



EUROPEAN CENTRAL BANK
EUROSYSTEM

T2-T2S CONSOLIDATION

BUSINESS DESCRIPTION DOCUMENT

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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 TARGET2 and T2S will remain separate services. 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 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 its internal preparation for the migration in March 2023. 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 Specifications, User Handbooks, documentation on Connectivity).

The Eurosystem market infrastructure services for TIPS and for T2S are mentioned in this document to the extent needed to understand the overall context of the Eurosystem services for real-time interbank and customer payments and for AS transactions. The purpose of this document is not to provide an exhaustive and comprehensive picture of all functions and features of all Eurosystem market infrastructure services. Thus, the users of TIPS and T2S are not the primary addressees of the document.

1.2 STRUCTURE OF THE DOCUMENT

The Business Description Document is divided into the 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 will no longer be provided by the future T2 service 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 a global overview of future TARGET Services T2, T2S and TIPS – their key aspects and expected benefits.
- **Chapter 3: Treasury perspective** elaborates on the functions and features that will support the treasury departments of Parties 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 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 Parties. This chapter clarifies the core features of the settlement processing 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 the functions and features in RTGS that are specific to ancillary systems.

- **Chapter 6: Connectivity perspective** paves the way for the users to connect to the future TARGET Services and common components. The chapter provides a conceptual view of the roles and access rights and explains the migration approach.

The Business Description Document provides references to User Detailed Functional Specifications (once available) where detailed functional information can be found.

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) v3.0
 - [URD on Central Liquidity Management \(CLM\)](#)
 - [URD on Future Real-time Gross Settlement System\(RTGS\)](#)
 - [URD on Common Components](#)
 - T2 Glossary [v3.0](#) (hyperlink to be added soon)
- T2-T2S Consolidation User Detailed Functional Specifications (UDFS) v3.0
 - [UDFS for CLM](#)
 - [UDFS for RTGS](#)
 - [UDFS for Business Day Management \(BDM\)](#)
 - [UDFS for Billing \(BILL\)](#)
 - [UDFS for Common Reference Data Management \(CRDM\)](#)
 - [UDFS for Data Warehouse \(DWH\)](#)
 - [UDFS for Enhanced Contingency Solution \(ECONSII\)](#)
 - [UDFS for Eurosystem Single Market Infrastructure Gateway \(ESMIG\)](#)

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

- T2-T2S Consolidation User Handbooks (UHB) v3.0
 - [User Handbook \(UHB\) for CLM](#)
 - [User Handbook \(UHB\) for RTGS](#)
 - [User Handbook \(UHB\) for BILL](#)
 - [User Handbook \(UHB\) for DWH](#)
 - [User Handbook \(UHB\) for BDM](#)
 - [User Handbook \(UHB\) for CRDM](#)
 - [User Handbook \(UHB\) for ECONS-II](#)

- GUI Description for CLM and RTGS v1.0
- [Testing and Migration Documentation](#)
- 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 T2 will rely on the existing legal framework to the largest extent and several functions will continue like in TARGET2/SSP. Nevertheless a number of TARGET2 features and functions will not be provided in the new service due to changes 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.

The following non-exhaustive list of current features and functions are replaced in the future T2 service:

- Communication based on FIN messages (*will be switched to ISO 20022*)
- SWIFT Y-copy mode (*will be switched to V-shape mode*)
- ASI procedure 2 “Real-time settlement” (*can be handled through Procedure E described below*)
Home Accounting Module (HAM) (*will be replaced by CLM*)
- ICM (*will be replaced by CLM, RTGS and CRDM GUIs*)
- Access via Internet in U2A mode (*will be replaced with a cost effective and easy access solution through the certified Network Service Providers*)

- All current SWIFT specific features (e.g. SWIFT RBAC roles) *(will be replaced by the CRDM access rights management)*

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

- 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”

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 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 facility and efficient features 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 future TARGET Services T2, TIPS and T2S and related common components, including their main aspects and benefits.

2.1 KEY ASPECTS

The T2-T2S Consolidation project will technically modularise the current market infrastructures and consolidate their functionalities where reasonable and possible. Depending on their nature, the functionalities are clustered into services or common components (see [FIGURE 1: HIGH LEVEL FUNCTIONAL DOMAINS](#)).

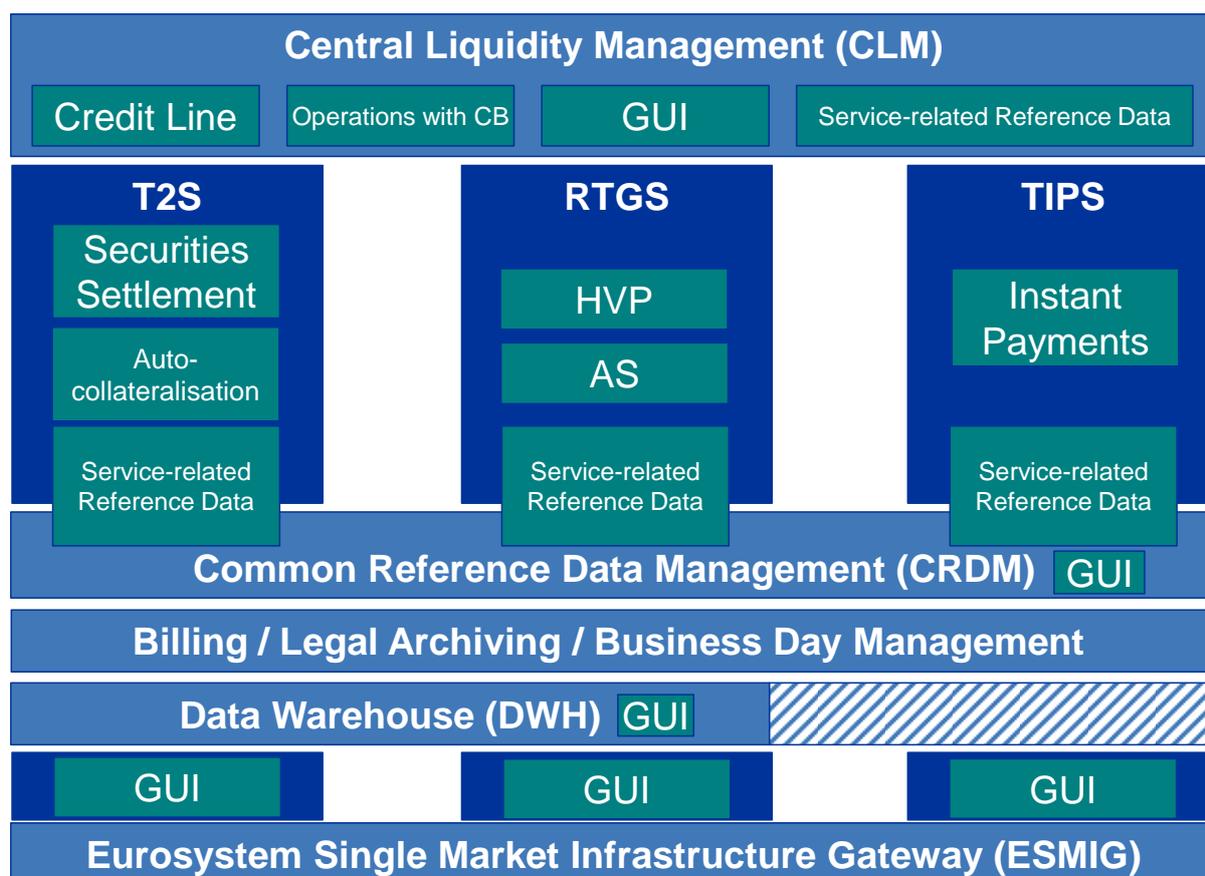


Figure 1: High level functional domains

2.1.1 TARGET Services

The family of the TARGET Services will include (1) T2 (including Central Liquidity Management and RTGS) (2) TARGET2-Securities (T2S); and (3) TARGET Instant Payment Settlement (TIPS). ECMS is also a TARGET Service but it is not detailed in this document.

Adequate liquidity provisioning and clear allocation of liquidity across the different services will be ensured through the new **Central Liquidity Management** (CLM). This new component 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. A credit institution's transactions with its Central Bank related to its role of Central Bank of Issue 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 ACCOUNT STRUCTURE](#)), where they settle all Central Bank operations (e.g. open market operations, cash withdrawals, standing facilities, etc.). These accounts together with Dedicated Cash Accounts (DCA) for RTGS, TIPS and T2S can also be used to fulfil the minimum reserve requirements. In CLM, the participants steer, manage and monitor liquidity across all TARGET services and accounts in a currency. The credit line assigned to a credit institution is linked to one of its MCAs, where it is part of the available liquidity, which can be transferred 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 order, breaching of floor/ceiling amount). With these functionalities as well as with the support of the Liquidity Transfer Group notion (see section [3.2 LIQUIDITY MANAGEMENT](#)), 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 [3.5 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 be 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 transactions takes place on the Dedicated Cash Accounts (DCA) in Central Bank Money. T2S went live in June 2015.

TARGET Instant Payment Settlement (TIPS) facilitates the immediate settlement of instant payments in Central Bank Money on the Dedicated Cash Accounts of the participating credit institutions. It operates 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 went live in November 2018.

2.1.2 Common components

TARGET Services will be supported by the following main common components: (1) Eurosystem Single Market Infrastructure Gateway (ESMIG); (2) Common Reference Data Management (CRDM); (3) Billing (BILL); (4) Legal Archiving and (5) Business Day Management (BDM). In addition, some TARGET Services will have a common Data Warehouse (DWH) and contingency (ECONS II) component.

The access to the TARGET Services and components will take place via the **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 all TARGET Services both via A2A and U2A (via GUI). Different TARGET Services 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 THE T2-T2S CONSOLIDATION](#) project). Furthermore, ISO 20022 compliant messaging will be adopted as the standard format for communication with all TARGET Services. 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.

Reference data objects will be set up and maintained in the **Common Reference Data Management (CRDM)** component and may be used by more than one 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.

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

The Legal Archiving component will collect all information subject to legal archiving requirements including 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 and will be accessible for a retention period of 10 years.

Data from the current business day from T2 (i.e. CLM and RTGS) and T2S will be available in the **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 to predefined reports.

2.1.3 Other aspects

- **Multi-currency**

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

- **Daily scheduling**

Each settlement service (CLM, RTGS, T2S and TIPS) will have its own opening times. 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 no maintenance window.

Furthermore, the Change of Business Day will be synchronised across all TARGET services. As TIPS processes instant payments continuously, the Change of Business Day occurs in TIPS when T2 (i.e. CLM and RTGS) and T2S start their End of Day procedures, i.e. shortly after 18:00 CET. The Change of Business Day in T2, T2S and common components takes place at 18:45 CET (see section [4.5 SCHEDULE](#)).

- **Calendar**

While TIPS operates around the clock, other TARGET Services and common components will operate from Monday to Friday on TARGET opening days, with exception of T2S which is also open if any of the T2S settlement currency RTGS is open. The Eurosystem is ready to consider opening CLM and RTGS components during a pre-agreed period also on TARGET closing days, provided that there is a valid business case and depending on the associated costs and constraints.

2.2 PHASED IMPLEMENTATION OF THE T2-T2S CONSOLIDATION PROJECT

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

- Phase I went live in June and November 2018. It provided the parts of the common components required for the support of TIPS: parts of CRDM and ESMIG. These changes had no impact on TARGET2 and T2S participants.
- Phase II will provide other changes (in July 2022 as part of a T2S major release and in March 2023 as part of the go live of T2) that affect, amongst other things, the services for liquidity management, network connectivity, messaging and billing:
 - ▶ Segregation of Central Bank transactions (in CLM) from the real-time interbank/customer payments as well as the ancillary system transactions (in RTGS);

- ▶ Concentration of Central Bank transactions with other Central Bank Services, such as Reserve Management and Standing Facilities, in CLM;
- ▶ Harmonised support functionalities, such as fully fledged Common Reference Data Management (CRDM), Data Warehouse (DWH) and Billing for T2 (i.e. RTGS and CLM), TIPS and T2S (fees related to the cash leg of transactions);
- ▶ The implementation of ISO 20022 for communication with T2 (i.e. RTGS and CLM).

Phase II will be implemented following a Big Bang approach with the discontinuation of current TARGET2 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](#)).

- Phase III will provide to T2S: ESMIG Connectivity, usage of the Billing for fees related to the securities leg of transactions, usage of CRDM.

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 – only CLM MCA and no RTGS DCA needed for monetary policy purposes
- Minimum reserve calculation and automatic marginal lending facility – 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 with all TARGET Services and common components with 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 historical 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 will support the treasury departments of Parties 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.
- **Section 2: Liquidity management** elaborates on the tools and features that support the treasurer in managing and monitoring liquidity.
- **Section 3: Interaction with Central Bank** presents the main principles on how different CB operations and services will be provided.
- **Section 4: Interaction with ancillary systems** describes functionalities for the settlement of AS transactions.
- **Section 5: Liquidity management services towards other users** elaborates on possibilities for monitoring balances and managing liquidity across different entities.

3.1 ACCOUNT STRUCTURE

Each TARGET Service - T2 (i.e. CLM and RTGS), TIPS and T2S - will operate with its own set of accounts. While CLM is the central component for liquidity management and, thus, holds the Main Cash Accounts (MCAs), RTGS, TIPS and T2S hold Dedicated Cash Accounts (DCAs) (see [FIGURE 2: BASIC ACCOUNT STRUCTURE MODEL](#)). The institutions that are eligible to open accounts in a TARGET Service will be defined in the legal framework for the respective service.

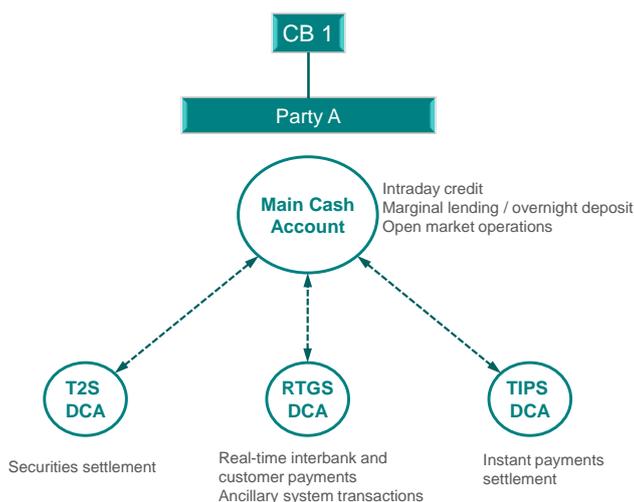


Figure 2: Basic account structure model

Each Party may have more than one account in each settlement service. Each account is identified by a BIC11 as well as by an account ID. While the BIC 11 must be unique in the respective settlement

service, the account ID must be unique across all settlement services. Thus, a Party can use the same BIC11 in each of the settlement services (only once per settlement service).

There is no obligation to hold a MCA or a DCA. However:

- i. the owner of a DCA must hold an MCA and
- ii. a Central Bank may impose to its Parties to open an MCA, inter alia, for direct maintenance of minimum reserves (where applicable), remuneration of overnight balances, consolidated reporting or for billing purposes.

In addition, the credit line can be assigned only to one MCA (even if the Party has several MCAs), while all DCAs operate on cash-only-basis⁴, i.e. on the one hand the balance of a DCA cannot be negative, on the other hand, 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. The balances of DCAs⁵ do 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 facility, but can remain on the DCAs for the next business day.

Furthermore, a DCA must be connected with at least one MCA to receive liquidity and for billing purposes. This /These MCA(s) may belong to (a) different Party/ Parties than the owner of the DCA and this/these MCA(s) may be opened in the books of different Central Banks than of the DCA (see [FIGURE 3: MULTINATIONAL PARTY WITH VARIOUS ENTITIES](#)). In the latter case, the Parties – in case they are subject to the Eurosystem's minimum reserve policy or eligible monetary policy counterparties – shall keep in mind the conditions for maintenance of minimum reserves and remuneration of overnight deposits (excess of reserve), which require that only accounts belonging to a Monetary Financial Institution (MFI) held with the home Central Bank can be used for such purposes.

⁴ In T2S and if eligible, the Party can use also an auto-collateralisation function for generating additional liquidity

⁵ Contrary to the principles of the RTGS and TIPS DCAs, the balance of T2S DCA must be transferred to the linked MCA (currently to TARGET2 PM account) by a mandatory cash sweep at End of Day for the respective processes and cannot remain on the T2S DCA. With the T2-T2S Consolidation project the mandatory cash sweep from T2S at End of Day would no longer be required.

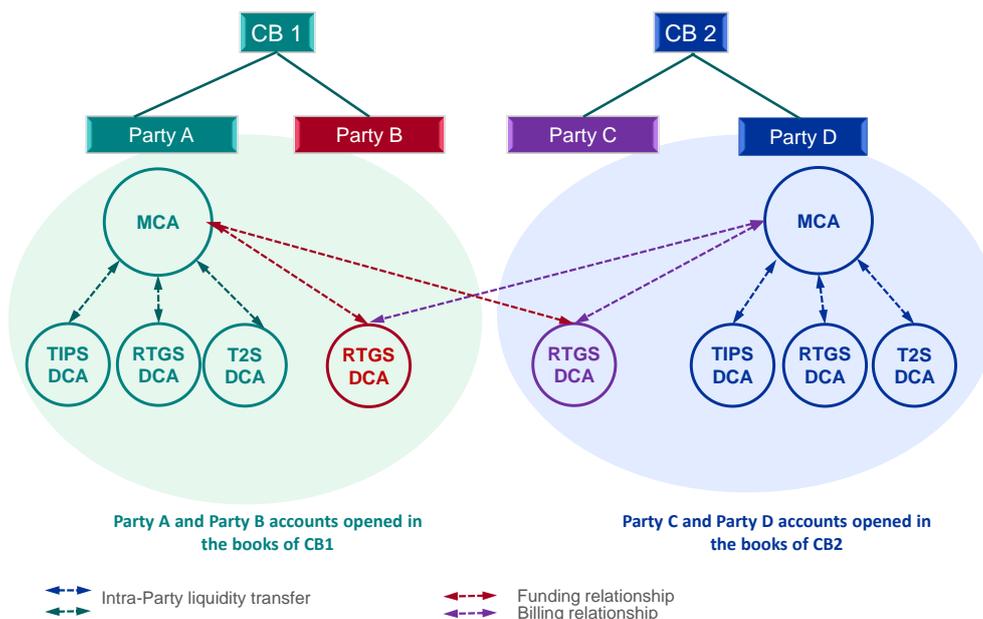


Figure 3: Multinational Party with various entities

The **Main Cash Account (MCA)** is opened in Central Liquidity Management (CLM). The scope of operations on this account is defined keeping in mind the needs of the users of today's TARGET Home Accounting Module (HAM), that interact with the Central Banks for, 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 withdrawals⁶
- 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.

No payments between market participants are allowed on an MCA. However, the account can receive and transfer liquidity from/to other MCAs within the same Liquidity Transfer Group, as illustrated in [FIGURE 4: CLM FOR A GROUP OF BANKS](#).

⁶ 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.

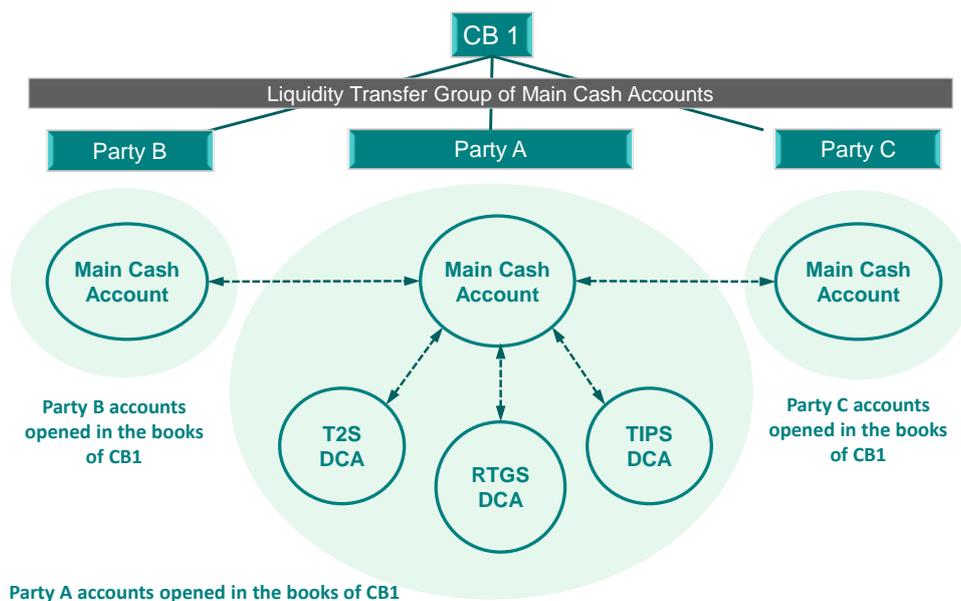


Figure 4: CLM for a group of banks

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

A Party may have several RTGS DCAs, each with a unique BIC11 for a dedicated purpose. For example, an RTGS DCA for settlement of its own payments (to be defined as the default account for all real-time interbank and customer 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 C⁷ (see [FIGURE 5: MODEL FOR RTGS ACCOUNTS](#)).

⁷ Former ASI procedure 6 Interfaced “Settlement on dedicated liquidity account (so-called sub-accounts) (interfaced)”

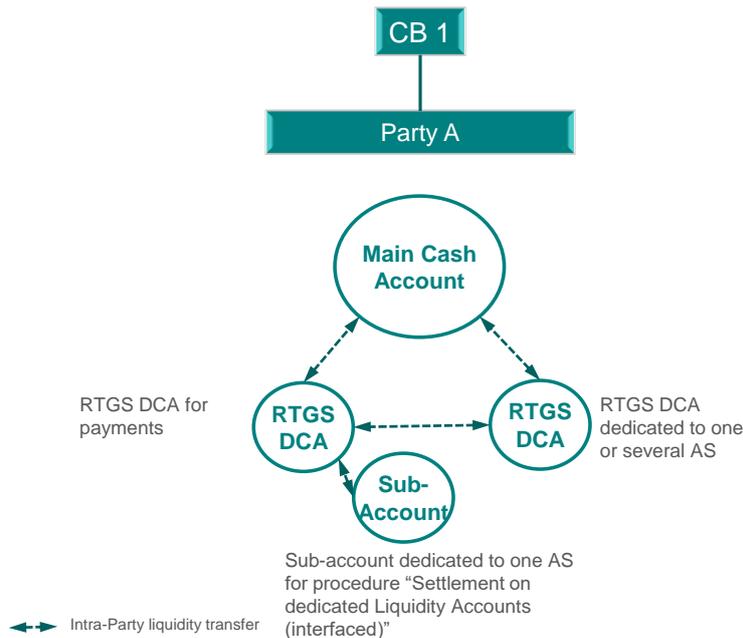


Figure 5: Model for RTGS accounts

The **Dedicated Cash Account (DCA) in TIPS** is for the settlement of instant payments. Please refer to the TIPS documentation⁸ for further information.

The **Dedicated Cash Account (DCA) in T2S** settles the cash leg of securities transactions. In T2S, the Party can use also an auto-collateralisation function for generating additional liquidity. However, the participants cannot use the T2S auto-collateralisation mechanism to allocate intraday liquidity from T2S to another settlement service. Please refer to the T2S documentation⁹ for further information.

3.2 LIQUIDITY MANAGEMENT

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

The following **liquidity monitoring tools** are implemented in CLM and RTGS to support the liquidity management

- The **Graphical User Interface (GUI)** allows the Party to access RTGS and CLM components in User-to-Application (U2A) mode. While in the GUI for CLM, the user can see information it has been granted access to on all MCAs and DCAs linked to its Party or Account Monitoring

⁸ <https://www.ecb.europa.eu/paym/target/tips/profuse/html/index.en.html>

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

- 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.
- For more concrete and specific monitoring, the user can subscribe to **alerts and notifications** that CLM and RTGS push out to the GUI or in A2A mode when an event takes place during the settlement process (e.g. breaching a defined floor or ceiling amount on an MCA or DCA) or in a business day schedule (e.g. Start of Day, End of Day or other scheduled business events on MCA and DCA).
 - The Party can subscribe to **standard reports** that CLM or RTGS 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 business day). Furthermore, the Parties can query information on historical data based on predefined reports from the Data Warehouse in A2A mode or via GUI.
 - A Party can optionally group its MCAs and the DCAs in RTGS, TIPS and T2S as well as the MCAs and DCAs in RTGS, TIPS and T2S of other Parties, which have granted it with the necessary access rights, into an **Account Monitoring Group** (see [FIGURE 6: MULTINATIONAL ACCOUNT MONITORING GROUP](#)). Such grouping will allow the Party 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 any role in the processing of payments, liquidity transfers and operations.

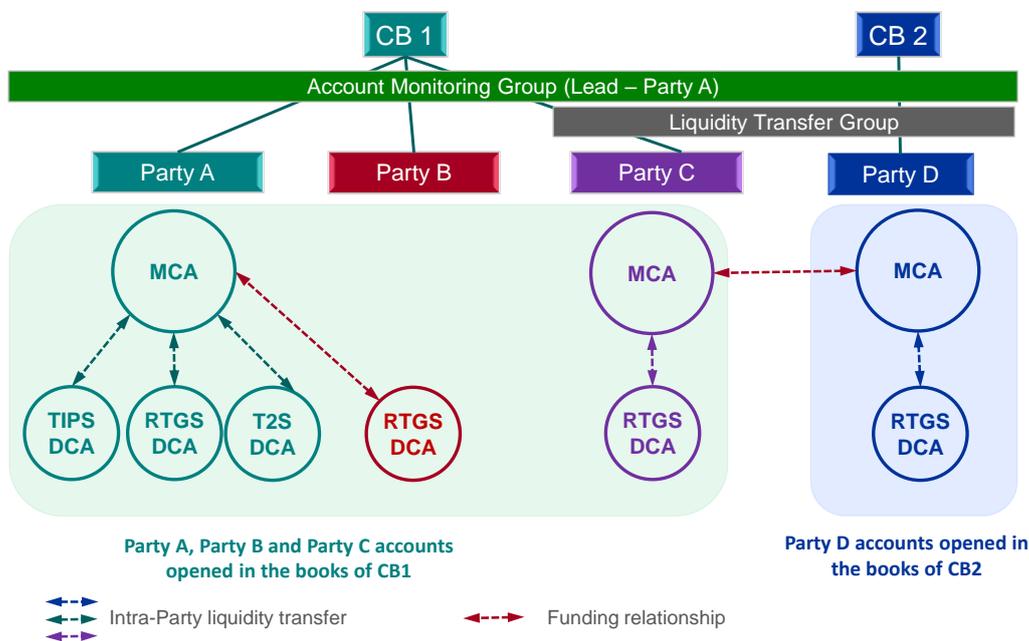


Figure 6: Multinational Account Monitoring Group

The following **liquidity management tools** are implemented in CLM and RTGS to support the liquidity management.

- The Parties can **transfer liquidity** either manually (based on immediate liquidity transfer orders sent in A2A or entered via GUI) or automatically (based on preconfigured standing order liquidity transfer orders triggered by events defined in the daily schedule, or rule-based liquidity transfer orders triggered by conditions during the settlement process, e.g. breaching of a predefined floor or ceiling amount). Depending on the rules and conditions of the specific settlement service, liquidity can be transferred between different settlement services (inter-service liquidity transfer) and within a settlement service (intra-service liquidity transfer).
- In case of a lack of payment capacity (i.e. sum of available cash and credit line) on the MCA to settle the CB operation, the system triggers an automated liquidity transfer and tries to pull the amount of liquidity missing to settle the CB operation from the default RTGS DCA. These automated liquidity transfers are mandatory and do not require any prior configuration by the participant. They do not involve TIPS DCA and T2S DCA.
- For each MCA and RTGS DCA, a Party can define in CRDM a minimum (“**floor**”) and maximum (“**ceiling**”) amount that shall trigger an action by the system on the respective account. In the event the floor or ceiling on an account is breached, the Party can choose between two behaviours. Either the system notifies the Party of the breach or it transfers liquidity between the DCA and a predefined MCA (in case the breach is on the DCA) or between the MCA and a predefined RTGS DCA or another MCA (in case the breach is on the MCA) to reach the predefined target amount on the respective account.
- In RTGS, a payment order can either be with **priority** Urgent, High or Normal. Urgent payment orders are settled with utmost priority. This priority class is allowed for AS transactions sent by the Parties and ancillary systems. High payment orders can be instructed by Parties in order to give them higher priority compared to their other payment orders. All pending High payment orders shall settle before Normal payment orders on the same RTGS DCA. Normal payment orders are all payment orders where no priority is set.
- A Party can **reserve liquidity for payments** having a defined priority or for a specific business purpose. On an MCA, a Party can set up one type of reservation for all CB operations. On an RTGS DCA, a Party can set up a reservation for High payments and for Urgent payments separately. Furthermore, upon receiving a seizure order, the Central Bank can set aside a liquidity amount on the MCA of the Party, which only the Central Bank can use.
- The Party can determine the **execution time of a payment order** by defining From Time (the time after which a payment order can be submitted to settlement) and/or either Till Time (the time by when the Party expects the payment to be settled) or Reject Time (the time before which a payment order should be submitted to settlement and, if not settled by then, will be rejected) in the payment message.
- In the event the initial settlement attempt was unsuccessful and the payment order is queued, the Party can **manage the payment queue** by (1) re-ordering the payment queue by moving one or more payment orders to the top or bottom of the queue in which they are held; (2) changing the execution time (i.e. From Time, Till Time and Reject Time) provided it was present before and it has not yet passed; (3) changing the priority of the payment order (i.e. move a

Normal payment to High payment queue or vice versa; it is not possible to change a payment priority from or to Urgent) or (4) cancelling a Normal or High payment order (a Party cannot cancel an Urgent payment order). In CLM, only the Central Bank can perform the above mentioned activities.

- In order to control its settlement of Normal payments, the Party can **define limits** on each of its accounts: a bilateral limit towards another Party (i.e. RTGS DCA); and/or a multilateral limit towards all other Parties with no bilateral limit in RTGS. The limit represents the maximum net value for Normal 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 business day.
- The **Liquidity Transfer Group** notion will allow Parties to group RTGS DCAs in RTGS and CLM MCAs in CLM 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. There are no such restrictions on inter-service liquidity transfers, and liquidity transfers where either the creditor or debtor is a Central Bank Account (i.e. an account held by the Central Bank in its capacity as a Central Bank of Issue).
- There is a predefined **order for liquidity tapping** for operations on MCA and the payments and transactions on RTGS DCA taking into account the different liquidity sources (i.e. liquidity reservations, non-reserved pools on RTGS DCAs and MCAs) as well as the business purpose (e.g. credit line decrease, Central Bank operation, liquidity transfer, priority of the payment, etc.). With the exception of automated liquidity transfers due to a pending Central Bank operation on MCA, all other automatically triggered liquidity transfers to support such liquidity tapping between the MCA and the RTGS DCA must be defined in CRDM.

3.3 INTERACTION WITH CENTRAL BANK

The MCA is the place where all¹⁰ interactions between the Party and its Central Bank take place. While the T2-T2S Consolidation project is planned to go live in March 2023, the Eurosystem Collateral Management System (ECMS) will go live one year later in March 2024 (TBC).. Thus 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 of T2 with either the local CMS or ECMS.

- The **credit line** is the maximum collateralised overdraft position of the balance on the MCA. A Party 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. Modifications to the credit line are executed immediately. The decrease in

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

credit line is the highest possible priority operation and it overrules all other operations, transactions and payments on the MCA and the RTGS DCA. If the combined liquidity (i.e. unused credit line, reserved and non-reserved 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 until the full amount is reimbursed.

- **Standing facilities** are Central Bank facilities available to Monetary Financial Institutions authorised to access such operations. The Eurosystem offers two overnight standing facilities: the marginal lending facility and the deposit facility.
- Payment orders linked to **Central Bank 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.
- In their supervisory role, the **Central Banks monitor Parties' activity** in the TARGET Services. For this purpose, the Central Banks link Parties that meet certain legal criteria into Banking Groups. A Banking Group may include Parties associated with more than one Central Bank.
- The **minimum reserve calculation** of the respective Monetary Financial Institution (MFI) will automatically include the End of Day balances¹¹ of all MCAs and DCAs that are accordingly marked in CRDM (see [FIGURE 7: MINIMUM RESERVE FULFILMENT CALCULATION](#)). All accounts to be taken into account for the fulfilment of minimum reserve for a MFI must be held at the same Central Bank.

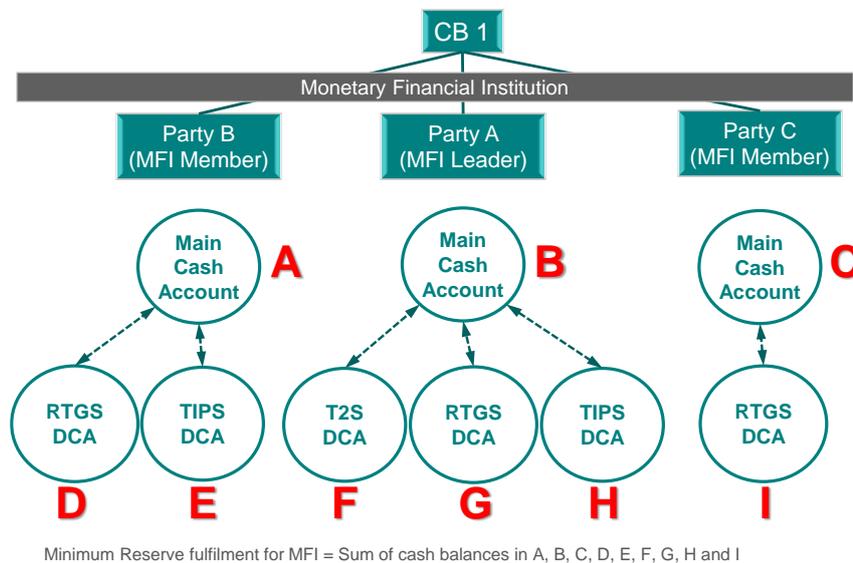


Figure 7: Minimum reserve fulfilment calculation

¹¹ Currently, the cash sweep at End of Day from T2S towards TARGET2 is mandatory. The future solution will make such cash sweep optional.

3.4 INTERACTION WITH ANCILLARY SYSTEMS

The settlement of transactions between Parties and ancillary systems takes place in RTGS. From a Party perspective the transactions with the AS are either settled on:

- **The RTGS DCA of the Party** (either on the DCA for payments or on the DCA dedicated to one or several AS) – applicable to AS settlement procedure A based on “Debits first” booking¹²; AS settlement procedure B based on “All or nothing” booking¹³; AS Procedure E based on bilateral settlements¹⁴
- **The RTGS DCA sub-account of the Party** dedicated to an AS that uses the settlement procedure C based on settlement on sub-account¹⁵

Furthermore, the ancillary systems using the procedure D based on prefunding of technical account¹⁶ request their participants to prefund the respective AS technical account.

3.5 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 to other Parties (*referred to as Party 2 in this section*). In the 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 CLM. Party 1 can grant Party 2 with the access rights to either see the balances or also instruct on the account

- Party 2 can receive notifications, messages and reports on behalf of Party 1
- Party 2 can set up an Account Monitoring Group for all accounts it monitors
- Party 1 and Party 2 can request the Central Bank to include their accounts into a Liquidity Transfer Group

¹² Former ASI procedure 4 “Standard Multilateral settlement”

¹³ Former ASI procedure 5 “Simultaneous Multilateral settlement”

¹⁴ Former ASI procedure 2 “Real-time Settlement” and procedure 3 “Bilateral Settlement”

¹⁵ Former ASI procedure 6 interfaced “Settlement on dedicated Liquidity Account (interfaced)”

¹⁶ Former ASI procedure 6 RT “Settlement on dedicated Liquidity Account (real-time)”

4 TRANSACTION PROCESSING PERSPECTIVE

This chapter elaborates on the functions and features supporting Parties in understanding how payment orders are received and processed in the system. The chapter consists of the following sections:

- **Section 1: Participation types** aims at explaining the different roles a customer of a Central Bank eligible to participate and settle in the TARGET Services 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** gives a short overview of the way in which 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 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 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 and are a prerequisite to request the opening of an account in the settlement service.

All MCA holders are **CLM participants**. All RTGS DCA holders are **direct RTGS participants**. Both CLM participants and 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. CLM participants may, however, also grant access to another CLM Participant to monitor or manage the liquidity on its MCA on its behalf (see section [3.5 LIQUIDITY MANAGEMENT SERVICES TOWARDS OTHER USERS](#)).

In RTGS, the direct participants can provide **alternative access** to RTGS for other institutions¹⁷. The payments of such institutions settle on the RTGS DCA of the direct RTGS participant and, thus, they can have access to RTGS only via one and only one direct RTGS participant. The BICs of such

¹⁷ CLM participants cannot provide alternative access to CLM for other institutions. Thus, there is no distinction between direct and indirect participants in CLM.

institutions are listed in the RTGS directory as being reachable. Alternative access to RTGS can be achieved by

- indirect participation (can only send and receive payment orders to/from RTGS via the direct participant);
- multi-addressee access (branches and credit institutions belonging to the same group as the direct RTGS participant and located in the EEA countries can channel payments through the RTGS DCA of the latter without its involvement by submitting/receiving payments directly to/from RTGS).
- access as correspondent BICs (“addressable BICs”) (any correspondent (or a branch of a correspondent) or a branch of a direct RTGS participant that holds a BIC can only send and receive payment orders to/from RTGS via the direct participant).

4.2 GENERAL PRINCIPLES FOR MESSAGING

With the go-live of T2-T2S Consolidation project, the A2A communication between the Parties and TARGET Services and common components will be based on ISO 20022 compliant messages. As T2S already today uses 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:** T2 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 T2, 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 T2 will not support coexistence of ISO 20022 and FIN. Nevertheless, it is acknowledged that within the context of cross-border business the Parties would still need to retain interoperability between the standards.
- **Network vendor agnostic:** the interface to T2 shall be neutral towards the provider of the network services. Specifically, this means that T2 will not rely on the current TARGET2 SWIFT Y-copy service. Therefore, T2 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:** T2 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 continuously runs optimisation procedures with the aim to dissolve queues.

In RTGS, the first settlement is attempted via the **entry disposition with offsetting**¹⁸. The basic principle of the entry disposition is that RTGS checks whether the incoming payment order allows the creditor to offset queued payment orders towards the payer of the initial payment order with the aim to save liquidity.

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**.

4.4 CONTINGENCY MEASURES FOR PARTICIPANTS

In the event of a technical problem, a 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 in RTGS, the participant can ask its Central Bank to act on its behalf. In addition, the Parties can initiate backup payments via the RTGS GUI and distribute liquidity to any RTGS DCA (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).

A Party may opt for Central Bank activation of back up payments, in order to prevent U2A payments outside of a contingency case.

In CLM, in the event of a technical problem that prevents a Party to connect in A2A mode, it can submit the liquidity transfer orders in U2A mode via the CLM GUI or ask its Central Bank to act on its behalf.

4.5 SCHEDULE

The common business day management defines the structure of the business day in the TARGET Services and components, while the common calendar defines the business days for a service/component and for a currency.

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

¹⁸ Offsetting in the RTGS aims at increasing the capacity of the system to settle payments orders, thereby reducing queues, speeding up the settlement process and reducing the need of intraday liquidity. A mechanism that considers cash transfer orders in the queues of RTGS dedicated cash accounts and tries to settle them simultaneously on a gross basis within one legal and logical second.. (T2-T2S Consolidation Glossary v3.0)

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. The below [TABLE 3](#) provides the overview of the main periods during the business day in CLM, RTGS and CRDM/DWH¹⁹

¹⁹ 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

	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 until the optional maintenance window	19:00-18:00 <i>(no LTOs allowed between 19:00-19:30)</i>	19:30-02:30 <i>(only for settlement of AS transactions, LTOs and maintenance of warehoused payments)</i>	19:00-18:00
Optional Maintenance window ²⁰ (03:00-05:00)		02:30-17/18:00 <i>(continuous processing of payment orders, AS transactions and LTOs)</i>	
Availability for users after the optional maintenance window			
Cut-off for Customer Payments	NA	17:00	NA
Cut-off for Interbank Payments / CB Operations	18:00	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 1: Indicative timing of subset of business day events in CLM, RTGS and CRDM/DWH (in CET)

The **common calendar** defines the calendar days when a TARGET Service or a common component is opened and follows the defined business day schedule or, contrary, is closed. Each TARGET Service may have a different calendar per currency.

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

²⁰ For the sake of efficiency, the Eurosystem will align the maintenance windows across the different TARGET Services and common components to an optional maintenance window between 03:00-05:00 CET. The week-end maintenance window will remain mandatory. It will start at 02:30 CET on Saturdays and end at 02:30 CET on Mondays.

New Year's Day (01 January)
Good Friday (Catholic/Protestant)
Easter Monday (Catholic/Protestant)
Labour Day (01 May)
Christmas Day (25 December)
Boxing Day (26 December)

Table 2: 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).

4.6 OTHER ASPECTS

In addition to the features and functionality described in previous sections, T2 (i.e. RTGS and CLM) provides or is supported by the following functionality

- **RTGS directory** provides information on all participants that are reachable for payments via RTGS (see section [4.1 PARTICIPATION TYPES](#)). The RTGS directory is compiled based on the information in CRDM. A Party can also request that certain BICs are not published in the RTGS directory.
- The Parties can submit payment orders up to 10 calendar days in advance of the indicated value date ("**warehoused payments**"). Such payment orders are warehoused until RTGS opens on that value date for settlement of payments. The Party can amend or cancel warehoused payment orders during the whole time they are stored until RTGS starts settlement of payments on that value date. In CLM, the Central Banks can also send payments up to 10 calendar days in advance.
- The Parties will be **billed for the usage of T2** (i.e. CLM and RTGS). They can define in CRDM 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.

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 that the ancillary systems require in overall processing of AS transactions
- **Section 2: AS settlement business scenarios** describes how AS transactions can instruct their transactions based on dedicated settlement procedures are processed
- **Section 3: Settlement control features for ancillary systems** details the optional features that an ancillary system can use in order to regulate the processing of its transactions
- **Section 4: 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 related to ancillary systems settle in RTGS.

The **ancillary systems** can use the following accounts in RTGS for the specific processing of their AS transactions.

- 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.
- 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.

5.2 AS SETTLEMENT BUSINESS SCENARIOS

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

Ancillary systems can choose among different **settlement procedures** that shall apply to their transactions.

- For settlement procedure A based on “Debits first” booking²¹, an AS can send simultaneously (i.e. in batch mode in dedicated AS files (ASTransferInitiation)) its debit and credit transactions

²¹ Former ASI procedure 4 “Standard Multilateral settlement”

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) and is based on the principle of “debits first”.

- For settlement procedure B based on “All or nothing” booking²², an AS can send simultaneously (i.e. in batch mode in dedicated AS files (ASTransferInitiation)) 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) and is based on the principle “all or nothing”.
- For AS settlement procedure C based on settlement on sub-account²³, the settlement bank shall open a designated sub-account for each AS using this procedure. The settlement bank (or the ancillary system on behalf of its settlement bank) can allocate liquidity to these designated sub-accounts. 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).
- For AS settlement procedure D based on prefunding of technical account²⁴, a settlement bank (or the ancillary system on behalf of its settlement bank) can transfer liquidity from its RTGS DCA to an AS technical account. The AS reflects this liquidity to the settlement bank’s account held within the AS.
- For AS settlement procedure E²⁵, an AS can send simultaneously bilateral settlements. The settlement of each transaction is independent.

5.3 SETTLEMENT CONTROL FEATURES FOR ANCILLARY SYSTEMS

An ancillary system can use the following optional features in order to regulate the processing of its transactions (see [TABLE 3: OVERVIEW OF AS SETTLEMENT BUSINESS SCENARIOS AND THEIR SETTLEMENT CONTROL FEATURES](#)).

The ancillary systems can **steer the settlement time** of its transactions by including a settlement period in a dedicated AS file (ASTransferInitiation)

²² Former ASI procedure 5 “Simultaneous Multilateral settlement”

²³ Former ASI procedure 6 Interfaced “Settlement on dedicated liquidity account (so-called sub-accounts) (interfaced)”

²⁴ Former ASI procedure 6 Real-Time “Settlement on dedicated liquidity account (so-called technical account for procedure 6) (real-time)”

²⁵ Former ASI procedure 3 “Bilateral Settlements”

In the event an AS has indicated a settlement period and its transactions cannot be settled during this time using the settlement bank’s liquidity only, for AS settlement procedures A and B, the **guarantee fund mechanism** can be activated. Based on predefined rules, complementary liquidity is tapped from the dedicated guarantee funds account.

Depending on the settlement procedure, an AS can indicate in the ASTransferInitiation file an **information period** (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).

AS settlement business scenario	Settlement period	Information period	Guarantee fund mechanism
AS settlement procedure A – based on “Debits first” booking	X	X	X
AS settlement procedure B – based on “All or nothing” booking	X	X	X
AS settlement procedure C – based on settlement on sub-account			
AS settlement procedure D – based on prefunding of technical account			
AS settlement procedure E – based on bilateral settlement	X	X	

Table 3: Overview of AS settlement business scenarios and their settlement control features

5.4 CONTINGENCY MEASURES FOR ANCILLARY SYSTEMS

In the event an AS is not in a position to forward its orders and messages/files to RTGS for settlement in A2A mode, the Central Bank of the AS will have the means and necessary access rights to submit these payment orders to RTGS on behalf of the AS. The Central Bank can, inter alia, submit

- Payment orders between the RTGS DCAs belonging to two settlement banks of the same AS
- Liquidity transfer orders between the AS technical account and the RTGS DCA belonging to an AS settlement bank
- Liquidity transfer orders 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 (AS settlement procedures C)

6 CONNECTIVITY PERSPECTIVE

This chapter elaborates on the general principles for Parties 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, a Party shall choose a network service provider (NSP) and establish the access. The access to the TARGET Services and components will take place via the Eurosystem Single Market Infrastructure Gateway (ESMIG) (see section [2.1.2 COMMON COMPONENTS](#)). ESMIG will be network service provider agnostic and, thus, the Parties 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.

The network providers shall ensure that their participants can communicate with the TARGET Services in A2A mode (*in store-and-forward and real-time communication protocol*) and in U2A mode via GUI. Furthermore, NSPs will provide a cost effective and easy access solution in U2A mode (via GUI) especially for participants with a low volume of payments.

In terms of **application-to-application messaging**, with the go-live of T2-T2S Consolidation project, the A2A communication between the Parties 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 will it offer any message conversion service.

As ESMIG will be network vendor agnostic, T2 will rely on the V-shape communication model (see [FIGURE 8: V-SHAPE COMMUNICATION MODEL](#)).

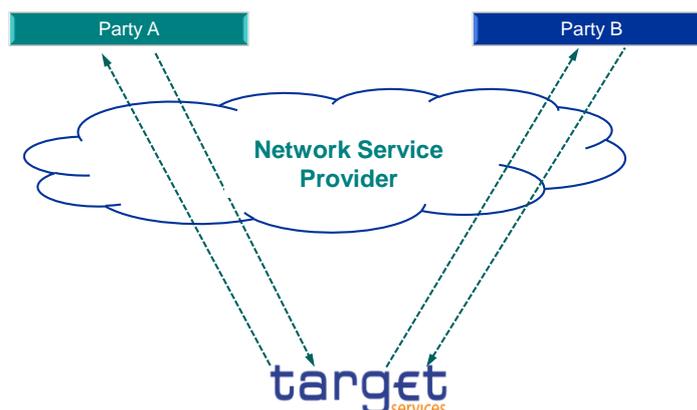


Figure 8: V-shape communication model

The Graphical User Interfaces (GUI) allows the Party to access RTGS, CLM, TIPS, T2S, CRDM and DWH via a desktop/laptop in **user-to-application mode**. An individual user can log on to any of the TARGET Services and common components with a single sign-on and a single certificate. Safe and strong authentication for users to log on in combination of NSP services is ensured via tokens, smartcards or hardware security models (HSM).

6.2 CONCEPTUAL VIEW TO ROLES AND ACCESS RIGHTS²⁶

Once ESMIG 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.

The **data scope** of an individual user is determined by the hierarchical structure of Parties (see [FIGURE 9: 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

²⁶ The T2S securities side is out of scope of this chapter

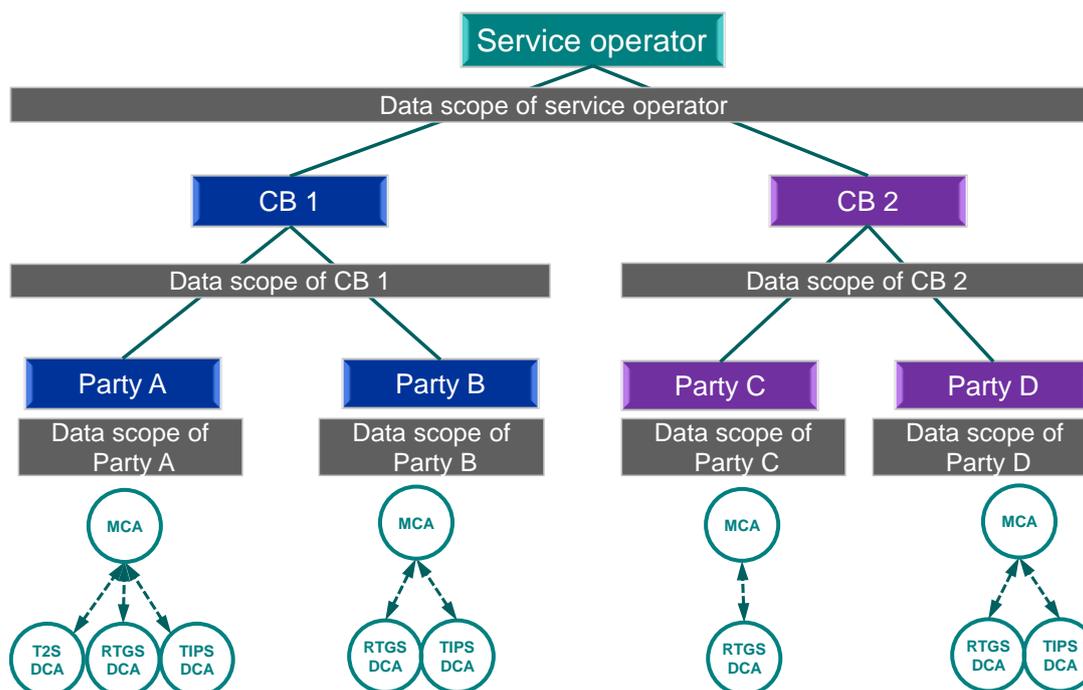


Figure 9: Hierarchical structure of Parties

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.

Similarly to the logic of the hierarchical structure of Parties and the definition of data scope, the roles are assigned from top to down (i.e. starting from the service operator which is granted with the widest possible range of roles in the TARGET Services and common components, and finishing with the individual users, whose roles will be a subset of the roles granted to the Party).

6.3 MIGRATION TO NEW SOLUTION

In preparation for 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. 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 the ESMIG landing page (U2A)
- 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. Further details on the user testing approach and concept will be elaborated in a dedicated user testing documentation.

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)
 - A 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 two separate infrastructures whereas Parties in one infrastructure are not reachable (by default) in another infrastructure
 - Not acceptable solution for an RTGS

Further details on migration approach and concept will be elaborated in the dedicated migration documentation.

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
	AS	Ancillary System
	ASI	Ancillary System Interface
B	BD	Business Day
	BIC	Business Identifier Code
C	CB	Central Bank
	CET	Central European Time
	CLM	Central Liquidity Management (T2 component)
	CRDM	Common Reference Data Management (Common component)
D	DCA	Dedicated Cash Account
	DWH	Data Warehouse (Common component)
E	ECB	European Central Bank
	ECMS	Eurosystem Collateral Management System
	EEA	European Economic Area
	e.g.	exempli gratia
	EPC	European Payments Council
	ESMIG	Eurosystem Single Market Infrastructure Gateway (Common component)
G	GUI	Graphical User Interface
H	HAM	Home Accounting Module
I	i.e.	id est
	ICM	Information and Control Module
	ISO	International Organization for Standardisation
L	LTO	Liquidity Transfer Order
M	MCA	Main Cash Account
	MFI	Monetary Financial Institution

N	NSP	Network service provider
P	PM	Payments Module
R	RTGS	Real-time Gross Settlement (T2 component)
S	SCT Inst	SEPA Instant Credit Transfer
	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 components
	T2S	TARGET2-Securities (TARGET Service)
	TARGET Services	Includes T2 (with CLM and RTGS components), T2S and TIPS services
	TARGET2	Trans-European Automated Real-time Gross settlement Express Transfer system (current RTGS for euro)
	TIPS	TARGET Instant Payment Settlement (TARGET Service)
U	U2A	User-to-Application
	UDFS	User Detailed Functional Specifications
	UHB	User Handbook
	URD	User Requirements Documents
X	XML	Extensible Markup Language