



EUROPEAN CENTRAL BANK
EUROSYSTEM

T2-T2S CONSOLIDATION

BUSINESS DESCRIPTION DOCUMENT

Reading Guide: any changes to the sections that were submitted for review in the past are marked with revision marks. Any new section is added without revision marks and their chapter/section title is highlighted

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1 INTRODUCTION

In spring 2016, the Eurosystem consulted the market on its vision for evolving the Eurosystem market infrastructures with regards to the Real-Time Gross Settlement (RTGS) as well as exploring synergies between TARGET2 and T2S¹. The vision was placed in the context of the capital markets union, which the European Commission was pursuing in parallel. On the basis of the feedback on the consultative report² and other Eurosystem considerations, the Governing Council approved the start of the investigation phase for the T2-T2S Consolidation project in September 2016 together with the approval of the investigation phase for TARGET Instant Payment Settlement (TIPS) and for Eurosystem Collateral Management System (ECMS) projects.

The aim of the T2-T2S Consolidation project is to consolidate and optimise the provision of the TARGET2 and T2S services and to address the increasing demand for having an effective facility for the provision of liquidity to existing and future Eurosystem payment and settlement services. For this purpose, the T2-T2S Consolidation project assessed four different work streams during the investigation phase:

- **Technical consolidation of the Eurosystem market infrastructures**, which will form the basis of the modernisation of the Eurosystem market infrastructures. A key objective is to be compliant with the latest cyber resilience directives, thus ensuring protection against cyber-attacks.
- **Consolidated and Harmonised Connectivity Solution**, creating a single gateway for Eurosystem market infrastructures based on the consolidation of connectivity and security components.
- **Functional convergence** into a single platform, which will allow the sharing of common components. It is important to highlight that ~~the RTGST2~~ and T2S will remain separate. In addition, it will also allow the extension of the Eurosystem RTGS services to other Central Banks in Europe that have not yet adopted the Euro, through the introduction of a multi-currency capability.
- **New RTGS services**. The “Task Force on Future RTGS Services”, comprising of Central Bank representatives and market participants, analysed the current scope of ~~the~~ TARGET2 and identified new potential features as well as opportunities to adapt, streamline and improve the existing services to the changing needs of the payment business.

In May 2017, the ECB submitted a set of the draft User Requirements Documents (URD) to the market for consultation; the documents were subsequently updated based on the feedback received.

¹ http://www.ecb.europa.eu/paym/t2/shared/pdf/professionals/RTGS_services_consultative_report.pdf

² http://www.ecb.europa.eu/paym/t2/shared/pdf/professionals/Feedback_RTGS_services_consultation.pdf

On 06 December 2017, the ECB Governing Council approved the start of the realisation phase of the T2-T2S Consolidation project as well as the T2-T2S Consolidation URDs v1.0.

1.1 PURPOSE OF THE DOCUMENT

The purpose of the Business Description Document is to introduce the functions and features of the future Eurosystem market infrastructures for real-time interbank and customer payments and for the central liquidity management from credit institutions and ancillary systems perspective to the end users. Its aim is to support the banking community in starting their internal preparation for the migration in November 2021. While this document provides a high-level overview of the new services, detailed information that is required by users for adapting their internal systems is provided in functional and technical specifications (e.g. User Detailed Functional Specification, User Handbook, documentation on Connectivity).

1.2 STRUCTURE OF THE DOCUMENT

The Business Description Document is divided into following chapters:

- **Chapter 1: Introduction** specifies the purpose and the structure of the document. In addition, this chapter provides a short overview of the current TARGET2/SSP (Single Shared Platform) functions that are not provided any longer by the future [T2Eurosystem services](#) for real-time interbank and customer payments, [for AS transactions](#) and the central liquidity management.
- **Chapter 2: High level overview of the future landscape** provides the global overview of the future [TARGET S](#) services – their key aspects and expected benefits.
- **Chapter 3: Treasury perspective** elaborates on the functions and features that shall support the treasury departments of the credit institutions to manage liquidity for their institution as well as for other users. This chapter gives also an overview of the possible account structures and explains the characteristics of different accounts and the interaction with Central Banks and ancillary systems.
- **Chapter 4: Transaction processing perspective** details the functions and features that are crucial for payment transaction processing by the credit institutions. This chapter clarifies the core features of the settlement processing engine – liquidity saving mechanisms and optimisation procedures as well as scheduling. In addition, the chapter elaborates on general principles for messaging and for contingency measures for participants.
- **Chapter 5: Ancillary system perspective** describes all functions and features in RTGS that an ancillary system shall be aware of.
- **Chapter 6: Connectivity perspective** paves the way for the users to connect to the future [TARGET Services and common components Eurosystem market infrastructures](#). The chapter provides the conceptual view of the roles and access rights and explains the migration approach.

The Business Description Document provides references to functional and technical specifications (once available) where detailed information can be found. In addition, cross-references are made also across different chapters in this document.

1.3 LIST OF REFERENCES³

The reader can find additional as well as more detailed information in the following project documentation (for delivery dates please consult the project plan):

- T2-T2S Consolidation User Requirements Document (URD) v1.1.1
 - URD on Central Liquidity Management (CLM) <http://www.ecb.europa.eu/paym/initiatives/shared/docs/8d677-t2-t2s-consolidation-user-requirements-document-central-liquidity-management-clm-v1.1.1.pdf>
 - URD on Future RTGS (RTGS) <http://www.ecb.europa.eu/paym/initiatives/shared/docs/bfa2d-t2-t2s-consolidation-user-requirements-document-future-rtgs-rtgs-v1.1.1.pdf>
 - URD on Shared Services (SHRD) <http://www.ecb.europa.eu/paym/initiatives/shared/docs/a21ce-t2-t2s-consolidation-user-requirements-document-shared-services-shrd-v1.1.1.pdf>
 - Glossary <http://www.ecb.europa.eu/paym/initiatives/shared/docs/28f0d-t2-t2s-consolidation-glossary-v1.1.1.pdf>
- User Detailed Functional Specifications (UDFS) for CLM
- User Detailed Functional Specifications (UDFS) for RTGS
- User Handbook (UHB) for CLM
- User Handbook (UHB) for RTGS
- Testing and Migration Documentation
- [Going Live with a Big Bang Approach Strategy](#)
- Training Documentation
- Connectivity dossier (incl. Network Connectivity Guide)

1.4 SUCCESSOR OF TARGET2

Today, the Eurosystem owns and operates TARGET2 as the RTGS system for euro settlement in Central Bank Money. The legal context of [the future T2RTGS and CLM](#) will rely on the existing legal framework to the largest extent and several functions continue like in TARGET2/SSP. Nevertheless there are a number of TARGET2 features and functions that are not provided in the new service due to change in message and communication standards, their very limited usage and the associated operational costs, system security or because the same result can be achieved with other functions.

³ The list of references as well as their versions and links will be modified once an updated version is available

Following non-exhaustive list of current features and functions are replaced in the future T2RTGS service:

- Communication based on FIN messages (*will be switched to ISO 20022*)
- SWIFT Y-copy mode (*will be switched to V-shape mode*)
- ~~AS procedure 1 “Liquidity transfer”, AS~~ procedure 2 “Real-time settlement” and AS procedure 3 “Bilateral settlement” (*can be handled with liquidity transfers and individual payments/payment files to/from the AS*)
- Home Accounting Module (HAM) (*replaced by CLM*)
- ICM (*will be replaced by CLM, ~~and~~ RTGS and CRDM GUIs*)
- Access via Internet in U2A mode (*will be replaced with a cost effective and easy access solution*)

Following non-exhaustive list of current features and functions are discontinued in the future T2 service RTGS:

- Liquidity pooling/virtual account and the related functionality (e.g. single payment queue, End of Day “levelling out” of balances)
- Interface for Proprietary Home Accounting (PHA) applications
- Services supporting “CB customer’s accounts”
- All current SWIFT specific features (e.g. SWIFT RBAC roles)

2 HIGH LEVEL OVERVIEW OF THE FUTURE LANDSCAPE

The Eurosystem provides market infrastructures for real-time interbank and customer payments, for AS transactions as well as for settlement of securities and will provide also instant payment settlement services. The landscape and requirements towards the future Eurosystem payment and settlement services have changed significantly and will continue to change, requiring especially an adequate and efficient features/facility for the provision of liquidity. Furthermore, in order to enable the consolidation across several services and to achieve the expected cost savings, functions that are required in various services will be provided once, centrally on a modular basis as far as possible and reasonable. This chapter provides a global overview of the future TARGET Service (T2, TIPS and T2S) Eurosystem market infrastructures and related common components – its main aspects and benefits.

2.1 KEY ASPECTS

The T2-T2S Consolidation project will technically modularise the currently provided market infrastructures and consolidate the respective functionalities where reasonable and possible. Depending on their nature, the functionalities are clustered into services or common components.

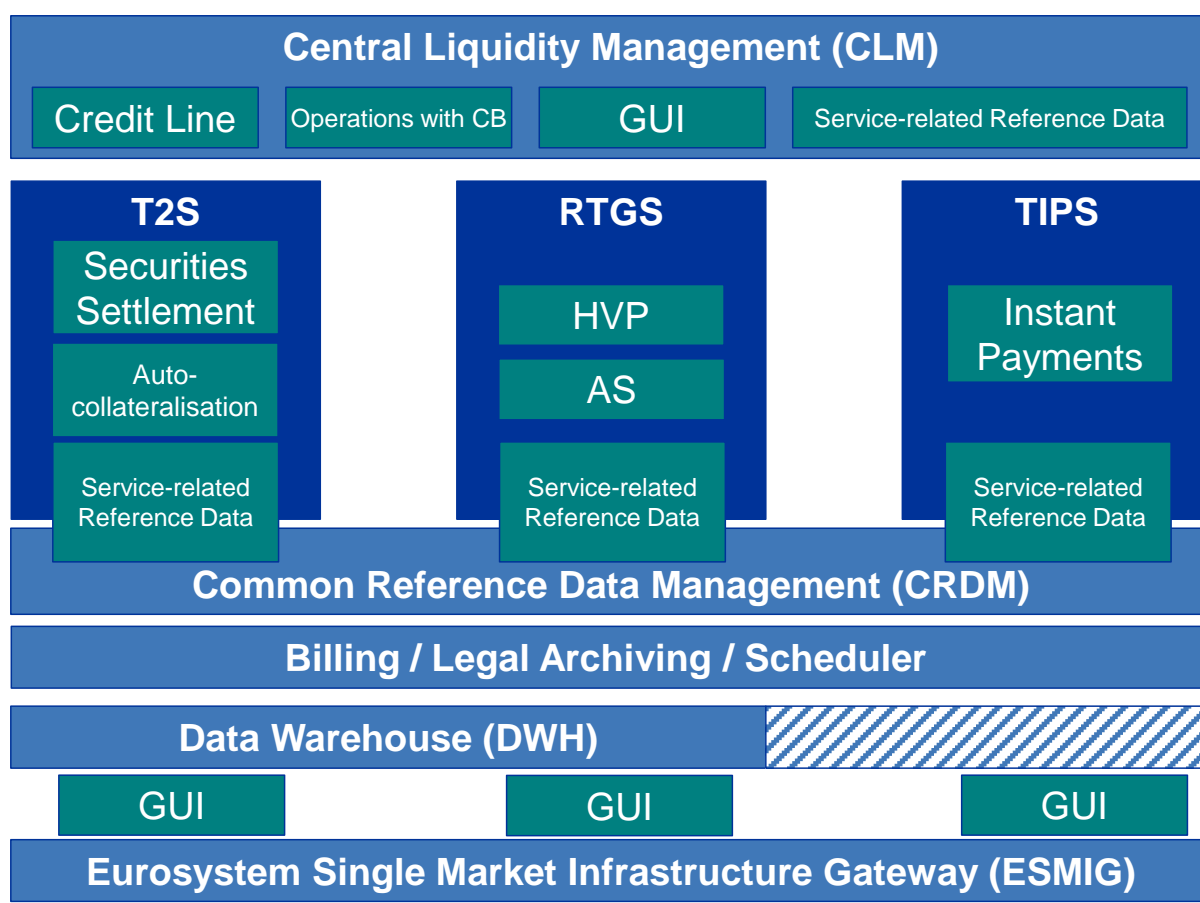


Figure 1: High level functional domains

2.1.1 **TARGET Services Eurosystem market infrastructures**

The family of the **TARGET Services Eurosystem market infrastructures** will consist of (1) **T2 (including Central Liquidity Management (incl. Central Bank Services) ~~and~~ ; ~~(2)~~ RTGS) (32) TARGET2-Securities**; and (43) TARGET Instant Payment Settlement (TIPS).

Adequate liquidity provisioning and clear allocation of liquidity across the different services will be ensured through the new **Central Liquidity Management (CLM)**. This new **function service** will also segregate all interactions of the credit institutions with their Central Bank in its role as Central Bank of Issue from the real-time interbank/customer payments as well as the ancillary system transactions. All credit institution's transactions with its Central Bank will be managed in CLM including the ones related to the **Central Bank Services**, such as Reserve Management and Standing Facilities. CLM will hold the Main Cash Accounts (MCA) of the credit institutions (see section [3.1.1 MAIN CASH ACCOUNT IN CENTRAL LIQUIDITY MANAGEMENT](#)), where they settle all Central Bank operations (e.g. open market operations, **cash withdrawals**, standing facilities, etc.). These accounts together with **dDedicated eCash aAccounts (DCA)** for RTGS, TIPS and T2S can also be used to fulfil the minimum reserve requirements. In CLM, the participants steer, manage and monitor the liquidity across all **TARGET** services and accounts in a currency. The credit line assigned to a credit institution is linked to **one of its an MCAs**, where it is part of the available liquidity, which can be transferred **in-cash** to the **DCAs** of RTGS, T2S or TIPS. Such liquidity transfers between accounts can be instructed or, in case of CLM MCA and RTGS DCA, automatically triggered based on an event (e.g. a queued payment, breaching of floor/ceiling amount; see section [3.2.2 TOOL BOX FOR MANAGING LIQUIDITY](#)). With these functionalities, CLM addresses the needs of the current HAM module users without the necessity to open an additional RTGS DCA. The current "co-management" functionality for HAM accounts can be reflected via access rights and message subscription in a flexible way (see section [3.6 LIQUIDITY MANAGEMENT SERVICES TOWARDS OTHER USERS](#)).

RTGS provides the settlement for real-time interbank and customer payments and ancillary system transactions. A Party may open more than one RTGS DCA for a dedicated purpose, depending on its business needs (e.g. for AS transactions, for the payment business of a branch/entity). The settlement of payments and AS transactions will remain almost unchanged or is enhanced compared to the execution and service levels in TARGET2 (e.g. reservations for purpose, priorities and optimisation algorithms).

TARGET2-Securities (T2S) is a single, pan-European platform for securities settlement in Central Bank Money. The settlement of the cash leg of the **Delivery versus Payment (DvP)** transactions takes place on the **Ddedicated eCash aAccounts** in Central Bank Money. T2S went live in June 2015.

TARGET Instant Payment Settlement (TIPS) will facilitate the immediate settlement of instant payments in Central Bank Money on the **dDedicated eCash aAccounts** of the payer and the payee. It will operate 24 hours on each day of a calendar year. TIPS supports the participants to be compliant

with the SEPA Instant Credit Transfer (SCT Inst) scheme which the European Payment Council (EPC) has developed for instant payments in euro. TIPS is planned to go live in November 2018.

2.1.2 Common components

The ~~TARGET Services Eurosystem market infrastructures~~ will be supported by the following main common components: (1) Eurosystem Single Market Infrastructure Gateway; (2) Common Reference Data Management; (3) Billing; ~~and~~ (4) Legal Archiving ~~and~~ (5) Scheduler. In addition, some ~~TARGET Services market infrastructures~~ will have a common Data Warehouse, ~~Scheduler~~ and contingency component.

The access to the ~~TARGET Services Eurosystem services~~ and components will take place via **Eurosystem Single Market Infrastructure Gateway (ESMIG)** component. It will be network provider agnostic (i.e. will not rely on network specific features) and thus allows participants to connect through a single certified network service provider to access all ~~TARGET Services Eurosystem market infrastructures~~ both via A2A and U2A (~~via GUI~~). Different ~~TARGET Services Eurosystem market infrastructures~~ may ~~finalise their migration~~ to the common gateway at different times, including after the go-live of phase II of the T2-T2S Consolidation project (see section [2.2 PHASED IMPLEMENTATION OF T2-T2S CONSOLIDATION PROJECT](#)). Furthermore, ISO 20022 compliant messaging will be adopted as the standard format for communication with all ~~TARGET Services Eurosystem market infrastructures~~. ESMIG shall provide central authentication, authorisation and user management features to protect the connected systems/platforms against intrusion and unauthorised access and to ensure that a trusted party transmitted the inbound communication through a secure channel.

Any reference data object (or function) that is used by more than one service shall be set up and managed (or implemented) in **Common Reference Data Management (CRDM)** component. Service-specific reference data objects (or functions) are set up and managed (or implemented) in the respective service. The aim of CRDM is to (1) achieve consistency and integrity of all reference data, (2) ensure consistent processing and relationships between reference data across services, and (3) avoid duplication of reference data and redundant implementation of the same functions in multiple services.

Common component for **Billing** will facilitate the Eurosystem to prepare and process invoices for different ~~TARGET Services market infrastructures~~ and common components.

Legal Archiving component will collect all information which is subject to legal archiving requirements: i.e. all incoming and outgoing business transactions from and to participants as well as relevant reports such as account statements. The information ~~from TARGET Services and common components~~ will be stored in Legal Archiving in its original content and format ~~after 30 calendar days~~ and will be accessible within its retention period of 10 years.

Data from the previous business day from T2 (i.e. CLM and, RTGS) and T2S is available in **Data Warehouse** (DWH) component as of the next business day. DWH provides data for historical, statistical and regulatory reporting. Participants can access the DWH via U2A (via GUI) and A2A. They can subscribe for predefined reports or query the database by using predefined templates.

2.1.3 Other aspects

- **Multi-currency**

Similarly to T2S, ~~the Eurosystem market infrastructures for T2 (i.e. RTGS and, CLM), -and-~~TIPS and the relevant common components will become multi-currency enabled, i.e. the settlement services will support settlement in different currencies and according to their own calendars. However, the business day will be changed at the same time for all currencies. Furthermore, none of TARGET Services~~the Eurosystem market infrastructures~~ will offer conversion between currencies.

- **Daily scheduling**

Each TARGET Service~~market infrastructure~~ (CLM, RTGS, T2S and TIPS) will have its own opening times, ~~while the Change of Business Day is synchronised across all services~~. The T2-T2S Consolidation project aims at synchronising also the timing of the maintenance windows in all TARGET services and common components, with the exception of TIPS, which operates 24/7/365 and thus has ~~ve~~ no maintenance window.

Furthermore, the Change of Business Day will be synchronised across all TARGET services. As TIPS processes instant payments continuously, then the Change of Business Day occurs in TIPS at the time when T2 (i.e. CLM and, RTGS) and T2S start their End of Day procedures, i.e. shortly after 18:00. The Change of Business Day in T2~~CLM, RTGS~~ and T2S and in common components takes place at 18:45.

- **Calendar**

While TIPS operates around the clock, other TARGET Services~~Eurosystem market infrastructures~~ and common components will operate from Monday to Friday on TARGET opening days (see section [4.5.3 CALENDAR](#)), with exception of T2S, which is also open if any of the T2S settlement currency RTGS is open~~on 01 May, Easter Friday and Easter Monday~~.

2.2 PHASED IMPLEMENTATION OF T2-T2S CONSOLIDATION PROJECT

The T2-T2S Consolidation project will be implemented in phases.

- Phase I will provide the necessary parts of the common components that are required for the support of TIPS: part of the CRDM and ESMIG. These changes will be implemented in June and November 2018 and will have no impact on TARGET2 and T2S participants.

- Phase II will provide all other changes in June and November 2021 that affect, amongst other things, the services for liquidity management, network connectivity, messaging and billing:
 - ▶ The segregation of Central Bank transactions from the real-time interbank/customer payments as well as the ancillary system transactions in RTGS;
 - ▶ Concentration of Central Bank transactions together with other Central Bank Services, such as Reserve Management and Standing Facilities, in CLM;
 - ▶ The harmonised provisioning of support functionalities, such as fully fledged Common Reference Data Management (CRDM), Data Warehouse (DWH) and Billing for T2 (i.e. RTGS and CLM) and, ~~T2S and TIPS~~;
 - ▶ The implementation of ISO 20022 for communication with T2 (i.e. RTGS and CLM) and ~~CRDM component~~.

Phase II will be implemented following the Big Bang approach with the discontinuation of current TARGET2 RTGS and its supporting modules and the go-live of future T2 (i.e. RTGS and CLM) solution with their supporting components (see section 6.3 MIGRATION TO NEW SOLUTION).

2.3 KEY BENEFITS

The T2-T2S Consolidation project brings the following key functional benefits to the users.

- Centralised management and control over the payment capacity – clear allocation of liquidity for the different settlement purposes, while providing a central liquidity overview in a single screen with easy access to more detailed information
- Segregation of interaction with Central Banks from RTGS participation – no RTGS DCA needed for monetary policy purposes
- Minimum reserve calculation and automated standing facilities – technical capability to take all balances on relevant accounts (MCA, DCAs) into account
- Multi-vendor approach for connectivity – encourages competition among network service providers as the service is not relying on proprietary features of a specific network provider
- Introduction of ISO 20022 compliant messaging – allows the participants to communicate to all TARGET Services Eurosystem market infrastructures and common components with the ISO 20022 compliant messages
- Common reference data management – reduces the effort of creating and maintaining multiple copies of reference data as well as centralised management of user access rights
- Shared data warehouse – central place for participants to access historic information across T2 (i.e. RTGS and, CLM) and T2S
- Longer opening hours for real-time interbank and customer payments as well as for AS transactions settlement – allows participants active around the world to better service customers in different time zones for their euro settlement

3 TREASURY PERSPECTIVE

This chapter elaborates on the functions and features that shall support the treasury departments at banks to manage liquidity for their institution as well as for other users. The chapter consists of following sections:

- **Section 1: Account structure** aims at helping the reader to identify which type of account(s) an institution needs. It explains the characteristics of different accounts and the main principles for segregating the payment transactions.
- **Section 2: Liquidity management** elaborates on the tools and features that support the treasurer in managing and monitoring liquidity.
- **Section 3: Principles for drawing of liquidity** explains the interplay between MCA in CLM and the DCA in RTGS and their respective reservation pools.
- **Section 4: Interaction with Central Bank** presents the main principles on how different CB operations and services (e.g. usage of standing facilities, update in credit line, calculation of minimum reserve) will be executed.
- **Section 5: Interaction with ancillary systems** clarifies what treasurers shall keep in mind in terms of liquidity management for AS transactions.
- **Section 6: Liquidity management services towards other users** elaborates on possibilities for monitoring balances and managing liquidity across different entities and how to set it up.
- **Section 7: Reporting** addresses how to subscribe for reports and monitor the status of payments.

3.1 ACCOUNT STRUCTURE

~~Each TARGET Service The Eurosystem market infrastructures T2 (i.e. CLM and, RTGS), TIPS and T2S will each~~ operate with its own set of accounts. While CLM is the central service for liquidity management and, thus, holds the Main Cash Accounts (MCAs), the services for RTGS, TIPS and T2S hold Dedicated Cash Accounts (DCAs). The institutions that are eligible to open accounts in a ~~TARGET ServiceEurosystem market infrastructure~~ will be defined in the legal framework for the respective service.

The future account structure facilitates the requirements of the institutions in different size and with different business needs. It will allow the treasurers to dedicate and monitor the liquidity allocated to a specific settlement service for their institution as well as provide the services to other users/institutions. At the same time the account structure concentrates specific operations and

transactions on a single account, which facilitates, inter alia, for credit institutions to identify which accounts they in reality need.

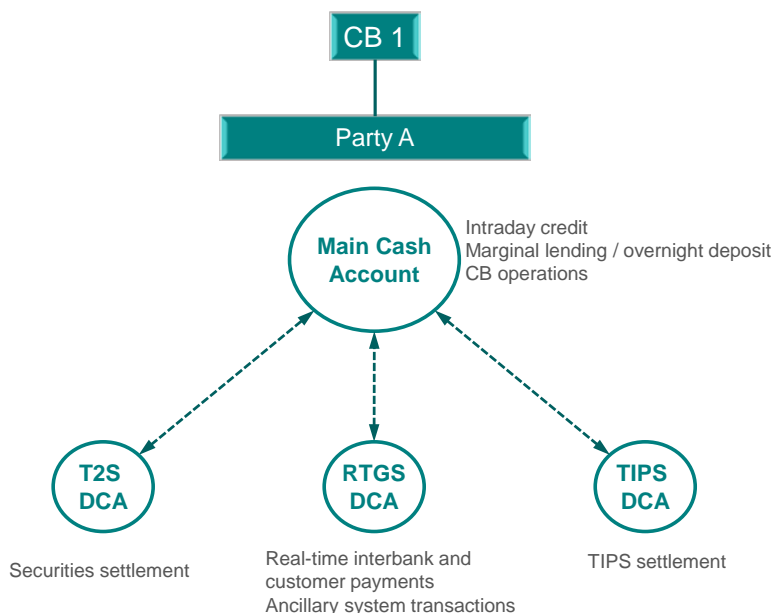


Figure 2: Basic account structure model

There is no obligation to hold a Main Cash Account or a Dedicated Cash Account. However, a Central Bank may impose to its Parties to open an MCA, inter alia, for direct maintenance the calculation of minimum reserves, remuneration of overnight balances or for billing purposes.

If a Party wants to use one of the dedicated settlement services (i.e. RTGS, T2S, TIPS), then it must hold a corresponding DCA. The Party can use the same BIC11 in each of the dedicated settlement services. In case the Party participates in RTGS, it must define one of its RTGS DCAs as the default account for all its real-time interbank and customer payments. A DCA must be connected with at least one MCA to receive liquidity and ~~with one MCA~~ for billing purposes, while these MCA(s) may belong to a different Party than the owner of the DCA. Furthermore, this DCA and the connected MCA(s) may be opened in the books of different Central Banks. In the latter case, the Parties shall still keep in mind the conditions for maintenance of minimum reserves, which require that all accounts belonging to a MFI must also be held by the same Central Bank (see section 3.4.4 MINIMUM RESERVE AND EXCESS RESERVE MANAGEMENT)

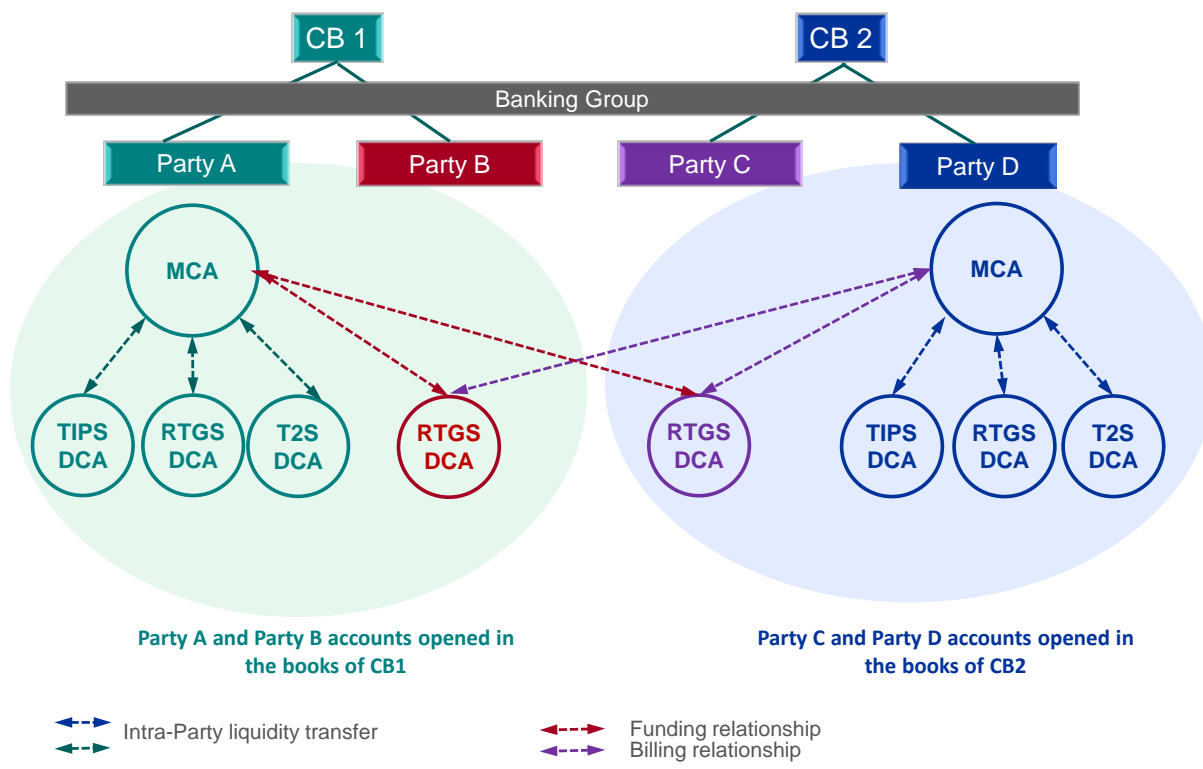


Figure 3: Multinational bank with various entities

3.1.1 Main Cash Account in Central Liquidity Management

The Main Cash Account (MCA) is opened in Central Liquidity Management (CLM). It is identified by a BIC11 (that must be unique in CLM) as well as by an account ID (that must be unique across all services). On this account the Central Banks settle any kind of interaction with their participants, inter alia

- Update of the credit line (cash side);
- Standing Facilities for counterparties on their own initiative (i.e. marginal lending on request and overnight deposits) as well as automatic marginal lending;
- Cash withdrawals⁴
- Open market operations;
- Any other monetary policy operation;
- Debit of billing amounts;
- Interest payment orders linked to marginal lending, overnight deposits, minimum reserves and excess of reserve;
- Any other activity carried out by Central Banks in their capacity as Central Bank of Issue.

⁴ As a principle, cash withdrawals shall be settled on the MCA. For an interim period, i.e. until all local systems of Central Banks have been adapted, other ways might be used.

No payments between market participants are allowed on MCA. However, the account can receive or transfer liquidity from/to other MCAs within the same [Liquidity Transfer Group](#) (see section 3.2.2.9 [LIQUIDITY TRANSFER GROUP](#)) as illustrated in [FIGURE 4: CLM FOR A GROUP OF BANKS](#). Furthermore, the collateral management system manages any update in the credit line amount assigned to a Party, by settling the securities/collateral side in T2S and transmitting the credit line information to CLM.

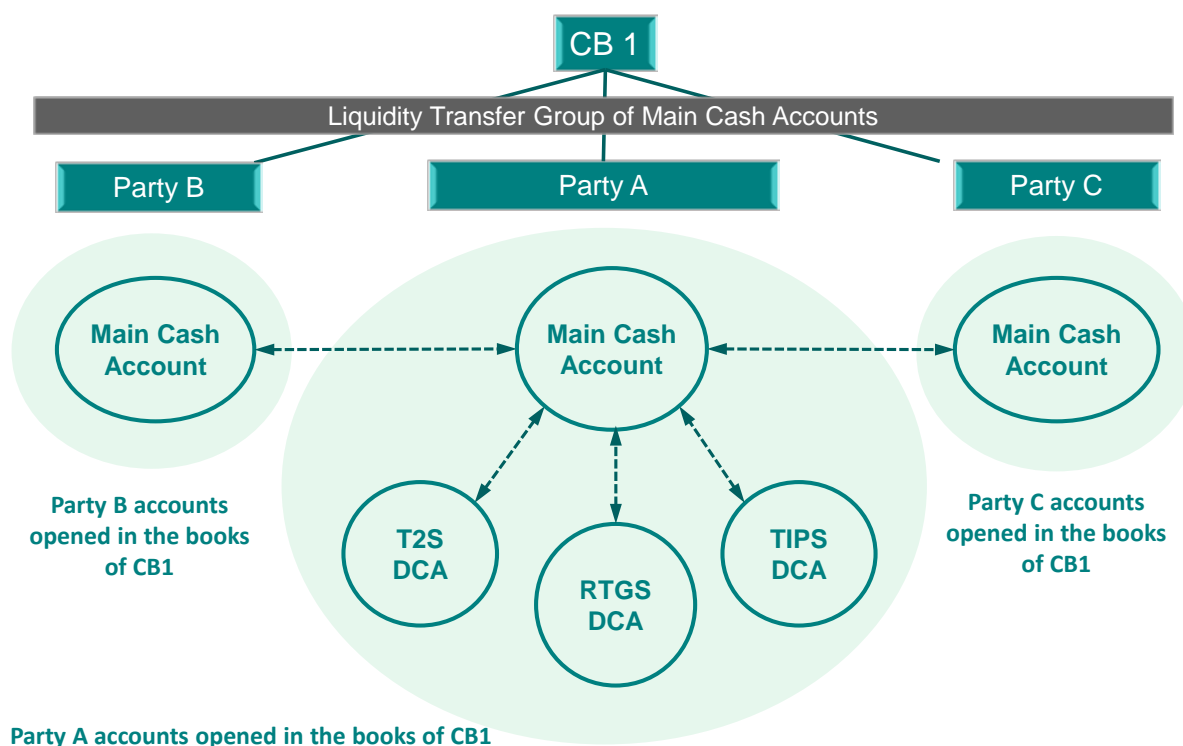


Figure 4: CLM for a group of banks

A Party may have several MCAs, however the credit line linked to the Party can only be assigned to one of them.

The scope of the MCA is defined keeping in mind the needs of a credit institution that interacts with the Eurosystem for the above listed operations only. For example, it addresses the needs of the users of today's TARGET Home Accounting Module (HAM).

3.1.2 Dedicated Cash Account in RTGS

The Dedicated Cash Account (DCA) in RTGS is for settlement of real-time interbank and customer payments and transactions with ancillary systems.

A Party may have several RTGS DCAs for a dedicated purpose. For example, an RTGS DCA for settlement of its own payments, an RTGS DCA for settlement with one or several ancillary systems, an RTGS DCA for settlement of payments on behalf of indirect participants, addressable BICs or multi-addressees (see section [4.1 PARTICIPATION TYPES](#)). Furthermore, a participant may open an

RTGS DCA sub-account dedicated to one ancillary system that uses the AS settlement procedure “Settlement on dedicated Liquidity Accounts (interfaced)”⁵. Each BIC11 must be unique within RTGS and can address only one RTGS DCA in order to ensure a proper addressing of payments. For AS settlement procedure “Settlement on dedicated Liquidity Accounts (interfaced)” the same BIC11 will address the sub-account. If the Party requires more than one RTGS DCAs for its business purposes, it shall ensure that each of these DCAs is identified with a unique BIC11.

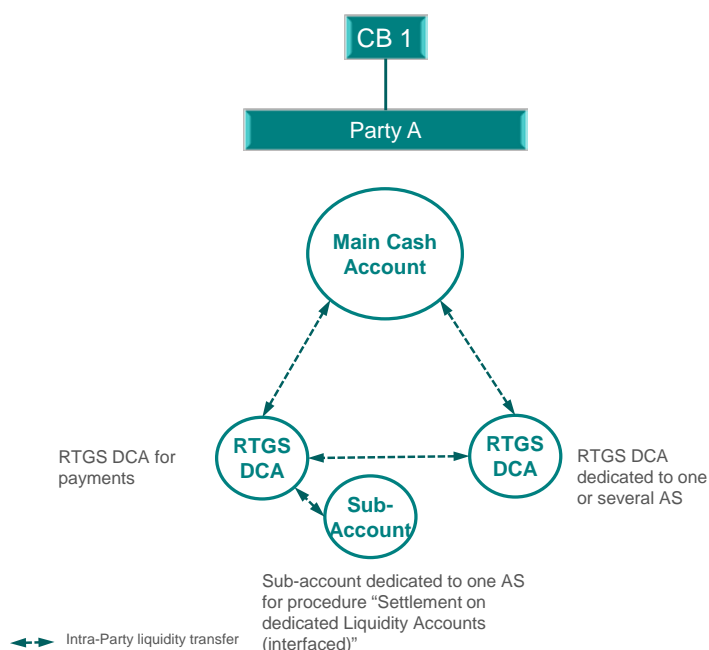


Figure 5: Model for RTGS accounts

Like all other DCAs, the RTGS DCA operates on cash-only-basis, i.e. the credit line that is on the MCA can be used to increase the liquidity on the DCA by transferring liquidity from MCA to DCA. In addition, the RTGS DCA can receive liquidity from other TIPS-RTGS DCAs (as long as the RTGS DCAs belong to the same Liquidity Transfer Group) or from TIPS or T2S DCAs⁶. An RTGS DCA balance cannot be negative; however, the balance does not need to be transferred to the MCA at the End of Day to be taken into account for the minimum reserve and automatic marginal lending standing facilities, but can remain on RTGS DCA for the next business day.

3.1.3 Dedicated Cash Account in TIPS

The Dedicated Cash Account (DCA) in TIPS is for settlement of instant payments. The TIPS DCAs operate on a cash-only-basis and their balance cannot be negative. A TIPS DCA can be funded with

⁵ Former AS procedure 6 Interfaced

⁶ ~~The transfer of liquidity from T2S DCA to RTGS DCA requires the enhancement of T2S functionality~~

liquidity from the MCA or from the RTGS or T2S DCA⁷. The TIPS DCA balance does not need to be transferred to the MCA at End of Day to be taken into account for the minimum reserve and automatic marginal lending standing facilities, but can remain on the TIPS DCA in order to support the settlement in 24/7/365. Please refer to the TIPS documentation⁸ for further information.

3.1.4 Dedicated Cash Account in TARGET2-Securities

The Dedicated Cash Account (DCA) in ~~the~~ T2S settles the cash leg of securities transactions. Similarly to other DCAs, the T2S DCA operates on a cash-only-basis, but T2S provides in addition also an auto-collateralisation function for generating liquidity. However, the participants cannot use the T2S auto-collateralisation mechanism to allocate intraday liquidity from T2S to another service. A T2S DCA can be funded with liquidity from the MCA or from the RTGS or TIPS DCA. Furthermore, contrary to the principles of the RTGS and TIPS DCAs, the balance of T2S DCA must be transferred to the linked MCA by a mandatory cash sweep at End of Day for the respective processes and cannot remain on the T2S DCA. Please refer to the T2S documentation⁹ for further information. With the T2-T2S Consolidation project the mandatory cash sweep from T2S at End of Day would no longer be required; nevertheless it is up to the T2S community to decide on whether this change shall be implemented in T2S.

3.2 LIQUIDITY MANAGEMENT

The future structure of TARGET Services~~the Eurosystem market infrastructures~~ requires a clear allocation of liquidity for different settlement purposes. This requires that the treasurers have means and tools to monitor and manage the liquidity manually as well as to automate the liquidity management to the required extent (e.g. without the need to initiate manual liquidity transfers).

3.2.1 Tool box for monitoring liquidity

The future T2 service will provide information tools and functions to facilitate the monitoring of liquidity by the Parties.

3.2.1.1 GRAPHICAL USER INTERFACE

The Graphical User Interface (GUI) allows the Party to access RTGS and CLM functions~~the services via a desktop (in~~ User-to-Application (U2A) mode) (see further information in section 6.1 GENERAL PRINCIPLES FOR ACCESSING TARGET SERVICES). While in the GUI for CLM, the user can see information it has been granted access to on all MCA and DCAs linked to its Party or Account

⁷ ~~The transfer of liquidity from T2S DCA to TIPS DCA requires the enhancement of T2S functionality~~

⁸ <http://www.ecb.europa.eu/paym/initiatives/html/index.en.html>

⁹ <http://www.ecb.europa.eu/paym/t2s/about/keydocs/html/index.en.html>

Monitoring Group (see section [3.6.1 ACCOUNT MONITORING GROUP](#)) in a specific currency, the GUI for a dedicated settlement service (i.e. RTGS, TIPS and T2S) presents information on the Party's accounts in a specific currency in this service only.

Via the **CLM GUI** the user with necessary access rights can perform the below-listed activities at the level of an Account Monitoring Group (i.e. aggregated view of all MCAs and DCAs belonging to the Parties in the Account Monitoring Group) or at the level of a Party (i.e. aggregated view of all MCAs and DCAs belonging to the Party). Furthermore, the user can drill down the view either (1) at the level of each single MCA or DCA, or (2) at the level of a Party (i.e. aggregated view of all MCAs and DCAs belonging to the Party) or (3) at the level of an Account Monitoring Group (i.e. aggregated view of all MCAs and DCAs belonging to the Parties in the Account Monitoring Group). Via the CLM GUI, the user can, inter alia,

- Monitor balances of all accounts in a specific currency in CLM, RTGS, TIPS and T2S ~~all services~~
- Monitor credit line usage
- Monitor T2S auto-collateralisation usage
- Monitor the payment orders queued in CLM and RTGS
- Monitor warehoused payments with future value date in CLM and RTGS
- Set up and modify parameters for automated liquidity management tools in CLM for the MCA (see section [3.2.2 TOOL BOX FOR MANAGING LIQUIDITY](#))

In addition, the user can via the **RTGS GUI**, inter alia,

- Monitor the balances on RTGS DCAs and sub-accounts
- Amend the payment orders queued on RTGS DCA (see section [3.2.2.7 QUEUE MANAGEMENT AND AMENDMENT AND CANCELLATION OF PAYMENT ORDERS IN RTGS](#))
- Set up and modify the parameters for automated liquidity management tools in RTGS for the RTGS DCA (see section [3.2.2.1 IMMEDIATE AND STANDING LIQUIDITY TRANSFER ORDER](#))

The scope and functions for the **TIPS GUI** and the **T2S GUI** in terms of liquidity monitoring are defined in the respective service documentation.

3.2.1.2 API ACCESS

Placeholder

3.2.1.3 ALERTS AND NOTIFICATIONS

For more concrete and specific monitoring, the user can subscribe for alerts and notifications that CLM and RTGS push out to the GUI or in A2A mode when an event takes place. Such triggers can be

- Breaching a defined floor or ceiling amount on an MCA or RTGS DCA (see section [3.2.2.3 FLOOR AND CEILING](#))
- Start of Day, End of Day or other scheduled business events on MCA and RTGS DCA (see section [4.5 SCHEDULE](#))

3.2.2 Tool box for managing liquidity

As explained in section [3.1 ACCOUNT STRUCTURE](#), MCA in CLM is the central source of liquidity for the different settlement services. While the credit line assigned to a Party is linked to one of its MCAs, the dedicated settlement services settle on cash-only basis. The following liquidity management tools are implemented in CLM and RTGS.

3.2.2.1 IMMEDIATE AND STANDING LIQUIDITY TRANSFER ORDER

The Parties can transfer liquidity either manually (based on immediate liquidity transfers) or automatically (based on regular standing orders or event-based standing orders).

- 1) **Immediate liquidity transfer orders** can be sent in A2A or entered in U2A [\(via GUI\)](#). They are settled immediately, provided that there is sufficient liquidity on the debited account.
- 2) **Standing liquidity transfer orders** are configured in CRDM in advance and are triggered upon an event (automated LTOs). The predefined standing order can, optionally, be limited in time (Valid To Date).
 - a. Events that can trigger **regular standing orders** are events defined in the daily schedule, e.g. Start of Day. The regular standing orders shall specify the amount to be transferred.
 - b. Events that can trigger **event-based standing orders** are, for example, breaching of predefined floor or ceiling amount, or a pending [HighUrgent](#) or [Highly-Urgent](#) payment on the RTGS DCA. The circumstances of the specific event stipulate the amount to be transferred.

Liquidity transfer orders (LTO) are attempted to settle immediately once submitted or triggered. Liquidity can be transferred between different settlement services (inter-service liquidity transfer) and within a settlement service (intra-service liquidity transfer).

In terms of processing, any liquidity transfer initiated by an ancillary system (i.e. someone who has no view on the account balance) or ~~is triggered by the service itself~~ based on a standing order (automated LTO) can settle partially, while any immediate liquidity transfer entered by the owner or manager of the account shall settle based on an all-or-nothing principle (i.e. if no sufficient liquidity to settle the immediate LTO, the order is rejected). In case a LTO initiated by an ancillary system or by a standing order settles partially, no new LTO is generated to settle the remaining part of the initial liquidity transfer order. [In the event that several regular standing orders that are scheduled for the same event and, if there is no sufficient liquidity to settle all of them, a pro-rata rule is applied.](#)

The Parties can send immediate LTOs or configure standing LTOs with triggers taking place during the opening time of the respective [functionservice](#) (see section [4.5 SCHEDULE](#)).

3.2.2.2 AUTOMATIC LIQUIDITY TRANSFER ORDERS

Due to the highest priority given to settlement of CB operations, in case of a lack of payment capacity (i.e. sum of cash and available credit line) on the MCA to settle the CB operation, the system triggers an automatic liquidity transfer and tries to pull the amount of liquidity missing to settle the CB operation from the [defaultassociated](#) RTGS DCA (see section [3.3 PRINCIPLES FOR DRAWING OF LIQUIDITY](#)). In case there is not sufficient liquidity on the RTGS DCA, the system settles the automatic LTO partially and generates and queues a LTO for the remaining part. Any additional liquidity that arrives on the RTGS DCA will then automatically be transferred to the MCA until the CB operation is settled.

These automatic liquidity transfers are mandatory and do not require any prior configuration by the participant. Such automatic LTOs are not applicable to and do not involve TIPS DCA and T2S DCA.

EXAMPLE: the Central Bank sends a payment order to settle an [absorbing](#) open market operation with an amount of 90 on the Party's MCA. At that moment, the amount of available liquidity on the MCA (i.e. amount of MCA Operations reservation and the non-reserved amount, incl. credit line) is 40. CLM generates an automatic inter-service LTO for the missing 50 to be transferred from the [defaultassociated](#) RTGS DCA. On that RTGS DCA, the amount of non-reserved balance is 30, the amount of [HU](#)-reservation is 10 and [HU](#)-reservation is empty. The system taps the liquidity from non-reserved balance (30) and from the [UH](#)-reservation (10) and transfers the liquidity to the MCA. In addition, it generates a new automatic inter-service LTO for the remaining amount of 10 (i.e. original LTO with 50 minus 30 of non-reserved balance minus 10 of [HU](#)-reservation already transferred). Any incoming liquidity on the RTGS DCA will be transferred immediately to the MCA until the CB operation settles.

3.2.2.3 FLOOR AND CEILING

For each MCA and RTGS DCA, a Party can define in CRDM a minimum ("floor") and maximum ("ceiling") amount that shall remain on the respective account. When calculating the available liquidity on an MCA, this function does not count the available credit line as part of this amount.

The Party can choose between the following behaviours that the system shall apply in the event the floor or ceiling on an account is breached:

- 1) CLM/RTGS generates a notification that is sent to the Party informing about the floor/ceiling breach (upon which the Party can take action); or

- 2) CLM/RTGS generates automatically an inter-service liquidity transfer to pull cash from the other service (in the event the floor is breached) or push cash to the other service (in the event the ceiling is breached). Such automated liquidity transfers can only involve the Party's RTGS DCA dedicated for real-time interbank and customer payments (default DCA) and take place vis-à-vis a Party's MCA defined in advance in CRDM.

Shall the Party opt for the behaviour 2, it shall also predefine for floor and for ceiling the respective target amounts to be reached if the floor or ceiling is breached.

EXAMPLE: the Party prefers to keep liquidity on its RTGS DCA in order to ensure as smooth settlement of payments (including payments with no priority/Normal) as possible. It defines a ceiling of 10 and target amount of 8 on its MCA and chooses the behaviour of automated liquidity transfer. A CB operation settles on MCA and the available liquidity on MCA reaches 12. Upon the settlement CLM checks whether any floor/ceiling is defined for MCA (result of the check: ceiling = 10) and automatically generates and settles a LTO that transfers an amount of 4 (i.e. 12 on MCA minus 8 as target amount) from MCA to RTGS DCA dedicated for payments.

3.2.2.4 PAYMENT PRIORITY IN RTGS

On RTGS, a payment can either be with priority ~~Highly-Urgent (HU)~~, ~~HighUrgent (UH)~~ or Normal (N).

~~Highly-Urgent~~ payments (~~HU~~-payments) are settled with utmost priority. This priority class is exclusively allowed for AS transactions sent by the Parties and ancillary systems. An incoming ~~HU~~-payment is added to the end of the dedicated queue for ~~HU~~-payments, which all shall settle before any other payment with lower priority (i.e. ~~HU~~-payment and N-payment) can settle on that RTGS DCA. If the ~~HU~~-reservation is not sufficient for settlement of an ~~HU~~-payment, the missing liquidity is tapped from the non-reserved liquidity and, subsequently, from ~~UH~~-reservation on the same RTGS DCA.

~~HighUrgent~~ payments (~~UH~~-payments) can be instructed by Parties in order to give them higher priority compared to their other payments. All pending ~~UH~~-payments shall settle before Normal payments on the same RTGS DCA. If the ~~HU~~-reservation is not sufficient for settlement of a ~~HU~~-payment, the missing liquidity is tapped from the non-reserved liquidity on the same RTGS DCA.

Normal payments (N-payments) are all payment orders sent to an RTGS DCA where no priority is set. N-payments are submitted to settlement when no ~~HU~~-payment or ~~UH~~-payment is pending (exceptions with liquidity increase due to offsetting transactions apply). The system aims at settling N-payments as optimally as possible (see section [4.3 LIQUIDITY SAVING MECHANISMS AND OPTIMISATION PROCEDURES IN RTGS](#)).

3.2.2.5 LIQUIDITY RESERVATION

The Party can reserve liquidity for payments having a defined priority or for a specific business purpose.

- 1) On MCA, there is one type of reservation for all CB operations and cash withdrawals.
- 2) On RTGS DCA, there are two types of reservation
 - a. ~~HighUrgent~~-reservation (~~UH~~-reservation) is for payment orders sent by the Party with the priority ~~HighUrgent~~
 - b. ~~Highly~~Urgent reservation (~~HU~~-reservation) is for payment orders linked to AS transactions sent by ~~the Party or~~ an eligible ancillary systems

The Party can allocate liquidity for the reservations by submitting a liquidity reservation order either in U2A ([via GUI](#)) or A2A. In such case the system attempts to fill the order immediately and only for that business day. The Party can also configure a Standing Order for reservation for a specific amount and with a specific trigger (e.g. Start of Day). Such reservations are generated automatically upon the trigger on every business day.

In terms of processing, the system checks whether the non-reserved amount of liquidity on that account is sufficient to fulfil the reservation. Where the requested reservation amount exceeds the available liquidity on the account, the reservation remains pending. Any incoming liquidity is then automatically added to the reservation, unless an automatic liquidity transfer order with higher priority is queued (see section [3.2.2.2 AUTOMATIC LIQUIDITY TRANSFER ORDERS](#)), until the requested amount of the reservation is reached and thus the reservation is considered as successfully executed. Each payment drawing on the reservation will reduce the reservation amount accordingly.

There is no automatic re-fill of the reservation during a business day. However, shall the Party modify the reservation amount during the day then the system will align the reserved amount accordingly. In case the original (standing) order for liquidity reservation is not yet completed (i.e. targeted reservation amount reached), then the system stops processing the original order and processes only the modification request. The Party can

- 1) "Reset" the amount of liquidity to be reserved to zero, upon which the system releases all remaining amount of the reservation for that business day.
- 2) Change the amount on demand during the business day with immediate effect, upon which the system either releases the exceeding amount or attempts to reserve additional liquidity to reach the new target amount.

During the End of Day procedure, all pending liquidity reservation orders are stopped and the remaining reserved amounts are released.

***EXAMPLE:** The Party has configured a Standing Order to reserve liquidity of 100 for ~~HighUrgent~~ payments on daily basis at the Start of Day. The system generates successfully the reservation. During the day, the Party has submitted ~~HU~~-payments with a total amount of 80, which have all settled using the ~~HU~~-reservation. Currently, the ~~HU~~-reservation remaining amount is 20 and the treasurer is made aware of a ~~HU~~-payment with an amount of 50 that shall be paid out today. The*

treasurer modifies the HU-reservation amount to 50 and the system attempts immediately to fill the amount by tapping liquidity from non-reserved amount on the RTGS DCA. In case the non-reserved amount is lower than 30 (i.e. target reservation amount 50 minus 20 of the remaining reservation amount), then the system reserves the available liquidity and queues an immediate liquidity reservation order for the remaining part.

3.2.2.6 TIMING OF EXECUTION

The Party can determine the execution time of the payment order by defining From Time and/or either Till Time or Reject Time in the message.

- From Time specifies the time only after which a payment order can be submitted to settlement
- Till Time specifies the time when the Party expects the payment to be settled. 15 minutes before Till Time, a warning notification will be triggered, if the payment order has not been settled by that time. When the Till Time is reached and the payment order is not yet settled, then the payment order shall not be rejected and it may still be submitted for settlement beyond this time. If Till Time is specified, then Reject Time cannot be specified.
- Reject Time specifies the time only before which a payment order can be submitted to settlement. 15 minutes before Reject Time, a warning notification will be triggered, if the payment order has not been settled by that time. As soon as the Reject Time is reached and if the payment order has not been settled, the payment order will be rejected and a settlement failure notification will be sent out. If Reject Time is specified, then Till Time cannot be specified.

3.2.2.7 QUEUE MANAGEMENT AND AMENDMENT AND CANCELLATION OF PAYMENT ORDERS IN RTGS

Once the Party has submitted a payment order to the system, it is immediately attempted for settlement on the value date (see section [4.3.1 ENTRY DISPOSITION WITH OFFSETTING](#)) provided that there are no further limitations on execution time within the order (see section [3.2.2.6 TIMING OF EXECUTION](#)). In the event the initial settlement attempt was unsuccessful, the payment order is queued for the specific payment priority (see section [3.2.2.4 PAYMENT PRIORITY IN RTGS](#)). At the time the payment order is queued, the Party can take the following controls both in U2A ([via GUI](#)) and A2A mode:

- Re-order the payment queue by moving one or more payment orders to the top of the queue in which they are held.
- Re-order the payment queue by moving one or more payment orders to the bottom of the queue in which they are held.
- Change of the execution time (i.e. From Time, Till Time and Reject Time) provided it was present before.

- Change the priority of the payment (i.e. move a N-payment to HU-payment queue or vice versa; it is not possible to change a payment priority of or to HU-payment).

Furthermore, a Party can cancel a N- or H-payment order as long as the payment order is not yet in its end state (i.e. settled, rejected or cancelled). A Party cannot cancel a U-payment.

PS. In CLM, only the Central Bank can perform the above activities.

3.2.2.8 BILATERAL AND MULTILATERAL LIMITS IN RTGS

In order to control its settlement of N-payments with other credit institutions, the Party can define

- 1) a bilateral limit towards another RTGS DCA; and/or
- 2) a multilateral limit towards all other Parties with no bilateral limit in RTGS

The limit represents the maximum net value amount for N-payments that a Party is willing to pay to another specific account or to all other participants/accounts (excluding those with whom a bilateral limit is defined). Limits are defined for a day and can be set up by a standing order for limits which will be processed during the Start of Day procedure of the following business day.

Limits are net values within the day and, with each N-payment, RTGS checks that the limits are not breached by the settlement and updates their free position after the settlement. Any incoming payment, irrespective of their priority, would increase the free bilateral or multilateral limit position. In the event a free position of a limit is not sufficient to settle an outgoing N-payment, the payment order is queued and will be submitted for processing again when credit payments have been received first.

~~3.2.2.9 WHITELIST~~

~~Placeholder~~

~~3.2.2.9~~ LIQUIDITY TRANSFER GROUP

~~Placeholder~~

The Liquidity Transfer Group notion will allow Parties to group together RTGS DCAs and CLM MCAs, separately, in order to permit intra-service liquidity transfers between them. This means, liquidity transfers are allowed only between RTGS DCAs (or CLM MCAs) that belong to the same Liquidity Transfer Group. No such check is performed on liquidity transfers, where either the creditor or debtor is a Central Bank Account (i.e. an account that the Central Bank holds in their capacity as a Central Bank of Issue).

The Central Banks will set up the Liquidity Transfer Groups and link accounts to them upon a Party's request. Only accounts that meet a Eurosystem policy rules are eligible to be linked to a Liquidity Transfer Group. Such accounts may be owned by several Parties and they may have been opened in the books of different Central Banks.

3.3 PRINCIPLES FOR DRAWING OF LIQUIDITY

The operations on MCA and the payments and transactions on RTGS DCA are processed in predefined order following the FIFO principle, with the exception of N-payments on RTGS DCA, which shall settle with as little liquidity and as optimally as possible (see section [4.3 LIQUIDITY SAVING MECHANISMS AND OPTIMISATION PROCEDURES IN RTGS](#)). The following table indicates the different liquidity sources and the order in which the different sources will be tapped (1=first liquidity source, 2=second liquidity source, etc.). The order in the column "Business Purpose" indicates the priority of the payment/operation. The table should be read from left to right, e.g. for a credit line decrease (*business purpose*),

- 1) first, the non-reserved part (incl. available credit line, if applicable) of MCA will be debited;
- 2) if the non-reserved amount on MCA was not sufficient, then, second, the reservation for MCA Operations will be debited;
- 3) if with the previous steps the required amount is not achieved, then, third, the non-reserved part of RTGS DCA is used etc.

| Order | Business Purpose | Main Cash Account (MCA) | | RTGS Dedicated Cash Account (DCA) | | |
|------------------------------------|---|-------------------------|--------------|-----------------------------------|-----------------|--------------|
| | | MCA Operations | Non-reserved | Highly Urgent (HU) | HighUrgent (UH) | Non-reserved |
| Main Cash Account | | | | | | |
| 1 | Credit line decrease | 2 | 1 | 5 | 4 | 3 |
| 2 | Central Bank Operation | 1 | 2 | 5 | 4 | 3 |
| 3 | Cash Withdrawal | 1 | 2 | 5 | 4 | 3 |
| 4 | Inter-Service and Intra-Service Liquidity Transfer | | 1 | | | |
| RTGS Dedicated Cash Account | | | | | | |
| 5 | Inter-Service and Intra-Service Liquidity Transfer | | | *) | *) | *) |
| 6 | Ancillary System transaction / HU - P payment | | 4** | 1 | 3 | 2 |
| 7 | HU - p Payment | | 3** | | 1 | 2 |
| 8 | N - p Payment | | | | | 1 |

Table 1: Predefined order of liquidity tapping

* subject to the priority of the payment that triggered the automated liquidity transfer

** subject to prior configuration by the Party

The one-to-one link between MCA and RTGS DCA for such automatic and automated liquidity transfers in both ways must be defined in CRDM.

By default, all MCA operations have a higher priority than payments and transactions on the RTGS DCA. In the event that there is insufficient payment capacity on the MCA to settle a pending operation, CLM triggers an automatic liquidity transfer for the missing amount to transfer liquidity from the RTGS DCA that is the default account for real-time interbank and customer payments to the MCA (see section [3.2.2.2 AUTOMATIC LIQUIDITY TRANSFER ORDERS](#)).

In all other cases, automated liquidity transfers are subject to and based on standing LTOs that the participant sets up based on triggers defined either on the MCA or on the RTGS DCA (see section [3.2.2.1 IMMEDIATE AND STANDING LIQUIDITY TRANSFER ORDER](#)). The automatic transfers of liquidity from the RTGS DCA to the MCA due to queued operations on the MCA are initiated automatically, do not require any prior configuration from the users and cannot be suppressed.

3.4 INTERACTION WITH CENTRAL BANK

The MCA is the place where all¹⁰ interaction between the Party and its Central Bank takes place (see section [3.1.1 MAIN CASH ACCOUNT IN CENTRAL LIQUIDITY MANAGEMENT](#)).

In addition, while the T2-T2S Consolidation project is planned to go live in November 2021, the Eurosystem Collateral Management System (ECMS) will go live one year later in November 2022. Thus, the Parties shall keep in mind that during the first year of the future [T2 \(i.e. RTGS and CLM\)](#), the collateral management procedures of local Central Bank collateral systems apply. This document describes the generic interaction with either the local CMS or ECMS.

3.4.1 Update in credit line

The credit line is the maximum collateralised overdraft position of the balance on the MCA. A Party that is eligible for intraday credit will be provided with a credit line on one and only one of its MCAs. However, liquidity generated by using the credit line can be transferred to and used on any MCA or DCA.

The Central Bank will send the orders to increase or decrease the credit line for operations and payments to CLM. Once ECMS is live, the latter is the central application that manages the credit line and sends respective orders to T2S (for settlement of collateral) and to CLM (for increasing or decreasing the credit line for operations and payments).

Modifications to the credit line are executed immediately and with highest possible priority. In case the request is to reduce the credit line and it requires a full or partial reimbursement of the intraday credit, the necessary liquidity is immediately drawn from the MCA and from the RTGS DCA ([default account for real-time interbank and customer payments](#)) non-reserved and reserved pools in a predefined order (see section [3.3 PRINCIPLES FOR DRAWING OF LIQUIDITY](#)). The decrease in credit line is the highest

¹⁰ Local specificities of some Central Banks might lead to some deviations especially in the beginning.

possible priority operation and it overrules all other operations, transactions and payments on [the MCA](#) and [the RTGS DCA](#). If the combined liquidity on the MCA and the RTGS DCA is insufficient for the reimbursement, any incoming liquidity to either of these accounts is immediately used for the reimbursement as well until the full amount is reimbursed.

3.4.2 Usage of standing facilities

Standing facilities are Central Bank facilities available to [monetary policy counterparties](#)~~Parties~~. The Eurosystem offers two overnight standing facilities [for monetary policy counterparties](#): the marginal lending facility and the deposit facility.

Both facilities require the setup of dedicated accounts in CLM. Depending on the local regulation or the decision of the respective local [Central Bank](#) these specific accounts may be in the name of the Party or of the Central Bank.

In order to obtain overnight liquidity, the Party shall send a **marginal lending** request to its Central Bank [outside of the TARGET Services](#), ~~The Central Bank~~ which will settle the [marginal lending](#) request in CLM.

In the event that the Party's global End of Day balance on all its MCAs and DCAs after the deadline for standing facilities (see section [4.5 SCHEDULE](#)) is negative, the system automatically converts any outstanding amount into an [automatic marginal lending](#).

On the following business day, at the start of the provisioning of the liquidity phase, any amounts received by means of the marginal lending facility are automatically reimbursed and interest is charged.

The **deposit facility** requires the Party to transfer the amount to a specific overnight deposit account in CLM. The Party can change the deposited amount by either transferring additional liquidity or activating a reverse transaction until the deadline for standing facilities. The requests are attempted to settle immediately. If there is no sufficient liquidity on MCA, the [liquidity transfer orders toward linked to the overnight deposits account](#) will ~~be rejected. draw liquidity from the associated RTGS DCA. The Party can also cancel them as long as they are not settled. The queued orders linked to overnight deposit at the deadline for standing facilities will be rejected by the End of Day processing.~~

At the start of the next business day, the system automatically returns the deposited amount to the Party's MCA and calculates and settles the interest on the Party's MCA.

3.4.3 Central Bank operations

The payment orders linked to CB operations (e.g. open market operations, [cash withdrawals](#) and collection of fees) are submitted to the system by Central Banks. Depending on the type of operation, the Central Bank can either send a direct debit or a credit transfer towards the Party's MCA. The counterpart of these payments is a CB ~~a~~Account. The payment order may indicate a timing of execution (see section [3.2.2.6 TIMING OF EXECUTION](#)) as well as may be submitted to the system prior to the value date (see section [4.6.2 WAREHOUSED PAYMENTS](#)).

The number and organisation of the specific accounts for a specific Central Bank operation depends on the local regulations and/or the business needs of a Party and/or of a Central Bank. Such specificities are not covered by this document.

The Party can set up one type of reservation on MCA, which can be used for all CB operations.

3.4.4 Minimum reserve and excess reserve management

Once all standing facilities are processed, the system verifies the fulfilment of minimum reserves by the Monetary Financial Institutions (MFI).

The minimum reserve calculation of the respective MFI will automatically include the End of Day balances of all MCAs and DCAs ~~of the linked Parties~~ that are accordingly marked in CRDM. All accounts that shall be taken into account for the fulfilment of minimum reserve belonging to a MFI must also be held ~~at~~ by the same Central Bank.

At the End of Day, all balances in ~~all settlement services (i.e. CLM, RTGS, TIPS and T2S)~~ are aggregated¹¹.

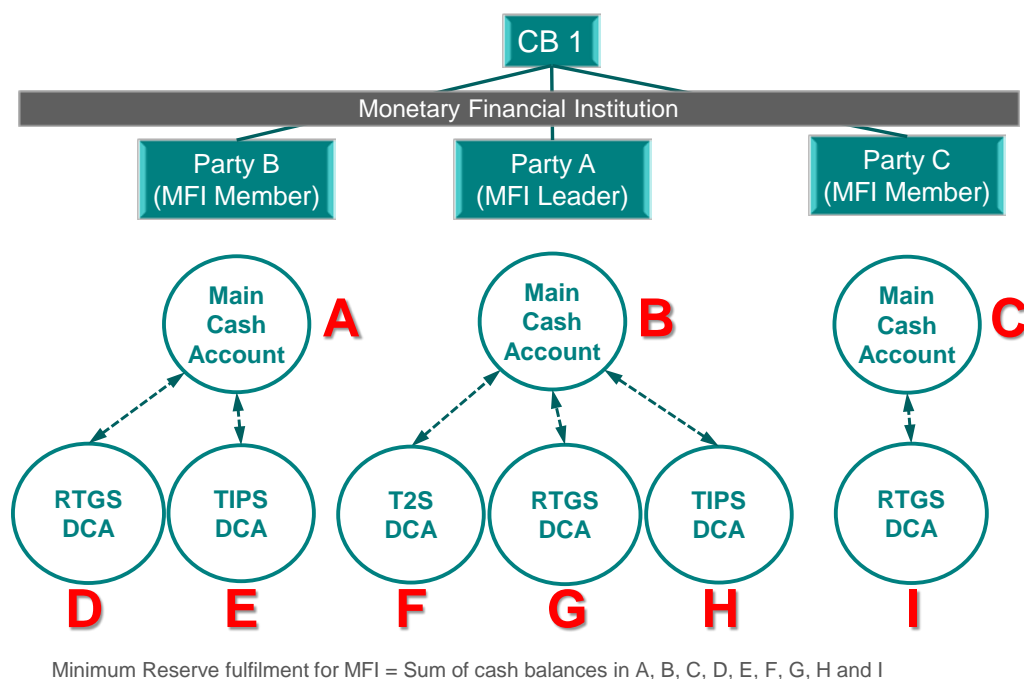


Figure 6: Minimum reserve fulfilment calculation

¹¹ Currently, the cash sweep at End of Day from T2S towards TARGET2 is mandatory. The future solution facilitates the possibility to make such cash sweep optional. The respective decision remains with the T2S Governance.

3.4.5 Monitoring by Central Banks

In their supervisory role, the Central Banks monitor credit institutions' activity in the [TARGET Services Eurosystem market infrastructures](#). For this purpose, the Central Banks link Parties that meet certain legal criteria into Banking Groups. Banking Group may include Parties associated with more than one Central Bank.

3.5 INTERACTION WITH ANCILLARY SYSTEMS

The settlement of transactions between credit institutions and ancillary systems takes place on RTGS. Depending on [whether the AS sends its transactions as payments or](#) the procedure that an AS uses (see section [5.2 AS SETTLEMENT BUSINESS SCENARIOS](#)), from a credit institution perspective the transactions are either settled on

- RTGS DCA of the Party (either on the DCA for payments or on the DCA dedicated to one or several AS)
- RTGS DCA sub-account of the Party dedicated to one AS that uses procedure "Settlement on dedicated Liquidity Account (interfaced)" (former ASI procedure 6 interfaced)

Furthermore, the ancillary systems using the procedure "Settlement on dedicated Liquidity Account (real-time)" (former ASI procedure 6 RT) request their participants to prefund the AS [dedicated technical](#) liquidity account.

See section [3.1.2 DEDICATED CASH ACCOUNT IN RTGS](#) for further information.

3.5.1 AS transactions settling on RTGS DCA

The transactions related to AS [settlement](#) procedures

- "Standard Multilateral settlement" (former ASI procedure 4)
- "Simultaneous Multilateral settlement" (former ASI procedure 5)
- the individual payment orders sent by the ancillary systems (former ASI procedure 2 "Real-time Settlement" and procedure 3 "Bilateral Settlement")

settle on the RTGS DCAs. Depending on its needs, the Party can either choose that its transactions with ancillary systems settle on the RTGS DCA that it also uses for payments or on an RTGS DCA that the Party dedicates for its interaction with ancillary systems. ~~In all options, the Party shall assign a role to the AS to instruct on the Party's RTGS DCA (see section xxx).~~

3.5.1.1 AS TRANSACTIONS SETTLING ON RTGS DCA FOR PAYMENTS

On RTGS DCA for payments, the AS transactions settle as ~~HU~~-payments (see section [3.2.2.4 PAYMENT PRIORITY IN RTGS](#)). In order to ensure that the liquidity is available at the time of the settlement, the Party can reserve the required amount of liquidity in an ~~HU~~-reservation (see section [3.2.2.5 LIQUIDITY RESERVATION](#)). Based on the principles for drawing of liquidity (see section [3.3](#)

[PRINCIPLES FOR DRAWING OF LIQUIDITY](#)), such AS transactions settle before any other queued or new incoming payment on this RTGS DCA. In addition, the Party can configure a standing LTO that draws liquidity from the MCA to the RTGS DCA and that the system triggers in the event an HUI-payment is queued (see section [3.2.2.1 IMMEDIATE AND STANDING LIQUIDITY TRANSFER ORDER](#)). The Party can monitor the situation via GUI.

~~Depending on whether the AS settles its transactions as payments or uses a settlement procedure, the AS may complement its transactions with certain settlement control features (see section [5.4 SETTLEMENT CONTROL FEATURES FOR ANCILLARY SYSTEMS](#)). From Time and Till Time (see section [3.2.2.6 TIMING OF EXECUTION](#)) to limit the period its transactions are supposed to be settled as well as with information period (see section [5.2.6 INFORMATION PERIOD](#); i.e. a period when the Party can check its balance with the AS before the related AS transaction is submitted for settlement).~~

3.5.1.2 AS TRANSACTIONS SETTLING ON RTGS DCA DEDICATED FOR AS SETTLEMENT

A Party can set up

- an RTGS DCA that is dedicated for settlement of transactions sent by all or some ancillary systems it interacts or
- several RTGS DCAs that each is dedicated for settlement of transactions sent by an individual AS or for an AS [settlement](#) procedure.

~~The Party assigns a role for an AS to instruct only for this RTGS DCA and not for its RTGS DCA for payments.~~ All AS transactions on such dedicated RTGS DCAs are treated with the same (HUI-)priority and they settle using the same pool of liquidity. The Party can transfer liquidity to such dedicated RTGS DCAs from its MCA and from its RTGS DCA for payments by

- instructing an immediate LTO
- configuring a standing LTO that draws liquidity from the MCA or from the RTGS DCA for payments to the RTGS DCA dedicated for AS settlement and that the system triggers regularly at scheduled business day events (see section [3.2.2.1 IMMEDIATE AND STANDING LIQUIDITY TRANSFER ORDER](#)).

Furthermore, provided that the Party has granted the necessary privileges to the AS, the latter can also instruct immediate LTOs to draw liquidity from the MCA or from the RTGS DCA for payments.

The Party can monitor the situation on the RTGS DCAs dedicated for AS settlement via GUI.

Similarly to the settlement on RTGS DCA for payments, ~~and depending on whether the AS settles its transactions as payments or uses a settlement procedure,~~ the AS may complement its transactions with [certain settlement control features \(see section \[5.4 SETTLEMENT CONTROL FEATURES FOR ANCILLARY SYSTEMS\]\(#\)\)](#). ~~From Time and Till Time (see section [3.2.2.6 TIMING OF EXECUTION](#)) to limit the period its transactions are supposed to be settled as well as with information period (i.e. a period~~

~~when the Party can check its balance with the AS before the related AS transaction is submitted for settlement).~~

3.5.2 AS transactions settling on RTGS DCA sub-account

The AS settlement procedure “Settlement on dedicated Liquidity Account (interfaced)” (former ASI procedure 6 interfaced) requires that the credit institution opens an RTGS DCA sub-account per ancillary system that uses such procedure. Such sub-account can be linked to the Party’s RTGS DCA for payments or to RTGS DCA dedicated for AS settlement.

The Party can set the required liquidity aside to the sub-account by

- instructing an immediate LTO from the RTGS DCA the sub-account is linked to
- configuring a standing LTO that draws liquidity from the RTGS DCA the sub-account is linked to and that the system triggers regularly at scheduled business day events (see section [3.2.2.1 IMMEDIATE AND STANDING LIQUIDITY TRANSFER ORDER](#)).

~~Furthermore, provided that the Party has granted the necessary privileges to the AS, the latter AS can also instruct immediate LTO send dedicated AS files (ASTransferInitiation) to draw liquidity from the RTGS DCA of the settlement bank the sub-account is linked to.~~

The Party can monitor the situation on the RTGS DCA sub-accounts via GUI.

3.5.3 Prefunding of AS ~~dedicated~~technical liquidity account

The AS settlement procedure “Settlement on dedicated Liquidity Account (real-time)” (former ASI procedure 6 RT) requires that the credit institution transfers an amount of liquidity from its RTGS DCA to an ~~AS-dedicated~~ technical liquidity account held by the AS or by the Central Bank on behalf of the AS. The Party can initiate the transfer by

- instructing an immediate LTO
- configuring a standing LTO that draws liquidity from the MCA or the RTGS DCA and that the system triggers regularly at scheduled business day events (see section [3.2.2.1 IMMEDIATE AND STANDING LIQUIDITY TRANSFER ORDER](#)).

~~Furthermore the AS can also send dedicated AS files (ASTransferInitiation) to draw liquidity from the RTGS DCA of the settlement bank to the dedicated liquidity account.~~

Any liquidity that the Party has transferred to an AS ~~dedicated~~technical liquidity account is not taken into account for calculation of the Party’s minimum reserve. In addition, only the AS can initiate a return transfer of liquidity to the Party’s RTGS DCA.

3.6 LIQUIDITY MANAGEMENT SERVICES TOWARDS OTHER USERS

Based on their business model, some Parties (*referred to as Party 1 in this section*) may decide to outsource the monitoring and management of their accounts in the ~~TARGET Services Eurosystem market infrastructures~~ to other Parties (*referred to as Party 2 in this section*). In current TARGET2, this functionality is called “co-management” of HAM accounts. In the future, this “co-management” functionality can be reflected via access rights and message subscription in T2 (i.e. RTGS and CLM) in a flexible way. Both the Party 1 as the owner of the account(s) as well as the Party 2 have the following means to configure the required setup.

- Party 1 can grant Party 2 with the access rights to either see the balances or also instruct on the account (see section [6.2 CONCEPTUAL VIEW TO ROLES AND ACCESS RIGHTS](#))
- Both Party 1 and Party 2 can subscribe for notifications (see section [3.2.1.3 ALERTS AND NOTIFICATIONS](#)), messages and reports (see section [3.7 REPORTING](#))
- Party 2 can set up Account Monitoring Group for all accounts it shall be monitoring (see section [3.6.1 ACCOUNT MONITORING GROUP](#))
- Party 1 and Party 2 can request the Central Bank to include their accounts into a Liquidity Transfer Group (see section [3.2.2.9 LIQUIDITY TRANSFER GROUP](#))

3.6.1 Account Monitoring Group

A Party 2 can optionally associate its MCAs and ~~the RTGS-DCAs in RTGS, TIPS and T2S~~ as well as the MCAs and ~~RTGS-DCAs in RTGS, TIPS and T2S~~ of other Parties, which have granted it with the necessary access rights, into an Account Monitoring Group. Such grouping will allow the Party 2 to monitor the liquidity on the clustered accounts collectively. An Account Monitoring Group can include accounts owned by several Parties and which have been opened in the books of different Central Banks.

Account Monitoring Group ~~is purely for monitoring purposes and does not play a role has no usages in conjunction with~~in the processing of payments, liquidity transfers and operations in neither CLM nor RTGS.

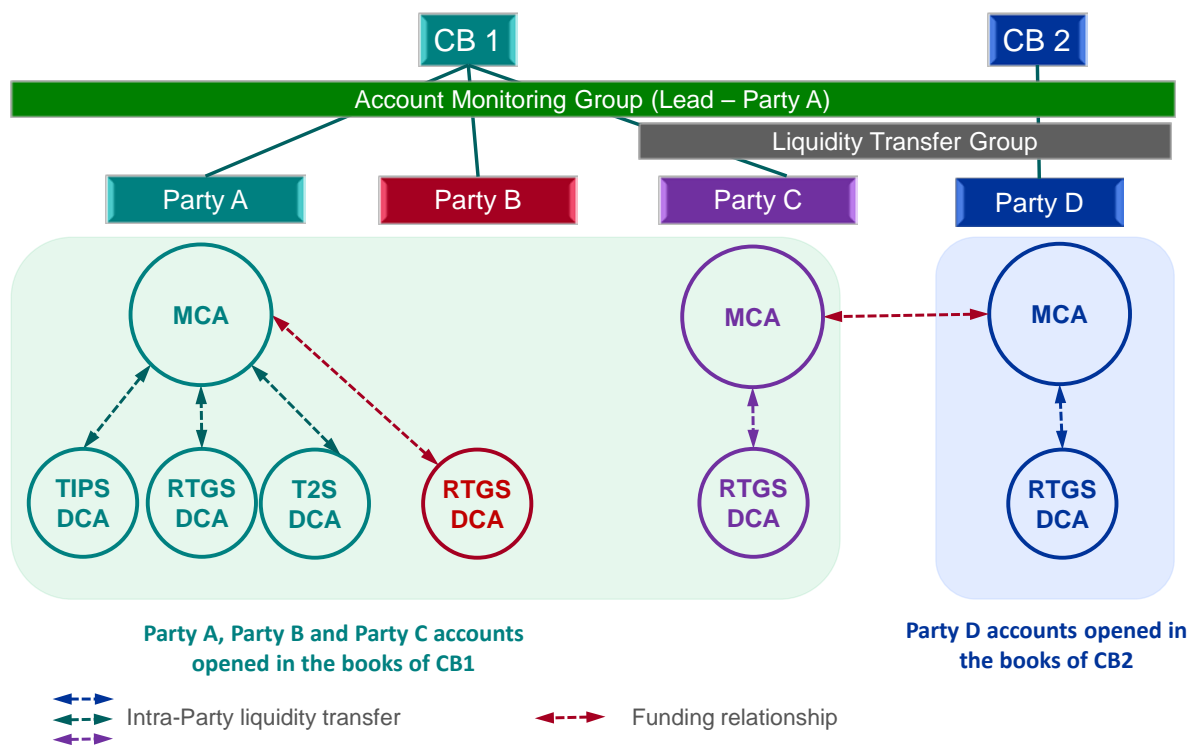


Figure 7: Multinational Account Monitoring Group

3.7 REPORTING

The Parties can subscribe for different notification messages and reports based on their needs. Furthermore, in the event that a Party manages the liquidity on behalf of another Party on the latter's accounts, both Parties can be configured as receiving parties for reports on the managed account.

- **Notification message subscription**

During its processing in CLM and RTGS, a dynamic data order (e.g. payment, liquidity transfer, reservation) passes certain statuses (e.g. pending, rejected, settled). For some status, CLM and RTGS generate status advices/messages: some of these status advices/messages, the Party is obliged to subscribe for (e.g. payment rejections), while some other status advices are optional (e.g. payment settlement confirmation).

- **Report subscription**

The Party can subscribe for standard reports that CLM or RTGS shall create at certain times during a business day or at certain business day events (e.g. standard statement of account report at End of Day that covers information for the whole previous business day). The Parties can specify in their report subscription, whether such report shall be sent to the recipient immediately in A2A mode or be stored for later querying in A2A mode or downloading via GUI. Such standard reports are available for later querying and downloading until the next report based on the same configuration is created.

Furthermore, the Parties can query information on historical data based on predefined reports from Data Warehouse in A2A mode or via GUI. They can, additionally, adapt a predefined report and save the query/report template for later usage.

4 TRANSACTION PROCESSING PERSPECTIVE

This chapter elaborates on the functions and features that shall support the transaction processing departments at banks in understanding how payment orders are received by and processed in the system. The chapter consists of following sections:

- **Section 1: Participation types** aims at explaining the different roles a credit institution may take to benefit from the services.
- **Section 2: General principles for messaging** presents the cornerstones applicable to the application-to-application communication with the services.
- **Section 3: Liquidity saving mechanisms and optimisation procedures in RTGS** details the ways how RTGS optimises the number of settled payment orders.
- **Section 4: Contingency measures for participants** clarifies the means that the Parties can use in case of a technical failure at their end.
- **Section 5: Schedule** elaborates on the general structure of the business day (incl. End of Day procedures) as well as on the system calendar.
- **Section 6: Other aspects** addresses, inter alia, the directory services.

4.1 PARTICIPATION TYPES

A customer of a Central Bank eligible to participate and settle in the [TARGET Services Eurosystem market infrastructures](#) will be defined only once in the system as a Party. It can then be granted with access rights that are required to become a Participant in [RTGS, CLM, TIPS or T2S](#) ~~one or the other service~~ and become an account holder.

All MCA holders are **CLM participants**. All RTGS DCA holders are **direct RTGS participants**. Both the CLM participants and the direct RTGS participants will have access to their accounts and can submit orders both in A2A and U2A ([via GUI](#)) mode. They are responsible for their own liquidity management and for monitoring the settlement process. Both the CLM participant and the direct RTGS participant may, however, also grant access to another Party to monitor or manage the liquidity on its MCA or RTGS DCA on its behalf (see section [3.6 LIQUIDITY MANAGEMENT SERVICES TOWARDS OTHER USERS](#)).

In RTGS, the direct participants can provide **alternative access** to RTGS for other institutions and offer them additional services. Institutions accessing RTGS via alternative access do not have their own RTGS DCA, but their BICs are listed in the RTGS directory as being reachable (see section [4.6.1 RTGS DIRECTORY SERVICES](#)). Furthermore, as all payments towards these institutions settle on the

RTGS DCA of the direct RTGS participant, the latter remains responsible for all such payments. Alternative access to RTGS can be achieved by

- **Indirect participation**

An indirect participant can be registered in RTGS through one and only one direct RTGS participant; both of them may be located in different countries. Indirect participants can only send and receive payment orders to/from RTGS via the direct participant.

- **Multi-addressee access**

A direct RTGS participant can authorise its branches and credit institutions belonging to its group located in the EEA countries via a so called multi-addressee access to channel payments through the RTGS DCA of the same direct participant without its involvement by submitting/receiving payments directly to/from RTGS. Institutions accessing RTGS via multi-addressee access can do it via one and only one direct RTGS participant.

- **Access as correspondent BICs (“addressable BICs”)**

Any correspondent (or a branch of a correspondent) of a direct RTGS participant that holds a BIC is eligible to be listed in the RTGS directory irrespective of its place of establishment. These addressable BICs can only send and receive payment orders to/from RTGS via one and only one direct RTGS participant.

Although technically there is no difference between indirect participants and access as a correspondent BICs (“addressable BICs”), certain legal terms may apply.

| Feature | Direct RTGS participant | Indirect RTGS participant / addressable BICs | Multi-addressee RTGS access |
|---------------------------------------|------------------------------|--|--------------------------------|
| sending and receiving payments | Directly | Via direct RTGS participant | Directly |
| own RTGS DCA | Yes | No | No |
| liquidity provisioning | On its RTGS DCA | By direct RTGS participant | By direct RTGS participant |
| liquidity control | By itself | By direct RTGS participant | By direct RTGS participant |
| access to U2A (via GUI) | Yes | No | No |
| addressability | Directly | By direct RTGS participant | Directly |
| publication in RTGS directory | As a direct RTGS participant | As indirect RTGS participant / addressable BIC | As multi-addressee RTGS access |

Table 2: Conditions and features of different access types

4.2 GENERAL PRINCIPLES FOR MESSAGING

With the go-live of T2-T2S Consolidation project, the A2A communication between the credit institutions and all ~~TARGET Services Eurosystem market infrastructures~~ and common components will be based on the ISO 20022 compliant messages. As T2S already today uses the ISO 20022 message standards, the message standards for T2 (i.e. RTGS and CLM) will be aligned to the extent possible with the former. The implementation of ISO 20022 message standards for payments will adhere to the following principles:

- **Message portfolio:** ~~T2RTGS and CLM~~ shall use to the extent possible the existing ISO 20022 messages. Where necessary, further ISO 20022-compliant messages may be defined.
- **Fully-fledged approach:** in ~~T2RTGS and CLM~~, the ISO 20022 message standard shall be implemented fully. No “like-for-like” approach is followed in order to allow the usage of additional fields that ISO 20022 payment messages support.
- **Interoperability:** the interface to ~~T2RTGS and CLM~~ will not support coexistence of ISO 20022 and FINMT. Nevertheless, it is acknowledged that within the context of cross-border business the banks would still need to retain interoperability between the standards.
- **Network vendor agnostic:** the interface to ~~T2RTGS and CLM~~ shall be neutral towards the provider of the network services. Specifically, this means that ~~T2RTGS and CLM~~ will not rely on the current TARGET2 SWIFT Y-copy service. Therefore, ~~T2RTGS and CLM~~ will switch from the Y-copy mode to the V-shape model.
- **Big bang:** The switch from Y-copy to V-shape mode will require a big bang implementation of the ISO 20022 message standard, i.e. all affected messages must be replaced at the same time. No phased implementation is foreseen (see section on migration).
- **Message versioning:** ~~T2RTGS and CLM~~ will support only one message version at a time.

4.3 LIQUIDITY SAVING MECHANISMS AND OPTIMISATION PROCEDURES IN RTGS

One of the basic expectations towards RTGS is the fast real-time settlement of payments with a reduced amount of liquidity. In order to address this expectation, RTGS includes several liquidity saving mechanisms and runs continuously optimisation procedures with the aim to dissolve queues. In addition, the Party can impact the queue by amending the payment order or through payment order cancellation (see section [3.2.2.7 QUEUE MANAGEMENT AND AMENDMENT AND CANCELLATION OF PAYMENT ORDERS IN RTGS](#)). Finally, a payment order may be cancelled by a time-induced rejection (e.g. start of End of Day process, Reject Time reached).

This section describes how RTGS optimises the number of successfully settled payment orders.

4.3.1 Entry disposition with offsetting¹²

In RTGS, the first settlement is attempted via the entry disposition. The basic principle of the entry disposition is that RTGS checks whether the incoming payment allows the creditor to offset queued payments towards the payer of the initial payment with the aim to save liquidity.

For **HU**- and **UH**-payments the FIFO-principle applies (see section [3.2.2.4 PAYMENT PRIORITY IN RTGS](#)). Payments with the same and lower priority will not be attempted to settle in case a payment with the same or higher priority is already queued for that debtor (this principle does not apply to N-payments). The only exception to this principle is that payments with lower priority or payments with the same priority, but with a later FIFO timestamp, can be executed provided that this settlement will allow an offsetting transaction to be settled as well and the overall effect of this offsetting will be a liquidity increase for that debtor.

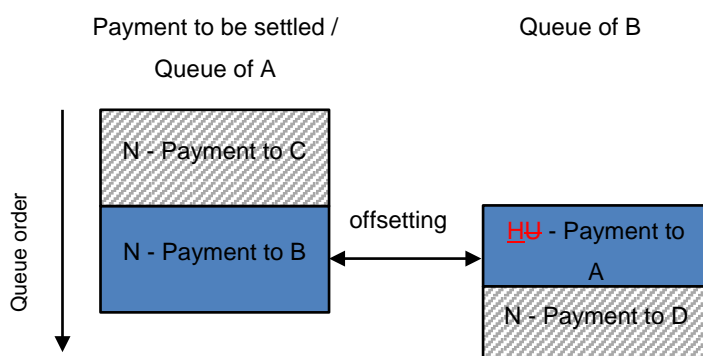
N-payments are processed according to the “FIFO by-passing” principle, i.e. N-payments may be executed even if other N-payments with an earlier FIFO timestamp are in the queue (provided that the balance on the RTGS DCA is sufficient). Nevertheless, also for such N-payments, RTGS checks in the entry disposition if there are offsetting payments on the receiver side.

EXAMPLE: Offsetting

Condition:

- a) Debtor: No pending payments with the same (i.e. **HU** or **UH** only) or higher priority in the queue
- b) Creditor: Offsetting payment is on top of the queue or no **HU** and **UH** payments in queue

Diagram:



Remarks:

- “FIFO by-passing” principle for N-payments applies on debtor's side

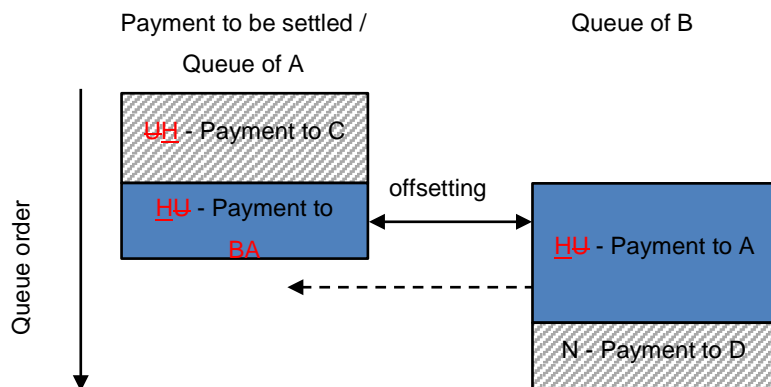
¹² [Offsetting in the RTGS aims at increasing the capacity of the system to settle payments, thereby reducing queues, speeding up the settlement process and reducing the need of intraday liquidity. A bilateral or multilateral offsetting mechanism considers payments in the queues of participants and tries to settle them simultaneously on a gross basis within one legal and logical second. \(T2-T2S Consolidation Glossary v1.1.1\)](#)

EXAMPLE: Offsetting with liquidity increase for debtor

Condition:

- a) Debtor: Pending HU or UH payments in the queue
- b) Creditor: Offsetting payment is on top of the queue or no HU and HU payments in queue

Diagram:



Remarks: Liquidity increase from the offsetting result ~~netting of the offsetting payments~~ allows the breaching of the FIFO-principle on debtor's side

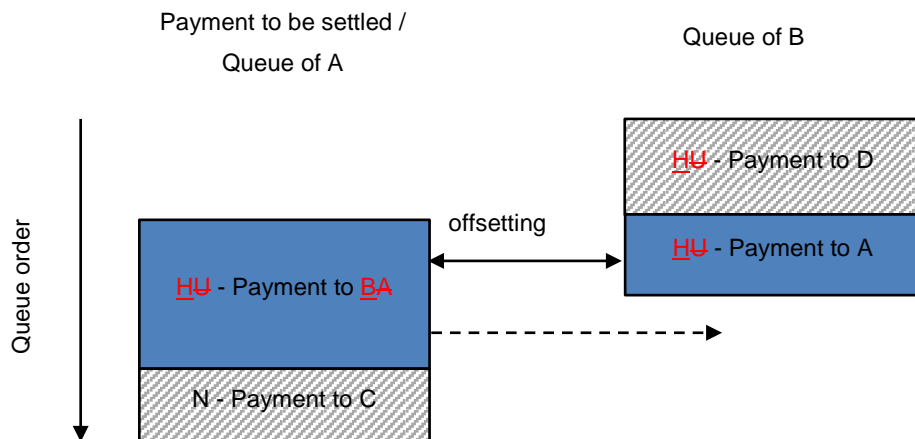
- No liquidity increase on both sides necessary

EXAMPLE: Offsetting with liquidity increase for creditor

Condition:

- a) Debtor: No pending payments with same (for HU and UH only) or higher priority in the queue
- b) Creditor: Offsetting payment is not on top of queue

Diagram



Remarks: Liquidity increase from the offsetting result ~~netting of the offsetting payments~~ allows the

breaching of the FIFO-principle on creditor's side

4.3.2 Dissolution of payment queue

Once a payment is in the queue (i.e. the settlement attempt with the entry disposition with offsetting was unsuccessful), it may get settled via an event-oriented dissolution of the queue or via continuous dissolution of the queue by optimisation algorithms.

4.3.2.1 EVENT-ORIENTED DISSOLUTION

The queues of HU-payments and HU-payments are resolved in an event-oriented way starting with the payment at the top. Possible events that trigger dissolution of a HU- or HU-payment queue are

- a liquidity increase by incoming payments or liquidity transfers
- Party's interventions on queue level (see section [3.2.2.7 QUEUE MANAGEMENT AND AMENDMENT AND CANCELLATION OF PAYMENT ORDERS IN RTGS](#))

4.3.2.2 CONTINUOUS DISSOLUTION BY OPTIMISATION ALGORITHMS

RTGS continuously attempts to resolve the payment queues by applying four different algorithms. Single algorithms are used either sequentially or according to the situation (e.g. in case of [partial optimisation with ancillary system](#) algorithm-4). Two algorithms cannot run in parallel to each other.

- ~~All-or-nothing optimisation (algorithm 1) calculates for each participant the total liquidity position (i.e. available balance on RTGS DCA plus incoming payments minus outgoing payments). If the total positions for all participants are fully covered and all settlement criteria (incl. bilateral and multilateral limits) are fulfilled, all payment orders will be settled. Otherwise the algorithm is ended unsuccessfully.~~
- **Partial optimisation (algorithm 2)** operates similarly to algorithm 1, but this algorithm removes individual payments from the set in order to avoid insufficient cover for the total position of the participant. For participants with uncovered positions, single transactions will be retained until the liquidity is sufficient to cover the total position remaining in the set. The retained/removed payments are included in the next optimisation process. The payments which have not been retained are settled.
- **Multiple optimisation (algorithm 3)** consists of two parts: (1) the resolving of bilateral relations (based on bilateral limits) and (2) the resolving of the multilateral relations (based on multilateral limit). For both parts, uncovered payments or payments, which breach defined limits, are retained in the same manner as in [partial optimisation](#) algorithm-2.
- **Partial optimisation with ancillary system (algorithm 4)** is dedicated to the simultaneous multilateral settlement of AS transactions (see section [5.2.2.2 SIMULTANEOUS MULTILATERAL SETTLEMENT](#)), although also all regular payments are included to this optimisation process as

well. This algorithm will run at the time transactions from an AS using this procedure need to be settled.

The algorithms can run in parallel to the entry disposition (see section [4.3.1 ENTRY DISPOSITION WITH OFFSETTING](#)), which means that payments that enter RTGS after the start of an algorithm can be settled immediately if the positions and limits of the concerned participants are compatible with both (1) the settlement of these payments and (2) the settlement of payments taken into account in the current optimisation.

When an algorithm runs, the payments are “blocked” and cannot be re-ordered, revoked, etc. In the event the payment becomes final during the run of the algorithm, the modification or cancellation order will be rejected. If the payment is still pending after the end of the algorithm, the modification/cancellation order will be processed immediately.

4.4 CONTINGENCY MEASURES FOR PARTICIPANTS

In the event of a technical system problem, the direct RTGS participant may not be able to send or receive payment orders in A2A mode. In order to mitigate the impact on its business as well as the possibility of a shortage of liquidity within RTGS, the Party can initiate payments via RTGS GUI and distribute liquidity to any RTGS DCA as backup payments (identified with a specific codeword). Such backup payments may be towards other

- 1) settlement systems (e.g. pay-ins to CLS or EURO1)
- 2) direct RTGS participants (e.g. redistribution of excess liquidity accumulated on the RTGS DCA of the affected Party).

The Parties can submit backup payments only once the Central Bank has activated the feature for a specific Party.

In CLM, in the event of a technical system problem that prevents a Party to connect in A2A mode, it can submit the liquidity transfers in U2A mode via CLM GUI.

4.5 SCHEDULE

The common scheduler defines the structure of the business day in the [TARGET Servicesmarket infrastructures](#) and components, while the common calendar defines the business days for a service/component and for a currency.

4.5.1 Business day scheduler

All times in the business day schedule are CET.

The common business day scheduler ensures that within a specific service or component, the business day changes at the same moment of time for all supported currencies. However, depending

of the End of Day procedures in a specific service/component, the change in the business day may take place at different times in different services and components. Still, the system allows any interaction between the services and components only when they are in the same business day.

***EXAMPLE:** upon the closure of RTGS, the business day in TIPS is changed shortly after 18:00. From thereof all instant payments settle with BD+1. However, CLM will change the business day around 18:45 once it has finished with the CLM End of Day procedures. Only when CLM has also finished with its Start of Day procedures, the service becomes available for users with business day BD+1. Then the Party can transfer additional liquidity to TIPS for settlement of instant payments.*

The business day scheduler defines also the events per currency upon which the Parties can configure event-based standing orders and regular reports. [The below Table 3 provides](#)

~~TABLE 2: INDICATIVE TIMING OF SUBSET OF BUSINESS DAY EVENTS IN CLM, RTGS AND CRDM/DWH~~ the overview of the main periods during the business day in CLM, RTGS and CRDM/DWH¹³.

| | CLM | RTGS | CRDM/DWH |
|----------------------------------|--|--|--------------------|
| Change of business day | 18:45 | | |
| Start of Day procedures | 18:45-19:00 | 18:45-19:30 | 18:45-19:00 |
| Availability for users | 19:00-00:30 <i>(no LTOs allowed between 19:00-19:30)</i> | 19:30-00:30 <i>(only for settlement of AS transactions and LTOs)</i> | 19:00-00:30 |
| Maintenance window ¹⁴ | 00:30-02:30 | | |
| Availability for users | 02:30-18:00 | 02:30-03:00 <i>(only for maintenance of warehoused payments)</i> | 02:30-18:00 |
| | | 03:00-18:00 <i>(continuous processing of payment orders, AS transactions and LTOs)</i> | |
| Cut-off for Customer Payments | NA | 17:00 | NA |

¹³ The points of time in this table are indicative and shall define only the order of the different cut-offs and timings of business day phases when they shall take place

¹⁴ [For the sake of efficiency, the Eurosystem will align the maintenance windows across the different TARGET S services \(i.e. CLM, RTGS, T2S and common components\). The indicated timing of the maintenance window \(00:30-02:30\) is the proposal of the payment community, while the securities community \(T2S\) is currently used to with the maintenance window between 03:00-05:00. However, the exact timing shall be agreed among all involved communities.](#)

| | | | |
|--|---|--------------|-----------|
| Cut-off for Interbank Payments / <u>CB Operations</u> | NA18:00 | 18:00 | NA |
| End of Day procedures | 18:00-18:45 | | |
| Cut-off for Standing Facilities | 18:15 <i>(15 min after the start of End of Day procedures; + 15 min on the last business day of the reserve maintenance period)</i> | NA | NA |

Table 3: Indicative timing of subset of business day events in CLM, RTGS and CRDM/DWH (in CET)

~~*PS. For the sake of efficiency, the Eurosystem will align the maintenance windows across the different services (i.e. CLM, RTGS, T2S and common components). The indicated timing of the maintenance window (00:30-02:30) is the proposal of the payment community, while the securities community (T2S) is currently used to with the maintenance window between 03:00-05:00. However, the exact timing shall be agreed among all involved communities.*~~

4.5.2 End of Day and Start of Day procedures

Every business day ends and starts with a set of standard actions and events.

Shortly after **18:00**, once the last settlement algorithm in RTGS is finished, the End of Day procedures in CLM and RTGS start with stopping the processing of any pending LTOs, payment orders or modification requests. The Party will be notified of the failure and the orders/requests are cancelled. Due to its specific operations, TIPS prepares only a snapshot of the balances on TIPS DCAs at the start of the RTGS End of Day procedure, ensuring that no liquidity transfers are pending confirmation from other settlement services. Thereafter TIPS continues normal processing of instant payments with next business day value.

Until **18:15 (18:30** on the last day of the reserve maintenance period), the Party can use the standing facilities to either obtain overnight liquidity or deposit liquidity with the Central Bank (see section [3.4.2 USAGE OF STANDING FACILITIES](#)).

Once deadline for the usage of standing liquidity is over and CLM has gathered all cash balances from RTGS, TIPS and T2S, CLM calculates the Party's global End of Day balance. In case the global balance is negative, the system automatically converts any outstanding amount into an automatic marginal lending.

Thereafter the services send out the subscribed End of Day account statements to all Parties.

At **18:45** the coordinated Change of Business Day takes place in T2 (i.e. CLM and RTGS), T2S and common components.

The Start of Day procedures commence in CLM with automatic reimbursement of marginal lending amounts and charge of interest as well as with automatic return of the deposited amounts and settlement of interest.

At **19:30**, CLM and RTGS are available again for Parties.

4.5.3 Calendar

The calendar days when a TARGET Sservice or a common component is opened and follows the defined business day schedule (see section [4.5.1 BUSINESS DAY SCHEDULE](#)) or, contrary, is closed will be defined in the common calendar. Each TARGET Sservice may have a different calendar per currency.

For settlement in euro currency, T2 (i.e. CLM and, RTGS), T2S and common components will be closed on the following days, in addition to Saturdays and Sundays

| |
|-------------------------------------|
| New Year's Day (01 January) |
| Good Friday (Catholic/Protestant) |
| Easter Monday (Catholic/Protestant) |
| <u>1 May (Labour Day (01 May))</u> |
| Christmas Day (25 December) |
| <u>Boxing Day (26 December)</u> |

Table 4: Closing days of T2 (i.e. CLM and, RTGS), T2S and common components for settlement in euro in addition to Saturdays and Sundays

For settlement in non-euro currency, T2S may still be opened in any of the above days if any of the T2S settlement currency RTGS is opened (e.g. on Labour Day (01 May) for settlement in Danish Krone).

On the calendar day which is followed by a T2CLM/RTGS closing day, the daily schedule of the next business day runs until the start of the maintenance window. The same business day continues on the next calendar day that is an opening day of T2CLM and RTGS by finishing the maintenance widow.

EXAMPLE: on Friday evening, the next business day with value Monday in T2CLM, RTGS, T2S and components commences until 00:30 when the common maintenance window starts. These services and components continue their business day schedule with business day Monday on the calendar day Monday at 02:30 by finishing the maintenance window.

4.6 OTHER ASPECTS

In addition to the features and functionality described in previous sections in chapters [3 TREASURY PERSPECTIVE](#) and [4 TRANSACTION PROCESSING PERSPECTIVE](#), T2 (i.e. RTGS and CLM) provide or are supported by the following functionality

4.6.1 **RTGS Directory services**

The RTGS Directory provides information on all participants that are reachable for payments via T2a Eurosystem market infrastructure. There will be a dedicated directory for all participants in RTGS (see section 4.1 PARTICIPATION TYPES) and another directory for CLM participants. The RTGS directory is compiled based on the information in CRDM. A Party can also request that its certain BIC is not published in the directory. In such case, its counterparts can make payments to the account linked to this BIC only if the Party has previously provided the BIC to them.

The Parties can query the RTGS and CLM directory in A2A and in U2A (via GUI) as well as subscribe for changes in the directory in push mode. If required, the Party can also retrieve a full copy of the directory upon request.

4.6.2 **Warehoused payments**

The Parties can submit payments up to 10 calendar business days in advance to the indicated value date. Such payments are warehoused until RTGS opens on that value date for settlement of payments (see section 4.5 SCHEDULE). The Party can amend or cancel warehoused payments during the whole time they are stored in RTGS. There will be a dedicated period of 30 minutes before RTGS starts settlement of payments on that value date, when the Party can amend or cancel its warehoused payments before they are further processed.

In CLM, the Central Banks can also send payments up to 10 calendar business days in advance.

4.6.3 **Billing for usage of services**

The Parties will be billed separately for the usage of T2 (i.e. CLM and RTGS) each Eurosystem market infrastructure. They can define in CRDM for each cash account the relevant information (e.g. to whom the invoice shall be addressed, which MCA shall be debited, etc.) that will be taken into account during the billing process.

Further information on billing and the respective fees will be defined in a pricing guide.

5 ANCILLARY SYSTEM PERSPECTIVE

In addition to settling credit institutions' real-time interbank and customer payments, RTGS also supports the ancillary systems in settling in Central Bank Money the financial obligations that result from their settlement banks' activities within their systems. This chapter describes the functions and features that an ancillary system can use in RTGS. The chapter consists of following sections:

- **Section 1: Accounts involved in AS transaction processing** clarifies the type of accounts required in overall processing of AS transactions
- **Section 2: AS settlement business scenarios** describes how AS transactions sent as payments or based on dedicated settlement procedures are processed
- **Section 3: General aspects of AS transactions management** elaborates on main aspects around the management of AS transactions
- **Section 4: Settlement control features for ancillary systems** details the optional features that an ancillary system may want to use in order to regulate the processing of its transactions
- **Section 5: Contingency measures** clarifies the possibilities for the AS to submit messages/files to RTGS in case of technical communication problems at their end

In this chapter the term "settlement bank" is used to refer to a direct RTGS participant (see section [4.1 PARTICIPATION TYPES](#)) that is in a contractual relationship with an ancillary system.

5.1 ACCOUNTS INVOLVED IN AS TRANSACTION PROCESSING

All transactions sent by ancillary systems settle in RTGS.

From the **settlement banks** perspective, they can decide whether their AS transactions settle on their RTGS DCA for payments (see section [3.5.1.1 AS TRANSACTIONS SETTLING ON RTGS DCA FOR PAYMENTS](#)) or whether they open one or several RTGS DCAs dedicated for AS settlement (see section [3.5.1.2 AS TRANSACTIONS SETTLING ON RTGS DCA DEDICATED FOR AS SETTLEMENT](#)). In addition and in order to support AS settlement procedure "Settlement on dedicated liquidity accounts (interfaced)" (see section [5.2.2.3 SETTLEMENT ON DEDICATED LIQUIDITY ACCOUNTS \(INTERFACED\)](#)), the settlement banks can also open an RTGS DCA sub-account (see section [3.5.2 AS TRANSACTIONS SETTLING ON RTGS DCA SUB-ACCOUNT](#)).

From the **ancillary systems** perspective, they can use the following accounts in RTGS for the specific processing of their AS transactions.

- **Technical account**

A technical account can be owned by the ancillary system or by a Central Bank. These accounts are used as intermediary accounts for the collection of debits and credits resulting from the multilateral

settlement of AS transactions. At End of Day, the balance of a technical account should always be zero, as all debits are always followed by credits in an overall equal amount during a business day.

- **Guarantee funds account**

A guarantee funds account can be owned by the ancillary system, the Central Bank or by a guarantor. The liquidity on this account can be used according to the predefined rules and in case the ancillary system is making use of the guarantee fund mechanism (see section [5.4.3 GUARANTEE FUND MECHANISM](#)) that is available for AS settlement procedures “Standard multilateral settlement” (see section [5.2.2.1 STANDARD MULTILATERAL SETTLEMENT](#)) and “Simultaneous multilateral settlement” (see section [5.2.2.2 SIMULTANEOUS MULTILATERAL SETTLEMENT](#)).

- **Dedicated liquidity account**

A dedicated liquidity account is held by the ancillary system or by the Central Bank on behalf of the ancillary system that uses AS settlement procedure “Settlement on dedicated liquidity account (real-time)” (see section [5.2.2.4 SETTLEMENT ON DEDICATED LIQUIDITY ACCOUNTS \(REAL-TIME\)](#)). The Parties’ funds held on such account are mirrored in the books of the AS.

5.2 AS SETTLEMENT BUSINESS SCENARIOS

Ancillary systems can instruct their transactions as payments or based on dedicated settlement procedures.

5.2.1 AS transactions settlement via payments¹⁵

An AS can send its transactions as payments that shall settle in real-time either

- between the RTGS DCAs of two settlement banks or
- between the RTGS DCA of a settlement bank and the AS technical account.

The AS can send such transactions as individual payments (pacs.009) or in batches where the individual payments (pacs.009) are bundled into a file with the business file header. The ancillary systems using this procedure can send credit or debit payments on behalf of direct RTGS participants based on granted access rights. These transactions settle continuously and independently from each other.

The AS can complement its transactions with time indicators (see section [5.4.1 TIMING OF AS TRANSACTIONS SETTLEMENT](#)).

5.2.2 AS settlement procedures

Ancillary systems can choose among different procedures that shall apply to their transactions. This section gives the overview of such procedures and elaborates on their specificities.

¹⁵ Former ASI procedure 2 “Real-time settlement” and ASI procedure 3 “Bilateral settlement”

5.2.2.1 STANDARD MULTILATERAL SETTLEMENT¹⁶

An AS can send simultaneously (i.e. in batch mode) its debit and credit transactions between the RTGS DCA of a settlement bank and the AS technical account.

The settlement of such transactions is dependent on the successful execution of all linked transactions (i.e. the sum of credits equal to the sum of debits in the same batch). During the settlement process, first all debits have to be booked on the settlement banks' RTGS DCAs (*"Debits first"*). For this purpose the required liquidity on the involved RTGS DCAs is blocked until the last debit order is successfully executed. Thereafter all credits are immediately settled on the involved RTGS DCAs and the liquidity on these accounts is released.

For standard multilateral settlement procedure, the AS shall send its transactions in batch mode in dedicated AS files (ASTransferInitiation).

5.2.2.2 SIMULTANEOUS MULTILATERAL SETTLEMENT¹⁷

An AS can send simultaneously (i.e. in batch mode) its debit and credit transactions between the RTGS DCA of a settlement bank and the AS technical account.

The settlement of such transactions is dependent on the successful execution of all linked payments (i.e. the sum of credits equal to the sum of debits in the same batch). These AS transactions are put into the queue on the settlement banks' RTGS DCAs and are submitted to settlement during a dedicated optimisation algorithm (see section [4.3.2.2 CONTINUOUS DISSOLUTION BY OPTIMISATION ALGORITHMS](#), Partial optimisation with ancillary system). During the optimisation algorithm, RTGS checks that there is sufficient liquidity to settle all debit and credit transactions of an AS simultaneously (*"All or nothing"*). If this check is successfully passed, all debit and credit transactions are booked simultaneously. If the check fails, all linked AS transactions are earmarked (not blocking liquidity in the meantime) and the partial optimisation with ancillary system optimisation algorithm is triggered again.

For simultaneous multilateral settlement, the AS can send its transactions in batch mode in dedicated AS files (ASTransferInitiation).

5.2.2.3 SETTLEMENT ON DEDICATED LIQUIDITY ACCOUNTS (INTERFACED)¹⁸

For this AS settlement procedure, the settlement bank shall open and allocate liquidity to a designated sub-account for each AS using this procedure (see section [3.1.2 DEDICATED CASH ACCOUNT IN RTGS](#)).

¹⁶ Former ASI procedure 4 "Standard multilateral settlement"

¹⁷ Former ASI procedure 5 "Simultaneous multilateral settlement"

¹⁸ Former ASI procedure 6 Interfaced "Settlement on dedicated liquidity account (so-called sub-accounts) (interfaced)"

The AS can send its transactions that shall settle between the RTGS DCA sub-account of the settlement bank and the AS technical account. They can send the orders in batch mode in dedicated AS files (ASTransferInitiation).

5.2.2.4 SETTLEMENT ON DEDICATED LIQUIDITY ACCOUNTS (REAL-TIME)¹⁹

For this AS settlement procedure, a settlement bank (or the ancillary system on behalf of its settlement bank) can transfer liquidity from its RTGS DCA to an AS dedicated liquidity account (see section [5.1 ACCOUNTS INVOLVED IN AS TRANSACTION PROCESSING](#)). The AS mirrors this liquidity to the settlement bank's account held within the AS. If required, only the AS can initiate a return transfer of liquidity to the settlement bank's RTGS DCA.

5.3 GENERAL PRINCIPLES OF AS TRANSACTIONS MANAGEMENT

This section elaborates on main aspects around the management of AS transactions.

5.3.1 A2A communication with RTGS

The ancillary systems communicate with RTGS in U2A (via GUI) and in A2A mode.

Depending on the settlement procedure, the ancillary systems can send via A2A

- 1) individual payments (pacs.009) in order by order basis or as bundled into a file
- 2) individual debits and credits transactions in dedicated AS files (ASTransferInitiation)

The ancillary systems receive information on the status of the settlement either via receiving a confirmation message (ASInitiationStatus) or a payment status report (pacs.002) in A2A mode or querying the GUI in U2A mode (see section [5.4.3 MONITORING BY AS](#)).

5.3.2 AS transaction characteristics

All transactions sent by ancillary systems are classified with U-priority and they are processed based on the FIFO-principle (see section [3.2.2.4 PAYMENT PRIORITY IN RTGS](#)). Ancillary systems can send AS transactions via dedicated AS files (ASTransferInitiation) only with the value of current business day (i.e. AS transactions in ASTI cannot be warehoused). AS transactions sent via payments (pacs.009) can also be with future value date.

5.3.3 Monitoring by ancillary systems

Upon a successful settlement or in case of a failure (e.g. due to exceeded time limit), the AS receives either a confirmation message (ASInitiationStatus) or a payment status report (pacs.002) in A2A

¹⁹ Former ASI procedure 6 Real-Time "Settlement on dedicated liquidity account (so-called technical account for procedure 6) (real-time)"

mode depending on the AS settlement business scenario. In addition, the ancillary systems can also monitor the status of their transactions and files at any stage by querying the GUI (U2A mode).

The RTGS GUI will provide the AS also with the appropriate liquidity monitoring facilities that allow it to monitor its account as well as the liquidity needed for settlement of its files and payments.

5.4 SETTLEMENT CONTROL FEATURES FOR ANCILLARY SYSTEMS

This section describes the optional features that an ancillary system can use in order to regulate the processing of its transactions.

5.4.1 Timing of AS transactions settlement

The ancillary systems can send their transactions and files for settlement between 19:30-18:00 (except during the maintenance window) (see section [4.5.1 BUSINESS DAY SCHEDULE](#)). Nevertheless and depending of the settlement procedure, an AS may make use of

- A time indicator in a payment order (pacs.009) (From Time, Till Time and Reject Time; see section [3.2.2.6 TIMING OF EXECUTION](#)) or
- A settlement period in a dedicated AS file (ASTransferInitiation) (see section [5.5.2 SETTLEMENT PERIOD](#))

to steer the settlement of its transactions.

5.4.2 Settlement period

Depending on the settlement procedure, an AS can indicate in the ASTransferInitiation file an settlement period. The transactions not settled at the end of this period, are rejected (incl. reversal of already booked transactions in the framework of a standard multilateral settlement) or a guarantee fund mechanism can be activated (see section [5.5.3 GUARANTEE FUND MECHANISM](#)).

5.4.3 Guarantee fund mechanism

In the event the AS transactions cannot be settled using the settlement bank's liquidity only, the guarantee fund mechanism is activated. Based on the predefined rules, complementary liquidity is tapped from the dedicated guarantee funds account.

5.4.4 Information period

Depending on the settlement procedure, an AS can indicate in the ASTransferInitiation file an information period. The information period is a time period before the settlement of the AS transactions starts and when the settlement banks are informed of the amounts that they shall ensure on their accounts for successful processing of the AS transactions. In exceptional circumstances the settlement banks may also express disagreement with the calculated balances during the information period and, thus, avoid the settlement of erroneous balances.

| AS settlement business scenario | Scheduled time (From / Till / Reject Time) | Settlement period | Information period | Guarantee fund mechanism |
|---|--|-------------------|--------------------|--------------------------|
| AS transactions settlement via payments | X | | | |
| AS settlement procedure - Standard multilateral settlement | | X | X | X |
| AS settlement procedure - Simultaneous multilateral settlement | | X | X | X |
| AS settlement procedure - Settlement on dedicated liquidity accounts (interfaced) | | | | |
| AS settlement procedure - Settlement on dedicated liquidity accounts (real-time) | | | | |

Table 5: Overview of AS settlement business scenarios and their settlement control features

5.5 CONTINGENCY MEASURES

In the event the AS faces a technical communication problem with RTGS, it may not be able to forward its orders and messages/files to RTGS for settlement in A2A mode. In such cases, the Central Bank of the AS will be equipped with a tool and necessary access rights to submit these payments to RTGS on behalf of the AS. The Central Bank can submit

- Payments between the RTGS DCAs belonging to two settlement banks of the same AS
- Payments between the AS technical account (see section [5.1 ACCOUNTS INVOLVED IN AS TRANSACTION PROCESSING](#)) and the RTGS DCA belonging to an AS settlement bank
- Liquidity transfers between the AS dedicated liquidity account and the RTGS DCA belonging to an AS settlement bank
- Liquidity transfers between the RTGS DCA and the RTGS DCA sub-account of an AS settlement bank
- ASTransferInitiation settlement files to be uploaded into RTGS
- Start of cycle and end of cycle messages

6 CONNECTIVITY PERSPECTIVE

This chapter elaborates on the general principles for credit institutions in communication with the TARGET Services. The chapter consists of following sections:

- **Section 1: General principles for accessing TARGET Services** explains the main aspect of the technical connectivity and the interactions in A2A and U2A (via GUI) mode
- **Section 2: Conceptual view to roles and access rights** describes how the individual user's data scope is determined and how it is granted with the necessary roles
- **Section 3: Migration to new solution** provides the high level overview of the planned user testing activities and the clarifications with regards to the big bang approach for migration.

6.1 GENERAL PRINCIPLES FOR ACCESSING TARGET SERVICES

As the first step in interacting with the TARGET Services, the Party shall choose a network service provider (NSP) and establish the access. This section explains the main aspect of the technical connectivity and the interactions in A2A and U2A (via GUI) mode.

6.1.1 Technical connectivity

The access to the TARGET Services and components will take place via Eurosystem Single Market Infrastructure Gateway (ESMIG) (see section [2.1.2 COMMON COMPONENTS](#)). The task of ESMIG is to authenticate the individual user and check that it is authorised to access a specific TARGET Service or common component.

ESMIG will be network service provider agnostic and, thus, the credit institutions will be able to choose among a number of network service providers (NSPs) that the Eurosystem has licensed and certified for providing the access to ESMIG. All NSPs shall fulfil the same communication interface specifications toward ESMIG. However, they may develop and offer additional services for their users in terms of network and messaging.

The network providers shall ensure that their participants can communicate with the TARGET Services

- In application-to-application (A2A) mode (*in store-and-forward and real-time communication protocol*)
- In user-to-application (U2A) mode via GUI

Furthermore, NSPs will be requested to provide a cost effective and easy access solution in U2A mode (via GUI) especially for participants with only a low volume of payments.

6.1.2 A2A messaging principles

With the go-live of T2-T2S Consolidation project, the A2A communication between the credit institutions and T2 (i.e. RTGS and CLM) and common components will be based on the fully-fledged ISO 20022 compliant messages (see section [4.2 GENERAL PRINCIPLES FOR MESSAGING](#)). ESMIG will neither support coexistence of ISO 20022 and MT nor does it offer any message conversion service.

As ESMIG will be network vendor agnostic, T2 will rely on the V-shape communication model.

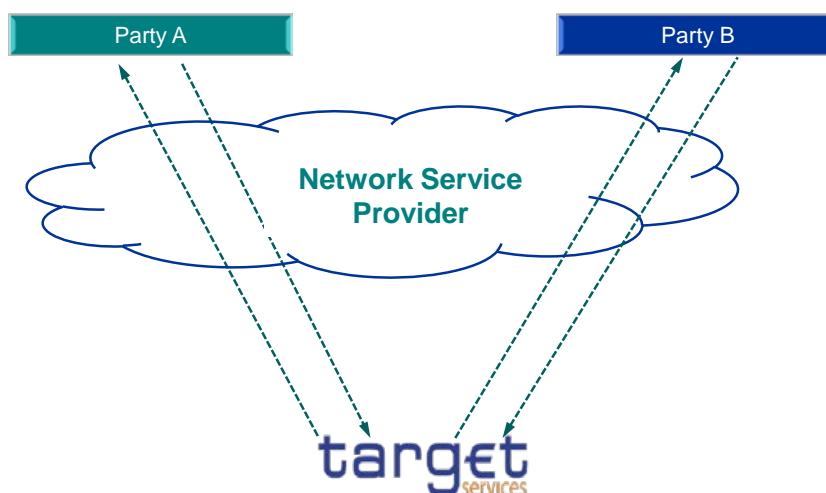


Figure 8: V-shape communication model

6.1.3 Interaction in U2A mode (via GUI)

The Graphical User Interface (GUI) allows the Party to access RTGS, CLM, TIPS, T2S, CRDM and DWH via a desktop/laptop in U2A mode (see section [3.2.1.1 GRAPHICAL USER INTERFACE](#)). The individual user can log on to any of the TARGET Services and common components with a single sign-on and a single certificate. The Eurosystem is currently analysing different options and means for ensuring safe and strong authentication for users to log on in combination of NSP services and without the need of physically connected tokens/smartcards.

After the logon and based on the access rights of the individual, the user can choose from the landing page the specific TARGET Service or common component it wants to access.

To the extent possible, the Eurosystem aims at a similar “look and feel” of different TARGET Services’ GUIs.

6.2 CONCEPTUAL VIEW TO ROLES AND ACCESS RIGHTS

Once ESMIG (see section [2.1.2 COMMON COMPONENTS](#)) has authenticated the user and checked that the user is authorised to address or use a given service or component, the interface to a service/component manages the access rights of the individual users. The individual users will be

allowed to perform business functions in different services and components based on the roles assigned to them and within their data scope.

6.2.1 Definition of data scope

Data scope of an individual user is determined by the hierarchical structure of Parties:

- 1) The service operator has the view to the widest possible data scope
- 2) A Central Bank's data scope is limited to its community
- 3) A Party's data scope is limited to its business under a specific Central Bank
- 4) An individual user's data scope is limited to the Party's data scope

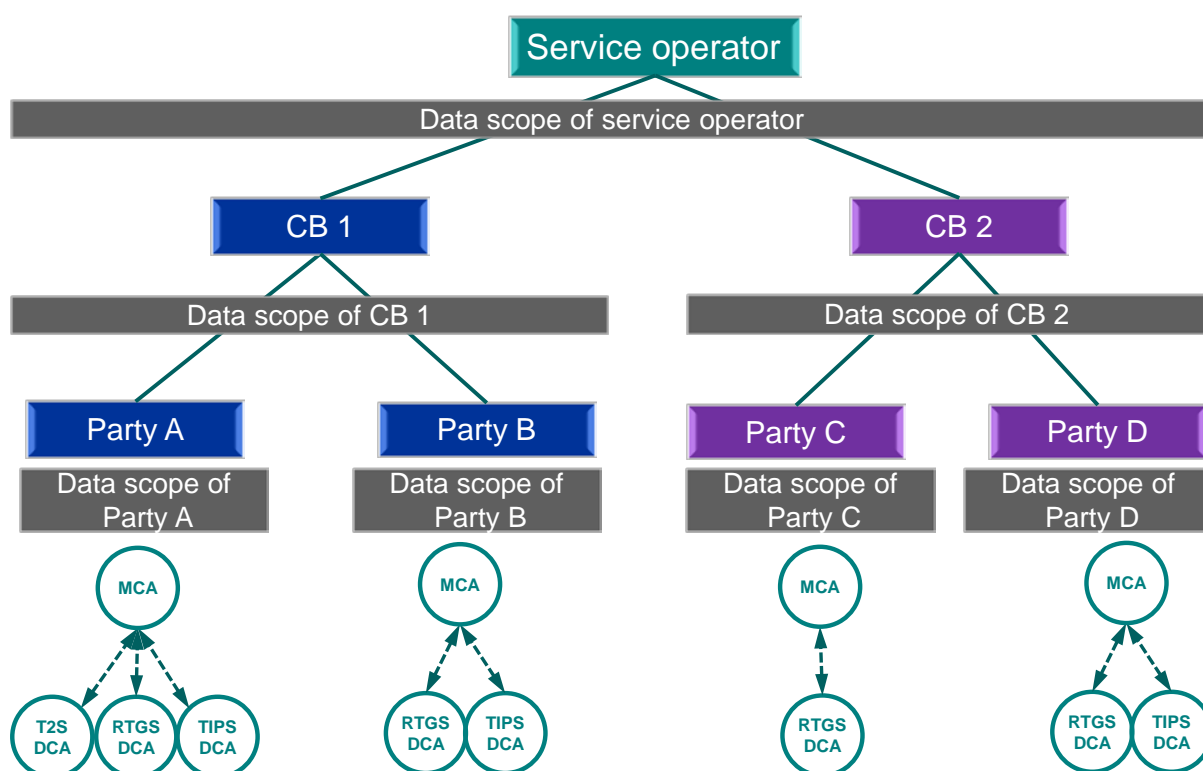


Figure 9: Hierarchical structure of Parties

In the event a Party has assigned access rights to another Party, the data scope of the individual users of the grantee Party may be extended. For example, when a Party assigns a set of accounts to an Account Monitoring Group under the lead of another Party (see section [3.6.1 ACCOUNT MONITORING GROUP](#)).

6.2.2 Definition of roles

Each individual user will be assigned with one or many predefined roles for a specific service or component. A role consists of a set of privileges that determine what the user can perform in a service. Each privilege relates to one business function that the user can perform either in “read-only” or “take action” mode. While in A2A mode, business functions are following the two-eyes principle, in U2A (via GUI) mode they can follow either the two-eyes or the four-eyes principle.

Following the logic of the hierarchical structure of Parties (see [FIGURE 9: HIERARCHICAL STRUCTURE OF PARTIES](#)), the roles are assigned from top to down. This means:

- 1) The service operator is assigned with the widest possible range of roles in the TARGET Services and common components
- 2) The service operator will grant the Central Bank administrator user with the widest possible range of roles allowed for a Central Bank user. The Central Bank administrator user will then grant the individual Central Bank users with the necessary roles from the pool of the roles allowed for a Central Bank user.
- 3) A Central Bank user will grant the Party administrator user with the widest possible range of roles allowed for a Party user (i.e. the pool of roles for a Party user is a subset of the pool of roles for a Central Bank user). The Party administrator user will then grant the individual Party users with the necessary roles from the pool of the roles allowed for a Party user.

Building on the examples in section [6.2.1 DEFINITION OF DATA SCOPE](#), the Party owning the accounts, which are assigned to the Account Monitoring Group under the lead of another Party, shall also grant the other Party, inter alia, with the “read-only” role to these accounts.

6.3 MIGRATION TO NEW SOLUTION

This section provides the high level overview of the planned user testing activities and the clarifications with regards to the big bang approach for migration.

6.3.1 User testing activities

Before the migration to the new solution, the Eurosystem will organise a user testing campaign involving all Parties and systems that shall interact with T2 (i.e. CLM and RTGS) and common components as of the Go-Live. The user testing will include

- Connectivity tests – establishing the A2A connectivity between the Party's systems and ESMIG via NSP; ability to log on to ESMIG landing page
- Functional tests – verification of correct end-to-end interaction; includes interoperability, community and business day tests
- Operational tests – verification of the operational procedures
- Migration tests – rehearsing the activities related to migration from TARGET2 modules to T2 (i.e. RTGS and CLM) and common components

User testing will be organised on a dedicated test environment. During the campaign, the Parties shall pass successfully a number of mandatory test cases as well as have time for free testing.

6.3.2 Big bang approach for migration

The migration of data and activities from TARGET2 mandatory and optional modules to T2 (i.e. RTGS and CLM) and to their common components as well as the migration to ISO 20022 messages will take place in a “big bang approach”. Although such approach is technically challenging for the whole European banking community, the Eurosystem has decided for the big bang approach based on the following argumentation

- Due to the switch from Y-copy to V-shape communication mode, all affected messages must be replaced at the same time for a TARGET Service
 - It is not possible to support the current TARGET2 communication standards in parallel to the future communication standards (e.g. FIN vs ISO messages, Y-copy vs V-shape communication mode)
- Prior migration to ISO 20022 on TARGET2 (i.e. communication) followed by migration to T2 (i.e. RTGS and CLM) (i.e. functionality) will increase costs and risks for all sides
 - Temporary adaptations to TARGET2 interface and modules due to ISO 20022 will require temporary adaptations in similar range at every (participant) system connected to TARGET2
- Prior migration to CLM (i.e. communication and functionality) followed by migration to RTGS (i.e. communication and functionality) will increase costs and risks for all sides
 - Temporary adaptation of CLM to TARGET2 and vice versa (incl. removal of duplicate functionalities from TARGET2 modules and ICM; adaptation of TARGET2 PM to communicate with CLM)
 - Majority of the Parties will have accounts both in CLM as well as in TARGET2 PM / RTGS and shall therefore support parallel communication in FIN and ISO 20022 as well as adapt internal systems for an interim period
- Coexistence of TARGET2 with its modules and CLM and RTGS with common components will mean running of two separate infrastructures whereas Parties in one infrastructure are not reachable (by default) in another infrastructure
 - Not acceptable solution for an RTGS

LIST OF ABBREVIATIONS

| | Abbreviation | Description |
|---|--------------|---|
| | 24/7/365 | 24 hour a day, 7 days a week, 365/366 days a year |
| A | A2A | Application-to-Application |
| | API | Application Programming Interface |
| | AS | Ancillary System |
| | ASI | Ancillary System Interface |
| B | BD | Business Day |
| | BIC | Business Identifier Code |
| C | CB | Central Bank |
| | <u>CET</u> | <u>Central European Time</u> |
| | CLM | Central Liquidity Management <u>(T2 function)</u> |
| | CRDM | Common Reference Data Management <u>(Common component)</u> |
| D | DCA | Dedicated Cash Account |
| | DWH | Data Warehouse <u>(Common component)</u> |
| | DvP | Delivery versus Payment |
| E | ECB | European Central Bank |
| | ECMS | Eurosystem Collateral Management System |
| | EEA | European Economic Area |
| | e.g. | exempli gratia |
| | EPC | European Payment Council |
| | ESMIG | Eurosystem Single Market Infrastructure Gateway <u>(Common component)</u> |
| F | FIFO | First In First Out |
| G | GUI | Graphical User Interface |
| H | HAM | Home Accounting Module |
| | <u>HU</u> | <u>Highly Urgent</u> |
| | HVP | High Value Payments |

| | | |
|---|------------------------|--|
| I | i.e. | isto es |
| | ICM | Information and Control Module |
| | ISO | International Organization for Standardisation |
| L | LTO | Liquidity Transfer Order |
| M | MCA | Main Cash Account |
| | MFI | Monetary Financial Institution |
| | MT | Message Type |
| N | N | Normal |
| | <u>NSP</u> | <u>Network service provider</u> |
| P | PHA | Proprietary Home Accounting |
| | <u>PM</u> | <u>Payment Module</u> |
| R | RTGS | Real-time Gross Settlement (<u>T2 function</u>) |
| S | SCT Inst | SEPA Instant Credit Transfer |
| | SFD | Settlement Finality Directive |
| | SHRD | Shared Services |
| | SSP | Single Shared Platform |
| | SWIFT | Society for Worldwide Interbank Financial Telecommunication |
| | SWIFT RBAC | SWIFT Role-based Access Control |
| T | T2 | Consists of RTGS and CLM functions TARGET2 is a Trans-European Automated Real-time Gross settlement Express Transfer system |
| | T2S | TARGET2-Securities (TARGET Service) is a Trans-European Automated Real-time Gross settlement Express Transfer system for Securities |
| | <u>TARGET Services</u> | <u>Consists of T2 (with CLM and RTGS functions), T2S and TIPS services</u> |
| | <u>TARGET2</u> | <u>Trans-European Automated Real-time Gross settlement Express Transfer system (current RTGS for euro)</u> |
| | TIPS | TARGET Instant Payment Settlement (<u>TARGET Service</u>) |
| U | U | Urgent |
| | U2A | User-to-Application |
| | UDFS | User Detailed Functional Specifications |

| | | |
|---|-----|-----------------------------|
| | UHB | User Handbook |
| | URD | User Requirements Documents |
| X | XML | Extensible Markup Language |