

T2-T2S CONSOLIDATION

USER REQUIREMENTS DOCUMENT

FOR

T2 - RTGS COMPONENT

| | |
|-----------------|------------|
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1 HIGH VALUE PAYMENTS SETTLEMENT (HVP)

1.1 OVERVIEW

1.1.1 Context Diagram

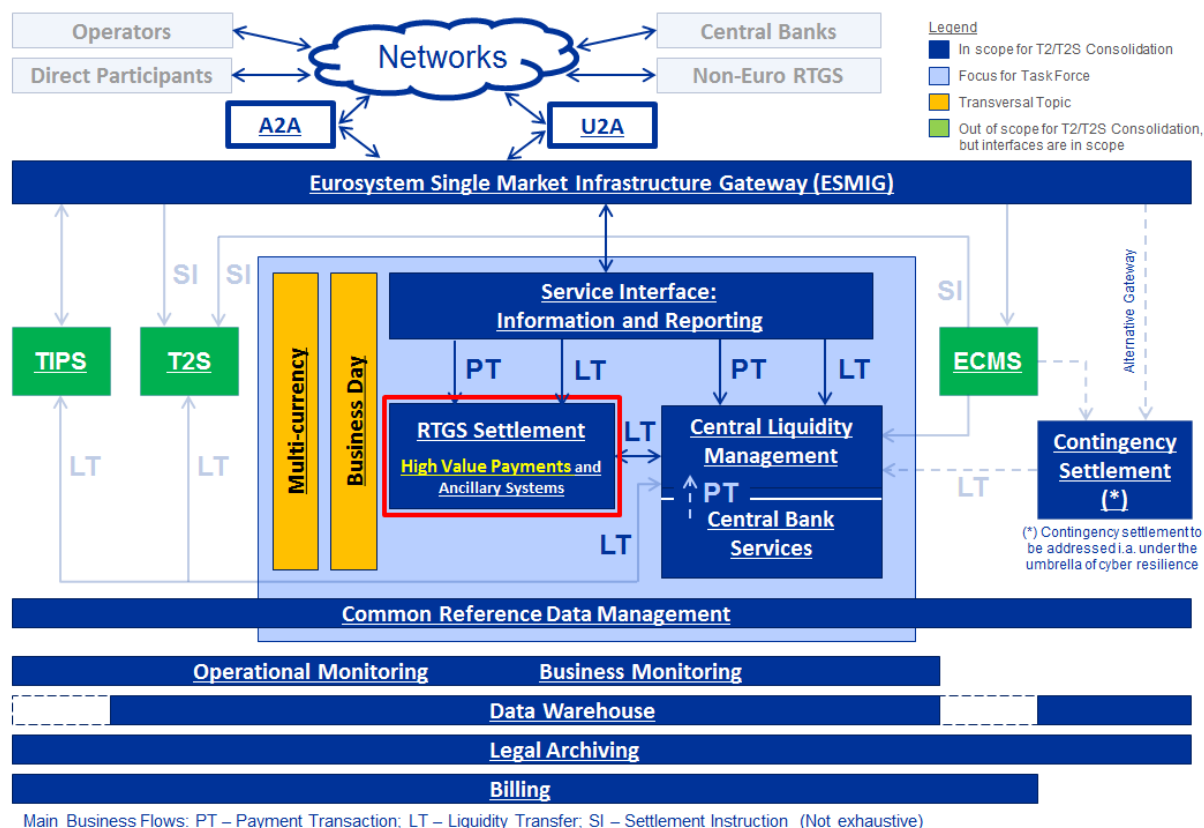


Figure 1: Context diagram for High Value Payments Settlement

This section describes the services offered for High Value Payments (HVP). The RTGS for High Value Payments processes payment orders on the RTGS account holders' Dedicated Cash Accounts (DCA).

This includes the entry disposition, the settlement and the queue management.

As a general rule, it is intended to keep most features almost unchanged or enhanced compared to TARGET2. Nevertheless, the introduction of a Central Liquidity Management component in order to centralise the liquidity management for RTGS, T2S and TIPS, and to settle all Central Bank Operations, including credit line updates, on CLM as well as the migration to ISO20022, will lead to some changes to the current settlement processes for high value payments in TARGET2. As a consequence, this URD gives the full picture of all requirements for RTGS. More details will be provided during the realisation phase within the UDFS for RTGS.

The description of the processes in this document does not differentiate whether the orders are submitted to the component in U2A or A2A mode.

1.1.2 Business Processes

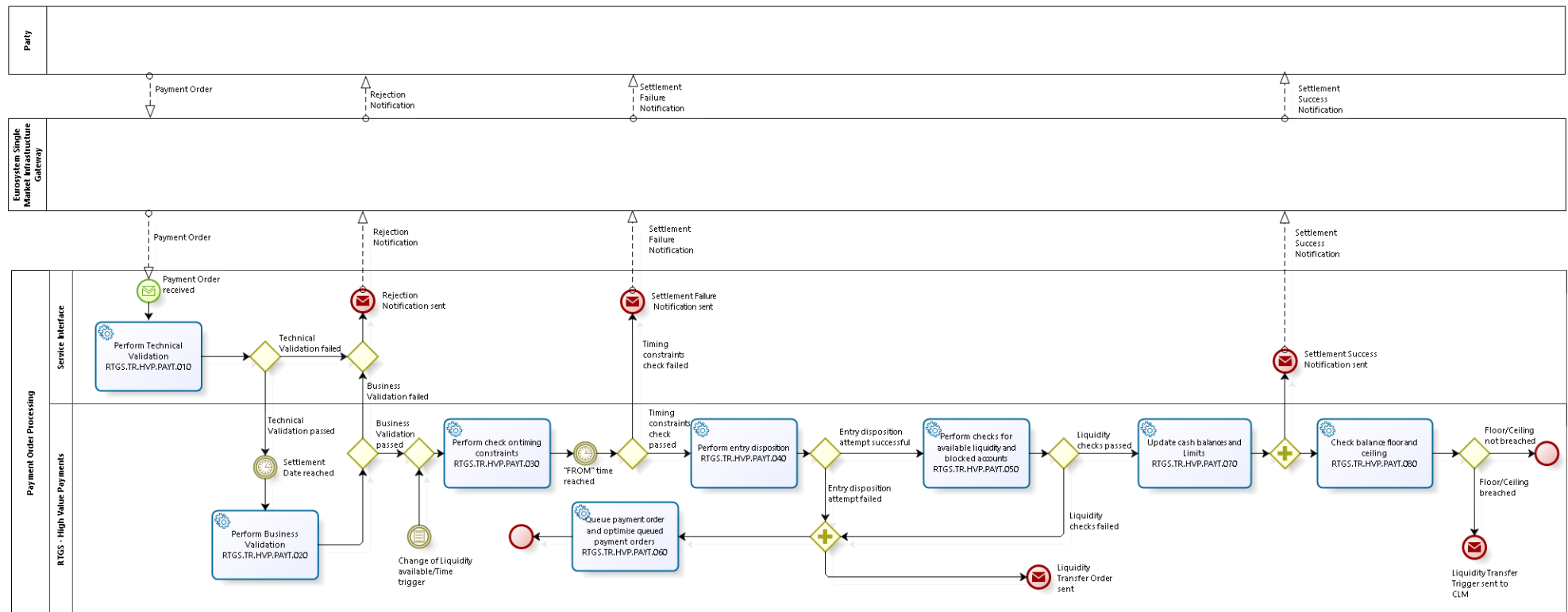
| Business Process Name | BP Reference | Business Process Description |
|--|-------------------|---|
| Payment Order Processing | RTGS.BP.HVP.PAYT | Processing of a payment order, which can be: <ul style="list-style-type: none"> • A credit transfer; or • A direct debit; The credit transfer can also be warehoused or processed as a backup payment |
| Queue Management/Payment Order Amendment | RTGS.BP.HVP.PAYA | Amendment of a payment order previously submitted with respect to a predefined set of interventions, including Queue Management. |
| Queue Management/Payment Order Cancellation | RTGS.BP.HVP.PAYC | Cancellation of a payment order previously submitted, including Queue Management. |
| Liquidity Reservation | RTGS.BP.HVP.LIQR | Execution of a liquidity reservation (increase and decrease). |
| Intra-RTGS Liquidity Transfer | RTGS.BP.HVP.LIQT | Intra-RTGS liquidity transfer for the settlement of a liquidity transfer order between RTGS DCAs (including sub accounts) within the same Liquidity Transfer Group. |
| Process inter-service liquidity transfer order from MCA to DCA - RTGS part | RTGS.BP.HVP.LTRCV | Second part of the CLM business process for inter-service liquidity transfer order from MCA to DCA (CLM.BP.CLM.LTSEN), and similar to CLM business process for inter-service liquidity transfer order from DCA to MCA (CLM.BP.CLM.LTRCV) |
| Process inter-service liquidity transfer order from DCA to MCA - RTGS part | RTGS.BP.HVP.LTSEN | First part of the CLM business process for inter-service liquidity transfer order from DCA to MCA (CLM.BP.CLM.LTRCV), and similar to CLM business process for inter-service liquidity transfer order from MCA to DCA (CLM.BP.CLM.LTSEN) |
| Process liquidity transfer order between two DCAs in different settlement services - RTGS part | RTGS.BP.HVP.LTDCA | This process is the RTGS part of the related CLM process. Within this process, RTGS could be <ul style="list-style-type: none"> - either the sending settlement service, and the process is similar to RTGS.BP.HVP.LTSEN - or the receiving settlement service, and the process is similar to RTGS.BP.HVP.LTRCV |

Table 1: Business Processes for High Value Payments

1.2 PAYMENT ORDER PROCESSING

Business Process Ref: RTGS.BP.HVP.PAYT

1.2.1 Business Process Model



Business Process Model 1: Payment Order Processing

1.2.2 Process Overview

Process goal:

This business process describes the processing of a payment order. An RTGS account holder will initiate the process by sending the respective message containing a payment order to RTGS, which will process the payment order. If the message content is either invalid or would fail the reference data checks, it will be rejected and a rejection notification with the appropriate error code(s) will be sent to the sender of the message. If the message content is valid and reference data checks have been passed, RTGS will perform a series of operations according to the content of the message.

These core settlement operations of a payment order include various checks on timing, e.g. has the predefined latest execution time been reached. As a result of these checks, the core settlement operation may not be successful and a settlement failure notification is sent to the sender.

Furthermore, there will be checks on blocked accounts/Parties. If these checks are not passed (i.e., one of the accounts/Parties involved is blocked), the payment order will be earmarked and its processing suspended (until possible approval/rejection by the CB or continuation after unblocking).

Additionally, the core settlement operation also includes provision checks on available liquidity on the account to be debited, whether any Limits are possibly breached, whether any liquidity reservations/segregation are possibly breached as well as specific offsetting checks. If, on the one hand, these provision checks fail and all the aforementioned checks succeeded, the payment order will be queued for a re-attempt for settlement. The queue will then be dissolved through offsetting with new incoming liquidity and optimisation algorithms, payment order amendment (e.g. change the order of payments in the queue) or through payment order cancellation or through time-induced rejection (e.g. start of End of Day process, Reject Time reached). If, on the other hand, these provision checks succeed, the core settlement operation will result in a success and RTGS will finally and irrevocably book the payment order on the debit and credit accounts involved. In that case, RTGS can optionally send a settlement success notification to the sender of the order. All in all, the sender will receive - as long as no additional instructions are sent affecting the settlement of the original payment order - at maximum one notification related to the payment order from RTGS through push-mode: either a rejection (negative validation), or a failure (no settlement, e.g. Reject Time reached), or a cancellation, or a success notification.

The payment order settlement process described in this section is as generic as possible, i.e. the description aims at capturing the essential user requirements imposed by the different RTGS functionalities: High Value Payments (HVP) and Ancillary Systems (AS). While main features of the settlement process are described in this section, the discrepancies with and specifics for settlement of Ancillary System transfers can be found in section 2 of this User Requirements Document.

Process context:

- This generic process is valid for all types of payment orders.

Pre-conditions:

- Appropriate privileges have been granted to the sender

Time constraints:

- ▶ The processing has to be executed within the opening hours of HVP (see section 3.4 on Availability of services in the User Requirements Document for Common Component), i.e. from the opening of RTGS until the End of Day process starts, and outside the maintenance window, taking into account the different cut-offs depending on the payment type)

Expected results:

RTGS shall either:

- ▶ Settle the payment order,
- ▶ Queue the payment order,
- ▶ Reject (if validation fails) / Cancel the payment order,
- ▶ Send a failure notification for:
 - the Reject Time reached, or
 - the 'not settled' payment order (at the End of Day rejection, since no failure notification is sent after each unsuccessful settlement attempt), or
- ▶ Send an optional (according to subscription) settlement success notification.

Triggers:

- ▶ This process is triggered by an RTGS account holder/Central Bank sending the payment order.

1.2.3 User Requirements

1.2.3.1 PERFORM TECHNICAL VALIDATION

Task Ref: **RTGS.TR.HVP.PAYT.010**

| | |
|--------------------|---|
| Id | RTGS.UR.HVP.PAYT.010.005 |
| Name | File management |
| Description | Where the messages are sent packaged in a file, RTGS shall check the validity of the file and split it into single messages. Each message should keep track of the original file reference, notably for monitoring purposes. The file can contain different kind of instructions (e.g. payment orders, amendments of payment order, liquidity transfer orders etc.) but all contained instructions have to be directed to the RTGS component only and must not be mixed with instructions to other components (e.g. CRDM or CLM). Furthermore apart from instructions to RTGS no other types of requests are allowed to be sent in a file (e.g. queries). Validation errors after file splitting only cause rejection on a single message level, i.e. not the entire file is rejected. Other successfully validated instructions included in the same file are further processed. |

| | |
|--------------------|--|
| Id | RTGS.UR.HVP.PAYT.010.010 |
| Name | Technical Validation - Syntax/Schema checks |
| Description | <p>RTGS shall parse the message and perform a field level validation - e.g. on correct data type, size. RTGS shall check whether all mandatory fields are populated.</p> <p>If the validation fails, a rejection notification with appropriate error code(s) must be sent to the sender of the message (depending on the submission channel, a notification in A2A mode or an error message is displayed on the screen in U2A mode).</p> |

| | |
|--------------------|--|
| Id | RTGS.UR.HVP.PAYT.010.020 |
| Name | Technical validation - duplicate checks |
| Description | The component interface shall ensure that the same message has not already been received on the same business day. |

1.2.3.2 PERFORM BUSINESS VALIDATION

Task Ref: RTGS.TR.HVP.PAYT.020

| | |
|--------------------|--|
| Id | RTGS.UR.HVP.PAYT.020.005 |
| Name | Check for duplicate payment order |
| Description | <p>RTGS shall carry out a duplicate submission control for incoming payment orders. This control shall include the following fields:</p> <ul style="list-style-type: none"> • Sender of the message; • Message Type; • Receiver; • Transaction Reference Number; • Related Reference; • Value Date; • Amount. |

| | |
|--------------------|--|
| Id | RTGS.UR.HVP.PAYT.020.010 |
| Name | Business Validation - Process specific authorisation checks |
| Description | <p>RTGS shall ensure that the sender of a payment order is either:</p> <ul style="list-style-type: none"> • The holder of the RTGS account to be debited; • The holder of the RTGS account to be credited (in the case of a direct debit and if there is a contractual arrangement between the creditor and the debtor to do so); • A third Party which is neither the debtor nor the creditor (in the case of a mandated payment or if there is a contractual arrangement between the third Party and both the creditor and the debtor to do so, e.g., an Ancillary System); or • A Central Bank acting on behalf of a credit institution. <p>The check has to be performed as soon as the message has passed the technical validation.</p> |

| | |
|--------------------|--|
| Id | RTGS.UR.HVP.PAYT.020.020 |
| Name | Business Validation - Check on value date for non-warehoused payment orders |
| Description | <p>Excluding warehoused payment orders, RTGS shall only accept a payment order that specifies a value date as of current business date, except when the CB has activated the back-valued payments for one RTGS account holder. In such a case, the value date check is de-activated.</p> |

Note: RTGS will send non-warehoused payment orders having passed all the checks described above, immediately to the business validation step described below.

| | |
|--------------------|--|
| Id | RTGS.UR.HVP.PAYT.020.025 |
| Name | Business Validation - Check on value date for warehoused payment orders |
| Description | <p>RTGS shall only accept a warehoused payment order that specifies a value date that is not later than ten calendar days from the business day on which RTGS received the payment order. Nonetheless, RTGS shall perform the authorisation checks described above as soon as the message has passed the technical validation, in particular, before the value date.</p> |

Note: Once the value date is reached and RTGS opens for payments (see section 3.4 on Availability of services in the User Requirements Document for Common Components), RTGS will send the warehoused payment order automatically and immediately to the business validation step described below.

RTGS will perform the checks described below in one step in order to capture all the possible breaches; the checks therefore must not stop after the first breach occurring, as there could be further breaches in the subsequent checks. If the validation failed overall, RTGS must send rejection notifications with appropriate error codes for all breaches which occurred, to the sender.

| | |
|--------------------|--|
| Id | RTGS.UR.HVP.PAYT.020.030 |
| Name | Business Validation - Payment type specific checks |
| Description | RTGS shall check consistency versus a to-be-defined set of rules which depend on the message type. Customer payment orders will have to pass specific checks, whereas interbank payment orders will have to pass different checks. |

| | |
|--------------------|--|
| Id | RTGS.UR.HVP.PAYT.020.050 |
| Name | Business Validation - field and reference data checks |
| Description | <p>RTGS shall perform the following field and reference data checks:</p> <ul style="list-style-type: none"> • 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 etc.; • Database checks - e.g. existence of Parties and accounts |

| | |
|--------------------|--|
| Id | RTGS.UR.HVP.PAYT.020.070 |
| Name | Business Validation - direct debit check |
| Description | <p>RTGS shall check whether a Direct Debit Mandate exists between the account to be debited and the payee Party, and that the maximum amounts granted in the Mandate are not exceeded. I.e. If defined for the account to be debited, then neither</p> <ul style="list-style-type: none"> • The maximum amount allowed to be debited by the payee Party during the business day nor • The maximum amount of a direct debit order allowed to be debited by the payee Party <p>is exceeded.</p> <p>In addition, RTGS shall check that the maximum amount for direct debit order allowed to be debited for the account based on direct debit orders per business day is not exceeded.</p> |

| | |
|--------------------|---|
| Id | RTGS.UR.HVP.PAYT.020.080 |
| Name | Business Validation - Check of backup payment orders |
| Description | Backup payment orders are accepted only where the CB has activated the feature for its RTGS account holder. |

| | |
|--------------------|---|
| Id | RTGS.UR.HVP.PAYT.020.090 |
| Name | Business Validation - mandated payment order check |
| Description | The mandated payment order is sent by a Central Bank on behalf of its direct RTGS account holder in case of contingency situations. It can be either a credit transfer or a direct debit. |

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|--------------------|---|
| Id | RTGS.UR.HVP.PAYT.020.100 |
| Name | Business Validation - Account checks |
| Description | The system should identify the accounts to be debited and to be credited from the BIC11 indicated in the message. In CRDM, each BIC11 is mapped to only one RTGS DCA, may it be for the direct RTGS account holder itself (including multi-addressee) or its indirect participants. |

1.2.3.3 PERFORM CHECK ON TIMING CONSTRAINTS

Task Ref: RTGS.TR.HVP.PAYT.030

The RTGS account holders have the possibility to determine the execution time of their payments, through From Time and either Till Time or Reject Time.

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|--------------------|--|
| Id | RTGS.UR.HVP.PAYT.030.010 |
| Name | From Time |
| Description | RTGS shall ensure that a payment order can only be submitted to settlement if its From Time, if indicated, has been reached. |

The payment order may specify an earliest time at which RTGS shall submit the payment order for settlement. When RTGS checks the eligibility of a payment order for settlement, then it shall verify whether the current date and time is greater than or equal to the earliest time for settlement specified in the payment order.

| | |
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| Id | RTGS.UR.HVP.PAYT.030.020 |
| Name | Reject Time / Till Time |
| Description | <p>RTGS shall ensure that a payment order can only be submitted to settlement if its Reject Time, if indicated, has not yet been reached. As soon as the Reject Time is reached and if the payment order has not been settled, the payment order will be rejected and a settlement failure notification will be sent out.</p> <p>If Till Time has been specified instead, the payment order shall not be rejected when this time is reached and the payment order has not been settled, and RTGS shall allow it to be submitted for settlement beyond this time.</p> <p>At 15 minutes before the indicated Reject Time / Till Time and if the payment order has not been settled, RTGS shall send out a warning notification to the holder of the RTGS account to be debited.</p> |

The payment order may specify a latest time by which RTGS has to submit the payment order for settlement. When RTGS checks the eligibility of a payment order for settlement, then it shall verify whether the current date and time is less than or equal to the latest time for settlement specified in the payment order.

| | |
|--------------------|---|
| Id | RTGS.UR.HVP.PAYT.030.030 |
| Name | End of Day - specific cut-off times |
| Description | <p>RTGS shall ensure that a new payment order can only be submitted to settlement if the relevant cut-off time is not yet reached. RTGS has to settle:</p> <ul style="list-style-type: none"> • New customer payment orders by a predefined customer payment cut-off time; • New interbank payment orders by a predefined interbank payment cut-off time. |

Note: both payment and interbank cut-offs could depend on the currency. This has not been decided yet, and will be further discussed during the realisation phase. See section 3.4 on Availability of services in the User Requirements Document for Common Components).

| | |
|--------------------|--|
| Id | RTGS.UR.HVP.PAYT.030.040 |
| Name | End of Day - rejection of queued orders |
| Description | <p>RTGS shall ensure that a queued payment order can only be settled until the relevant cut-off time is reached, and the last optimisation algorithm has run (see SHRD.UR.BD.OPER.000.030 on Cut-off in section 3.4 on Availability of</p> |

| | |
|--|---|
| | <p>services in the User Requirements Document for Common Components). RTGS shall reject:</p> <ul style="list-style-type: none"> • Queued customer payment orders not yet settled before a predefined customer payment cut-off time; • Queued interbank payment orders not yet settled before a predefined interbank payment cut-off time. |
|--|---|

1.2.3.4 PERFORM ENTRY DISPOSITION

Task Ref: RTGS.TR.HVP.PAYT.040

Through this activity, RTGS will check whether the payment order settlement can be attempted (notably including offsetting). This is possible only if no queued payment order of the same priority or higher exists. There are two exceptions to this rule:

- ▶ Normal payment orders (so called "FIFO by-pass principle" for normal payment orders, which means that the submission time for normal payment order is meaningless); and
- ▶ Offsetting bringing additional liquidity to the debited account.

| | |
|--------------------|---|
| Id | RTGS.UR.HVP.PAYT.040.010 |
| Name | Priority classification |
| Description | <p>RTGS shall process payment orders according to their priority classification. The component shall support three priority classes:</p> <ul style="list-style-type: none"> • Urgent (U) • High (H) • Normal (N) <p>If no priority class is selected, RTGS shall handle payment orders as normal payments.</p> |

| | |
|--------------------|---|
| Id | RTGS.UR.HVP.PAYT.040.020 |
| Name | Conditions for settlement attempt of urgent and high payment orders |
| Description | <p>RTGS shall ensure that an urgent or high payment order can, apart from the exception described below, be submitted to settlement only if no payment order with a higher or the same priority is queued on the same account to be debited. RTGS shall use the FIFO principle based on submission timestamp to sequence.</p> |

| | |
|--------------------|--|
| Id | RTGS.UR.HVP.PAYT.040.030 |
| Name | Conditions for settlement attempt of normal payment orders - so called "FIFO by-pass principle" for normal payment orders |
| Description | RTGS shall ensure that a normal payment order can, apart from the exception described below, be submitted to settlement only if no payment order with a higher priority is queued on the same account to be debited. |

Note: This means that the submission time for normal payment order is meaningless.

| | |
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| Id | RTGS.UR.HVP.PAYT.040.040 |
| Name | Exception for settlement attempt – offsetting with liquidity increase |
| Description | Even if the conditions described above are not fulfilled, RTGS shall nevertheless attempt settlement for the payment order if bilateral offsetting between the debited and credited accounts brings additional liquidity to the debited account. In the event that this optimisation feature does not improve the debited RTGS account holder's liquidity, RTGS shall queue the payment order. |

| | |
|--------------------|---|
| Id | RTGS.UR.HVP.PAYT.040.050 |
| Name | Offsetting for settlement attempt |
| Description | <p>When RTGS has submitted a payment order to settlement, offsetting is required in order to reduce the liquidity needed for its settlement, in any case.</p> <p>RTGS can select other payment orders together with the payment order submitted to settlement if those former are:</p> <ul style="list-style-type: none"> • Payment orders on top of the receiver's queue ("offsetting position 1"); and • Payment orders not on top of the receiver's queue, but bringing liquidity to the receiver ("extended offsetting"). |

1.2.3.5 PERFORM CHECKS FOR AVAILABLE LIQUIDITY AND BLOCKED ACCOUNTS

Task Ref: RTGS.TR.HVP.PAYT.050

RTGS shall settle a payment order only when it fulfils all of the following conditions (see further details in section 2 on Common Reference Data Management and section 9 on Business Data Definitions in the User Requirements Document for Common Components):

- The debit account is not blocked for debit.
- The credit account is not blocked for credit.

- ▶ The RTGS account holder whose account is subject to the credit is not blocked.
- ▶ The RTGS account holder whose account is subject to the debit is not blocked.
- ▶ The bilateral or multilateral Limits are not breached for normal payment orders.
- ▶ The available liquidity is sufficient.

Note: For a EURO-CB, this check is not relevant since a EURO-CB Account can be negative. For a non-CB Party, the credit line is managed within CLM, so the balance on the debit account cannot be negative.

- ▶ The reservation is sufficient:
 - Two reservations are available: one for urgent (U) payment orders and one for high (H) payment orders;
 - At the Start of Day, reservations are set according to the standing orders, and up to the available balance. The amount that cannot be reserved is called the Pending Value and is queued. Following any incoming credit, the Pending Value is updated and the Defined Value (i.e. the reserved amount minus the related debits) of the related reservation is increased;
 - After each debit of U and H payment order, the Defined Value of the related reservation is updated
 - The condition for drawing liquidity depends on the priority of the payment order. As described hereafter, a payment order can draw liquidity from its own reservation and from lower level reservations.

| | |
|--------------------|---|
| Id | RTGS.UR.HVP.PAYT.050.010 |
| Name | Blocked accounts validation |
| Description | RTGS shall check whether the credited account is eligible (i.e. not blocked) for being credited and the debited account is eligible for debiting. If the check fails, RTGS shall earmark the payment order and shall, for the time being, take it out of the processing. The payment order can be re-released or rejected through authorisation by the Central Bank of the blocked account. |

| | |
|--------------------|---|
| Id | RTGS.UR.HVP.PAYT.050.020 |
| Name | Blocked Parties validation |
| Description | RTGS shall check whether the credited Party is eligible (i.e. not blocked) for being credited and the debited Party is eligible for being debiting. If the check fails, RTGS shall earmark the payment order and shall, for the time being, take it out of the processing. The payment order can be re-released or rejected through authorisation by the Central Bank of the blocked Party. |

| | |
|--------------------|---|
| Id | RTGS.UR.HVP.PAYT.050.030 |
| Name | Limit check |
| Description | <p>RTGS shall perform a check toward bilateral and multilateral Limits, only for normal payment orders.</p> <p>First, RTGS shall check whether a bilateral Limit exists between the debited account and the credited account. Where the amount of the normal payment order is less than the free bilateral limit position, the check is positive. If the check fails, RTGS shall queue the order.</p> <p>Where no bilateral Limit is defined, RTGS shall check the multilateral Limit. Where the amount of the normal payment order is less than the free multilateral limit position, the check is positive. If the check fails, RTGS shall queue the order.</p> |

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| Id | RTGS.UR.HVP.PAYT.050.040 |
| Name | Balance check for urgent payment orders |
| Description | <p>RTGS shall ensure that an urgent payment order will, if any, draw liquidity from:</p> <ol style="list-style-type: none"> 1. The U reservation; 2. If this is not enough, then additionally from the non-reserved liquidity (balance of the account minus the U and H reservations); and 3. If this is still not enough, then additionally from the H reservation <p>Where not enough liquidity is available, RTGS shall queue the payment order and then check whether the user has configured a rule-based liquidity transfer order for the event where there is a lack of cash for U payment orders, to draw liquidity from the MCA linked to its RTGS DCA (through the associated liquidity transfer account link).</p> |

| | |
|--------------------|---|
| Id | RTGS.UR.HVP.PAYT.050.050 |
| Name | Balance check for high payment orders |
| Description | <p>RTGS shall ensure that a high payment order will, if any, draw liquidity from:</p> <ol style="list-style-type: none"> 1. The H reservation 2. If not enough, then additionally from the non-reserved liquidity (balance of the account minus the U and H reservations) <p>Where not enough liquidity is available, RTGS shall queue the payment order and then check whether the user has configured a rule-based liquidity transfer order for the event where there is a lack of cash for H payment orders, to draw liquidity from the MCA linked to its RTGS DCA (through the associated liquidity transfer account link).</p> |

| | |
|--------------------|---|
| Id | RTGS.UR.HVP.PAYT.050.060 |
| Name | Balance check for normal payment orders |
| Description | <p>RTGS shall ensure that a normal payment order will, if any, draw liquidity from the non-reserved liquidity (balance of the account minus the U and H reservations)</p> <p>Where not enough liquidity is available, RTGS shall queue the payment order.</p> |

1.2.3.6 QUEUE PAYMENT ORDER AND OPTIMISE QUEUED PAYMENT ORDERS

Task Ref: RTGS.TR.HVP.PAYT.060

If the entry disposition fails, this activity includes the identification of the related queue where the payment order is to be located

| | |
|--------------------|--|
| Id | RTGS.UR.HVP.PAYT.060.010 |
| Name | Identification of the queue |
| Description | RTGS shall manage queued payment orders according to the priority of the payment order: <ul style="list-style-type: none">• Urgent queue;• High queue; and• Normal queue |

| | |
|--------------------|---|
| Id | RTGS.UR.HVP.PAYT.060.020 |
| Name | Order in the queues |
| Description | RTGS shall ensure that the payment orders are ordered, by default, according to the submission time, i.e. FIFO. |

Note: This default order may be changed through amendment/cancellation of queued payment orders (see section 1.3 on Queue Management/Payment Order Amendment and section 1.4 on Queue Management/Payment Order Cancellation).

Optimisation has the objective to dissolve as soon as possible the queues. It can be either event-based, i.e. triggered when any event that can help settling a payment order occurs, such as new liquidity on an account or settlement of a payment order higher in a queue, or time-based, i.e. started regularly, to take into account all the events that occurred since the last optimisation.

Optimisation is aiming at resolving the reasons for non-settlement, i.e. either lack of liquidity through offsetting, or breach of a Limit which can be bilateral or multilateral. It is described in terms of objective (to increase the number of settled payments) and constraints (balances and limits, order in the queues). Optimisation is designed in a way to provide liquidity-saving features.

| | |
|--------------------|--|
| Id | RTGS.UR.HVP.PAYT.060.030 |
| Name | Optimisation objectives |
| Description | <p>RTGS shall reduce the stock of unsettled payment orders and minimise the needed liquidity through optimisation.</p> <p>The constraints described before in the entry disposition (order in the queues, FIFO by-pass principle for normal payment orders, offsetting) need to be applied strictly.</p> |

1.2.3.7 UPDATE CASH BALANCES AND LIMIT

Task Ref: RTGS.TR.HVP.PAYT.070

| | |
|--------------------|---|
| Id | RTGS.UR.HVP.PAYT.070.010 |
| Name | Update cash balance - Booking on a gross basis |
| Description | <p>RTGS shall post each and every payment order on a gross basis. This is without prejudice to the use of offsetting effects in the provision check when RTGS submits several payment orders together for settlement and they settle simultaneously on a gross basis within one legal and logical second.</p> |

| | |
|--------------------|--|
| Id | RTGS.UR.HVP.PAYT.070.020 |
| Name | Update reservation - Debiting urgent payment order |
| Description | <p>For each debiting urgent payment order, RTGS shall update the reservations according to the steps of the check:</p> <ol style="list-style-type: none"> 1. The available amount within the U reservation is updated; 2. Where the amount in the U reservation is not enough, and the non-reserved liquidity for normal payment orders is not enough either, the remaining amount is deducted from the H reservation. |

| | |
|--------------------|--|
| Id | RTGS.UR.HVP.PAYT.070.030 |
| Name | Update reservation - Debiting high payment order |
| Description | <p>For each debiting high payment order, RTGS shall update the H reservation according to the available amount within the H reservation.</p> |

| | |
|--------------------|---|
| Id | RTGS.UR.HVP.PAYT.070.040 |
| Name | Update pending reservation |
| Description | Where there is a pending reservation, RTGS shall reduce the Pending Value in the case of a credited payment bringing liquidity to the RTGS DCA, first the pending U reservation and then the pending H reservation, by the same amount. |

| | |
|--------------------|---|
| Id | RTGS.UR.HVP.PAYT.070.050 |
| Name | Update Limit in the case of a debit payment order |
| Description | RTGS shall, for each normal payment order debiting an account, decrease the free bilateral or multilateral Limit by the same amount |

| | |
|--------------------|--|
| Id | RTGS.UR.HVP.PAYT.070.060 |
| Name | Update Limit in the case of a credit payment order |
| Description | RTGS shall, for each payment order (whatever its priority), increase the free bilateral or multilateral Limit. |

At the Start of Day, limits are set according to the standing orders (so called Defined Limit), and are updated throughout the business day after each relevant credit and debit (so called Free Limit Position).

| | |
|--------------------|---|
| Id | RTGS.UR.HVP.PAYT.070.065 |
| Name | Update maximum amount in the case of a direct debit |
| Description | RTGS shall, for each direct debit, increase the used amount related to the maximum amounts defined for the Direct Debit Mandate as well as the maximum amount of direct debit orders allowed to be debited from the account per business day. |

| | |
|--------------------|---|
| Id | RTGS.UR.HVP.PAYT.070.070 |
| Name | Update - All-or-none basis |
| Description | RTGS shall perform all of the specified updates above in one transaction on an all-or-none basis. |

| | |
|--------------------|---|
| Id | RTGS.UR.HVP.PAYT.070.080 |
| Name | Exclusive control over the settlement |
| Description | RTGS shall ensure that no credit or debit can take place on the RTGS DCA without being processed by the settlement process. |

This requirement will prevent concurrency of different settlement processes for the same units of liquidity.

| | |
|--------------------|--|
| Id | RTGS.UR.HVP.PAYT.070.090 |
| Name | Exclusive control over the update |
| Description | RTGS shall ensure that no update specified above can take place on the RTGS DCA without being processed by the settlement process. |

| | |
|--------------------|--|
| Id | RTGS.UR.HVP.PAYT.070.100 |
| Name | Final booking process |
| Description | RTGS shall ensure that, once booked on the cash accounts, cash debits and credits must be final, i.e. irrevocable and unconditional. |

1.2.3.8 CHECK BALANCE FLOOR AND CEILING

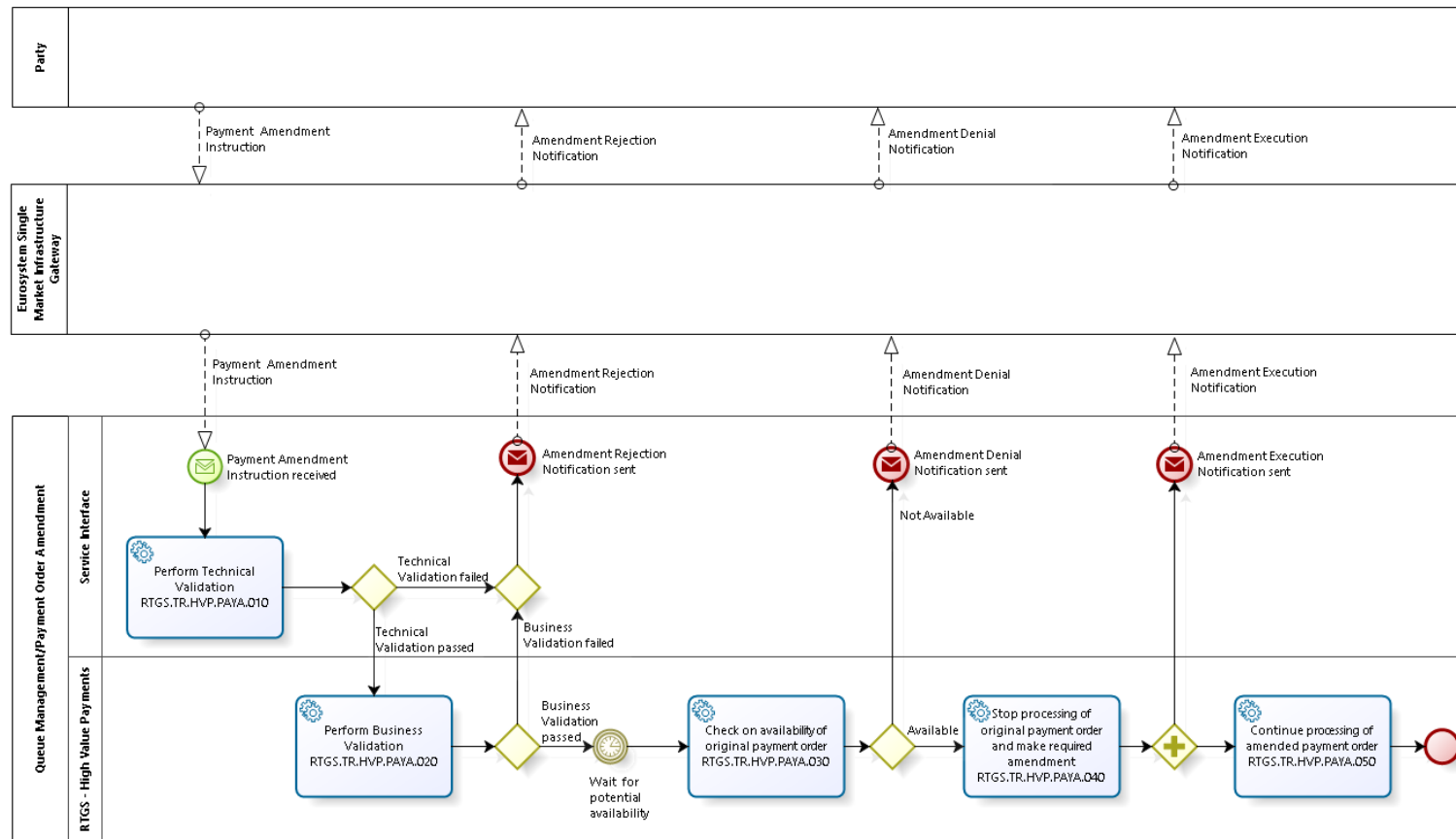
Task Ref: RTGS.TR.HVP.PAYT.080

| | |
|-------------|--|
| Id | RTGS.UR.HVP.PAYT.080.010 |
| Name | Floor and ceiling |
| Description | <p>Once the payment is final, RTGS shall check whether the account balance is below the floor balance that the RTGS account holder defined for the account or is above the ceiling balance that the RTGS account holder defined for the account. This check is performed only where the RTGS account holder has defined a floor and/or a ceiling for the account. The check is done both on the debited and credited accounts.</p> <p>If either is the case, then the second step is to check which action has been specified:</p> <ul style="list-style-type: none">• Notification to be sent in A2A and/or an error message is displayed as an alert in U2A• Creation of a rule-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. <p>The outcome of this final check does not affect the finality of the settlement of the payment.</p> |

1.3 QUEUE MANAGEMENT/PAYMENT ORDER AMENDMENT

Business Process Ref: RTGS.BP.HVP.PAYA

1.3.1 Business Process Model



Business Process Model 2: Queue Management/Payment Order Amendment

1.3.2 Process Overview

Process goal:

- ▶ This business process describes the amendment of a payment order. The process will be initiated by an RTGS account holder via sending of the respective message to RTGS. RTGS will process the message. If the message content is either invalid or would result in reference data checks to fail, it will be rejected and a rejection notification with appropriate error code(s) will be sent to the sender of the amendment. If the message content is valid and reference data checks have been passed successfully, RTGS will perform an amendment attempt of the original payment order the amendment message is referring to. If the amendment operation fails, an amendment rejection notification with appropriate error code(s) is sent to the sender of the amendment. Where the amendment operation succeeds, RTGS will amend the original payment order accordingly and will send an amendment success notification to both the sender of the amendment and to the initial sender of the original payment order¹.
- ▶ The following control options are offered:
 - Change priority (not possible for urgent payment orders) (This does not change the submission time);
 - Move one or more payment orders to the top of the queue in which they are held. The re-ordering of the queued payment orders triggers their settlement attempt. Where several payment orders were selected they will be put on top of the queue according to their previous order. The default order is determined by the submission timestamp;
 - Move one or more payment orders to the bottom of the queue in which they are held. The re-ordering of the queued payment orders possibly triggers the settlement of another payment order. Where several payment orders were selected they will be put at the bottom of the queue according to their previous order. The default order is determined by the submission timestamp;
 - Change of execution time (including warehoused payment orders) (only if it was set before) (possibly triggering the settlement of another payment order).

Process context:

- ▶ This generic process is valid for all types of amendments of queued payment orders.

Pre-conditions:

- ▶ Respective privileges have been granted to the sender

Time constraints:

¹ Where the sender of the amendment is the sender of the original payment order, only one notification will be sent.

- ▶ The processing has to be executed within the opening hours of HVP (see section 3.4 on Availability of services in the User Requirements Document for Common Components), i.e. from the opening of RTGS until the End of Day process starts, and outside the maintenance window.

Expected results:

RTGS shall either

- ▶ Reject the amendment instruction; or
- ▶ Accept and perform the amendment on the queued payment order;

Triggers:

- ▶ This process is triggered by a request from a RTGS account holder /Central Bank sending the amendment instruction (via A2A or U2A).

1.3.3 User Requirements

1.3.3.1 PERFORM TECHNICAL VALIDATION

Task Ref: RTGS.TR.HVP.PAYA.010

Same as RTGS.TR.HVP.PAYT.010 (Perform Technical Validation).

1.3.3.2 PERFORM BUSINESS VALIDATION

Task Ref: RTGS.TR.HVP.PAYA.020

| | |
|--------------------|---|
| Id | RTGS.UR.HVP.PAYA.020.010 |
| Name | Business Validation - Process specific authorisation checks |
| Description | <p>RTGS shall ensure that an amendment of a payment order can be sent:</p> <ul style="list-style-type: none">• By the RTGS account holder owning the account to be debited• By the respective CB acting on its behalf or• By any other authorised system user. <p>If the validation failed, a rejection notification with appropriate error code(s) shall be sent to the sender of the payment order amendment instruction.</p> |

Note: For direct debits, the debtor (=receiver) can initiate a reprioritisation and a reordering within the queue.

Additionally, RTGS.UR.HVP.PAYT.020.050 (Business Validation - field and reference data checks) and RTGS.UR.HVP.PAYT.020.005 (Check for duplicate payment order) apply.

| | |
|--------------------|---|
| Id | RTGS.UR.HVP.PAYA.020.020 |
| Name | Amendment of payment orders |
| Description | <p>RTGS shall check the validity of amendment instructions. Only the following payment order amendment instructions are valid:</p> <ul style="list-style-type: none"> • Change priority (not possible for urgent payment orders) (This does not change the submission time). • Move one or more payment orders to the top of the queue in which they are held. The re-ordering of the queued payment orders triggers their settlement attempt. Where several payment orders were selected they will be put on top of the queue according to their previous order. The default order is determined by the submission timestamp. • Move one or more payment orders to the bottom of the queue in which they are held. The re-ordering of the queued payment orders possibly triggers the settlement of another payment order. Where several payment orders were selected they will be put at the bottom of the queue according to their previous order. The default order is determined by the submission timestamp. • Change of execution time (including warehoused payment orders) (only if it was set before) (possibly triggering the settlement of another payment order). <p>If the validation failed, RTGS shall send a rejection notification with appropriate error code(s) to the sender of the payment order amendment instruction.</p> |

1.3.3.3 CHECK ON AVAILABILITY OF ORIGINAL PAYMENT ORDER

Task Ref: RTGS.TR.HVP.PAYA.030

| | |
|--------------------|---|
| Id | RTGS.UR.HVP.PAYA.030.010 |
| Name | Status of original payment order |
| Description | <p>The original payment order to be amended with the respective payment order amendment instruction has to be in an intermediate (i.e. not end) state (excluding blocked payment orders) to be eligible for amendment (e.g. queued and not considered in an ongoing optimisation simulation process, an order for which the From Time was not reached yet or a warehoused payment order). Thus, amendment of payment orders is not feasible if they are already in an end state (settled, rejected or cancelled). The check for availability should also wait for a short period of time until a currently ongoing optimisation cycle is over, so that the payment orders not settled within this settlement attempt reached again an intermediate state</p> <p>The availability can be also dependent not only on the state, but also on the attribute to be changed itself. E.g., one can change the Till Time or Reject Time as long it has not passed, and only to a time which is in the future.</p> |

1.3.3.4 STOP PROCESSING OF ORIGINAL PAYMENT ORDER AND MAKE REQUIRED AMENDMENT

Task Ref: RTGS.TR.HVP.PAYA.040

| | |
|--------------------|--|
| Id | RTGS.UR.HVP.PAYA.040.010 |
| Name | Stop processing and amendment of payment order |
| Description | <p>RTGS shall stop processing the original payment order from the general processing of payment orders before and while the requested amendment takes place. This means that RTGS shall remove a currently queued payment orders from its queue, if it is not considered in an ongoing optimisation simulation process.</p> <p>An original payment order for which the From Time is not reached yet or a warehoused payment order will be directly amended according to the valid payment order amendment instruction.</p> |

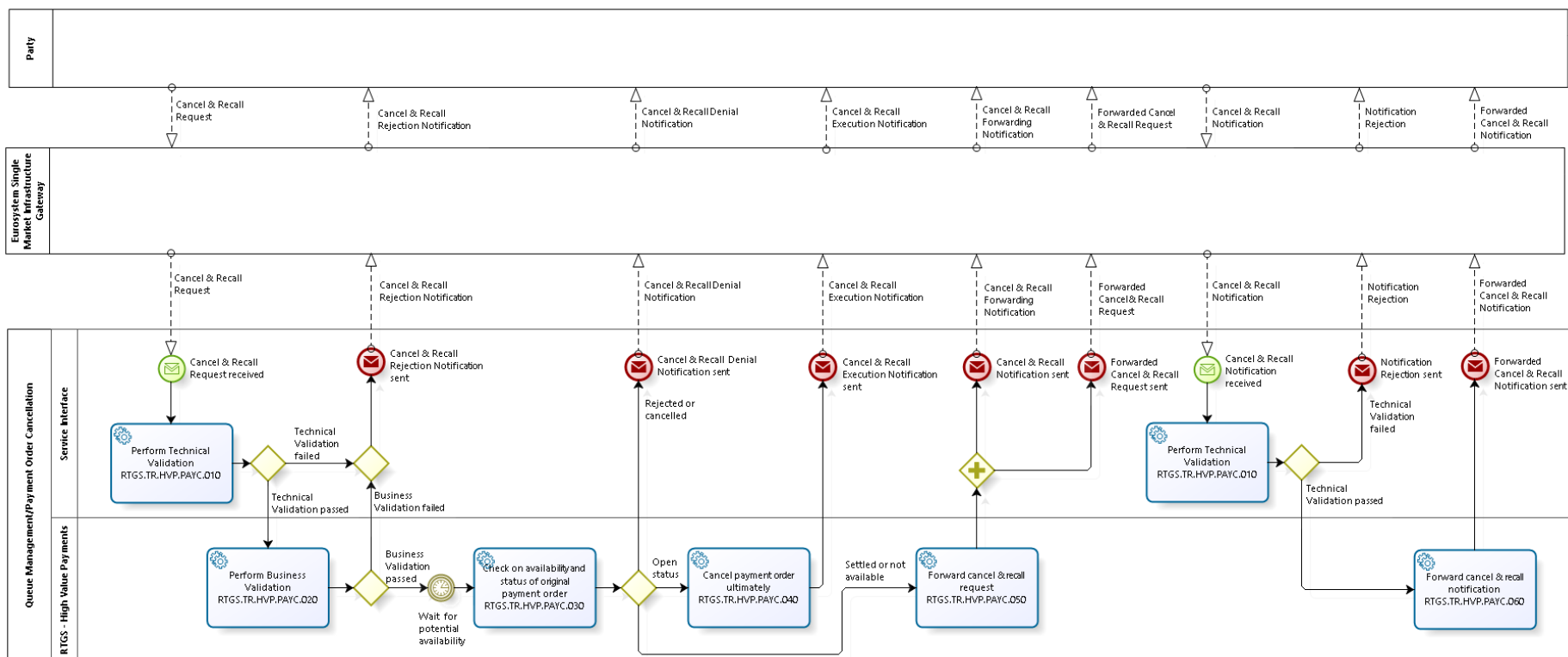
1.3.3.5 CONTINUE PROCESSING OF AMENDED PAYMENT ORDER

Task Ref: RTGS.TR.HVP.PAYA.050

| | |
|-------------|---|
| Id | RTGS.UR.HVP.PAYA.050.010 |
| Name | Continue processing of amended payment order |
| Description | Depending on the most recent state of the original payment order and the attribute or the order in the queue which was amended, RTGS shall process the amended payment order through the core settlement operations chain. If the queue order was changed, RTGS shall place the amended payment order at the respective position and the usual queue dissolution processes will capture it. If, on the other hand, the priority has changed, RTGS shall place the amended payment order in the queue according to the new priority and the original submission time of the original payment order (i.e., the amendment does not result in an update of that relevant timestamp; the position in the new queue is determined as if the original payment order has already been placed to that queue originally). |

Business Process Ref: RTGS.BP.HVP.PAYC

1.4.1 Business Process Model



1.4.2 Process Overview

Process goal:

This business process describes the cancellation of a payment order. The process will be initiated by an RTGS account holder via sending of the respective message to RTGS. RTGS will process the message. If the message content is either invalid or would result in reference data checks to fail, it will be rejected and a rejection notification with the appropriate error code(s) will be sent to the sender of the cancellation. If the message content is valid and reference data checks have been passed successfully, RTGS will perform a cancellation attempt of the original payment order the cancel&recall request message is referring to. If the original payment order has not yet reached a final status, the original payment is cancelled and a cancel&recall execution notification is sent to the sender of the cancel&recall request and a payment cancellation notification is sent to the initial sender or the original payment order. If the original payment order has a negative final status (rejected or cancelled) a denial notification with appropriate error code is sent to the sender of the cancel & recall request. If the original payment order has a positive final status (settled) or the original payment order cannot be found in the list of payments of the current business day, the cancel&recall request is forwarded to the payment receiver quoted in the request. A notification is sent to the sender of the cancel&recall request informing that the request has been forwarded. The receiver of the forwarded cancel&recall request is expected to respond either with a payment return or with a cancel&recall notification. An incoming payment return is processed in the same way as any other payment order. An incoming cancel&recall notification is forwarded to the receiver quoted in the notification.

Process context:

- ▶ This generic process is valid for the cancellation of a payment order.

Pre-conditions:

- ▶ Respective privileges have been granted to the sender

Time constraints:

- ▶ The processing has to be executed within the opening hours of HVP (see section 3.4 on Availability of services in the User Requirements Document for Common Components), i.e. from the opening of RTGS until the End of Day process starts, and outside the maintenance window.

Expected results:

- ▶ RTGS shall either
 - Reject the cancel&recall request,
 - Accept and perform the cancellation on the queued payment order or
 - Forward the cancel&recall request / cancel&recall notification.

Triggers:

- ▶ This process is triggered by a cancel&recall request from an RTGS account holder /Central Bank (via A2A or U2A) or by a cancel&recall notification (via A2A) from a RTGS account holder/Central Bank. The cancellation via U2A is possible on the payment orders in the queue only.

1.4.3 User Requirements

1.4.3.1 PERFORM TECHNICAL VALIDATION

Task Ref: RTGS.TR.HVP.PAYC.010

Same as RTGS.TR.HVP.PAYT.010 (Perform Technical Validation).

1.4.3.2 PERFORM BUSINESS VALIDATION

Task Ref: RTGS.TR.HVP.PAYC.020

| | |
|--------------------|--|
| Id | RTGS.UR.HVP.PAYC.020.010 |
| Name | Business Validation - Process specific authorisation checks |
| Description | <p>RTGS shall ensure that the cancel&recall request can be sent by the RTGS account holder, the respective Central Bank acting on behalf of its credit institutions/customers or by any other authorised system user.</p> <p>If the validation failed, RTGS shall send a rejection notification with appropriate error code(s) to the sender of the cancel&recall request.</p> |

Note: For direct debits, the creditor (=sender) can initiate the cancellation.

Additionally, RTGS.UR.HVP.PAYT.020.050 (Business Validation - field and reference data checks) and RTGS.UR.HVP.PAYT.020.005 (Check for duplicate payment order) apply.

1.4.3.3 CHECK ON AVAILABILITY AND STATUS OF ORIGINAL PAYMENT ORDER

Task Ref: RTGS.TR.HVP.PAYC.030

| | |
|--------------------|--|
| Id | RTGS.UR.HVP.PAYC.030.010 |
| Name | Availability and status of original payment order |
| Description | <p>RTGS must reject the cancel&recall request, which refers to a payment order RTGS has already rejected or cancelled. A denial notification with the appropriate reason code is sent to the sender of the cancel&recall request.</p> <p>A payment order eligible for cancellation can either be a queued payment order, an order for which the From Time is not reached yet or a warehoused payment order.</p> <p>Payment orders which are captured in an optimisation cycle must also be treated as "potentially settled" and are therefore not available to an immediate cancellation. The check for status should also wait for a short period of time until a currently ongoing optimisation cycle is over, so that the payment orders not settled within this settlement attempt reached again an intermediate state.</p> <p>Payment orders which are already settled cannot be cancelled anymore. In this case or when the payment order cannot be found in the system, the cancel&recall request received via A2A is forwarded to the receiver quoted in the request. Cancellation requests via U2A are not forwarded in case the cancellation did not succeed in the system</p> |

1.4.3.4 CANCEL PAYMENT ORDER ULTIMATELY

Task Ref: RTGS.TR.HVP.PAYC.040

| | |
|--------------------|--|
| Id | RTGS.UR.HVP.PAYC.040.010 |
| Name | Cancel payment order ultimately |
| Description | <p>RTGS shall cancel the original payment order according to the valid cancel&revoke request.</p> <p>A cancel&recall execution notification is sent to the sender of the cancel&recall request and a payment cancellation notification is sent to the initial sender of the original payment order</p> |

1.4.3.5 FORWARD CANCEL&RECALL REQUEST

Task Ref: RTGS.TR.HVP.PAYC.050

| | |
|-------------|-------------------------------|
| Id | RTGS.UR.HVP.PAYC.050.010 |
| Name | Forward cancel&recall request |

| | |
|-------------|---|
| Description | <p>RTGS shall forward the cancel&recall request to the receiver quoted in the request in case the original payment has been settled or if the original payment cannot be found.</p> <p>A notification is sent to the sender of the cancel&recall request informing that the request has been forwarded.</p> |
|-------------|---|

1.4.3.6 FORWARD CANCEL&RECALL NOTIFICATION

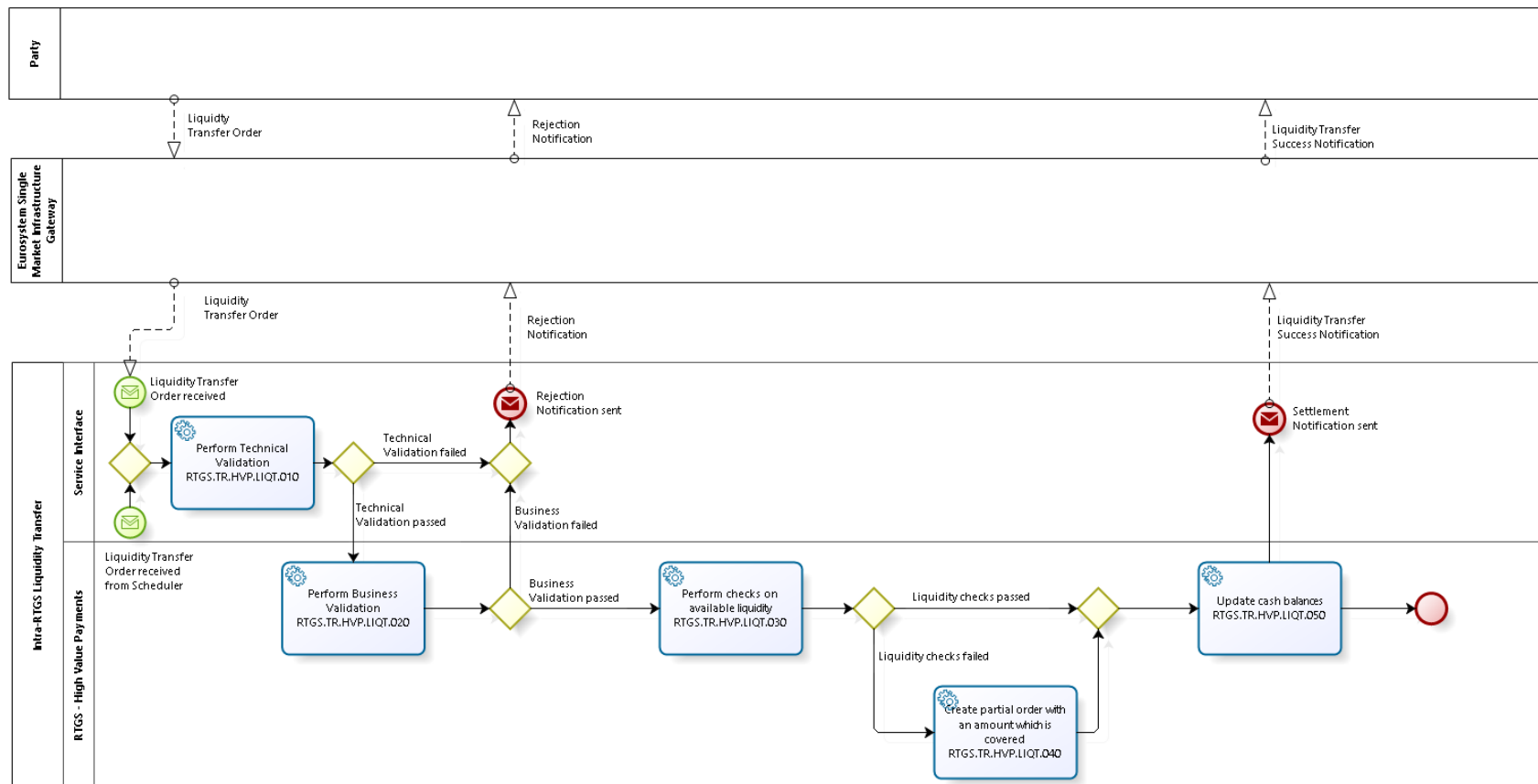
Task Ref: RTGS.TR.HVP.PAYC.060

| | |
|-------------|---|
| Id | RTGS.UR.HVP.PAYC.060.010 |
| Name | Forward cancel&recall notification |
| Description | <p>RTGS shall forward the cancel&recall notification to the receiver quoted in the received notification.</p> |

1.5 INTRA-RTGS LIQUIDITY TRANSFER

Business Process Ref: RTGS.BP.HVP.LIQT

1.5.1 Business Process Model



Business Process Model 4: Intra-RTGS Liquidity Transfer

1.5.2 Process Overview

Process goal:

- ▶ This business process describes the processing of an intra-RTGS liquidity transfer order from one RTGS DCA to another RTGS DCA within the same Liquidity Transfer Group.
- ▶ Standing order liquidity transfer orders, immediate liquidity transfer orders and rule-based liquidity transfer orders are covered by this business process. The process will be initiated by either the RTGS account holder itself or by the AS on behalf of its settlement bank or by the CB on behalf of the RTGS account holder via sending the respective liquidity transfer order to RTGS. RTGS will process the liquidity transfer order. If the liquidity transfer order 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 notification with the error code(s) in A2A mode or an error message on the screen in U2A mode). If the liquidity transfer order 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 order (partly) succeeds, RTGS will transfer (part of) the amount requested and RTGS will send a (partly) transfer success notification to the Parties involved (where the Party opted for it).

Process context:

- ▶ This generic process is valid for all types of intra-RTGS liquidity transfer orders.

Pre-conditions:

- ▶ Both RTGS DCAs/sub accounts exist and are active
- ▶ Respective privileges have been granted to the sender

Time constraints:

- ▶ The processing has to be executed within the opening hours of HVP (see section 3.4 on Availability of services in the User Requirements Document for Common Components), i.e. from the opening of RTGS until the End of Day process starts, and outside the maintenance window.

Expected results:

- ▶ Liquidity successfully transferred

Triggers:

- ▶ Liquidity transfer order (immediate liquidity transfer Order via A2A or U2A; or triggered by a standing order liquidity transfer order or a rule-based liquidity transfer order)

1.5.3 User Requirements

1.5.3.1 PERFORM TECHNICAL VALIDATION

Task Ref: RTGS.TR.HVP.LIQT.010

Same as RTGS.TR.HVP.PAYT.010 (Perform Technical Validation).

1.5.3.2 PERFORM BUSINESS VALIDATION

Task Ref: RTGS.TR.HVP.LIQT.020

The checks 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 the appropriate error codes for all breaches which occurred must be sent to the sender.

| | |
|--------------------|---|
| Id | RTGS.UR.HVP.LIQT.020.005 |
| Name | Check for duplicate liquidity transfer order |
| Description | <p>RTGS shall carry out a duplicate submission control for incoming liquidity transfer orders. This control shall include the following fields:</p> <ul style="list-style-type: none">• Sender of the message;• Message Type;• Receiver;• Transaction Reference Number;• Related Reference;• Value Date; and• Amount. |

| | |
|--------------------|--|
| Id | RTGS.UR.HVP.LIQT.020.010 |
| Name | Business Validation - Process specific authorisation checks |
| Description | <p>RTGS shall perform service specific authorisation checks. A liquidity transfer order from the RTGS DCA of the account holder to the RTGS DCA of the same account holder dedicated to AS can be sent by the RTGS account holder, the AS, the AS on behalf of its settlement bank, the respective CB acting on behalf its RTGS account holder /AS or by any other authorised system user.</p> <p>The liquidity transfer order can also be triggered by the scheduler in the case of a standing order. The request for a liquidity retransfer from the RTGS DCA of the account holder dedicated to AS to the RTGS DCA of the same account holder can be sent by the RTGS account holder, AS or the respective CB acting on behalf of its AS or triggered by a standing order liquidity transfer order set up by the RTGS account holder.</p> |

| | |
|--------------------|---|
| Id | RTGS.UR.HVP.LIQT.020.025 |
| Name | Business Validation - Liquidity Transfer Group |
| Description | <p>RTGS shall check whether both RTGS DCAs belong to the same Liquidity Transfer Group or not. If not, the order will be rejected.</p> <p>This check is not performed if the debtor or the creditor is a CB Accounts.</p> |

Additionally, RTGS.UR.HVP.PAYT.020.050 (Business Validation - field and reference data checks) applies.

1.5.3.3 PERFORM CHECKS ON AVAILABLE LIQUIDITY

Task Ref: RTGS.TR.HVP.LIQT.030

| | |
|--------------------|---|
| Id | RTGS.UR.HVP.LIQT.030.010 |
| Name | Check vs. amount to be transferred |
| Description | <p>RTGS shall check whether enough liquidity is available. Where there is a lack of liquidity and partial execution is not allowed, the liquidity transfer order shall be rejected.</p> |

1.5.3.4 CREATE PARTIAL ORDER WITH AN AMOUNT WHICH IS COVERED

Task Ref: RTGS.TR.HVP.LIQT.040

| | |
|--------------------|--|
| Id | RTGS.UR.HVP.LIQT.040.010 |
| Name | Partial order |
| Description | If the liquidity transfer order is initiated either by an AS on behalf of its settlement bank or by an automatic trigger from the scheduler, RTGS shall settle the liquidity transfer order partially. For several standing orders, where the sum of all standing orders for intra-RTGS liquidity transfers of the RTGS account holder 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. |

1.5.3.5 UPDATE CASH BALANCES

Task Reference RTGS.TR.HVP.LIQT.050

| | |
|--------------------|--|
| Id | RTGS.UR.HVP.LIQT.050.010 |
| Name | Update Cash Balances |
| Description | RTGS shall book the liquidity transfer order finally and irrevocably on the two RTGS accounts. RTGS shall send a (partly) success notification to the sending Party and to the holder of the debited RTGS account. |

1.6 PROCESS INTER-SERVICE LIQUIDITY TRANSFER ORDER FROM MCA TO DCA - RTGS PART

This process is the second part of the CLM "Process inter-service liquidity transfer order from MCA to DCA" (see section 1.2 in the User Requirements Document for Central Liquidity Management, business process CLM.BP.CLM.LTSEN), the part within RTGS.

It is similar to the process described within CLM "Process inter-service liquidity transfer order from DCA to MCA" (see section 1.3 in the User Requirements Document for Central Liquidity Management, business process CLM.BP.CLM.LTRCV). For the sake of simplicity, only the specific rules are described here.

1.7 PROCESS INTER-SERVICE LIQUIDITY TRANSFER ORDER FROM DCA TO MCA - RTGS PART

This process is the first part of the CLM "Process inter-service liquidity transfer order from DCA to MCA" (see section 1.3 in the User Requirements Document for Central Liquidity Management, business process CLM.BP.CLM.LTRCV), the part within RTGS.

It is similar to the process described within CLM "Process inter-service liquidity transfer order from MCA to DCA" (see section 1.2 in the User Requirements Document for Central Liquidity Management, business process CLM.BP.CLM.LTSEN). For the sake of simplicity, only the specific rules are described here.

The only specific rule is for liquidity transfer orders triggered by a lack of cash in CLM. The rule for Partial Settlement is different from the standard one defined in RTGS.UR.HVP.LIQT.040 (Partial order).

| | |
|--------------------|---|
| Id | RTGS.UR.HVP.LTRCV.040.010 |
| Name | Partial order |
| Description | Automated liquidity transfer orders triggered by a lack of cash in CLM can be partially settled. RTGS shall confirm to CLM the settled amount and create a new automated intra-service liquidity transfer order for the remaining part. The new inter-service liquidity transfer order should be queued. In such a case, the processing will be similar to payment orders as described in the process "Payment Order Processing" (see section 1.2 in this User Requirements Document), considering that those automated liquidity transfer orders are with urgent priority. The respective liquidity transfer order shall be placed on top of the queue of all pending payment and liquidity transfer orders. |

| | |
|--------------------|--|
| Id | RTGS.UR.HVP.LTRCV.040.020 |
| Name | Replacement of pending liquidity transfer order |
| Description | In case CLM sends a new intra-service liquidity transfer order to RTGS that is triggered by a lack of cash on MCA, while there is already a pending liquidity transfer order in RTGS that is triggered by a lack of cash on the same MCA, then RTGS shall cancel the pending intra-service liquidity transfer order and queue the new intra-service liquidity transfer order with the same conditions. |

1.8 PROCESS LIQUIDITY TRANSFER ORDER BETWEEN TWO DCAs IN DIFFERENT SETTLEMENT SERVICES - RTGS PART

This process is the RTGS part of the CLM process "Process liquidity transfer order between two DCAs in different settlement services" (see section 1.5 in the User Requirements Document for Central Liquidity Management).

Within this process, RTGS could be either:

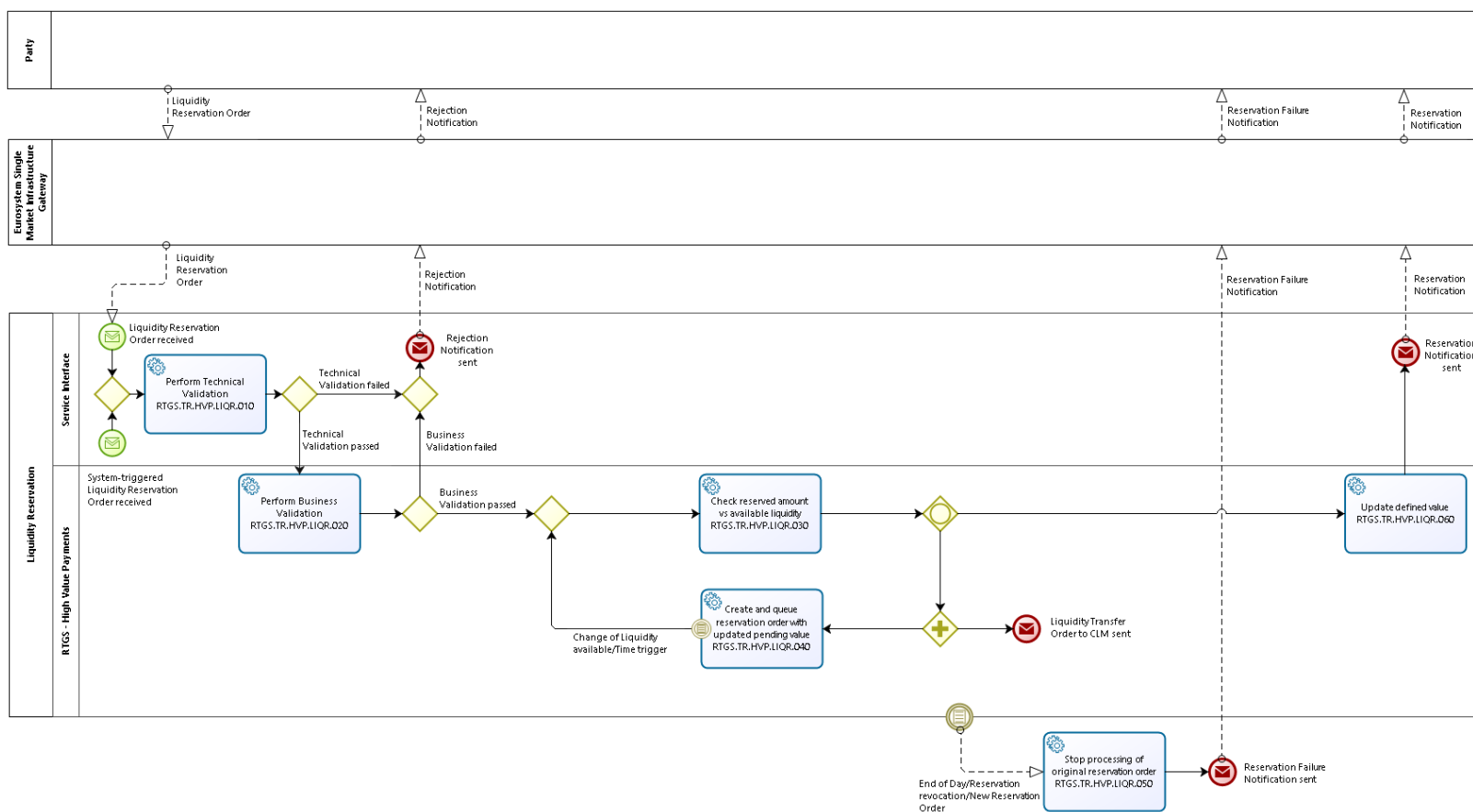
- the sending service, and the process is similar to "Process inter-service liquidity transfer order from DCA to MCA - RTGS part" (section 1.7 in this User Requirements Document); or
- the receiving service, and the process is similar to "Process inter-service liquidity transfer order from MCA to DCA - RTGS part" (section 1.6 in this User Requirements Document).

No specific rule has been identified for this process.

1.9 LIQUIDITY RESERVATION

Business Process Ref: RTGS.BP.HVP.LIQR

1.9.1 Business Process Model



Business Process Model 5: Liquidity Reservation

1.9.2 Process Overview

Process goal:

- ▶ This business process describes the processing of a request to reserve liquidity. The initiation of this process takes place through the execution of a standing order to reserve liquidity scheduled for at the Start of Day or through the receipt of a liquidity reservation order from the RTGS account holder or another entity that the RTGS account holder has authorised to act on its behalf.
- ▶ RTGS performs a technical validation of the liquidity reservation order and, if successful, it also performs a subsequent business validation of the liquidity reservation order. RTGS shall send a rejection notification with the appropriate error code(s) if either the technical validation or the business validation fails. If RTGS completes both the technical validation and the business validations without identifying any errors, then RTGS will attempt to reserve the requested amount on the account referred.
- ▶ Where the reservation operation (partly) succeeds, RTGS will reserve (part of) the amount requested and will send a (partial) reservation success notice to the sender of the request and to the RTGS account holder².
- ▶ The amount that cannot be reserved is called the Pending Value and is queued. Following any incoming credit, the Pending Value is updated if possible and the Defined Value (i.e. the reserved amount minus the related debits) of the related reservation is increased.

Process context:

- ▶ This generic process is valid for all types of liquidity reservations.

Pre-conditions:

- ▶ The RTGS DCA exists and is active
- ▶ Respective privileges have been granted to the sender

Time constraints:

- ▶ The processing has to be executed within the opening hours of HVP (see section 3.4 on Availability of services in the User Requirements Document for Common Components), i.e. from the opening of RTGS until the End of Day process starts, and outside the maintenance window.

Expected results:

- ▶ Liquidity successfully reserved

Triggers:

- ▶ A liquidity reservation order (via A2A or U2A)
- ▶ A Standing Order for Reservation

² Where the sender of the reservation is the RTGS account holder, only one notification will be sent.

1.9.3 User Requirements

1.9.3.1 PERFORM TECHNICAL VALIDATION

Task Ref: RTGS.TR.HVP.LIQR.010

Same as RTGS.TR.HVP.PAYT.010 (Perform Technical Validation).

1.9.3.2 PERFORM BUSINESS VALIDATION

Task Ref: RTGS.TR.HVP.LIQR.020

| | |
|--------------------|---|
| Id | RTGS.UR.HVP.LIQR.020.010 |
| Name | Business Validation - Process specific authorisation checks |
| Description | <p>RTGS shall ensure that the reservation request can be sent by the RTGS account holder, the respective CB acting on behalf its credit institutions/customers, or by any other authorised system user. The request can also come from the scheduler in the case of a standing order.</p> <p>If the validation failed, a rejection notification with appropriate error code(s) shall be sent to the sender.</p> |

Additionally, RTGS.UR.HVP.PAYT.020.050 (Business Validation - field and reference data checks) and RTGS.UR.HVP.PAYT.020.005 (Check for duplicate payment order) apply.

1.9.3.3 CHECK RESERVED AMOUNT VS AVAILABLE LIQUIDITY

Task Ref: RTGS.TR.HVP.LIQR.030

| | |
|--------------------|---|
| Id | RTGS.UR.HVP.LIQR.030.010 |
| Name | Check available liquidity vs. amount to be pre-empted |
| Description | <p>RTGS shall check if the liquidity available covers the requested reservation amount. According to the check, RTGS shall create a partial reservation request with the amount which can be immediately covered. RTGS shall reserve this covered amount for the purpose indicated immediately.</p> |

Note: The amount which is surpassing the available liquidity coverage is called Pending Value.

1.9.3.4 CREATE AND QUEUE RESERVATION ORDER WITH UPDATED PENDING VALUE

Task Ref: RTGS.TR.HVP.LIQR.040

| | |
|--------------------|---|
| Id | RTGS.UR.HVP.LIQR.040.010 |
| Name | Create and queue reservation |
| Description | RTGS will queue the remaining (reduced) pending part and will process it in an event-oriented way. Whenever there is an increase in the available liquidity an asynchronous resolving process attempts to process the pending reservation order. Even if the increase of available liquidity is not sufficient for the complete processing, RTGS shall process the pending reservation partly (RTGS shall decrease the pending reservation and increase the defined value). |

| | |
|--------------------|---|
| Id | RTGS.UR.HVP.LIQR.040.020 |
| Name | Interventions on queued reservations |
| Description | RTGS shall allow for interventions on pending reservation requests. New reservation requests related to the RTGS DCA of the account holder will either increase the pending amount, or decrease it. When receiving a new reservation request, RTGS shall stop processing the pending reservation request for the respective reservation type and take into account only the latest request. |

Note: Due to the asynchronous processing incoming liquidity might be blocked and used by a parallel booking process before the attempt to increase the reservation has been performed.

1.9.3.5 STOP PROCESSING OF ORIGINAL RESERVATION ORDER

Task Ref: RTGS.TR.HVP.LIQR.050

| | |
|--------------------|---|
| Id | RTGS.UR.HVP.LIQR.050.010 |
| Name | Stop Processing |
| Description | Upon receipt of the End of Day notification or a new reservation order, RTGS shall stop to process of the original reservation order. |

1.9.3.6 UPDATE DEFINED VALUE

Task Ref: RTGS.TR.HVP.LIQR.060

| | |
|--------------------|---|
| Id | RTGS.UR.HVP.LIQR.060.010 |
| Name | Update defined value |
| Description | RTGS shall book the reservations finally and irrevocably. |

2 RTGS SERVICES FOR ANCILLARY SYSTEMS (AS)

2.1 OVERVIEW

2.1.1 Context Diagram

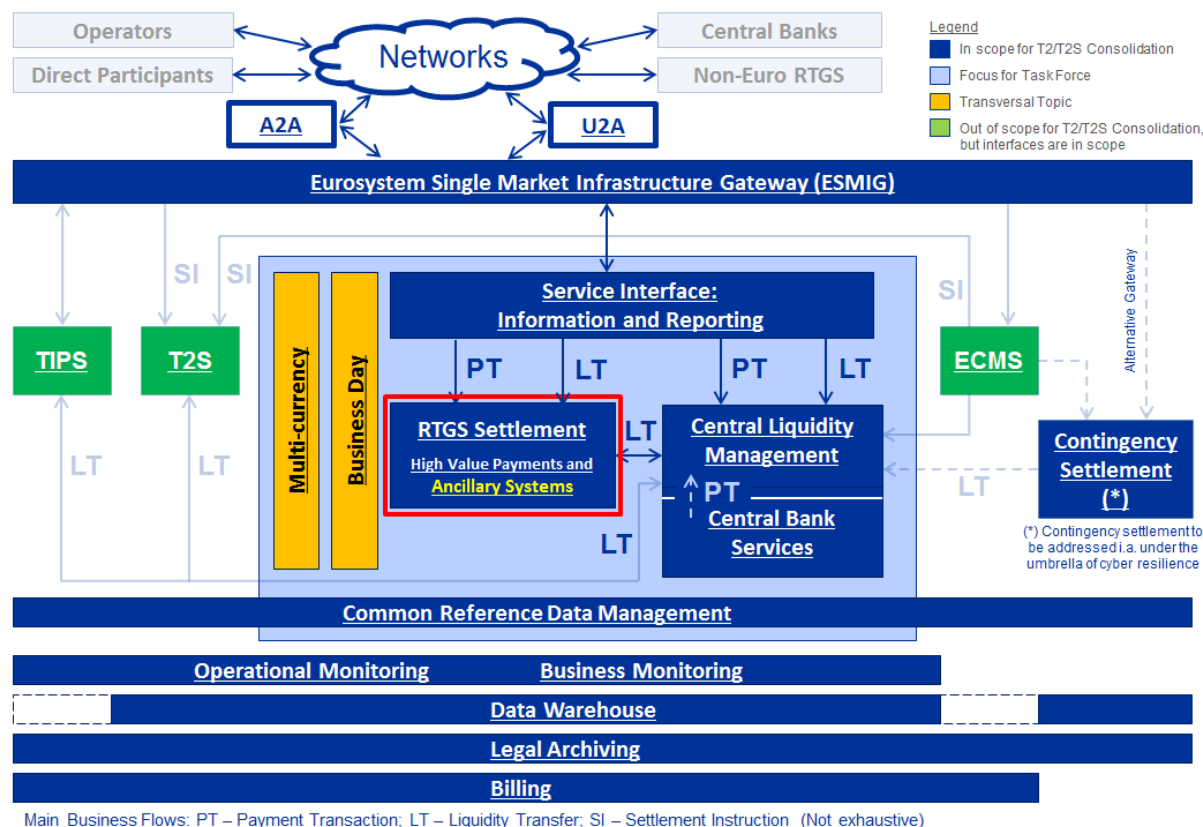


Figure 2: Context diagram for RTGS Services for Ancillary Systems

This section describes the RTGS services for Ancillary Systems (AS). It includes *Ancillary System Transfer Processing*. RTGS processes AS transfer orders on the technical accounts of AS and the accounts of the AS settlement banks.

2.1.2 Business Process

| Business Process Name | BP Reference | Business Process Description |
|--------------------------------------|----------------|-------------------------------|
| Ancillary System Transfer Processing | RTGS.BP.AS.AST | Settlement of an AS transfer. |

Table 2: Business Process for Ancillary Systems

2.1.3 Account types for Ancillary Systems business

The following diagram depicts a generic account constellation for an AS settlement bank (Party A), e.g. a settlement bank with various types of settlement businesses and with accounts opened in the book of one Central Bank:

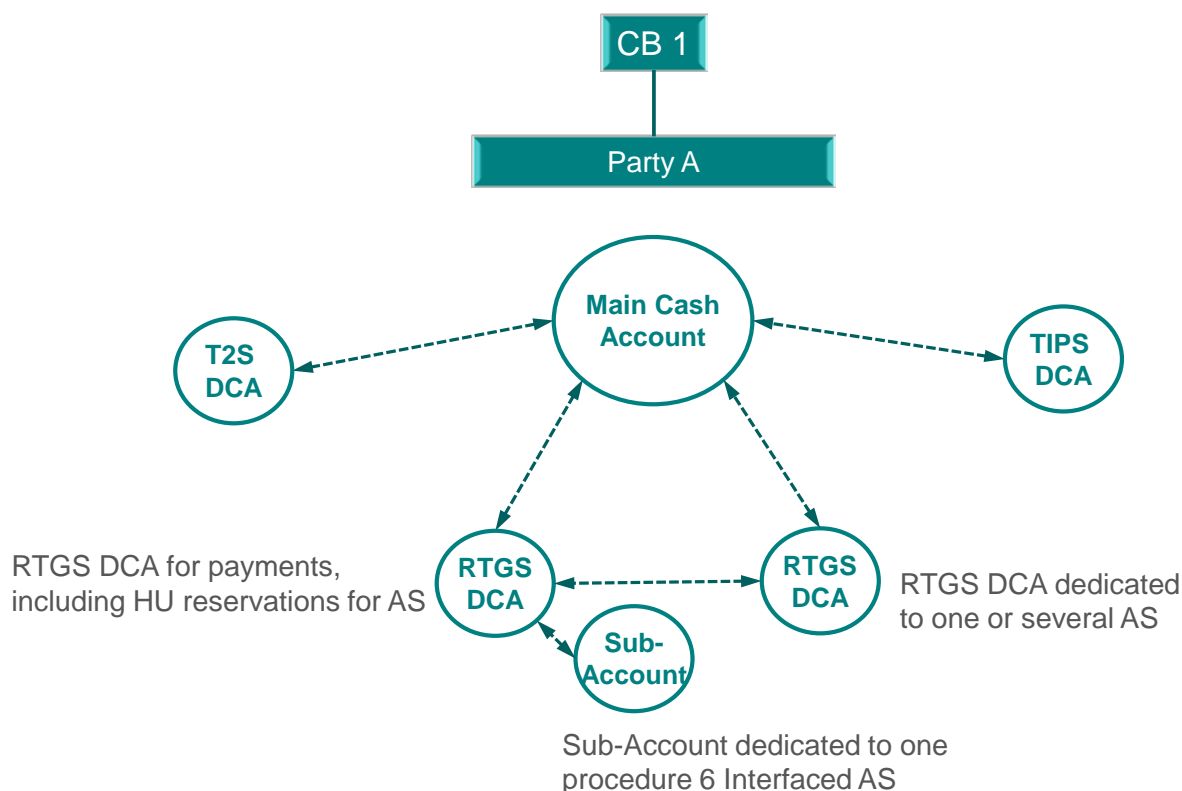


Figure 3: Generic account constellation for an AS settlement bank

Besides DCAs for securities and instant payments settlement, it has an RTGS DCA for High Value Payments (with reserved amounts for urgent AS related transfers) and two accounts for AS transfers: one account (for AS procedure "Settlement on dedicated Liquidity Accounts (interfaced)") as a sub account of the RTGS DCA for High Value Payments, the second account (for other AS) as an RTGS DCA dedicated to one or several AS.

| Account type | Ownership |
|-------------------------|-------------------------|
| RTGS DCA | Party A |
| Sub account | Party A |
| Guarantee Funds Account | Guarantor, CB or the AS |
| Technical Account | CB or the AS |

Table 3: Account Types and their ownership

2.1.3.1 SEPARATION OF LIQUIDITY

| Account type | Settlement Procedure | Shared among several AS? |
|--------------|---|--------------------------|
| RTGS DCA | <ul style="list-style-type: none"> • direct settlement in the former TARGET2 PM account (e.g., Continuous Linked Settlement payment orders); • "Real-Time Settlement"; • "Bilateral Settlement"; • "Standard Multilateral Settlement"; • "Simultaneous Multilateral Settlement"; and • "Settlement on dedicated Liquidity Accounts (real-time)"³ | Y |
| Sub account | "Settlement on dedicated Liquidity Accounts (interfaced)" | N |

Table 4: Separation of liquidity for different settlement procedures

2.1.3.2 SOURCES OF LIQUIDITY

The following table provides a summary on the liquidity used for settlement and the respective accounts the liquidity stems from:

| Liquidity source | Usage | Complementation | Segregation of liquidity |
|--------------------------|--|--|--|
| RTGS DCA | Usage of reservation for U payment orders. | Possibly complemented by other reservations/liquidity as outlined in section 1.9 on Liquidity Reservation in this User Requirements Document. | No further separation by AS procedure/AS possible. |
| RTGS DCA dedicated to AS | Usage of liquidity transferred from the MCA or the RTGS DCA to the RTGS DCA dedicated to AS. | By default, no automated complementation is set up. Complementation can be set up by the RTGS account holder through standing order liquidity transfer orders. | Separation by AS procedure/AS possible. |
| Sub account | Usage of liquidity transferred from the RTGS DCA to the sub account. | By default, no automated complementation is set up. Complementation can be set up by the RTGS account holder through standing order liquidity transfer orders. | Separation by AS using procedure 6 Interfaced mandatory. |
| Guarantee Funds | A guarantee funds mechanism can be used for multilateral settlement procedures. | - | - |

Table 5: Liquidity usage for AS settlement

³ Liquidity for "Settlement on dedicated Liquidity Accounts (real-time)" can be transferred from the RTGS DCA to a technical account either held by the AS or the CB for prefunding purposes.

2.1.4 Liquidity Transfer Types for Ancillary System business

In general, the following types of liquidity transfer orders are foreseen:

| Liquidity Transfer Type | Initiator | Settlement | Amount |
|-----------------------------------|--------------------|----------------------------------|--|
| Immediate liquidity transfer | AS settlement bank | Only fully settable, if possible | Given in liquidity transfer order |
| | AS (on behalf) | Partially settable, if necessary | Given in liquidity transfer order |
| | CB (on behalf) | Only fully settable, if possible | Given in liquidity transfer order |
| Standing order liquidity transfer | AS settlement bank | Partially settable, if necessary | Given in standing order liquidity transfer order |

Table 6: Liquidity Transfer Types

2.1.5 Ancillary System Settlement Procedures

The following former TARGET2 settlement procedures will be supported by RTGS:

| Procedure | Former ASI Procedure | Description |
|--|-----------------------|--|
| Direct settlement in the former TARGET2 PM account (e.g. Continuous Linked Settlement payment orders). | Participant interface | Usual real-time gross mode settlement of bilateral high value payments. |
| Real-time Settlement | 2 | Usual real-time gross mode settlement of bilateral high value payments. |
| Bilateral Settlement | 3 | Usual real-time gross mode settlement of bilateral high value payments. |
| Settlement on dedicated Liquidity Account (so-called technical account for procedure 6) (real-time) | 6 Real-Time | Usual real-time gross mode settlement of bilateral high value payments. |
| Settlement on dedicated Liquidity Account (so-called sub accounts) (interfaced) | 6 Interfaced | Usual real-time gross mode settlement of bilateral high value payments. |
| Standard Multilateral settlement | 4 | "Debits first", i.e. first all the debits are executed, then all the credits. If one of the transfers fails, the others, probably already executed, are unwound. |
| Simultaneous multilateral settlement | 5 | "All or Nothing", i.e. debits and credits are simultaneously executed. If one of the transfers fails, all the others are not executed neither. |

Table 7: Settlement Procedures

Considering the migration to ISO20022, there will be no difference in RTGS between the account holders' interface and AS interface. As a consequence, the functionality of the former procedures 2 and 3 will be provided using individual payment XML messages. The settlement banks will be able to grant to the AS the right to debit the account of the bank for the AS settlement. U priority will be used for AS transfers, and From Time / Information period / Settlement period can be defined (see section 1.2 on Payment Order Processing). AS transfers can be sent in a file (see section 1 on Eurosystem Single Market Infrastructure Gateway in the User Requirement Document for Common Components).

For procedure 6 RT, one account being the so-called technical account for procedure 6 RT which will have an End of Day balance will be used per AS.

For procedure 6 Interfaced, the accounts to be used by the settlement banks will be sub accounts and an AS can use a technical account.

The additional specific features for procedures 6 RT and Interfaced are described below.

For procedures 4 and 5, AS transfers will be sent by dedicated AS batch messages (ASTransferInitiation). RTGS will manage the links as formerly in TARGET2 ("Debits first" or "all or nothing"), according the parameters set for the AS in CRDM (which procedure is used, see section 9 on Business Data Definition in the User Requirements Document for Common Components). Information and settlement periods will be provided as they were formerly in TARGET2 as well, including the (optional) activation of the guarantee mechanism where there is a failure at the end of the settlement period.

2.1.5.1 SETTLEMENT ON DEDICATED LIQUIDITY ACCOUNTS (INTERFACED)

The features listed below ensure that the TARGET2 procedure known as "Settlement on dedicated Liquidity Accounts (interfaced)" can be almost fully mapped to RTGS:

| Feature | Mapping |
|--|--|
| Dedicated Liquidity | Liquidity on sub account (one sub account per AS) |
| Start of procedure / End of procedure ⁴ | Regular liquidity transfer orders (e.g. from RTGS DCA to sub account) at these business events can be set up through standing orders. |
| Blocking/control of liquidity by the AS | Whenever the AS using this interfaced procedure starts a cycle, the liquidity on the sub account involved will be controlled/blocked by the AS. The control is given back to the settlement bank through the end of cycle, meaning that liquidity increase on the sub account is possible between two cycles. |
| Liquidity increase during cycle initiated by the settlement bank | Always possible, either through an immediate liquidity transfer order or a payment order ⁵ . |
| Increase of liquidity during cycle through Auto-collateralisation/redemption and coupon payments | Will not be supported anymore. |

Table 8: Features for "Settlement on dedicated Liquidity Accounts (interfaced)"

2.1.5.2 SETTLEMENT ON DEDICATED LIQUIDITY ACCOUNTS (REAL-TIME)

In addition to the features described for "Settlement on dedicated Liquidity Accounts (interfaced)", the features listed below ensure that the TARGET2 AS procedure known as "Settlement on dedicated Liquidity Accounts (real-time)" can be almost fully mapped to RTGS:

⁴ It will be decided during the realisation phase whether one single procedure will be defined or two procedures as formerly in TARGET2, and whether they will be triggered by the system or by the AS.

⁵ Further details regarding which messages are used and when exactly the respective liquidity increase is booked, will be provided in the UDFS.

| Feature | Proposal for mapping |
|----------------------------|---|
| Cross-AS settlement | Can be realised as immediate liquidity transfer orders between two different AS technical accounts owned by ACHs. |

Table 9: Features for "Settlement on dedicated Liquidity Accounts (real-time)"

Business Process Ref: RTGS.BP.AS.AST

Business Process Model 6: Ancillary System Transfer Processing

2.2.2 Process Overview

Process goal:

- ▶ The Ancillary System Transfer Processing is similar to the High Value Payments processing, meaning that the processing of AS transfer orders has many similarities with the processing of HVP payment orders, except the specificities described below.
- ▶ Specificities:
 - The process will be initiated by the Ancillary System participating in RTGS, its settlement banks or the CB acting on behalf via sending of the respective request message to RTGS;
 - The consideration of possible links between different AS transfer orders sent in one "batch";
 - The usage of guarantee funds.
 - The information period.
 - The settlement period.
 - The common monitoring of different AS transfer orders sent in one "batch".

Process context:

- ▶ This generic process is valid for all types of Ancillary System transfers.

Pre-conditions:

- ▶ The RTGS DCAs/sub accounts exist
- ▶ Respective privileges have been granted to the sender

Time constraints:

- ▶ The processing has to be executed within the opening hours of AS functionality (see section 3.4 on Availability of services in the User Requirements Document for Common Components), i.e. from the opening of AS functionality until the End of Day process starts, and outside the maintenance window.

Expected results:

RTGS shall either

- ▶ Settle the AS transfer order or
- ▶ Queue the AS transfer order or
- ▶ Reject (if validation fails) / Cancel the AS transfer order or
- ▶ Send a failure notification for
 - the Reject Time reached or

- the not settled AS transfer order (at the End of Day rejection, since no failure notification are sent after each unsuccessful settlement attempt) or
- ▶ Send an optional (according to subscription) settlement success notification.

Triggers:

- ▶ This process is triggered by a valid request from the Ancillary System/settlement bank/Central Bank

2.2.3 User Requirements

Transfer messages from the AS can be sent in "batch" mode, i.e. through files or batch messages, meaning that:

- for multilateral settlement procedures 4 and 5, the settlement should not break the links ("Debits first" or "all or nothing")
- for monitoring purposes, for all procedures 3 to 6, it should be possible to have a complete view on the status of all the payment orders in the file/batch message.

2.2.3.1 PERFORM TECHNICAL VALIDATION

Task Ref: RTGS.TR.AS.AST.010

Same as RTGS.TR.HVP.PAYT.010 (Perform Technical Validation).

2.2.3.2 PERFORM BUSINESS VALIDATION

Task Ref: RTGS.TR.AS.AST.020

| | |
|--------------------|--|
| Id | RTGS.UR.AS.AST.020.010 |
| Name | Business Validation - Process specific authorisation checks |
| Description | <p>RTGS shall check if the Ancillary System is, indeed, authorised to debit/credit the settlement bank according to a list of settlement banks per Ancillary System.</p> <p>If the validation failed, rejection notifications with appropriate error code(s) must be sent to the Ancillary System.</p> |

Additionally, **RTGS.TR.HVP.PAYT.020** applies.

2.2.3.3 PERFORM CHECK ON TIMING CONSTRAINTS

Task Ref: RTGS.TR.AS.AST.030

Similar to RTGS.TR.HVP.PAYT.030 (Perform check on timing constraints) with the following additional requirements:

| | |
|--------------------|--|
| Id | RTGS.UR.AS.AST.030.010 |
| Name | Settlement period |
| Description | <p>RTGS shall consider the following timing constraints with respect to settlement: The "settlement period" is a time period set by the sender.</p> <p>An AS transfer order can only be submitted to settlement if its "settlement period", if indicated, has not yet elapsed. Otherwise, it will be rejected.</p> |

| | |
|--------------------|--|
| Id | RTGS.UR.AS.AST.030.020 |
| Name | Information period |
| Description | <p>RTGS shall consider the following timing constraints with respect to settlement: The "information period" is a time period set by the sender.</p> <p>An AS transfer order can only be submitted to settlement if its "information period", if indicated, has already elapsed. If no "information period" is indicated, no restriction applies in that respect. At the start of the information period, the system will be informing the settlement banks about the upcoming settlement via U2A broadcast.</p> |

2.2.3.4 PERFORM ENTRY DISPOSITION

Task Ref: RTGS.TR.AS.AST.040

Similar to RTGS.TR.HVP.PAYT.040 (Perform entry disposition).

The main difference stems from the fact that single AS transfer order will be of urgent priority by default. That means that the entry disposition follows the same pattern for each single AS transfer order. Either they are settled immediately or they are allocated to the U queue. For batch messages of AS transfer orders, the links have to be respected in the entry disposition. As for reservations, there will be a special reservation for AS transfer orders /U payment orders in place.

2.2.3.5 PERFORM CHECKS FOR AVAILABLE LIQUIDITY AND FOR BLOCKED ACCOUNTS AND PARTIES

Task Ref: RTGS.TR.AS.AST.050

Blocked accounts validation: see user requirement RTGS.UR.HVP.PAYT.050.010

Blocked Parties validation: see user requirement RTGS.UR.HVP.PAYT.050.020

Limit check: as all AS transfer orders are of urgent priority, there is no check against bilateral or multilateral Limits.

Balance checks for urgent payment orders: similar to RTGS.UR.HVP.PAYT.050.040

| | |
|--------------------|---|
| Id | RTGS.UR.AS.AST.050.010 |
| Name | Blocking for "Settlement on dedicated Liquidity Accounts (interfaced)" |
| Description | RTGS shall respect that during the settlement process of settlement procedure "Settlement on dedicated Liquidity Accounts (interfaced)" the sub account balance is exclusively reserved for the AS settlement in the case of a running cycle. |

| | |
|--------------------|--|
| Id | RTGS.UR.AS.AST.050.020 |
| Name | Balance check - First Step |
| Description | RTGS shall consider linkage constraints due to multilateral settlement. For linked AS transfer orders, the check has to be successful for all linked AS transfer orders involved (possibly at different points in time for the standard multilateral settlement). |

| | |
|--------------------|---|
| Id | RTGS.UR.AS.AST.050.030 |
| Name | Balance check failure - Handling without guarantee funds |
| Description | If balance check fails for AS transfer orders, and no guarantee funds mechanism has been envisaged, RTGS shall queue order(s) until the end of the settlement period or End of Day, respectively. |

| | |
|--------------------|--|
| Id | RTGS.UR.AS.AST.050.040 |
| Name | Balance check failure - Handling with guarantee funds |
| Description | <p>RTGS shall consider usage of guarantee funds with respect to settlement:</p> <p>If the first balance check fails, where a guarantee mechanism has been envisaged for linked AS transfer orders, a guarantee fund usage request is sent out to the Party controlling the guarantee account when the intended settlement period has elapsed. The request can either be accepted or rejected by the AS.</p> <p>If it was accepted, the guarantee funds will be considered in a second step upon. That means, the accounts to be debited which lacked liquidity in the first step, will be replaced by the guarantee account.</p> <p>If then still one of the various linked AS transfer orders cannot be settled, the process for revoking the batch message and unwinding of linked AS transfer orders (see RTGS.UR.AS.AST.070.010) should be started. The system will inform the settlement banks via U2A broadcast.</p> |

2.2.3.6 QUEUE (LINKED) ORDER(S) AND OPTIMISE QUEUED (LINKED) ORDER(S)

Task Ref: RTGS.TR.AS.AST.060

Similar to RTGS.TR.HVP.PAYT.060 (Queue payment order and optimise queued payment orders). The main difference is the optimisation for linked AS transfer orders described below.

| | |
|--------------------|--|
| Id | RTGS.UR.AS.AST.060.010 |
| Name | Optimisation for linked AS transfer orders |
| Description | <p>RTGS shall consider linkage constraints within optimisation and due to multilateral settlement.</p> <p>For linked AS transfer orders, the optimisation has to ensure that all linked AS transfer orders are processed such that the links are not broken.</p> |

2.2.3.7 UPDATE CASH BALANCES

Task Ref: RTGS.TR.AS.AST.070

Similar to RTGS.TR.HVP.PAYT.070 (Update cash balances and limit) with one additional requirement.

| | |
|--------------------|--|
| Id | RTGS.UR.AS.AST.070.010 |
| Name | Unwinding for linked AS transfer orders - standard multilateral settlement |
| Description | <p>RTGS shall consider linkage constraints due to multilateral settlement in the case of unsuccessful settlement attempts.</p> <p>For the standard multilateral settlement, if one of the debits fails, the debits already executed need to be unwound when the batch message is revoked. The batch message shall be revoked when, after the settlement period, not all debits have been settled or if the AS or Central Bank on behalf revokes the batch message or at the End of Day, if a settlement period has not been defined.</p> |

2.2.3.8 CHECK ON FLOOR/CEILING

Task Ref: RTGS.TR.AS.AST.080

Same as RTGS.TR.HVP.PAYT.080 (Check balance floor and ceiling).

3 NON-FUNCTIONAL REQUIREMENTS FOR SETTLEMENT OF HIGH VALUE PAYMENTS SETTLEMENT AND ANCILLARY SYSTEM TRANSFERS

3.1 AVAILABILITY

| | |
|--------------------|---|
| Id | RTGS.UR.NFR.ALL.030 |
| Name | Availability |
| Description | Availability, calculated on a quarterly basis, shall be at least 99.7%. |

RTGS may be subject to incidents or failures, which may cause a temporary and unforeseen interruption of the availability of the component. Regardless of the total number of such unplanned interruptions, the overall availability calculated on a quarterly basis shall be at least 99.7%. Payment orders not settled in the “entry disposition” are excluded. Warehoused payment orders are excluded. Payment orders stemming from batch procedures of AS are excluded. Start of the measurement period will be adapted to neutralise the “morning queuing effect”.

| | |
|--------------------|---|
| Id | RTGS.UR.NFR.ALL.040 |
| Name | Planned Maintenance window |
| Description | RTGS will provide a maintenance window. |

On component opening days a maintenance window of at max two hours is foreseen for any kind of technical or functional maintenance.

3.2 DISASTER RECOVERY

| | |
|--------------------|---|
| Id | RTGS.UR.NFR.ALL.050 |
| Name | Recovery Point Objective |
| Description | RTGS shall ensure a recovery point objective value of zero minutes in the event of site failures. Where there is a loss of a complete region the recovery point objective (RPO) shall not exceed two minutes. |

The RPO is a point of consistency to which a user wants to recover or restart the service. It is measured as the amount of time between the moment when the point of consistency was created and the moment when the failure occurred.

RTGS ensures synchronous point of consistency creations and, as a consequence, no data loss in the event of failures, unless the component cannot be restarted in the same region and a failover to the backup region has to be conducted. In this case a data loss of two minutes will be tolerated.

| | |
|--------------------|---|
| Id | RTGS.UR.NFR.ALL.060 |
| Name | Recovery Time Objective |
| Description | RTGS shall ensure a recovery time objective value of one hour in the event of site failures. Where there is a loss of a complete region the recovery time objective (RTO) shall not exceed two hours. |

The RTO is the maximum amount of time required for recovery or restart of the service to a specified point of consistency. In the event of a site failure, RTGS shall ensure maximum time of unavailability of one hour starting from the time when the decision to restart the component is made up to the time the component is restored. In the event of a major failure or a regional disaster, RTGS shall ensure maximum time of unavailability of two hours starting from the time when the decision to restart the component is made up to the time the component is restored.

3.3 PERFORMANCE REQUIREMENTS

| | |
|--------------------|--|
| Id | RTGS.UR.NFR.ALL.070 |
| Name | Response Time Goals |
| Description | RTGS shall process 95% of the transactions within 2 minutes and 100% of the transactions within 5 minutes. |

| | |
|--------------------|---|
| Id | RTGS.UR.NFR.ALL.080 |
| Name | Peak Workload per second |
| Description | RTGS shall be able to process 50 transactions per second, enduring the peak load for at least one hour. |

| | |
|--------------------|--|
| Id | RTGS.UR.NFR.ALL.090 |
| Name | Upward Scalability |
| Description | <p>RTGS shall be scalable to handle higher throughputs in order to cope with e.g. short-term market shocks and foreseeable increases:</p> <ul style="list-style-type: none"> • A 20% higher workload within 15 minutes and • A double of the workload (but up to 200 transactions per second) within 365 days. |

In the course of the component's lifecycle the number of transactions to be handled might change due to market changes or adapted business behaviour. To be able to cope with this, RTGS shall be able to handle higher throughputs.

3.4 INFORMATION SECURITY AND CYBER RESILIENCE

| | |
|--------------------|---|
| Id | RTGS.UR.NFR.ALL.100 |
| Name | Information Security |
| Description | <p>RTGS shall be compliant with the Information Security Requirements and Controls.</p> <p>Note: For details see the Market Infrastructure Security Requirements and Controls document.</p> <p>All requirements must be fulfilled in a central integrated way.</p> |

| | |
|--------------------|---|
| Id | RTGS.UR.NFR.ALL.110 |
| Name | Cyber Resilience |
| Description | <p>RTGS shall be compliant with Cyber Resilience Requirements.</p> <p>Note: For details see Market Infrastructure Cyber Resilience Requirements document.</p> <p>All requirements must be fulfilled in a central integrated way.</p> |

4 USER INTERACTION

The objective of this section is to provide the user requirements related to user interactions covering the usage of U2A or A2A mode. A Graphical User Interface (GUI) shall be provided for components, offering functionality to access information in U2A mode. The GUIs shall be harmonised to the best possible extent.

These requirements do not imply any particular consideration with regard to design and the implementation of the actual screens.

4.1 GENERAL USER REQUIREMENTS FOR USER INTERACTION

4.1.1 Query

| | |
|--------------------|--|
| Id | RTGS.UR.RTGS.UI.ALL.010 |
| Name | Query Audit Trail |
| Description | <p>All components shall provide the functionality to query through U2A and A2A interfaces the modified data at the attribute level, the user performing the change and the timestamp of the change made.</p> <p>It should be visible which attributes were changed, together with the new values.</p> <p>The query shall return relevant business attributes of the Audit Trail.</p> |

| | |
|--------------------|--|
| Id | RTGS.UR.RTGS.UI.ALL.020 |
| Name | Query System time |
| Description | <p>All components shall provide the functionality to query system time to align the time of a connected application through an A2A interface.</p> <p>The query shall return the System time.</p> |

4.1.2 Action

| | |
|--------------------|---|
| Id | RTGS.UR.RTGS.UI.ALL.030 |
| Name | Amend/Revoke Task(s) |
| Description | All components shall provide the functionality to amend or revoke task(s) through the U2A interfaces. |

| | |
|--------------------|--|
| Id | RTGS.UR.RTGS.UI.ALL.040 |
| Name | Act on behalf |
| Description | <p>All components shall provide the functionality to act on behalf through U2A and A2A interfaces for:</p> <ul style="list-style-type: none"> Central Banks, to act on behalf of any Party belonging to their banking community; and The TARGET Service Desk, to act on behalf of any Party. |

| | |
|--------------------|--|
| Id | RTGS.UR.RTGS.UI.ALL.050 |
| Name | Access rights |
| Description | <p>All components shall ensure that a user can only access functionality and data that is allowed by the access rights granted to the user through the Roles associated with the user.</p> |

| | |
|--------------------|---|
| Id | RTGS.UR.RTGS.UI.ALL.060 |
| Name | Four-eyes (confirm, revoke, amend) |
| Description | <p>All components shall provide the functionality to use the four-eyes approval process through U2A interface, allowing the authoriser to confirm, revoke or amend.</p> |

4.2 USER INTERACTION FOR FUTURE RTGS

4.2.1 Query

The User Interaction section covers intraday queries. For intraday queries, the Value Date would by default be the current business day.

For U2A queries, the Party BIC and the account number would be deduced from the data scope of the user. The data scope is described in section 4.1 on User Roles and Access / Overview in the User Requirements Document for Common Components.

The extended list of the selection criteria and the output of the queries shall be defined in the UDFS.

All described queries in this section shall be provided in U2A and A2A mode unless otherwise stated.

| | |
|--------------------|---|
| Id | RTGS.UR.RTGS.UI.010 |
| Name | Query cash transfers/files |
| Description | <p>RTGS shall provide the functionality to query the status and details of all cash</p> |

transfers on any account. The user can query within his data scope, which is determined by the Party BIC and the DCA number (Party BICs and DCA numbers in case of a Central Bank as a user). In addition the query shall allow the user to specify any combination of the following optional selection criteria.

The following payment types can be queried:

- Payments
- Warehoused payments
- Liquidity transfers
- AS Transfers

Optional selection criteria:

- Entry Time (from-to)
- Settlement Time (from-to)
- Payment type
- Priority
- Debit/Credit
- Sender BIC
- Receiver BIC
- Specific Amount or amount range (from - to)
- File Reference
- Status
- Either Party Name or Party BIC
- Transaction reference
- Counterpart country
- Currency code
- DCA number

The query shall return all business attributes of the cash transfers including the processing status. When a file is queried, the status of the file would be also provided with the remaining business attributes.

| | |
|--------------------|--|
| Id | RTGS.UR.RTGS.UI.020 |
| Name | Query message |
| Description | <p>RTGS shall provide the functionality to query any message in XML format. The user can query within his data scope, which is determined by the Party BIC and the DCA number (Party BICs and DCA numbers in case of a Central Bank as a user). In addition the query shall allow the user to specify any combination of the following optional selection criteria.</p> <p><u>Optional selection criteria:</u></p> |

| | |
|--|--|
| | <ul style="list-style-type: none"> • Entry Time (from-to) • Message type • Status • Amount • Inbound or outbound • Sender BIC • Receiver BIC • Either Party Name or Party BIC • Transaction reference • DCA number <p>The query shall return the message in XML format, including the processing status.</p> <p>This query shall only be provided in U2A mode.</p> |
|--|--|

| | |
|--------------------|---|
| Id | RTGS.UR.RTGS.UI.030 |
| Name | Query account balance |
| Description | <p>RTGS shall provide the functionality to query the balance on any account. The user can query within his data scope, which is determined by the Party BIC and the DCA number (Party BICs and DCA numbers in case of a Central Bank as a user). In addition the query shall allow the user to specify any combination of the following optional selection criteria. This query is also relevant to query liquidity on AS level.</p> <p><u>Optional selection criteria:</u></p> <ul style="list-style-type: none"> • DCA Number • Either Party BIC or Party Name <p>The query shall return the current and projected account balance and all business attributes of the account(s).</p> |

| | |
|--------------------|---|
| Id | RTGS.UR.RTGS.UI.040 |
| Name | Query reservations |
| Description | <p>RTGS shall provide the functionality to query all reservations on any account. The user can query within his data scope, which is determined by the Party BIC and the DCA number (Party BICs and DCA numbers in case of a Central Bank as a user). In addition the query shall allow the user to specify any combination of the following optional selection criteria.</p> |

| | |
|--|--|
| | <p><u>Optional selection criteria:</u></p> <ul style="list-style-type: none"> • DCA Number • Either Party BIC or Party Name <p>The query shall return all business attributes of the reservations, including the defined value, which equals the reserved value minus all the debits, and the Pending Value where the original amount to be reserved was not entirely reserved</p> |
|--|--|

| | |
|--------------------|---|
| Id | RTGS.UR.RTGS.UI.050 |
| Name | Query Limits |
| Description | <p>RTGS shall provide the functionality to query all Limits (multilateral and bilateral Limit) on any account. The user can query within his data scope, which is determined by the Party BIC and the DCA number (Party BICs and DCA numbers in case of a Central Bank as a user). In addition the query shall allow the user to specify any combination of the following optional selection criteria.</p> <p><u>Optional selection criteria:</u></p> <ul style="list-style-type: none"> • DCA Number • Either Party BIC or Party Name <p>The query shall return all business attributes of the Limits.</p> |

| | |
|--------------------|---|
| Id | RTGS UR.RTGS.UI.100 |
| Name | Query Broadcast |
| Description | <p>All User Interaction relevant components and services shall provide the functionality to query detailed information on broadcasts through a U2A interface. Normal information provided in pull mode should be distinguished from alert broadcasts information provided in push mode.</p> |

| | |
|--------------------|---|
| Id | RTGS.UR.RTGS.UI.110 |
| Name | Query account statement |
| Description | <p>RTGS shall provide the functionality to query on the account statement. The user can query within his data scope, which is determined by the Party BIC</p> |

and the DCA number (Party BICs and DCA numbers in case of a Central Bank as a user). In addition the query shall allow the user to specify any combination of the following optional selection criteria.

Optional selection criteria:

- DCA Number
- Either Party BIC or Party Name

The query shall return all business attributes of the account statement.

Note: More information about producing, sending and downloading a report can be found in section 5 on Information and Reporting in the User Requirements Document for Common Components.

4.2.2 Actions

| | |
|--------------------|---|
| Id | RTGS.UR.RTGS.UI.130 |
| Name | Change order of payment orders in a queue |
| Description | RTGS shall provide the functionality to change the order of payment orders (including warehoused payment orders) currently pending for settlement through U2A and A2A interface. The change should only be possible for payment orders not having reached a final status yet. |

| | |
|--------------------|---|
| Id | RTGS.UR.RTGS.UI.135 |
| Name | Create a payment order |
| Description | RTGS shall provide the functionality to create a payment order through U2A interface. Note: The ability to enter payment orders would be subject to necessary rights, allowing an organisation to control the use of this feature. |

| | |
|--------------------|---|
| Id | RTGS.UR.RTGS.UI.140 |
| Name | Amend a payment order |
| Description | RTGS shall provide the functionality to amend the priority and/or the execution time of a payment order (including warehoused payment orders) currently available in the system through U2A and A2A interface. The change should only be possible for payment orders not having reached a final status yet. |

| | |
|--------------------|--|
| Id | RTGS.UR.RTGS.UI.150 |
| Name | Cancel a payment order |
| Description | RTGS shall provide the functionality to cancel a payment order (including warehoused payment orders) currently available in the system through U2A and A2A interface. Via U2A the cancellation is only possible for payment orders not having reached a final status yet. Via A2A a cancel&recall request is forwarded to the payment receiver in case the payment order has already been settled. |

| | |
|--------------------|--|
| Id | RTGS.UR.RTGS.UI.160 |
| Name | Revoke an AS batch message |
| Description | RTGS shall provide the functionality to revoke an AS batch message which has not reached a final status yet through U2A interface. |

| | |
|--------------------|--|
| Id | RTGS.UR.RTGS.UI.180 |
| Name | Create a liquidity transfer order |
| Description | RTGS shall provide a functionality to create a liquidity transfer order through U2A and A2A interface. |

| | |
|--------------------|--|
| Id | RTGS.UR.RTGS.UI.190 |
| Name | Create a back-up payment order |
| Description | RTGS shall provide a functionality to create a back-up payment order through U2A interface. This action has to be activated by the CB on RTGS account holder level. |

| | |
|--------------------|---|
| Id | RTGS.UR.RTGS.UI.200 |
| Name | Create an immediate reservation order |
| Description | RTGS shall provide the functionality to create a reservation order through the U2A interface and the A2A interface. |

| | |
|--------------------|--|
| Id | RTGS.UR.RTGS.UI.230 |
| Name | Amend the defined Limit value with an immediate effect |
| Description | RTGS shall provide the functionality to amend the defined Limit value, if previously set, with immediate effect through the U2A interface and the A2A interface. The change will be valid for the current business day only. |

The table below shows a summary of the above described queries and actions in U2A and A2A mode.

| Functionality | Query/ Action | U2A | A2A |
|----------------|--|-----|-----|
| RTGS | Query cash transfers/files | x | x |
| RTGS | Query account balance | x | x |
| RTGS | Query reservation | x | x |
| RTGS | Query Limits | x | x |
| RTGS | Query message | x | |
| RTGS | Query Broadcast | x | |
| RTGS | Query account statement | x | x |
| RTGS | Change order of payment orders in a queue | x | x |
| RTGS | Create a payment order | x | |
| RTGS | Amend/Cancel a payment order | x | x |
| RTGS | Revoke an AS batch message | x | |
| RTGS | Create a liquidity transfer order | x | x |
| RTGS | Create a back-up payment order | x | |
| RTGS | Create an immediate reservation order | x | x |
| RTGS | Amend the defined Limit value with an immediate effect | x | x |
| Reference Data | Create/Amend/Delete a Standing Order for Limit | x | x |
| Reference Data | Grant access rights to individual users | x | |

Table 100: Summary of queries and actions in U2A and A2A mode for RTGS

5 BUSINESS DATA DEFINITIONS

5.1 ENTITIES AND ATTRIBUTES

The following Entities are referred to within the User Requirements Document for Future RTGS but are defined in the User Requirements Document for Common Components as they are also referred to elsewhere:

- ▶ Party
- ▶ Party Name
- ▶ Limit
- ▶ Cash Account
- ▶ Payment
- ▶ Liquidity Transfer
- ▶ Standing Order
- ▶ Direct Debit Mandate
- ▶ Reservation
- ▶ Standing Order for Reservation
- ▶ Currency
- ▶ Service
- ▶ User
- ▶ Role
- ▶ Privilege
- ▶ Access Rights

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