

Change Request form

General Information (Origin of Request)		
<input type="checkbox"/> User Requirements Document (URD) <input checked="" type="checkbox"/> User Detailed Functional Specification (UDFS) <input type="checkbox"/> User Handbook (UHB) <input checked="" type="checkbox"/> Other User Functional or Technical Documentation (SYS)		
Request raised by: 4CB	Institution:	Date raised: 10 September 2021
Request title: Reconciliation enhancements in TIPS		Request ref. no: TIPS-0044-UDFS ¹
Request type:		
1. Legal/business importance parameter: Medium	2. Market implementation efforts parameter – Stakeholder impact: Medium	
3. Operational impact: High	4. Financial impact parameter: Low	
5. Functional/ Technical impact: Low	6. Interoperability impact: Medium	
Requestor Category: 4CB	Status: Draft	

Reason for change and expected benefits/business motivation:

The functional enhancements in the area of reconciliation process proposed with CR TIPS-0032 for Riksbank, covering the introduction of a real-time new reconciliation method based on properties at transport protocol level, triggered a functional review of the existing method. Currently, the reconciliation of the transactions relies on reports, i.e. Statement of Accounts (camt.053), generated daily (in full mode) or during the business date with a predefined frequency (in delta mode).

The new proposed model, initially developed to respond to a requirement from the Swedish community, is not limited to the SEK processing. Therefore, any TIPS actor may decide to take advantage of this additional feature. Descending in further details, the model envisions the insertion of two new tags into the existing *AddInfo* property of the MEPT protocol to convey the following information and support real-time reconciliation after each successfully settled transactions:

- Number of postings (from the last business date change) ;
- Account Balance after successful settlement takes place.

Furthermore, the same properties will also be added to the TIPS GUI screens offering payment transaction query and liquidity transfer query details. The new model leverages on the fact that the balances communicated either via A2A or U2A neutralises the effect of any incoming concurrent pending transaction that insists on the same account.

For the sake of completeness, as a combined effect of the parallel processing of multiple transactions on the same account various scenarios can occur, as shown in the following list:

- 1) Reservation of funds is made on Instant Payments (IP) settled via the model in two phases (i.e. Conditional and Settlement phases);
- 2) Immediate settlement is executed after Instant Payment settled via the Single Instructing Party (SIP) settlement model;
- 3) Immediate settlement is executed on the positive Recall Response;
- 4) Immediate settlement is executed on intra-service Liquidity Transfer (LT);
- 5) Immediate settlement is executed on Inbound Liquidity Transfer;
- 6) Settlement of an Outbound Liquidity Transfer is immediate in TIPS (moving the LT to status '*transient*'). However, further rejections in the RTGS system may still occur, leading to the rollback of the transaction and the reverse of the amount on the debited account.

¹ XXXX = ECMS /TIPS / CONS, NNNN = 9999, DDDD = URD/UDFS/UHB

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As a general remark, the overall balance of a TIPS account is the sum of three components, namely the 'available balance', the 'reserved balance' and the 'transient balance'. This approach makes sure that an IP reserved amount remains in the books of the debtor until the final settlement occurs, however it cannot be spent during the conditional phase for any other concurrent transaction attempting to debit the same account. Additionally, for Outbound LTs, even though the TIPS account is immediately debited and contemporary the RTGS Transit Account in TIPS is credited, the 'transient balance' refers to a transaction pending until either a confirmation or a rejection is received from the RTGS system.

Currently, following the classification of transactions defined above, the balance components of a TIPS account may vary as described in the table below, e.g. taking into consideration an individual sample transaction whose amount is equal to 1,000.00 EUR settled on an account having a starting balance of 100,000.00 EUR.

Transaction type	Overall Balance	Available Balance	Reserved Balance	Transient Balance
Standard IP (during conditional phase)	100,000.00 EUR	99,000.00 EUR	1,000.00 EUR	0.00 EUR
Standard IP (after settlement phase)	99,000.00 EUR	99,000.00 EUR	0.00 EUR	0.00 EUR
Single Instructing Party IP	99,000.00 EUR	99,000.00 EUR	0.00 EUR	0.00 EUR
Positive Recall Response	99,000.00 EUR	99,000.00 EUR	0.00 EUR	0.00 EUR
Intra-service LT (debiting the account)	99,000.00 EUR	99,000.00 EUR	0.00 EUR	0.00 EUR
Inbound LT (crediting the account)	101,000.00 EUR	101,000.00 EUR	0.00 EUR	0.00 EUR
Outbound LT (in status 'transient')	100,000.00 EUR	99,000.00 EUR	0.00 EUR	1,000.00 EUR
Outbound LT (after settlement in the RTGS)	99,000.00 EUR	99,000.00 EUR	0.00 EUR	0.00 EUR
Outbound LT (after rejection by the RTGS)	100,000.00 EUR	100,000.00 EUR	0.00 EUR	0.00 EUR

The situation worsen in case there are race conditions with multiple transactions on the same account that did not reach a final status. The scenario is illustrated in the following example that takes into consideration three concurrent Instant payments (IPs), whose amount is respectively 1,000.00 EUR, 1,200.00 EUR and 1,300.00 EUR and an Outbound Liquidity Transfer whose amount is 10,000.00 EUR.

In the current implementation the outcome of the conditional phase and liquidity management processing, taking into consideration the entry timestamp reported in the second column, would be the one represented in the table below.

	Entry Timestamp	Amount	Overall Balance	Available Balance	Reserved Balance	Amount for Transient LT
IP1	2021-05-24T08:43:15,931Z	1,000 EUR	100,000.00 EUR	99,000.00 EUR	1,000.00 EUR	0.00 EUR
IP2	2021-05-24T08:43:16,004Z	1,200 EUR	100,000.00 EUR	97,800.00 EUR	2,200.00 EUR	0.00 EUR
IP3	2021-05-24T08:43:16,061Z	1,300 EUR	100,000.00 EUR	96,500.00 EUR	3,500.00 EUR	0.00 EUR
OLT1	2021-05-24T08:43:17,210Z	10,000 EUR	100,000.00 EUR	86,500.00 EUR	3,500.00 EUR	10,000.00 EUR

After the successful settlement of the four transactions, e.g. in the order below, the following data (balances before and after settlement) highlighted in red are captured in the system for the generation of the corresponding Statement of Account.

	Settlement Timestamp	Amount	BFTS	FTTS	Reserved Balance	Amount for Transient LT
IP1	2021-05-24T08:43:19,931Z	1,000 EUR	87,500.00 EUR	86,500.00 EUR	2,500.00 EUR	10,000.00 EUR
IP2	2021-05-24T08:43:21,004Z	1,200 EUR	87,700.00 EUR	86,500.00 EUR	1,300.00 EUR	10,000.00 EUR
OLT1	2021-05-24T08:43:25,210Z	10,000 EUR	96,500.00 EUR	86,500.00 EUR	1,300.00 EUR	0.00 EUR
IP3	2021-05-24T08:43:29,061Z	1,300 EUR	87,800.00 EUR	86,500.00 EUR	0,000.00 EUR	0.00 EUR

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TIPS stores the balance after settlement (FTTS) to maintain the operational database used for the purpose of Statement of Account preparation. Unlike the new reconciliation model, the current calculation takes into consideration the effect on the balance stemming from concurrent transactions.

As a matter of fact, the logic highlighted above may lead to some apparent inconsistent balances reported in the Statement of Account as raised by some market participant (see PBI00000217270). The issue appears in the event of multiple concurrent transactions on the same account, e.g. either instant payments in their conditional phase - after reservation of funds - or due to the RTGS rejection of a previously settled Outbound Liquidity Transfer in status '*transient*'.

The aim of this Change Request is to align the behaviour of the reconciliation via reports (i.e. balances BFTS and FTTS) to the MEPT properties developed in the context of the TIPS-0032, i.e. neutralizing the effects on the balances stemming from concurrent transactions that did not reach a final status yet (e.g., rejected or settled).

The same example described above, after the implementation of this Change Request will lead to the following balances reported in the Statement of Accounts.

Considering the same input sequence, no variation is envisaged during the conditional phase and liquidity management processing.

	Entry Timestamp	Amount	Overall Balance	Available Balance	Reserved Balance	Amount for Transient LT
IP1	2021-05-24T08:43:15,931Z	1,000 EUR	100,000.00 EUR	99,000.00 EUR	1,000.00 EUR	0.00 EUR
IP2	2021-05-24T08:43:16,004Z	1,200 EUR	100,000.00 EUR	97,800.00 EUR	2,200.00 EUR	0.00 EUR
IP3	2021-05-24T08:43:16,061Z	1,300 EUR	100,000.00 EUR	96,500.00 EUR	3,500.00 EUR	0.00 EUR
OLT1	2021-05-24T08:43:17,210Z	10,000 EUR	100,000.00 EUR	86,500.00 EUR	3,500.00 EUR	10,000.00 EUR

By neutralizing the effects of the transactions '*in flight*' not yet finalized, the calculation of the balances BFTS and FTTS will change as explained in the table below.

	Settlement Timestamp	Amount	BFTS	FTTS	Reserved Balance	Amount for Transient LT
IP1	2021-05-24T08:43:19,931Z	1,000 EUR	100,000.00 EUR	99,000.00 EUR	2,500.00 EUR	10,000.00 EUR
IP2	2021-05-24T08:43:21,004Z	1,200 EUR	99,000.00 EUR	97,800.00 EUR	1,300.00 EUR	10,000.00 EUR
OLT1	2021-05-24T08:43:25,210Z	10,000 EUR	97,800.00 EUR	87,800.00 EUR	1,300.00 EUR	0.00 EUR
IP3	2021-05-24T08:43:29,061Z	1,300 EUR	87,800.00 EUR	86,500.00 EUR	0,000.00 EUR	0.00 EUR

Description of requested change:

In substance, this change request proposes to amend the way the balances before/after settlement are calculated in the Statement of Account report. This aims at the alignment to the new reconciliation method based on properties at transport protocol level and at resolving the issue reported with PBI00000217270.

Submitted annexes / related documents:

Proposed wording for the Change request:

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High-level description of Impact:

Impacts on other projects and products:

Outcome/Decisions: