Real-time gross settlement

User detailed functional specifications

Author	4CB
Version	0.2
Date	06 June 2018

Table of contents

RTGS UDFS

List of figures

List of tables

1 Overview RTGS service

2 Parties, accounts and currencies

2.1 General information on reference data

2.1.1 Concept of parties and participants

2.1.2 Hierarchical party/participant model

2.1.3 Configuration of parties/participants

2.1.4 Party/participant identification

2.1.5 Static data for parties/participants

2.2 RTGS related reference data

2.2.1 Participation types

2.2.1.1 Direct participation

2.2.1.2 Indirect participation

2.2.1.3 Multi-addressee access

2.2.1.4 Access as correspondent BIC ("addressable BIC")

2.2.2 Accounts structure and organisation

2.2.2.1 Categories of accounts

2.2.2.2 Dedicated cash accounts

2.2.2.3 Transit accounts

2.2.2.4 Links between main cash accounts and dedicated cash accounts

2.2.2.5 Account monitoring group and liquidity transfer group

2.2.3 Blocking

2.2.3.1 General aspects

2.2.3.2 Blocking of a party or a cash account

2.2.4 Concept of currencies in RTGS

2.2.5 RTGS directory

3 Access

3.1 Connectivity (A2A/U2A)

3.2 Authentication and authorisation

3.2.1 Authentication and authorisation concepts

3.2.2 Instructing scenarios

3.3 User roles and access rights

3.4 Message subscription

3.5 Graphical user interface

3.6 Security

4 Business day

5 Operations and support

5.1 Business application configuration

5.2 Calendar management

5.3 Business day management

5.4 Business and operations monitoring

5.5 Archiving management

5.6 Trouble management

6 Application processes description

6.1 Payment types

6.1.1 Overview

6.1.2 Definition of execution time

Direct RTGS participants have the possibility to determine the settlement time of their transactions. The following options are available:

l transactions with an "earliest debit time indicator"

l transactions with a "latest debit time indicator"

The following table describes payments with a set execution time.

	Earliest debit time indicator	**Latest debit time indicator**
Features	Transactions to be executed from a certain time (codeword: FROTIME)	l option a: transactions to be executed up to a certain time (codeword: /REJTIME/) l option b: transactions which should be executed up to certain time (only warning indicator) (codeword: /TILTIME/)
Effect	l Transaction is stored until the indicated time. l At the earliest debit time, the transaction runs through the entry disposition.	l Setting the execution time only means a special identification via the U2A or A2A query. l The transaction is treated like any other payment of this type.
Management	If the transaction cannot be settled at the earliest debit time, it will be queued till cut-off time for payment type is reached (or revoked).	If the transaction cannot be settled until the indicated debit time, l option a: the payment will be rejected. l option b: the payment will remain in the queue.

In case a payment with a "latest debit time indicator" is not executed 15 minutes prior to the defined time, an automatic notification in the GUI will be triggered. The notification will be directly displayed on top of all screens of the participant whose account will be debited.

Note: In case the codeword /CLSTIME/ is used, the payment will be treated in the same way as a payment with a "latest debit time indicator", option b.

It is possible to combine the "earliest debit time indicator" with the "latest debit time indicator" (option a + b). In case of option a, the transaction is meant to be executed during the indicated period.

The defined execution time of a payment can be changed if the payment is not executed yet. Effect of changing settlement time see chapter Amendment of payments [▶ 30].

Note: It is no longer possible to change the "earliest debit time indicator" of a payment which is queued due to the fact that the original "earliest debit time indicator" has been reached and it was already tried to settle this payment.

6.1.3 Warehouse functionality

Basics

It is possible to submit payments up to 10 calendar days in advance. In this case, the payment message is warehoused until RTGS service opens for that business date.

Note: In case a change in SWIFT standards or formats is performed warehoused payments with an execution time beyond this point in time cannot be stored in the RTGS service. This will be technically ensured by the RTGS service.

Rules

The validation of warehoused payments is a three layer approach:

- l   SWIFT format checks on the day of submission
- l   format checks by RTGS service already on the day of submission
- l   content check (eg valid BICs) on the value day

No checks are made by RTGS in the time between.

Processing on value day

On the value date with the start of the day trade phase the warehoused payments are processed by RTGS service (with entry timestamp same like start of day trade) on top of the queue of incoming payments which have the same priority. They will be immediately settled if enough liquidity is available (normal processing of payments in the entry disposition, see chapter Entry disposition [▶ 34]). Otherwise they are queued until the settlement attempt is successful (see chapter Dissolution of the payment queue [▶ 34]).

Exception: Warehoused payments with an "earliest debit time indicator" are queued until the set execution time is reached.

Information and control functions

Warehoused payments benefit from the same functionality via U2A or A2A as queued payments:

- transparency about the status and other detailed information about the payment

- cancellation

- change of priority

- change of execution time ("earliest and latest debit time indicator") if set in the warehoused payment.

6.1.4 Backup payments

6.1.4.1 Backup contingency payments

Objective

Backup contingency payments are intended to meet obligations and demands arising from the settlement and funding process of systems, for which templates are predefined in the system (CLS pay-ins, payments to the EURO1 collateral account, pay-ins to the EURO1 prefunding account related to the liquidity bridge between RTGS and EURO1).

Rules for CLS payments

The table below gives the rules for backup contingency payments to CLS.

Payment priority	Urgent
Generation	via the GUI
Message type	Pacs.009
Sender of this message	RTGS DN
Receiver of this message	CLS DN
Fields for input via GUI	
Fields predefined (cannot be changed)	
Tag in the payment message	
Tag in the statement message	
Tag in the A2A payment queue	
Tag in the U2A payment queue	Backup payment

Rules for backup contingency payments to EURO1 collateral account

The table below gives the rules for backup contingency payments to the EBA related to EURO1 collateral account:

Type of payment	High payment
Generation	via the GUI
Message type	Pacs.009
Sender of this message	RTGS DN
Receiver of this message	EBA DN (for collateral account)
Fields for input via GUI	
Fields predefined (cannot be changed)	
Tag in the payment message	
Tag in the statement message	
Tag in the A2A payment queue	
Tag in the U2A payment queue	Backup payment

Rules for backup contingency payments to EURO1 pre-settlement account (liquidity bridge)

The table below gives the rules for backup contingency payments to the EURO1 pre-settlement account (liquidity bridge between RTGS and EURO1):

Type of payment	High payment
Generation	via the GUI
Message type	Pacs.009
Sender of this message	RTGS DN
Receiver of this message	EBA DN (for pre-settlement account)
Fields for input via GUI	
Fields predefined (cannot be changed)	
Tag in the payment message	
Tag in the statement message	
Tag in the A2A payment queue	
Tag in the U2A payment queue	Backup payment

6.1.4.2 Backup liquidity redistribution payments

Objective

Backup liquidity redistribution payments are intended to redistribute excess liquidity accumulated on the RTGS dedicated cash account of the affected direct RTGS participant. It aims to mitigate the possibility of a shortage of liquidity within the RTGS service.

As the recipient can be any direct RTGS participant, they can be used also for meeting obligations and demands arising from the settlement and funding processes for other systems than those explicitly covered by the backup contingency payments as described above.

Rules for backup liquidity redistribution payments

The table below gives the rules for backup liquidity redistribution payments:

Redistributing liquidity payments can be transferred to...	Direct RTGS participants (including CBs as direct RTGS participants)
Payment priority	Urgent
Generation	via the GUI
Message type	Pacs.009
Sender of this message	RTGS DN
Receiver of this message	According to the routing configuration of the instructed agent
Fields for input via GUI	
Fields predefined (cannot be changed)	
Tag in the payment message	
Tag in the statement message	
Tag in the A2A payment queue	
Tag in the U2A payment queue	Backup payment

6.1.4.3 Rules for backup payments

6.1.4.3.1 Generation

6.1.4.3.2 Notification of affected participant (sender)

6.1.4.3.3 Notification to the receiver

6.1.4.3.4 Subsequent delivery of single payments

6.1.5 Payment priorities

6.2 Settlement of payments

6.2.1 Overview

The aim of the process is to allow a direct RTGS participant to initiate a customer or a bank to bank payment to another direct RTGS participant. A customer or bank to bank payment can be submitted to and received from the RTGS service by (see chapter Participation types [▶ 11])

l   a direct RTGS participant

l   central banks

l   an addressable BIC via direct RTGS participant

l   an indirect BIC via direct RTGS participant

l   a multi-addressee access

The following table provides an overview on the features for payment messages linked with the way of initiation.

Name	Customer payment	Bank to bank payment	Direct debit	Payment return
Message for A2A initiation	Pacs.008	Pacs.009	Pacs.010	Pacs.004
U2A mode	Not provided	Only for backup or lump sum payments	Not provided	Not provided
Priority	High Normal	Urgent High Normal	Urgent (CBs only) High Normal	High Normal
Settlement time	Earliest debit time indicator (FROM TIME) Latest debit time indicator (TILL TIME)	Earliest debit time indicator (FROM TIME) Latest debit time indicator (TILL TIME)	Earliest debit time indicator (FROM TIME) Latest debit time indicator (TILL TIME)	No indication possible

The accounts to be debited and credited are not necessarily linked to the BICs mentioned in the business application header of the message. They have to be taken from the business message. After simultaneous booking on the RTGS accounts, the payment is final and irrevocable.

Note: A payment included in the clearing process of an algorithm cannot be revoked - although it might not yet be final.

6.2.2 Concept of payment submitters

6.2.3 Flow of payment related messages

The chapter lists all cases for flows of payment messages including respective details.

Case: payment credit message with positive validation and settlement

The following payment flow illustrates the payment messaging on basis of a pacs.008/pacs.009 and with regard to the RTGS service.

Message flow
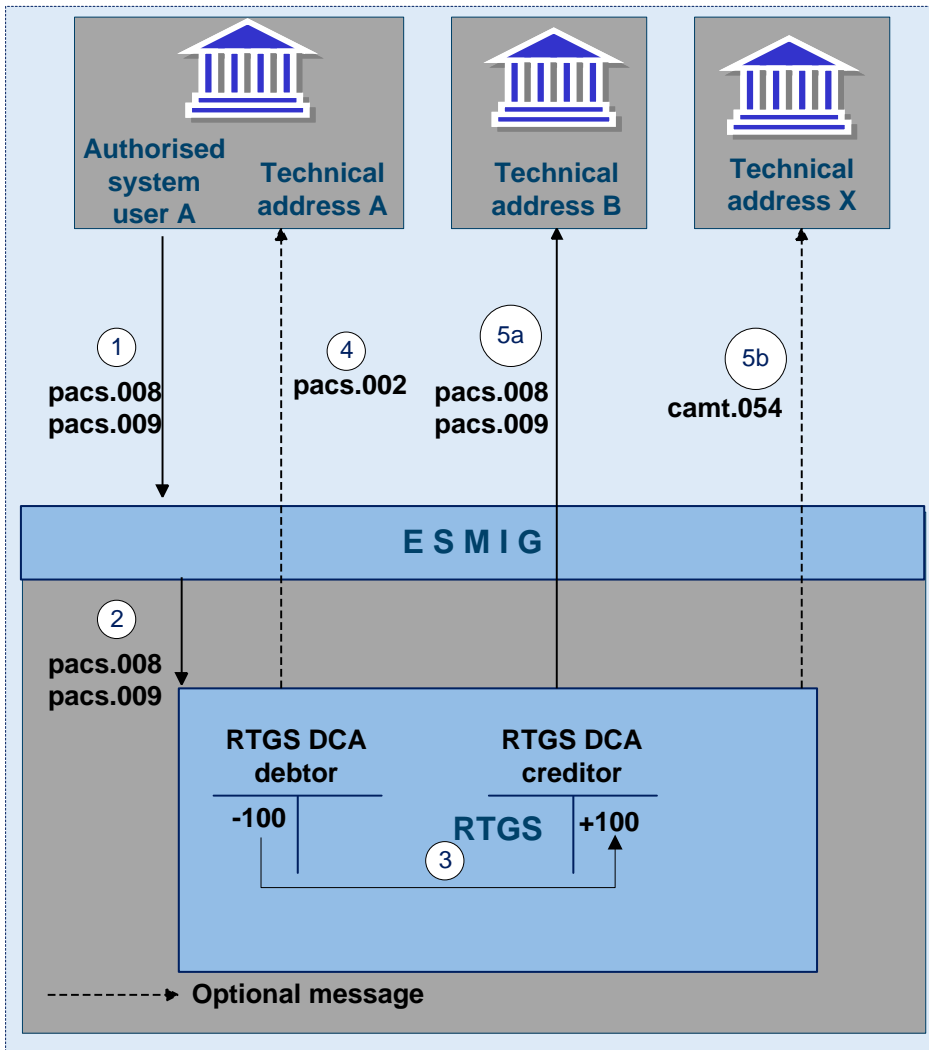
Figure 1 - Pacs.008/009

Process description

Step	Processing in/between	Description
1	Direct RTGS participant via ESMIG to RTGS	In case direct RTGS participant A sends a pacs.008/pacs.009 via ESMIG to the RTGS service
		In case of mandated payments the CB that was authorised by a direct RTGS participant sends a pacs.009 via ESMIG to the RTGS service (codeword MANPAY)
		In case of AS the AS sends a pacs.009 via ESMIG to the RTGS service
		In case of backup payments the direct RTGS participant A initiates a backup payment via GUI (codeword BUP)
2	RTGS	RTGS message check and validation positive
3	RTGS	In case of direct RTGS participants debtor = sender of pacs.008/009, creditor = receiver of pacs.008/009
		In case of mandated payments debtor = direct RTGS participant that authorised CB, creditor = receiver of pacs.009
		In case of AS either debtor and creditor are settlement banks or one settlement bank and one AS technical account.
		In case of backup payments debtor = direct participant A, creditor = direct participant B

Step	Processing in/between	Description
4	RTGS via ESMIG technical address A	Booking confirmation pacs.002 via ESMIG to technical address A generated by the RTGS service (basically optional; mandatory if sender is an AS)
5a	RTGS via ESMIG to technical address B pacs.008/009	In case of direct RTGS participants creation and forwarding of pacs.008/pacs.009 by the RTGS service via ESMIG to technical address B (mandatory)
		In case of mandated payments creation and forwarding of pacs.009 to technical address B (mandatory)
		In case of AS no pacs.009 is sent
		In case of backup payments creation and forwarding of pacs.009 to technical address B (mandatory)
5b	RTGS via ESMIG to technical address X camt.054	In case of direct RTGS participants no camt.054 is sent
		In case of mandated payments creation and forwarding of camt.054 (optional) to technical address X (direct RTGS participant that authorised CB)
		In case sender is AS, creation and forwarding of 1 - n camt.054 (credit and/or debit)(optional) to technical address X (creditor and/or debtor settlement bank)
		In case of backup payments creation and forwarding of camt.054 (optional) to technical address X of the debtor

Used messages

l [pacs.008](#)

l [pacs.009](#)

l [pacs.002](#)

Case: payment return message with positive validation and settlement

The following payment flow illustrates the payment messaging on basis of a pacs.004 and with regard to the RTGS service.

Message flow
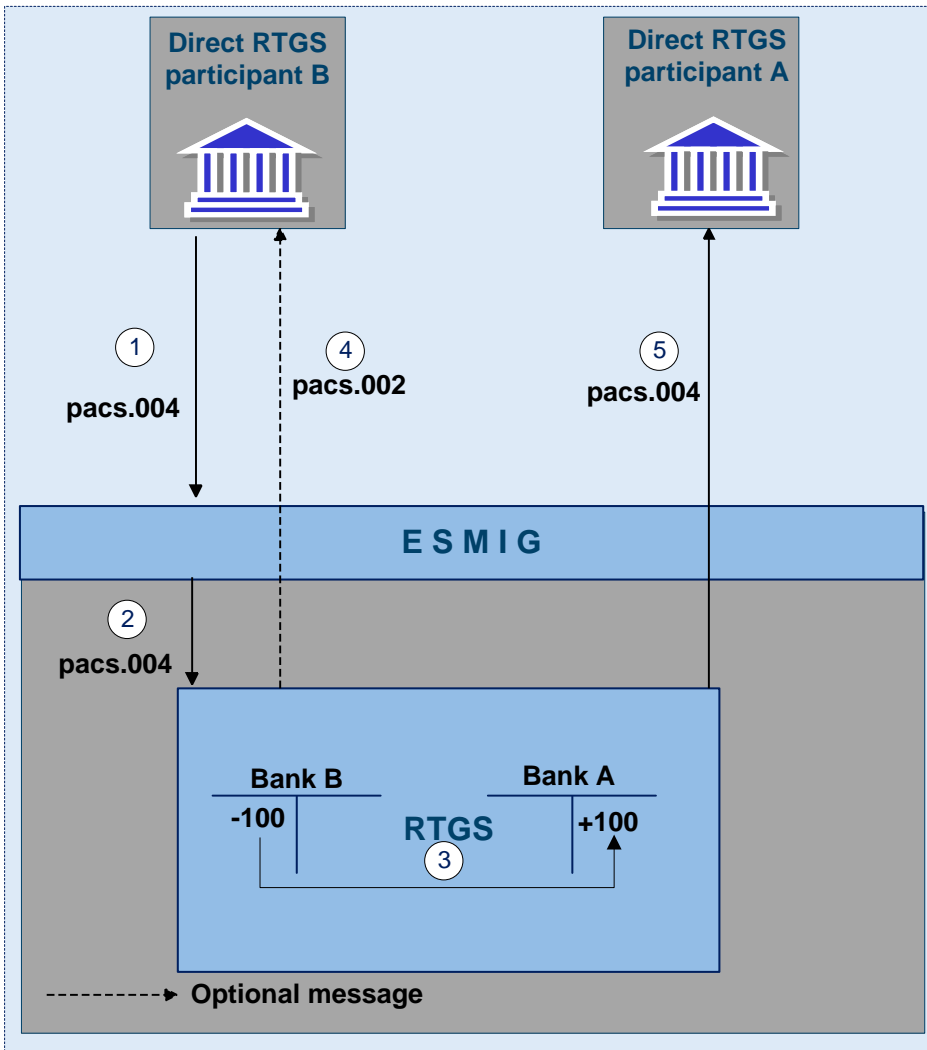
Figure 2 - Pacs.004 direct participant to direct participant

Process description

Step	Processing in/between	Description
1	Direct RTGS participant via ESMIG to RTGS	Direct RTGS participant B sends a pacs.004 via ESMIG to the RTGS service
2	RTGS	RTGS message check and validation positive
3	RTGS via ESMIG to direct RTGS partic-ipant	Creation and forwarding of pacs.002 by the RTGS service (option-al) via ESMIG to direct RTGS participant B
4	RTGS via ESMIG to direct RTGS partic-ipant	Creation and forwarding of pacs.008/pacs.009 by the RTGS service via ESMIG to direct RTGS participant A (mandatory)

Used messages

l   [pacs.004](#)

l   [pacs.002](#)

Case: payment debit message with positive validation and settlement

The following payment flow illustrates the payment messaging on basis of a pacs.010 and with regard to the RTGS service.

Message flow
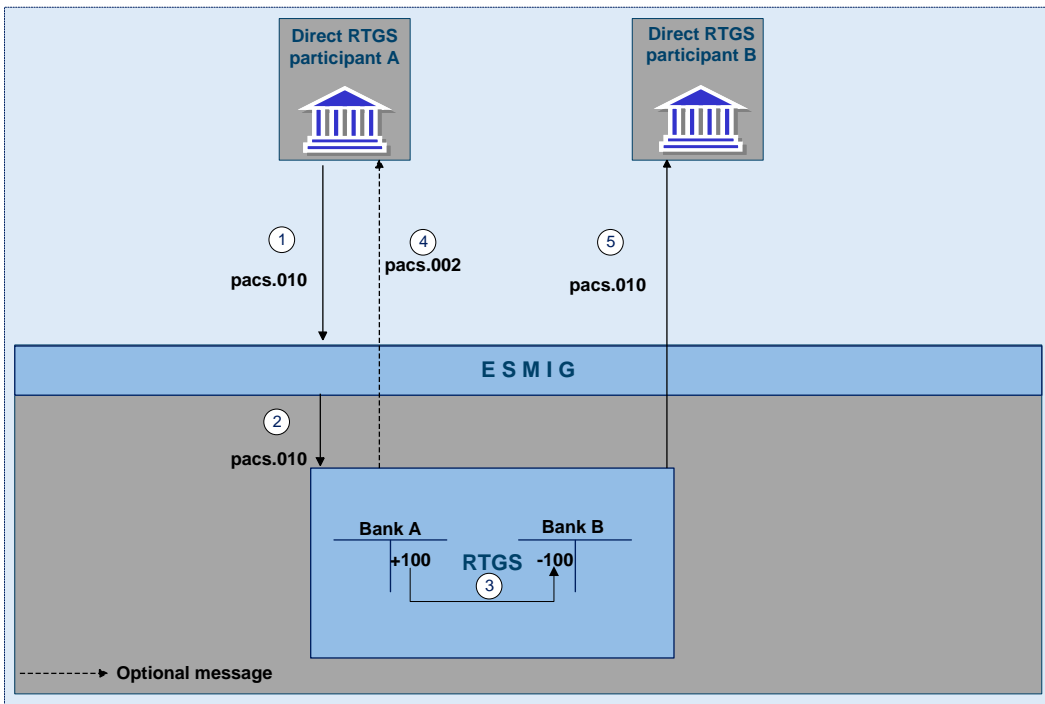
Figure 3 - Pacs.010

Process description

Step	Processing in/between	Description
1	Direct RTGS participant via ESMIG to RTGS	Direct RTGS participant A sends a pacs.010 via ESMIG to the RTGS service
2	RTGS	RTGS message check and validation positive
3	RTGS via ESMIG to direct RTGS participant	Creation and forwarding of pacs.002 by the RTGS service (optional) via ESMIG to direct RTGS participant A
4	RTGS via ESMIG to direct RTGS participant	Creation and forwarding of pacs.010 by the RTGS service via ESMIG to direct RTGS participant B (mandatory)

Used messages

l   pacs.010

l   pacs.002

6.2.4 Rejection of payments

For different reasons a payment can be rejected and returned to sender. If business validation in RTGS interface fails the RTGS service creates and forwards a pacs.002 (negative – payment status report) to the instructing party. This can be every RTGS participant who initiates a payment. The pacs.002 refers to the original instruction by means of references and a set of elements from the original instruction. Negative pacs.002 message is mandatory.

The following business validations are performed in RTGS interface:

l   check for duplicate payment order

l   process specific authorisation checks

–   is the sender of the payment order the owner of the account to be debited

–   in case of direct debit: is the sender of the payment order the owner of the account to be credited

–   in case of mandated payments: is the sender of the payment order the neither the debtor nor the creditor and are there contractual agreements between the parties

–   in case a central bank acts on behalf of a credit institution: does the credit institution belong to the acting central bank

l   check on value date for non-warehouse payments

l   payment type specific checks

l   field and reference data checks

–   field value validation - codes are valid, domain values are within allowed range

–   cross-field validation - eg currency of the accounts involved same as amount currency etc.

–   database checks - eg existence of parties and accounts

l   direct debit check

l   check of backup payments

l   mandated payment check

l   account checks

Error codes for possible rejections are listed in chapter Index of business rules and error codes [▶ 103].

6.2.4.1 Technical validations

6.2.4.2 Business validations

The following payment flow illustrates a validation failure in RTGS service on basis of a pacs.008/pacs.009/pacs.010/pacs.004.

Message flow
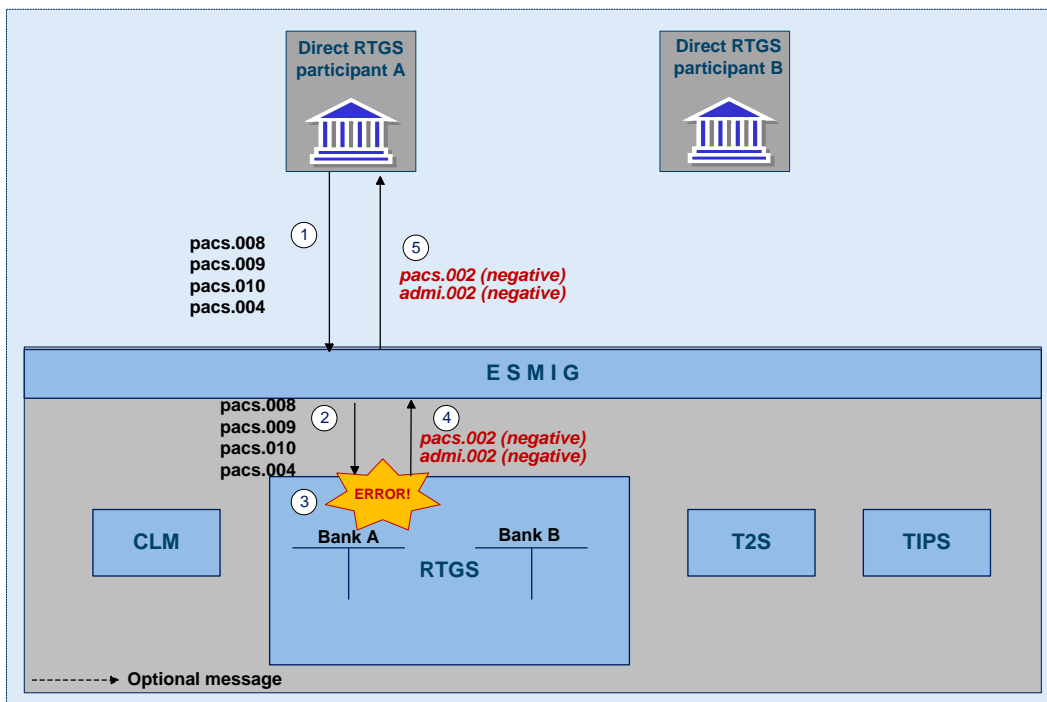
Figure 4 - Pacs.008/009/010/004 validation error

Process description

Step	Processing in/between	Description
1	Direct RTGS participant via ESMIG to RTGS	An authorised system user of a direct RTGS participant A sends a pacs.008/pacs.009/ pacs.010/pacs.004 via ESMIG to the RTGS service
2	RTGS	Negative validation check in RTGS service
3	RTGS via ESMIG to direct RTGS participant	RTGS service sends a negative pacs.002 (mandatory) via ESMIG to the direct participant A

Used messages

l   pacs.008

l   pacs.009

l   pacs.010

l   pacs.004

l   pacs.002

l   admi.002

6.2.5 Amendment of payments

As long as a payment is not settled (including warehoused payments), an authorised system user has the ability to change the relevant parameters of this payment.

Four different control options are offered.

Action	Actor = authorised system user for the
Change priority	debtor
Re-ordering (increase / decrease)	debtor
Change of set execution time (if defined before sending to the RTGS service)	business sender
Revocation (separate chapter Revocation of payments [34])	business sender

Those features are necessary to enable RTGS actors to react on changed liquidity conditions during the day.

The following rules apply in principle:

l   Interventions must be made via the business interface of the RTGS service in U2A and A2A. A description of individual U2A processes can be found in the user handbook.

l   Individual or several payment orders together can be modified at the same time.

l   The business interface shows receipt and execution or non-execution of a modified order.

In case of intervention at transaction level, processes are started to resolve the queues.

Message flow

Process description

Step	Processing in/between	Description
1	Authorised system user via ESMIG to RTGS	An authorised system user A sends a camt.007 via ESMIG to the RTGS service
2	RTGS	RTGS message check and validation with positive or negative result
3	RTGS via ESMIG to the authorised system user	Mandatory feedback to the authorised system user via camt.025

Used messages

l camt.007

l camt.025

Case changing priority

The following options for changing the priority exist:

l from normal to high

l from high to normal

It is not possible to change an urgent priority.

The payment priority can be changed at any time during the business day. The newly modified priority can be viewed through the payment queue query.

The modified payment:

l keeps the original submission time

l is placed in the queue according to the (new) priority and the (old) submission time

l is processed according to the regulations of the (new) priority

Action	Effect
Change of the first queued urgent payment into a normal payment	l If no highly urgent payment is queued immediate attempt to settle the remaining urgent payments following the FIFO-principle. l If highly urgent payments are queued no immediate attempt to settle any urgent payments.
Change of a normal payment into an urgent payment	l If the payment changed from normal to urgent moves at the top of the queued urgent payments and no highly urgent payments are queued, immediate attempt to settle urgent payments following the FIFO-principle. l Otherwise no immediate attempt to settle urgent payments.

Case re-ordering the queued transactions

A system user authorised can change the queue position for an individual or for a sequence of payments. The selected payment or sequence of payments can be placed:

l   to the top of the queued payments with the same priority

l   to the end of the queued payments with the same priority

The re-ordering can be done at any time during the business day. The newly re-ordered transaction can be viewed through the payment queue query.

The following table shows the effect of changing the order in the queue.

Action	Effect
Moving an urgent payment to the top of the queued urgent payments	Immediate check whether payments can be executed
Moving an urgent transaction from the top to the end of the queued urgent payments	
Moving a high payment to the top of the queued high payments and no urgent payment is queued	
Moving a high payment from the top to the end of the queued high payments and no urgent payment is queued	
Moving an urgent payment which is not at the top of the queued urgent payments to the end	It is taken into account during the next settlement process - no immediate attempt to settle
Moving a high payment which is not at the top of the queued high payments to the end	
Moving a normal transaction to the top or the end of the queued normal payments	

Note: The re-ordering of queued transactions is available for all payment types including urgent payments.

Case changing the execution time

Payments can include a time that indicates when they should be settled (transactions with an "earliest debit time indicator").

Payments can include a time that indicates when they should have been settled (transactions with a "latest debit time indicator").

The execution time (from/till) may be changed in the RTGS business interface (advanced or postponed). The change has no impact on the payment processing, but on the queue management as the time indication only

supports the direct RTGS participant's queue management. The newly modified execution time can be viewed through the payment queue query.

Changing the execution time has the following impact on the queue management.

Action	Effect
Deleting the execution time of an urgent transaction ("from")	Immediate settlement attempt, if the payment reaches the top of the queued urgent payments.
Deleting the execution time of a high transaction ("from")	Immediate settlement attempt, if the payment reaches the top of the queued high payments and no urgent payments are queued.
Deleting the execution time of a normal transaction	Including the payment in the next settlement process.
Changing the execution time of a urgent, high or normal transaction	Including the payment from the new indicated time.

6.2.6 Revocation of payments

6.2.7 Processing of payments

6.2.7.1 Entry disposition

6.2.7.1.1 General remarks

6.2.7.1.2 Settlement of payments in the entry disposition

6.2.7.2 Comprehensive queue management

6.2.7.3 Dissolution of the payment queue

6.2.7.3.1 Settlement of queued high/urgent payments

6.2.7.3.2 Settlement of queued normal payments

6.2.7.3.3 Optimisation on sub-accounts

6.2.7.4 Treatment of backup payments in the settlement process

6.3 Settlement of ancillary systems

6.3.1 Overview

This section describes the RTGS services for ancillary systems. It includes ancillary system transaction processing. RTGS processes transaction orders on ancillary system accounts and the accounts of ancillary system participants.

Types of ancillary systems are:

l   retail payment systems

l   large value payment systems

- foreign exchange systems

- money market systems

- clearing houses (CCP)

- securities settlement systems (SSS)

Account types for ancillary systems

Account type	Ownership	Description (will be completed)
RTGS dedicated cash account	Ancillary system participant	
Sub-account	Ancillary system participant	
Guarantee funds account	Guarantor, central bank or the ancillary system	
Technical account	Central bank or the ancillary system	

Table 1 - account types and their ownership

The following diagram depicts a generic account constellation for an ancillary system participant (party A), e.g. a settlement bank with various types of settlement businesses and with accounts opened in the book of one central bank:
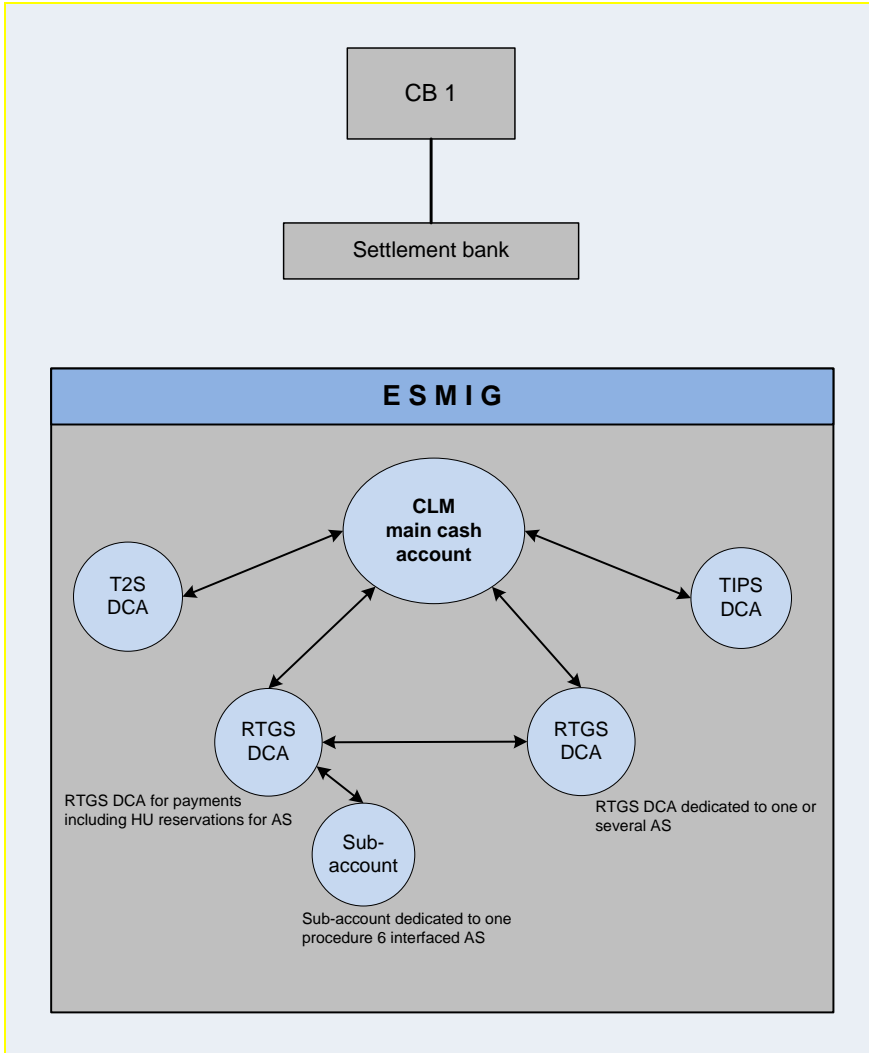
Figure 5 - generic account constellation for an ancillary system participant

Besides the dedicated cash accounts for securities and instant payments settlement, the ancillary system participant in the example above has an RTGS dedicated cash account for high value payments (with reserved amounts for urgent ancillary system related transactions) and two accounts for ancillary system transactions: one account (for ancillary system procedure "Settlement on dedicated liquidity accounts (interfaced)" as a sub-account of the RTGS dedicated cash account for high value payments, the second account (for other ancillary systems) as an RTGS dedicated cash account dedicated to one or several ancillary systems.

The necessary liquidity used for settlement originates from different accounts. Sources of liquidity are summarised in the table below.

Liquidity source	Usage	Complementation	Liquidity segregation
RTGS dedicated cash account	Reservations for urgent payments and real-time settlement.	Possibly complemented by other reservations/liquidity as outlined in the reservations section on HVP settlement on the RTGS dedicated cash account.	No further separation by ancillary system procedure/ ancillary system possible.
RTGS dedicated cash account dedicated to ancillary system	For standard and simultaneous multilateral settlement. Liquidity transferred from RTGS dedicated cash account or main cash account.	No automated complementation by default. Complementation can be set up by the participant through event-based liquidity transfer orders.	Separation by ancillary system procedure/ ancillary system possible.
Sub-account	To set-aside liquidity for exclusive settlement of a specific ancillary system using procedure 6 (interfaced).	No automated complementation by default. Complementation can be set up by the participant through event-based liquidity transfer orders.	Separation by ancillary system using procedure 6 interfaced mandatory.
Guarantee funds	For optional guarantee mechanism with standard and simultaneous multilateral settlement.	-	-

Table 2 - liquidity source and usage for ancillary system settlement

The RTGS dedicated cash account can be shared among several ancillary systems and is used for all settlement procedures (see Table 3 - settlement procedures [▶ 37]) except procedure 6 interfaced. Settlement procedure 6 interfaced is settled on the sub-account, which cannot be shared with other ancillary systems, i.e. one sub account has to be opened for each particular ancillary system.

Ancillary system settlement procedures

The table below is a breakdown of supported settlement procedures.

Procedure	Description
Real-time settlement	Usual real-time gross mode settlement of bilateral high value payments.
Bilateral settlement	Usual real-time gross mode settlement of bilateral high value payments.
Standard multilateral settlement	"Debits first", i.e. first all the debits are executed, then all the credits. If one of the transactions fails the others, probably already executed, are unwound.

Procedure	Description
Simultaneous multilateral settlement	"All or nothing", i.e. debits and credits are simultaneously executed. If one of the transactions fails, all the others aren't executed neither.
Settlement on dedicated liquidity account (technical account for procedure 6) (real-time)	Usual real-time gross mode settlement of bilateral high value payments.
Settlement on dedicated liquidity account (sub-accounts) (interfaced)	Usual real-time gross mode settlement of bilateral high value payments.

Table 3 - settlement procedures

The functionality of the former procedures "Real-time settlement" and "Bilateral settlement" is provided using individual payment XML messages. Banks are able to grant to ancillary systems the right to debit the account of the bank for the ancillary system settlement. Urgent priority is used for ancillary system transactions, and From Time/Information period/Settlement period (using ASTI) can be defined (see HVP URD/ payment order processing above). Ancillary system transactions can be sent in a file (see shared services/ ESMIG).

For procedure "Real-time", one account being the so-called technical account for procedure 6 RT which can have an end of day balance must be used per ancillary system.

For procedure "Interfaced", the accounts to be used for the banks are sub-accounts and an ancillary system can use a technical account.

The additional specific features for ancillary system procedures "Real-time" and "Interfaced" are described below.

For procedures "Standard multilateral settlement" and "Simultaneous multilateral settlement", ancillary system transactions need to be sent by files. The service manages the links ("debits first" or "all or nothing"), according to the parameters set for the ancillary system in CRDM (as of which procedure is used, see business data definition). Information and settlement periods are provided on an optional basis, including the (optional) activation of the guarantee mechanism where there is a failure at the end of the settlement period.

Liquidity transfer types for ancillary system business

In general, the following types of liquidity transfers are foreseen:

Liquidity transfer type	Initiator	Settlement
Immediate liquidity transfer	Ancillary system participant	Only full settlement, if possible
	Ancillary system (on behalf)	Partial settlement possible, if necessary
	Central bank (on behalf)	Only full settlement, if possible

Liquidity transfer type	Initiator	Settlement
Standing order liquidity transfer	Ancillary system participant	Partial settlement possible, if necessary

Table 4 - liquidity transfer types

6.3.2 Standard multilateral settlement

General aspects

Ancillary systems can settle a set of multilateral balances (debits and credits) on RTGS dedicated cash accounts by sending files through the RTGS service interface. This procedure is functional for ancillary systems using an interfaced model where the final settlement takes place within the RTGS.

The service interface is responsible for storing all balances and for sending debits first and, only when all debit transactions are settled, for processing credits.

The settlement of the debit leg can benefit from the optimisation mechanism.

In case of failure of debit settlements a "reversing procedure" is triggered by the service interface. This procedure consists of creating reverse transactions related to all those accounts already debited during the interrupted settlement cycle. So far the ancillary system technical account must be debited against these settlement banks' RTGS dedicated cash accounts. Pending uncovered debits are simply rejected.

To avoid the "reversing procedure" the "settlement period" option may be used together with the provision of a guarantee fund mechanism.

The standard multilateral settlement may include optional connected mechanisms:
- information period
- settlement period ("till")
- guarantee fund mechanism

Message flow

Used messages
- proprietary messages
- camt.054 – Bank to Customer Credit Notification
- camt.025 – Receipt
- admi.007 – ReceiptAchknowledgement

Process description

The standard multilateral settlement consists of the following steps:

Phase	Step	Processing in/between	Description
Initiation	1	Ancillary system (or central bank on behalf) via ESMIG to RTGS	The ancillary system (or the relevant central bank on its behalf) sends a file with all multilateral balances to be debited and credited on the settlement bank's accounts
Settlement of debit positions	2a	RTGS	Debits are processed for settlement. Once they have all been settled, the credits will be processed. The settlement takes place with debiting the related settlement banks' RTGS dedicated cash accounts and crediting the ancillary system technical account. Each debit transaction is checked against the liquidity available in the related settlement banks' RTGS dedicated cash accounts. If the liquidity covers the needed amount, the ancillary system transaction is booked. If liquidity is not sufficient the ancillary system transaction is posted in the waiting queue.
	2b	RTGS	The settlement banks are informed about queuing by a broadcast message delivered in U2A mode. Immediately after putting the group of debit transactions in the queue the optimisation process starts (algorithms 1, 2 and 3). Pending ancillary system transactions are settled by resolving the queue. The central bank of the ancillary system is allowed to revoke files that belong to the central bank's ancillary system as long as they are not final. A broadcast is sent to the ancillary system and to all the settlement banks informing about the revoked payment.
	2c	RTGS	If the ancillary system (or the relevant central bank on its behalf) has indicated a "Settlement period" time, the RTGS service interface - if related payments are still pending - continuously checks whether the time limit is reached. If the time limit is exceeded, and guarantee fund mechanism is not set up, the settlement fails and the whole file is rejected. Consequently the service interface will trigger the reversing procedure. The ancillary system technical accounts have to be debited and the settlement banks' RTGS dedicated cash accounts credited (only for those transactions which were settled during the interrupted settlement cycle).
	2d	RTGS	If the time limit is exceeded and the guarantee fund mechanism is set up, it is available for the central bank and can be activated according to the agreed procedures.

Phase	Step	Processing in/between	Description
	2e	RTGS	After all debit transactions have been settled the RTGS service interface proceeds with the credits settlement.
	2f	RTGS via ESMIG to settlement banks	On an optional basis, the settlement banks of the ancillary system participants are notified in case of successful settlement via debit notifications (camt.054).
Settlement of credit positions	3a	RTGS	RTGS processes all credits
	3b	RTGS via ESMIG to settlement banks	On an optional basis, the settlement banks of the ancillary system participants are notified in case of successful settlement via credit notifications (camt.054).
Notifications	4	RTGS via ESMIG to ancillary system (or central bank)	After all transactions have been booked the ancillary system (or the relevant central bank on its behalf) receives a notification file (ASInitiationStatus), confirming the entire set of transactions. In case of revocation of the initial transaction file, the ancillary system receives the ASInitiationStatus with code status "revoked".

Table 5 - process description

At each step throughout the process information for settlement banks and ancillary systems is also available in U2A mode.

6.3.3 Simultaneous multilateral settlement

General aspects

Ancillary systems can settle a set of multilateral balances (debits and credits) on RTGS dedicated cash accounts by sending a file through the RTGS service interface.

The simultaneous multilateral settlement may include optional connected mechanisms:

l   information period

l   settlement period ("till")

l   guarantee fund mechanism

Ancillary system balances to be settled under the simultaneous multilateral settlement mechanism are presented to the RTGS service interface for settlement at an "entry time" which is the latest of the following two instances:

l   as soon as they are received or

l   the end of the "information period" if such a period was specified and no disagreement was received

The settlement of both debits and credits can benefit from the optimisation mechanism with a specific algorithm, the algorithm 4.

Algorithm 4 offers an efficient and fast processing of the related ancillary system transactions. To smooth the settlement and to reduce the liquidity needed, it is checked that all transactions of an involved ancillary system can be settled at once ("all or nothing") taking also normal and high priority payments into consideration.

The settlement only occurs if all needed funds have been blocked. If not, new attempts of settlement will be made until the end of the settlement period has been reached.

Message flow

Used messages

l   proprietary messages

l   camt.054 – Bank to Customer Credit Notification

l   camt.025 – Receipt

l   admi.007 – ReceiptAchknowledgement

Process description

The standard multilateral settlement consists of the following steps:

Phase	Step	Processing in/between	Description
Initiation	1	Ancillary system (or central bank on behalf) via ESMIG to RTGS service interface	The ancillary system (or the relevant central bank on its behalf) sends a file with all multilateral balances to be debited and credited on the settlement bank's accounts.
Settlement	2a	RTGS	Debits and credits are jointly sent to the waiting queue mechanism and the optimisation process starts (algorithm 4). If the liquidity covers the needed amount, the transactions are booked.

Phase	Step	Processing in/between	Description
	2b	RTGS	If liquidity is not sufficient: l all the settlement banks are informed about queuing in U2A mode l algorithm 4 runs iteratively until all debit positions are covered and all ancillary system transactions can be booked together The related central bank has the possibility through monitoring screens to determine which settlement bank(s) has not enough liquidity. The central bank of the ancillary system is allowed to revoke files that belong to the central bank's ancillary system as long as they are not final. A broadcast is sent to the ancillary system and to all the settlement banks informing about the revoked payments.
	2c	RTGS	If the ancillary system (or the relevant central bank on its behalf) has indicated a "Settlement period" time, the RTGS service interface - if related payments are still pending - continuously checks whether the time limit is reached. If the time limit is exceeded and guarantee fund mechanism is not in place the settlement fails and the whole file is rejected.
	2d	RTGS	If the time limit is exceeded and the guarantee fund mechanism has been set up, "Guarantee fund mechanism" will be available for the central bank and can be activated according to the agreed procedure. If it is the case the RTGS service interface changes the file's settlement procedure into standard multilateral and reenters the debits only. If the settlement attempt is not totally successful the RTGS service interface initiates the procedure described in chapter Optional connected mechanisms [▶ 50].

Phase	Step	Processing in/between	Description
Notifications	3a	Service interface via ESMIG to ancillary system (or central bank)	After all transactions have been booked the ancillary system (or the relevant central bank on its behalf) receives a notification file (ASInitiationStatus), confirming the entire set of transactions.

In case of revocation of the initial transaction file, the ancillary system receives the ASInitiationStatus with code status "revoked". |
| | 3b | | On an optional basis, the settlement banks of the ancillary system participants are notified in case of successful settlement with a camt.054. |

Table 6 - process description

At each step throughout the process, information for settlement banks and ancillary systems is also available in U2A mode.

6.3.4 Settlement on dedicated liquidity accounts

General aspects

Ancillary systems which run settlement procedures based on the confidence of a liquidity "fixed" amount can benefit from a pre-funding function that allows settlement banks to set aside the needed liquidity in one or more than one separate sub-accounts dedicated to a specific ancillary system.

The settlement on dedicated liquidity accounts must therefore be used to settle balances for an amount equal to or lower than the set aside liquidity.

Furthermore, to avoid liquidity shortages, as far as interfaced ancillary system settlement procedures are concerned, automatic mechanisms triggered by specific transactions for increasing the already set aside liquidity (i.e. redemption and coupon payments or payments related to auto-collateralisation) are foreseen.

Settlement on dedicated liquidity is a very convenient functionality to provide liquidity in batch-mode either for the interfaced settlement procedure or for the real-time settlement procedure. During the night-time business, after the re-opening of the RTGS service with next value date, the liquidity adjustment mechanisms - provided within the dedicated liquidity procedure - are the only opportunity to supply liquidity without any impact on reserve management and overnight facilities, as regular payment functionality is not available from 18.00 till 3.00.

A settlement bank can use this settlement procedure with reference to several ancillary systems.

Accounting

As already mentioned settlement on dedicated liquidity accounts is suitable for both real-time and interfaced ancillary systems.

l   In case of real-time models, where the settlement occurs on the RTGS service, the pertinent ancillary system has to use its technical account - real-time to collect the liquidity set aside by its settlement banks and to mirror it in the cash positions within its own system.

l   In case of interfaced models, where the settlement takes place in the RTGS service, the settlement bank has to open at least one sub-account related to a single ancillary system.

A sub-account is identified by the BIC of the related direct RTGS participant in combination with an account number that is specific for the sub-account. Only direct RTGS participants can hold such a sub-account.

The settlement banks wishing to segregate in distinct cash position their settlement business have to open also more than one sub-account for each ancillary system.

Procedures and cycles

Settlement with dedicated liquidity is a standardised procedure for daylight and night-time business. Daylight and night-time businesses are operated in so-called procedures and cycles. Depending on business day phase the daylight procedure/cycle and the night-time cycle can be opened by messages or via GUI. The daylight and night-time procedure/cycle can be closed by messages or via GUI. Daylight procedures are running during the day trade phase, the night-time procedure runs between the start of a new business day and the next day trade phase.

With the "start of procedure message" the standing orders (see below) are executed, the liquidity is therefore transferred from the settlement banks' RTGS dedicated cash accounts to the technical account – real-time (real-time model) or sub-accounts (interfaced model).

With the "end of procedure message" (ReturnGeneralBusinessInformation) the remaining liquidity on sub-accounts (interfaced model) is transferred back to the settlement banks' RTGS dedicated cash accounts (no transfer back for technical account - real-time – real-time model).

The following description provides some information on the message flow for ancillary system business steering.

Ancillary system pushes a camt.021 to RTGS service

l   information that ancillary system opened a cycle or procedure

l   information that ancillary system closed a cycle or procedure

RTGS service pushes a camt.021 to ancillary system

l   information that night-time settlement procedure started

l   information that a cycle ended

l   information that a procedure ended

Message flow
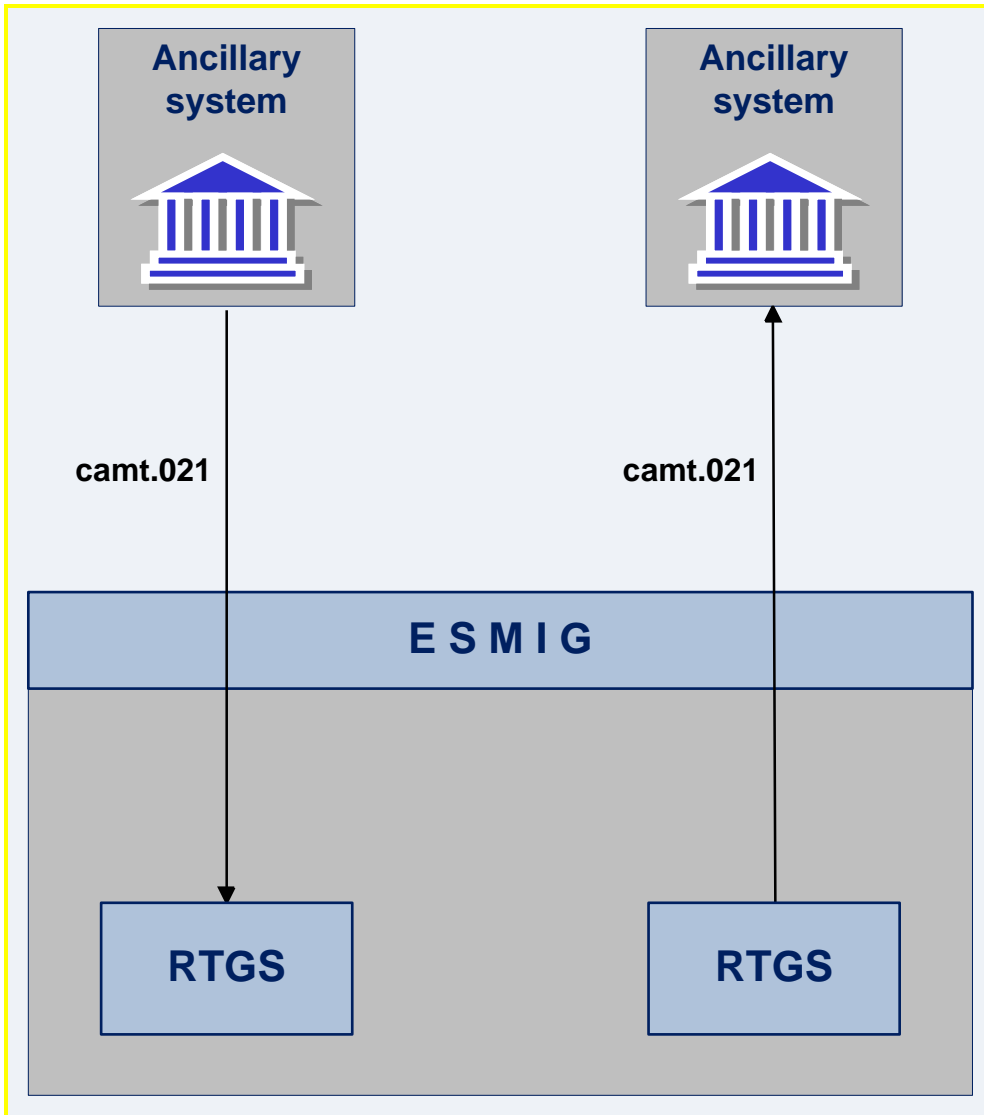
Figure 6 - camt.021 – ReturnGeneralBusinessInformation

Process description

step	processing in/between	description
1	Ancillary system via ESMIG to RTGS	Ancillary system A sends a camt.021 via ESMIG to the RTGS service.
2	RTGS	RTGS message check and validation positive

Table 7 - process description

Used messages

l   camt.021

It is not possible for any ancillary system using the ancillary system real-time to close the night-time settlement procedure. RTGS service will automatically open the night-time settlement procedure at 19:30 at D. RTGS service will automatically close the night-time settlement procedure at 0:30 at D+1, without any intervention by the ancillary system.

Within a procedure several cycles could run consecutively. Before a cycle is started, a certain period of time for liquidity transfers between RTGS and sub-accounts or between RTGS and technical account - real-time shall be foreseen.

Between two cycles a timeframe to allow liquidity adjustment is foreseen, each cycle is structured as follows:

l   A specific message declares the starting of the cycle (ReturnGeneralBusinessInformation).

l   During the settlement cycle the dedicated liquidity is consequently blocked. Possible current orders received during the cycle are stored within the RTGS service and they will be executed immediately after the end of cycle message. For daylight processing only, possible payments (i.e. sent via pacs.009 with priority "urgent") received during a cycle to transfer liquidity from the RTGS dedicated cash account to the technical account - real-time (real-time model) or a specific sub-account (interfaced model) are immediately executed. If when registering to RTGS service the ancillary system has opted for the notification, the ancillary system is immediately notified of the transfer.

l   The liquidity deposited on a dedicated account can be further increased via automatic settlement of specific payment orders.

l   Settlement instructions are processed while optimisation mechanism is running.

l   A specific message states the end of cycle (ReturnGeneralBusinessInformation).

l   At the end of the settlement process, the (remaining) dedicated liquidity is released but kept in the sub-account to be available for possible further cycles.

l   Current orders received during the cycle, if any, are executed after the end-of-cycle message.

With the ancillary system real-time, it is no longer necessary to open a cycle to submit a "Cross ancillary system settlement" transaction. However, since the cycle functionality is not removed from the ancillary system real-time, if an ancillary system opens a cycle, then this ancillary system has to be aware that the liquidity will be blocked until the cycle is closed again, except for pacs.009 with priority "urgent" during daylight processing (reminder: no other liquidity adjustment is possible during open cycles).

The rejection of all control messages (start/end of cycle/procedure) is expressed by RTGS using the XML message receipt.

This general workflow has variants depending on the phases of the business day (daylight or night-time) and on the nature of the ancillary system (interfaced or real-time), which are described in further detail in the information on night-time and daylight business.

Provided tools to set aside liquidity

In order to set aside liquidity on technical account - real-time (real-time model) or sub-accounts (interfaced model) several options are provided.

Standing orders

Standing orders are instructions of a settlement bank to transfer regularly a fixed amount from its RTGS dedicated cash account to the technical account - real-time (real-time model) or specific sub-accounts (interfaced model).

Standing orders can be inserted and modified in user-to-application (U2A) and application-to-application (A2A) mode (in the latter case ModifyStandingOrder to store the amount in CRDM). As a consequence standing orders can neither be inserted nor modified when the U2A and A2A access is not available (i.e. between the end-of-day and the opening of the next business day). Standing orders are automatically executed immediately after the start of procedure message; as a consequence standing orders inserted or modified during a procedure processing are taken into account only at the next business day.

Each settlement bank can set different standing orders to sub-accounts (interfaced model) for night-time and daylight procedure.

However, for any ancillary system using the ancillary system real-time, be aware that no daylight procedure with additional standing orders will be available anymore (since it is no longer possible for any ancillary system using the ancillary system real-time to close the night-time procedure). Therefore, only one standing order per business day can be set for this procedure. It is executed with the start of night-time processing.

In case of sub-accounts (interfaced model) a settlement bank has the possibility to open several sub-accounts in order to e.g. separate own business and third-party business. For each sub-account the settlement bank can define two standing order liquidity transfers (one for daylight and one for night-time processing).

Only the settlement bank can set standing orders; the ancillary system cannot instruct standing orders to credit the technical account - real-time or sub-accounts related to it.

Current orders

Current orders are instructions entered either by a settlement bank or the pertinent ancillary system on its behalf to perform an immediate liquidity transfer from the settlement bank's RTGS dedicated cash account to the ancillary system technical account - real-time (real-time model) or the settlement bank's specific sub-account (interfaced model).

Current orders can be inserted in U2A and A2A mode.

Current orders are executed immediately if received between two cycles (liquidity adjustment phase); as a consequence current orders received during a cycle processing are stored to be taken into account only immediately after at the end of cycle message according to the FIFO principle. Current orders received after an end of procedure message (out of the procedure timeframe) are immediately rejected (notification ASInitiation-Status).

If the liquidity on the RTGS dedicated cash account or on the sub-account is insufficient to cover the current order sent by the ancillary system, the order is partially executed (i.e. up to the available liquidity on the RTGS dedicated cash account or on the sub-account concerned). The remaining part will not be settled. Current orders can be used both for night-time and daylight procedure. It is also possible to insert more than one current order for a specific technical account - real-time (real-time model) or for each specific sub-account (interfaced model).

Current orders can also be used to withdraw liquidity from the sub-account (interfaced model) to the RTGS dedicated cash account. This is not possible in the real-time model as the technical account - real-time is held by the central bank or ancillary system and not by the settlement bank. A transfer to the RTGS dedicated cash account should be initiated in the ancillary system in the real-time model.

Payments

Eventually - for daylight processing only - the liquidity can be transferred from the RTGS dedicated cash account to the technical account - real-time (real-time model) or a specific sub-account (interfaced model) using the normal payment functionality via pacs.009. The reverse transaction is not allowed. The pacs.009 (priority "urgent" has to be used) has to include the reference of the account. In difference to standing/ current orders the settlement bank as sender of the pacs.009 does not receive a debit notification for the debit on the RTGS dedicated cash account.

Note: Payments via pacs.009 to technical accounts - real-time should not be sent as normal business but in contingency situations only.

Payments received during a procedure but out of the cycle timeframe are executed and notified immediately.

Payments received during a cycle processing are immediately executed. In case of payment to sub-account (interfaced model) the ancillary system is notified immediately by a ReturnAccount if it has opted for the notification.

Payments for interfaced models received after an end of procedure message (out of the procedure timeframe) are rejected.

6.3.5 Optional connected mechanisms

General aspects

In connection with settlement of ancillary systems, a set of four additional options is available which can be used for a more efficient liquidity management:

- information period
- scheduled time ("from")
- settlement period ("till")
- guarantee fund mechanism

To make use of these mechanisms the ancillary system has to fill in a specific field provided in the header.

Only the ancillary system (or the central bank acting on its behalf) is entitled to insert these parameters in the file. Once a file is sent the parameters can be updated in U2A mode:

- by the ancillary system for optional mechanism "Settlement period" before the inserted "till"- time has been expired
- by the settlement bank only for optional mechanism "Scheduled time" before the inserted "from"- time has been reached (procedure 2)

"Information period" and "Guarantee fund mechanism" parameters can be updated neither by the ancillary systems nor by the settlement banks nor by central banks.

Information period

The information period option allows settlement banks a more efficient liquidity management giving the possibility of knowing in advance the liquidity needed for the settlement of a specific ancillary system's balances.

Under certain circumstances settlement banks have the possibility to disagree with specific balances before settlement takes place. The business rules and regulations for disagreements need to be defined by the ancillary system and the relevant central bank.

The RTGS service interface sends a notification to the settlement banks when the information period starts. If the settlement bank does not react during the whole information period the settlement takes place following the selected settlement procedure. If the settlement bank disagrees (suitable communication means have to be agreed with the ancillary system) the settlement fails. The central bank of the ancillary system has to revoke the disagreed balances (bilateral settlement) or the whole file (standard and simultaneous multilateral settlement) using a specific U2A function.

Scheduled time ("from")

The settlement of individual transactions ("Real-time settlement") can take benefits from the use of a "from" option. From the settlement point of view it is very close to the "Information period" option: in both cases the settlement is deferred to a specific time (from) or to the end of a period (information period). The main difference between the two options is:

	Information period	Scheduled time ("from")
References	Being batch oriented, the period applies to the whole set of transactions.	Being real-time oriented, the period is applied to the individual transaction.
Processing	The file incorporating an information period is maintained in the RTGS service interface until the period ends (the pertaining transactions are therefore not queued until the information period ends).	The transactions with a "from" option are immediately sent to RTGS payment processing but they are delivered to the entry disposition only when the "from" is reached.

Table 8 - difference between "information period" and "from" option

Settlement period ("till")

The settlement of an ancillary system may only take a pre-defined period of time. If the settlement is not completed successfully during this period of time the transactions are rejected or a guarantee fund mechanism is activated.

The ancillary system, according to rules established at national level, can modify the end of the settlement period ("Change settlement period" in U2A mode) before it is expired.

Ancillary systems are expected to use the settlement period option to avoid the extension of the arranged settlement timeframe. In case the option is not used the unsettled transactions are queued and no additional services are performed on their settlement processing. There is less control over the whole process and the final notification on the whole set of transactions will be sent to the ancillary system either when the last balance has been settled or when the end-of-day queues cancellation occurs.

Guarantee fund mechanism

The guarantee fund mechanism (if foreseen by the ancillary system) could be used to provide the needed liquidity when a settlement failure occurs.

This optional mechanism can be used only:

l   in relation to a multilateral (both standard and simultaneous) procedure

l   together with "Settlement period" time option

The guarantee fund mechanism is based on a guarantee account where the liquidity is collected to support the ancillary system settlement procedure - either continuously or arranged shortly before.

Message flow

Used Messages

l   camt.050 - Liquidity Transfer

l   camt.054 – Bank to Customer Credit Notification

l   camt.025 – Receipt

l   admi.007 – ReceiptAchknowledgement

l   pacs.009 – FI Credit Transfer

l   pacs.010 – FI Direct Debit

Process description

Phase	Step	Description
Settlement failure	1	If the "Settlement period" time is indicated and the settlement is not yet achieved when the allotted time is exceeded the settlement fails.
	2	The settlement failure is notified to the ancillary system via an XML message (ASInitiationStatus)
Guarantee fund mechanism	3	If the guarantee fund mechanism has been set up, the ASInitiationStatus contains the request to confirm the use of the guarantee fund mechanism.
	4	Depending on the guarantee schema either the collection of the needed liquidity has been granted in advance by the ancillary system (i.e. prefunding) or the ancillary system has to co-ordinate the liquidity collection making it available on the specific "guarantee" account.\n\nIn any case, before the guarantee fund mechanism starts the ancillary system has to assure the needed liquidity is provided on the guarantee account.
	5	The ancillary system sends an XML message (receipt) to give either a positive or a negative confirmation in order to proceed or not with a new settlement phase against the guarantee account.

Phase	Step	Description
New settlement phase	6	If the ancillary system confirms the actual use of the guarantee fund mechanism the ancillary system re-enters the transactions for which the liquidity was missing in order to be settled on the guarantee account by substituting the debtor settlement bank account number into the file with the ancillary system guarantee account number.
	7	In case of sufficient liquidity the settlement takes place and the ancillary system is notified of the ending of the whole settlement procedure. On an optional basis, the settlement banks of the creditor side are notified.
	8	If the ancillary system sends a negative confirmation or there is a lack of liquidity on the guarantee account the "reversing procedure" is initiated (only in case of settlement procedure no. 4). The ancillary system informs all involved settlement banks in U2A mode.

Table 9 - process description

6.4 Liquidity management

6.4.1 Available liquidity

6.4.2 Liquidity transfer

6.4.2.1 Overview

Liquidity transfers are carried out between users and the system in order to instruct the transfer of cash from one cash account to another cash account by using the Liquidity Transfer Order Message (camt.050). They are not classified as payments (i.e. pacs) but are cash management instructions using camt messages.

A liquidity transfer can be sent within RTGS only if all involved accounts belong to the same liquidity transfer group, within the whitelist if defined, a central bank account is involved or the accounts belong to the same party, except for ancillary system instructions (liquidity transfer to sub-accounts) which can be settled without a liquidity transfer group.

In general liquidity transfers are never queued, they are either settled immediately (full or partially) or they will be rejected.

Only under certain conditions an automatically generated liquidity transfer can become pending, for instance in the following scenario.

CLM main cash account has insufficient liquidity for a central bank operation AND there is not sufficient liquidity on the RTGS dedicated cash account for an automatically triggered liquidity transfer to the main cash account.

In this case any incoming liquidity (up to the required amount) on the RTGS dedicated cash account will be transferred stepwise to the main cash account until the pending transaction (i.e. the central bank transaction) is completely settled.

Liquidity transfer orders can be used to transfer liquidity

l   between two dedicated cash accounts within the RTGS service (intra-service)

l   from a dedicated cash account of the RTGS service to a CLM main cash account - or vice versa (inter-service)

l   from a dedicated cash account of the RTGS service to a DCM of the TIPS or T2S service - or vice versa (inter-service)

Also possible, but not in scope for this UDFS document are liquidity transfers

l   between two main cash accounts within the CLM service (intra-service)

l   between two dedicated cash accounts within the T2S service (intra-service)

All types of liquidity transfers are covered by this business process.

Liquidity transfer type	Description
Immediate liquidity transfer order	Immediate transfer of a certain amount of liquidity after initiation of the order by the account holder or an authorised third party
Event based liquidity transfer order	Transfer of liquidity (a certain amount or whole available liquidity on the account) non-recurring at a pre-defined point in time or event
	Specification of events by each service
	Definition of amount, point in time and event by account holder
Standing liquidity transfer order	Transfer of liquidity (a certain amount or whole available liquidity on the account) regularly at a certain point in time or event
	Specification of events by each service, e.g. ASI 6 interfaced and real-time after start-of-procedure message

Table 10 - liquidity transfer types

The process will be initiated by either the RTGS participant itself or by the ancillary system on the participants' behalf or by the central bank on the participants' behalf via sending the respective liquidity transfer to RTGS. RTGS will process the liquidity transfer. If the liquidity transfer content is either invalid or would result in reference data checks to fail, it will be rejected and a rejection notification will be sent to the sender (depending on the channel a proper message in A2A mode or an error message on the screen in U2A mode). If the liquidity transfer content is valid and certain reference data checks have been passed, RTGS will attempt

to transfer (part of) the liquidity amount requested to the account referred to. Where the intra-RTGS liquidity transfer (partly) succeeds, RTGS will transfer (part of) the amount requested and RTGS will send a (partly) transfer success notification to the participants/ancillary systems involved (where the participant opted for it).

For the transfer of liquidity the following rules apply:
Within RTGS liquidity can be transferred between dedicated cash accounts belonging to the same liquidity transfer group. Liquidity transfer groups are configured by the respective central bank. A whitelist provides additional control for cash accounts by restricting from or to which other cash account liquidity transfers are allowed. It is configured by the participants (separate for inbound and outbound) and its usage is optional. The whitelist applies in addition to the features of the liquidity group for liquidity transfers within a single service and for liquidity transfers across services. Liquidity transfers are also possible if the accounts belong to the same party or a central bank account is involved.

A whitelist can restrict sending or receiving liquidity transfers between preassigned accounts.

The liquidity transfers process also takes account of potential floor/ceiling agreements on the involved RTGS dedicated cash accounts and/or main cash accounts. For more details about floor/ceiling procedures refer to chapter Floor/ceiling [▶ 67].

6.4.2.2 Initiation of liquidity transfers

Liquidity transfers are initiated by either the RTGS participant itself, by the ancillary system on the participants behalf or by the central bank on the participants behalf via sending the respective liquidity transfer order to RTGS.

Liquidity transfer orders are triggered by either one of the following processes:
l   immediate liquidity transfer via A2A or U2A
l   standing liquidity transfer order
l   event based liquidity transfer order

A liquidity transfer (camt.050) can be submitted to the RTGS service by
l   a direct participant in the RTGS service
l   a multi-addressee access
l   a central bank
l   an ancillary system

6.4.2.3 Liquidity transfer process

6.4.2.3.1 Liquidity transfer between two dedicated cash accounts of the RTGS service

Preconditions

1. Both RTGS dedicated cash accounts exist

2. Respective privileges have been granted to the sender

Message flow
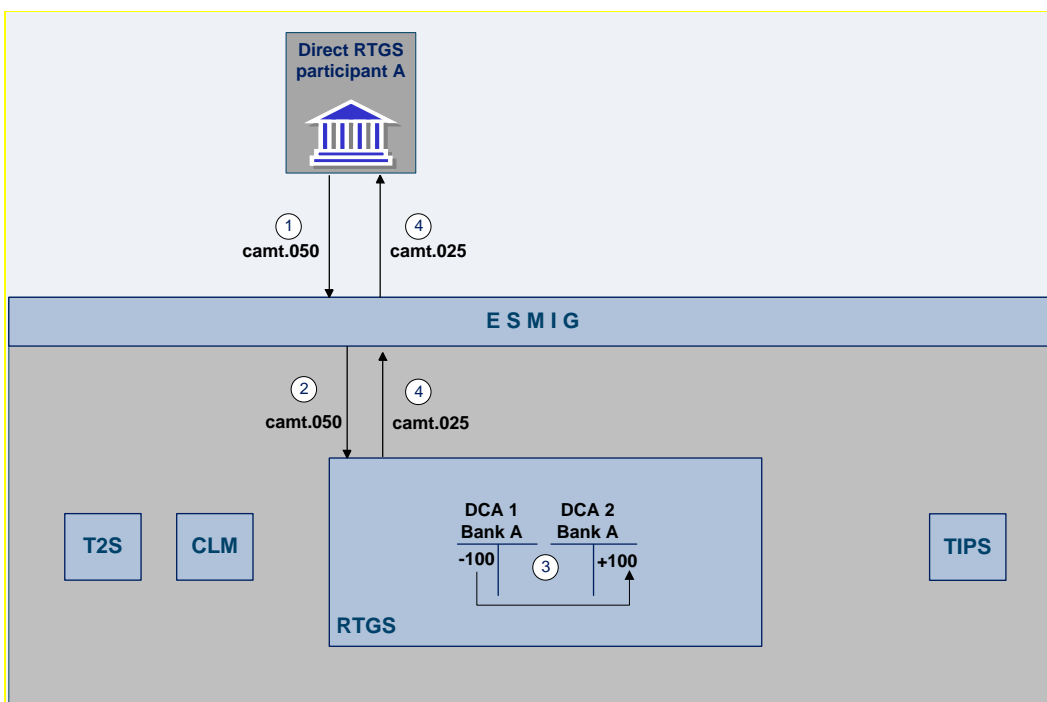
Figure 7 - liquidity transfer between two dedicated cash accounts of the RTGS service

Used messages

- camt.050 - Liquidity Transfer

- camt.054 - Bank to Customer Credit Notification

- camt.025 - Receipt

- admi.007 - ReceiptAchknowledgement

Process description

The liquidity transfer between two dedicated cash accounts within RTGS consists of the following process steps:

Step	Processing in/between	Description
1	Direct RTGS participant via ESMIG to RTGS	camt.050 is sent from a direct RTGS participant to RTGS via ESMIG (participants belonging to the same liquidity transfer group)
2	ESMIG/RTGS	ESMIG technical validation positive; routing to RTGS service
3	RTGS	Booking on RTGS dedicated cash accounts
4	RTGS via ESMIG to direct RTGS participant	For full execution: camt.025 is sent by RTGS via ESMIG to the direct RTGS participant A
		For partial execution:

Table 11 - process description

In addition the following business cases are also considered to be intra-RTGS liquidity transfers:

l Liquidity transfer from an ancillary system participant's RTGS dedicated cash account for all payments to its RTGS dedicated cash account dedicated to one or several ancillary systems. This could be as well from a RTGS dedicated cash account to a sub-account dedicated to a procedure 6 interfaced ancillary system (and vice versa).

l Liquidity transfer from a participant's RTGS dedicated cash account to the technical account related to an ancillary system using procedure 6 real-time (and vice-versa).

l Liquidity transfer from one RTGS dedicated cash account to another RTGS dedicated cash account within the same liquidity transfer group or within the whitelist if defined.

6.4.2.3.2 Liquidity transfer from dedicated cash account of the RTGS service to CLM main cash account

Preconditions

1. Both RTGS dedicated cash account and CLM main cash account exist

2. Respective privileges have been granted to the sender

Message flow
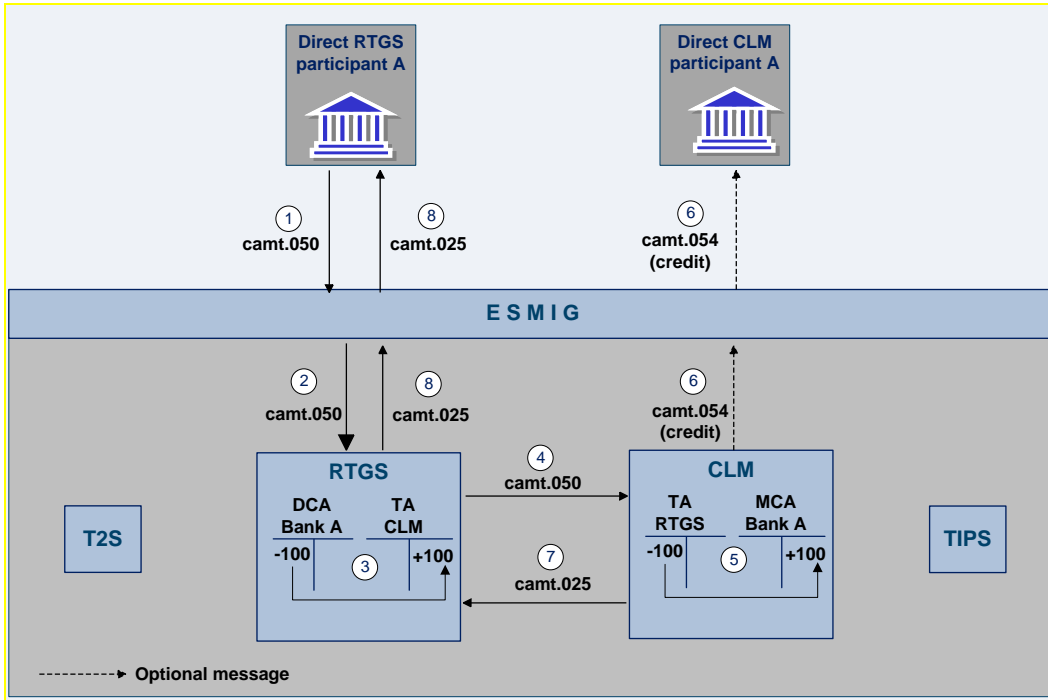
Figure 8 - liquidity transfer from dedicated cash account of the RTGS service to CLM main cash account

Used messages

l   camt.050 - Liquidity Transfer

l   camt.054 - Bank to Customer Credit Notification

l   camt.025 - Receipt

l   admi.007 - ReceiptAckknowledgement

Process description

The liquidity transfer between a dedicated cash account of the RTGS service and a main cash account of the CLM service consists of the following process steps:

Step	Processing in/between	Description
1	Direct RTGS participant via ESMIG to RTGS	A camt.050 is sent from a direct RTGS participant to ESMIG.
2	ESMIG/RTGS	ESMIG technical validation positive; routing to RTGS service
3	RTGS	Booking on RTGS dedicated cash accounts (dedicated cash account -> technical account-CLM)
4	RTGS/CLM	A camt.050 is forwarded to CLM service.

Step	Processing in/between	Description
5	CLM	Booking on CLM main cash accounts (technical account-RTGS -> main cash account)
6	CLM via ESMIG to direct CLM participant	A camt.054 (credit) is sent by CLM via ESMIG to the direct CLM participant. (optional)
7	CLM/RTGS	For full execution: camt.025 generated in CLM will be sent to RTGS service For partial execution:
8	RTGS via ESMIG to direct RTGS participant	For full execution: camt.025 is sent by RTGS via ESMIG to the direct RTGS participant. For partial execution:

Table 12 - process description

6.4.2.3.3 Liquidity transfer from dedicated cash account of the RTGS service to a dedicated cash account in different settlement services

Preconditions

1. Both RTGS dedicated cash account and dedicated cash account of different service exist

2. Respective privileges have been granted to the sender

Message flow
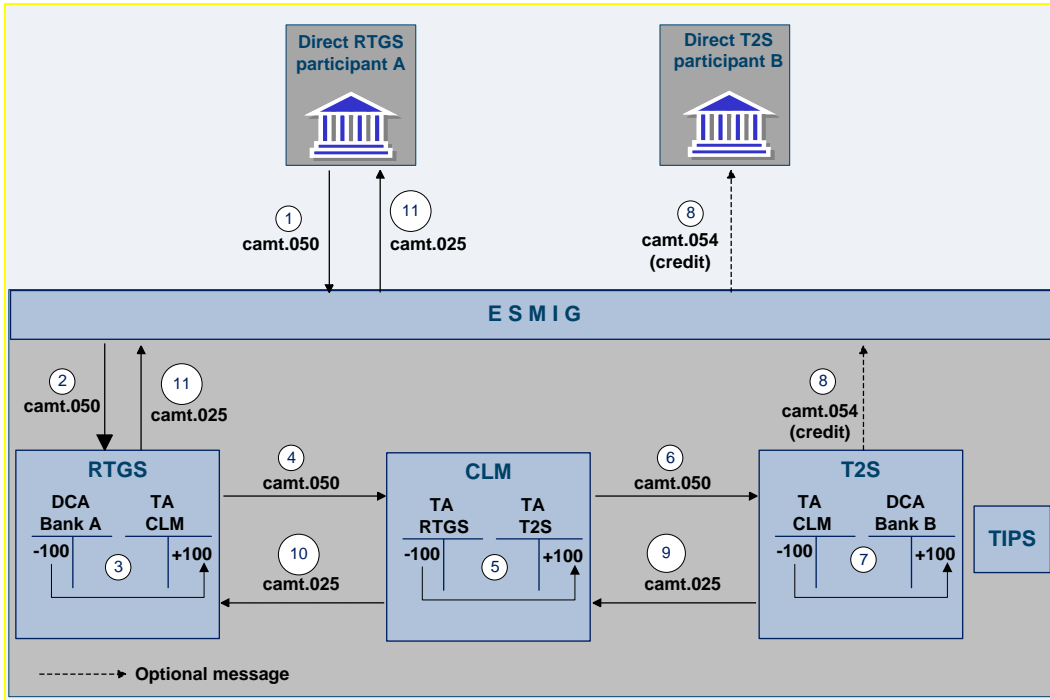
Figure 9 - liquidity transfer from dedicated cash account of the RTGS service to a dedicated cash account of the T2S service

Used messages

l   camt.050 - Liquidity Transfer

l   camt.054 - Bank to Customer Credit Notification

l   camt.025 - Receipt

l   admi.007 - ReceiptAchknowledgement

Process description

The liquidity transfer from the RTGS- dedicated cash account to a dedicated cash account of a different service (T2S in this example) consists of the following 11 process steps:

Step	Processing in/between	Description
1	Direct RTGS participant via ESMIG to RTGS	A camt.050 is sent from a direct RTGS participant to RTGS via ESMIG.
2	ESMIG/RTGS	ESMIG technical validation positive; routing to RTGS service
3	RTGS	Booking on RTGS dedicated cash account accounts (dedicated cash account-RTGS -> technical account-CLM)
4	RTGS/CLM	A camt.050 is sent to CLM service.

Step	Processing in/between	Description
5	CLM	Booking on CLM main cash accounts (technical account-RTGS -> technical account-T2S)
6	CLM/T2S	A camt.050 is forwarded to T2S service.
7	T2S	Booking on T2S accounts (technical account-CLM -> dedicated cash account-T2S)
8	T2S via ESMIG to direct T2S participant	For full execution: camt.054 (credit) is sent by T2S via ESMIG to the direct T2S participant. (optional) For partial execution:
9	T2S/CLM	For full execution: camt.025 generated in T2S will be sent to CLM service. For partial execution:
10	CLM/RTGS	For full execution: CLM forwards the camt.025 to the RTGS service. For partial execution:
11	RTGS via ESMIG to direct RTGS participant	For full execution: camt.025 is sent by RTGS via ESMIG to the direct RTGS participant. For partial execution:

Table 13 - process description

6.4.2.3.4 Liquidity transfer from dedicated cash account in different settlement service to a dedicated cash account of the RTGS service

Preconditions

1. Both RTGS dedicated cash account and CLM main cash account exist

2. Respective privileges have been granted to the sender

Message flow
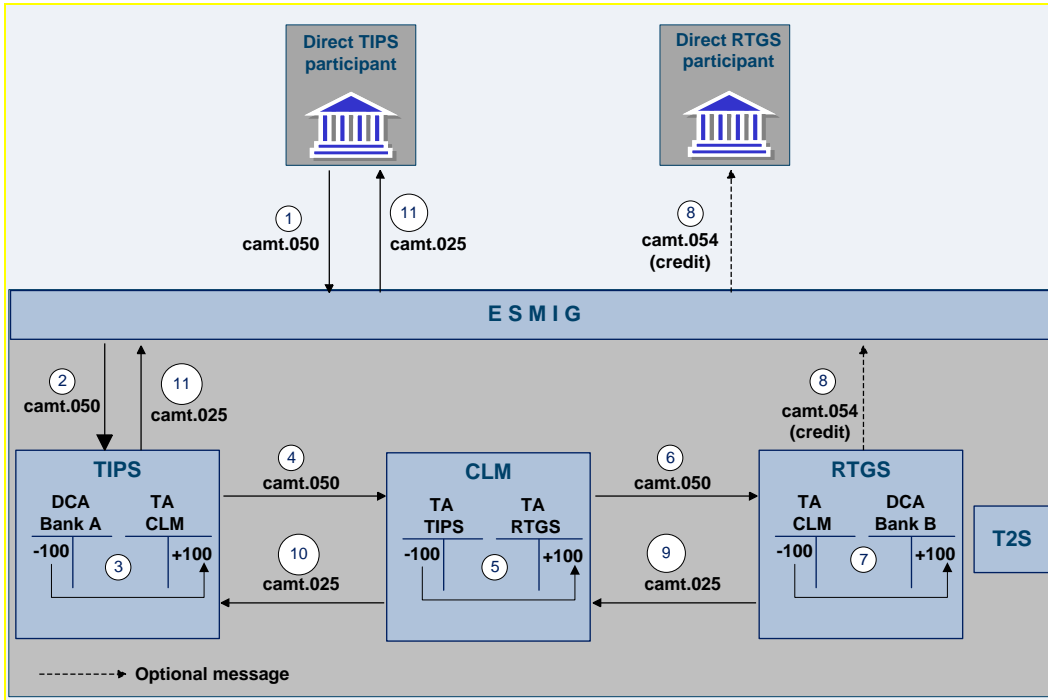
Figure 10 - liquidity transfer from dedicated cash account of the TIPS service to a dedicated cash account of the RTGS service

Used messages

l   camt.050 - Liquidity Transfer

l   camt.054 - Bank to Customer Credit Notification

l   camt.025 - Receipt

l   admi.007 - ReceiptAchknowledgement

Process description

The liquidity transfer from a different service (TIPS in this example) to the RTGS-dedicated cash account consists of the following 11 process steps:

Step	Processing in/between	Description
1	Direct TIPS participant via ESMIG to TIPS	A camt.050 is sent from a direct TIPS participant to TIPS via ESMIG.
2	ESMIG/TIPS	ESMIG technical validation positive; routing to TIPS service
3	TIPS	Booking on TIPS dedicated cash accounts (dedicated cash account-TIPS -> technical account-CLM)
4	TIPS/CLM	A camt.050 is sent to CLM service.

| Step	Processing in/between	Description
5	CLM	Booking on CLM main cash accounts (technical account-TIPS -> technical account-RTGS)
6	CLM/RTGS	A camt.050 is forwarded to RTGS service
7	RTGS	Booking on RTGS dedicated cash accounts (technical account-CLM -> dedicated cash account-RTGS)
8	RTGS via ESMIG to direct RTGS participant	For full execution: camt.054 (credit) is sent by RTGS via ESMIG to the direct RTGS participant. (optional) For partial execution:
9	RTGS/CLM	For full execution: camt.025 generated in RTGS will be sent to CLM service. For partial execution:
10	CLM/TIPS	For full execution: CLM forwards the camt.025 to the TIPS service. For partial execution:
11	TIPS via ESMIG to direct TIPS participant	For full execution: camt.025 is sent by TIPS via ESMIG to the direct TIPS participant. For partial execution:

Table 14 - process description

6.4.2.4 Rejection of liquidity transfer orders

Liquidity transfer orders sent to the RTGS service have to pass several validations before the liquidity is effectively transferred. Validations performed include technical checks, format checks as well as checks for the correct content.

For different reasons a liquidity transfer can be rejected and returned to the sending actor. The validations are distinguished in two types.

Technical validations

The system reaction on errors during technical validation differentiates between "Technical validation until schema validation" and "Technical validation after schema validation".

The result of the technical validation can be different depending on the state of the schema validation:

l   In case the technical validation until schema validation was not successful a ReceiptAcknowledgement (admi.007) is sent to the sending actor indicating which error occurred.

l   In case the schema validation was successful, the service performs the technical validation.

l   In case the technical validation after schema validation was not successful, the service sends an admi.007 message according to the business rules.

Business validations

Rejections after the business validations result in a receipt message (camt.025) being sent to the sending actor including the respective error code(s) according to chapter Index of business rules and error codes [▶ 103].

6.4.2.4.1 Technical validations

Syntax/schema checks

The service shall parse the message and perform a field level validation, e.g. on correct data type, size. The service shall check whether all mandatory fields are populated. If the validation fails, a rejection notification with appropriate reason code must be sent to the sender of the message (depending on the submission channel, a message in A2A mode or an error message on the screen in U2A mode).

Duplicate checks

The service shall ensure that the same message has not already been received on the same business day.

6.4.2.4.2 Business validations

The validations described below will be performed in one step in order to capture all the possible breaches; the checks therefore must not stop after the first breach occurring if there could be further breaches in the subsequent checks. If the validation failed overall, a rejection notification with appropriate reason codes for all breaches which occurred must be sent to the sender.

Check for duplicate liquidity transfer

The service shall carry out a duplicate submission control for incoming liquidity transfers. This control shall include the following fields: Sender of the message; Message Type; Receiver; Transaction Reference Number; Reference; Value Date and Amount.

Process specific authorisation checks

The service shall perform service specific authorisation checks. A liquidity transfer order from the participant's RTGS dedicated cash account to the RTGS dedicated cash account dedicated to ancillary system can be sent by the participant, the ancillary system, the ancillary system on the participant's behalf or the respec-

tive central bank acting on behalf its participants/ancillary system. The liquidity transfer order can also be triggered by the scheduler in the case of standing orders. The request for a liquidity retransfer from the RTGS dedicated cash account dedicated to ancillary system to the participant's RTGS dedicated cash account can be sent by the participant, ancillary system or the respective central bank acting on behalf of its ancillary system or triggered by a standing liquidity transfer order set up by the participant.

Liquidity transfer group

The service shall check whether both accounts belong to the same participant, or to participants within the same liquidity transfer group or not. If not, the order will be rejected. This check is not performed for central bank accounts.

Whitelist check

The service shall check if the sending account is on the whitelist for liquidity transfers of the receiving account (if the receiving account has activated the whitelist feature). RTGS shall check if the receiving account is on the whitelist for liquidity transfers of the sending account (if the sending account has activated the whitelist feature). This check is not performed for accounts belonging to the same participant or where the liquidity transfer involves one or more central bank accounts.

Field and reference data checks

The service shall perform the following field and reference data checks:

- field value validation - codes are valid, domain values are within allowed range
- cross-field validation – e.g. currency of the accounts involved is the same as the amount currency
- database checks – e.g. existence of parties and accounts

Subsequent processes and checks

- check vs. amount to be transferred

  The service shall check whether enough liquidity is available. Where there is a lack of liquidity the usual rules for partial execution apply (see Table 4 - liquidity transfer types [▸ 38]).

- partial request

  If the liquidity transfer is initiated either by an ancillary system on its participants' behalf or by an automatic trigger from the scheduler, RTGS shall settle the liquidity transfer partially. For several standing orders, where the sum of all standing orders for intra-RTGS liquidity transfers of the participant to be settled at the same event is larger than the available liquidity, RTGS shall reduce all respective standing orders in a pro-rata mode.

- update cash balances

The service shall book the liquidity transfer finally and irrevocably on the two RTGS dedicated cash accounts and shall update the defined value. RTGS shall send a (partly) success notification to the sending party and to the owner of the debited account.

l   check on floor/ceiling

Once the payment is final, the service shall check whether the account balance is below the floor balance or is above the ceiling balance that the account owner defined for the account. This check is performed only where the participant has defined a floor and/or a ceiling for the account. The check is done both on the debited and credited accounts.

If either is the case, then the second step is to check which action has been specified:

– Notification to be sent in A2A and/or notification to be sent as an alert in U2A.

– Event-based liquidity transfer order for submission to central liquidity management to adjust the liquidity on the accounts involved so that the balance of the affected account reaches the specified target amount.

The outcome of this final check does not affect the finality of the settlement of the payment.

6.4.3 Liquidity management features

6.4.3.1 Reservation

6.4.3.1.1 Overview

6.4.3.1.2 Liquidity reservation process

6.4.3.1.3 Effect of liquidity reservation

6.4.3.2 Limits

6.4.3.2.1 Limit types

6.4.3.2.1.1 Categorisation of limits

6.4.3.2.1.2 Bilateral limits

6.4.3.2.1.3 Multilateral limits

6.4.3.2.2 Rules for definition of limits

6.4.3.2.3 Effect of limits

6.4.3.3 Dedication of liquidity for ancillary system settlement

6.4.3.4 Floor/ceiling

6.4.3.4.1 Definition of floor/ceiling threshold

6.4.3.4.2 Breach of floor/ceiling threshold - notification

6.4.3.4.3 Breach of floor/ceiling threshold - automatic liquidity transfer

6.5 Reference data management

6.5.1 Concept

6.5.2 Overview

6.5.3 Reference data maintenance process

The common reference data maintenance process can be described as a common message flow that applies to every business scenario.

Upon the sending of a request instructed with an input message, a related response message or a technical validation error message is returned.

6.5.3.1 Reference data objects

The shared generic message flow is as follows:
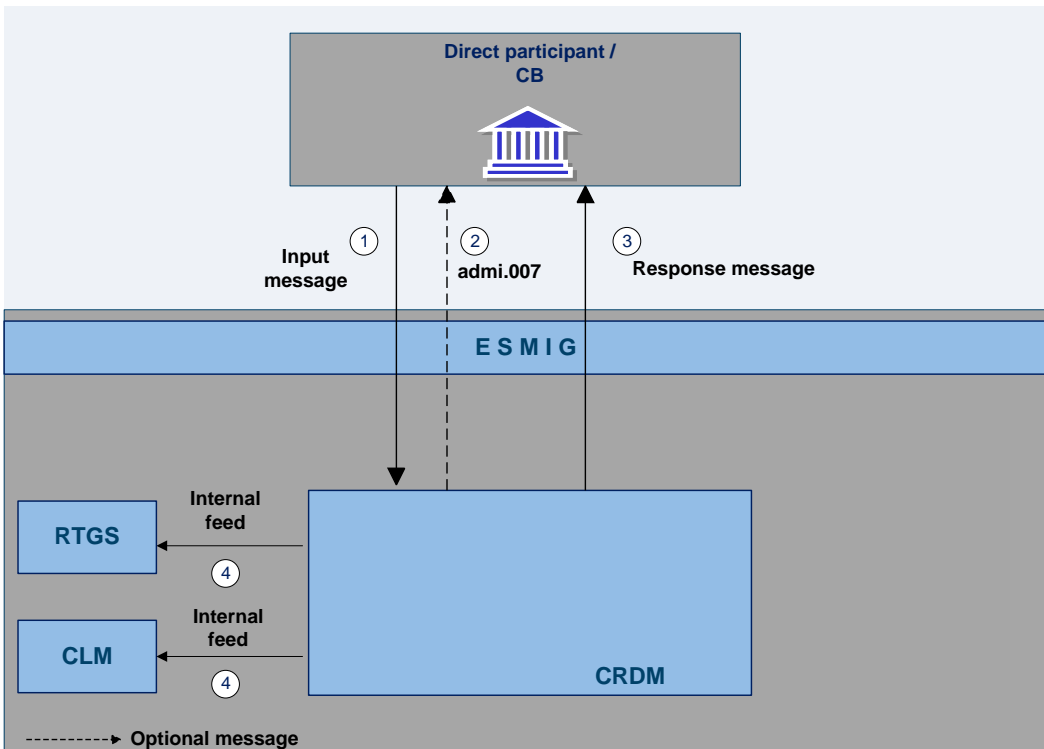
Step	Activity
1	The authorised actor (CLM or RTGS participant or another actor operating on behalf of the MCA or RTGS owner under a contractual agreement) sends the input message to CRDM to create, modify or delete a common reference data entity.
2	In case of rejection upon technical validation, an admi.007 receipt acknowledgement is sent by CRDM to the sender of the originating request.
3	CRDM performs the business validation and sends to the authorised actor a response message to report processing result.
4	CRDM will propagate the updated information to the subscribing services for their internal processing.

The messages used in the interaction change depending on the business scenario to be covered.

In the following table, for every concerned common reference data entity and related business scenario, the input and response messages are defined.

Business scenario	Input message	Response message
Create standing order	camt.024	camt.025
Modify standing order	camt.024	camt.025
Delete standing order	camt.071	camt.025

6.5.3.2 Reference data maintenance types

6.5.3.3 Validity of reference data objects

6.5.3.4 Reference data archiving and purging

6.5.3.5 Lifecycle of reference data objects

6.5.3.6 Reference data maintenance instructions processing

6.5.3.7 Reference data status management

6.6 Information management

6.6.1 Status management

6.6.1.1 Concept

EMIP services inform their EMIP actors of the processing results. This information is provided to the EMIP actors through a status reporting which is managed by the status management process. The communication of statuses to EMIP actors is complemented by the communication of reason codes in case of negative result of an EMIP service process.

6.6.1.2 Overview

The status management process manages the status updates of the different instructions existing in EMIP service in order to communicate these status updates through status advice messages to the EMIP actors throughout the lifecycle of the instruction. The status management process also manages the reason codes to be sent to EMIP actors in case of negative result of a EMIP service process (e.g. to determine the reason why an instruction is unsuccessfully validated or settled).

The status of an instruction is indicated through a value, which is subject to change through the lifecycle of the instruction. This value provides EMIP actors with information about the situation of this instruction with respect to a given EMIP process at a certain point in time.

Since each instruction in an EMIP service can be submitted to several processes, each instruction in EMIP has several statuses. However, each of these statuses has one single value at a certain moment in time that indicates the instruction's situation at the considered moment. Depending on its instruction type, an instruction is submitted to different processes in T2S. Consequently, the statuses featuring each instruction depend on the considered instruction type.

The following sections provide:

l   the generic principles for the communication of statuses and reason codes to EMIP actors

l   the list of statuses featuring each instruction type as well as the possible values for each of these statuses

l   an overview of the reason codes management

However, reason codes are not exhaustively detailed below but are provided in chapter Index of status value and codes.

6.6.1.3 Status management process

Communication of statuses and reason codes to EMIP actors

EMIP actors can query, at any point in time, the status values and reason codes of their instructions.

The statuses can be classified into two different types, common to all type of instructions:

l   "Intermediate status". There is a change occurred in any of the statuses of the instruction, but it does not imply the end of the processing of the instruction in EMIP. Further status updates are to be communicated to the EMIP actor until an "end status" is sent.

l   "Final status". This is the last status of an instruction (ie the status that an instruction has when processing for that instruction ends). If the status of an instruction is not of an "end status" type, then the instruction is still under process in EMIP. At a point in time, any instruction in EMIP reaches an "end status", as any instruction is settled, executed, cancelled or denied in the end.

For some specific status updates, the status management process informs the EMIP actors of the status change through the sending of status advice messages (according to their message subscription configuration).

Statuses and status values in EMIP

As previously mentioned, the statuses of an instruction depend on the considered instruction type. The following paragraphs provide the list of statuses and status values.

RTGS service statuses are:

l   message statuses

l   payment statuses

CRDM statuses are:

l   reference data maintenance instruction processing status

Message statuses

Indicates the status of the message (not applicable for queries) and it can have the following statuses:
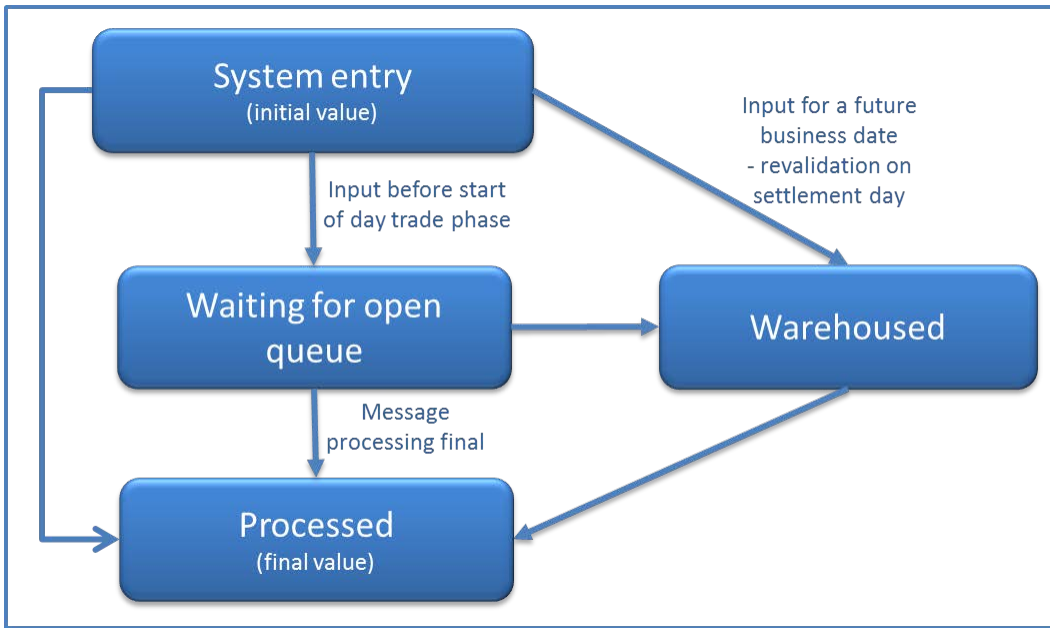
Figure 11 - Incoming message statuses
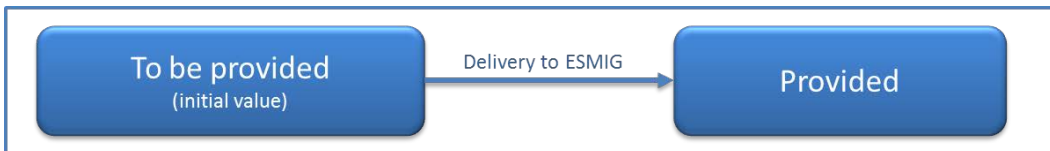
Figure 12 - Outgoing message statuses

Status value	Definition	Direction	Intermediate status/ final status
System entry	Message status after entering the RTGS service.	Incoming	Intermediate
Waiting for open queue	Message status of a message arriving before the "start of day trade phase".	Incoming	Intermediate

Status value	Definition	Direction	Intermediate status/ final status
Warehoused	Status of a message with a value date in the future or status of a message with the value date of the current business day until it will be forwarded to the processing at the start of the day trade phase.	Incoming	Intermediate
Processed	Message status if an incoming message is finally processed independent of whether the result is positive or negative.	Incoming	Final
To be provided	Status of an outgoing message ready to be send to ESMIG.	Outgoing	Intermediate
Provided	Status of an outgoing message sent to ESMIG.	Outgoing	Final

One business case can include one or more single messages which may have different message status. The message status is the detailed status related to the processing of each single message of a business case. The business case status is a result of the message status and the related processing.

Message statuses will not be reported via status message.

Payment statuses

Indicates the status of the payment instruction and it can have the following statuses:
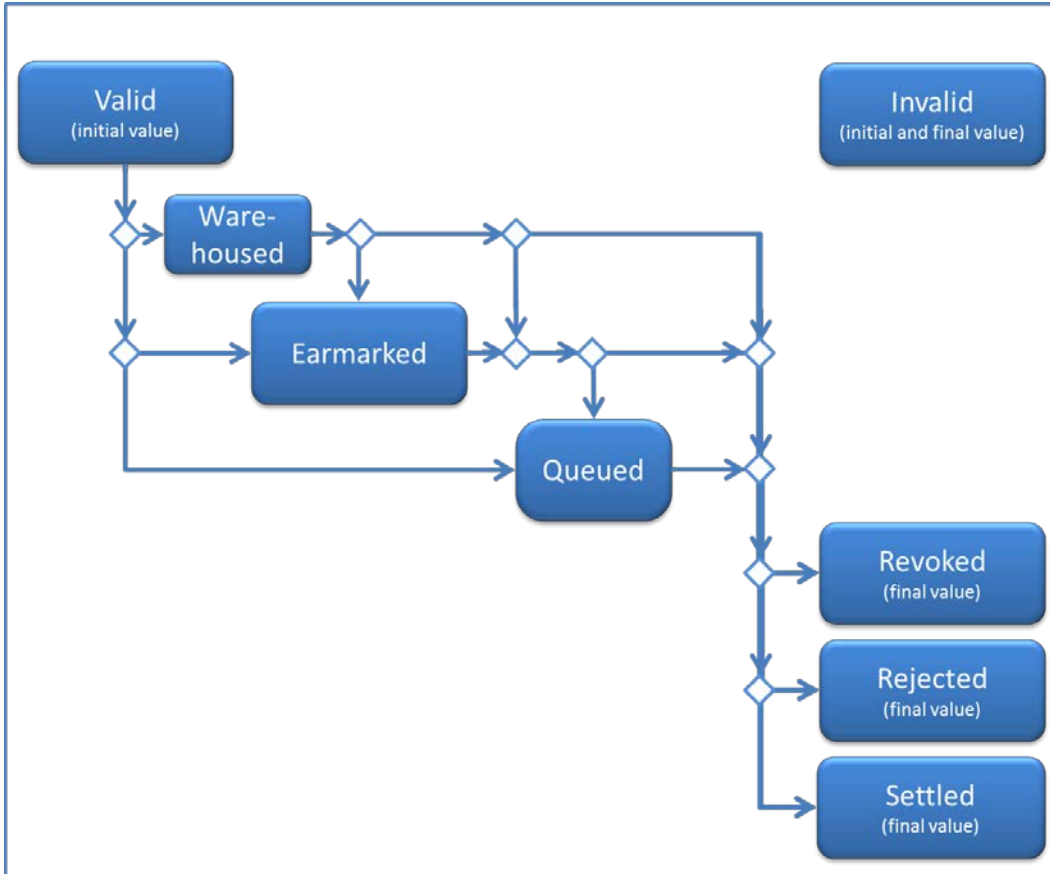
Figure 13 - Payment statuses

Status value	Definition	Intermediate / final status	Reported via status message
Valid	Status after positive business validation.	Intermediate	-
Warehoused	Status of a payment with a value date of a future business day and status of a payment with the value date of the current business day until it will be forwarded to the processing at the start of the day trade phase. From then on they will be processed normally. To this booking status a time stamp is added. In general, warehoused payments are submitted up to ten calendar days in advance. In this case, the payment message will be warehoused until the day trade phase of RTGS with the respective date starts.	Intermediate	

Status value	Definition	Intermediate / final status	Reported via status message
Earmarked	Status of a payment which is ready for booking but not taken into account for various reasons. The booking status earmarked is split into the following business case status: l accounting stopped due to earliest debit time indicator l AS accounting not yet started due to active information period l accounting stopped due to exclusion l pending decision on exclusion l waiting for end of cycle l waiting for completion of debits l waiting for algorithm 4	Intermediate	-
Queued	Status of a payment which is ready for booking but the first booking attempt was unsuccessful. Pending payments are waiting for the next booking attempt. To this booking status a time stamp is added.	Intermediate	-
Revoked	Status of a payment which is revoked by a system user.	Final	-
Rejected	Status of a payment which is rejected by the system or by a system administrator (all payments with error code, except error code for revoked).	Final	Mandatory
Settled	Status of a payment after booking. Final payments cannot be revoked.	Final	Optional
Invalid	Messages which are negatively business validated in the entry disposition and do not lead to a booking attempt.	Final	-

Task queue statuses

All data inputs or data changes by the user (called tasks; eg entering a backup payment) are managed in the task queue administration of the respective service. The following statuses apply for RTGS service.
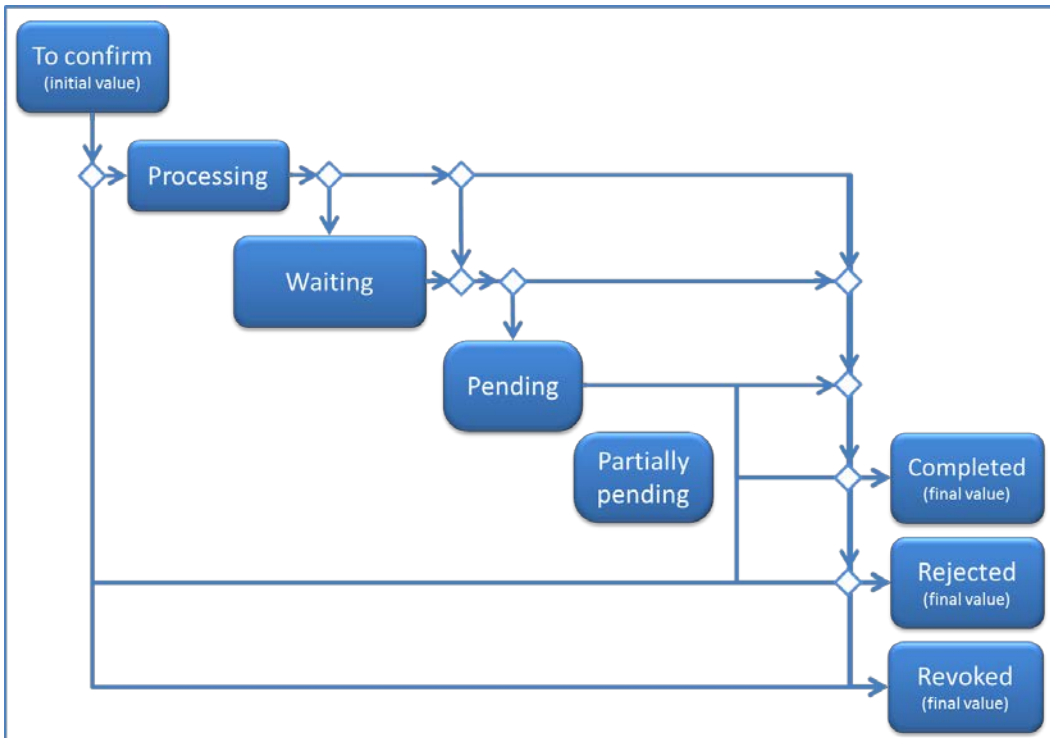
Figure 14 - Task queue statuses

Status value	Definition	Transition possible to status	Intermediate / final status
To confirm	The task must be confirmed by a second user and will not be processed. This status can only occur in U2A for four eyes principle. It is the only status in which a task revocation is possible directly via respective screens.	Processing, revoked, rejected	Intermediate
Processing	The task is ready to be processed at the moment. It can only occur directly after the task initiation (or after "to confirm" in case of four eyes principle).	Waiting, pending, partially pending, revoked, rejected, completed	Intermediate
Waiting	The task can be processed, but the processing is not started till now, eg due to a running or stopped algorithm.	Pending, partially pending, revoked, completed, rejected	Intermediate

Status value	Definition	Transition possible to status	Intermediate / final status
Pending	A task should be stored with status "pending", if the task was already tried to process at least one time but it could not be finalised. The processing was interrupted after the storage of entries initiated by the task and before the final processing of these entries. The task will be updated and further processed, if the preconditions for the pending status (eg liquidity increase) are changed.	Partially pending, completed, revoked, rejected	Intermediate
Partially pending	A task should be stored with status "partially pending" if the user's order cannot be processed completely (eg an increase of reservation cannot be executed completely because of lack of liquidity). The order is processed as far as possible. The task will be updated and further processed, if the preconditions for the "partially pending" status (eg liquidity increase) are changed.	Completed, revoked, rejected	Intermediate
Revoked	The task has been revoked by a user.	-	Final
Rejected	An error was detected.	-	Final
Completed	The task was processed successfully and the business case stemming from the task is final. The tasks changing an existing business case (like queue management) are completed, if the respective action is completely processed. The business case (managed payment) does not have to be final.	-	Final

Note: The responsibility for the tasks switches over from the user to the respective service according to the storage of the entry time. The relevant entry time is stored

l   for two eyes principle: by storage of the task within the responsible service

l   for four eyes principle: by storage of the confirmation

Note: Tasks with status "waiting", "processing" or "pending" can only be revoked via a new task, eg a credit line can only exist once per participant. Therefore the second credit line change will revoke the first one.

RTGS UDFS

Reference Data maintenance instruction processing status

6.6.2 Report generation

Concept

EMIP services periodically inform with a set of predefined reports which deliver information specifically for the service business. They contain information which is based on the data available for a party. The respective service triggers the generation of a report based on a business event, eg end of day, or at a predefined time. Please see chapter Index of status value and codes [▶ 103] for the list of configurable business events. Depending on the party's preferences the report is either sent out directly after creation or stored for later retrieval via the report query.

Overview

The report types generated by the respective service and the sort of information provided are described below.

In general all reports differ in and are defined by the following characteristics:

l   the concerned party

l   the sort of information collected

l   the moment of data extraction during the business day and

l   the reporting period

All information about the necessary attributes in each named category is stored as static data in CRDM and influences the generation of the report.

Report generation process

A generated report is available for download until it is replaced by the next, new generation of it, ie a report that is created at the end of day of the current business day replaces the report that was created at the end of day of the previous business day. The replaced report is no longer available for download. Nonetheless, as any other message, a report can be resent if the report message was sent in A2A mode before.

Sort of information - report types

The EMIP services provide the following report type:

Report providing service	Report name	ISO message	ISO code
RTGS	Statement of accounts	BankToCustomerStatement	Camt.053

Concerned party

Each report type provides information on a certain scope of data. The data scope is indicated by the party for which it is configured. In addition to reports on party level, CBs can also opt for reports on system entity level, ie reports providing the CB with information relating to all its parties. CBs can only configure reports on system entity level for themselves.

The concerned party has to be specified, when the report is configured for the first time.

Moment of data extraction

The creation of a report is always triggered at a certain point in time by the respective EMIP service. This point in time can be a specific time, eg 10:00 am or a specific event of the business day, eg end of day. A new report configuration can be set-up at the earliest for the next business day. The moment of data extraction as well as possible validity limitations have to be specified when the report is configured for the first time. The respective service only creates those reports, for which the underlying report configurations is valid at the current business day.

Reporting period

The EMIP services distinguish between two different report classifications - complete reports and delta reports, which are all based on the latest available data. The difference between both is the time scope which is considered:

ı   Complete reports cover the current business day and provide the current values of all selected items at the time of the creation of the report.

ı   Delta reports also consider the current business day but provide only information on the selected items which values changed since the previous report was created. The previous report can likewise be a complete report or a delta report. Therefore, the creation timestamp of the previous report is considered as the starting point in time for the reporting period. If there is no previous report for the current business day, the SoD is considered as the starting point in time for the reporting period.

Possible recipients of a report

All reports can be received by the technical address of

ı   concerned party

l   another authorised party (eg co-manager)
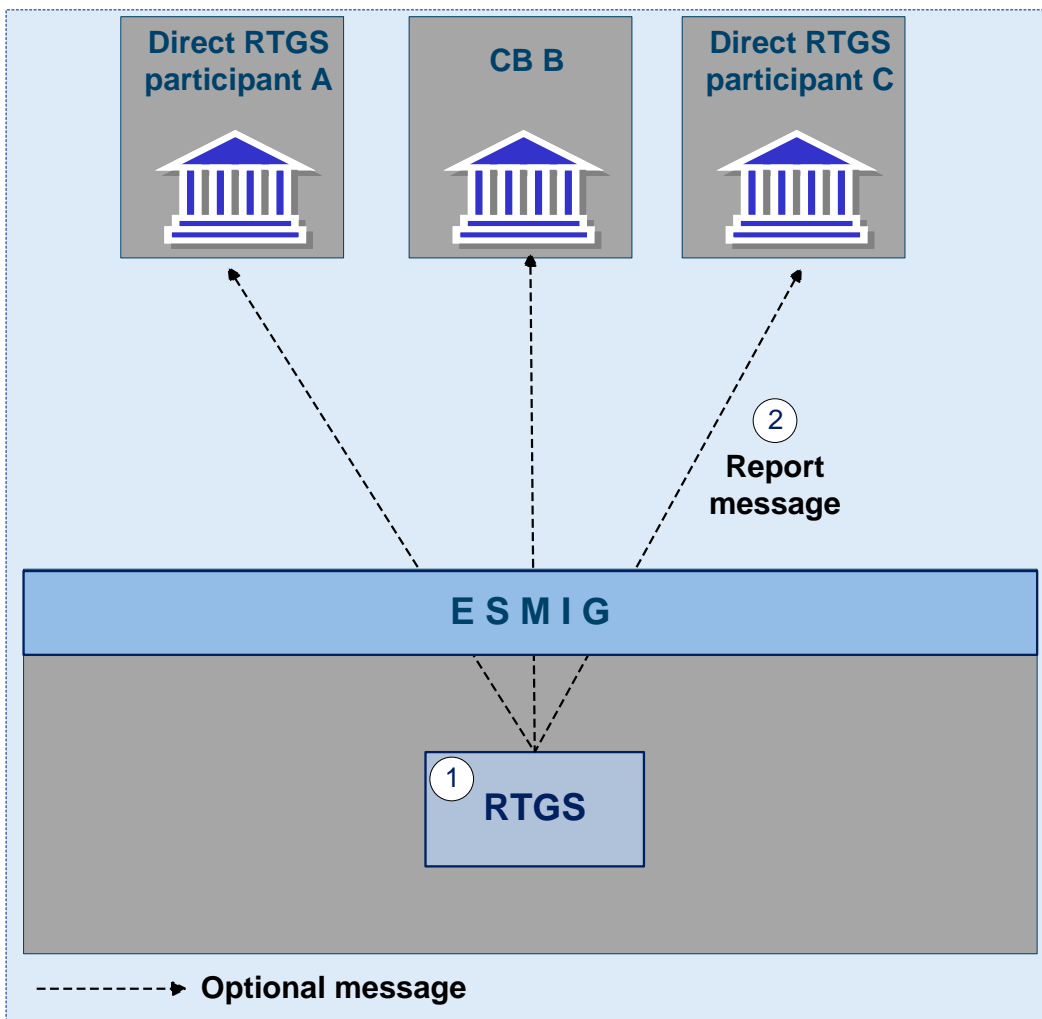
Figure 15 - RTGS report generation process

A created report can be received by one or several receivers. Each party can decide, if it wishes to receive a report directly after its creation or if it wants to query it ad-hoc.

If a recipient wishes to receive a report directly after its creation, this has to be stored in the static data configuration of the report. That means the subscription of a report is independent from the message subscription.

If a recipient does not wish to receive a report directly after its creation but to query it afterwards, this behavior of the service has to be stored in the CRDM configuration of the report as well. Also this recipient is stored as recipient of a report.

As a general principle the recipient(s) of a report can be different from the concerned party. For information about the setup of report configuration for specific concerned parties and recipients of a report please see UHB chapters related to report configuration setup.

Preconditions for report creation

In order to avoid unnecessary processing and storage the respective service does not create reports automatically. So, to initiate the creation of a report, the requiring receiver has to configure the report in advance. The configuration of the report has to be done via the graphical user interface of CRDM, which is described in the UHB.

This configuration is then stored as static data and is valid until the receiver decides that the report has not to be created anymore or until the "valid to" date stored within the report configuration is reached.

Communication channel

The respective service offers direct communication to applications via XML-messages in application-to-application mode (shortly A2A mode) as well as screen-based online access for connected users in user-to-application mode (U2A mode).

All reports that are offered by the EMIP services are available both in A2A and U2A mode.

In A2A mode the receiver gets the specific report pushed, provided that the push preference for the report is stored for the receiver in static data. Otherwise the report is just stored after generation.

To pull formerly created reports, a report query has to be sent either via the graphical user interface to the respective service or via A2A mode with the specification of the report instance asking for. In case the user has the respective privilege to obtain the requested report, it is sent out to the inquirer. Please see chapter Query management [▶ 84].

Parameter synthesis

The following parameters are specified for the setup of a report.

Concerned process	Parameter	Created and updated by	Mandatory/ optional	Possible values	Hint
Setup of a report	Report type	CRDM actor	Mandatory	Statement of accounts	
Setup of a report	Concerned party	CRDM actor	Mandatory	n/a	
Setup of a report	System entity wide reporting flag	CRDM actor	Mandatory	Yes, no	This flag can only be set to "yes" for CBs as they are eligible for system entity wide reports.
Setup of a report	Moment of data extraction	CRDM actor	Mandatory	Time event, business event	

Concerned process	Parameter	Created and updated by	Mandatory/ optional	Possible values	Hint
Setup of a report	Reporting period	CRDM actor	Mandatory	Complete report, delta report	
Setup of a report	Possible recipient of a report	CRDM actor	Mandatory	n/a	
Setup of a report	Communication channel	CRDM actor	Mandatory	Push mode, pull mode	
Setup of a report	Valid from	CRDM actor	Mandatory	ISO-Date	
Setup of a report	Valid to	CRDM actor	Optional	ISO-Date	The field "valid to" is the only field that can be amended after the report configuration has been stored.

Detailed information on the sort of information - report type - statement of accounts

It includes information on the RTGS dedicated cash accounts of a dedicated RTGS participant. It is only possible to configure this report as complete report for the end of day. The report is not available during the day and it is not available as delta version.

The report provides information about all items that have been booked to the account and balance information of the current business day. It does not include information from other services, ie there is no report including CLM and RTGS information.

A resend request allows to deliver the statement of accounts once more to the same technical address as used for the initial report delivery.

Case: resend request with positive validation and re-delivery

Message flow

Process description

Step	Processing in/between	Description
1	Direct RTGS participant via ESMIG to RTGS	An authorised system user of a direct RTGS participant A sends a admi.006 via ESMIG to the RTGS service
2	RTGS	RTGS message check and validation positive
3	RTGS via ESMIG to direct RTGS participant	Positive validation result via ESMIG to direct RTGS participant A generated by the RTGS service (optional)
4	RTGS via ESMIG to direct RTGS participant	Re-delivery of camt.053 to the original technical address (mandatory)

<u>Case: resend request with negative validation</u>

Message flow

Process description

Step	Processing in/between	Description
1	Direct RTGS participant via ESMIG to RTGS	An authorised system user of a direct RTGS participant A sends a admi.006 via ESMIG to the RTGS service
2	RTGS	RTGS message check and validation positive
3	RTGS via ESMIG to direct RTGS participant	Negative validation result via ESMIG to direct RTGS participant A generated by the RTGS service (optional)

Used messages

l [camt.053](#)

l admi.006

l admi.007

6.6.3 Query management

6.6.3.1 Concept

Queries are provided by EMIP services to the system user as a means of satisfying his information needs on demand. He can obtain information on different business items by submitting query requests to EMIP services. These are answered on the basis of the latest data available in EMIP services.

6.6.3.2 Overview

EMIP services provide a range of predefined query types, which the system user can use to request information on business items. All user queries are available for all authorised system users of EMIP services.

They can send queries to EMIP services in A2A mode or in U2A mode. Generally, all queries are processed in real time. Exceptions occur during the maintenance window. Queries sent in A2A mode during the maintenance window are queued and notice of the queued status is given immediately to the requesting system user. The query request is answered after the end of maintenance window. It is not possible to send queries in A2A and U2A mode during the maintenance window.

6.6.3.3 Query management process

Initiating queries

In order to obtain the desired information the system user needs to submit a query to an EMIP service. For the communication with EMIP services in A2A mode all query and response messages are set up as XML messages compliant with the ISO20022 standard. For the communication with EMIP services in U2A mode a graphical user interface based on a standard browser application is provided.

Case: query request for RTGS service

Message flow

Process description

Step	Processing in/between	Description
1	Direct RTGS participant via ESMIG to RTGS	An authorised system user of a direct RTGS participant A sends a query message via ESMIG to the RTGS service
2	RTGS	RTGS message check and validation positive
3	RTGS via ESMIG to direct RTGS participant	Query response (positive or negative) via ESMIG to direct RTGS participant A generated by the RTGS service

Used messages

l   See following table

In general an authorised system user can send each query in A2A mode as well as in U2A mode. However, there are some queries which are only accessible via U2A mode. Query availability in the respective communication mode is shown in the table below.

Related service	Query type	Initiation via GUI (U2A mode)	Initiation via XML message (A2A mode)		
			Query request message	Query response message for operational error	Query response message for business data
RTGS	Account Balance Query	X	camt.003 GetAccount	camt.004 Return Account	camt.004 Return Account
RTGS	Account Statement Query	X	-	-	-
RTGS	Audit Trail for RTGS Query	X	GetAudit		ReturnAudit
RTGS	Current Limits Query	X	camt.009 GetLimit	camt.010 ReturnLimit	camt.010 ReturnLimit
RTGS	Current Reservations Query	X	camt.046 GetReservation	camt.047 ReturnReservation	camt.047 ReturnReservation
RTGS	Payment Query	X	camt.005 GetTransaction	camt.006 ReturnTransaction	camt.006 ReturnTransaction
RTGS	Settlement Information Query	X	camt.998 GetSettlementInformation	camt.998 ReturnSettlementInformation	camt.998 ReturnSettlementInformation
CRDM	Ancillary System Reference Data Query	X	reda.015 PartyQuery	reda.017 PartyReport	reda.017 PartyReport

Related service	Query type	Initiation via GUI (U2A mode)	Initiation via XML message (A2A mode)		
			Query request message	Query response message for operational error	Query response message for business data
CRDM	AS Settlement Bank Reference Data Query	X	reda.015 PartyQuery	reda.017 PartyReport	reda.017 PartyReport
CRDM	Audit Trail for CRDM Query	X	GetAudit	ReturnAudit	ReturnAudit
CRDM	Calendar Query	X	-	-	-
CRDM	Direct Debit Mandate Query	X	GetDirectDebit	ReturnDirectDebit	ReturnDirectDebit
CRDM	Directory Query	X	GetDirectory	ReturnDirectory	ReturnDirectory
CRDM	Error Code Query	X	GetErrorCode	ReturnErrorCode	ReturnErrorCode
CRDM	Event Query	X	camt.018 GetBusinessDayInformation	camt.019 ReturnBusinessDayInformation	camt.019 ReturnBusinessDayInformation
CRDM	Liquidity Transfer Group Query	X	-	-	-
CRDM	Message Subscription Query	X	-	-	-
CRDM	Participant Reference Data Query	X	reda.015 PartyQuery	reda.017 PartyReport	reda.017 PartyReport
CRDM	Party Reference Data Query	X	reda.015 PartyQuery	reda.017 PartyReport	reda.017 PartyReport
CRDM	Role Query	X	-	-	-
CRDM	RTGS Cash Account Reference Data Query	X	acmt.025 AccountQueryList	acmt.026 AccountListReport	acmt.026 AccountListReport
CRDM	Sub Account Reference Data Query	X	acmt.025 AccountQueryList	acmt.026 AccountListReport	acmt.026 AccountListReport

Related service	Query type	Initiation via GUI (U2A mode)	Initiation via XML message (A2A mode)		
			Query request message	Query response message for operational error	Query response message for business data
CRDM	Standing Order Limits Query	X	camt.009 GetLimit	camt.010 ReturnLimit	camt.010 ReturnLimit
CRDM	Standing Order Liquidity Query	X	camt.069 GetStandingOrder	camt.070 ReturnStandingOrder	camt.070 ReturnStandingOrder
CRDM	Standing Order Reservations Query	X	camt.046 GetReservation	camt.047 ReturnReservation	camt.047 ReturnReservation
Scheduler	System Time Query	X	camt.018 GetBusinessDayInformation	camt.019 ReturnBusinessDayInformation	camt.019 ReturnBusinessDayInformation
CRDM	Whitelist Query	X	new message	new message	new message
CRDM	Wildcard Query	X	new message	new message	new message
Billing	VAT Query	X	-	-	-
Billing	Invoice Query	X	-	-	-

The different types of queries in EMIP services are static regarding the set of selection parameters, which can be mandatory, optional or conditional. RTGS and CLM service do not offer dynamic queries.

Preconditions for successful processing of queries

The relevant EMIP service validates the plausibility of the search criteria that were specified by the system user. In addition, the relevant service ensures that the sender of the query is allowed to retrieve the requested information by checking, whether the system user has been granted the necessary privilege.

Only if the system user possesses the necessary privilege to use the initiated query, the requested business information is provided. The privilege has to be granted in advance.

Providing data for queries

If all checks performed by respective service were successful, it extracts the requested business information from the production data. The system user receives the latest available data. If one of the plausibility and privilege checks performed by respective service fails, the system user receives a response indicating the error that has occurred.

Retrieving the query response

In case the extraction of the query data is successful, the respective service sends a query response containing the requested business information back to the requesting system user. In case the extraction of the query data returns a zero result, the requesting system user receives appropriate information. If a retrieval of the query result fails, then an error response is provided to the system user.

If the system user has sent the query via U2A mode, the response is given to the same system user in U2A mode. The U2A dialogue is described in more detail in the UHB.

If the system user has sent the query via A2A mode, the response is given to the same system user in A2A mode. The respective service does not allow the routing of the query response to a dedicated technical address.

Parameter synthesis

No specific configuration from the system user is needed.

6.6.3.3.1 Common reference data query

The common reference data query can be described as a common message flow that applies to every business scenario.

Upon the sending of a query instructed with an input message, a related query response message or a technical validation error message is returned.

The shared generic message flow is as follows:
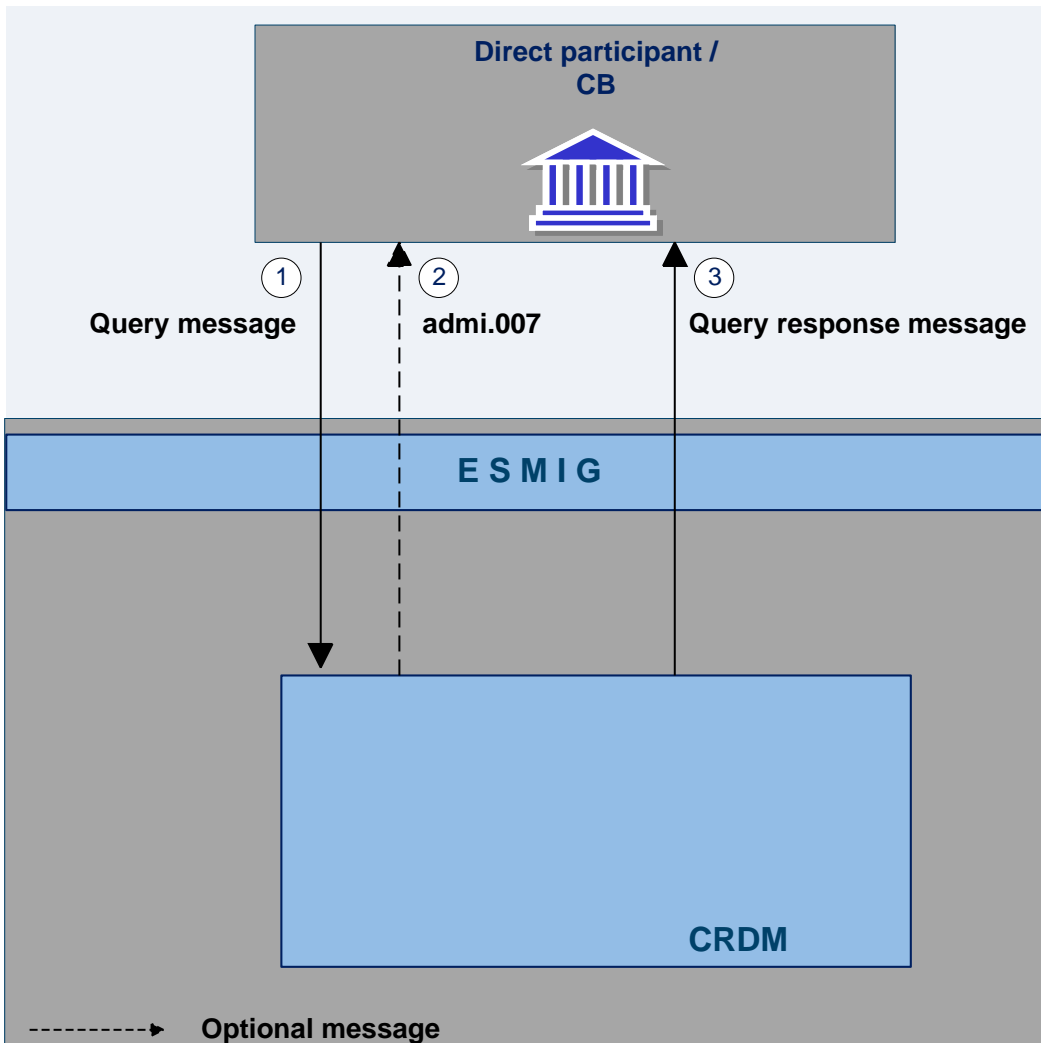
Step	Activity
1	The authorised actor (CLM or RTGS participant or another actor operating on behalf of the MCA or RTGS owner under a contractual agreement) sends the query message to CRDM to retrieve a set of common reference data entity.
2	In case of rejection upon technical validation, an admi.007 receipt acknowledgement is sent by CRDM to the sender of the originating query.
3	CRDM performs the business validation and sends to the authorised actor a query response message to report processing result that is retrieved records or business error found during the validation.

The messages used in the interaction change depending on the query to be performed.

In the following table, for every concerned common reference data entity, the query and query response messages are defined.

CRDM entity	Query message	Query response message
Standing order	camt.069	camt.070

7 Data warehouse

8 Billing

9 Legal archiving

10 Contingency services

11 Catalogue of messages

11.1 Introduction

11.2 General information

11.2.1 Message validation

11.2.2 Communication infrastructure

11.3 List of messages

11.3.1 Account management (acmt)

11.3.2 Administration (admi)

11.3.3 Cash management (camt)

11.3.3.1 camt.003

11.3.3.1.1 Overview and scope of the message

11.3.3.1.2 Schema

11.3.3.2 camt.004

11.3.3.2.1 Overview and scope of the message

11.3.3.2.2 Schema

11.3.3.3 camt.005

11.3.3.3.1 Overview and scope of the message

11.3.3.3.2 Schema

11.3.3.4 camt.006

11.3.3.4.1 Overview and scope of the message

11.3.3.4.2 Schema

11.3.3.5 camt.018

11.3.3.5.1 Overview and scope of the message

11.3.3.5.2 Schema

11.3.3.6 camt.019

11.3.3.6.1 Overview and scope of the message

11.3.3.6.2 Schema

11.3.3.7 camt.021

11.3.3.7.1 Overview and scope of the message

11.3.3.7.2 Schema

11.3.3.8 ModifyStandingOrder (camt.024)

11.3.3.8.1 Overview and scope of the message

This chapter illustrates the ModifyStandingOrder message.

The ModifyStandingOrder message is sent by an actor authorised to create or modify standing orders for liquidity transfers.

The ModifyStandingOrder message is replied by a camt.025 to return a positive technical response to the sender of the message or to provide detailed information in case of an error.

11.3.3.8.2 Schema

Outline of the schema

The ModifyStandingOrder message is composed of the following message building blocks:

MessageHeader

This block is mandatory and provides with the message identification provided by the requesting actor.

StandingOrderIdentification

This block is mandatory and provides with all the key information to identify an existing standing order to be amended or a new standing order to be created.

NewStandingOrderValueSet

This block is mandatory and provide with the pieces of information related to the standing order to be modified or created.

It includes the amount to be transferred, the required account references to perform the transfer, the intended validity period and the execution type in terms of event identification.

References/links

The schema and the related documentation in HTML/PDF format as well as the message examples are provided within the MyStandards repository under the following link:

https://www.swift.com/mystandards/CSLD/camt.024.001.05

11.3.3.9 camt.025

11.3.3.9.1 Overview and scope of the message

11.3.3.9.2 Schema

11.3.3.10 camt.050

11.3.3.10.1 Overview and scope of the message

11.3.3.10.2 Schema

11.3.3.11 GetStandingOrder (camt.069)

11.3.3.11.1 Overview and scope of the message

This chapter illustrates the GetStandingOrder message.

The GetStandingOrder message is sent by an authorised actor to retrieve standing order information.

The GetStandingOrder message is replied by a camt.070 to return the retrieved standing order information or to provide detailed information in case of an error (eg no rows retrieved).

11.3.3.11.2 Schema

Outline of the schema

The GetStandingOrder message is composed of the following message building blocks:

MessageHeader

This block is mandatory and provides with the message identification provided by the requesting actor.

RequestType

This block is optional and can be used to specify which kind of query must be performed.

StandingOrderQueryDefinition

This block is mandatory and provides with all the search criteria that must be used to filter standing order records in the CRDM coverage. Possible criteria are account and BIC.

References/links

The schema and the related documentation in HTML/PDF format as well as the message examples are provided within the MyStandards repository under the following link:

https://www.swift.com/mystandards/CSLD/camt.069.001.02

11.3.3.12 ReturnStandingOrder (camt.070)

11.3.3.12.1 Overview and scope of the message

This chapter illustrates the ReturnStandingOrder message.

The ReturnStandingOrder message is sent by CRDM to an authorised actor to provide with requested standing order information.

The ReturnStandingOrder message is sent as a response to a previously sent camt.069.

11.3.3.12.2 Schema

Outline of the schema

The ReturnStandingOrder message is composed of the following message building blocks:

MessageHeader

This block is mandatory and provides with the message identification provided by the requesting actor as well as the original business query message identification and the request type specifying the kind of query that has been performed.

ReportOrError

This block is mandatory and includes either the retrieved records or the error occurred during the query processing (eg no records retrieved).

Report

This block is mandatory and provides with all the pieces of information related to the retrieved standing order.

References/links

The schema and the related documentation in HTML/PDF format as well as the message examples are pro-vided within the MyStandards repository under the following link:

https://www.swift.com/mystandards/CSLD/camt.070.001.03

11.3.3.13 DeleteStandingOrder (camt.071)

11.3.3.13.1 Overview and scope of the message

This chapter illustrates the DeleteStandingOrder message.

The DeleteStandingOrder message is sent by an actor authorised to delete standing orders for liquidity transfers.

The DeleteStandingOrder message is replied by a camt.025 to return a positive technical response to the sender of the message or to provide detailed information in case of an error.

11.3.3.13.2 Schema

Outline of the schema

The DeleteStandingOrder message is composed of the following message building blocks:

MessageHeader

This block is mandatory and provides with the message identification provided by the requesting actor.

StandingOrderDetails

This block is mandatory and provides with all the key information to identify an existing standing order to be deleted. Both identification and account identification must be provided.

References/links

The schema and the related documentation in HTML/PDF format as well as the message examples are pro-vided within the MyStandards repository under the following link:

https://www.swift.com/mystandards/CSLD/camt.071.001.02

11.3.4 Headers (head)

11.3.4.1 head.001

11.3.4.1.1 Overview and scope of the message

This chapter illustrates the BusinessApplicationHeader (BAH) V01 message.

For payment messages between bank A and bank B, FROM will identify bank A and TO will identify bank B. For service messages between bank A and the MI (eg pacs.009 connected payment, liquidity messages,...), FROM will identify bank A and TO will identify the MI.

11.3.4.1.2 Schema

Outline of the schema

The BAH message is composed of the following message building blocks:

FROM

The sender that has created this message for the receiver that will process this message. FROM BIC must have exactly 11 characters.

TO

The receiver designated by the sender who will ultimately process this message. TO BIC must have exactly 11 characters.

BusinessMessageIdentifier

Identifies unambiguously the message. The BusinessMessageIdentifier has maximum 35 characters.

MessageDefinitionIdentifier

Contains the MessageIdentifier that defines the message. It must contain a MessageIdentifier published on the ISO 20022 website.

Business service (optional)

Specifies the business service agreed between the sender and the receiver under which rules this message is exchanged. To be used when there is a choice of processing services or processing service levels. Example: E&I.

CreationDate

Date and time when this message (header) was created.

CopyDuplicate (optional)

Indicates whether the message is a copy, a duplicate or a copy of a duplicate of a previously sent ISO 20022 message.

PossibleDuplicate (optional)

Is a flag indicating if the message exchanged between sender and receiver is possibly a duplicate.

Signature (optional)

Contains the digital signature of the business entity authorized to sign this message.

Related (optional)

Specifies the BAH of the message to which this message relates. It can be used when replying to a query; it can also be used when canceling or amending.

Business rules applicable to the schema

11.3.4.1.3 The message in business context

The BAH contains information to correctly process the message payload by means that every messages exchanged between RTGS and the participants respectively RTGS and the other services includes such an information. The relation between BAH and message payload is exactly one to one.

The BAH includes the following main information:

l   document routing (e.g. sender, receiver, information about the message)

l   document identification (e.g. MessageDefinitionIdentifier, creation date, creation time)

l   document processing information (e.g. sender, service, COPY, possible duplicate)

11.3.5 Payments clearing and settlement (pacs)

11.3.6 Reference data (reda)

12 Index and digital signature

12.1 Index of business rules and error codes

12.2 Index of status value and codes

12.3 Index of instruction references

12.4 Digital signature on business layer

13 Additional information for CBs

13.1 Role of central banks in the RTGS service

13.2 Reference data for central banks

13.2.1 Specific data for central banks

13.2.2 Setup of RTGS related reference data

13.3 Settlement of payments - specific functions for central banks

13.4 End-of-day procedures

13.5 Query management - central bank specific queries

13.6 Data warehouse - specific functions for central banks

13.7 Billing - specific functions for central banks

13.8 Contingency services - specific functions for central banks

14 Glossary