



EUROPEAN CENTRAL BANK  
EUROSYSTEM

ECB-PUBLIC

## Business Description Document for the ECMS

Eurosystem Collateral Management System  
(ECMS)

**target** | **ECMS**  
services

7 January 2020

Version 1.0

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# 1 Overview

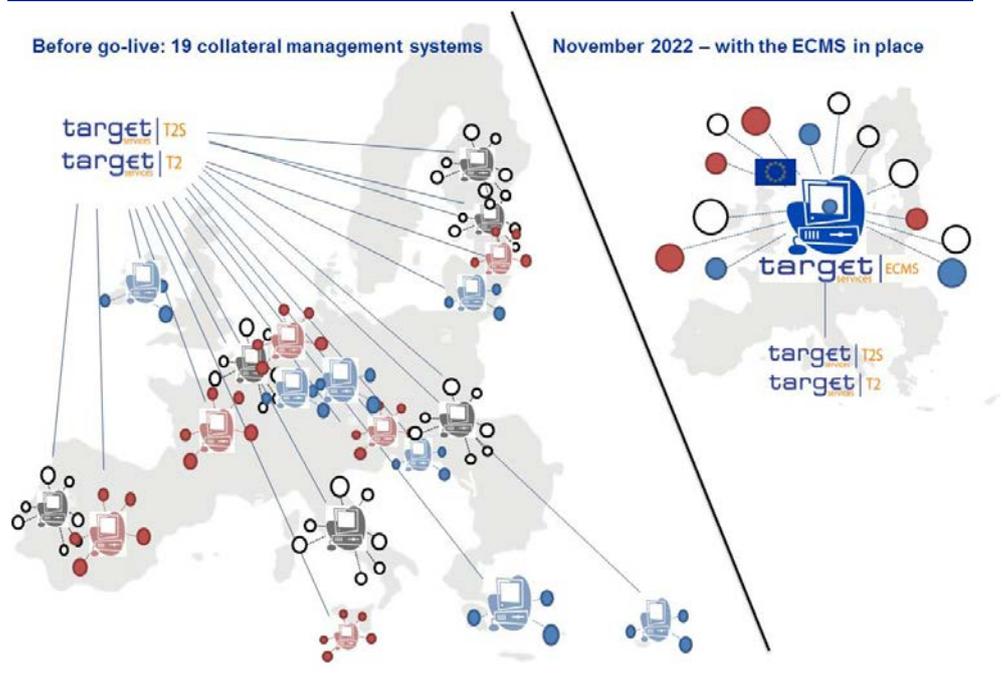
## 1.1 Introduction

In accordance with its [statute](#), the Eurosystem provides credit only against adequate collateral. Complex and robust systems are needed in order to handle Eurosystem credit operations and to manage the eligible assets comprising this collateral in an effective manner.

These tasks are currently performed by the individual systems of the Eurosystem national central banks (NCBs), in accordance with the common provisions laid down in the [Eurosystem monetary policy framework](#).<sup>1</sup> This means that their current systems share a common set of requirements.

In December 2017 the Governing Council of the European Central Bank (ECB) approved the start of the realisation phase of the Eurosystem Collateral Management System (ECMS) project, due to go live in November 2022.

**Figure 1: Current status and future situation after the ECMS go-live**



The aim is to ensure a single collateral management system with a common functionality, capable of managing the assets used as collateral in Eurosystem credit operations for all euro area jurisdictions. After go-live, the ECMS will replace the

<sup>1</sup> Guideline ECB/2014/60, usually referred to as the General Documentation Guideline or the GD.

individual collateral management systems currently in use by NCBs.<sup>2</sup> The move to a single system is expected to increase efficiency in terms of the mobilisation and management of collateral.

The ECMS is being developed as part of the Vision 2020 initiative which also includes major upgrades to the Eurosystem's market infrastructure landscape. In this context the Eurosystem has also developed the TARGET Instant Payment Settlement (TIPS) service in 2018 and initiated a project to replace TARGET2 in November 2021 with a new system<sup>3</sup> which will optimise liquidity management across all TARGET Services ([T2-T2S Consolidation](#)).

The ECMS interacts with the Central Liquidity Management (CLM) module within T2 in order to ensure the settlement of payments stemming from monetary policy operations, corporate actions and fees, and for updating the credit line. The ECMS interacts with TARGET-2 Securities (T2S) for the settlement of securities and the management of the auto-collateralisation process. Furthermore, the ECMS takes advantage of the support functionality common to all TARGET Services (common components). The resulting synergies are expected to benefit NCBs and all other ECMS players in their communities: counterparties, central securities depositories (CSDs) and triparty agents (TPAs).

In line with the current framework,<sup>4</sup> the ECMS continues to support all domestic and cross-border mobilisation channels for marketable assets (the Correspondent Central Banking Model (CCBM), eligible links, CCBM with links and remote access), as well as the cross-border mobilisation of credit claims.

Launching the ECMS will facilitate the implementation of harmonisation proposals agreed both within the market - by the Advisory Group on Market Infrastructures for Securities and Collateral (AMI-SeCo)<sup>5</sup> - and internal to the Eurosystem.

## 1.2 Purpose and structure of this document

This document aims to introduce the functions and features of the ECMS and to provide support to ECMS actors when launching preparations for the go-live. Relevant technical information, including details of workflows, will be provided to ECMS stakeholders in due course.

Any functionalities only available to NCBs are not covered in this document.

This document is divided into several chapters, each focusing on the different functionalities available to the main external actors (counterparties, CSDs and TPAs) and on communication between the ECMS and those parties.

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<sup>2</sup> Some NCBs will continue to make use of their national systems for the management of some or all of their credit claims.

<sup>3</sup> T2 – composed of an RTGS module and the Central Liquidity Management (CLM) module.

<sup>4</sup> Articles 149 to 151 of the General Documentation Guideline.

<sup>5</sup> AMI-SeCo [triparty collateral management standards](#), [corporate actions standards](#) and [billing processes standards](#)

## 1.3 Features of the ECMS

The ECMS replaces many of the tasks currently performed by the NCBs' individual collateral management systems.

The ECMS includes the following state-of-the-art features:

- Advanced graphical user interface for counterparties and A2A communication based on the most recent standards (ISO 20022);
- User-to-Application (U2A) and Application-to-Application (A2A) connection using the same gateway (ESMIG - Eurosystem Single Market Infrastructure Gateway) and network service provider as the TARGET services;
- Direct connection to T2S for the settlement of marketable assets and auto-collateralisation support;
- Standardised instruction messages for the mobilisation and demobilisation of marketable assets, irrespective of the mobilisation channel used or the location of the assets;
- Interaction with various NCB systems for the purposes of cross-border mobilisation of marketable assets is replaced with interaction with a single system and more simplified process;
- Standardised file format for the management of credit claims;
- Repurposing of excess collateral to automatically increase the credit line;
- Advanced collateral management functionality such as credit freezing and a maximum credit line;
- Automated handling of corporate action (CA) events pertaining to Eurosystem eligible marketable assets;
- Implementation of the single harmonised TPA model.

The existing relationships between NCBs and their communities remain unchanged, in keeping with the principle of decentralisation. Counterparties will continue to liaise with their usual NCB contacts in the event of any queries related to collateral management or monetary policy operations. The legal relationship between the counterparty and its NCB with respect to monetary policy operations, intraday credit and/or collateral management is also unaffected.

## 2 Interaction with the ECMS

### 2.1 Technical connectivity

Users belonging to counterparties, Central Securities Depositories (CSDs) and Triparty Agents (TPAs) interact with the ECMS (and all TARGET services) via the Eurosystem Single Market Infrastructure Gateway (ESMIG). These counterparties, CSDs and TPAs are defined in the ECMS as parties belonging to an NCB.

ESMIG is network-provider agnostic (i.e. it is not reliant on network-specific features) and therefore allows participants to connect to all TARGET Services, including the ECMS, via a single certified network service provider of their choice in Application-to-Application (A2A) mode and/or User-to-Application (U2A) mode.

ESMIG provides central authentication, authorisation and user management features to protect the connected systems/platforms against intrusion and unauthorised access. It ensures that only trusted parties transmit inbound communication via a secure channel.<sup>6</sup>

A2A communication with the ECMS is based on ISO 20022 compliant messages.<sup>7</sup> The ECMS offers functionality for message subscription, with each NCB responsible for configuring message subscriptions for its community.

A graphical user interface allows access to the ECMS via a desktop/laptop in U2A mode. Individual users can log on to the ECMS with the same sign-on used for any of the TARGET Services and common components and a single certificate.

### 2.2 Roles and access rights

ESMIG authenticates users, checks that they are authorised to address or use the ECMS, and manages access rights. The allocation of users to predefined roles is managed within the ECMS. Users are allowed to perform business functions based on their assigned roles and depending on their data scope.

Each individual user is assigned one or more predefined roles by the party administrator in each entity. A role consists of a set of privileges that determine what functionality the user has access to within the ECMS. Each privilege relates to a business function that the user can perform in either “read-only” or “take action” mode. In U2A mode, the ECMS may be configured to require four-eye verification. The ECMS provides functionality whereby counterparties may designate another entity to interact with the ECMS on their behalf.

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<sup>6</sup> For further information on ESMIG please refer to the [T2-T2S Consolidation Business Description Document](#).

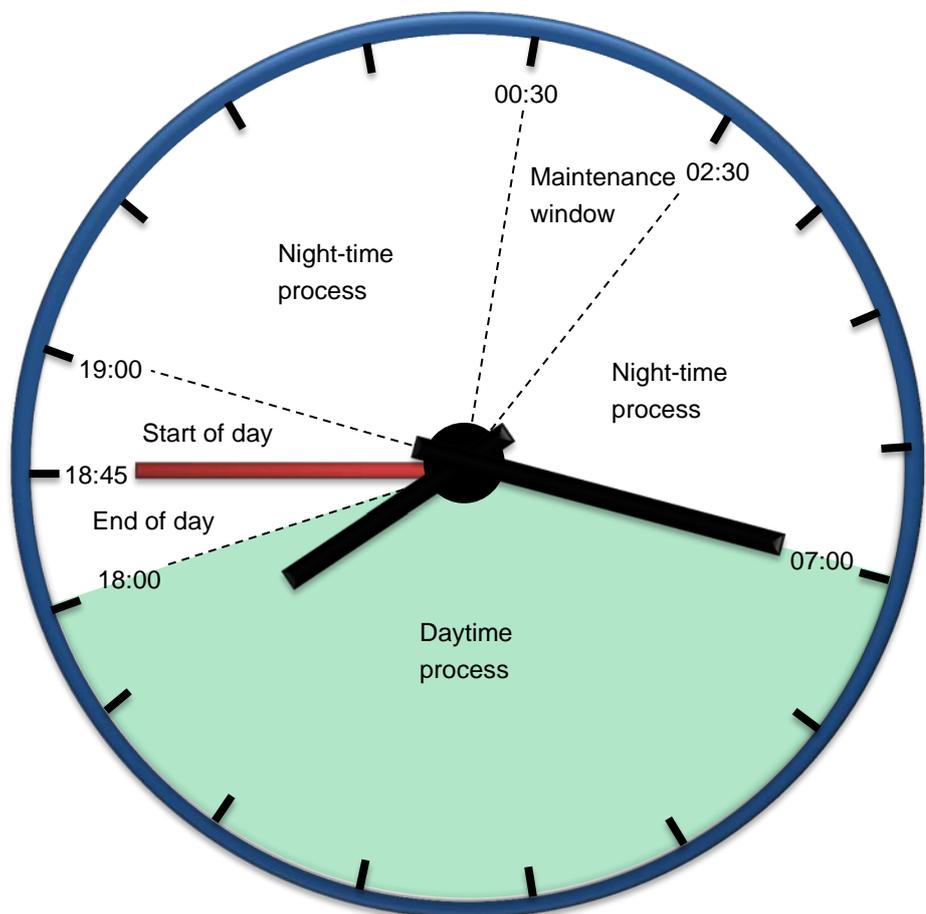
<sup>7</sup> ESMIG only supports the ISO 20022 standard.

The ECMS also provides dedicated functionality for banking groups (defined as groups of counterparties), which grants an entity designated as the manager of the banking group access to aggregated information on the whole group and detailed information on the pool position of each member of its group.

## 2.3 Operating hours

The ECMS operates from Monday to Friday on the opening days defined in the Central Liquidity Management (CLM) calendar. The ECMS schedule is based on Central European Time (CET) and Central European Summer Time (CEST). All times stated in this document are based on these conventions.

**Figure 2: Operational day**



The ECMS operational day is divided as follows:

The **start of day process** implements the change of the ECMS business day as of 18:45.

The **night-time process**, from 19:00 to 07:00, is for carrying out processes such as updating collateral positions and calculating accruals on outstanding credit or debit operations. The settlement of open market operations and marginal lending on request by sending the corresponding payments to CLM is also conducted during the night-time process.

System processes are conducted during a **Maintenance window** from 00:30 to 02:30.

The **daytime process** starts at 07:00 and runs until 18:00.<sup>8</sup> During this period, instructions sent by counterparties (e.g. the mobilisation and demobilisation of marketable assets and credit claims, and requests for marginal lending) and information provided by TPAs (e.g. reporting on flows) are processed. Other main ECMS activities such as the processing of corporate actions events, the recording of the results of open market operations, and the transmission of the updated credit line to CLM also take place during the daytime process.

The **end of day process**, from 18:00 to 18:45, is used to close the ECMS business day, for example by sending asset-related information to T2S and TPAs and generating end of day reports.

This schedule might be subject to additional cut-offs for specific tasks, e.g. in cases such as access to the marginal lending facility on the last day of a reserve maintenance period.

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<sup>8</sup> The cut-off for incoming messages is 15 minutes before the Day-time process ends and the End of Day starts (at 17:45) to ensure that no messages are blocked between CLM, T2S and ECMS. For the reception of credit claim files the cut-off is set to 16:00.

## 3 Counterparties

This section presents the functionality available to participants that act provider of collateral towards the Eurosystem (i.e. as an eligible monetary policy counterparty). In the ECMS such actors are identified by the role “counterparty”.

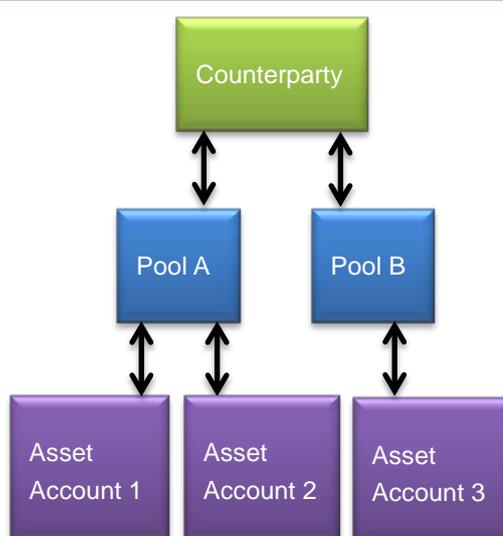
The ECMS functionality for counterparties is available in U2A through a modern interface provided in the user’s browser, with some functions also available in A2A. Counterparties can fully manage their pool in U2A mode and do not need an A2A connection.

In the ECMS, each counterparty is assigned to the NCB with which it has entered into a legal relationship concerning the granting of Eurosystem credit and the use of assets as collateral (the refinancing NCB). This NCB is responsible for setting the counterparty up within the ECMS and is the single point of contact for queries related to collateral management or monetary policy operations.

### 3.1 Account and pool structure

Marketable assets and credit claims submitted as collateral by a counterparty are allocated to internal accounts (ECMS counterparty asset accounts), which are created within the ECMS by NCBs for their counterparties. The number of accounts allowed per counterparty depends on the practices of each NCB and the types of collateral mobilised. The same account cannot be used for both marketable assets and credit claims.

**Figure 3:** Example of account and pool structure



Similarly, collateral pools are also created and configured in the ECMS by NCBs for their counterparties (see section 3.4). A collateral pool provides a comprehensive

overview of the current collateral position, credit position and credit line of the counterparty. The number of pools allowed per counterparty is set at the discretion of the relevant NCB.

While the ECMS supports multi-pooling functionality which allows counterparties to hold collateral pools in the ECMS for purposes other than Eurosystem credit operations, a single pool must be used for the collateralisation of Eurosystem credit operations. Each ECMS counterparty asset account can only be linked to one collateral pool. One collateral pool in the ECMS can however be linked to several ECMS counterparty asset accounts.

Positions related to other types of collateral (for example triparty collateral or externally managed collateral), are recorded at pool level.

Counterparty pools are linked to a main cash account (MCA) in CLM, which is used for the settlement of monetary policy operations, payments related to cash as collateral and corporate action payments. Counterparties authorised to access intraday credit may choose to use any excess collateral in that pool to automatically increase the credit line in that MCA.

Counterparties and NCBs (on behalf of their counterparties) can reallocate assets between asset accounts, which may be linked to the same or to different pools. When linked to different pools, the transfer can only be completed if the collateral remaining in the original pool is sufficient to collateralise the outstanding credit (collateral sufficiency check).

## 3.2 Collateral management

Mobilisation in the ECMS is the process by which a collateral position is included in an ECMS counterparty asset account (or is added to an existing position). Demobilisation results in an already existing collateral position being reduced or removed (if the total amount is demobilised).

Demobilisations initiated at a counterparty's request of can only be completed if sufficient assets remain in the pool to collateralise the outstanding credit. If not, the demobilisation instruction is put on hold until there is sufficient collateral. If the pool is also used to collateralise the counterparty's credit line in CLM, demobilisation also depends on the successful decrease of the credit line.

The total collateral available to a counterparty in its pool is calculated as the sum of all different collateral positions<sup>9</sup> linked to that pool (see section 4.4).

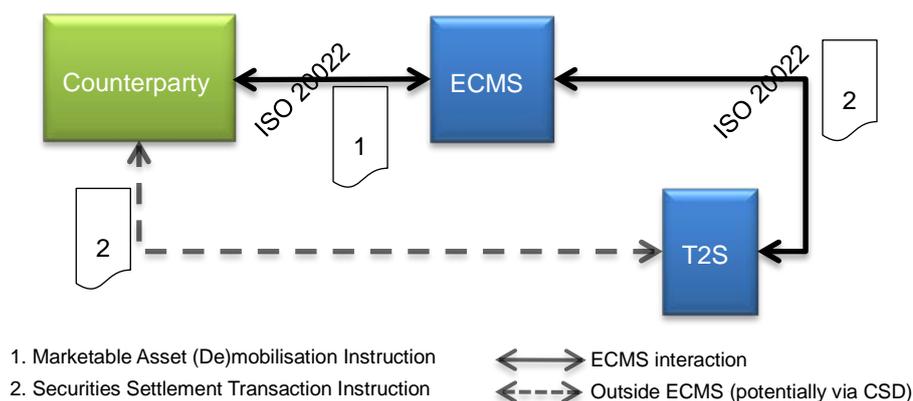
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<sup>9</sup> Calculated after valuation, application of haircuts and other risk management measures.

### 3.2.1 Mobilisation and demobilisation of marketable assets

In the ECMS, the procedures related to the mobilisation and demobilisation of marketable assets apply to all assets deposited in a CSD,<sup>10</sup> and can be triggered via both A2A and U2A. The ECMS interacts with T2S for the settlement of marketable asset instructions.

**Figure 4: Mobilisation of marketable assets with the ECMS in place**



Counterparties start the **mobilisation** process by sending the relevant instruction to the ECMS. The counterparty interacts with the ECMS, using a single message structure, irrespective of the location of the asset or the mobilisation channel used.

An instruction that passes the relevant business validation checks is transmitted by the ECMS to T2S in the form of a settlement instruction. The ECMS automatically determines the correct CSD account to be used in this settlement instruction using the information provided by the counterparty. Counterparties remain responsible for ensuring that a corresponding settlement instruction is available in T2S for matching.

The settlement instruction is sent to T2S as soon as the mobilisation request is processed by the ECMS, regardless of its intended settlement date (current or in the future). This allows matching in T2S ahead of the settlement date and facilitates successful mobilisation on the intended settlement date.

The actual asset position is only updated in the ECMS Counterparty Asset Account (and thus in the counterparty pool in the ECMS) after settlement has been confirmed by T2S

For **demobilisations**, counterparties also initiate the process by sending the relevant instruction to the ECMS. If the intended settlement date for the instruction is in the future, the demobilisation is queued and processed when the settlement date is

<sup>10</sup> While DECC are defined as non-marketable assets in the GD, they are mobilised in the ECMS via the same procedures as marketable assets.

reached (and following a collateral sufficiency check<sup>11</sup>), to avoid the premature reduction of the collateral pool value.

A counterparty can cancel instructions related to mobilisation and demobilisation in the ECMS as long as their status is not yet final and settlement has not yet been confirmed by T2S.<sup>12</sup> The cancellation instruction, which can be sent via U2A or A2A, must reference the previous instruction and will reverse any changes that may have been made as a result of the original instruction.

The ECMS ensures that only eligible marketable assets published in the ECB Eligible Asset list are mobilised in the ECMS.<sup>13</sup> Nevertheless, counterparties are still responsible for ensuring that they only submit eligible assets and for complying with all applicable risk control measures and rules for the use of eligible assets.

If a marketable asset becomes ineligible, the asset remains in the pool of the counterparty until it is demobilised.<sup>14</sup> However, the collateral value of the position is immediately set to zero.

### 3.2.2 Management of credit claims

The ECMS supports the management of credit claims mobilised on an individual basis under both the General Framework and the Temporary Framework (Additional Credit Claims (ACC)). When the respective NCB has an approved ACC framework, the ECMS automatically allocates credit claims to the respective framework during the eligibility assessment (provided that the counterparty has the necessary authorisation).

Some NCBs will continue to make use of their national systems for the management of some or all of their credit claims. Any credit claims mobilised as portfolios of credit claims do not come under the scope of the ECMS and will continue to be managed by NCBs outside the ECMS. The total value of all such credit claims is recorded in the ECMS via the externally managed collateral functionality.

Credit claims mobilised on a cross-border basis are managed within the ECMS, provided that at least one of the involved NCBs uses the credit claim functionality of the ECMS.

The main mode of communication with the ECMS for credit claims management is in A2A. Counterparties send credit claim files in xml format with an agreed structure and

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<sup>11</sup> If the collateral sufficiency check has a negative outcome, the demobilisation instruction is queued and only processed after conditions for further processing are met.

<sup>12</sup> If the instruction to be cancelled has already been matched in T2S, the counterparty will also need to cancel the instruction they sent to T2S.

<sup>13</sup> An exception concerns those assets whose eligibility status depends on the credit assessment issued by the credit assessment provider chosen by the counterparty, in accordance with the rules of the Eurosystem credit assessment framework. These assets are not included in the list of eligible assets but can be mobilised in the ECMS.

<sup>14</sup> In line with existing procedures, counterparties have to demobilise an asset within seven calendar days of it becoming ineligible.

content, or insert individual instructions via U2A. A credit claims file may contain multiple instructions of different types<sup>15</sup> but with the same intended settlement date (which may be in the future):

The process for the mobilisation of a credit claim is initiated with the registration of the credit claim via the submission of detailed information to the ECMS.<sup>16</sup> The simple registration of a credit claim does not necessarily mean that it can be used as collateral as eligibility checks are only conducted upon mobilisation.

If the credit quality requirements of a credit claim are to be fulfilled via an assessment provided by an authorised internal ratings-based system or, in the case of ACCs,<sup>17</sup> by a Rating Tool (RT) system, the counterparty will also need to provide information on the associated probability of default. Once a rating has been registered in the ECMS for a specific obligor, this rating can be used for all new credit claims with the same obligor.

When a counterparty requests the mobilisation of a registered credit claim, the ECMS verifies whether the information provided by the counterparty allows the use of the credit claim as collateral. If the credit claim passes the checks and is deemed to be eligible, the credit claim position becomes available in the pool of the counterparty. If more information is required from the NCB, the mobilisation remains on hold. If any checks fail, the mobilisation instruction is rejected. Counterparties remain responsible for ensuring that all information submitted is correct and that the credit claim fulfils all Eurosystem eligibility criteria before it is submitted as collateral to the ECMS.

When information on a credit claim changes, the counterparty is responsible for the timely resubmission to the ECMS of all credit claim attributes,<sup>18</sup> unless the outstanding amount is the only item which needs to be updated. In this case, the full set of information is not required. As long as information on a credit claim remains unchanged, no action is needed on the part of the counterparty.

If new information (either provided by the counterparty or resulting from internal processes of the ECMS) results in the credit claim becoming ineligible, the counterparty will be asked to remove it from its pool within seven calendar days. Until then, it remains in the pool, pledged to the NCB regardless of its eligibility status, but its collateral value will be set to zero. Credit claims that reach their maturity date are automatically removed from the pool.

After a credit claim file has been processed, the counterparty receives a report with the status of all individual instructions (even if some of those instructions still require NCB

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<sup>15</sup> Credit claim registration/update, Credit claim outstanding amount update, Rating registration/update, Credit claim mobilisation, Credit claim demobilisation.

<sup>16</sup> These include: the loan type, maturity date, outstanding amount, governing law, information on the structure of the interest rate and the identification of the obligors involved in the credit claim (i.e. debtor and/or guarantor identifiers). According to the obligor nationality, NCBs stipulate which code counterparties should use to identify an obligor (for example via its unique national identifier, Legal Entity Identifier or national tax identifier).

<sup>17</sup> See <https://www.ecb.europa.eu/mopo/assets/standards/nonmarketable/html/index.en.html> for further information on additional credit claims.

<sup>18</sup> Via a Credit Claim Update instruction or Rating Update instruction.

validation), as well as an end of day report detailing all previously pending instructions that were processed during that day.

### 3.2.3 Cash as collateral

The ECMS provides functionality for capturing cash from the counterparty's MCA account in CLM for use as collateral in the ECMS. Cash as collateral is managed at the level of the pool rather than in individual counterparty accounts.

In the case of pools used to cover monetary policy operations, the mobilisation of cash as collateral is only permitted if a margin call is pending and no additional eligible collateral is available.<sup>19</sup> Once the collateral insufficiency is resolved, the ECMS will automatically demobilise the cash as collateral.

The (de)mobilisation process can be initiated via U2A or A2A.<sup>20</sup> The amount of cash to be mobilised does not need to be indicated when responding to a margin call, nor is it required for demobilisations as the ECMS automatically demobilises the maximum amount that will not create a collateral insufficiency if the amount is unspecified.

The ECMS sends a payment instruction to debit/credit the account of the counterparty in CLM. Once settlement is confirmed by CLM, the cash position is updated in the counterparty pool in the ECMS. The demobilisation of cash as collateral may be subject to the successful decrease of the credit line in CLM.

Interest is accrued on a daily basis at the start of the day when the interest amount is added (or subtracted as applicable) to the cash collateral balance.

### 3.2.4 Fixed-term deposits used as collateral

The ECMS provides functionality for the handling of fixed-term deposits used as collateral. Following the settlement of such an operation, the ECMS automatically creates a position in the collateral pool of the counterparty that represents the value of that fixed-term deposit. The value of the fixed-term deposit position (including accrued interest) is counted towards the total available collateral. Accrued interest on fixed-term deposits is updated on a daily basis at the start of the day.

Upon maturity of the operation, the position is automatically demobilised from the pool of the counterparty. If the collateral value is insufficient, a margin call can be issued.

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<sup>19</sup> For pools which are used to cover non-monetary policy operations, the NCB may also choose to allow cash as collateral at any time.

<sup>20</sup> If the margin call is not solved by 17:00, the ECMS automatically initiates the mobilisation of cash as collateral. NCBs may also trigger the mobilisation of cash as collateral from cash due to be paid to the counterparty (e.g. from the cash flow of a CA event).

### 3.2.5 Triparty collateral management

If authorised to do so, counterparties can make use of triparty collateral management services from triparty agents (TPAs) which have been positively assessed by the Eurosystem to provide collateral. In the pool, this triparty collateral is segregated from the marketable asset positions.

The ECMS does not provide functionality for counterparties to manage their triparty transactions. TPAs communicate directly with the ECMS for the purposes of, *inter alia*, initiating, increasing, decreasing or closing a triparty transaction. Interaction with TPAs is explained further in section 6 below.

### 3.2.6 Externally managed collateral

A limited number of assets (e.g. some credit claims and ACCs) relevant for Eurosystem credit operations continue to be managed in the local systems of NCBs (externally managed collateral). NCBs report externally managed collateral to the ECMS so that the collateral value is available in the pools of counterparties. Counterparties should contact their NCB for further information on such collateral.

### 3.2.7 Statements of Holdings, Transactions and Pending Transactions

Statements of Holdings, Transactions and Pending Transactions related to marketable assets and credit claims managed in the ECMS are available in both U2A and A2A mode. Counterparties have the option of subscribing to these and other messages on a daily, weekly, monthly or annual basis, which follow the ISO 20022 standard, and which may also be sent to authorised third parties.

### 3.2.8 Corporate Action events

NCBs are responsible for managing any corporate action (CA) events related to securities provided by their counterparties as collateral and which are in the possession of the NCB at the time of the CA.

The ECMS automatically processes some categories of CA events, based on the AMI-SeCo corporate actions standards. For elective CA events, counterparties can provide their instructions via U2A (outgoing CA information would also then be provided in U2A mode by the ECMS). In A2A mode, counterparties (or their authorised third parties) should be prepared to process incoming and outgoing CA messages from the ECMS based on ISO 20022 messaging.

Each ECMS counterparty asset account is linked to an MCA in CLM into which all cash payments in euro resulting from a CA on a mobilised asset will be credited.<sup>21</sup> In the event of a CA reversal event, the ECMS may debit the MCA.

Due to the automated processing of CA events by the ECMS, counterparties do not need to demobilise assets subject to a CA event from the collateral pool. However, for some types of CA event,<sup>22</sup> the ECMS may block the marketable asset position to prevent the position from being demobilised while the CA is ongoing.

A list of the types of CA events handled by the ECMS is annexed to this document.

### 3.3 Monetary policy operations

**Table 1:** Overview of characteristics of the Eurosystem monetary policy operations (instruments falling within the scope of the ECMS are marked in green)

Category of monetary policy operations		Types of instruments	
		Provision of liquidity	Absorption of liquidity
Open market operations	Main refinancing operations	Reverse transactions	—
	Longer-term refinancing operations	Reverse transactions	—
	Fine-tuning operations	Reverse transactions	Reverse transactions
		Foreign exchange swaps	Foreign exchange swaps
			Collection of fixed-term deposits
	Structural operations	Reverse transactions	Reverse transactions
		—	Issuance of ECB debt certificates
Outright purchases		Outright sales	
Standing facilities	Marginal lending facility	Reverse transactions	—
	Deposit facility	—	Deposits

<sup>21</sup> For payments in other currencies, the ECMS is informed of the CA event, but related payments are performed outside the ECMS.

<sup>22</sup> Please refer to Standard 10 of the AMI-SeCo corporate actions standards.

The ECMS provides functionality for the settlement of monetary policy operations conducted through liquidity-providing reverse transactions (in euro and other currencies<sup>23</sup>) and the collection of fixed-term deposits.

While foreign exchange swaps are also liquidity-providing instruments that may require the provision of collateral, for the time being, they will continue to be handled in dedicated NCB systems. Similarly, instrument types that do not require the provision of collateral (for example outright purchases) are outside the scope of the ECMS.

The settlement of payments related to open market operations is performed by the ECMS on the MCA used by the counterparty.

The value of all outstanding liquidity-providing reverse transactions managed in the ECMS (including the accrued interest) is part of the counterparty's pool and is counted towards its total credit position (see section 4.4).

### 3.3.1 Settlement of open market operations

The open market operations covered by the ECMS are liquidity-providing reverse transactions and the collection of fixed-term deposits.

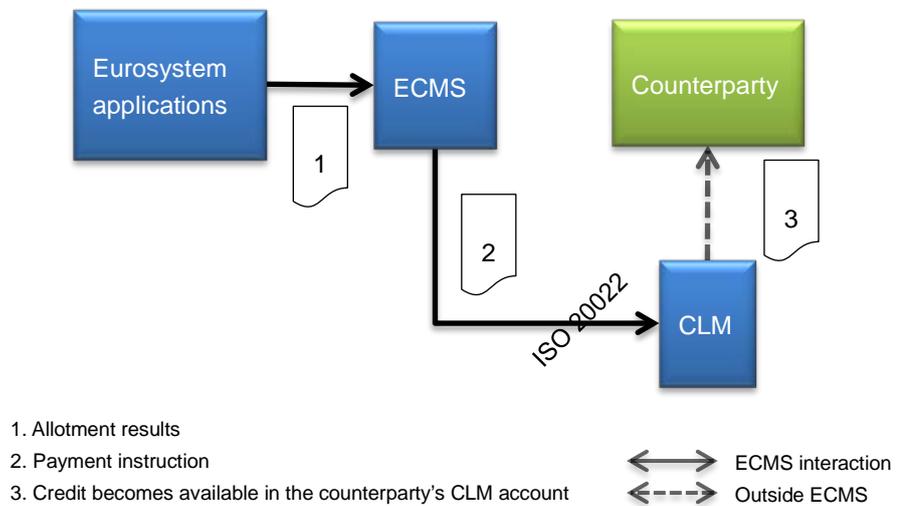
It should be noted that although settlement of these open market operations is performed via the ECMS, the collection of bids from counterparties is performed via the local NCB applications. The announcement and allotment of those open market operations is performed by the ECB.

The ECMS receives the allotment results from Eurosystem applications and sends the respective payment instructions to the designated MCA in CLM. When the maturity date is reached, the ECMS checks collateral sufficiency and automatically sends the payments to CLM (for the outstanding amount and for the interest). Early repayments are also managed by the ECMS.

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<sup>23</sup> The ECMS handles operations in other currencies, but only handles the respective payments if they are to be made in euro.

**Figure 5: Settlement of a credit operation**



Payments related to open market operations (both at settlement and maturity) in the ECMS occur at the start of the business day (between 19:00 and 19:30 CET on the previous calendar day).

The ECMS includes functionality to allow payments for the settlement of new operations to be netted out against any maturing liquidity providing operations (e.g. OMO and marginal lending), thus enabling a single payment in CLM for the netted amount. This functionality should reduce the instances of failure due to the order of payments, and improve collateral availability by foregoing the need to temporarily collateralise both operations. The availability of this netting functionality depends on the setup at each NCB.

### 3.3.2 Access to the Marginal Lending Facility

Counterparties meeting the required access conditions may request access to the marginal lending facility directly in the ECMS, via U2A and A2A. The process is initiated by the Counterparty inserting a request instruction in the ECMS

Counterparties are able to request marginal lending for immediate settlement or for settlement at the next start of day, if the counterparty has a credit operation maturing on the next business day (thus permitting the netting of the marginal lending with maturing operations).

The ECMS is also informed of any access to the marginal lending facility which is triggered automatically in CLM at the end of day due to a lack of funds. This will then be included in the credit position of the counterparty.

### 3.3.3 Calculation of accrued interest

The outstanding amount of monetary policy operations is calculated taking into account the interest accrued on an operation since its settlement date. The ECMS applies a last-day accrual approach, as shown in Table 2 below.

**Table 2:** Example of evolution of accrued interest for an open market operation

Date	Principal	Accrued interest
Settlement Date (Wednesday)	1,000,000	0
SD +1 (Thursday)	1,000,000	55.56
SD +2 (Friday)	1,000,000	111.11
SD +5 (Monday)	1,000,000	277.78
SD +6 (Tuesday)	1,000,000	333.33
SD +7 = Maturity Date (Wednesday)	1,000,000	388.89

For illustration purposes an MRO with a 2% interest rate is assumed. Only business days are shown.

The same calculation process for accrued interest applies to all outstanding open market operations (including fixed-term deposits), marginal lending and cash as collateral, using the respective interest rates.

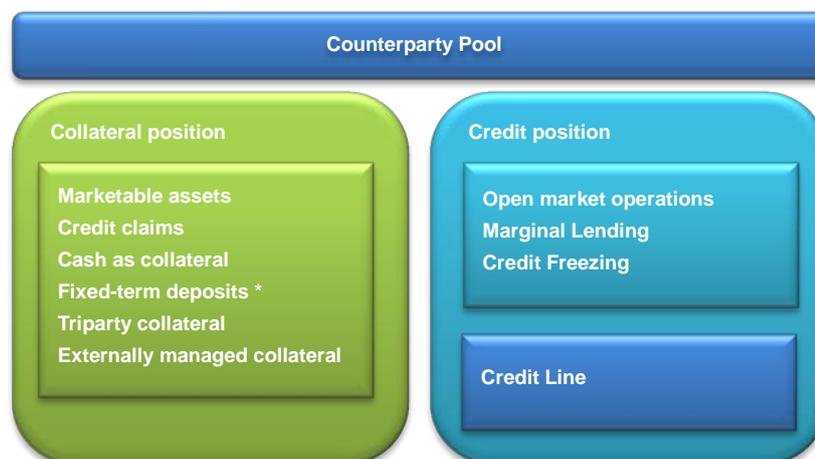
## 3.4 Counterparty pool

The ECMS counterparty pool provides a comprehensive overview of the current collateral position, credit position and credit line of the counterparty.

The difference between the total collateral available and the amount of outstanding Eurosystem monetary policy operations determines the over/under-collateralisation of the pool (this is referred to as the suggested credit line in the ECMS – see section 4.4.2). Some collateral or credit information may be displayed in the pool without having a direct impact on the collateral or credit positions (for example, fixed-term deposits which are not activated for use as collateral).

The ECMS provides information to the counterparty on its pool positions via U2A and A2A, with an aggregated overview (e.g. the sum of all collateral and credit positions) and transaction level information on each position in each account linked to that pool. A counterparty can also obtain the consolidated pool position of a banking group if designated as the manager of that banking group (see section 3.2).

**Figure 6:** Simplified view of a counterparty pool



\* When activated for use as collateral

### 3.4.1 Credit freezing

The ECMS offers credit freezing functionality. Credit freezing reserves a certain amount of collateral value in the counterparty pool for a specific purpose, which is then deducted when calculating the excess collateral available in the ECMS.

The types of credit freezing are defined by the Eurosystem. If authorised to do so, the counterparty can request, via U2A and A2A, an increase or decrease of its credit freezing position.

One particular function of credit freezing is that used in the CLM contingency solution.<sup>24</sup> Counterparties can hold credit freezing positions in the ECMS which are used to automatically provide initial liquidity to the contingency solution, if activated. When the contingency solution is active, additional collateral can be mobilised and will be used to automatically increase the liquidity available to the counterparty in the contingency solution. Only when the contingency is solved and the counterparty has reimbursed the liquidity granted, can the credit freezing position in the counterparty pool be decreased.

### 3.4.2 Credit line management

Access to intraday credit in CLM is provided only against adequate collateral. The ECMS is responsible for providing CLM with the value of the credit line in CLM based on the collateral available in the ECMS for this purpose. The setup depends on the counterparty having the necessary authorisation.

<sup>24</sup> ECONS – Enhanced Contingency Solution.

Only one pool per counterparty can be used to collateralise Eurosystem credit operations, including the credit line in CLM.

The management of the credit line in ECMS makes use of three different but related concepts for a credit line:

- The **suggested** credit line is the difference between the total collateral available and the amount of outstanding Eurosystem monetary policy operations, i.e. the over/under-collateralisation of the pool;
- The **expected** credit line is the last credit line value sent to CLM. In this sense, it is of temporary relevance while the ECMS is waiting for confirmation of the change of the credit line in CLM;
- The **real** credit line reflects the value of the credit line confirmed by CLM.

Whenever the suggested credit line becomes negative (under-collateralisation), the ECMS issues a margin call to the counterparty, which is then responsible for bringing additional collateral (eligible assets or cash) or reducing its credit to resolve the margin call in a timely manner. The ECMS allows the NCB to debit the account of the counterparty in the CLM to resolve a margin call which has not been solved by the counterparty itself (thus triggering a mobilisation of cash as collateral – see section 0).

**Figure 7: Example process of updates of a credit line and interaction with CLM**

	Initial State: no Credit Line has been set up	A Credit Line link is configured	Maximum Credit Line is added	Collateral decreases	Further collateral decrease	Collateral demobilisation instruction
<b>Suggested Credit Line</b>	1,000,000	1,000,000	1,000,000	900,000	700,000	600,000
<b>Maximum Credit Line</b>	N	N	800,000	800,000	800,000	800,000
<b>Pool credit line configuration</b>	N	Y	Y	Y	Y	Y
<b>Real Credit Line</b>	N/A	0	1,000,000	800,000	800,000	700,000
<b>Expected Credit Line</b>	N/A	1,000,000	800,000	800,000	700,000	600,000
<b>Instruction to modify the credit line</b>		↓	↓	No need to update CLM	↓	↓
<b>Credit Line in CLM</b>	N/A	1,000,000	800,000	800,000	700,000	700,000
<b>Real Credit Line</b>	N/A	1,000,000	800,000	800,000	700,000	700,000
						Reduction rejected by CLM if credit line is consumed
						Demobilisation instruction pending

The ECMS implements a “floating credit line” approach. This means that when the suggested credit line in the ECMS increases, this increase can be automatically repurposed to increase the credit line in CLM.

A counterparty wishing to do so may limit this automatic increase by configuring a **maximum** credit line in the ECMS. NCBs are also able to limit the amount of the credit

line for a counterparty. The counterparty will in this case not be able to set its maximum credit line higher than the maximum defined by its NCB.

If a maximum credit line has been set, any increase in the suggested credit line over the maximum will not be used to increase the credit line in CLM. This collateral remains available for other purposes.

In some instances, the automatic increase of the credit line in CLM may be connected to a timing parameter. In such cases, the increase is delayed by a few minutes to enable batch processing and a reduction in the number of messages exchanged between the two systems.

Conversely, in the absence of a maximum credit line, any decrease in the available collateral will immediately trigger a reduction of the credit line (subject to CLM confirmation). Some events (e.g. a request by the counterparty to demobilise an asset) are thus dependent on the successful decrease of the credit line in CLM (see sections 4.2 and 3.4.2).

Eurosystem credit operations are thus managed in an integrated manner, meaning that credit obtained via monetary policy operations and the credit line in CLM are automatically interconnected.

### 3.4.3 Pool projection

The ECMS provides pool projection functionality to counterparties (at the discretion of the respective NCB). This functionality is available in U2A and provides a view of the expected evolution of a counterparty's collateral and operations, taking into account all movements that are already known to the ECMS. Pool projection assists counterparties in forecasting their liquidity needs and identifying in advance potential under-collateralisation.

The valuation of marketable assets used in the projection is based on the latest information (e.g. prices, pool factors, haircuts, etc.) available in the system. As such, the realisation of the collateral value on a future date may differ from the previously projected value, even in the absence of any mobilisations and demobilisations.

## 4 Central Securities Depositories (CSDs)

This section presents the business processes available to Central Securities Depositories (CSDs) in respect of securities accounts held for Eurosystem collateral business. In the ECMS such actors are identified by the role “Central Securities Depository (CSD)”.

Whenever multiple NCBs hold accounts in the same CSD, that CSD will be treated in the ECMS as multiple distinct entities, one for each NCB holding an account.

It should be noted that for settlement instructions, the ECMS will interact directly with T2S. As such, CSDs will not need to establish a direct connection with the ECMS for settlement purposes.

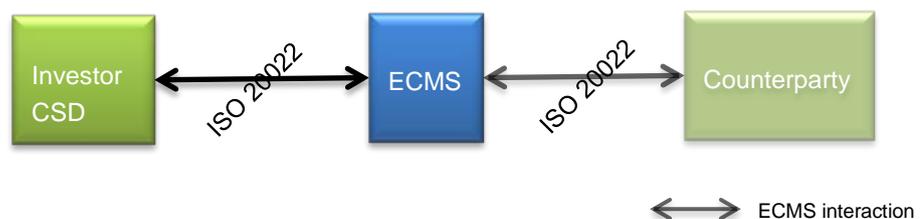
Interaction with CSDs is in A2A mode and follows the ISO 20022 standard.

### 4.1 Corporate Action events

The ECMS supports the harmonised procedures laid down by the AMI-SeCo for all CA events relevant to Eurosystem eligible debt instruments.

According to these standards, the issuer must inform the CSD of the details of a CA upon its public announcement. The information reaches the end investor through the relevant chain of CSDs and investment intermediaries.

**Figure 8: Interaction between ECMS and CSDs**



The ECMS processes incoming messages from CSDs and, when applicable, forwards them to the respective counterparties. Similarly, in the case of elective CAs (where the holder of the asset has a choice) the ECMS needs to be able to process incoming instructions from counterparties before delivering the respective instruction to the CSD where the asset is held.

After the ECMS informs the NCB of an upcoming CA event, the ECMS acts as an intermediary, processing this information and conveying it to counterparties affected

by the CA event. In the event of an elective CA, the ECMS also informs the CSD of the counterparty's choices.

CSDs notify the ECMS of the calculated expected movements and the ECMS informs counterparties of their entitlements via an additional process.

From the CSD perspective, the CA event is in principle completed in the ECMS once they have sent a confirmation and performed the related payment or securities movement (this information is also relayed to counterparties). When the CA event involves a cash flow, the ECMS forwards the respective cash flow to the entitled counterparties. In case of securities movements, the counterparty account is updated. If necessary, the CSD can also reverse the cash payment or security movement.

If the CA event relates to a meeting, the ECMS provides dedicated messages for the provision of information before and after the meeting has taken place.

For a complete list of CA events supported by the ECMS please refer to the Annex: CA events processed by the ECMS. The [AMI-SeCo corporate actions standards](#) detail the specific messages that need to be used.

## 4.2 Sending of invoices

In accordance with the AMI-SeCo billing processes standards, CSDs send their invoices for the NCBs accounts related to collateral management business to the ECMS via a standardised ISO 20022 message.

Invoices are expected no later than the eighth business day of the month.

## 5 Triparty agents (TPAs)

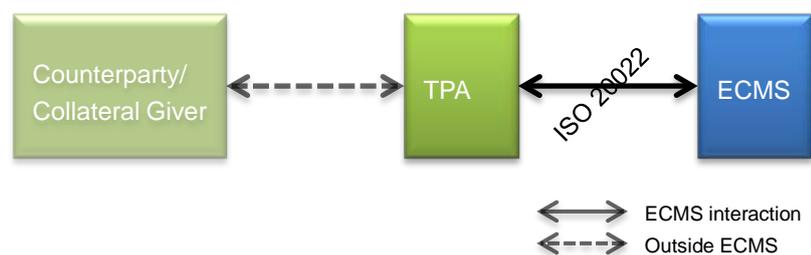
This section explains the business processes relevant to those participants providing triparty collateral management services to counterparties and NCBs. In the ECMS such parties are referred to as “triparty agents”. Interaction with TPAs will be in A2A mode and follow the ISO 20022 standard.

Whenever counterparties of multiple NCBs have a direct relationship with the same TPA, the TPA is treated in the ECMS as multiple distinct entities, one for each NCB.

### 5.1 Triparty collateral management

The ECMS implements a single model for triparty collateral management which is harmonised among the different jurisdictions. Communication between the ECMS and the systems of TPAs is implemented according to the [AMI-SeCo triparty collateral management standards](#).

**Figure 9:** Interaction between ECMS and TPAs



A counterparty’s triparty collateral position is updated in the ECMS, primarily on the basis of reports provided by the TPA to the ECMS. These triparty collateral and exposure reports can be divided into two broad categories: reports on flows and reports on stocks.

Reports on flow are used by the TPA to inform the respective NCB of:

- an increase in the triparty transaction amount;
- an increase or decrease in the value of collateral held;
- the delta update on the list of allocated securities.

Reports on stock inform the NCB which securities have been allocated to triparty transactions, together with valuation information.

The process to decrease a triparty transaction amount is initiated in the ECMS following a request made by the TPA and requires the ECMS to confirm that the

decrease can be completed. As long as such confirmation has not been provided, the decrease remains pending and the ECMS will continue to attempt to decrease the collateral value throughout the day. This process ensures that the collateral decrease cannot create a collateral insufficiency in the pool of the counterparty. A TPA may cancel a previously sent decrease request.

Some of the processes described in this document may also involve the counterparty/collateral giver (i.e. increase/decrease of triparty transaction amount). However, the ECMS is not involved in that part of the process.

If it proves necessary to remove a specific security from a triparty transaction, the ECMS asks the TPA to do so (for example, if the NCB becomes aware that the asset is not eligible for that counterparty).

On a daily basis, the ECMS provides the TPA with all information necessary for it to ensure that only eligible securities are used as collateral and that the collateral pools comply with the applicable risk control measures (i.e. collateral value after haircuts and close links data).<sup>25</sup>

## 5.2 Sending of invoices

In accordance with the [AMI-SeCo billing processes standards](#), TPAs send their invoices for the NCBs to the ECMS via a standardised ISO 20022 message.

Invoices are expected no later than the eighth business day of the month.

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<sup>25</sup> It is acknowledged that TPAs cannot ensure the application of the risk control measures related to concentration limits.

## Annex: CA events processed by the ECMS

ID	Name
<b>ACTV</b>	Trading Status: Active
<b>BIDS</b>	Repurchase Offer / Issuer Bid/ Reverse Rights
<b>BMET</b>	Bond Holder Meeting
<b>BPUT</b>	Put Redemption
<b>BRUP</b>	Bankruptcy
<b>CAPI</b>	Capitalisation
<b>CERT</b>	Non-US TEFRA D Certification
<b>CHAN</b>	Change
<b>CLSA</b>	Class Action / Proposed Settlement
<b>CMET</b>	Court Meeting
<b>CONS</b>	Consent
<b>CREV</b>	Credit Event
<b>DFLT</b>	Bond Default
<b>DLST</b>	Trading Status: Delisted
<b>DRAW</b>	Drawing
<b>DSCL</b>	Disclosure
<b>DTCH</b>	Dutch Auction
<b>EXOF</b>	Exchange
<b>EXTM</b>	Maturity Extension
<b>INCR</b>	Increase in Value
<b>INFO</b>	Information
<b>INTR</b>	Interest Payment
<b>LIQU</b>	Liquidation Dividend / Liquidation Payment
<b>MCAL</b>	Full Call / Early Redemption
<b>OTHR</b>	Other Event
<b>PARI</b>	Pari-Passu
<b>PCAL</b>	Partial Redemption Without Pool Factor Reduction
<b>PINK</b>	Payment in Kind

<b>PLAC</b>	Place of Incorporation
<b>PPMT</b>	Instalment Call
<b>PRED</b>	Partial Redemption With Pool Factor Reduction
<b>REDM</b>	Final Maturity
<b>REDO</b>	Redenomination
<b>REMK</b>	Remarketing Agreement
<b>RHDI</b>	Intermediate Securities Distribution
<b>SUSP</b>	Trading Status: Suspended
<b>TEND</b>	Tender / Acquisition / Takeover / Purchase Offer
<b>TREC</b>	Tax Reclaim
<b>WTRC</b>	Withholding Tax Relief Certification
<b>WRTH</b>	Worthless

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## List of abbreviations

<b>A2A</b>	Application-to-Application
<b>AMI-SeCo</b>	Advisory Group on Market Infrastructures for Securities and Collateral
<b>CA</b>	Corporate Action
<b>CET</b>	Central European Time
<b>CLM</b>	Central Liquidity Management
<b>CSD</b>	Central Securities Depository
<b>ECB</b>	European Central Bank
<b>ECMS</b>	Eurosystem Collateral Management System
<b>ESMIG</b>	Eurosystem Single Market Infrastructure Gateway
<b>GD</b>	General Documentation
<b>NCB</b>	National Central Bank
<b>T2S</b>	TARGET-2 Securities
<b>TIPS</b>	TARGET Instant Payment Settlement
<b>TPA</b>	Triparty Agent
<b>U2A</b>	User-to-Application