

# T2-T2S Consolidation

CLM

07-10-2021

DeNederlandscheBank

EUROSYSTEEM



# CLM

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## T2-T2S Consolidation Training Session

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- Parties and Accounts in CLM (including co-management)
  - Liquidity Management
  - Cash transfer orders and cash transfers in CLM
  - Minimum Reserve Management and interest calculation
  - Standing Facilities Management
  - Information Management for CLM
  - Business day

# CLM

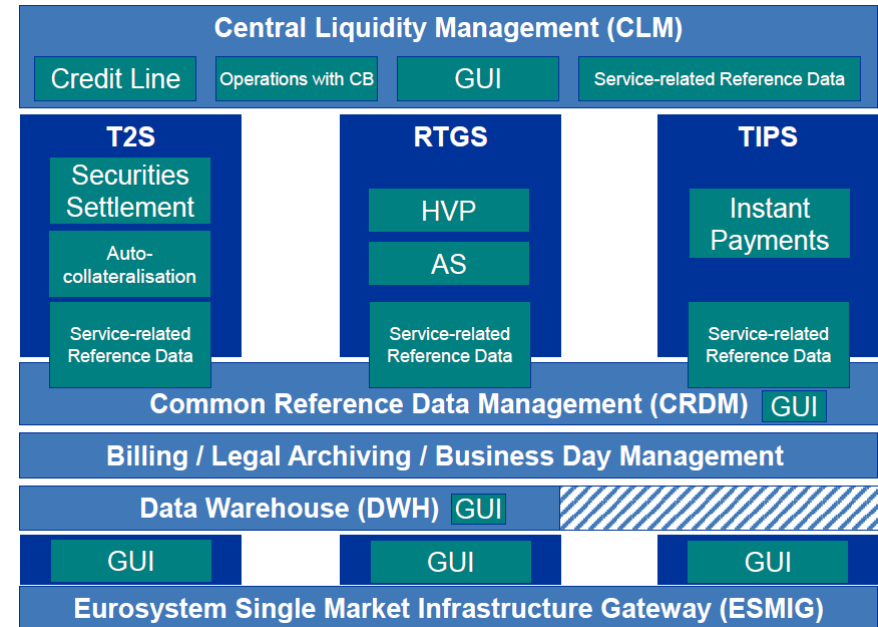
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The functional design of the new settlement function

# The functional design of the new settlement function

## Why a split between two settlement components?

- The functional split allows participants to make use of only the individually needed TARGET services.
- CLM is a **centralised tool** that will allow participants to steer, manage and monitor central bank liquidity across **all TARGET services**. The participation in CLM is mandatory to gain access to other TARGET services.
- RTGS provides Real-Time Gross Settlement of interbank and customer payments and processing of transactions of ancillary systems (AS). Participation is not mandatory.
- CLM addresses the need of current **HAM module** users without the necessity to open an additional RTGS DCA.
- Functions that are required in various services will be provided once, centrally, on a modular basis as far as possible and reasonable.



# The functional design of the new settlement function

## CLM - overview

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- Central **source of liquidity** for all settlement services (RTGS, T2S and TIPS)
- Central Liquidity Management (CLM) and the Main Cash Account (MCA) are used
  - to hold the liquidity centrally,
  - to connect the credit line,
  - to fulfil the minimum reserve requirement,
  - to participate in central bank operations (e.g. open market operations, standing facilities),
  - cash lodgements and cash withdrawals.
- A **participation** in CLM is mandatory for Euro payment banks, if
  - the **minimum reserves** is held directly or in a pool of reserve accounts and/or
  - a **DCA** is opened in another settlement service (RTGS, T2S, TIPS)
- Payment banks can instruct **liquidity transfers** (camt.050) in CLM.
- Participation in CLM and holding one or more MCAs will be at low cost or free of charge.

# CLM

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## Parties and Accounts in CLM

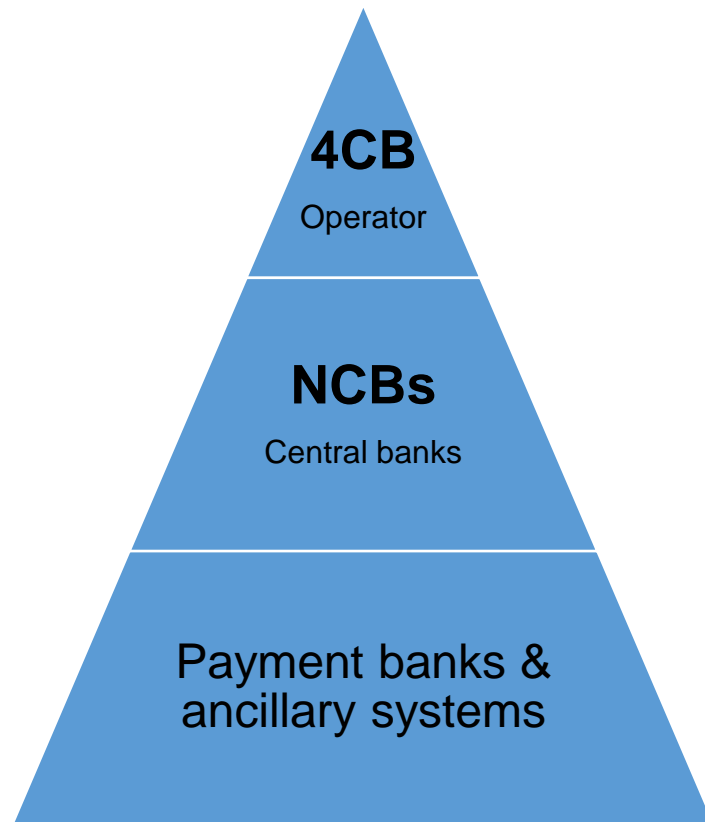
# Parties and Accounts in CLM

## Parties

- A party is defined as a **legal entity or organisation** interacting with CLM. The set-up of parties takes place in **CRDM** (Common Reference Data Management).

### Hierarchical **three-level structure**:

- 1<sup>st</sup> level: **Operator**
  - Responsible for the initial set-up and day-to-day operations
  - Single point of contact for CBs
  - Responsible for the setting up and maintaining the reference data of the CBs in CRDM.
  - In addition, they can act on behalf of any of the parties in CLM in case of need.
- 2<sup>nd</sup> level: **Central banks**
  - Responsible for setting up and maintaining reference data in CRDM for all CLM Actors belonging to their community
  - In addition, they can act on behalf of any of their parties on the 3<sup>rd</sup> level in case of need.
- 3<sup>rd</sup> level: **Payment banks and ancillary systems**
  - Responsible for their own liquidity management





# Parties and Accounts in CLM

## Service party types

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Party type	Possible service party types for CLM
CB	CLM CB Account Holder CLM Transit Account Holder CLM CB Technical Account Holder
Payment bank	CLM Account Holder Institution managing minimum reserve without account in CLM
Ancillary system	CLM Account Holder

# Parties and Accounts in CLM

## CRDM – Co-management for CLM

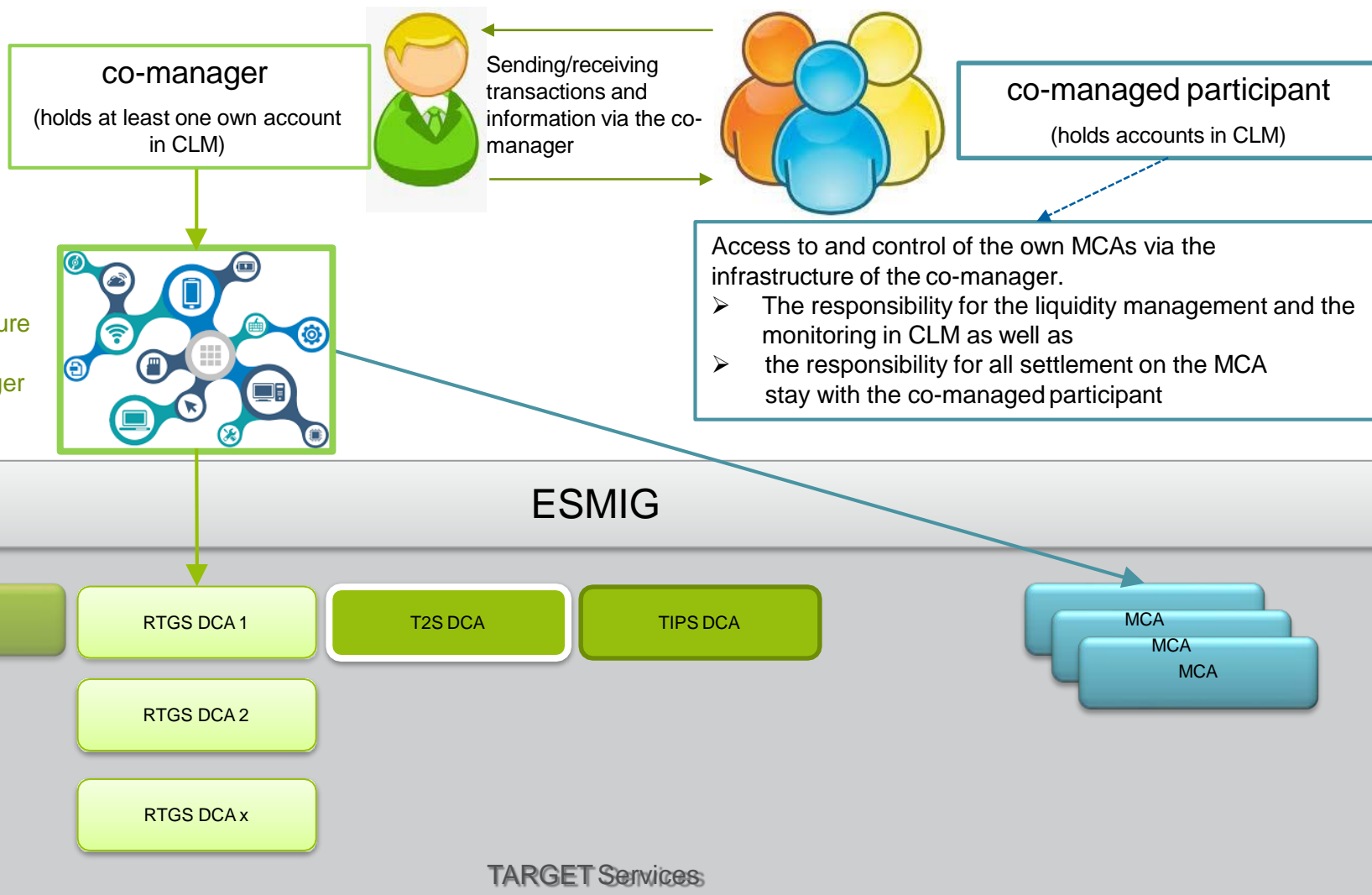
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- **Outsourcing of activities** to a third party possible
  - Payment bank as co-manager → „CLM Account Holder“ or
  - Central bank as co-manager → „CLM CB Account Holder“
- **Using the technical access of the co-manager** (respective static data need to be defined)
- Identification of the co-manager when the MCA is set up by the central bank
- Automatic transfer of access rights to the co-manager (all users of the co-manager will be able to access the co-managed account according to the access rights granted for the own accounts)
- Functions (**U2A and A2A**) i.e.
  - Instruction of liquidity transfers
  - Creation of reservations
  - Receiving status updates for the sent messages and transfers
  - Creation of message subscription and report configuration
  - Instruction of standing facilities
  - Queries regarding the account, available liquidity and minimum reserves
- Co-management can be set up on a cross border basis
- [Explainer on Co-Management](#) and [Explainer on Co-Management – Example Scenarios](#) via in *Knowledge-based repository*  
[Home](#) > [Payments & Markets](#) > [TARGET services](#) > [T2-T2S consolidation](#) > [For professional use](#)

CLM UDFS 3.2.3

# Parties and Accounts in CLM

## Co-management for MCAs im CLM



# Parties and Accounts in CLM

## Accounts

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<b>CLM</b>
<b>Main Cash Accounts</b>
CLM CB Accounts
<b>Overnight Deposit Accounts</b>
<b>Marginal Lending Accounts</b>
CLM Dedicated Transit Accounts
CB ECB Accounts
ECB Mirror Accounts

**Note:** the accounts used in CLM are opened in CRDM

# Parties and Accounts in CLM

## Accounts

### • Main Cash Account (MCA)

- Settlement of **central bank operations, liquidity transfers**, connection of the **credit line**
- Sum of balance + credit line **cannot be negative**
- **Identification** via **BIC11** (unique in CLM per currency) and
- **account number** (unique across all services/modules)
- Only **payment banks and AS** (Ancillary Systems) can open MCAs (party service type „CLM Account Holder“)
- Holding **more than one MCA possible** – Definition of a **Default MCA** for
  - Central bank operations (i.e. open market operations, standing facilities)
  - Minimum reserve calculation incl. penalties
  - Interest payments
  - Connection of the credit line
- If a party holds at least one MCA and at least one RTGS DCA a **1:1-link** needs to be defined (precondition for the automated liquidity transfer).
- For **rule-based liquidity transfers** in case of floor/ceiling breach an MCA can be related with **different MCAs and/or RTGS DCAs**
- A payment bank, that holds an **DCA**, has to hold an **MCA with the same central bank**

CLM
<b>Main Cash Accounts</b>
CLM CB Accounts
<b>Overnight Deposit Accounts</b>
<b>Marginal Lending Accounts</b>
CLM Dedicated Transit Accounts
CB ECB Accounts
ECB Mirror Accounts

# Parties and Accounts in CLM Accounts

- **Overnight deposit account / marginal lending account**

- Accounts for the settlement of **standing facilities**
- Accounts are **owned by the central bank** but **opened in the name of the participant**
- Access by the actor via the attribute „linked account“
- Opened for the party type „Central Bank“ – Service Party Type „CLM CB Account Holder“
- Identification via **account number** (unique across all services/modules)
  - no Account BIC assigned

<b>CLM</b>
Main Cash Accounts
<b>CLM CB Accounts</b>
<b>Overnight Deposit Accounts</b>
<b>Marginal Lending Accounts</b>
CLM Dedicated Transit Accounts
CB ECB Accounts
ECB Mirror Accounts

# Parties and Accounts in CLM

## Account Monitoring Group

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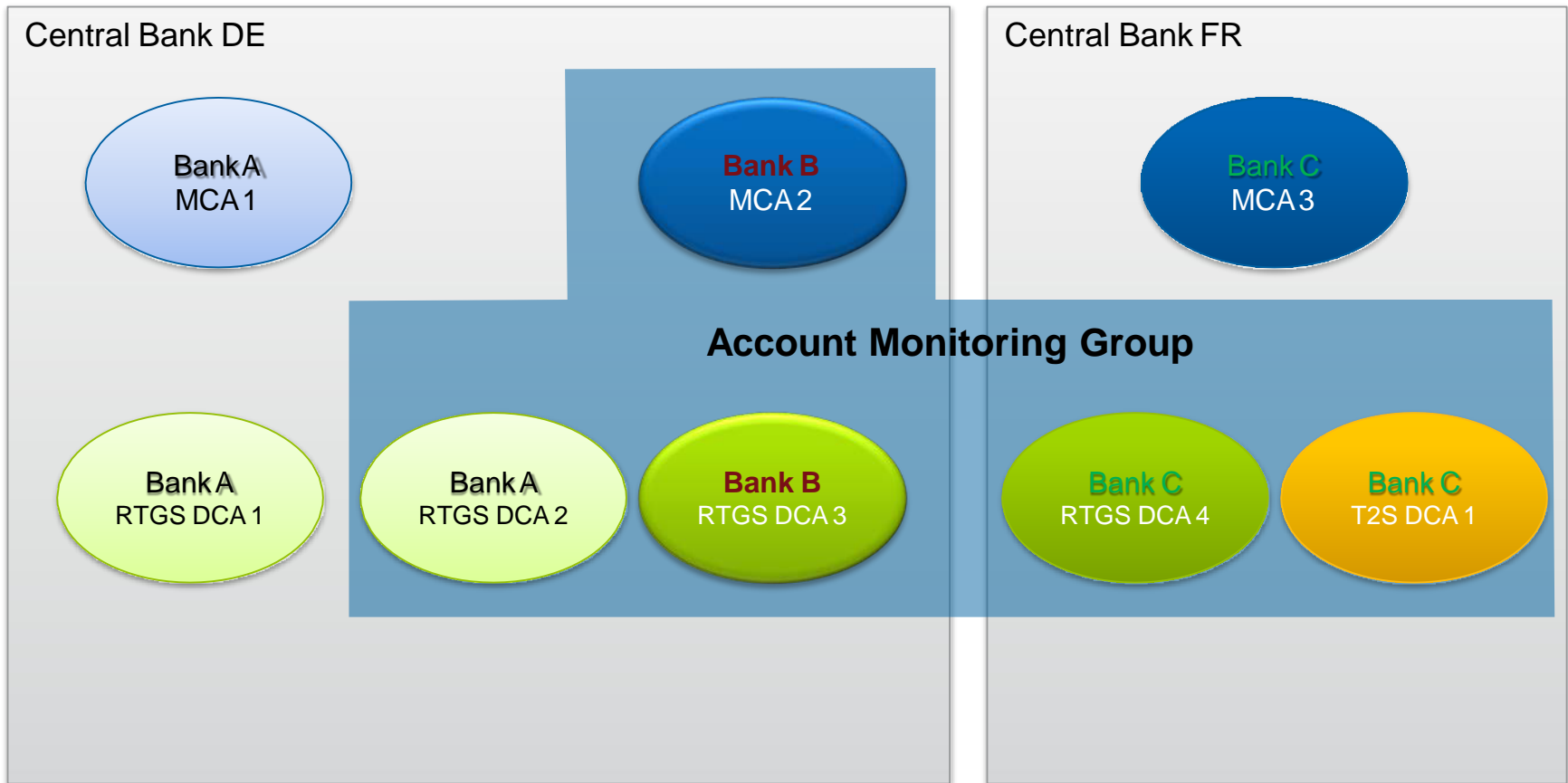
- **Optional** function
  - to create a group of accounts (**MCAs and DCAs**) in CRDM
  - to **monitor the available liquidity** of the grouped accounts (no settlement of liquidity transfers or other transactions within the group).
- The **administration** of the group is performed by the **CLM/RTGS account holder** in **CRDM in U2A mode**.
  - If an account lying in the own data scope shall be added to the group it has to be added by the respective account holder.
  - A CLM account holder will be defined as “Account Monitoring Group Leader“.
  - Only the “Account Monitoring Group Leader“ can see the available liquidity on all accounts.
  - If the “Account Monitoring Group Leader” shall be changed a new Account Monitoring Group needs to be created.
- An Account Monitoring Group can contain **accounts from different parties** (also held with another central bank).
- An MCA or DCA can be part of different groups.
- All **changes** will be valid as of the next business day.

CLM UDFS 3.4

# Parties and Accounts in CLM

## Account Monitoring Group

### Account Monitoring Group (example 1)

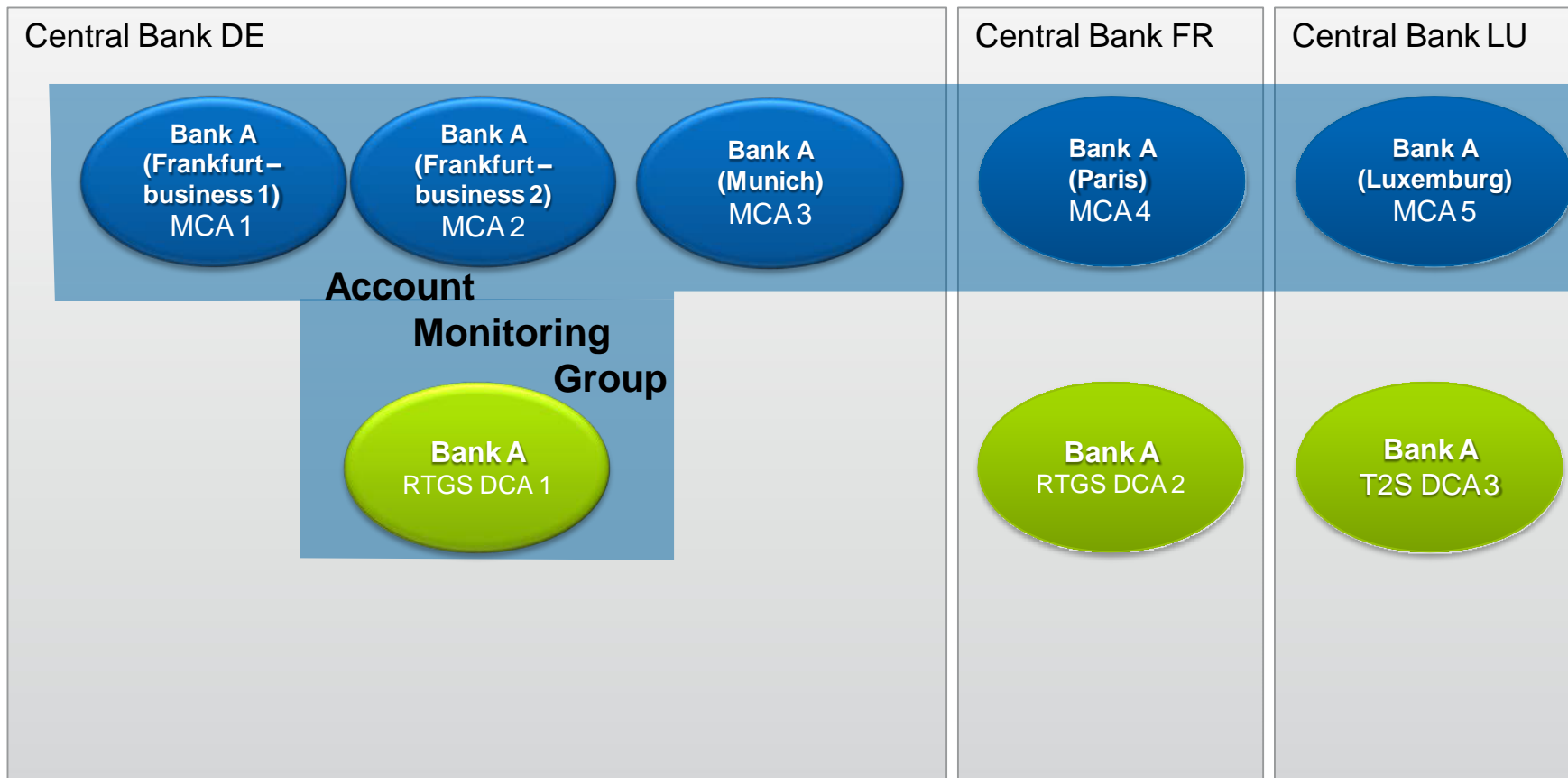




# Parties and Accounts in CLM

## Account Monitoring Group

### Account Monitoring Group (example 2)



# CLM

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## Liquidity Management

# Liquidity Management in CLM

## Overview

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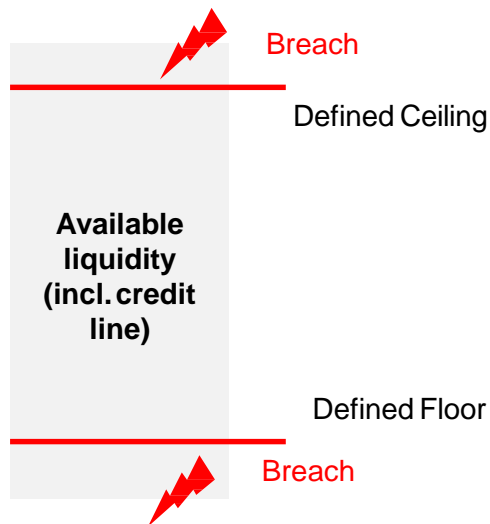
- The MCA is used for the settlement of inter-service and intra-service liquidity transfer orders, payment orders in the context of CBOs and invoices for billable items.
- The **available liquidity** on an MCA is defined as follows:
  - The balance on the MCA;
  - Plus the credit line linked to the MCA;
  - Minus seized amount.

### Liquidity management features

- Manual liquidity transfers – based on immediate liquidity transfer orders sent in A2A or entered via GUI
- System triggered liquidity transfers – based on:
  - preconfigured standing order liquidity transfers triggered by events defined in the daily schedule;
  - rule-based liquidity transfer orders triggered by conditions during the settlement process (e.g. breaching a predefined **floor or ceiling**).
- Reservation of liquidity

# Liquidity Management in CLM Floor/Ceiling

- **Optional** function
  - defining a **floor** and/or a **ceiling**.
  - for each MCA / CLM CB account
  - administrated by the **CLM account holder** (or third party).
  - in **CRDM**.



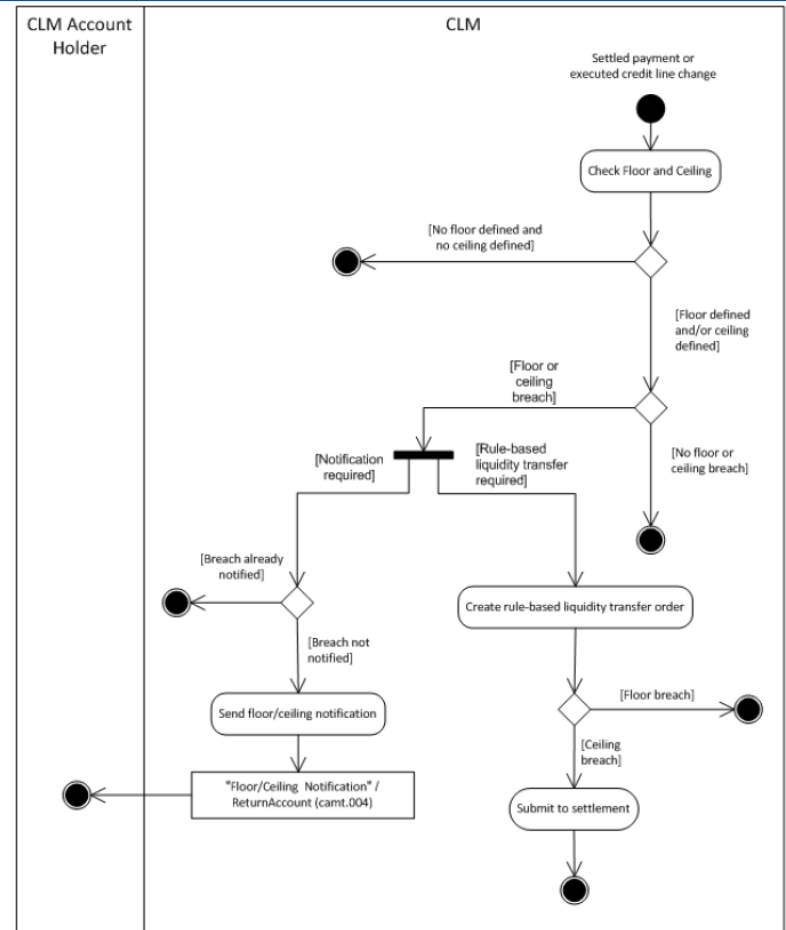
- **Possible reactions (options)**
  - that can be combined
  - that are chosen by the account holder
- Option 1: CLM **informs** the account holder about the breach via camt.004 message. The account holder decides on the next steps.
- Option 2: CLM **processes** a **rule-based liquidity transfer** with the linked account (MCA, CLM CB account, RTGS DCA or RTGS CB account). Different accounts can be defined for debit/credit.

CLM UDFS 5.4.3.3

# Liquidity Management in CLM Floor/Ceiling

## Consideration in the settlement process

- CLM checks after the **settlement of payments or a change of the credit line** the compliance with the defined floor and ceiling amounts.
- If no floor or ceiling amount was defined this process ends.
- In case of a breach CLM checks which option (1 and/or 2) was chosen by the account holder and initiates the respective process.
- Already notified breaches will not be notified again.
- [Explainer on automated and rule-based liquidity transfers](#) in *Knowledge-based repository* [Home](#) > [Payments & Markets](#) > [TARGET services](#) > [T2-T2S consolidation](#) > [For professional use](#)



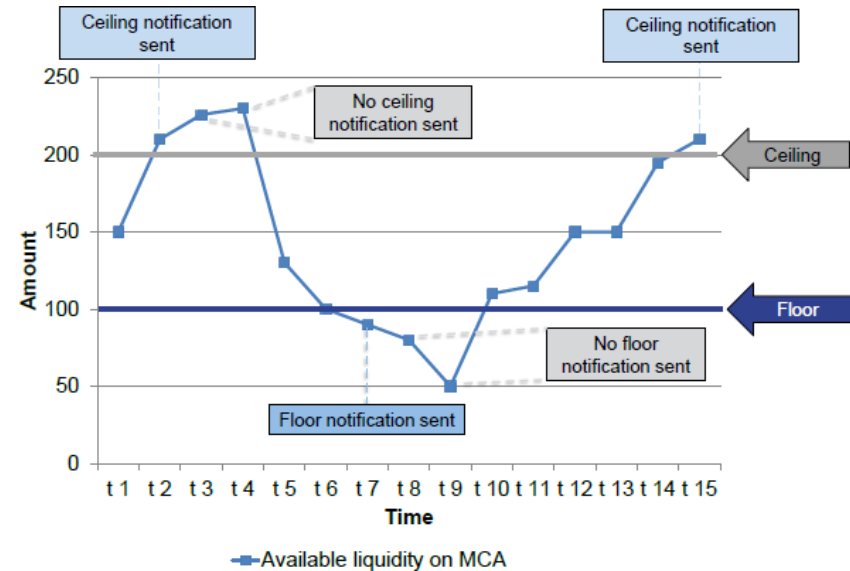
CLM UDFS 9.9

# Liquidity Management in CLM

## Floor/Ceiling

### Option 1 – Notification in case of a breach

- CLM displays a broadcast in U2A or sends a notification in A2A\* mode with the information that a floor or ceiling amount was breached.
- The account holder will be notified of the breach.
- If the available liquidity further decreases after the breach of the floor or further increases after the breach of the ceiling no additional notification will be provided.



\* ReturnAccount (camt.004)

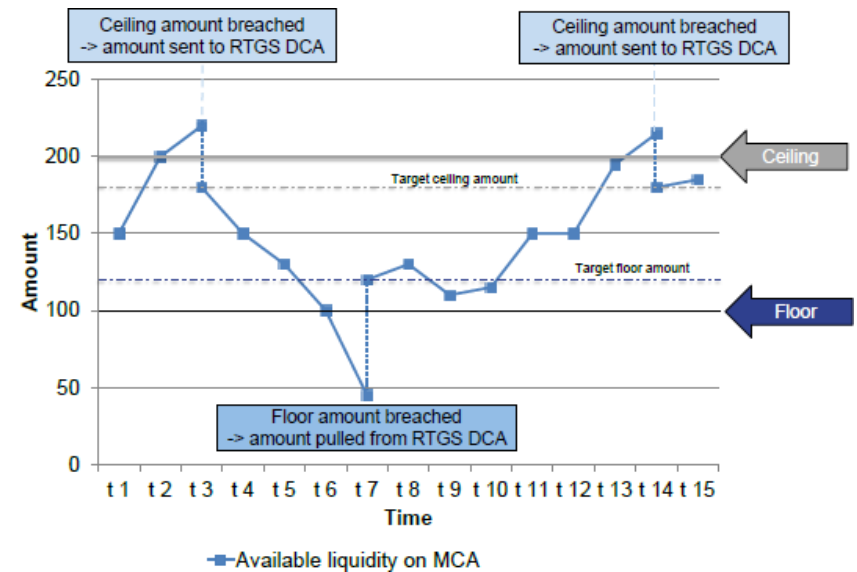
CLM UDFS 5.4.3.3.2

# Liquidity Management in CLM

## Floor/Ceiling

### Option 2 – rule-based liquidity transfer in case of a breach

- CLM notifies the account holder and initiates a rule-based liquidity transfer.
- Case 1: Breach of the floor amount
  - CLM pulls liquidity from the defined account (MCA, CLM CB Account, RTGS DCA or RTGS CB Account) to reach a pre-defined target floor amount (this can be different from the floor amount).
  - In case of insufficient liquidity on the defined account the liquidity transfer will be partially settled. No further settlement attempt takes place.
- Case 2: Breach of the ceiling amount
  - Liquidity transfer towards the defined account (MCA, CLM CB Account, RTGS DCA or RTGS CB Account)
  - The amount to be transferred is the difference between the currently available liquidity on the MCA or CB account and the predefined target ceiling amount.

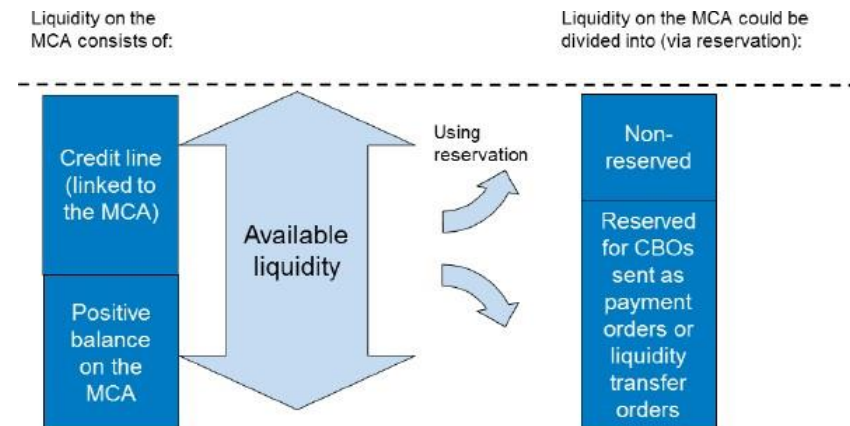


CLM UDFS 5.4.3.3.3

# Liquidity Management in CLM

## Reservation of liquidity

- **Optional** function
  - to **reserve** liquidity on the MCA,
  - for the settlement of **central bank operations** (incl. the reduction of the credit line),
  - by the **CLM account holder** (or co-manager).
  - **Current** reservation with **immediate effect**
  - **Standing order reservation**
- Liquidity can be reserved during the whole business day (excl. maintenance window) in **A2A** or **U2A mode**.
- If the „non-reserved“ amounts of the available liquidity are not sufficient for the reservation
  - the reservation will be settled partially.
  - the pending value will be placed in the queue until the target amount is reached.



CLM UDFS 5.4.3.2



# Liquidity Management in CLM

## Reservation of liquidity

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### Standing order reservation

- The administration is done in **CRDM**.
- The **set up** is done in **U2A** mode.  
**Modifications** can be done in **U2A or A2A**.
- The reservation will be settled **every day during the start of day in CLM** with the defined amount.
- Reservations that were **not fully settled until the end of day** (due to lack of available liquidity) will be **rejected**.
- The creation, modification and deletion (by setting to 0.00) are **valid as of the next business day**.

### Current reservation

- The creation and administration is done in **CLM in U2A or A2A**.
- The reservation is **immediately valid but only** on the current business day.
- During the business day modifications of the amount (incl. setting to 0.00) are possible.
- This functionality will also be used for seizure of funds (only applicable for CB or OT).
- Reservations will be deleted, if
  - the event „Cut-off for CLM RTS“ is reached (exception: reservations for seizure of funds)
  - the reservation was recalled or
  - a new reservation was entered in CLM.

CLM UDFS 5.4.3.2

# Liquidity Management in CLM Summary

## Principles of Liquidity Management

- CLM allows the reservation of a pre-defined amount for **central bank operations** (incl. the reduction of the credit line).
- In case of insufficient liquidity on the MCA for the settlement of central bank operations or seizure of funds the missing liquidity will be pulled from the linked RTGS DCA (**automated liquidity transfer**)
- The following sequence applies:

Business case	Tapping of liquidity reservation				
	MCA		Linked RTGS DCA <sup>1</sup>		
	CBOs	Non-reserved	Urgent (U)	High (H)	Non-reserved
Credit line decrease	2	1	5	4	3
CBOs (including cash withdrawal; except credit line decrease)	1	2	5	4	3
Liquidity transfer – not related to CBOs		1			

<sup>1</sup>Related to automated liquidity transfer due to queued/pending CBO, seizure of funds or credit line decrease

# CLM

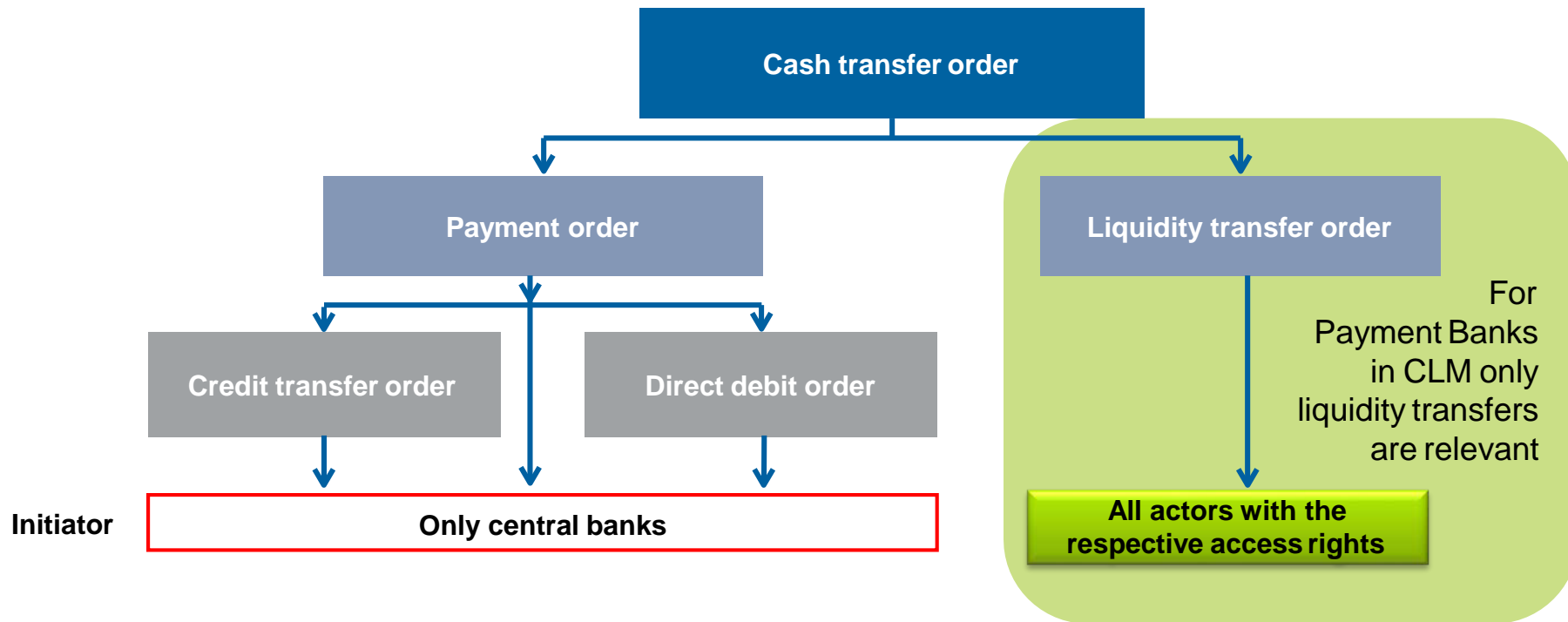
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## Cash transfer orders and cash transfers in CLM

# Cash transfer orders and cash transfers in CLM

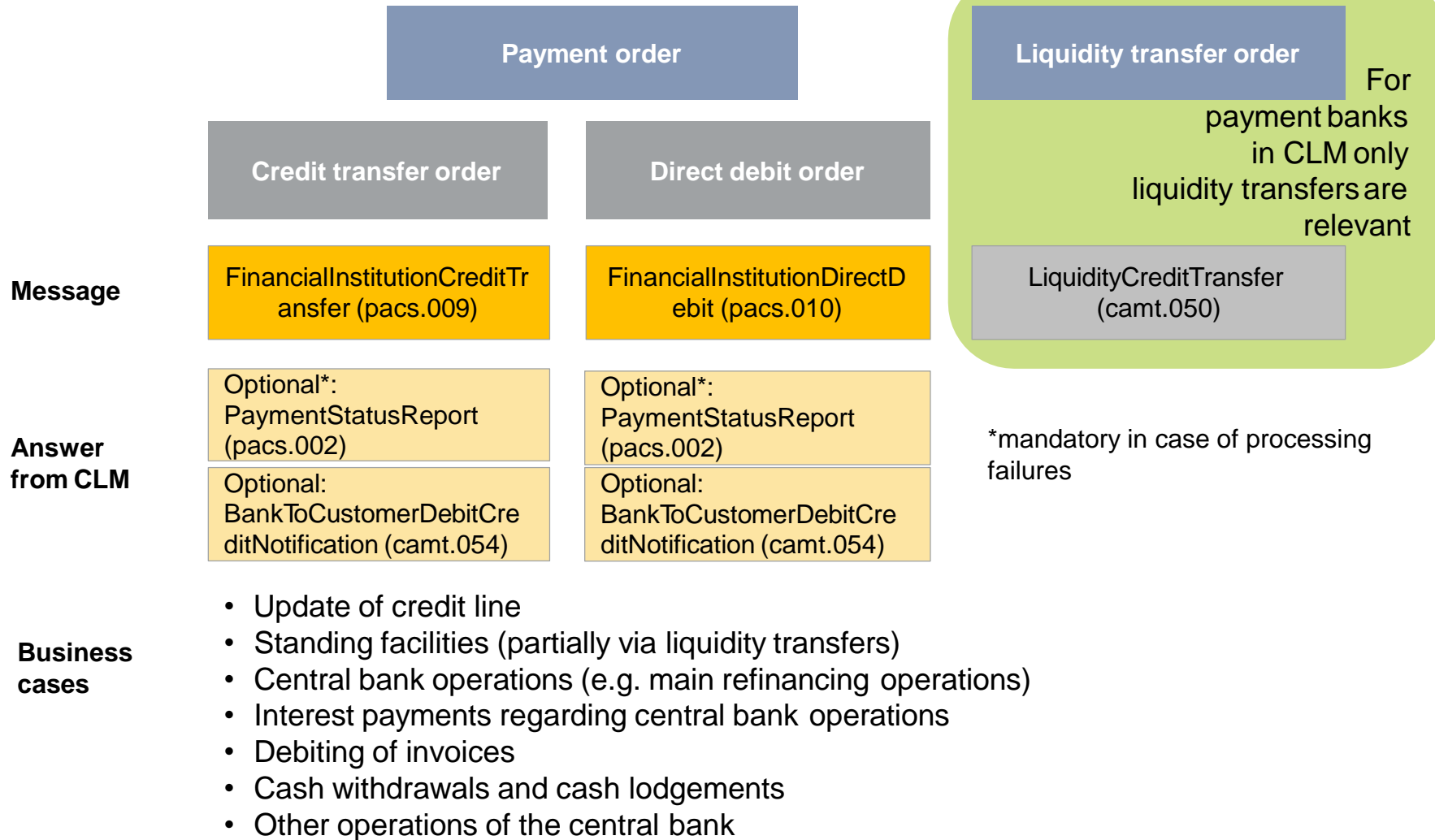
## Overview

- CLM differentiates between the following cash transfer orders



- Initiation via A2A require the use of ISO 20022 compliant messages. The initiation is also possible via U2A.

# Cash transfer orders and cash transfers in CLM Payments



CLM UDFS 5.2

# Cash transfer orders and cash transfers in CLM

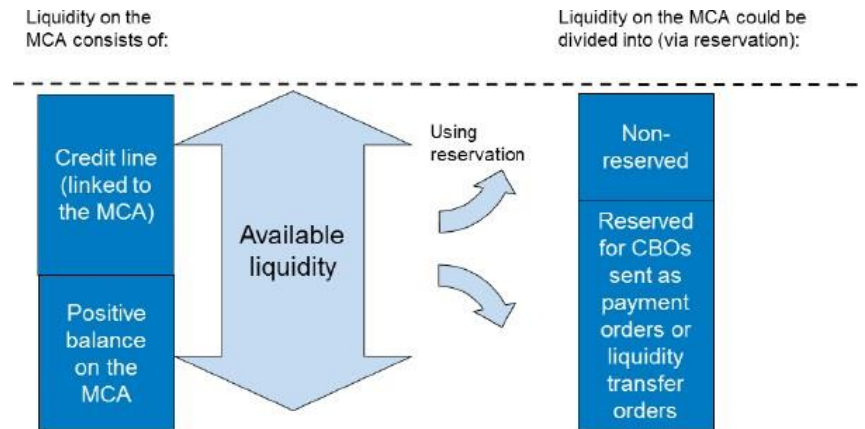
## Available liquidity

### Available liquidity consists of

- credit line (linked to only one MCA)
- positive balance
- possibly reduced by seizure of funds

### Reservation means

- Reserved part for payment orders regarding central bank operations and reduction of the credit line\*
- Non-reserved part at free disposal



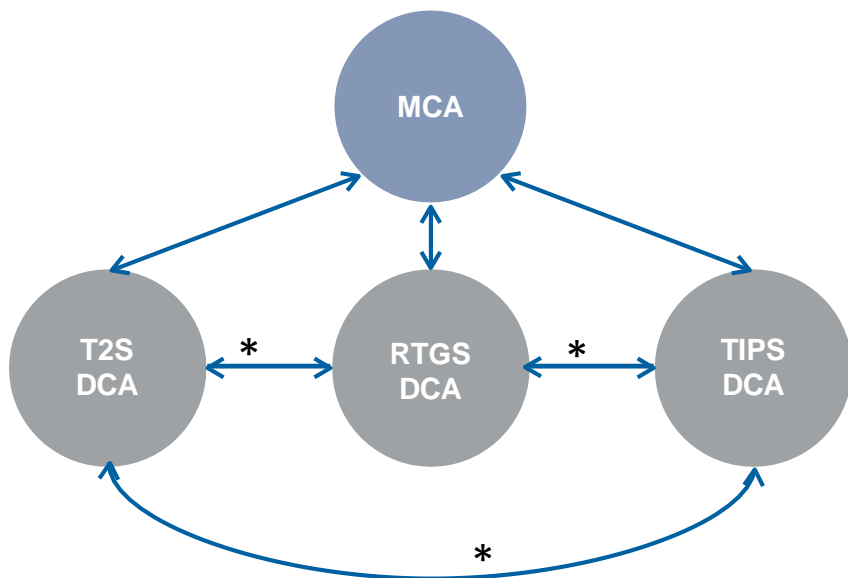
\*The reduction of the credit line will only use the reserved part if the non-reserved part is not sufficient

CLM UDFS 5.4.1

# Cash transfer orders and cash transfers in CLM

## Liquidity Transfers – Overview

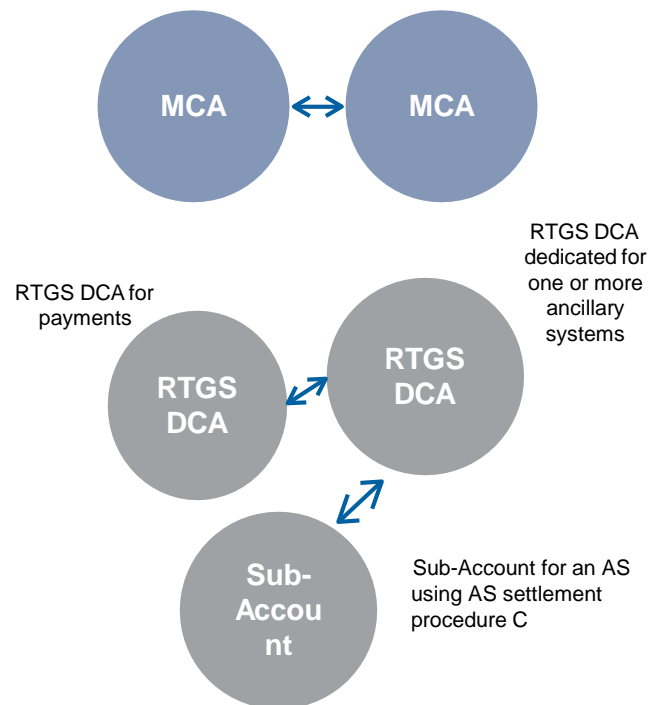
### Inter-service liquidity transfer



\*technically via CLM

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

### Intra-service liquidity transfer



Liquidity transfers **within** a settlement services

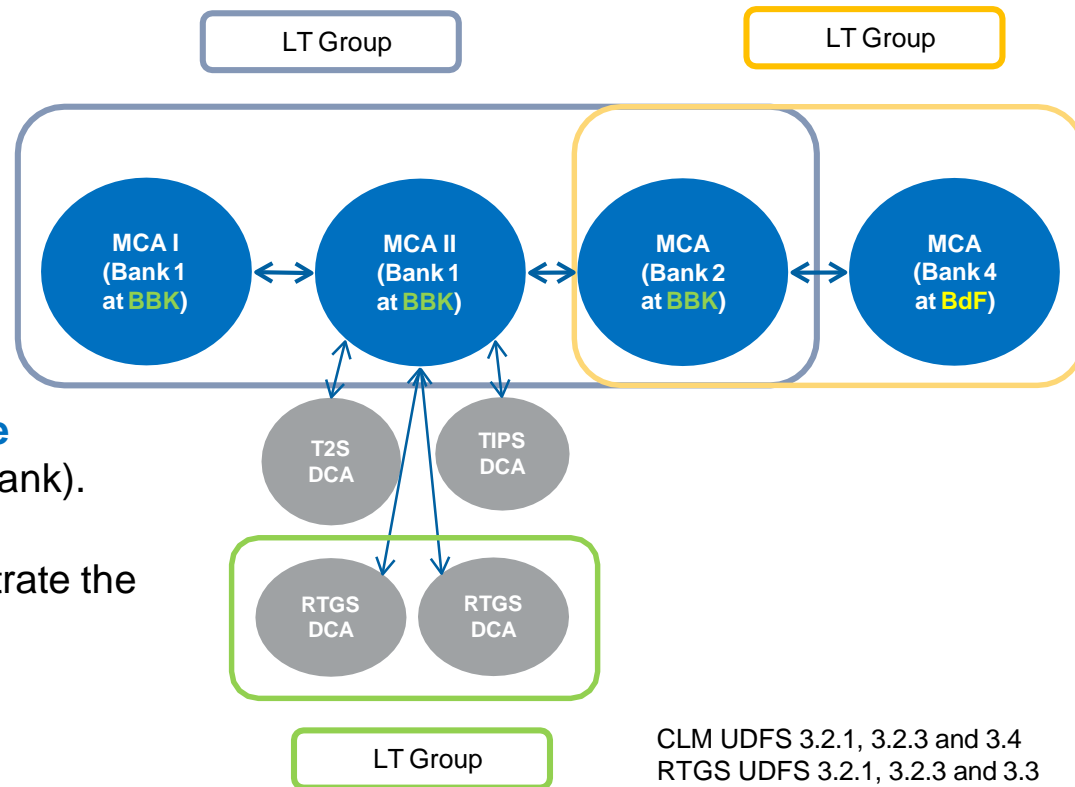
CLM UDFS 5.4.2  
RTGS UDFS 5.5.2

# Cash transfer orders and cash transfers in CLM

## Liquidity Transfers – Liquidity Transfer Group

**Pre-condition** for intra-service liquidity transfers is the creation of a so-called **liquidity transfer group**.

- Optional grouping of accounts within a settlement service to a **liquidity transfer group (LTG)**. A LTG can be created for CLM as well as for RTGS.
- An MCA / RTGS DCA can be part of **one or more** LTGs.
- Within a LTG MCAs / RTGS DCAs of **different parties** can be grouped (also cross-border).
- **Intra-service** liquidity transfers are only possible between **accounts of the same LTG** (except for transfers with a central bank).
- The responsible central bank(s) administrate the group based on the respective order.



CLM UDFS 3.2.1, 3.2.3 and 3.4  
RTGS UDFS 3.2.1, 3.2.3 and 3.3



# Cash transfer orders and cash transfers in CLM

## Liquidity Transfers

### Use cases and messages

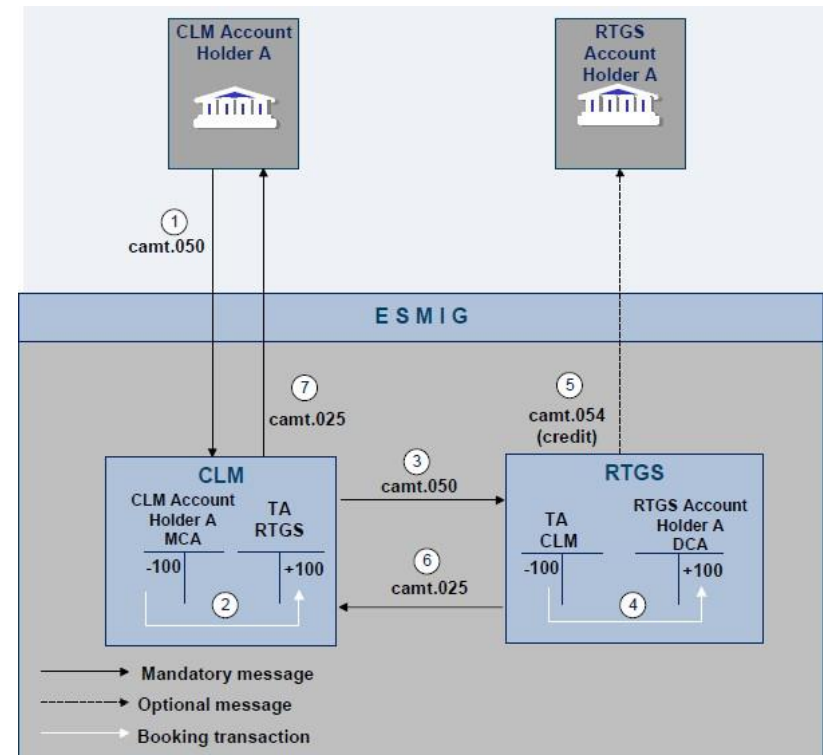
Initiator	Use case	Message
CLM account holder or authorised CLM actor	<ul style="list-style-type: none"><li>• Between two MCAs (intra-service LT, within a liquidity transfer group)</li><li>• MCA -&gt; DCA different service (inter-service LT)</li><li>• MCA -&gt; CB account (in CLM, RTGS or T2S)</li><li>• MCA &lt;-&gt; Overnight deposit account</li><li>• MCA &lt;-&gt; marginal lending account (initiated only by central bank)</li></ul>	LiquidityCredit Transfer ( <b>camt.050</b> )

# Cash transfer orders and cash transfers in CLM

## Liquidity Transfers – Message flow

### Example for the message flow use case: MCA -> RTGS DCA

- 1 LiquidityCreditTransfer (camt.050) is sent from a CLM account holder via ESMIG to CLM.
- 2 Settlement within CLM.
- 3 LiquidityCreditTransfer (camt.050) is forwarded to RTGS.
- 4 Settlement within RTGS.
- 5 BankToCustomerDebitCreditNotification (camt.054) (credit) is sent by RTGS via ESMIG to the RTGS account holder (optional).
- 6 A receipt (camt.025) generated in RTGS is sent to CLM.
- 7 A receipt (camt.025) is sent by CLM via ESMIG to the CLM account holder.



CLM UDFS 5.4.2.4

# Cash transfer orders and cash transfers in CLM

## Liquidity Transfers – Types

Types	CLM
Immediate liquidity transfers	Immediate transfer of liquidity initiated by the account holder or another authorised CLM actor in A2A or U2A
Automated liquidity transfers	Transfer of liquidity initiated by CLM sent to RTGS in order to transfer liquidity from the linked RTGS DCA due a queued/pending CBO (mandatory)
Rule-based liquidity transfers	Transfer of liquidity initiated by CLM due to a floor or ceiling rule (configuration done in CRDM)
Standing orders for liquidity transfers	Recurring transfer of liquidity processed every business day at certain business day events (configuration done in CRDM)

CLM UDFS 5.4.2.1

# Cash transfer orders and cash transfers in CLM

## Liquidity Transfers – Types

Liquidity transfers can either

- **push** liquidity to another cash account or
- **pull** liquidity from another cash account.

Liquidity transfer type	Initiator	Use case	Push/Pull	Counterpart cash account in	
Immediate liquidity transfer order	CLM Actor	Intra-service	Push	CLM	<sup>36</sup> LTG necessary
		Inter-service	Push or pull	RTGS, TIPS, T2S	<sup>37</sup> only U2A possible
Automated liquidity transfer order	System	Inter-service	Pull	RTGS	
Rule-based liquidity transfer order		Intra-service	Push or pull	CLM	
		Inter-service	Push or pull	RTGS	
Standing order liquidity transfer order		Intra-service	Push	CLM	<sup>38</sup> LTG necessary
	Inter-service	Push	RTGS, TIPS, T2S		

CLM UDFS 5.4.2.1

# Cash transfer orders and cash transfers in CLM

## Liquidity Transfers – Standing orders

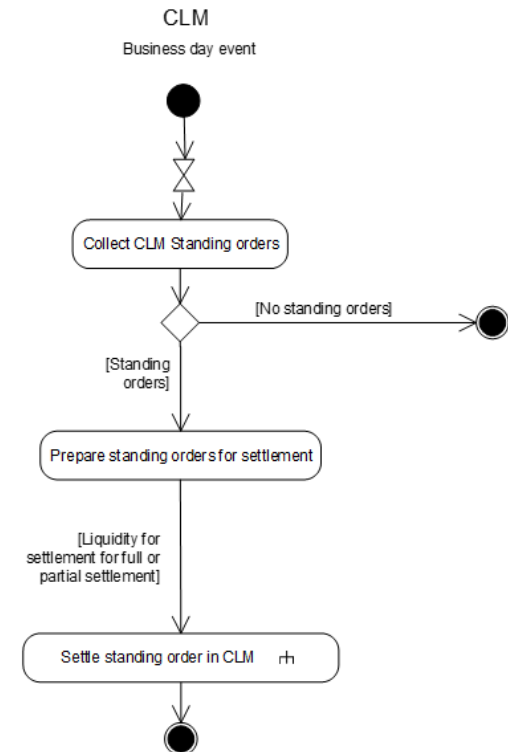
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- **Recurring order** to transfer liquidity
  - once per business day;
  - at a configured business day event;
  - with a defined amount of liquidity;
  - from an MCA or a CLM CB Account to another cash account
- The **administration** of the standing order will be done by the **account holder in CRDM**.
- Changes will be valid as of the next business day.
- **Use cases** in CLM:
  - Intra-service: MCA -> MCA (within a Liquidity Transfer Group)
  - Intra-service: MCA <-> CLM CB Account
  - Intra-service: CLM CB Account -> CLM CB Account
  - Intra-service: MCA -> Overnight Deposit Account
  - Inter-service: MCA -> cash account in another service (i.e. RTGS, T2S, TIPS)
  - Inter-service: CLM CB Account -> cash account in another service (i.e. RTGS, T2S, TIPS)

# Cash transfer orders and cash transfers in CLM

## Liquidity Transfers – Standing orders

- Standing orders are processed at a certain event during the business day.
- In case of **insufficient funds on the MCA**
  - a partial execution is possible (also with the amount 0,00 €).
  - standing orders with the same execution event will be processed „pro rata“.
  - the amounts not processed due to partial execution will not be queued (i.e. no further processing)



# Cash transfer orders and cash transfers in CLM

## Liquidity Transfers – Processing rules

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### Across services

- **FIFO principle** for the processing of liquidity transfers
- **MCA transactions** have a **higher priority** than transactions on the RTGS DCA.
- **Intra-service liquidity transfer** only if
  - all MCAs are part of the same liquidity transfer group or
  - a CLM CB account is involved.
- Liquidity transfers are generally **not queued** but
  - executed immediately (full, partial) or
  - rejected.
  - Exception: automated liquidity transfers on the RTGS DCA
- **Rule-based liquidity transfers** (floor/ceiling → see liquidity management) will only be executed if the account holder has defined them in CRDM in advance.
- Speciality in CLM:
  - **Partial settlement only** for rule-based, automated liquidity transfers and standing orders

# Cash transfer orders and cash transfers in CLM

## Liquidity Transfers – Processing rules

### Across services

- The **order** (priority; 1 = high ...) of the **tapping of liquidity** in CLM is **pre-defined**.

### Example central bank operation in CLM

- Reserved part for CBOs on the MCA
- Non-reserved part on the MCA
- Non-reserved part on the RTGS DCA
- Reserved part for transactions with „high“ priority
- Reserved part for transactions with „urgent“ priority

Business case CLM	Tapping of liquidity reservation				
	MCA		Linked RTGS DCA <sup>41</sup>		
	CBOs	Non-reserved	Urgent (U)	High (H)	Non-reserved
Credit line decrease	2	1	5	4	3
CBOs (including cash withdrawal; except credit line decrease)	1	2	5	4	3
Liquidity transfer – not related to CBOs		1			

### Example Liquidity Transfers in CLM

- Only non-reserved part of the MCA



# Cash transfer orders and cash transfers in CLM

## Liquidity Transfers – Processing rules

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### Speciality – automated liquidity transfer

- In case of insufficient funds on the MCA for the execution of
  - central bank operations (CBO) or
  - seizure of fundsan **automated liquidity transfer pulling liquidity from the RTGS DCA** will be executed.
- The respective order is given **highest priority over all other pending transactions** in RTGS.
  - In case of **insufficient funds** on the RTGS DCA the automated liquidity transfer will be **queued**.
  - Any **incoming liquidity** on the RTGS DCA is **transferred stepwise to the MCA** in CLM until the originally instructed amount of the automated liquidity transfer order is fully executed. Until then the RTGS DCA will be blocked for settlement.
- In case of **incoming liquidity** on the MCA,
  - a **new automated liquidity transfer** with the new (remaining) amount will be sent to RTGS. The previous order will be rejected by RTGS.
  - the **automated liquidity transfer will be deleted**, if the incoming liquidity on the MCA is sufficient for the execution of the pending CBOs or seizure funds.

CLM UDFS 5.4.3.1

# CLM

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Minimum Reserve Management and interest calculation

# Minimum Reserve Management and interest calculation

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- Possibilities for the **minimum reserve fulfilment** in CLM:
  - Direct
  - Indirect through a leading CLM account holder (CLM UDFS v2.1 chapter 3.3 and 5.5.1)
  - In a pool of reserve accounts
  - Not subject to minimum reserves (e.g. (non-)Euro CBs)
- **Direct holding of minimum reserves**
  - Considering own **accounts** (MCAs, DCAs in RTGS, T2S and TIPS) **of the same party**
  - Definition of a **leading CLM account holder** (CLM account holder himself) for the
    - Minimum reserve management
    - Calculation and settlement of interest on minimum reserves, excess reserve and other purposes
  - Definition of a **default MCA** (also used for central bank operations)
- **Indirect holding of minimum reserves through a leading CLM Account Holder**
  - Possibility to hold minimum reserves through an **intermediary at the same central bank**
  - All holdings of institutions using an intermediary to fulfil the minimum reserve requirements will be defined as (non-exempt tier of) **excess liquidity holdings**.

CLM UDFS 5.5.1

# Minimum Reserve Management and interest calculation

## Minimum reserve fulfillment

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- **Holding minimum reserves in a pool of reserve accounts**

- Possibility to hold minimum reserves on accounts (in CLM, RTGS, T2S and TIPS) **across different parties** (CLM Account Holder at the same central bank)
- Taking into account the balances on all accounts belonging to the pool
- Definition of a **leading CLM Account Holder**
- Pooling is only possible at the same central bank – **no cross-border pooling**
- Interest payments are settled on the **default MCA of the leading CLM account holder**
- **Please note:** A pool may only consist of parties belonging to the same legal entity!

- It is not possible for a single CLM Account Holder to have access to both functions “Pool of reserve accounts of different parties” and “Indirect holding of minimum reserves through a leading CLM Account Holder”.

- **Not subject to minimum reserves (e.g. (non-)Euro CBs)**

- Institutions may be exempt from the fulfilment of their minimum reserve requirements upon request or in the reserve maintenance period in which an institution will cease to exist.

# Minimum Reserve Management and interest calculation

## Minimum reserve fulfillment

---

- Different amounts will be taken into account
  - **Minimum reserve requirement:** Amount that needs to be held in average within the maintenance period
  - **Minimum reserve fulfilment:** Amount that was held in average during the maintenance period
  - **Excess reserve:** Amount that was in average held above the minimum reserve requirement
    - Breakdown in a two-tier system – exempt and non-exempt tier
- Decision of the Governing Council to introduce a two-tier system for remunerating excess liquidity holdings with two different interest rates
- The excess reserve interest rate “exempt tier”: it is applied to the excess reserve amount up to/equal to the value “Minimum reserve requirement \* n” (the so called “excess reserve exemption amount”). “n” is the “Factor for the calculation of the excess reserve exemption amount” and limited as follows:  $99.99 \Rightarrow n \geq 0$  (**Note:** the possibility to use the value ‘0’ allows the “deactivation” of the feature, i.e. the exempt tier of excess liquidity holdings would be set to zero for all institutions).
- The excess reserve interest rate “non-exempt tier”: it is applied to the excess reserve amount beyond “Minimum reserve requirement \* n” (the so called “excess reserve remuneration amount”).

# Minimum Reserve Management and interest calculation

## Calculation of minimum reserve fulfillment

---

- CLM needs the **EoD balances of all relevant accounts held in the TARGET Services** (provision through general ledger files)
  - Balances on MCAs in CLM
  - Balances on DCAs in RTGS, T2S and TIPS Accounts
  - Additionally the balances of **cash handling accounts** can be included

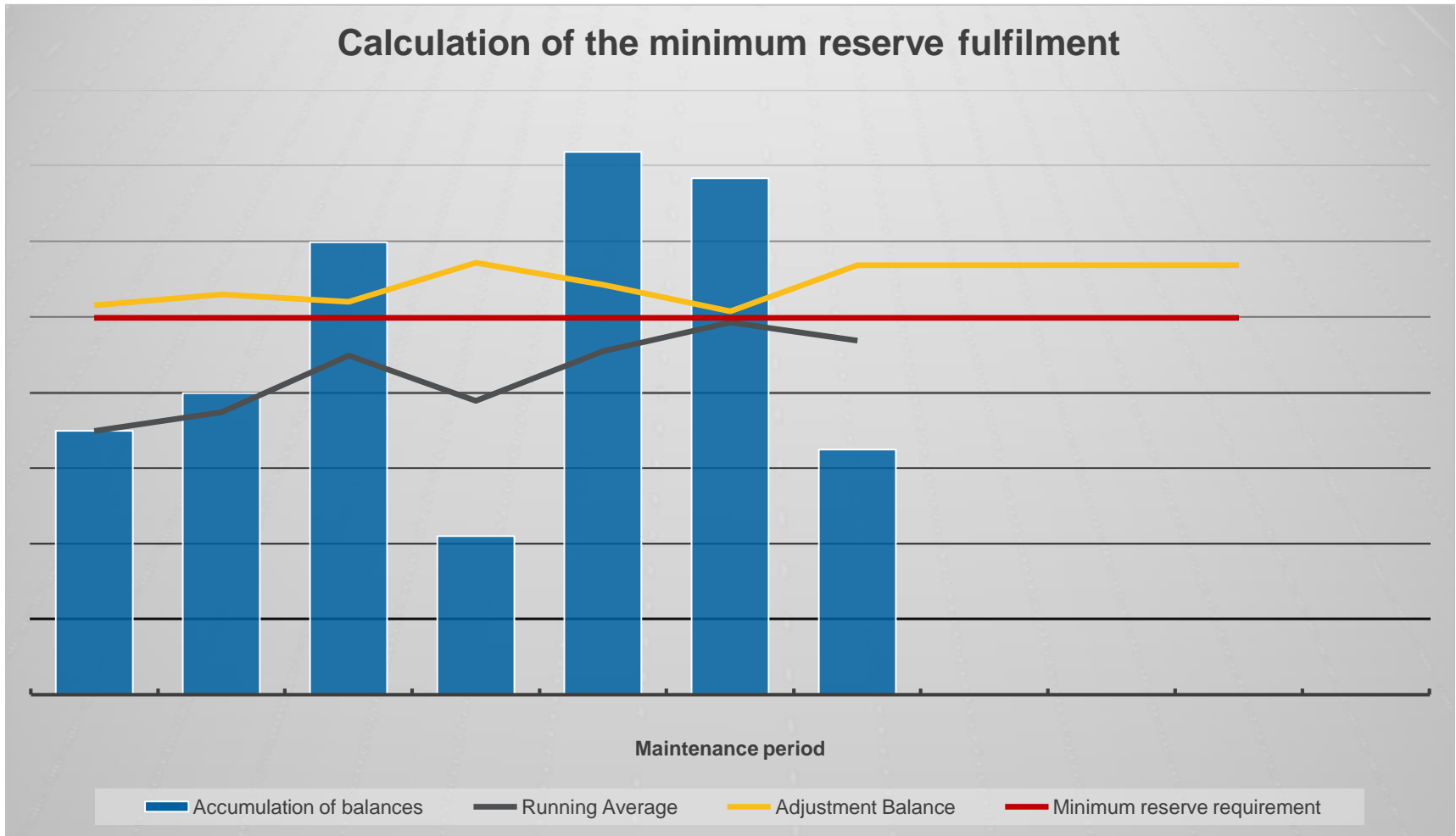
### Daily calculations

- Having received all EoD balances to be considered, CLM executes the following calculations for the current maintenance period on a daily basis
  - **Accumulation of balances:** Building the sum of all relevant EoD balances of the cash accounts to be included in the minimum reserve requirement
  - **Running average:** Calculated as the arithmetic mean of the accumulated balances from the first business day of the current maintenance period until the day before the next business day
  - **Adjustment balance:** CLM compares the running average with the minimum reserve requirement. In case the running average is below the minimum reserve requirement, the adjustment balance is the amount that is needed at the end of each business day in order to fulfil the minimum reserve requirement on a daily basis until the end of the maintenance period.
- The calculations are performed for each party or for the pool of reserve accounts.

CLM UDFS 5.5.2 and 5.5.3

# Minimum Reserve Management and interest calculation

## Calculation of the minimum reserve fulfillment



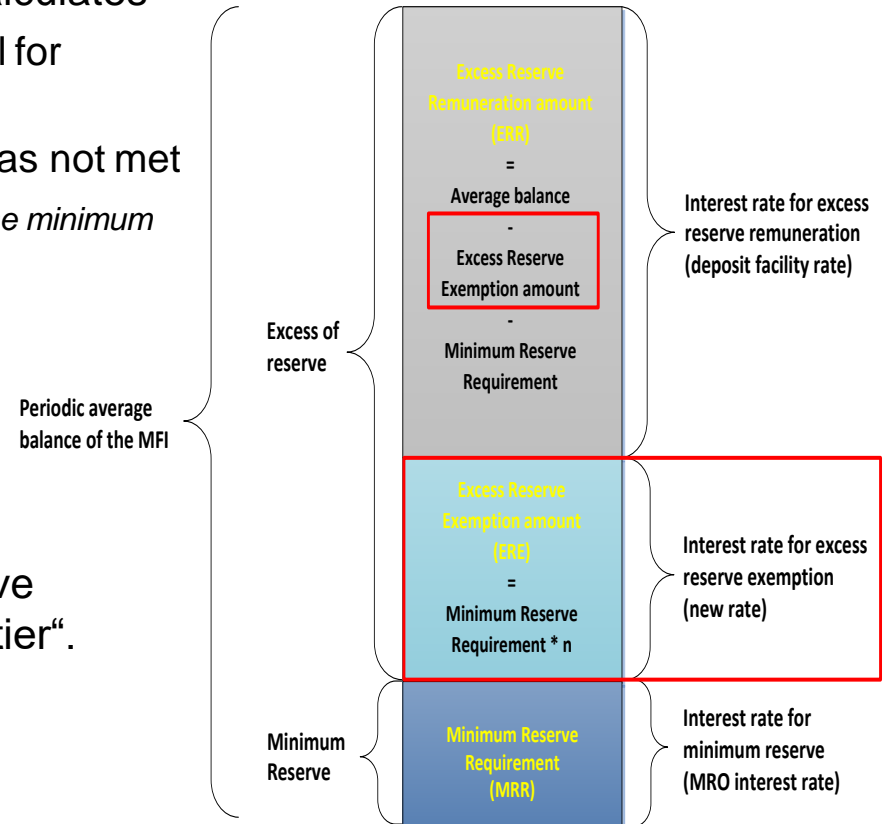
CLM UDFS 5.5.2 and 5.5.3

# Minimum Reserve Management and interest calculation

## Calculation of minimum reserve fulfillment

### Periodic calculations

- At the end of the **maintenance period** CLM calculates
  - The **interest** to be paid to the party or the pool for holding the minimum reserves
  - **Penalties**, if the minimum reserve fulfillment was not met
  - The **„exempt tier“** incl. the **interest** (currently the minimum reserve requirement multiplied with 6 is free of interest)
  - The **„non-exempt tier“** incl. the **interest**
  - **Interest for possible other purposes**
- If the minimum requirement is set to 0 all positive balances will be handled like the „non-exempt tier“.





# Minimum Reserve Management and interest calculation

## Minimum reserve fulfillment

---

### Generate payment orders

- At the end of the maintenance period CLM creates the following payment orders
  - **Interest payment** for the minimum reserve fulfilment
    - In case of an interest rate of 0.00 % no payment order is created.
  - **Payment orders related to penalties**
    - The central bank has to decide on the penalty rate and authorise the penalty
  - **Interest payment** for the „*exempt*“ and „*non-exempt*“ tier
    - In case of an interest rate of 0.00 % no payment order is created.
- **Example I: CLM account holder receives interest**
  - Credit on the Default MCA of the leading CLM account holder and debit on the CLM CB accounts of the central bank (pacs.009)
- **Example II: CLM account holder has to pay interest**
  - Debit on the Default MCA of the Leading CLM Account Holder and Credit in the CLM CB Account of the Central Bank (pacs.010)

*According to CSLD CR 0031 Two-tier excess liquidity remuneration*

CLM UDFS 5.5.5

# CLM

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## Standing Facilities Management

# Standing Facilities Management Overview

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- With the help of standing facilities liquidity can be absorbed or provided **overnight**.
- Two types
  - **Overnight deposit facility**
  - **Marginal lending facility**
    - Marginal lending on request
    - Automatic marginal lending
- Both will be booked in CLM as **central bank operations**.
- Can be used by **monetary policy counterparties**.

# Standing Facilities Management

## Overnight deposit

---

- The central bank creates an **overnight deposit account** in the name of the monetary policy counterparty (**owner** of the account is the **central bank**)
  - Access for the CLM account holder through the attribute „linked account“
- Liquidity will be manually transferred to the overnight deposit account (camt.050 or U2A)
  - Liquidity can be provided from an MCA, RTGS DCA, TIPS DCA or a sub-account
- The CLM account holder can send a liquidity transfer to **reduce the overnight deposit facility** until the „*General cut-off for standing facilities*“ (reverse transaction) (18:15 / 18:30 on the last day of the minimum reserve period)
- Liquidity transfers will be executed immediately and will not be placed in the queue or partially settled.
- The **reimbursement incl. interest** are performed on the **next business day** ~ 19:00.

### Reimbursement on the next business day

- CLM generates the following cash transfer orders around 19:00 **automatically**
  - Liquidity transfer for the **reimbursement** to the default MCA of the CLM account holder
  - **Positive interest rate:** Payment order for the interest payment crediting the default MCA of the CLM account holder
  - **Negative interest rate:** Payment order for the interest payment debiting the default MCA of the CLM account holder
  - **Interest rate of 0.00%:** no payment order generated
- The reimbursement and interest payment are two independent cash transfers.

CLM UDFS 5.6.1

# Standing Facilities Management

## Marginal Lending on request

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- Central Bank opens a dedicated **marginal lending account** in the name of the monetary policy counterparty (**owner** is the **central bank**)
  - Access of the CLM account holder through the attribute „linked account“
- Marginal lending on request is requested by the **CLM account holder with the central bank**
- Marginal lending on request can be requested until „*CB cut-off for the use of marginal lending on request*“ (18:40 / 18:55 on the last day of the minimum reserve period)
- The **reimbursement on the next business day (t+1)** and the processing of the **interest** will take place in CLM at around 19:00
  - CLM generates a liquidity transfer for the reimbursement and a payment order for the interest payment (until go-live of ECMS)
  - CLM uses the interest rate for the marginal lending

### Reimbursement on the next business day

- The **liquidity transfer for the reimbursement** debits the MCA of the CLM account holder and credits the marginal lending account
- The **payment order for the interest** credits the account of the central bank and debits the MCA of the CLM account holder
  - In case of an interest rate of 0.00 % no payment order is generated

# Standing Facilities Management

## Automatic Marginal Lending

---

- Automatic marginal lending is used to **turn an intraday credit into an overnight credit**, if the aggregated balance of an institution is negative
  - Aggregated balance: Sum of all balances of a party's DCAs and MCAs
- Pre-condition for the use of the automatic marginal lending is being a **monetary policy counterparty**
- Central Bank opens a dedicated **marginal lending account** in the name of the monetary policy counterparty (**owner** is the **central bank**)
  - Access of the CLM account holder through the attribute „linked account“
- This is an automatic process performed by CLM at the end of the business day
  - Before initiating the calculation CLM needs to receive all EoD balances from RTGS, TIPS and T2S
  - Debiting the marginal lending account via a connected payment

### Reimbursement on the next business day

- The payment orders for the **reimbursement** of the automatic marginal lending and the **interest payment** are **automatically generated** by CLM
  - **Reimbursement**: CLM generates a connected payment debiting the MCA of the CLM account holder and crediting the marginal lending account
  - **Interest payment**: „normal“ payment order
    - In case of an interest rate of 0.00% no payment order is generated

# CLM

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## Information Management for CLM

# Information Management Overview

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- A participant can „pull“ various information from the system or can configure upfront in the system to send necessary information to him („push“)
- Certain messages (e.g. notifications) and reports **will not be provided automatically**
  - **Error messages** (e.g. not successful technical validation) will be sent **automatically**
  - Positive notifications and further information need to be **ordered**
    - Message subscription
    - Report configuration
- Experiences from **T2S** are taken into account
  - „T2S talks too much“
  - Message subscription and report configuration already exist



# Information Management

## Message subscription

---

- CLM and RTGS do not send status updates and notifications automatically
  - Ordering via **message subscription** necessary
  
- Ordering of **messages based on pre-defined parameters** in CRDM
  - CLM and RTGS
    - admi.004 (broadcast, e.g. information on reject- and till-time)
    - camt.019 (e.g. information on the business day)
    - camt.054 (debit/credit-Notification)
    - pacs.002 (e.g. notification on the successful settlement)
  - (only) RTGS
    - camt.029 (only in case of a positive forwarding of a recall)
  - CRDM
    - acmt.010 (information on the status of an account opening / modification)
    - reda.016 (information on the status of the creation or modification of a party)
    - camt.025 (information on the status of the creation or update of a standing order for liquidity transfer, limit or reservation)
  - BILL
    - camt.077 (BillingReport)

# Information Management

## Message subscription parameter

MESSAGE TYPE	MESSAGE STATUS	PARTY	CASH ACCOUNT	MULTI-ADDRESSEE BIC	BUSINESS CASE	PRIORITY	UNDERLYING MESSAGE TYPE
SystemEventNotification (admi.004)	No	No	No	No	No	No	No
ReturnBusinessDayInformation (camt.019)	No	No	No	No	No	No	No
ResolutionOfInvestigation (camt.029)	No	No	Yes	Yes	No	No	No
BankToCustomerDebitCreditNotification (camt.054)	No	No	Yes	No	Yes	No	No
PaymentStatusReport (pacs.002)	No	No	Yes	Yes	No	Yes	Yes
AccountRequestAcknowledgement (acmt.010)	Yes	Yes	Yes	No	No	No	No
PartyStatusAdvice (reda.016)	Yes	Yes	No	No	No	No	No
Receipt (camt.025)	No	No	No	No	No	No	No
BillingReport (camt.077)	No	No	No	No	No	No	No

# Information Management

## Message subscription parameter

- Example for the message subscription of a **camt.054** (credit account A)

MESSAGE SUBSCRIPTION RULE SET					
Name	CREDIT_NOTIFY_ACCOUNT_A				
Description	Receive credit notifications for account A				
Interested Party	Payment Bank A				
Valid From	1-July-2019				
Valid To	-				
RULE SET	VALID FROM	VALID TO	MESSAGE TYPE	CASH ACCOUNT	DEBIT/CREDIT INDICATOR
Rule 1	2019-07-01	-	BankToCustomerDebitCreditNotification	ACCOUNT A	CRDT

- Limitation to certain business cases possible (examples)
  - Only for immediate liquidity transfers
  - Only for automated liquidity transfers or
  - Only for connected payments

# Information Management

## Report configuration

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- Ordering of the **statement of accounts in CRDM** via „report configuration“
  - The statement of accounts will not be provided automatically
- The statement of accounts can be ordered **for all CLM and RTGS accounts**
  - Report configuration for each respective account necessary in CRDM
  - A statement of accounts contains the information of **one account** (deviation from T2S)
- Provision **U2A or A2A**
  - U2A – „pull“ – download from GUI\*
  - A2A – „pull“ – query via admi.005, provision of camt.053
  - A2A – „push“ – automatic provision at the end of the day as camt.053
- The statement of accounts is created during the **EoD** (18:00-18:45)
  - A statement of account can be queried (U2A or A2A – „pull“) until a new statement of account is created the next business day.

\*U2A only CLM Account Holder – display of message on screen

CLM UDFS 3.2.4 and 5.7.2  
RTGS UDFS 3.2.4 and 5.6.2

# Information Management

## Report configuration

- **Parameter** in CRDM (example: CLM)

Parameter	Mandatory/optional	Possible values	Further information
Report type	Mandatory	Statement of accounts	
Concerned account	Mandatory	Cash Account	
Possible recipient of a report	Mandatory	CLM Actor	
Communication channel	Mandatory	Push mode, pull mode	
Valid from	Optional	Date	If not stated, the next business date shall be used by default.
Valid to	Optional	Date	The field „Valid To“ is the only field that can be amended after the report configuration has been stored.

- Provision to the account holder according to the **routing** configuration
- For reports camt.053 (statement of accounts) each party can define exactly one PTA deviating from the default routing the message shall be send to (separate report configuration necessary)

CLM UDFS 3.2.4 and 5.7.2  
RTGS UDFS 3.2.4 and 5.6.2

# Information Management

## Broadcasts and queries

- **Broadcast** functionality available (U2A and/or A2A)
  - Creation automatically by CLM or RTGS when reaching pre-defined events or by the central bank or the operator
  - U2A-broadcast as „pop-up“-window in the GUI
  - For receiving an A2A-broadcast a message subscription is necessary
- **Queries**
  - **Real-time** (pre-defined) **queries** in CLM and RTGS possible
  - U2A and A2A possible

Query type	Initiation via GUI (U2A mode)	Initiation via XML message (A2A mode)
Account statement query	X	X
Audit trail for CLM query	X	-
Available liquidity CLM query	X	X
Available liquidity overall query	X	-
Broadcast query	X	-
Cash transfer query	X	X
Current reservations query	X	X
Event query	X	X
File query	X	-
Message query	X	-
Minimum reserve fulfilment query	X	X
System time query		X
Task queue query	X	-

CLM UDFS 5.7.3 and 5.7.4

# CLM

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Central Banks specific functions

# Central Banks specific functions

## Processing of cash transfer orders

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### Specific actions applicable for CBs in CLM (U2A only) in relation to their community:

- Agree/disagree on cash transfer orders related to blocked parties/accounts;
- Create operations-related broadcasts.

### Central bank operations

- A CB can send cash transfer orders related to CBOs depending on the business case as:
  - FinancialInstitutionCreditTransfer (**pacs.009**)
  - FinancialInstitutionDirectDebit (**pacs.010**)
  - LiquidityCreditTransfer (**camt.050**)
- The CB has the right to direct debit **any MCA of its community** without needing a direct debit mandate. (A direct debit mandate is required to debit the MCA of a CLM Account Holder of another CB.)



# Central Banks specific functions

## Query management

### List of CB specific queries

Query type	Initiation via GUI (U2A mode)	Initiation via XML message (A2A mode)
Aggregated available liquidity in CLM for the whole banking community query	X	-
Aggregated liquidity for all cash accounts query (only for crisis managers)	X	
Balances of all CLM dedicated transit accounts query	X	-
Business life cycle query	X	-
General Ledger query	X	X
Liquidity on Banking Group level query	X	-
Liquidity on Banking Group level query (activated only upon crisis managers decision)	X	-
Minimum reserve requirements query	X	X
Minimum reserve of a banking community query	X	X
Cash transfers per status for the whole banking community query	X	-
Penalty query	X	X
Standing facilities use of the respective banking community query	X	X
Usage of marginal lending query	X	-
Usage of overnight deposit query	X	-

CLM UDFS 8.6

# Central Banks specific functions

## Business/liquidity monitoring for CBs

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- Providing data on the system according to an organised and human-readable form
- Monitoring allows the detection of potential problems in an early and accurate manner and carrying out the helpdesk activities.
- The main objectives for monitoring are:
  - to verify the correct **functioning of the technical infrastructure**;
  - to provide aggregated **information up-to-date** in case of needs;
  - to give the CB an **overview of the liquidity situation** of its account holders.
- **Specific queries** are available to CBs to monitor the business and the overall liquidity situation.

# Central Banks specific functions

## Contingency upload of A2A files and messages in U2A

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- Possibility for CBs to **forward messages** (except queries) **or files to CLM** in case their participants' connection to the NSP is interrupted or the provider has problems to process messages/files.
- **Four-eyes principle:** Two users have to upload the message/file independently. The system inspects the checksum of the messages/files.
- To continue with the upload the message/file the DN of the (original) sender, the Business signature DN and the NSP have to be inserted.
- CLM executes the **same validations** which would be executed in case of a **standard A2A channel delivery**.
- The message/file to be uploaded **does not need a signature**. Present signatures will not be checked by CLM.

# CLM

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Business day

## Common concepts in T2 Calendar and business day

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- **T2 calendar defines working and closing days for RTGS and CLM**
- **Working Days: Monday – Friday**
- **Closing Days: Saturday, Sunday and defined closing days per currency**
- **Closing Days for Euro:**
  - New Year's Day (1 January);
  - Good Friday (Catholic/Protestant);
  - Easter Monday (Catholic/Protestant);
  - Labour Day (1 May);
  - Christmas Day (25 December);
  - Boxing Day (26 December).

# Common concepts in T2

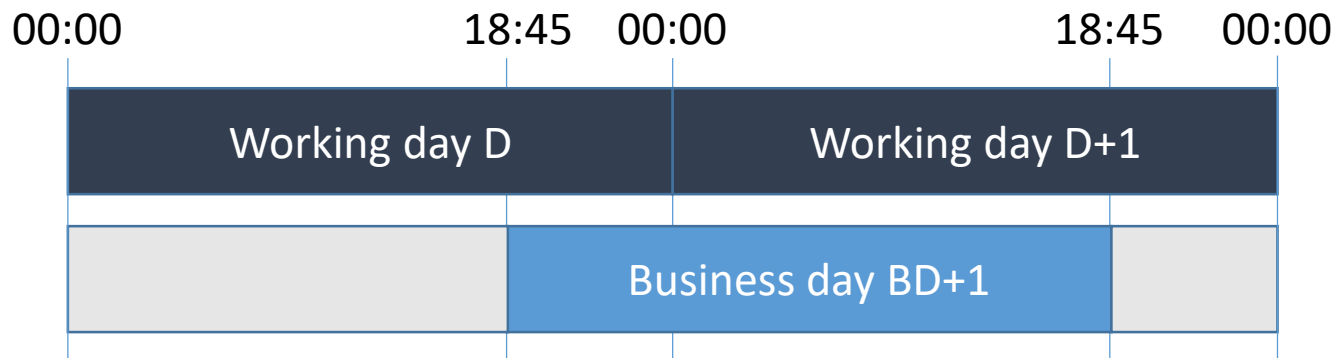
## Calendar and business day

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### The business day

- is managed by BDM (Business Day Management)
- consists of different business day periods
- contains a set of predefined events
- has dedicated settlement windows which are closed by cut-offs.

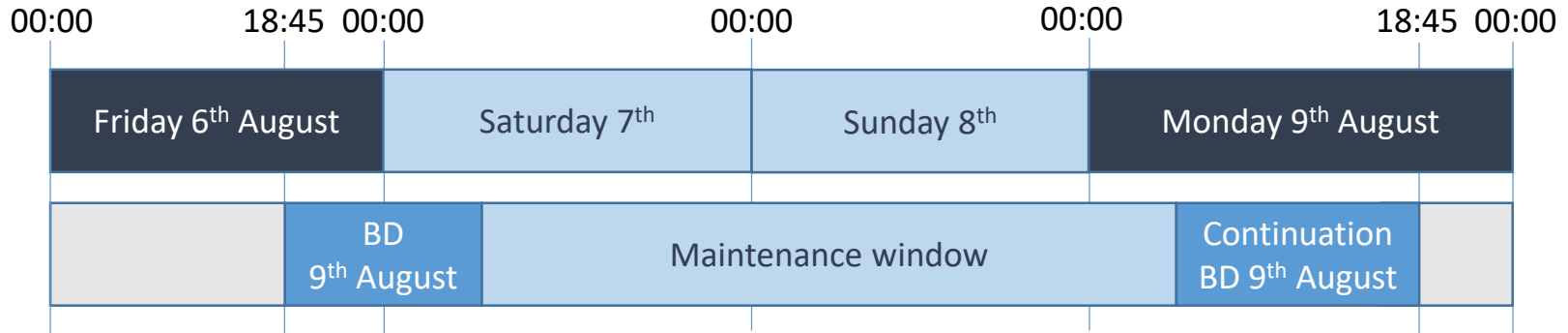
### Standard business day:



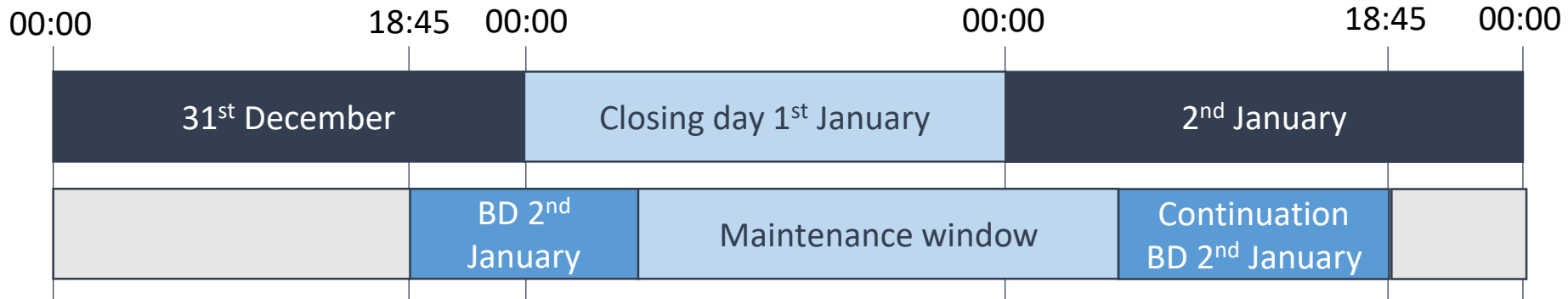
# Common concepts in T2

## Calendar and business day

### Saturday and Sunday as closing days



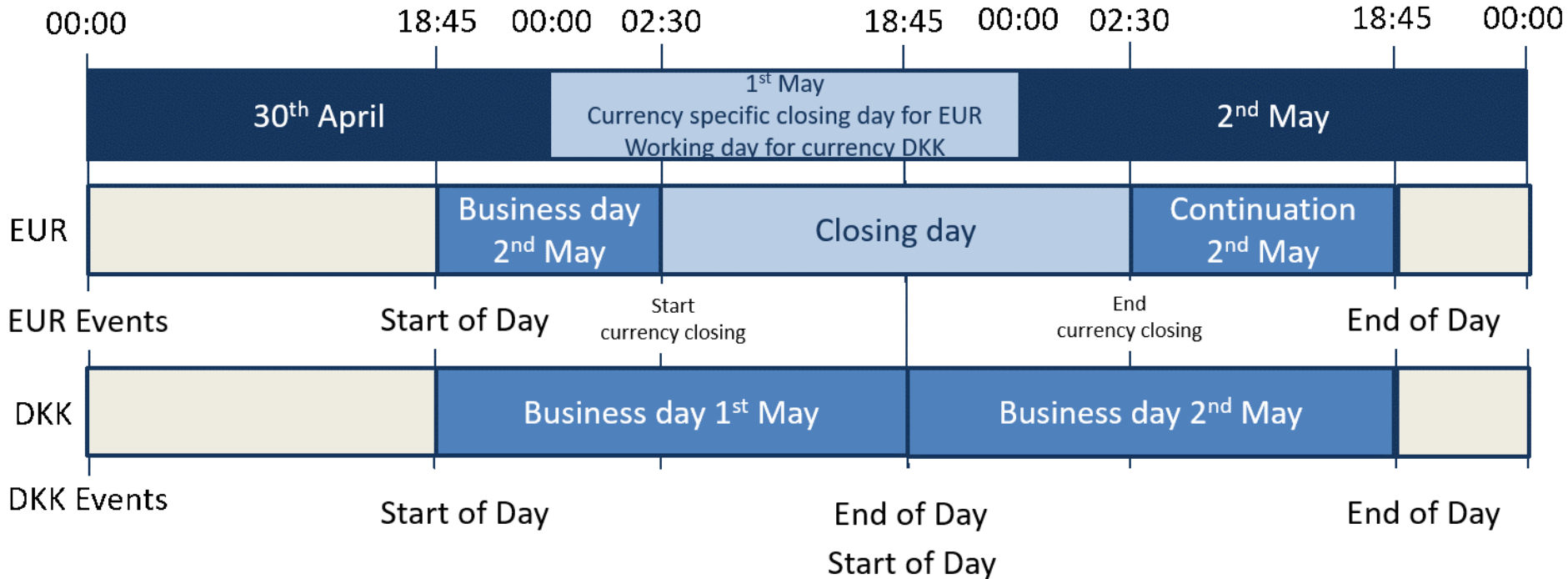
### Closing Day for all currencies during the week:



# Common concepts in T2

## Calendar and business day

Currency-specific closing day during the week:





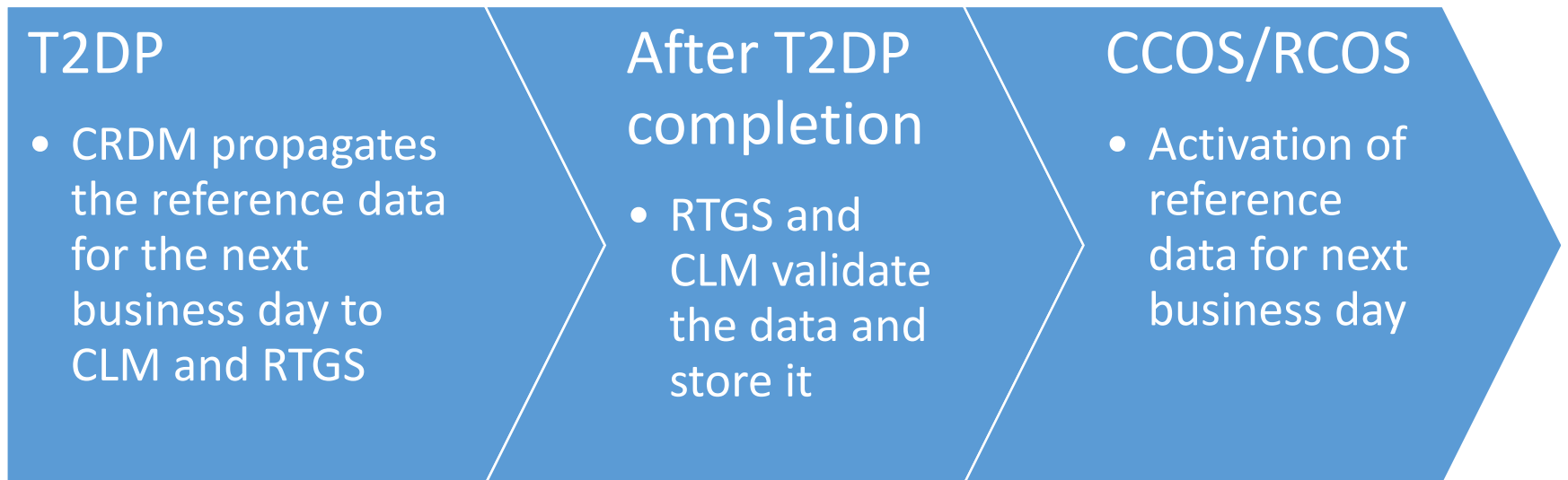
## Common concepts in T2 Maintenance window

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- **System maintenance processes take place in the maintenance window**
- **Two types of maintenance windows:**
  - Optional maintenance window
  - Non-optional maintenance window
- **During the maintenance window no access to:**
  - CLM GUI
- **Files and individual messages received via A2A are parked for processing until the maintenance window is closed.**

# Common concepts in T2 CRDM data propagation

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## Common concepts in T2 Cut-off

### RTGS

- Cut-off for customer payments
- Cut-off for RTGS RTS II

### CLM

- Cut-off for CLM RTS
- General cut-off for standing facilities
- CB cut-off for standing facilities

- Operations arriving later than the planned or revised time linked to the cut-off event are rejected.
- Processing linked to events is triggered at the effective time.

# CLM business day

## Periods of the business day

---

- **Periods of the CLM business day:**
  - Start-of-day (SoD);
  - CLM real-time settlement (CLM RTS);
  - Maintenance window (for TARGET Services ) if activated;
  - EoD.
- **Planned times of these periods dependent from business day schedule.**

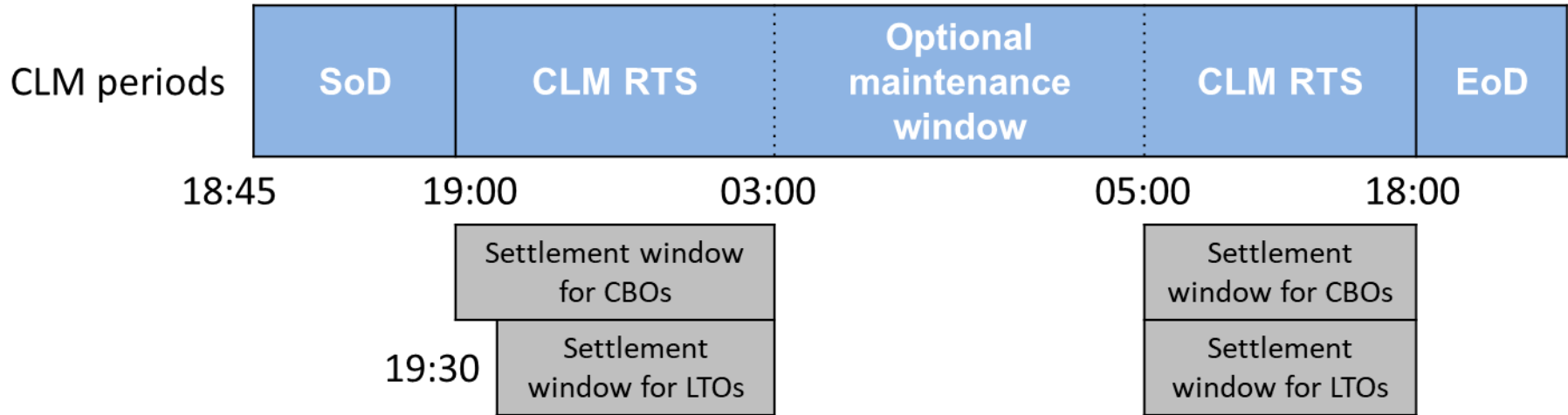
**There are two types:**

  - business day with non-optional maintenance window;
  - business day with optional maintenance window.

# CLM business day

## Periods of the business day

### Business Day with optional maintenance window

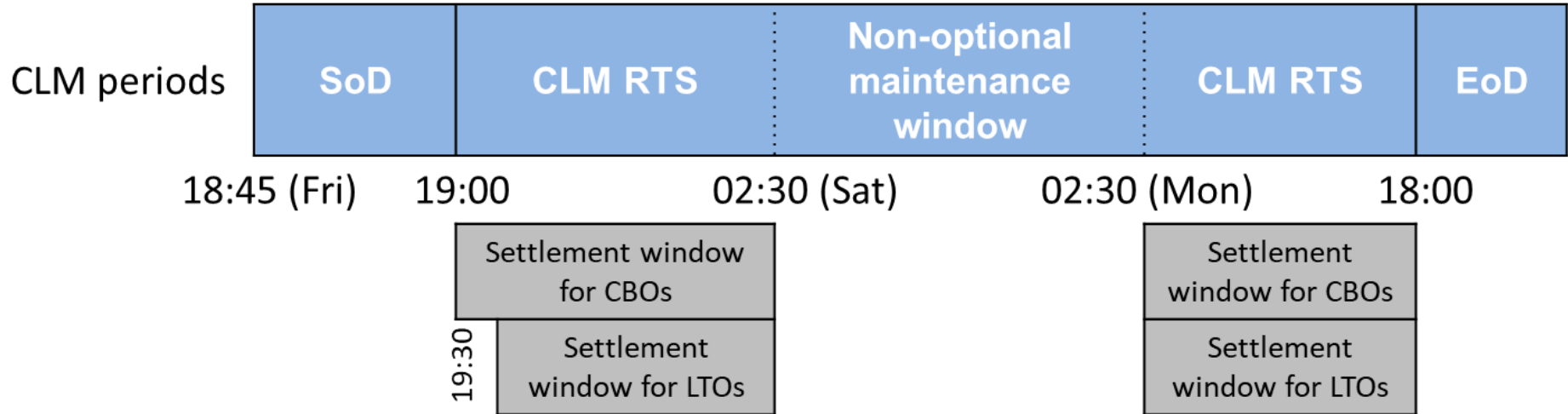


- **Maintenance window for Target Services is ad-hoc activatable by operator – procedure according to MOP**

# CLM business day

## Periods of the business day

**Business day Monday with non-optional maintenance window:**



- **Business day Monday starts on calendar day Friday**
- **CLM is in maintenance window from Saturday 02:30 till Monday 02:30**

# CLM business day

## Start-of-day period (18:45 - 19:00 CET)

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### Start-of-Day:

- preparation of new business day
- starts with event CSOD 'Change of business day'

CLM processes	Details
Change of business day	<ul style="list-style-type: none"><li>• changes the business date according to T2 calendar</li><li>• new business day schedule is created</li></ul>
Processing of standing order reservations in CLM	<ul style="list-style-type: none"><li>• executes the standing order reservations for CBOs.</li></ul>
Revalidation of warehoused payments	<ul style="list-style-type: none"><li>• revalidation of warehoused payments against the new reference data</li></ul>

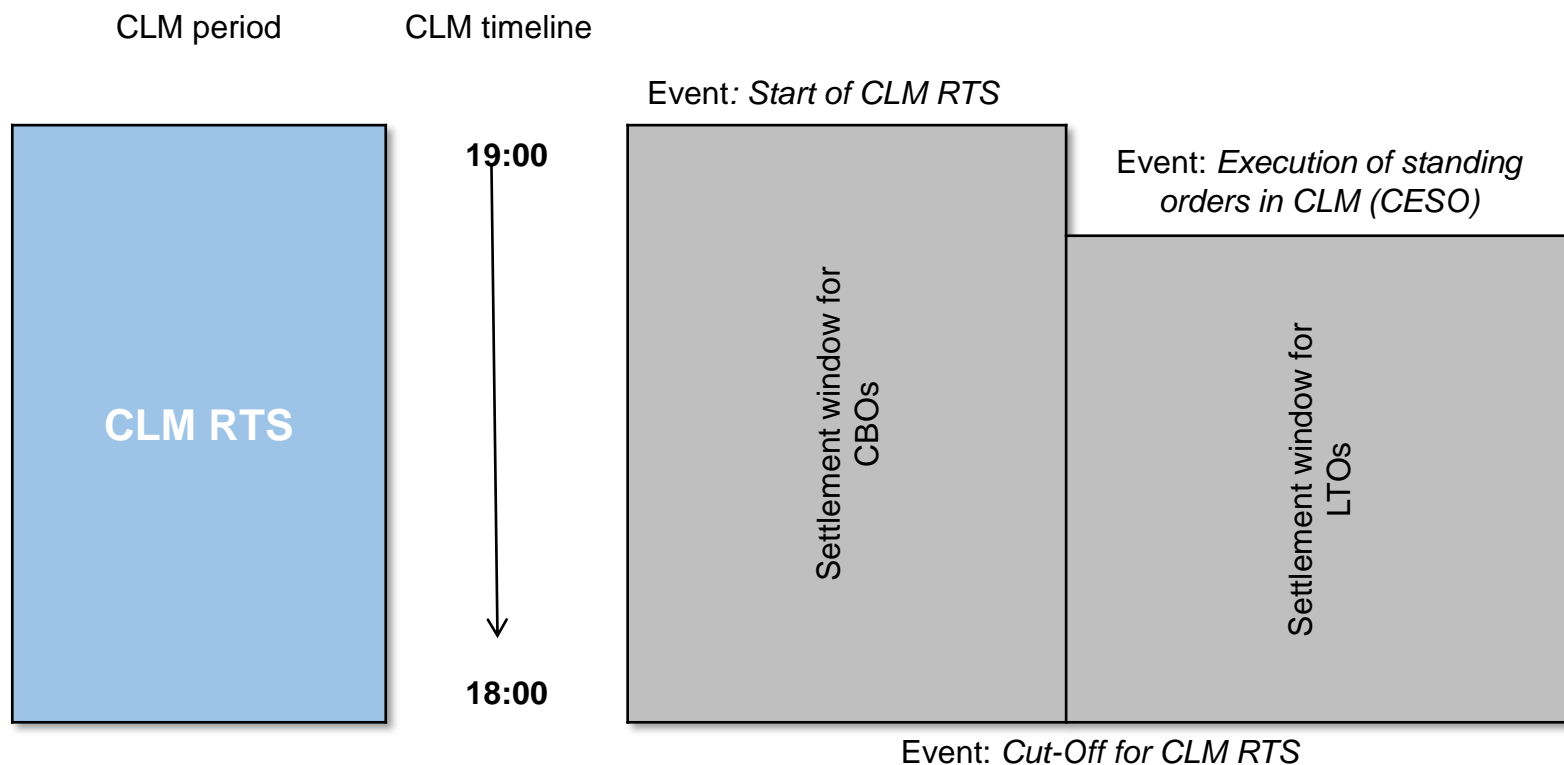
# CLM business day

## CLM RTS period (19:00 - 18:00 CET)

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### CLM RTS:

- main business day phase in CLM
- starts with event CRTI 'Start of CLM RTS'





# CLM business day

## CLM RTS period (19:00 - 18:00 CET)

### Settlement window for central bank operations

### Settlement window for liquidity transfer orders

Event CRTI Start of CLM RTS 19:00 CET

Reimbursement of marginal lending amounts (and the calculation and posting of interest until ECMS go-live)  
Refunding of overnight deposit

Start parking incoming liquidity transfers  
Start creating of automated liquidity transfers  
Start creating of rule-based liquidity transfers

# CLM business day

## CLM RTS period (19:00 - 18:00 CET)

**Settlement window for central bank operations**

**Settlement window for liquidity transfer orders**

Event CESO Execution of standing orders in CLM 19:30 CET

Processing of automated liquidity transfer orders

Processing of standing order liquidity transfers defined for CESO

Processing of rule-based liquidity transfers

Processing of immediate and parked liquidity transfers

# CLM business day

## Non-optional maintenance window (Saturday 02:30 – Monday 02:30)

**All CLM settlement windows**

Event CSMW Saturday 02:30 CET

**Non-optional maintenance window  
System maintenance processes**

Event CEMW Monday 02:30 CET

**Resuming of settlement windows**

The non-optional maintenance window is used for system maintenance processes on weekends and during closing days for all currencies.

# CLM business day

## Optional maintenance window (03:00 – 05:00 CET)

All CLM settlement windows

optional

Event CSOM 03:00 CET

**Optional maintenance window**  
**System maintenance processes**

Event CEOM 05:00

**Resuming of settlement windows**

When no non-optional maintenance window is scheduled the optional maintenance window can be activated by the operator in case of need. The non-optional maintenance window interrupts CLM RTS.

## CLM business day

### CLM RTS period (19:00 - 18:00 CET)

#### All CLM settlement windows

Liquidity transfer orders by CLM Actors and CBOs, except standing facilities, connected payments and credit line modifications arriving after planned or revised time of CCII are rejected.

#### Event CCII Cut-off for CLM RTS 18:00 CET

Execution of standing order liquidity transfer order defined for event CCII

Rejection of not finally processed payment orders, not finally processed reservation modifications and related task queue orders.

**CLM business day**  
**End-of-Day period (18:00- 18:45 CET)**

---

**Cut-offs during EoD:**

**1. CCSF General cut-off for standing facilities 18:15**

New overnight deposit orders (setting-up and reverse) by CLM Actors are not accepted after the cut-off and are rejected.

**2. CCML CB cut-off for standing facilities 18:40**

New liquidity transfer orders for marginal lending on request by CBs are not accepted after the cut-off and are rejected.

New orders to update credit lines (via A2A, U2A and connected payments) are not accepted after the cut-off and are rejected.

## CLM business day End-of-Day period (18:00- 18:45 CET)

---

CLM event CCOS '*EoD – close of service*' marks the completion of EoD processes.

### Afterwards CLM

- fills DWH tables
- starts with the reference data activation for the new business day
- performs housekeeping activities