Pentium Quad Core i5 or higher
4 GB RAM or higher
200 GB Hard Disk space

Software/OS

SMC SERVER

Windows 2003 Server (SP3)
Net Framework 4.0 or Higher

SMC CLIENT

Windows Vista / Windows 7

DBMS

MS SQL Server 2005 or higher

SEARCH ENGINE AND REPORTING

Search Engine

A search engine module is provided to allow searching for:

- General messages: using general message parameters (reception date, reception time, reference, sender, receiver...)
- Specific message types: using type-specific parameters (such as value date, currency and amount for payment messages).

A special license is available allowing the user to design and add custom Search Engines based on specific database views.

Reporting

This module allows the generation and print out of specific message type related data such as:

- Debit Report
- Detailed Debit Report
- Credit Report
- Detailed Credit Report
- Message Traffic Report

A special license is available allowing the user to add as many reports as required.

NEW MODULE

Editors/Viewers

The SMC Editors & Viewers is a very special module developed to complement the business workflow cycle needs of clients. It allows the user under very strict conditions to edit and change data in business structures only.

The changes are fully logged and can be subject to customized validations and notifications.

SMC's Editors and Viewers allow for custom forms and grid layouts and designs. The SMC administrator will ultimately decide who changes what and when.

TURNKEY SOLUTIONS BASED ON SMC[®]



SMC

One of the main strengths of SMC lies in its flexibility and simple customization. A single SMC license can be used with different configurations to answer different data transformation and hand shaking needs. Below are some examples of configurations developed with SMC for different clients.

SMC for LNPS SWIFT MESSAGING CENTER FOR THE LEBANESE NATIONAL PAYMENT SYSTEM

SMC for LNPS is a cost effective, flexible, fast and secure package based on the SMC core and optimized to answer the requirements and specifications of the Lebanese National Payment Systems as defined by the Central Bank, Banque du Liban (BDL).

SMC for LNPS covers all three modules :

- » **RTGS** (Gross Settlement of High-Value Low-Volume Payments / Money transfers)
- » **CLEAR** (Netted Settlement of High-Volume Low-Value Payments / Collections)
- » **PayGOV** (Government Payments) for banks, financial institutions and government agencies

Specific Maps

1. Generates all necessary MT & pacs XML files mapped from source data provided by the client and send them to the LNPS.
2. Processes all incoming MT & pacs XML files form the LNPS, and map them back to table structure on the backend system of the client.
3. Provides the necessary workflow logic to manage all incoming and outgoing status files sent and received from the LNPS.

CLEAR Reconciliation

A proposed solution for SGBL included an added configuration to reconcile MT messages received from BDL CLEAR with CLEAR XML distribution files.

" Everything seemed so straight forward and clear from day one. We wish to meet more consultants and suppliers with the same level of expertise and support as SMEX. Their contribution and collaboration with our team helped us meet the CLEAR deadlines." -SGBL Team

Features

- Reconciliation reporting allowing cross checking between the LNPS and back office data
- Alarm generation for detected discrepancies with custom distribution lists
- Full monitoring and reporting tools allowing a controlled end-to-end integration
- Full integration of the three main CLEARing streams:
 - Cheques (sent, received, declined)
 - Credit transfer (sent, received and returned)
 - Direct debit (sent, received, declined)

SMC for SEPA

SWIFT MESSAGING CENTER FOR THE SINGLE EUROPEAN PAYMENT AREA (SEPA)

The SEPA Pack configuration for SMC was adopted by SGBCy. It enabled our client to fully integrate with SEPA (Debit & Credit) within a record period of 5 weeks.

The solution includes integrating with the backoffice by accepting and returning back MT103 Swift messages, and converting them to the MX Swift formats.

The configuration handles two main traffics:

SEPA Credit Transfer

The solution included the generation and processing of incoming and outgoing:

- Pacs.008.001.02 – Customer Credit Transfer
- Pacs.004.001.02 – Payment Return
- Pacs.002.001.03 – Payment Reject
- Camt.056.001.01 – Cancellation Request
- Camt.029.001.03 – Negative Answer

SEPA Direct Debit

The solution included the generation and processing of incoming and outgoing:

- Pacs.003.001.02 – Customer Direct Debit
- Pacs.002.001.03 – Payment Reject
- Pacs.004.001.02 – Payment Return/Refund
- Pacs.007.001.02 – Payment Reversal

Features

- For each of the MX message types, special mapping were configured to generate from and to customized flat files and RJE formatted MT103 Swift messages to seamlessly integrate with the back office.
- The configuration answered to a strict business workflow and specific validation and authorization requirements provided in a detailed Business Requirement Document
- Reference data tables (Valid Countries, BIC's, Accounts, Currencies etc...) were added under the control and management of the client, giving an additional layer of control and validation
- A number of customized search engines and reports were added according to the needs of the client. The SMC license allowed them to add/edit details of those engines and reports when needed.

SMC for Salaries

SWIFT MESSAGING CENTER FOR THE CORPORATE SALARIES PAYMENT AND COLLECTION INTEGRATION

This special configuration was developed to help the banks with corporate clients to easily integrate incoming and outgoing salary files directly into the backoffice of the Credit Transfer National Payment system (Lebanese NPS or SEPA)

Features

- This SMC pack include the usage of SMC Excel convertor, which is a highly configurable module allowing the automated processing of input Excel files (2003 or 2010) and converting them to flat files that could be mapped thereafter.
- The solution enabled our clients to easily integrate the Excel and text salary files coming from corporate clients while adding a fully configurable validation and checking process to reduce errors and achieve the highest STP rate.

"The SMC's turnkey solution coupled with technical consultancy was a perfect mix to meet the deadlines effortlessly." -SGBCy Team

SMC for Forex

SWIFT MESSAGING CENTER FOR THE FOREX ACCOUNTS

The solution includes:

Forex

- Receiving all outgoing MT300, 320, 200,210
- Automatically generating MT300, 320, 202
- Automatic reconciliation of Forex deals
- Generating MT messages directly from Reuters tickets

Nostro/Vostro Accounts

- Receiving and processing MT950 for Nostro
- Reconciliation with Backoffice data
- Generating MT950 for Vostro from backoffice data

SMC for ATM

SWIFT MESSAGING CENTER FOR THE BUFFERING ATM REQUESTS

A proposed solution for a client included a special SMC pack to handle and manage overnight ATM requests.

Features

This configuration enables the client to upload, on a special database, the account balances of ATM cards, and SMC would handle the requests that are sent during the night when the Core Banking is shutdown.

At the start of the next working day, SMC uploads the new balances along with the accounting entries to the back office.

The solution includes interacting with IBM websphere MQ, and the configuration of all the mapping needed to translate data between the ATM card service provider and the back office.

SMC for CSD Messaging

SWIFT MESSAGING CENTER FOR SECURITIES

Being the Lebanese national CSD, Midclear needed a middleware to integrate incoming SWIFT messages (ISO 15022) with their back office system.

They mainly used the SMC mapping module to process the MT messages:

- MT 540 to MT 547 (DVP operations and confirmations)
- MT 564 to MT 567 (Corporate Actions)

Intellimonitor was also used for validation and for alarm generation with email notifications sent directly to their clients.

/FREE CONSULTANCY

Wondering how best you can solve your integration needs? Drop us an email and our consultants will be happy to assist.



WE WORK WITH YOU ON DELIVERING SOLUTIONS NOT PRODUCTS

HOW WILL SMEX HELP YOUR BANK ?

WHILE ASSISTING YOU THROUGH ALL THE CYCLE OF A SOLUTION, FROM CONSULTANCY, TO INTEGRATION, TRAINING, OPERATIONS AND SUPPORT, SMEX USES SMC AS A CORE PRODUCT TO PROVIDE YOU WITH COMPLETE SOLUTIONS FOR THE:

- Integration with the National Payment System (RTGS, CLEAR, PAYGov)
- Swift Traffic Automation - internal, national or crossborder, including payments, securities, documentary credits, forex. etc....
- Integration of heterogeneous systems with different formats and environments to allow for Straight Through Processing and reduce human error.

SMC HAS PROVEN TO BE THE ANSWER FOR IMPLEMENTING CUSTOMISED SOLUTIONS WITH A FAST AND RELIABLE SCHEDULE, DUE TO THE VERSATILE PLATFORMS IT SUPPORTS:

- Support for major database management systems including Oracle, MS SQL Server, DB2
- Support for industry standard data transport packages including web services, IBM MQ, File Transfer, FTP
- Support for a wide range of data formats including SWIFT MT, MX, Flat Files, XML, database tables



SMEX TRAINING & CONSULTANCY

SMEX caters to your professional training and consultancy needs and offers specialized in-house sessions, providing your team with solid knowledge of the different systems and financial topics including Securities, SWIFT technologies and the Lebanese National Payments systems.

We partner with key consultants and experts in the Lebanon, ensuring that the knowledge is targeted towards the Lebanese market and is customized to introduce you to the best practices and the latest regulations of the banking and securities sectors in Lebanon.

SMEX offers:

- Training course on-site, including theoretical training and applied cases
- The documentation and material required for the training
- A certificate of attendance for attendees having taken part of the full training

WELCOME, NEW BANKS!

SMEX IS PROUD TO WELCOME AMONG ITS CUSTOMERS

- Banque du Liban
- Midclear
- SGBL (Société Générale de Banque au Liban)
- Arab Bank
- SGBCy (Société Générale de Banque - Cyprus)

To learn more about SMEX services, send us an email

info@smexsolutions.com

SMEX specializes in consultancy and integration of data systems, and more specifically our SMC application empowers banks and financial organizations to efficiently use the Straight Through Processing capabilities, transforming data to/from their back-end applications and the various standard messaging systems.

Free Consultancy & Demo Book us for a visit

Palm Plaza Center, 4th Fl.
Mtayleb, LEBANON

P.O.Box

1390 Beitmery, LEBANON

Telefax

+961 4 928812

E-mail

info@smexsolutions.com

Website

www.smexsolutions.com

