

TARGET2/T2S consolidation

Selected functional topics

Deutsche Bundesbank

Training events in autumn 2020

- Module-based virtual training courses on the topics covered by UDFS V2.1, incl. the addendum
- Seven modules on different topics (from communications to payments and liquidity management)
- Link to the training documents: [presentation at the virtual training event in autumn 2020 \(bundesbank.de\)](https://www.bundesbank.de/pressroom/press-releases/2020/10/20201020-01)
- This morning's session expands on the autumn 2020 training event
 - What's changed since autumn 2020?
 - Information and details on the explainers published by the Eurosystem
 - ECONS II – a new topic

Selected functional topics

- 1 Liquidity transfers in T2 (CLM and RTGS)
- 2 Cash handling accounts for cash supply
- 3 Communicating with TARGET services
- 4 ECONS II

1 Liquidity transfers in T2 (CLM and RTGS)

Overview

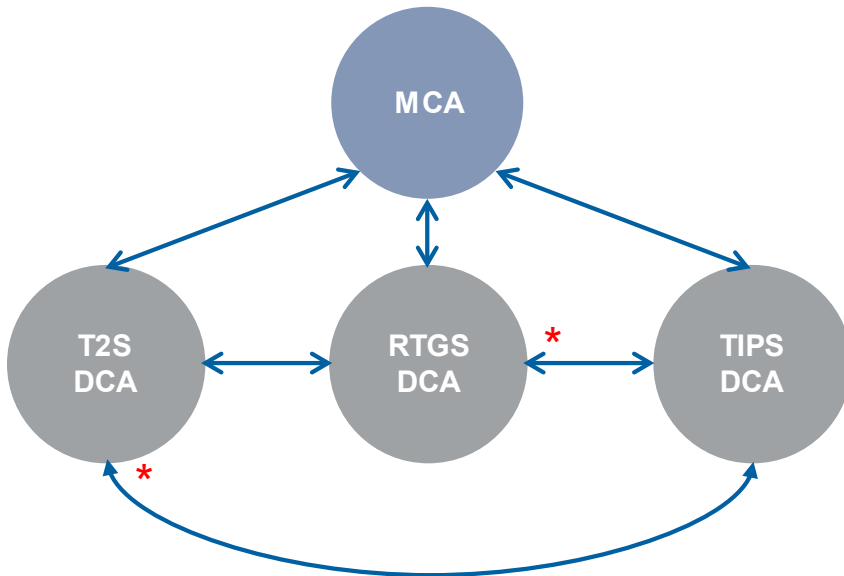
Automated and rule-based liquidity transfers – information on reference data set-up

TARGET2/T2S consolidation

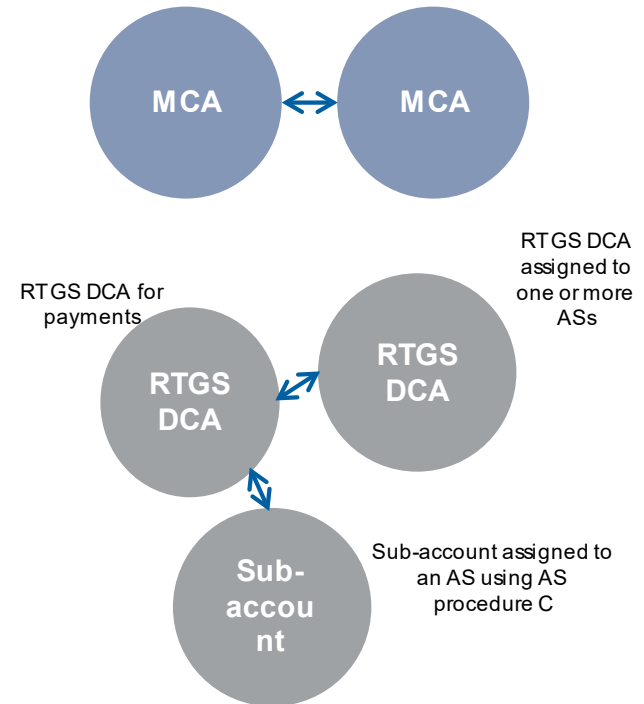
Liquidity transfers – overview

Liquidity transfer across services (inter-service)

Liquidity transfer within a service (intra-service)



Liquidity transfer **between** CLM and RTGS, T2S or TIPS



Liquidity transfer **within** the settlement service

TARGET2/T2S consolidation

Liquidity transfers in T2 – overview



Liquidity transfers in CLM

- Figure 24

| | | Debit Account | | | | | | | | | |
|----------------|---------------------------|------------------|------------------|---------------------------|--------------------------|------------------|------------------|------------------|--------------|---------|----------------|
| | | MCA | CLM CB Account | Overnight deposit account | Marginal lending account | RTGS DCA | RTGS sub-account | RTGS CB Account | TIPS Account | T2S DCA | T2S CB Account |
| Credit Account | MCA | X ^{1;3} | X ^{2;3} | X ⁵ | X ⁶ | X ^{3;4} | X | X ^{2;3} | X | X | X |
| | CLM CB Account | X ^{2;3} | X ³ | - | - | X ^{2;3} | X | X ³ | X | X | X |
| | Overnight deposit account | X ⁵ | - | - | - | x | X | x | X | X | X |
| | Marginal lending account | X ⁶ | - | - | - | - | - | - | - | - | - |
| | RTGS DCA | X ³ | X ^{2,3} | - | - | N/A | N/A | N/A | N/A | N/A | N/A |
| | RTGS sub-account | X | X | - | - | N/A | N/A | N/A | N/A | N/A | N/A |
| | RTGS CB Account | X ^{2;3} | X ³ | - | - | N/A | N/A | N/A | N/A | N/A | N/A |
| | TIPS Account | X | X | - | - | N/A | N/A | N/A | N/A | N/A | N/A |
| | T2S DCA | X | X | - | - | N/A | N/A | N/A | N/A | N/A | N/A |
| | T2S CB Account | X | X | - | - | N/A | N/A | N/A | N/A | N/A | N/A |

| |
|-----------------------------------|
| intra-service liquidity transfers |
| inter-service liquidity transfers |
| N/A - not applicable in CLM |
| - option is not available |

TARGET2/T2S consolidation

Liquidity transfers in T2 – overview



Liquidity transfers in RTGS

• Figure 36

| | | Debit Account | | | | | | | | | |
|----------------|---------------------------|------------------|------------------|------------------|----------------------|------------------|------------------|---------------------------|--------------|---------|----------------|
| | | RTGS DCA | RTGS sub-account | RTGS CB Account | AS technical account | MCA | CLM CB Account | Overnight deposit account | TIPS Account | T2S DCA | T2S CB Account |
| Credit Account | RTGS DCA | X ¹ | X ⁴ | X ^{2,3} | X ⁶ | X ³ | X ^{2,3} | - | X | X | X |
| | RTGS sub-account | X ⁴ | - | X | - | X | X | - | X | X | X |
| | RTGS CB Account | X ^{2,3} | X | X ³ | X ⁶ | X ^{2,3} | X ³ | - | X | X | X |
| | AS technical account | X ^{6,7} | X | X ⁶ | - | - | - | - | - | - | - |
| | MCA | X ^{3,5} | X | X ^{2,3} | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| | CLM CB Account | X ^{2,3} | X | X ³ | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| | Overnight deposit account | X | X | X | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| | TIPS Account | X | X | X | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| | T2S DCA | X | X | X | N/A | N/A | N/A | N/A | N/A | N/A | N/A |
| | T2S CB Account | X | X | X | N/A | N/A | N/A | N/A | N/A | N/A | N/A |

| |
|-----------------------------------|
| Intra-service liquidity transfers |
| inter-service liquidity transfers |
| N/A not applicable in RTGS |
| - option is not available |

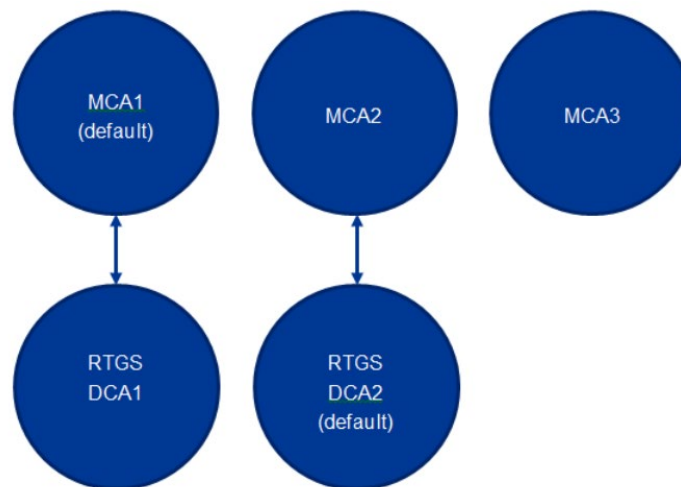
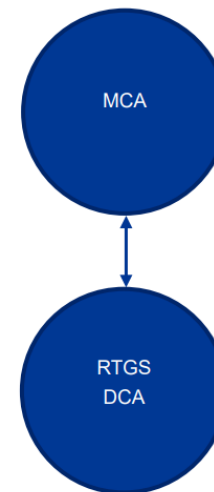
Automated liquidity transfer

- Where there is insufficient liquidity on the MCA for executing
 - central bank operations (CBO);
 - a seizure of funds; or
 - **credit line reductions;**an **automated liquidity transfer takes place from the linked RTGS DCA.**
- The corresponding order is **prioritised** over all outstanding orders in RTGS.
 - Where there is **insufficient liquidity on the RTGS DCA**, the automated liquidity transfer is partly executed, with the remainder being **queued (on top of the queue)** – multiple times if necessary.
 - Any inbound payment to the RTGS DCA is used to fully execute the automated liquidity transfer.
The RTGS DCA cannot be used for payments as long as there is a queued automated liquidity transfer order.
- If there is an **inflow of liquidity** on the MCA,
 - a **new automated liquidity transfer** with the new amount is sent to RTGS. The previous transfer is rejected by RTGS.
 - the **previous automated liquidity transfer is deleted** if the additional liquidity on the MCA is sufficient for settling all the aforementioned transactions.

TARGET2/T2S consolidation

Automated liquidity transfer – reference data

- **1:1 link** between the (default) MCA and an RTGS DCA
 - Link only ever needed if at least one RTGS DCA is opened
- Use of static data attribute “Associated Liquidity Transfer Account”
 - Entry at (default) MCA level: RTGS DCA
 - Entry at RTGS DCA level: default MCA
 - Both entries must reference one another (validation in CRDM)
- If multiple MCAs and RTGS DCAs are opened, the additional accounts **can** be linked in pairs. A link **must**, however, be made between the default MCA and an RTGS DCA.



Rule-based liquidity transfers on account of queued payments and AS transactions

- **Optional** function
 - for setting up a **rule-based liquidity transfer** (inter-service) from (default) MCAs, which are also used for the automated liquidity transfer;
 - by **the central bank of the RTGS account holder** in CRDM (on the corresponding RTGS DCA);
 - in the event that certain **payments** are queued.
 - There are two configuration options for activating this function:



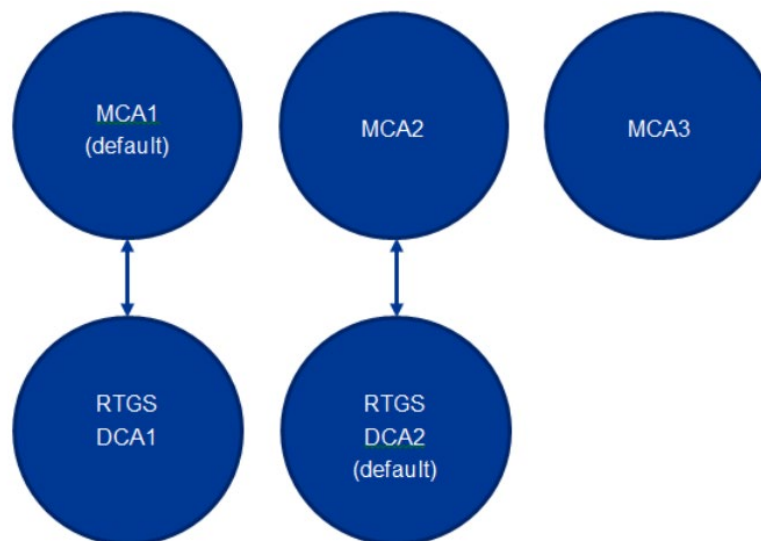
- ❖ **Option 1: urgent payments, AS transactions**
 - ❖ **Option 2: urgent payments, high priority payments, AS transactions**
- If an **automated liquidity transfer from CLM is queued** and awaiting settlement (due to pending central bank operations), a **rule-based liquidity transfer** will not be triggered.

Rule-based liquidity transfers on account of queued payments and AS transactions

- Pull liquidity from the defined MCA with the following **amount**:
 - **Case 1:** an urgent payment or AS transaction is queued
If option 1 is activated: LT in the amount of the difference between the RTGS DCA account balance and the sum of all currently queued urgent payment orders and AS transactions
 - **Case 2:** a high priority payment is queued
If option 2 is activated: LT in the amount of the difference between the RTGS DCA account balance and the sum of all currently queued urgent payment orders, AS transactions and high priority payments
- In the case of **insufficient liquidity** on the MCA, the order is **partially executed**. **No further attempt** is made to settle the remaining amount. **Partial execution in the amount of €0.00 is not possible and any such orders will be rejected** by CLM.
- **After the liquidity transfer**, an event-based process for **the dissolution of the queue** is triggered.

Rule-based liquidity transfers in the case of pending high priority/urgent payments and AS transfers

- “Associated Liquidity Transfer Account” attribute also used to define the MCA to be debited
 - **Meaning:** the same account pair is used for these liquidity transfers as for the automated transfer

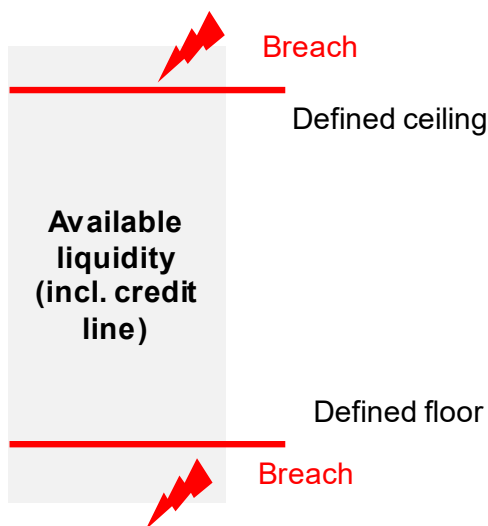


Rule-based liquidity transfers in the case of pending high priority/urgent payments and AS transfers

- RTGS DCA in CRDM given additional flag indicating that a rule-based liquidity transfer should be used
 - “Rule-based LT for queued urgent priority payments” (RTGS triggers an LT in the case of queued urgent payments or AS transfer orders)
 - “Rule-based LT for queued high priority payments” (RTGS triggers an LT in the case of queued high priority/urgent payments or AS transfers)

Floor/ceiling rule-based liquidity transfers

- **Optional** function
 - for setting a floor or ceiling;
 - possible for each individual **RTGS DCA**;
 - administrated by the **RTGS account holder** (or third party);
 - defined in **CRDM**.



Possible reactions (options)

- can be used in combination;
- chosen by account holder.

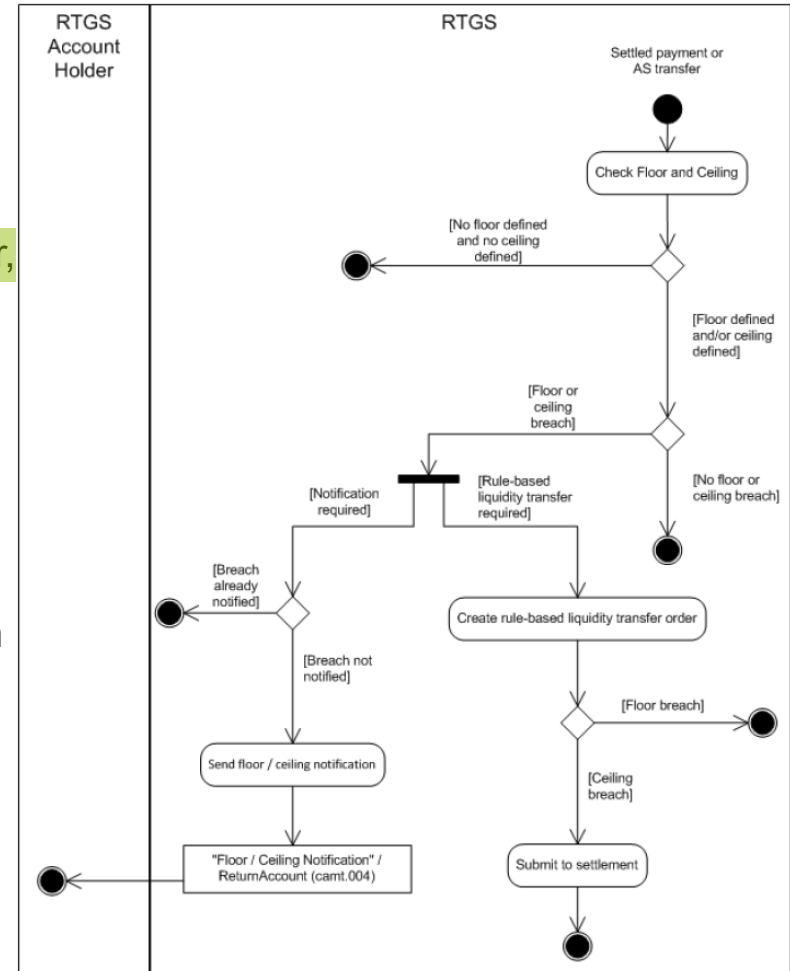
Option 1: **RTGS informs** the account holder about the breach. The account holder decides how to proceed on a case-by-case basis.

Option 2: **RTGS** makes a **rule-based liquidity transfer** with the linked **MCA**. Different accounts can be defined for the debit and credit entries.

Floor/ceiling rule-based liquidity transfers

How floors/ceilings are incorporated into the settlement process

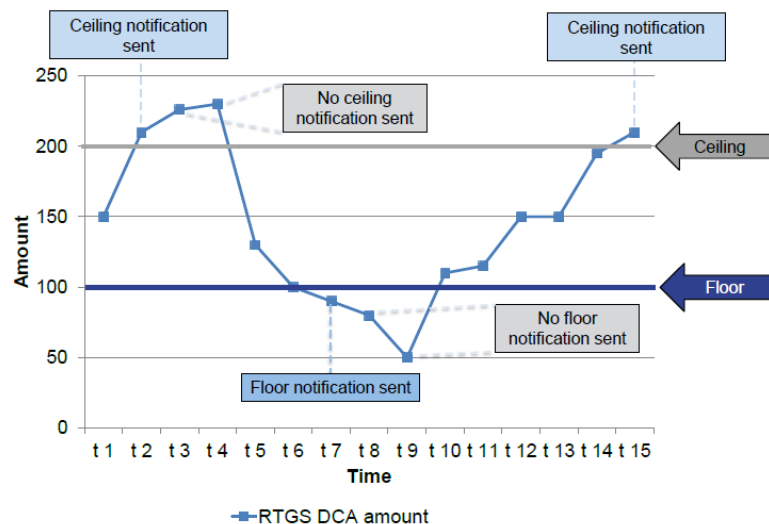
- Following settlement of each payment or AS transfer, RTGS checks for compliance with the defined floor or ceiling.
- The checking process ends if a floor or ceiling was not defined or has been complied with.
- In the event of a breach, RTGS checks which option (1 and/or 2) the RTGS account holder chose and initiates the respective process.



Floor/ceiling rule-based liquidity transfers

Option 1 – breach notification required

- RTGS sends a notification in U2A or A2A* mode stating that the floor or ceiling has been breached.
- Notifications are sent for every breach.
- If, after the defined floor or ceiling has been breached, liquidity (1) decreases further (floor) or (2) increases further (ceiling), no additional notification is sent.

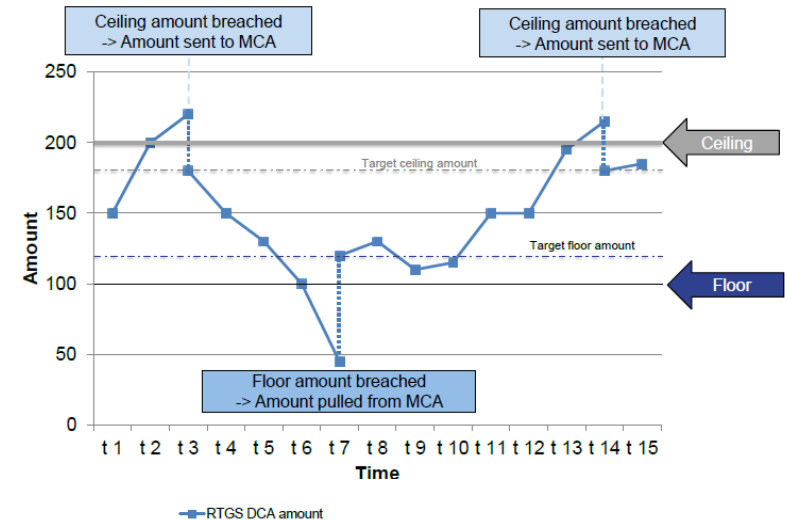


* ReturnAccount (camt.004)

Floor/ceiling rule-based liquidity transfers

Option 2 – rule-based liquidity transfer required

- **RTGS** initiates a rule-based liquidity transfer.
- Case 1: floor breached
 - Liquidity pulled from the defined **MCA**
 - Amount: difference needed to reach the defined target amount (can also be higher than the floor)
 - Order partially executed if there is insufficient liquidity on the defined **MCA**. No further attempt made to settle the remaining amount



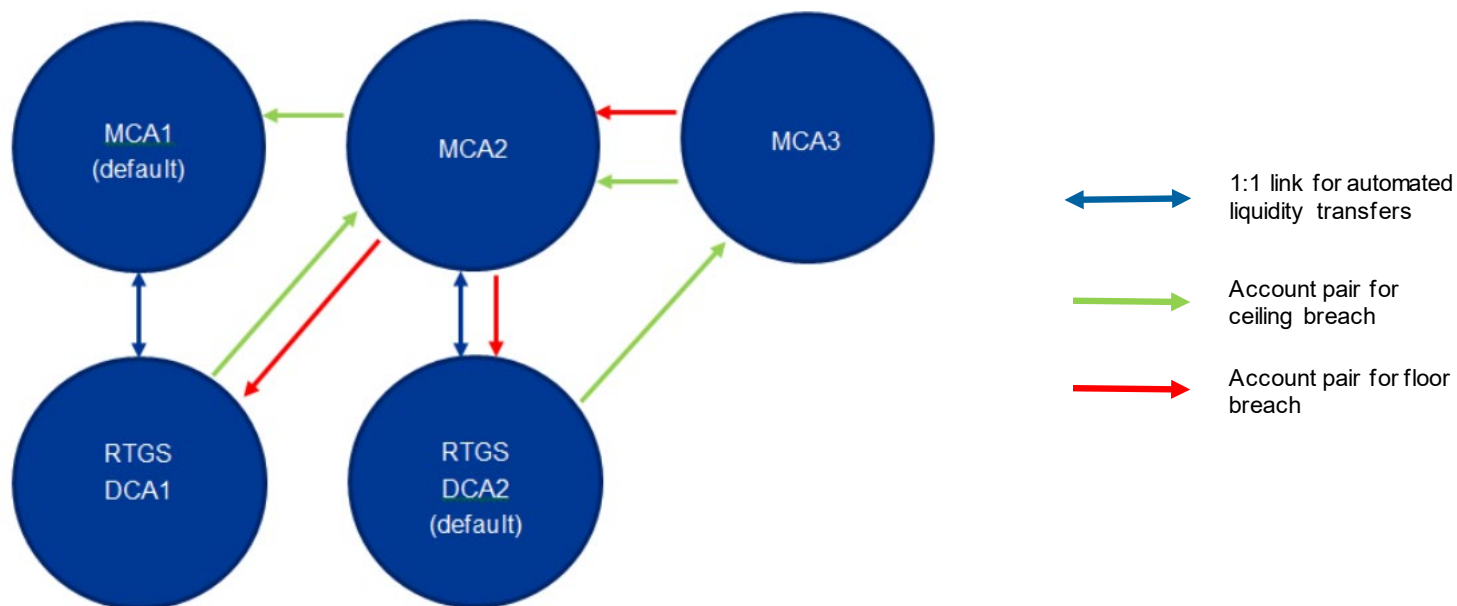
- Case 2: ceiling breached
 - Liquidity transfer to the defined **MCA**
 - Amount: difference needed to reach the defined target amount (can also be lower than the ceiling)

TARGET2/T2S consolidation

Rule-based liquidity transfers – reference data

Rule-based liquidity transfers due to floor/ceiling breach

- No 1:1 link necessary
 - Multiple accounts can be linked with the same “contra account”.
 - It is not possible to link two RTGS DCAs.



Rule-based liquidity transfers due to floor/ceiling breach

- Definition of
 - floor notification amount – if the account balance falls below this amount, liquidity should be pulled (using form)
 - ceiling notification amount – if the account balance exceeds this amount, liquidity should be transferred out of the account (using form)
 - target amount after breaching floor – intended balance after the LT
 - target amount after breaching ceiling – intended balance after the LT
- Configuration of the liquidity transfer itself
 - standing/pre-defined liquidity transfer in CRDM set up by the account holder whose account is to be debited
 - accounts to be debited and credited
 - order type – rule-based floor or rule-based ceiling

2 **Cash handling accounts for cash supply**

Overview

Transferring positive balances on cash handling accounts to the MCA

TARGET2/T2S consolidation

Cash handling accounts – overview



- Until further notice: **cash handling accounts to be used to supply cash only**
- **From November 2022: positive balances no longer to be held overnight:**
 - **No longer any need to procure (precautionary) cover on previous day**
 - In future, T2 will allow (automated) same-day cover to be procured on cash handling accounts from as early as 02:30, meaning that cover for cash withdrawals can be procured when the counters of the Bundesbank branches open.
 - **End-of-day balance transfers by the account holder to T2 (MCA, RTGS DCA)**

Recommendation: *avoid end-of-day positive balances where possible*

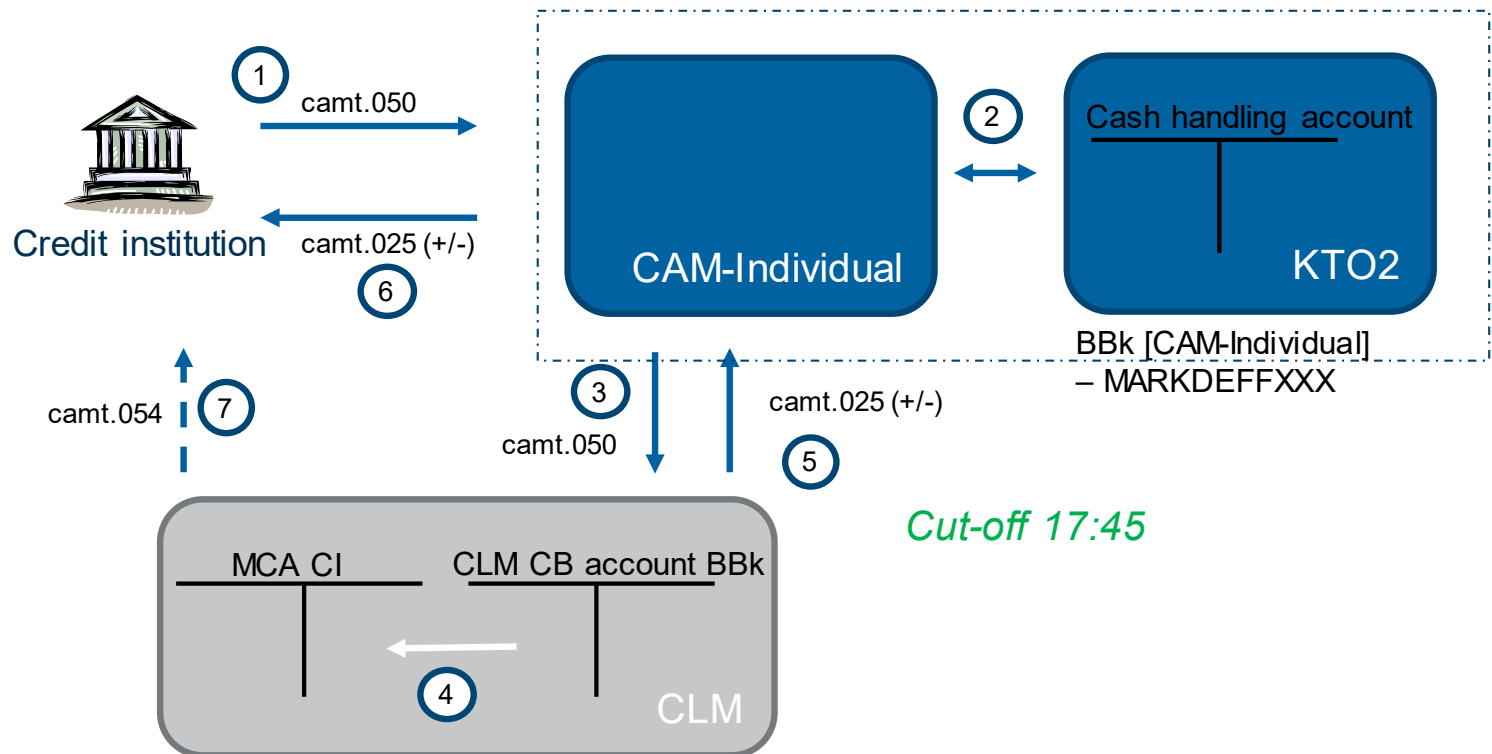
- Multi-stage process
 - a) **Provision of cover** on the cash handling account
 - b) **Transfer of positive balances** → **updated (see following slides)**
 - c) **Cash lodgements on T2 accounts**

TARGET2/T2S consolidation

Transfer of positive balances on cash handling accounts to MCAs

PREVIOUS SET-UP

Variant B.1: to an CLM MCA using camt.050 via BBk [CAM-Individual]

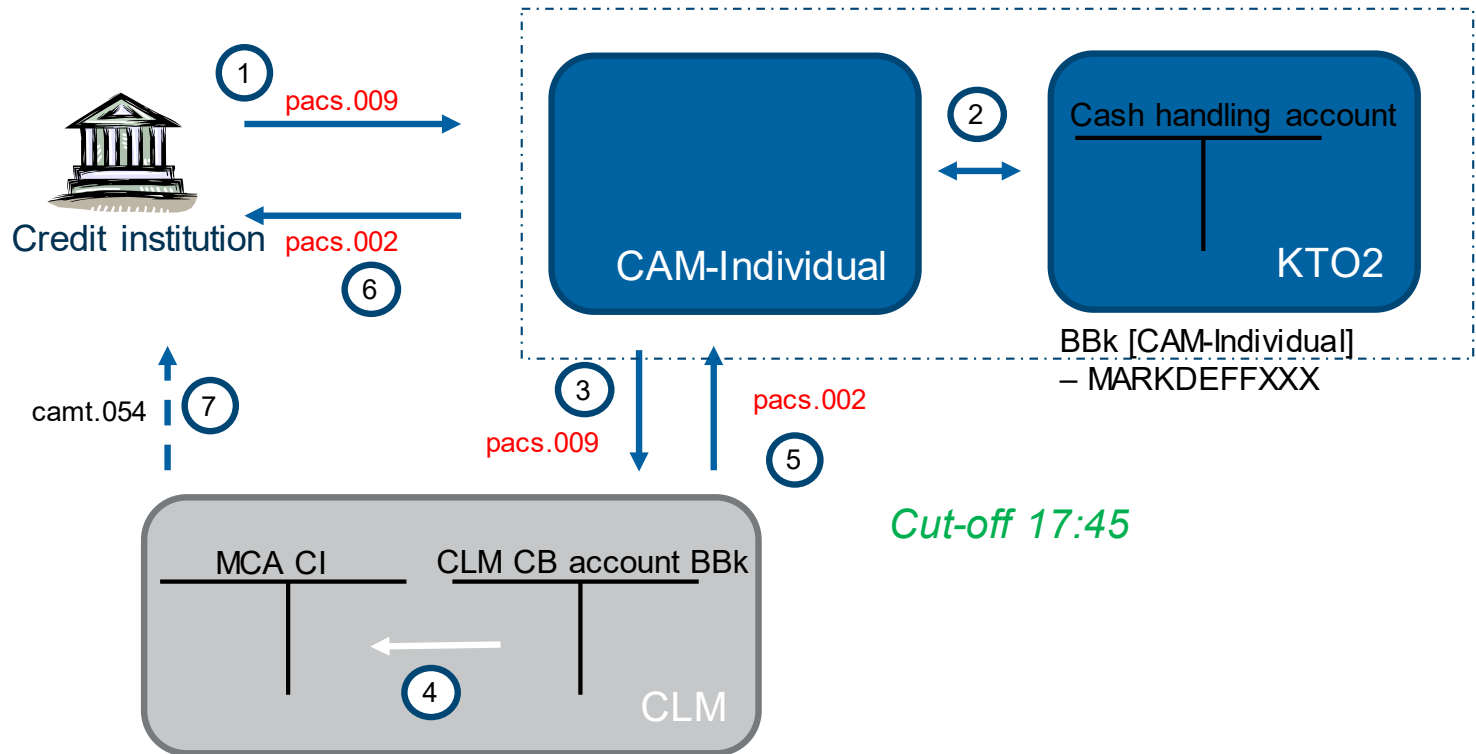


TARGET2/T2S consolidation

Transfer of positive balances on cash handling accounts to MCAs

NEW SET-UP

Variant B.1: to an CLM MCA using **pacs.009** via BBk [CAM-Individual]



3 Communicating with TARGET services

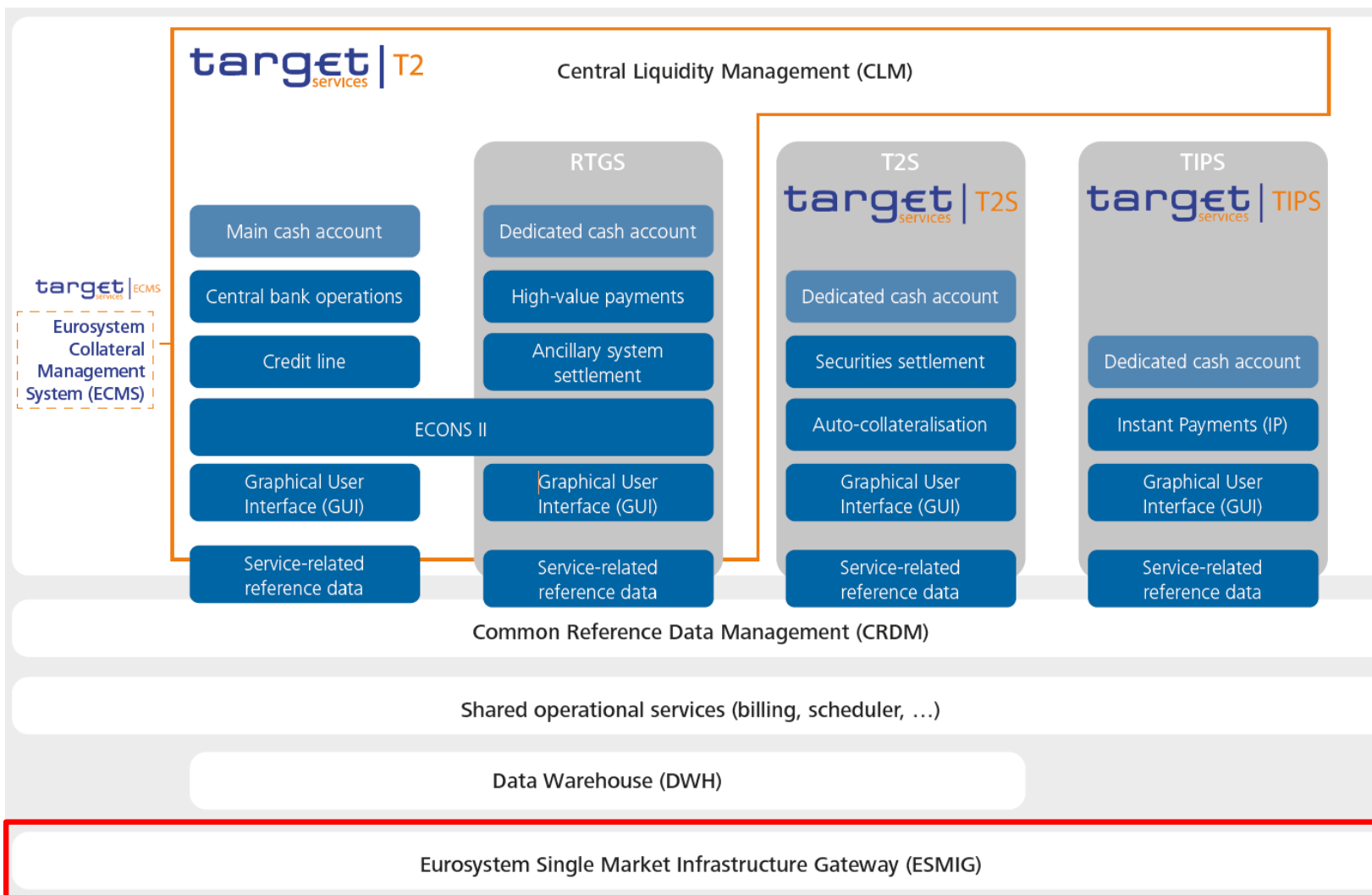
Overview

Means of communication

Authentication of messages in T2

TARGET2/T2S-consolidation

Eurosystem Single Market Infrastructure Gateway



TARGET2/T2S-consolidation

Eurosystem Single Market Infrastructure Gateway



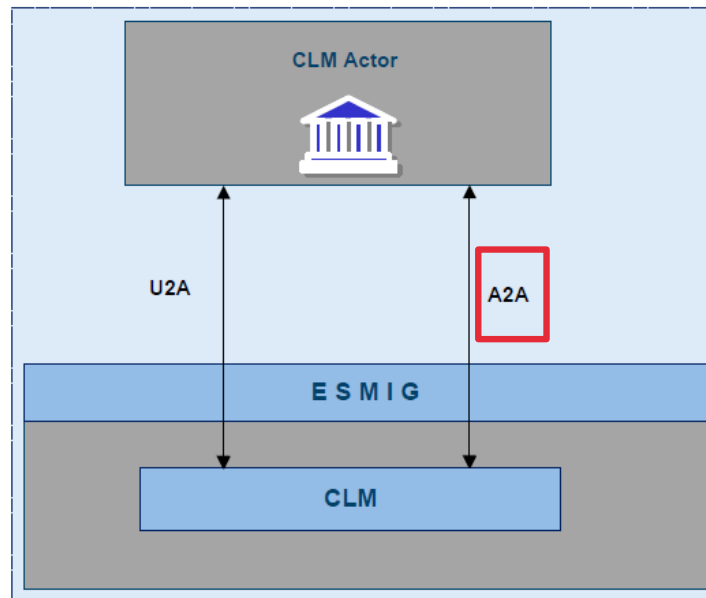
- **ESMIG – main gateway** to Eurosystem market infrastructure
 - November 2018 – ESMIG for **TIPS**
 - June 2022 – ESMIG for **T2S**
 - November 2022 – ESMIG for **T2**
 - November 2023 – ESMIG for **ECMS**
- Every actor (operator, central bank, payment bank, ancillary system) **must connect via ESMIG**
 - Exception: co-management → use of the co-manager's technical connection
- Certified network service providers (**SWIFT and SIA-Colt**) provide communication services



TARGET2/T2S consolidation

Connection to T2 via ESMIG

- All communication with CLM and RTGS routed via ESMIG



Also applies to RTGS

- Communication in A2A mode – using ISO 20022 compliant messages – and/or U2A mode – using a GUI – is possible

TARGET2/T2S consolidation

Communication modes



- Three **communication modes**
 - Store-n-forward – message-based (up to 32 KB)
 - Store-n-forward – file-based (from 32 KB to 32 MB)
 - Real-time – message-based (up to 32 KB)
 - ~~Real-time – file-based~~ (no longer envisaged)

| Message type | Sent to T2 | Sent from T2 |
|-------------------|--|---|
| Instructions | Store-n-forward message-based, store-n-forward file-based | Store-n-forward message-based, Store-n-forward file-based |
| Queries/responses | Real-time message-based | Real-time message-based, Store-n-forward file-based |
| Reports | N/A | Store-n-forward message-based, Store-n-forward file-based |
| Notifications | N/A | Store-n-forward message-based, Store-n-forward file-based |

- **Precondition for error-free communication with T2:**
 - **All communication modes must be operational**, since messages from T2 can be sent in any mode (depending on the message type and message size).

TARGET2/T2S consolidation

Authentication of messages in T2 (I)



Source: “Explainer on authentication of queries and instructions in T2”

- For messages sent by the participant to T2 or a common component
- Checks carried out by the network service provider (NSP)
 - Identify the technical sender
 - Check whether the technical sender is part of the respective Closed Group of Users
 - Forward relevant information to ESMIG and sign for the NSP
- Checks carried out in ESMIG
 - Check the NSP’s signature
 - Check the signature in BAH/BFH* (access to data in CRDM – User Certificate DN Link)
 - Forward relevant information to the TARGET service
- Checks carried out within the TARGET service(s)
 - Check the data scope (is the party/account part of the data scope the user is allowed to access)?
 - Does the user have the corresponding privileges?
 - Checks for dependencies between
 - Technical sender (DN)
 - User (system user reference in CRDM)
 - Business sender (DN)
 - Business sender (BIC)

TARGET2/T2S consolidation

Authentication of messages in T2 (II)



- Example (focus is on the information stored in CRDM):

Bank A is a T2 participant and sends a query from the Cash Manager application to T2.

The following reference data are stored in CRDM:

Party BIC: **AAAADEFFXXX**

User (Cash Manager application): **UserCashManager**

DN: **XYZ** (linked to a **certificate**, issued by NSP)

UserCashManager and **XYZ** are linked (User Certificate DN Link)

Extract from BAH:

```
<Fr>
  <EId>
    <FinInstId>
      <BICFI>AAAADEFFXXX</BICFI>
      <ClrSysMmbld>
        <Mmbld>UserCashManager</Mmbld>
      </ClrSysMmbld>
    </FinInstId>
  </EId>
</Fr>
[...]
```

<!-- <Sgntr> Signatur mit dem **Zertifikat**, welches mit der **DN XYZ** verlinkt ist </Sgntr> -->

TARGET2/T2S consolidation

Authentication of messages in T2 (III)



The following reference data are stored in CRDM:

Party BIC: **AAAADEFFXXX**

User (Cash Manager application): **UserCashManager**

DN: **XYZ** (linked to a **certificate**, issued by NSP)

UserCashManager and **XYZ** are linked (User Certificate DN Link)

```
<Fr>
  <EIID>
    <FinInstnId>
      <BICFI>AAAADEFFXXX</BICFI>
      <ClrSysMmbld>
        <Mmbld>UserCashManager</Mmbld>
      </ClrSysMmbld>
    </FinInstnId>
  </EIID>
</Fr>
[...]
<L- <Sgntr> Signatur mit dem Zertifikat, welches mit der DN XYZ verlinkt ist </Sgntr> -->
```

Business validation rules check inter alia whether:

- the technical sender **XYZ** is authorised to send messages for **AAAADEFFXXX**;
- **UserCashManager** is authorised to send a message for **AAAADEFFXXX**;
- the DN **XYZ** is linked to **UserCashManager**;
- the BIC in the BAH (**AAAADEFFXXX**) may request data within the data scope of the BIC in the payload; and
- **UserCashManager** has the respective privileges.

4 ECONS II

Overview

Access to ECONS II

Actors and account structure

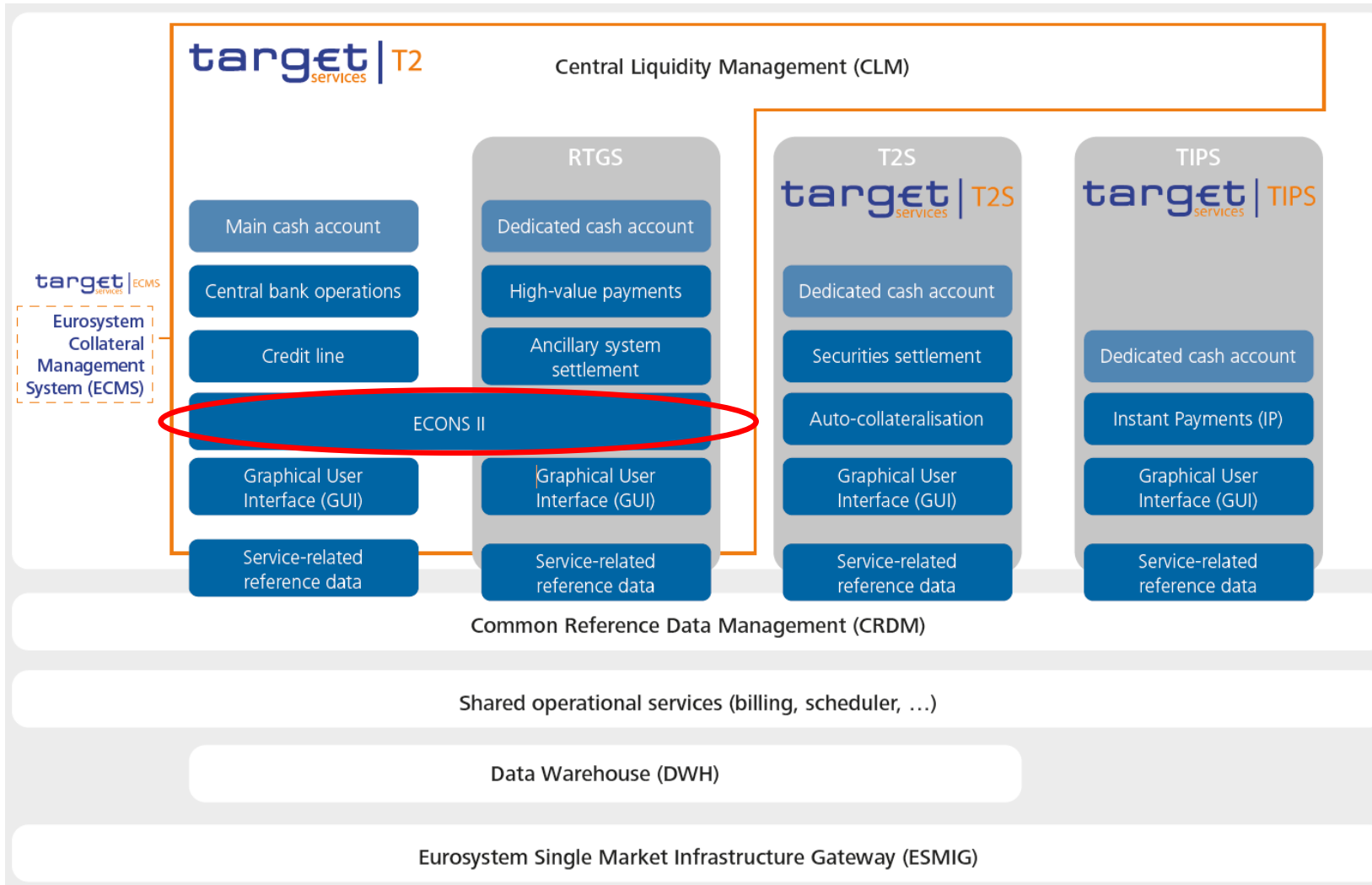
Characteristics of transactions in ECONS II

Interaction with CRDM

Information management (queries and reports in ECONS II)

TARGET2/T2S consolidation

ECONS II – overview

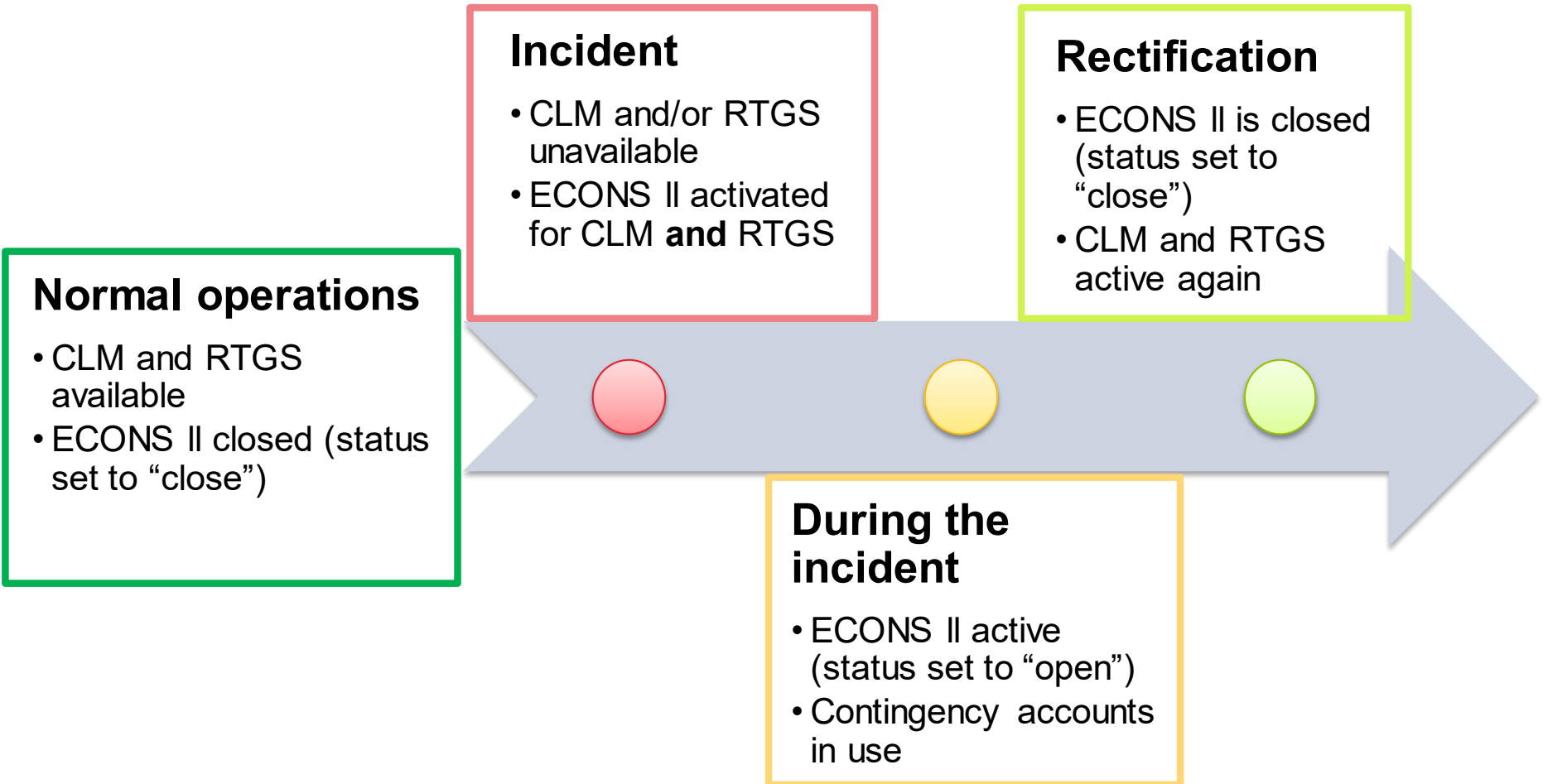


WHO
participates in
ECONS II?

- As with ECONS I already, **participation is mandatory** for:
 1. Eurosystem central banks;
 2. critical participants;
 3. critical ancillary systems;
 4. participants involved in settling critical/very critical payments.
- Participation **optional** for all other parties
- **2 years after go-live** ⇒ mandatory participation extended to:
 - all RTGS DCA account holders;
 - all ancillary systems.

Which
ACCOUNTS
are
reflected in
ECONS II?

- **Contingency accounts** are opened for **all MCAs**.
- **Contingency technical accounts** are opened for ancillary systems using settlement procedure A in ECONS II.
 - If ancillary systems use different procedures and wish to have a contingency account set up for settling “normal payments” in ECONS II, they need to hold an MCA.



ECONS II

Real-time gross settlement in central bank money for payment orders and ancillary system transactions

Queries and reports

Active up to 5 business days

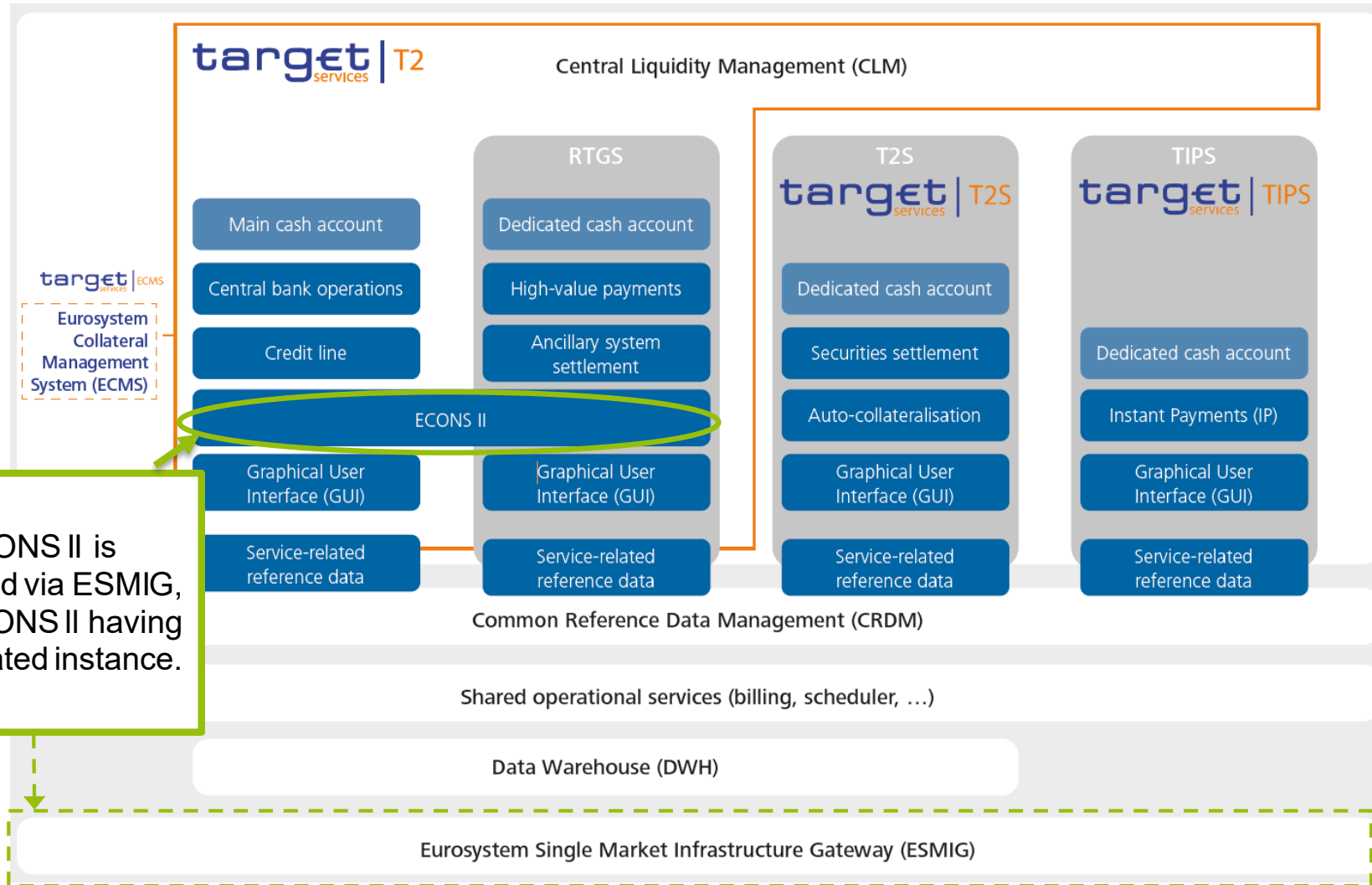
Usual T2 business hours

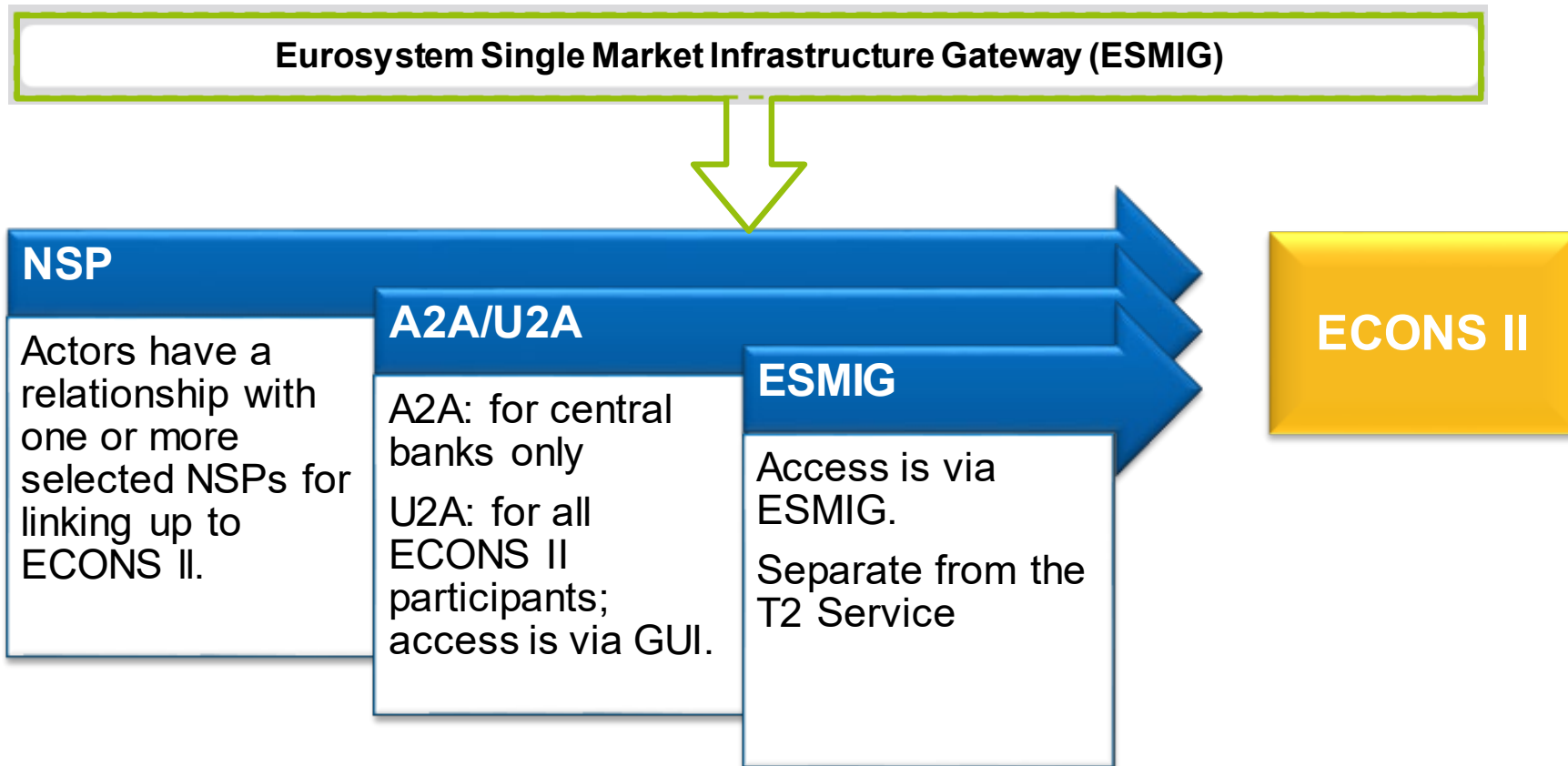
Settlement in different currencies

Opening balance of zero

TARGET2/T2S consolidation

ECONS II – access





Operator

- activates, operates and deactivates ECONS II;
- point of contact for central banks and for participants in certain cases.

Central bank

- sets up and maintains reference data in CRDM for all ECONS II actors belonging to their community;
- authorised to act on behalf of one of its participants, if required.

Payment bank

- holds the same number of contingency accounts as MCAs;
- each payment bank is identified by a BIC11, and its accounts are additionally identified by an account number (X DE EUR PARTY BIC FREE TEXT).

Ancillary system

- holds one or more contingency technical accounts that can be used for settling ancillary system transfer orders;
- each ancillary system is identified by a BIC11, and its account is also identified by an account number.

CB contingency accounts

- Belong to the respective central bank
- Used for settling liquidity transfers
- Negative balance possible
- Multiple contingency accounts per central bank possible (same number as CLM CB accounts in CLM)

Payment bank contingency accounts

- Belong to the **payment banks**
- Used for settling payments, AS transfers and liquidity transfers
- Negative balance not possible
- Multiple contingency accounts per participant possible (same number as MCAs)

Contingency technical accounts

- Belong to the **ancillary systems**
- Used for settling AS transactions
- Negative balance not possible
- Multiple contingency technical accounts per ancillary system possible

Contingency transit accounts

- Belong to the central banks (ECB for euro settlement)
- Negative balance possible
- Technical possibility to reflect movements of liquidity to and from ECONS II

**Types of
instructions
processed by
ECONS II**

Liquidity transfer orders

- Central banks only
- U2A/A2A

Payment orders

- All ECONS II actors
- U2A/A2A (CBs only)

Ancillary system transfer orders

- Responsible CB on the ancillary system's behalf
- A2A

Liquidity transfer orders

- Central banks only
- Only between ECONS II accounts denominated in the same currency
- After validation, immediately either fully settled or rejected
- No partial execution or queuing mechanism
- A distinction is made between “inbound liquidity transfers” and “outbound liquidity transfers”

Possible liquidity movements

- CB contingency account ↔ payment bank contingency account
(by central bank only; A2A or U2A)
- Contingency transit account → payment bank contingency account
(by ECB only in U2A)
- Payment bank contingency account → contingency transit account
(by central bank only; A2A or U2A)

Payment orders

- Only as a credit transfer order between CB contingency accounts or payment bank contingency accounts denominated in the same currency
- After validation, immediately either fully settled or rejected
- No partial execution or queuing mechanism

Potential uses

- Central bank's credit transfer orders
 - either to debit own accounts;
 - or on the payment banks' behalf (only in exceptional circumstances or if an incident occurs);
 - or AS transactions (as a file) on the ancillary systems' behalf (AS procedure A).
- Payment banks' credit transfer orders:
 - submission (U2A only) of individual payments to debit their own payment bank contingency accounts;
 - ECONS II allows the responsible central bank to approve or reject each payment submitted by the payment bank (optional agree/disagree functionality ⇒ activated by default).

Ancillary system transfer orders

- Processed using AS procedure A
- AS transfer file submitted on behalf of the ancillary system by the responsible central bank using A2A mode
- No agree/disagree functionality envisaged
- AS transfer file contains debit and credit orders:
 - debits:
debit payment bank contingency account, credit contingency technical account
 - credits:
debit contingency technical account, credit payment bank contingency account

AS procedure A

- **“Debit first” principle**
⇒ all debit balances are booked first, and then (provided no errors occur) all credit balances
- Sum of credits = sum of debits

Reference data

- Mainly managed in CRDM
 - Daily transfer of data from CRDM to ECONS II (if ECONS II is closed)
- Only selected local data are entered directly into ECONS II
 - only possible when ECONS II is active;
 - via U2A only;
 - immediately effective in ECONS II;
 - block/unblock an account in ECONS II (central bank, operator);
 - open a new payment bank contingency account or contingency technical account (operator).
- Data changed locally in ECONS II are not automatically mirrored in CRDM (manual process)

Potential reports

- Account statement information
 - Provided in U2A mode and exportable (.csv or .xls)
- General ledger file for central banks

Potential queries

In U2A mode (inter alia):

- ECONS II status
- Account balances
- Status of transactions
- Overview of total liquidity (central banks only)

In A2A mode (central banks only):

- Business day information

TARGET2/T2S consolidation

ECONS II – closure

No additional payment, LT or AS transaction can be processed.

If positive acknowledgement is received, ECONS II resets contingency account balances to zero.

ECONS II closed once incident is rectified: status: “closing”

ECONS II transfers contingency account balances to CLM and awaits acknowledgement

**CLM sends positive acknowledgement to ECONS II
→ Status: “close”**

If CLM acknowledgement is negative, ECONS II status is set to “lock”.
Operator either decides to:

- a) extend the contingency session; or
- b) make another closure attempt.

TARGET2/T2S consolidation

Services provided by the Bundesbank

