|  |
| --- |
| CCPA Business Requirements  Collateral Management (BRS-CM)  Version 0.3 ● Proposed |
| |  | | --- | |  | | Date/Time Generated: | 28/09/2018 14:49:01 | | Author: | CC&G | |
| |  |  | | --- | --- | |  |  | |

Table of Contents

1 Document history 3

2 Document Control 4

3 Overview 5

4 Requirements 6

4.1 Collateral eligibility 6

4.1.1 FN00006779 - Eligible instrument list 6

4.1.2 FN00006782 - Collateral eligible reference data maintenance 7

4.1.3 FN00006783 - Eligible instruments Automatic expiration 7

4.1.4 FN00006777 - Eligible instrument setup 7

4.1.5 FN00006780 - Issuer group setup 8

4.1.6 FN00006780 - Security concentration setup 8

4.1.7 FN00006781 - ECB reference data 9

4.1.8 FN00006778 - Currency eligibilty 10

4.2 Collateral accounts 10

4.2.1 FN00006792 - External collateral accounts 10

4.2.1.1 CM00006789 - Examples of external accounts 11

4.2.2 FN00006788 - Transaction on external collateral account 12

4.2.2.1 CM00006791 - Example of transaction on external accounts 13

4.2.3 FN00006794 - Collateral accounts 13

4.2.3.1 CM00006793 - Example of collateral account 14

4.2.4 FN00006790 - Collateral Account Balance Items 14

4.3 Collateral synchronization 17

4.3.1 FN00006806 - Perform cash collateral synchronization 17

4.3.2 FN00006802 - Perform securities collateral synchronization 18

4.3.3 FN00006808 - Collateral Account handling 20

4.4 Collateral withdrawal 20

4.4.1 FN00006919 - Collateral withdrawal 20

4.5 Collateral evaluation 21

4.5.1 FN00006819 - Automatically trigger collateral evaluation 21

4.5.2 FN00006818 - Manually request collateral evaluation 21

4.5.3 FN00006817 - Perform collateral evaluation 21

4.6 Margin call 23

4.6.1 FN00006828 - Automatically trigger margin call 23

4.6.2 FN00006829 - Manually request margin call 23

4.6.3 FN00006826 - Perform margin call 23

4.7 Margin verification 24

4.7.1 FN00006834 - Perform margin verification 25

# Document history

The following table contains the document revisions, including references to specific comments.

| Version | Notes |
| --- | --- |
| V 0.1 | First draft |
| V 0.2 | * FN00006779 – ‘Eligible Assets’ table adjustments: (comment MM1) modified field 'ISIN' to VARCHAR(12), modified field 'Collateral Class' to INTEGER, modified description of field 'Maturity Date', modified type of field 'Expiration period', modified field 'Country' to CHAR(2), modified field 'Issuer Group' to VARCHAR(3), modified field 'Product type' to 'Asset type [VARCHAR(4)]', modified fields 'Date Added'/'Modified date'/'Modified Time' to 'Added Datetime [TIMESTAMP]'/'Modified Datetime [TIMESTAMP]' * FN00006777 – ‘Collateral Class’ table adjustments: modified field 'Collateral Class' to INTEGER and added description * FN00006781 – ‘BCE Eligible assets’ table adjustments: (comment MM2) modified fields 'ISIN' to CHAR(12), (comment MM3) 'ISSUER NAME' to 'VARCHAR(100)', (comment MM4) 'ISSUER OTHER NAME' to 'VARCHAR(100)', (comment MM5) 'ISSUER RESIDENCE' to 'VARCHAR(100)' * FN00006778 – ‘Eligible currencies’ table adjustments: modified fields 'Date Added'/'Modified date'/'Modified Time' to 'Added Datetime [TIMESTAMP]', 'Modified Datetime [TIMESTAMP]' * FN00006792 - (comment MM7) Added description; (comment MM6) added examples of external accounts; ‘External Collateral Accounts’ table adjustments: modified field 'Collateral type' to CHAR(1)[""S"",""C""]; modified field 'Clearing Member ID [INTEGER]' to 'External collateral account ID [VARCHAR(9)]’; (comments MM9/MM10/MM11) modified fields 'External Cash Account' and 'External Securities Account' to VARCHAR(30) and changed description * FN00006788 - (comment MM12) Added description; (comment MM6) added example of transaction on external account; 'External Collateral Account Transactions' table adjustments: modified field 'Collateral type' to CHAR(1)[""S"",""C""], modified field 'Transaction date' to INTEGER, modified field 'Maturity date' to INTEGER, (comment MM14) deleted field 'Description' because not relevant in this table, (comment MM13) modified field 'Units/Shares' to 'Quantity', modified field 'Notes' to VARCHAR(100), modified field 'Face value' to 'Value, modified field 'Source account'/'Destination account' to 'External Collateral Account ID' * FN00006794 - (comment MM6) Added example of collateral account; ‘Collateral account’ table adjustments: (comment MM15) modified field 'Clearing Member ID' to 'Participant code', modified field 'Account category' to 'Account type', deleted field 'Account description' * FN00006802/FN00006806/FN00006808 - (comment MM16) OeKB modified to Cash Custodian, (comment MM19) OeKB.CSD modified to CSD * FN00006806/FN00006802 - Cash collateral/securities synchronization diagram: (comment MM17) deleted field 'GCM member' because not relevant * FN00006919 - Added new requirement: 'Collateral withdrawal process' * FN00006817 - (comment MM20) Diagram step 'apply currency haircut()' modified to 'apply currency/ISIN haircut()' |
| V 0.3 | * Normalized all status fields to have the same flag "A"/"D" * FN00006788 - 'External collateral account transactions": added [QTY type] * FN00006790 - 'Collateral balance items": added [QTY type], added concentration limits fields * FN00006780 - 'Security concentration limits setup': added |

# Document Control

The following table contains the complete list of business requirements described in this document, together with their own identification code and status attributes.

For each requirement the following attributes are provided:

1. **Priority**: describes the importance of the requirement using the MoSCoW standard. More specifically, "Must" is a category used for business critical requirements,"Should" is specified for important but not "show-stopping" requirements, "Could" is used for "nice-to-have" requirements.
2. **Analysis**: expresses the level of completeness of the analysis. In particular the flag "Unknowns" means that there are still topics not covered by workshops and interviews, while "No unknowns" means that the analysis can be considered complete from the client perspective.
3. **Stability**: this flag describe the requirements stability in terms of changes connected to external stakeholder influence. A requirement is "Not Stable" if, for example, the team is waiting for an external feedback that could impact it (changing regulations, changing external systems, changing standards...)

| Code | Name | Priority | Analysis status | Stability |
| --- | --- | --- | --- | --- |
| FN00006779 | Eligible instrument list | Must | No unknowns | Stable |
| FN00006782 | Collateral eligible reference data maintenance | Must | No unknowns | Stable |
| FN00006783 | Eligible instruments Automatic expiration | Must | No unknowns | Stable |
| FN00006777 | Eligible instrument setup | Must | No unknowns | Stable |
| FN00006780 | Issuer group setup | Must | No unknowns | Stable |
| FN00006780 | Security concentration setup | Must | No unknowns | Stable |
| FN00006781 | ECB reference data | Must | No unknowns | Stable |
| FN00006778 | Currency eligibilty | Must | No unknowns | Stable |
| FN00006792 | External collateral accounts | Must | No unknowns | Stable |
| FN00006788 | Transaction on external collateral account | Must | No unknowns | Stable |
| FN00006794 | Collateral accounts | Must | No unknowns | Stable |
| FN00006790 | Collateral Account Balance Items | Must | No unknowns | Stable |
| FN00006806 | Perform cash collateral synchronization | Must | No unknowns | Stable |
| FN00006802 | Perform securities collateral synchronization | Must | No unknowns | Stable |
| FN00006808 | Collateral Account handling | Must | No unknowns | Stable |
| FN00006919 | Collateral withdrawal | Must | No unknowns | Stable |
| FN00006819 | Automatically trigger collateral evaluation | Must | No unknowns | Stable |
| FN00006818 | Manually request collateral evaluation | Must | No unknowns | Stable |
| FN00006817 | Perform collateral evaluation | Must | No unknowns | Stable |
| FN00006828 | Automatically trigger margin call | Must | No unknowns | Stable |
| FN00006829 | Manually request margin call | Must | No unknowns | Stable |
| FN00006826 | Perform margin call | Must | No unknowns | Stable |
| FN00006834 | Perform margin verification | Must | No unknowns | Stable |

# Overview

The Clearing System maintains details on collateral posted by Clearing Participants on their collateral accounts for the purpose of checking the coverage of margin requirements. The actual collateral itself is safe-kept by external custodians in multi-currency security deposits and cash accounts.

The exchange of information between such external entities and the Clearing System is implemented via a Collateral Synchronization process with a data flows that includes:

* Cash accounts and respective balances
* Security posted as collateral and respective nominal values

Such data flows do not include transactions (only balances). Transactions are generated by the Clearing System calculating the variation between received balances. Manual amendments are allowed.

The Clearing System aggregates the internal representations of External Collateral Accounts in logic structures called Collateral Account. Relationship among External Collateral Accounts, Collateral Accounts and Margin Accounts is defined in BRS-AS Vulume.

Participants can associate each collateral account to a specific clearing currency. The Outcome of the collateral evaluation, performed in accordance to the Emir Rules, is provided in such currency.

The cash call process is performed in the same currency, confronting the post-evaluation collateral with the result of the Cross-Currency/Market Margin Computation.

# Requirements

## Collateral eligibility

### FN00006779 - Eligible instrument list

Financial instruments which are eligible to be posted as collateral by the Clearing Participants are listed, together with their reference data, in a dedicated archive.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Eligible Assets | | | | |
| "Eligible assets" table summarizes financial instruments, uniquely identified by their ISIN code, that can be posted as collateral by the Clearing Participants. It contains all relevant information of each eligible instrument. | | | | |
| Field Name | Type | Prec. | Scale | Description |
| ISIN | VARCHAR(12) |  |  | Security identification code |
| Asset Type | VARCHAR(4) |  |  | Represent the instrument asset type as from ECB classification E.g. "AT02", "AT03"... Used as additional information. |
| Status | CHAR(1) |  |  | Represents the security eligibility status. Possible values are:   * "A"=Activated * "D"=Deactivated |
| Haircut | DECIMAL(4,2) | 4 | 2 | Haircut assigned to collateral instrument. In case this field is not populated the default haircut of the respective collateral class is used. |
| Collateral Class | INTEGER |  |  | Instrument liquidity class as from CCPA collateral policy. Possible values are integer numbers (E.g. 1,2,3..).  Used to reference the default applied haircut in the Collateral Class table. |
| Currency | CHAR(3) |  |  | Instrument denomination currency expressed following ISO 4217 (3 chars codes) |
| Issuer Group | VARCHAR(3) |  |  | Issuer group as from ECB classification.  Examples are "IG1",IG2","IG3". |
| Credit rating | VARCHAR(4) |  |  | Instrument rating provided by external agencies as defined in the CCPA Collateral Policy (stored as additional information only).  Domain samples:"AAA","AA+"... |
| Maturity date | INTEGER |  |  | Represents the instrument maturity date expressed in the format "yyyymmdd". |
| Expiration period | INTEGER |  |  | Offset with respect to maturity date: it defines the limit, in number of days, after which the instruments' is still accepted but an alert is triggered to the user. It is null by default. In case the field is null the default value, which is setup at system level, is used. Possible values are integers number which represent business days. |
| Liquidity class | CHAR(3) |  |  | Liquidity Class As defined in the CCPA Collateral Policy (stored as additional information only).  Examples are "L1A","L1B", ... |
| Country | CHAR(2) |  |  | ISO 3166 code representing the issuing country |
| Market | CHAR(4) |  |  | ISO 10383. Market on which the instrument is listed |
| Modification datetime | TIMESTAMP |  |  | Date/Time in which the record has been modified. Automatically handled by the system. |
| Added datetime | TIMESTAMP |  |  | Date/Time in which the instrument has been added. Automatically handled by the system. |

### FN00006782 - Collateral eligible reference data maintenance

Collateral Instruments are totally decoupled from traded instrument and are maintained manually by the CCP Operator. This means that in case an instrument is traded and collateral eligible the Clearing System contains two separate instances of it.

### FN00006783 - Eligible instruments Automatic expiration

For each specific instrument an expiration notification period can be setup. Such period is setup by the user as “Number of solar days before expiration”. The Clearing System, as part of the EOD process, generates a Mail Alert for all the instruments which are in the Expiration period. During the expiration period the position corresponding to the expiring financial instrument is still evaluated regularly.

### FN00006777 - Eligible instrument setup

If the haircut field is not populated, Collateral Class default is used. Collateral Class default values are maintained in a separate archive. Collateral Class Archive also contains limits used in the collateral evaluation.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Collateral Class policy | | | | |
| "Collateral Class" table is used for collateral management purposes whenever the haircut field of the "Eligible instrument list" table is not populated. It contains default values of haircut and concentration limits | | | | |
| Field Name | Type | Prec. | Scale | Description |
| Collateral Class | INTEGER |  |  | Instrument liquidity class. Possible values are integer numbers (E.g. 1,2,3..). Maximum one digit. |
| Haircut | DECIMAL(4,2) | 4 | 2 | Default class haircut expressed in percentage (1.0 means 1%) |
| Limit | DECIMAL(4,2) | 4 | 2 | Limit of accepted securities per collateral class expressed in percentage (e.g. 10.0 means 10% maximum of securities in class X) |
| Added datetime | TIMESTAMP |  |  |  |
| Modification datetime | TIMESTAMP |  |  |  |

### FN00006780 - Issuer group setup

Issuer group can be setup, together with the respective limits used in the collateral evaluation, in a separate archive.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Issuer Group policy | | | | |
| "Issuer Group Policy" table summarises concentration limits of securities accepted as collateral per each issuer group. | | | | |
| Field Name | Type | Prec. | Scale | Description |
| Issuer group | VARCHAR(10) |  |  | Issuer group as from ECB classification. This field is cross referenced In the ECB eligible asset table. |
| Limit | DECIMAL(4,2) | 4 | 2 | Limit of accepted securities per issuer group expressed in percentage (e.g. 10.0 means 10% maximum of securities with issuer group X) |

### FN00006780 - Security concentration setup

Security limits can be setup at system level.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Security concentration policy | | | | |
| "Issuer Group Policy" table summarises concentration limits of securities accepted as collateral per each issuer group. | | | | |
| Field Name | Type | Prec. | Scale | Description |
| Limit | DECIMAL(20,5) | 20 | 5 | Limit of accepted securities expressed in percentage (e.g. 10.0 means 10% maximum of securities over total margin requirement) |

### FN00006781 - ECB reference data

ECB reference data are automatically synchronized in the System with the purpose of validation of instrument eligible reference data.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| ECB Eligible assets table | | | | |
| "ECB Eligible assets" table contains the list of eligible marketable assets for Eurosystem operations. It is used to determine if an instrument is eligible to be posted as collateral and summarizes all relevant instrument's information for each ISIN. It is used for validation of ISIN against the Elible Asset entity. | | | | |
| Field Name | Type | Prec. | Scale | Description |
| ISIN | VARCHAR(12) |  |  | Instrument identification code |
| Other reg. number | VARCHAR(10) |  |  |  |
| Haircut category | CHAR(3) |  |  | Represents the instrument liquidity class. References the field "Liquidity Class" in the Eligible assets table. E.g. "L1D" |
| Asset type | CHAR(4) |  |  | Represents the instrument asset type as from ECB classification E.g. "AT02", "AT03"... |
| Ref. Market | VARCHAR(6) |  |  | Ref. Market as from ECB Classification E.g. "RMEU01" |
| Currency | CHAR(3) |  |  | Instrument denomination currency are expressed following ISO 4217 (3 chars codes) |
| Issuance date | DATE |  |  | Date of issuance |
| Maturity date | DATE |  |  | Date of maturity |
| Coupon rate | DECIMAL(5,3) | 5 | 3 | Coupon rate expressed in percentage (1.875 = 1.875%) |
| Issuer name | VARCHAR(100) |  |  | Name of the financial instrument issuer |
| Issuer other name | VARCHAR(100) |  |  |  |
| Issuer residence | VARCHAR(100) |  |  | Address of the financial instrument issuer |
| Issuer group | CHAR(3) |  |  | Issuer group as from ECB classification. This field is used to reference the Issuer Group entity in the Issuer Group policy table. |
| Coupon definition | CHAR(3) |  |  | Coupon definition as from ECB Classification E.g. "CD4" |
| Haircut | DECIMAL(4,2) | 4 | 2 | Instrument haircut expressed in percentage |
| Haircut own use | DECIMAL(4,2) | 4 | 2 |  |
| Own use of covered bond | VARCHAR(10) |  |  |  |

### FN00006778 - Currency eligibilty

The list of currencies which are eligible to be posted as collateral (in the form of cash or securities) are manually maintained in the clearing system, together with their haircut.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Eligible currencies | | | | |
| "Eligible Currencies" table contains the list of currencies accepted as collateral by CCP, along with the haircut to be applied for each currency.  New elements can be inserted manually, by an administrative user, via GUI functionality. | | | | |
| Field Name | Type | Prec. | Scale | Description |
| Currency | CHAR(3) |  |  | Instrument denomination currency expressed following ISO 4217 (3 chars codes) |
| Haircut | DECIMAL(4,2) | 4 | 2 | Haircut applied to collateral posted in the form of cash or security (1.0 means 1%). |
| Status | VARCHAR(1) |  |  | Represents the currency eligibility status. Possible values are:   * "A"=Activated * "D"=Deactivated |
| Modification datetime | TIMESTAMP |  |  | Date/Time in which the record has been modified. Automatically handled by the system. |
| Added datetime | TIMESTAMP |  |  | Date/Time in which the instrument has been added. Automatically handled by the system. |

## Collateral accounts

### FN00006792 - External collateral accounts

The collateral posted by clearing participants may reside in an external depository (for securities) or external bank account (for cash). The Clearing System Provides a logic representation of such external repositories as described below.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| External Collateral Account | | | | |
| It is a representation of physical accounts where collateral is safe-kept and pledged by the CCP.  The relationship between collateral accounts and external collateral accounts is 1 to many. | | | | |
| Field Name | Type | Prec. | Scale | Description |
| External Collateral Account ID | VARCHAR(9) |  |  | Internal identification code of the external account |
| External cash account | VARCHAR(30) |  |  | Clearing member's cash account held by cash custodian reference or name |
| External securities account | VARCHAR(30) |  |  | Clearing member's security account held by security custodian reference or name |
| Collateral Account ID | VARCHAR(9) |  |  | Ref key to the internal collateral account |
| Currency | CHAR(3) |  |  | Currency in case of cash account |
| Collateral type | CHAR(1) |  |  | Discriminates between Cash Collateral and Security Collateral.  Possible values are:   * "C": Cash * "S": Securities |
| Status | CHAR(1) |  |  | Whether the account is disabled or active.  Possible values are:   * "A": Activated * "D": Deactivated |
| Activation datetime | TIMESTAMP |  |  | Date in which the account was enabled, populated if the status is enabled |
| Deactivation datetime | TIMESTAMP |  |  | Date/Time, when the account was disabled, populated if the status is disabled |

#### CM00006789 - Examples of external accounts

**Example 1: External cash account**

1. External Collateral Account ID: '2743-1234'
2. External cash account: '22100300075'
3. External securities account: 'NULL'
4. Collateral Account ID: '2743-9834'
5. Currency: 'EUR'
6. Collateral type: 'C'

**Example 2: External securities account**

1. External Collateral Account ID: '2743-1234'
2. External cash account: 'NULL'
3. External securities account: '22107301015'
4. Collateral Account ID: '2131-3264'
5. Currency: 'EUR'
6. Collateral type: 'S'

### FN00006788 - Transaction on external collateral account

The Clearing System Provides a logic representation of transactions performed on external collateral accounts, both cash accounts and security deposits.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| External Collateral Account Transactions | | | | |
| The "Transactions" table contains the deposit or withdrawal transactions. | | | | |
| Field Name | Type | Prec. | Scale | Description |
| External Collateral Account ID | VARCHAR(9) |  |  | External collateral account originating the transfer (optional) |
| Participant code | INTEGER |  |  |  |
| Transaction code | INTEGER |  |  | Uniquely identifies a transaction |
| Collateral type | CHAR(1) |  |  | Discriminates between Cash Collateral and Security Collateral.  Possible values are:   * "C": Cash * "S": Securities |
| Transaction date | INTEGER |  |  | Transaction Date expressed as "yyyymmdd" |
| Maturity date | INTEGER |  |  | Instrument Maturity Date expressed as "yyyymmdd". Populated only in case of security transaction. |
| CTV | DECIMAL(20,5) | 20 | 5 | Transaction value. In case of transaction in security the nominal value is considered. |
| QTY | INTEGER |  |  | Transaction quantity |
| QTY type | CHAR(1) |  |  | Discriminates between quantity types:   * "U" - Units * "F" - Face value |
| ISIN | CHAR(12) |  |  | Identification code of the instrument which is object of the transaction |
| Currency | CHAR(3) |  |  | Currency in which the transaction has been executed in ISO 4217 (3 chars codes) |
| Notes | VARCHAR(100) |  |  | USer free notes |

#### CM00006791 - Example of transaction on external accounts

**Example: Transaction on external accounts**

1. External Collateral Account ID='2221-2323'
2. Participant code: '2221'
3. Transaction code: 11111
4. Collateral type: 'S'
5. Transaction date: '20180302'
6. Maturity date: '20190502'
7. CTV: '1000000,00000'
8. QTY type: 'F'
9. QTY: '100'
10. ISIN: 'AT0000A105W3'
11. Currency: 'EUR'
12. Notes: 'NULL'

### FN00006794 - Collateral accounts

It is a logic aggregated representation of multiple external collateral account, including cash accounts and security deposits. Each Collateral Account is connected to external collateral accounts with a 1-to-n relationship. Please refer to the Collateral Account Structure Document for account relationship description.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Collateral account | | | | |
| It is an internal representation of the collateral assets in cash and securities.  It is uniquely identified by a unique ID [Collateral Account ID] which is referenced at Participant Account level.  A Clearing Agent can be configured at Collateral Account level by populating the field [Clearing Agent Code] with the Clearing Agent [Participant code]. | | | | |
| Field Name | Type | Prec. | Scale | Description |
| Collateral account ID | VARCHAR(9) |  |  | This is the unique ID of the account.  Naming convention is: [Participant code] + "-" + [Unique ID]. |
| Clearing Agent Code | INTEGER |  |  | Reference to the unique identification code of the Clearing Agent that manages the account.  Expressed in four digits (e.g. "5353"). |
| Clearing Currency | CHAR(4) |  |  | Currency in which the collateral call is done in ISO4217 |
| Status | CHAR(1) |  |  | Whether the account is disabled or active.  Possible values are:   * "A": Activated * "D": Deactivated |
| Activation datetime | TIMESTAMP |  |  | Date in which the account was enabled, populated if the status is enabled |
| Deactivation datetime | TIMESTAMP |  |  | Date in which the account was disabled, populated if the status is disabled |

#### CM00006793 - Example of collateral account

**Example: Collateral account**

1. Collateral account ID: '2221-XYZK'
2. Participant Code: '2221'
3. Account description: 'Collateral account'
4. Activation date: '20180202'
5. Deactivation date: 'NULL'
6. Status: 'A'
7. Currency: 'EUR'

### FN00006790 - Collateral Account Balance Items

Collateral account balance items are the aggregated view of all the asset posted by the Clearing Member in the connected External Accounts. The aggregation is done by

* Collateral Account ID
* Deposit type
* Currency
* ISIN

In addition to the actual asset balances, the Collateral Account Items table contains the details about the absorption connected to the collateral evaluation.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Collateral Balance Items | | | | |
| Contains details about collateral account balances for each cash and security position | | | | |
| Field Name | Type | Prec. | Scale | Description |
| Participant Code | INTEGER |  |  | Participant owning the account |
| Collateral Account ID | VARCHAR(9) |  |  | This is the unique ID of the account.  Naming convention is: [Participant code] + "-" + [Unique ID]. |
| ISIN | VARCHAR(10) |  |  | Security identification code. Not populated in case of cash deposit. |
| Collateral type | CHAR(1) |  |  | Discriminates between Cash Collateral and Security Collateral.  Possible values are:   * "C": Cash * "S": Securities |
| Maturity date | DATE |  |  | Maturity date of the security (if Deposit type='S') |
| Currency | CHAR(3) |  |  | Denomination currency of the deposit in ISO 4217 |
| Last price | DECIMAL(20,8) | 20 | 8 | Price applied to security. Null in case of cash deposits. |
| Balance MTM | DECIMAL(20,8) | 20 | 8 | It's the result of the application of the MTM process to the position in its own denomination currency before applying haircut and concentration limits. The applied price is reported it the "Last Price" field. |
| Last Exchange Rate | DECIMAL(20,8) | 20 | 8 | Exchange rate from denominated currency and clearing currency |
| Balance CC | DECIMAL(20,8) | 20 | 8 | Gross balance in clearing currency. The exchange rate used is detailed in the Last Exchange rate field. |
| Currency haircut | DECIMAL(20,8) | 20 | 8 | Haircut applied to the denomination currency in percentage terms |
| Initial margin | DECIMAL(20,8) | 20 | 8 | Margin amount used for the calculation of limits |
| ISIN haircut | DECIMAL(20,8) | 20 | 8 | Haircut applied to security in percentage terms. Null for cash deposits. |
| Balance HCT | DECIMAL(20,8) | 20 | 8 | Balance after application of currency and ISIN haircut |
| Balance CCL | DECIMAL(20,8) | 20 | 8 | Balance after application of class limits |
| Balance IGL | DECIMAL(20,8) | 20 | 8 | Balance after application of issuer group limits |
| Net Balance | DECIMAL(20,8) | 20 | 8 | Final balance after evaluation, haircut and limit application. |
| QTY | INTEGER |  |  | Quantity of securities. Null in case of cash deposits. |
| QTY type | CHAR(1) |  |  | Discriminates between quantity types:   * "U" - Units * "F" - Face value |
| Collateral ref | VARCHAR(16) |  |  | Reference of the piece of valued collateral.  This field is mapped to the following ISO field: [MT506/20C/Collateral Reference] |
| Added datetime | TIMESTAMP |  |  |  |
| Modification datetime | TIMESTAMP |  |  | The last time the record has been updated |

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| Collateral Account Balance | | | | |
| Collateral account total balances in clearing currency | | | | |
| Field Name | Type | Prec. | Scale | Description |
| Collateral Account ID | VARCHAR(10) |  |  |  |
| Participant code | INTEGER |  |  |  |
| Cl. Currency | VARCHAR(3) |  |  | Currency in which the collateral call is done in ISO4217 |
| Margin requirements | DECIMAL(20,5) | 20 | 5 | Total margin requirements calculated for the connected margin accounts. |
| Collateral pledged | DECIMAL(20,5) | 20 | 5 | Post evaluation collateral pledged expressed in clearing currency per collateral account. |
| Cash required | DECIMAL(20,5) | 20 | 5 | Margin requirements in cash after security pledging |
| Cash held | DECIMAL(20,5) | 20 | 5 | Post evaluation cash held in clearing currency. |
| Collateral call | DECIMAL(20,5) | 20 | 5 | Calculated collateral call per collateral account. |
| Cash excess | DECIMAL(20,5) | 20 | 5 | Cash collateral excess per collateral account. |
| Security excess | DECIMAL(20,5) | 20 | 5 | Security collateral excess per collateral account. |
| Margin Evaluation datetime | TIMESTAMP |  |  | Timestamp of the relevant margin calculation in "yyyymmddhhmmss" format |
| Collateral Evaluation datetime | TIMESTAMP |  |  | Timestamp of the relevant collateral evaluation in 2yyyymmddhhmmss" format. |

## Collateral synchronization

The clearing system must be able to keep the internal collateral accounts aligned with the external accounts, for each single clearing member.

### FN00006806 - Perform cash collateral synchronization

For each collateral account the process foresees the following steps/high level phases:

1. Clearing system receives the cash balances from the custodian system
2. Clearing system retrieves the internal collateral account balance
3. Clearing system compares the values in order to generate the corresponding transaction (deposit/withdrawal) and update the internal collateral account.

|  |  |
| --- | --- |
| 1:Cash collateral synchronization | |
| Diagram details | |
| 1.0 - send cash balance file | FTP transfer plain text file containing cash collateral balances.  For each entry the following data is available:   * External account number * Value: account balance * Date of the last update in the format YYYYMMDD * Currency of the external account   Frequency is set to 5 per day. Execution is performed before Margin Calculation and Margin Verification Process. |
| 1.1 - get collateral accounts balances | Clearing System retrieves the collateral accounts balances. |
| 1.2 - Alert: unknown account | In case of unknown account the System discards the item and sends an alert to the user |
| 1.3 - create deposit/withdrawal transaction | Transaction is created from the difference between collateral account balance and balance in the plain text file, only if the delta amount is different from 0.  Relevant fields of the transaction created by the system are:   * External Collateral Account ID * Participant code * Transaction code * Transaction date (Deposit date, Withdrawal date) * Value * Currency * Notes on deposit: filled with specific reason |
| 1.4 - update accounts | External account balances are updated taking into account the stored transactions. |

### FN00006802 - Perform securities collateral synchronization

The requirement describes the securities collateral synchronization process.

For each collateral account the process foresees the following steps/high level phases:

1. Clearing system receives the securities balances from the custodian system
2. Clearing system retrieves the internal collateral account balance
3. Clearing system compares the values in order to generate the corresponding transaction (deposit/withdrawal) and update the internal collateral account.

|  |  |
| --- | --- |
| 2:Securities collateral synchronization | |
| Diagram details | |
| 1.0 - send MT535 | CSD sends messages containing the securities collateral.  Swift messages MT535 are deposited to a specific MS queue and contain the securities deposits information.  Relevant information are:   * External securities collateral account: CSD customer main safekeeping account number. * ISIN * Balance * Currency. If not available default is EUR   (note: MT535 with final status are available after 7pm) |
| 1.1 - send MT598 | As last message, CSD sends Swift message MT598 which indicates the end of trail and specifies the number of messages sent for the session. |
| 1.2 - add new security into the "instruments master data" | If the message contains a new instrument (not yet inserted into the clearing system master data) the system detects it and automatically add it into the master data. |
| 1.3 - alert: unknown account | In case of unknown account the System discards the item and notifies the user |
| 1.4 - alert: haircut class association to be handled | Once a new instrument is inserted in the master data, the clearing system generates an alert to the user in order to signal the need to associate an haircut class to the new security. |
| 1.5 - get collateral accounts balances | Clearing system retrieves the collateral accounts balances. |
| 1.6 - create deposit/withdrawal transaction | Transaction are created comparing the balances. Securities which are not in the MT535 correspond to withdrawn collaterals while new ones correspond to new deposits.  Relevant fields of transaction created by the clearing system are:   * External Collateral Account ID * Participant code * Transaction code * Transaction date (Deposit date, Withdrawal date) * Maturity date * Value * Quantity * ISIN * Currency * Notes on deposit: filled with specific reason |
| 1.7 - update account | External collateral accounts are updated taking into account the stored transactions. |
| 2.0 - discard and trigger user alert | Record is discarded and a specific alert is generated in order to let an administrative user handle the discarded record. |

### FN00006808 - Collateral Account handling

Collateral account reference data are handled manually by the CCP Operator. In case the Clearing System receives an account which is not present in the system the message is discarded and an alarm is raised.

## Collateral withdrawal

Withdrawal process is a manual process, handled by clearing member, administrative user and CSD.

The clearing system does not take any part to this process.

Once the withdrawal is carried out the clearing system will be aligned through the "Collateral Synchronization" processes.

### FN00006919 - Collateral withdrawal

The requirement describes the collateral withdrawal process.

The process foresees the following steps/high level phases:

1. Request of cash or securities withdrawal
2. Acceptance/rejection of the withdrawal request
3. Cash/securities transfer (if accepted) to the clearing member account

|  |  |
| --- | --- |
| 3:Collateral withdrawal | |
| Diagram details | |
| 1.0 - withdrawal request | Clearing member contacts administrative user in order to request a deposit withdrawal. |
| 2.0 - checks excess collateral report | User has to check the collateral evaluation report in order to identify the excess collateral amount. |
| 3.0 - transfer | Administrative user transfers the excess amount to the clearing member account. |

## Collateral evaluation

The clearing system must be able to valuate the collateral for each single clearing member.

### FN00006819 - Automatically trigger collateral evaluation

Valuation process is triggered automatically by the clearing system.

A scheduler triggers the evaluation process in correspondence of margin calculation and margin verification steps (5 times per day).

Scheduling time / frequency are configurable.

### FN00006818 - Manually request collateral evaluation

Valuation process can be manually triggered by an administrative user, through a user functionality.

This may be needed in the following cases:

1. After having accepted a collateral deposit (cash or securities)
2. After having accepted a collateral withdrawal (cash or securities)

### FN00006817 - Perform collateral evaluation

The requirement describes the collateral evaluation process.

The process foresees the following steps/high level phases:

1. Retrieval of internal data to be used as input to the valuation process (collateral account balance, price feed)
2. Application of collateral policy in order to generate an updated value of collateral

|  |  |
| --- | --- |
| 4:Perform collateral evaluation | |
| Diagram details | |
| 1.0 - start | It represents the "start evaluation" action that can be triggered by a user (manually) or by the system (scheduler). |
| 1.1 - get collateral account balance | Clearing system retrieves the collateral accounts balances. |
| 1.2 - update cash and securities balances | Clearing system updates the internal accounts with the following data.  Securities accounts relevant information are:   * ISIN * Currency * Quantity * Maturity date * Issuer group   Quantity is computed aggregating the balances on the external accounts, by [ISIN, currency].  Cash accounts relevant information are:   * Currency * Gross Balance   Gross balance is computed aggregating the balances on the external accounts by currency.  Note: The internal accounts ID are referenced in the external accounts master data (external account -> internal account with n:1 relationship) |
| 1.3 - get price feed | For each security in the collateral account, the system retrieves the last price. |
| 1.4 - update securities MTM countervalues | Each security deposit is valuated against the last market price in its own currency.  The following fields of account are updated:   * Gross balance * Last price |
| 1.5 - apply exchange rates | For each collateral deposit a conversion is done in order to compute the value in the clearing currency.  The following field of account is updated:   * Gross balance in clearing currency |
| 1.6 - apply currency/ISIN haircut | For each deposit on the collateral account the value is reduced by:   * ISIN haircut * Currency haircut   Corresponding field of the balance is updated:   * Net Balance |
| 1.7 - apply concentration limits | Concentration limits are applied to the collateral in order to meet the following conditions:   1. Share of securities belonging to a specific class with respect to the total initial margin must be below a maximum value. Any collateral amount in security above such percentage is not considered in the calculation of the final outcome. 2. Share of securities issued by specific issuing groups with respect to the total initial margin must be below a maximum value. Any collateral amount in security above such percentage is not considered in the calculation of the final outcome. 3. Share of securities with respect to the total initial margin must be below a maximum percentage. Any collateral amount in security above such percentage is not considered in the calculation of the final outcome. |
| 1.8 - compute post-evaluation collateral | The post-evaluation collateral is obtained summing up all the balances after the mark-to-market, currency conversion and collateral policy application.  Such figure is the one used to check the margin coverage. |

## Margin call

The margin call is carried out after the collateral evaluation process.

The aim of the process is to compute the margin call and generate the corresponding SWIFT messages to the clearing members.

The result may lead to one of the following scenarios:

1. Margin call: in case a positive margin call is generated. The clearing member has to deposit new collateral in order to cover the margin requirement
2. No actions: in case the difference between the margin requirements and collateral value is negative or equal to zero there are not connected actions.

### FN00006828 - Automatically trigger margin call

Margin call process is triggered automatically by the clearing system. Margin Call is always executed for all the markets at the same time.

Scheduling time / frequency are configurable.

### FN00006829 - Manually request margin call

Margin call process can be manually triggered by an administrative user, through a user functionality.

### FN00006826 - Perform margin call

The requirement describes the margin call process.

The process foresees the following steps/high level phases:

1. Retrieval of value of collateral after the collateral evaluation process
2. Computation of margin requirement
3. Computation the difference between margin requirement and collateral value
4. Creation of SWIFT messages to Clearing Members

|  |  |
| --- | --- |
| 5:Perform margin call | |
| Diagram details | |
| 1.0 - start | It represents the "start collateral margin call" action that can be triggered by a user (manually) or by the system (scheduler). |
| 1.1 - get post-evaluation collateral | Retrieves collateral account balance. |
| 1.2 - compute margin requirement | Clearing system computes margin requirement. Cross Market/Currency Margin Calculation covered in a separate document. |
| 1.3 - compute margin call/restitution | Margin call/restitution is computed as the difference between the balance and the margin requirement. |
| 1.4 - MT503 margin call message | Clearing member is notified with a message MT503. This message can be enabled or disabled at Participant/Market Level. A separate scheduling time can be setup for each market. |
| 1.5 - MT506 collateral statement message | Clearing member receives the report MT506 Collateral and Exposure Statement. This message can be enabled or disabled at Participant/Market Level. A separate scheduling time can be setup for each market. |

## Margin verification

The margin verification process aims at verifying the clearing member has deposited new collateral after having received a margin call.

A cut-off period is defined and is configurable.

Clearing members must transfer the cash or securities collateral within the end of the cut-off period.

### FN00006834 - Perform margin verification

The requirement describes the margin verification process.

The process foresees the following steps/high level phases:

1. Verify whether the clearing member has deposited collateral to cover new if margin requirement
2. Collateral valuation
3. Verify whether the deposit covers the margin call

|  |  |
| --- | --- |
| 6:Perform margin verification | |
| Diagram details | |
| 1.0 - start | It represents the "start margin verification" action that can be triggered by a user (manually) or by the system (scheduler). |
| 2.0 - collateral evaluation | Collateral is evaluated again. |
| 2.1 - get collateral account balance | Clearing system retrieves the collateral accounts balances. |
| 2.2 - match margin call with deposit | Verify whether the deposit covers the margin call (computing the difference between the two amounts). |