European Securities and Markets Authority

Functional Specification Document

FIRDS – Reference Data

24 March 2022 | ESMA 65-8-9568

Document control:

Version	Date	Author	Comments
0.1	17/03/2015	Peter Lefterov	First draft
0.2	27/04/2015	Peter Lefterov	Update based on internal feedback
0.3	08/05/2015	Peter Lefterov & al.	First draft for Task Forces review
0.4	26/06/2015	Peter Lefterov, Cyril Minoux	Updates based on the updated BRD
0.5	13/08/2015	Peter Lefterov	Updates based on the updated BRD
0.6	27/08/2015	Peter Lefterov	Updates based on the updated BRD
0.7	07/10/2015	Xavier Suraud	Updates based on internal review and NCA comments
0.8	10/11/2015	Xavier Suraud	Updates based on updated BRD, internal review and NCA comments
0.9	04/12/2015	Xavier Suraud	Updates based on updated BRD, internal review and NCA comments
0.10	11/01/2016	Xavier Suraud	Updates based on internal review and NCA comments
0.11	19/01/2016	Xavier Suraud	Updates based on internal review and NCA comments. Draft for ITMG comments.
0.12	26/01/2016	Xavier Suraud	Updates based on internal review and NCA comments.
0.13	17/02/2016	Xavier Suraud	Updates based on internal review and NCA comments.
0.13	22/02/2016	Xavier Suraud	Updates based on internal review and NCA comments.
0.14	02/03/2016	Xavier Suraud	Updates based on internal review and NCA comments.
0.15	25/03/2016	Xavier Suraud	Updates based on internal review and NCA comments.
1.0	02/04/2016		Submission for ITMG approval.
1.1	22/06/2016	Xavier Suraud	Updates following start of implementation Addition of transition of RCA information from current RDS system
1.2	18/08/2016	Xavier Suraud	Updates following start of implementation and NCA comments.

1.3	25/08/2016	Xavier Suraud	Version for ITMG approval following August Task Force meeting
1.4	05/10/2016	Xavier Suraud	Updates following September Task Force request to update error codes, implementation feedback and feedback from Delegated Project Board on data publication
1.5	14/11/2016	Xavier Suraud & al.	Version for ITMG approval following October Task Force meeting
1.6	06/03/2017	ESMA	Version for Task Force Review
1.7	20/03/2017	ESMA	Version following 08/March Task Force
1.8	27/04/2017	ESMA	Candidate version for ITMG approval
1.9	19/06/2017	ESMA	Version for ITMG approval
1.10	22/01/2018	ESMA	Change 102 Change of LEI-CDF format by September / October release Change 142 Split reminder files in case more than 500k records Change 130 Refine dates validations (UTC time zone) Change 131 Updated configuration of tables like MIC_MAPPING Change 110 Register statistics on rejections / errors to allow monitoring data quality Change 159 Generate data quality reports by email
1.11	06/03/2018	ESMA	Change 162 Do not send inconsistency warnings on the instruments' full name Change 59 Distribute non-working days file to NCAs Change 154 Support very granular CFI-based validation rules Change 134 Move RCA determination to post-processing phase Change 167 Flag the MIC of the RCA record in the published files Change 169 / 170 / 171 Improvements in RCA manual change requests Change 172 Improvement in reference data publication

1.12	08/05/2018	ESMA	Change 130 (Refine dates validations – UTC time zone) to be implemented at the level of the XML Schema as per 14/March Task Force feedback Change 177 Use the same sequence number within split FULINS and DLTINS file naming conventions References to updated XML Schema Possibility to configure the amount of historical data published on the website
1.13	12/10/2018	ESMA	Change 188 RCA record should change to a MIC which trades the instrument, even in the case when no MIC within RCA jurisdiction still trade the instrument Change 192 Do not send inconsistency warnings to the RCA-MIC Change 193 Address issue related to PublishedFromDate > PublishedToDate Change 194 Re-compute RCA record when RCA MIC termination date is reached Change 195 Extend date validation to fields 9 and 10 Change 200 Improve LEI data validation to allow correction on terminated instruments Change 203 INS-128 Refer to the RCA-MIC and not only to the RCA country to clarify the error message Correction in UC 3.3.10 step 7.3.2 to avoid publishing terminated instruments as modified
1.14	04/02/2019	ESMA	Version containing only the changes related to terminated records approved by ITMG on 27/Nov/2018 Change 188: RCA record should change to a MIC which trades the instrument, even in the case when no MIC within RCA jurisdiction still trade the instrument Change 194: Re-compute RCA record when RCA MIC termination date is reached Change 193: Address issue related to PublishedFromDate > PublishedToDate Change 211: Correction in UC 3.3.10 step 7.3.2 to avoid publishing terminated instruments as modified
1.15	08/04/2019	ESMA	Change 188 / 194: in case of RCA MIC change, the terminated record should be distributed in the delta file

			Change 214: Yearly RCA reassessment should give precedence to Regulated Markets over MTFs Change 227: Do not propagate RCA to instruments that are terminated on all Trading Venues Introduction of a “withdrawn” flag to support Brexit operations
1.16	19/04/2019	ESMA	Update following feedback from the 10/April Markets IT Task Force Update of UC 3.3.6.2 (normal flow) to incorporate “withdraw” flag to support BREXIT operations.
1.17	14/06/2019	ESMA	Inclusion of RCA_MIC to HCCR calculation in order to keep track of the history of RCA-MIC Ability to apply yearly RCA reassessment results on a date different from 1/April through system’s configuration parameters Ability to define the list of ISINs which should undergo Yearly RCA reassessment
2	13/12/2019	ESMA	CR #190: Choose the relevant MIC from RM / MTF / OTF in priority CR #192: Do not send inconsistency warnings to the RCA_MIC CR #203: Refer to the RCA_MIC in INS-128 consistency warning message CR #217: Tool for ESMA Data Managers to adjust the RCA-MIC CR #230: Disregard MICs which have terminated an ISIN when performing RCA determination - Yearly RCA re-assessment and/or RCA +RCA_RECORD +RCA_MIC CR #191: Tool for ESMA Data Managers to set termination date CR #200: Improve LEI data validation to allow Trading Venues to send corrections on terminated instruments CR #216: Introduce a CFI-code filter for the propagation of RCA changes to instruments having the ISIN as single underlying CR #233: Tool on the Extranet for NCAs to adjust the RCA-MIC CR #235: Refine rules for Yearly RCA reassessment in case the yearly turnover is zero or no turnover data available
2.1	20/01/2020	ESMA	CR #245: Rework PublishedFrom / PublishedTo dates CR #237: Publish latest status of a record even if not active anymore

2.2	11/02/2020	ESMA	CR #196: Flag records that went to CONSISTENT_INSTRUMENTS CR #243: Interface with SWIFT for country codes and currencies
2.3	20/03/2020	ESMA	CR #202: Cancellation of instruments
2.4	23/03/2020	ESMA	CR #202: Cancellation of instruments (Addition of FDBCAN file)
2.5	25/08/2020	ESMA	CR #202: Cancellation of instruments (Incorporated final FIRDS base messages following SWIFT evaluation)
2.6	17/09/2020	ESMA	CR #202: Cancellation of instruments - Updated (Incorporated final FIRDS base messages following SWIFT evaluation)
2.7	27/08/2021	ESMA	Full alignment of the following sections with the system implementations: 2, 3.2, 3.3, 3.4, 3.5, 3.6, 3.7, 6 and 16
2.8	17/12/2021	ESMA	FIRDS 2022 (Phase #1) CR #250 - GLEIF XSD 2.2 update CR #252 - Ability to report empty DATNWD for entities opened 24/7 CR #254 - Yearly RCA reassessment should cancel pending manual RCA change requests
2.9	18/01/2022	ESMA	FIRDS 2022 (Phase #2) CR item #249 - For instruments which CFI code matches the Equity / Equity-like RCA rule, select the RCA-MIC as the MIC with highest turnover CR item #279 - ISO 10383 release 2.0 (updated SWIFT MIC release 2.0) CR item #284 - Second step confirmation to auto-update FIRDS MICS db table CR item #289 - Update consistency validation warnings
2.10	24/03/2022	ESMA	Minor updates related to 3.3.6.9 Determine the RCA record for Equity/Equity-like instruments 3.8.1.5 Update MIC reference data table 3.8.2.4 Update Reporting calendar for TV/SI on a yearly basis 3.10.5 Create and distribute MIC Full file

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Reference documents:

Ref	Title	Version	Author	Date
1	MiFID II - Directive 2014/65/EU of the European Parliament and of the Council of 15 May 2014	2014/65/EU	European Parliament Council of Europe	15 May 2014
2	ESMA-2015-MDSC-1 BRD Reference Data	1	ESMA	17 November 2015
3	ESMA65-8-882 BRD Reference Data	3.1	ESMA	09 February 2022
4	ESMA – Reference data Interface	0.3	ESMA	07 March 2016

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1. Introduction

1.1 Purpose and audience of this document

This document contains the functional specifications for the Financial Instruments Reference Data System (FIRDS).

The intended audience of this document is ESMA IT staff as well as the IT Management and Governance group (ITMG), the Markets IT Task Force (MKTTF) and the FIRDS Delegated Project Task Force (FDPTF).

This Functional Specification Document (FSD) is intended to describe the ESMA solution for collection and publication of financial instruments reference data, and implementation of the delegation of tasks signed by Delegating NCAs on reference data collection.

This document has been drafted based on the associated Business Requirements Document.

1.2 Definitions

ADT	Average Daily turnover
AVT	Average Value of Transactions
BRD	Business Requirements Document
CSD	Central Securities Depository
CFI	Classification of financial instruments code as defined in ISO 10962
ESMA	European Securities and Markets Authority
FSD	Functional Specifications Document (this document)
ITMG	IT Management and Governance group
ITS	Implementing Technical Standards
MIC	Market Identifier Code as defined in ISO 10383. Trading Venues and Systematic Internalisers must be identified by a MIC code. In the context of this document, in accordance with RTS on Article 27 (“trading venue” field) the MIC code must be interpreted as “Segment MIC for the trading venue or systematic internaliser, where available, otherwise operating MIC”.
MTF	Multilateral trading facility, as defined in Art.4(22) of Directive 2014/65/EU
NCA	National Competent Authority
NCA delegating data collection	A National Competent Authority who has signed a Delegation Agreement with ESMA in order to delegate the task of collecting data in their jurisdiction directly from Trading Venues, Systematic Internalisers, APAs and CTPs for the purpose of reference data provision and transparency calculations
NCA delegating transparency calculations	A National Competent Authority who has signed a Delegation Agreement with ESMA in order to delegate the task of performing transparency calculations and data validations.

Non-delegating NCA	A National Competent Authority who has not signed a Delegation Agreement with ESMA on the Instruments Reference Data Project
OTF	Organised trading facility, as defined in Art.4(23) of Directive 2014/65/EU
RCA	The National Competent Authority that has the most relevant market in terms of liquidity as per MiFIR Article 26 under its jurisdiction
RDS	The current ESMA Reference Data System developed to support reporting of instruments reference data under MiFID I.
RM	Regulated Market
RTS	Regulatory Technical Standards
SI	Systematic Internaliser
Submitting Entity	Non-delegating NCA, Trading Venue or Systematic Internaliser reporting reference data
TV	Trading Venue, covering Regulated Markets, Multilateral Trading Facilities, Organised Trading Facilities

2 System Overview

2.1 Actors

Submitting Entity	Non-delegating NCA, Trading Venue or Systematic Internaliser providing ESMA with reference data
Public User	Any corporate, government or physical person including but not limited to ESMA and NCA staff, Investment Firms, data analysts.
NCA System	Sends reference data from TV/SI (if applicable) and receives consolidated reference data.
TV/SI System	Sends reference data to ESMA (if applicable).
The ESMA System	An actor by default in all use cases
NCA user	Physical person acting on behalf an NCA.
ESMA Business Administrator	A user responsible for the monitoring of the system from a business perspective.
ESMA IT Administrator	A user responsible for the monitoring of the system from a technical perspective.

2.2 Components

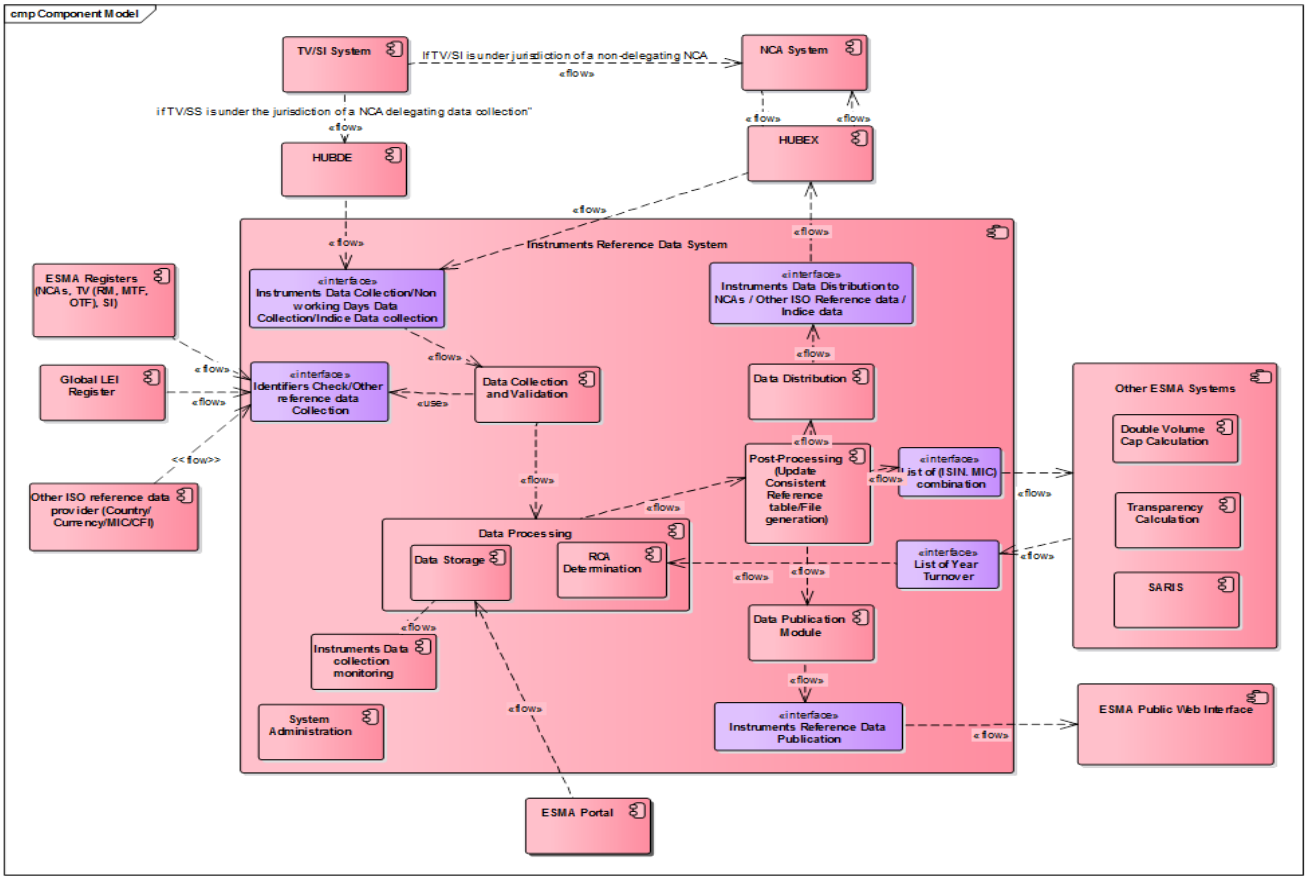


FIGURE 1 - COMPONENTS DIAGRAM

2.3 Module Description

Modules in scope

Data Collection and Validation Module	Module handling the processing of input files from TV/SIs and NCAs.
Data Storage Module	Data storage containing data on all submitted instruments data including history.
Data Distribution Module	Module handling the provision of data via uploading files on HUBEX for usage by NCAs.
Data Publication Module	Section of the ESMA portal dedicated to providing public users with access to reference data.
Data Processing	This module contains functionality for further processing of reference data and feeding of the history table.
Data Post-processing	This module contains functionality for preparing data for publication and distribution including determination of the RCA. It includes the update of the consistent reference data table and the generation of the full file, delta file, invalid records file.
System Administration Module	Allows system administrators to modify processing rules and/or manually initiate processing jobs in the data collection and validation module and the data distribution module.
Data Collection Monitoring Module	Allows data managers to track received data and monitor data quality.

External Modules (ESMA)

HUBEX	A secured file transfer server supporting the exchange of information between ESMA and NCA.
HUBDE	A secured file transfer server supporting the exchange of information between Trading Venues, Systematic Internalisers, APAs, CTPs, Trade Repositories, and ESMA.
ESMA Registers	ESMA Registers of Trading venues, Systematic internalisers, MTF, OTF, Competent Authorities, …
ESMA public web interface	A public web interface providing instrument reference data to the public

ESMA Portal	A secured web interface for NCA to review data including RCA change management and Expression of interest request on Indices.
SARIS	The ESMA System supporting Suspensions' coordination.
Transparency system	The ESMA System performing Transparency Calculations.
Double Volume Cap system	The ESMA System supporting Double Volume Cap Mechanism.

External Modules (non-ESMA)

TV/SI System	System used by TV/SI to send reference data to NCAs or ESMA (where applicable) and receive feedback file from The ESMA System.
NCA System	Systems operated by National Competent Authorities.
Global LEI Register	Global register of LEI identifiers.
SWIFT	SWIFT publication services from which ISO Countries, Currencies will be uploaded by the system.
ISO 15022	ISO 15022 publication services from which MIC will be uploaded by the system.

2.4 Interface Description

Instruments Data Collection/Non-working Days Data Collection/Expression of interest for indices Data collection	Interface through which TV/SI System or NCA System provides data to Data Collection and Validation Module. ESMA HUBEX for NCA and ESMA HUBDE for TV/SI provide the file exchange. The scope of data is instrument reference data, non-working days data and expressions of interest for indices from NCAs.
Identifiers Check	Interface through which Data Collection and Validation Module checks the validity of the MIC, CFI, LEI and other codes contained in the incoming data.
Instruments Reference Data Publication	Interface through which ESMA Portal accesses the publication database for the purpose of providing users data for review/export.
Reference Data Distribution to NCAs	Interface through which Data Provision Module provides NCAs data on instruments. ESMA HUBEX supports the file exchange.

	The scope of data is instrument reference data, expression of interest for indices, currency codes, country codes, CFI codes, MIC codes, and LEIs.
NCA web interfaces	Web interface dedicated and restricted to NCA enabling e.g. to request a change of RCA of an instrument in the system database and express their interest on Indices.

3 System Use Cases

3.1 Messaging Sequence

Through HUBDE, this process is performed by TV/SIs on each trading day (including non-working days for ESMA and/or its NCA).

Through HUBEX, this process is performed by NCAs not delegating data collection in their jurisdiction on each day that is a trading day for at least one of the TV/SIs under their jurisdiction (including non-working days for ESMA and/or the NCA).

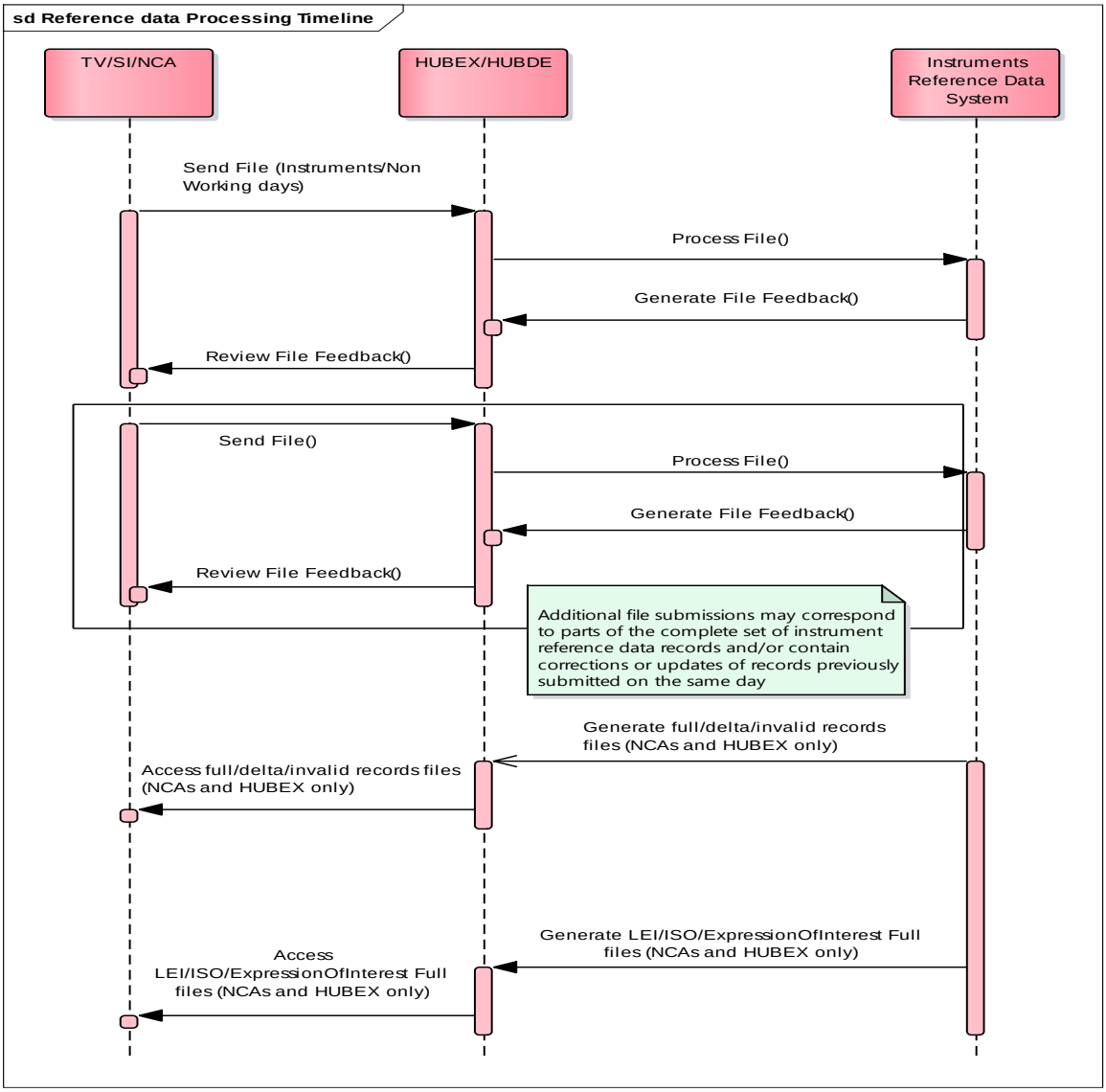


FIGURE 2 - MESSAGE SEQUENCE DIAGRAM

3.2 Data collection and Format Validation

3.2.1 Use case overview

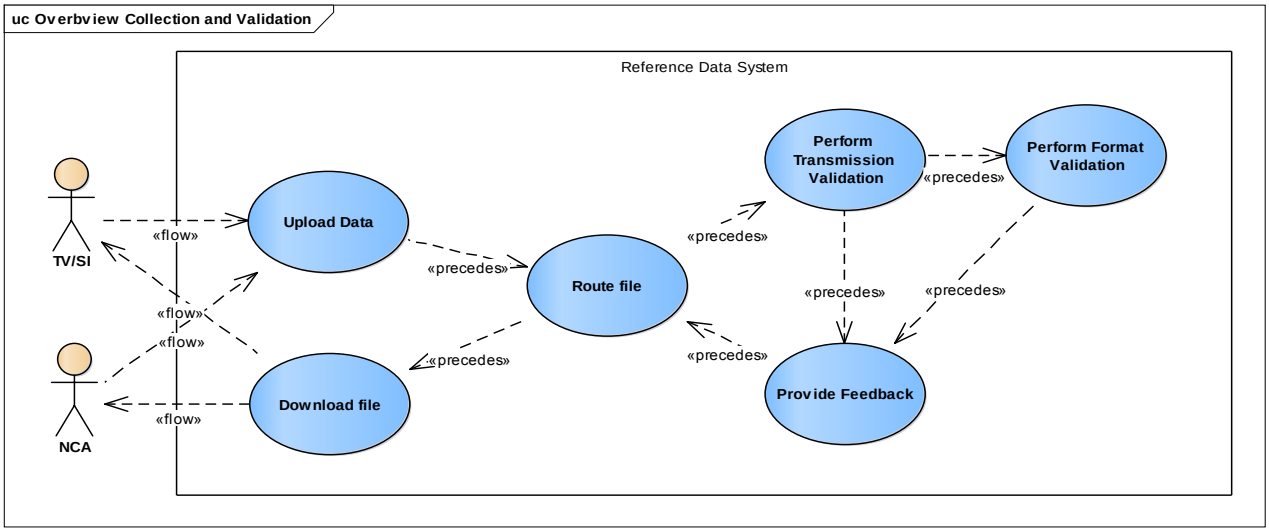


FIGURE 3 - DATA COLLECTION AND FORMAT VALIDATION USE CASES DIAGRAM

3.2.2 Upload Data

Goal	**The objective of the use case is to allow the submitting entity to upload data files to the system.**
Actors	TV/SI (in the jurisdiction of a NCA delegating data collection) – submits data NCA system (NCAs not delegating data collection in their jurisdiction) – submits data HUBEX/HUBDE System
Preconditions	The submitting entity has established access rights to the HUBEX or HUBDE system.
Trigger	The use case is triggered by the submitting entity.
Postconditions	The file is uploaded into the sender's outgoing folder dedicated to the ESMA System.
Normal Flow	1. The submitting entity connects and logs to HUBEX/HUBDE System using sFTP/FTPs protocol. 2. Once connected and authenticated the submitting entity uploads the file into its Outgoing folder dedicated to the ESMA System. 3. HUBEX/HUBDE adds timestamp to the file. 4. The submitting entity disconnects from HUBEX/HUBDE System.

Alternate flow	1a. The submitting entity cannot connect. A protocol error message is sent back to the Submitting Entity.
Frequency	This use case will be performed by each submitting entity (Non-Delegating NCAs and up to 160 TV/SIs) to upload one dataset daily (including NCA/ESMA non-working days). Additionally, in case of erroneous submission some additional uploads can be made.
Business rules	The system will have a maximum limit of 500,000 instruments in each single DATINS file. The size of a single instrument record once compressed is ~ 1 Kbyte.
Assumptions	This functionality will be implemented using: 1. HUBEX: for NCAs not delegating data collection in their jurisdiction 2. HUBDE: for TV/SIs in the jurisdiction of a NCA delegating data collection

3.2.3 Route File

Goal	**The objective of the use case is to route the file to its intended recipient.**
Actors	HUBDE for TV/SIs (in the jurisdiction of a NCA delegating data collection)– submits data HUBEX for NCA (NCA not delegating data collection in its jurisdiction)– submits data
Preconditions	The sender has uploaded the file to its sender's Outgoing folder dedicated to the ESMA System.
Trigger	File uploaded to the sender's outgoing folder.
Postconditions	The file is routed into the recipient's Incoming folder dedicated to the ESMA System.
Normal Flow	1. HUBEX/HUBDE reads the file from the sender's Outgoing directory dedicated to the ESMA System. 2. HUBEX/HUBDE verifies the compliance of the file name with the naming conventions. 3. HUBEX/HUBDE copies the file to the sender's Archive/Outgoing folder dedicated to the ESMA System. 4. HUBEX/HUBDE moves the file to the recipient's Incoming folder dedicated to the ESMA System.
Alternate Flow 1	Applicable to HUBEX only 2a. The file name is not compliant with the naming conventions expected by HUBEX. 3a. A protocol error is generated to the submitting entity.
Alternate Flow 2	Applicable to HUBDE only

	2a. The file name is not compliant with the naming conventions expected by HUBDE. 3a. A protocol error is generated to the submitting entity.
Frequency	This use case will be performed in order to route each file uploaded to the system. It is expected that each Submitting Entity (10 NCAs not delegating data collection in their jurisdiction and up to 160 TV/SI) will upload one or several files daily. It will be used too for feedback file use case and data distribution use cases.
Business rules	NCAs not delegating data collection will provide the full instrument reference data by 23:59 CET to ESMA. However, in case no validations are performed by the NCA, the NCA shall forward the files received as soon as they are received, and no later than 21:30 CET. However, files received by NCAs from their TV / SI after the 21:00 CET cut-off time are expected along with the next day data submissions. E.g. if a file is received at 21:15 it should not be forwarded to ESMA at 21:20, but it may be forwarded at 21:40 (if 21:30 is the applicable NCA cut-off time) or at 0:15 am next day (if 23:59 CET is the applicable NCA cut-off time).
Assumptions	This functionality will be implemented using: HUBEX: for NCAs not delegating data collection in their jurisdiction HUBDE: for TV/SIs in the jurisdiction of a NCA delegating data collection

3.2.4 Perform Transmission Validation

Goal	**The goal of this use case is to validate that a file has been fully transmitted successfully.**
Actors	The ESMA System – validates data
Preconditions	The ESMA System has received a file from a submitting entity.
Trigger	A file with a relevant name has been found in the incoming folder of ESMA in HUBEX/HUBDE.
Postcondition	File has been checked for transmission errors ESMA has determined whether the submitted file comply with the transmission rule of the data collection module.
Normal Flow	1. The ESMA System checks that the file can be successfully extracted and opened, running all checks described in section Annex 1a: Transmission Validation Rules (FIL-xxx error only) and section Annex 2: File naming conventions.

Alternate Flow 1: File Errors	1a. The ESMA System discovers that the file cannot be successfully extracted and at least one of the checks described in section Annex 1a: Transmission Validation Rules and Annex 2: File naming conventions is failed. 2a. The ESMA System proceeds with generating feedback referring to the submitted file with status "Corrupted" in case FIL-101 error is found, "Rejected" otherwise. 3a. The ESMA system provides the Feedback file to the submitting entity as per "Provide feedback" use case.
Frequency	Once for each file submitted by a submitting entity.
Business Rules	See Annex 1a: Transmission Validation Rules and Annex 2: File naming conventions
Assumptions	It is assumed that data transmission errors will be a rare exception

3.2.5 Perform File Format Validation

Goal	**The goal of this use case is to validate that a file can be successfully validated against the XML Schema applicable to the type of file submitted.**
Actors	The ESMA System – validates data
Preconditions	The ESMA System received a file from a submitting entity
Trigger	The ESMA System has successfully completed the transmission validation checks of the submitted file. The timestamp of the file is prior to the applicable cut-off time of the submitting entity of the current reporting day. From the Sender in the filename, the ESMA System determines the applicable cut-off time as follows: • If Sender is T<MIC>, then 21:00 CET. • If Sender is NCAXX and the NCA is delegating Data validations, then 21:30 CET. • Otherwise 23:59 CET.
Postcondition	ESMA has determined whether the submitted file complies with the XML Schema applicable to the type of file submitted.
Normal Flow	1. The ESMA System determines the relevant XML schema using the latest approved version of the XML Schema applicable to the HUB file type advertised in the filename of the submitted file as follows :

	1.1 for DATINS as per Table 11 - Instrument reference data message table 1.2 for DATNWD as per Table 12 - Additional reference data message table 1.3 for CANINS as per Table 10 - Instrument reference data message table 2. The ESMA System checks that the submitted file references the same XML Schema, in the same version and validates the submitted file as follows • BizData is validated against head.003.001.01.xsd, • BizData/Hdr/AppHdr is validated against head.001.001.01_ESMA_UG_1.0.0.xsd, • BizData/Pyld/Document is validated against the XML Schema corresponding to the incoming file's "HUB File Type" as per tables 10 and 11. 3. The ESMA System inserts in the Reporting Files Table as described in Table 13 - Reporting Files table: • The timestamp component in the name of the submitted file; • The name of the submitted file excluding the timestamp component. 4. Validation is successful, and no error is reported. 5. The ESMA System proceeds with processing and validating the content of the file.
Alternate Flow 1: Format Errors	1a./2a The ESMA System has confirmed that the file structure does not correspond to the schema. 3a. The ESMA System inserts in the Reporting Files Table as described in Table 13 - Reporting Files table: • The timestamp component • The Name of the submitted file excluding the timestamp component 6a. The ESMA System proceeds to generating file feedback for the file with the status "*Rejected*" with FIL-104 or FIL-105 as described in Table 32 - Format Validation Rules.
Alternate Flow 2: Uniqueness Error	4.a/4a.a The ESMA System raises a violation of PK constraint: a file with the exact same name has been previously submitted to ESMA. 6a. The ESMA System proceeds to generating file feedback for the file with the status "*Rejected*" with FIL-107 Error as described in Table 32 - Format Validation Rules.
Frequency	Once for each file submitted by a submitting entity. Each entity is expected to submit at least one file but can also make multiple submissions due to failed validation, corrections or file size considerations.

Business Rules	See sections: Annex 1b: Format Validation Rules Annex 2: File naming conventions XML Messages
Assumptions	It is assumed that format errors will be a rare exception as XML validation should be first performed by the submitting entity.

3.2.6 Provide Feedback

This use case is dependant of the type of data submitted. For reference data, please refer to use case 3.3.8 Provide File Feedback and for Non-working days please refer to use case 3.8.2.2 Non-working day data Collection.

3.2.7 Download file

Goal	**The objective of the use case is to allow the user to download feedback messages received from the system or to download consolidated files.**
Actors	TV/SI (in the jurisdiction of a NCA delegating data collection) – downloads feedback NCA (not delegating data collection in its jurisdiction) – downloads data
Preconditions	The submitting entity has established access rights to the system.
Trigger	The use case is triggered by the user willing to download a feedback message file.
Postconditions	Feedback file is downloaded by the submitting entity of the original file in HUBEX/HUBDE. Aggregated data file is downloaded by a NCA from the Public folder of HUBEX dedicated to the ESMA System.
Normal Flow	1. The submitting entity connects and logs in to the system using sFTP/FTPs protocol. 2. Once connected and authenticated the submitting entity downloads files from its incoming folder dedicated to the ESMA System (for feedback files) and from the Public folder dedicated to the ESMA System (for aggregated data file). 3. The file is downloaded and saved in the local directory indicated by the submitting entity.

	4. In case of feedback file, the file is removed automatically from the Incoming directory and copied to Archive/Incoming directory. The file is maintained in the archive for up to 10 days[1]. 5. The submitting entity disconnects from the system.
Alternate flow 1	3a. No file is present. The submitting entity disconnects from the system.
Frequency	This use case will be performed in order to download feedback files for every submission. A single feedback file will be returned for each file submitted by the submitting entity.
Business rules	N/A
Assumptions	ESMA's HUBEX will be used to implement this functionality for NCA ESMA's HUBDE will be used to implement this functionality for TV/SI.

3.3 Instruments Reference Data processing

3.3.1 Use case overview

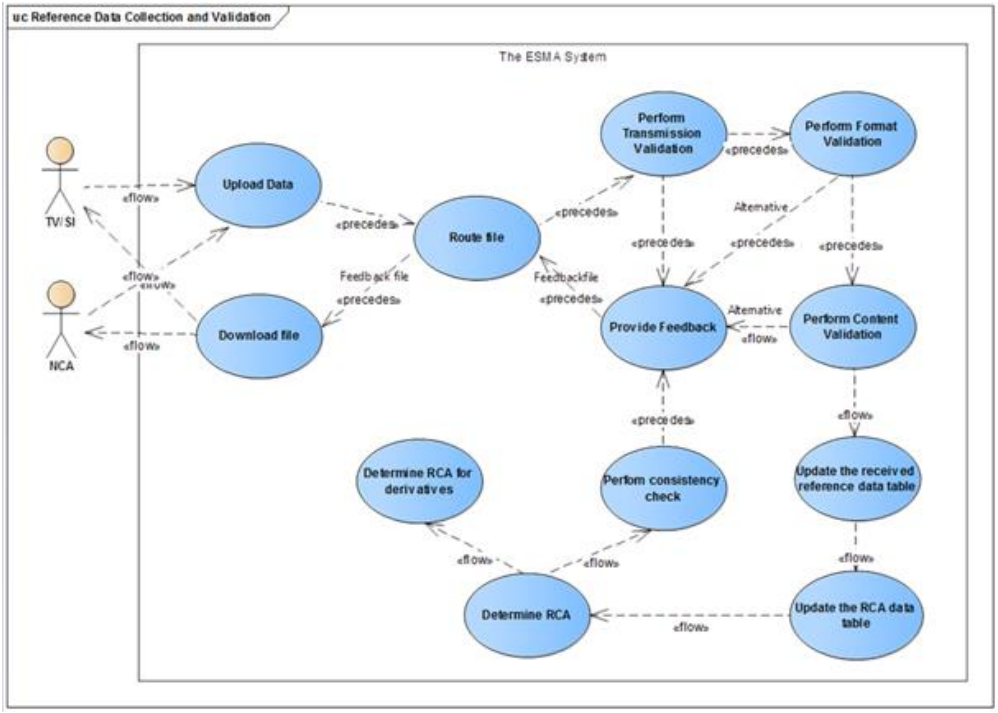


FIGURE 4 – "ON THE FLY" PROCESSING USE CASE DIAGRAM

[1] This value should be configurable between 1 to 10 days.

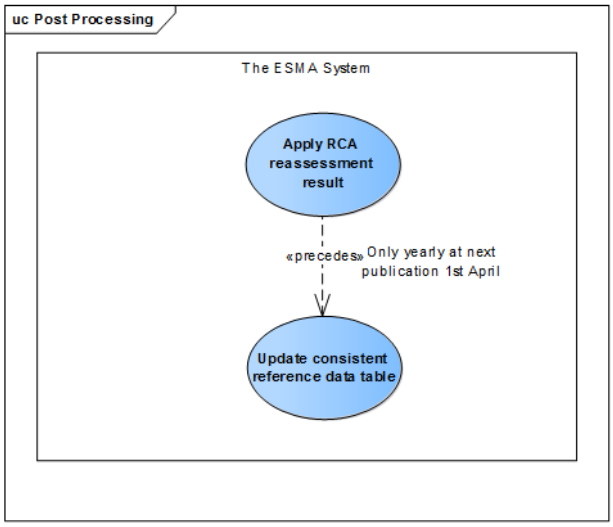


FIGURE 5 - END-OF-DAY / POST-PROCESSING USE CASE DIAGRAM

3.3.2 Instruments Reference Data records processing overview

The ESMA System processes the instrument records in two phases: “Processing Phase” and “Post-Processing Phase”.

Concept	Definition
Processing Phase	on the fly processing of incoming files, processing of records.
Post-Processing phase	end of day processing of records across-TV/SI, determination or update of the RCA, generation, distribution and publication of aggregated instruments records.
Next publication date (T)	The day of the next reference data publication
Applicable submission cut-off time	The time before which a submitting entity shall submit data to ESMA: 23:59 CET for a non-delegating NCA (in charge of data collection in its jurisdiction and in charge of performing data content validations). 21:30 CET for a NCA not delegating data collection but delegating data content validations to ESMA. 21:00 CET for a TV/SI under the jurisdiction of a NCA delegating data collection in its jurisdiction.

3.3.2.1 On the fly processing phase

The ESMA System processes the submitted file on the fly. However, files submitted after the applicable cut-off time on day T will only start being processed when the consistent reference data table prepared for day T+1 publication is ready.

The ESMA System registers in a dedicated table all records from the submitted file which successfully passed data transmission, data format, and data content validations. This table is called *Received Reference data* table[2] in this document and is constantly updated. As submitting entities are expected to repeatedly report the same information every day for instruments that do not change, the system will receive the same (ISIN, MIC, RTS23 fields) record every day. Multiple submission of the exact same (ISIN, MIC, RTS23 fields) by the same Submitting Entity are considered the same record and will be stored under the same RECORD_ID. The ESMA System will keep track of the list of all reception date times of each record, at the level of ESMA and at the level of the NCA. The system allows reporting entities to cancel an ISIN-MIC combination, in case they have previously reported such a record by mistake (the cancelled records are marked respectively in the *Received Reference data* table). Reporting entities are also allowed to report again the (ISIN, MIC) record, and in that case the system treats it as normal (non-cancelled) ISIN-MIC record again.

Attribute[3]	Definition
RECORD_ID [PK]	The unique identifier of a version of an instrument reference data record received by the ESMA System. This field is used internally by the system. Multiple submission of the exact same (ISIN, MIC, RTS23 fields) by the same Submitting Entity are considered the same record and will be stored under the same RECORD_ID.
Hash Code of the record received (HCRR)	The hash code of the received record RECORD_ID generated with the RTS 23 fields.
MIC	Segment MIC for the TV/SI, where available, otherwise operating MIC [RTS23 (field 6)] – ISO10383.
ISIN	Code used to identify the financial instrument [RTS23 (field 1)] – ISO 6166.
Other RTS23 fields	Every other RTS23 fields except ISIN and MIC in “RTS23 Fields table” in section 6.9 RTS23 Fields table.
Submitting Entity	The identification code of the Submitting entity sending the reference data file to ESMA. Submitting Entity can be a MIC code (in case it is a TV/SI; it may be segment MIC or an operating MIC) or a Country Code (in case it is a NCA). It is based on the last file received containing the record RECORD_ID.

[2] This table is conceptual by nature. Further technical implementations of that table may arise during the design stage.
[3] Attributes highlighted in green are extracted from the submitted file according to Table 21 - RTS23 Fields table and Table 22 - Additional Field table , other attributes are generated by the ESMA System.

Country of jurisdiction of the TV/SI	The country code of the NCA under which jurisdiction the TV/SI (RTS23 field 6) is. Populated through dedicated interface with ESMA Registers System (TV/SI Registers).
ESMA Reception Date Time List	List of ESMA Reception Date Time of the record RECORD_ID. The timestamp calculated by HUBEX/HUBDE of the file containing the record is the ESMA Reception Date Time of the record.
NCA reception Date time List	List of NCA Reception Date Time a NCA received the record RECORD_ID from the TV/SI. Used for NCAs not delegating data collection.
FileSequenceId	The <Key1>-<Key2> in the name of the last file received containing the record RECORD_ID.
Latest received flag	Indicates whether the record RECORD_ID is the latest record received for the instrument (RTS23 field 1) on the TV/SI (RTS23 field 6).
Consistent flag	A flag indicating whether the record RECORD_ID is consistent with the record flagged as the reference for that instrument (please refer to RCA data attributes table).
Received Status	A status indicating whether the record is a reference or a Cancelled one. Eligible values are as follows : REFR : Reference record (default value) CANC : Cancelled record

TABLE 1 - FIELDS OF RECEIVED REFERENCE DATA TABLE

3.3.2.2 End of day / Post-Processing phase

As soon as possible after the NCAs cut-off (00:00), the ESMA system will extract from the "*Received reference data table*", all the records' RECORD_ID which are flagged as Latest received AND:

- have been newly submitted before the applicable submission cut-off time.

Those records are stored in a daily working table called "*New and On time records table*". The following fields are composing that table:

Attribute	Definition
RECORD_ID [PK]	The unique identifier of a version of an instrument reference data record received by the ESMA System. This field is used internally by the system.
ISIN	Code used to identify the financial instrument [RTS23 (field 1)]. ISO 6166.

Received Status	A status indicating whether the record is a reference or a Cancelled one. Eligible values are as follows : REFR : Reference record (default value) CANC : Cancelled record
Latest ESMA Reception date time	The latest ESMA reception date time of the record RECORD_ID.
Trading Venue dependent fields	"*Trading Venue dependent*" fields *in "RTS23 Fields table*" as listed in section 6.9 RTS23 Fields table.
Free-text fields used for consistency checks	"*Free-text fields used for consistency checks*" fields *in "RTS23 Fields table*" as listed in section 6.9 RTS23 Fields table.
Non-free text fields used for consistency checks	"*Non-free-text fields used for consistency checks*" fields *in "RTS23 Fields table*" as listed in section 6.9 RTS23 Fields table.

TABLE 2 - FIELDS OF NEW AND ON TIME RECORDS TABLE

For all the non-cancelled instruments, the ESMA System determines the RCA of the instrument and determines the record which holds the RTS23 fields to be used consistently across all TV/SI for the instrument [*RCA record*]. For that purpose, a set of attributes are calculated. In addition to the determination of RCA, the system enables to reassess the RCA (of any instrument still not terminated) under a request process manually initiated by a NCA user or and an ESMA Business Administrator, or automatically on a yearly basis (for "equity / equity Like" instruments only). For that purpose, we will use the "*RCA data table*" with ISIN as PK.

Attribute	Definition
ISIN	Code used to identify the financial instrument [RTS23 (field 1)] – ISO 6166.
Upcoming RCA	The country of the Relevant Competent Authority of the ISIN as last determined by the system for the upcoming publication.
RCA record	The RECORD_ID of the record in the Received Reference data table which holds the RTS23 fields to be used consistently across all TV/SI. In that case, all consistency checks are performed against a subset of RTS 23 fields of that record. There is only one RCA record [RECORD_ID] per ISIN at any point in time.

RCA record MIC	The MIC of the RCA record
Earliest RTS23 field 10 or RTS23 field 11	The earliest "*Date of request for admission*" (RTS 23 field 10) or "*Date of admission to trading or date of first trade*" (RTS 23 field 11)" of the ISIN across all TV/SI.
Earliest RTS23 field 11	The earliest "*Date of admission to trading or date of first trade*" (RTS 23 field 11) of the ISIN across all TV/SI.
Earliest ESMA date time of reception	The date of reception of the first record received by ESMA for the instrument ISIN across all TV/SI.
Earliest ESMA received RECORD_ID	The RECORD_ID of the first record received by ESMA for the instrument ISIN across all TV/SI.
Earliest NCA date time of reception	The date and time of reception of the first record received by a NCA for that ISIN across all TV/SI. It is used when determining the RCA based on the earliest reception date time.
Earliest NCA received RECORD_ID	The RECORD_ID of the first record received by a NCA for the instrument ISIN across all TV/SI. It is used when determining the RCA based on the earliest reception date time.
Applicable RCA determination rule	A number indicating which rule was used to calculate the Upcoming RCA of the ISIN.
Need to compute RCA	A flag indicating if RCA needs to be recalculated (1 = needs to be recalculated, 0 = does not need to be recalculated)
Overridden flag	A flag indicating whether the upcoming RCA of the ISIN has been changed following a RCA change request process or following a yearly reassessment. In that case, the system does not need any more to perform calculation of the RCA of the ISIN.
Modification flag	A flag indicating whether the upcoming RCA of ISIN was updated during the current day. Reset by default to FALSE during the Post-processing period as per section End-of day processing / Update consistent reference data table [3.3.10].

TABLE 3 - FIELDS OF RCA DATA TABLE

In order to cover the “RCA manual change processes” for an ISIN as defined in BRD 70, we will use another table (“RCA manual change process data table”) to store temporarily the necessary attributes identifying the request initiated by the requester entity (NCAs, ESMA) in a pending status until that request is approved by the approver entity (NCAs). Once approved, the change of RCA is applied:

- Upcoming RCA in the RCA reference data table is replaced by the requested RCA.
- RCA record is recalculated for that ISIN and is updated accordingly in the RCA data table.
- Upcoming RCA of derivatives having that ISIN as single underlying in the RCA reference data table is replaced by the requested RCA provided that the corresponding RCA has approved the change.

- RCA record of derivatives having that ISIN as single underlying is recalculated for that ISIN and is updated accordingly in the RCA data table.

Attribute	Definition
Request ID	A unique identifier of the RCA change request used to link RCA change requests automatically generated by the system when propagating a RCA change to derivatives
ISIN	Code used to identify the financial instrument [RTS23 (field 1)] – ISO 6166 to which the RCA change relates.
Requested RCA	The RCA of the ISIN requested but still not approved through the “RCA change request process”.
Upcoming RCA	The upcoming RCA of the ISIN in the RCA data table at the time of the request.
Reason for manual change	A free text entered by the requester entity’s user to explain the reason of the requested change.
Request status	The status of the manual change request. Pending [Requested but still not approved] / Approved [Requested and approved]/ Rejected [Requested but rejected].
Requester entity	The ISO country Code of the NCA, in case a NCA requests the RCA change. ESMA, in case the ESMA business Administrator requests the RCA change.
Approver entity	The ISO country code of the NCA which is responsible for acting (approving/rejecting) on the request.
Date of application	The date when the upcoming RCA becomes applicable.

Related Request	In case of a RCA change request automatically generated by the system when propagating a RCA change to derivatives, this field holds the Request ID of the RCA change request which concerns the underlying instrument.

TABLE 4 - FIELDS OF RCA MANUAL CHANGE PROCESS DATA TABLE

For Equity (Equity-like) instruments, in order to cover the "yearly RCA reassessment" as defined in BRD 69. (Automatic yearly reassessment), we will use another table ("RCA Yearly reassessment process data table") to store temporarily the result of the yearly turnover calculation which is triggered as soon as possible when all necessary data are collected by the FIRDS transparency System. Unless otherwise agreed by the concerned NCAs, the result of the reassessment process will become applicable when preparing the data for the 1st of April publication.

Attribute	Definition
Year	The year of the reassessment.
ISIN	Code used to identify the financial instrument [RTS23 (field 1)] – ISO 6166 to which the RCA change relates.
Derivative ISIN List	The list of ISIN(s), if any, related to instruments which have the ISIN as single underlying (according to the content of the consistent reference data table).
Reassessed RCA	The RCA resulting from the yearly reassessment for the "ISIN" and for the "Year". Unless otherwise agreed by the concerned NCAs, the "Reassessed RCA" becomes the "Upcoming RCA" for this ISIN on the 1st of April of the year of the reassessment.

TABLE 5 - FIELDS OF RCA YEARLY REASSESSMENT PROCESS DATA TABLE

Once RCA determination has taken place, the system will add to the "NEW AND ON TIME RECORDS TABLE" all the records' RECORD_ID which are flagged as Latest received AND

- are related to an instrument which upcoming RCA has been updated during the current reporting day (Modification flag in the RCA data table is true) .

Next, the ESMA System will extract from the *"Received reference data table*", for each submitted instrument, the records which are flagged as the RCA record of those instruments and stores them in daily working table called "*Reference Fields table*".

Attribute	Definition
ISIN	Code used to identify the financial instrument [RTS23 (field 1)]. ISO 6166.

Upcoming RCA	The country of the Relevant Competent Authority of that instrument, as last determined by the system for the upcoming publication.
Free-text fields used for consistency checks	"*Free-text fields used for consistency checks*" fields *in "RTS23 Fields table*" as listed in section 6.9 RTS23 Fields table.
Non-free-text fields used for consistency checks	"*Non-free-text fields used for consistency checks*" fields *in "RTS23 Fields table*" as listed in section 6.9 RTS23 Fields table.

TABLE 6 - FIELDS OF REFERENCE FIELDS TABLE

Finally, as per section 3.3.10, the ESMA system updates, recursively based on the already existing records, a new table called "*Consistent Reference Data Table"* [4] as follows: for each record RECORD_ID in the *New and On time data table,* the ESMA System computes a new record by joining with the ISIN the content of the *Reference Fields table.* The validity period of the created record, defined by ValidFromDate and ValidToDate of each (ISIN, MIC) record is recalculated by comparing the new record with the already one existing in the "*Consistent Reference Data Table"*.

Attribute	Definition
ISIN [PK]	Code used to identify the financial instrument [RTS23 (field 1)]. ISO 6166.
MIC [PK]	Segment MIC for the TV/SI, where available, otherwise operating MIC [RTS23 (field 6)] – ISO10383.
Other RTS23 fields	Every other RTS23 fields except ISIN and MIC in "RTS23 Fields table" in section RTS23 Fields table.
Latest ESMA Reception date time	The latest ESMA reception date time of the record (ISIN, MIC).
PublishedFromDate	The first calendar day when the consistent reference data table record is part of the full file.
PublishedToDate	The last calendar day when the consistent reference data table record is part of the full file.
ValidFromDate	The first day of the period during which the consistent reference data table record was the latest reference data description of the (ISIN, MIC). According to that date, the ESMA System regenerates, distributes and

4 This table is conceptual by nature. Further technical implementations of that table may arise during the design stage.

	published the Full, Delta and Invalid records files and updates the publication database for the search interface
ValidToDate	The last day of the period during which the consistent reference data table record was the latest reference data description of the (ISIN, MIC). According to that date, the ESMA System regenerates, distributes and published the Full, Delta and Invalid records files and updates the publication database for the search interface
Latest record flag	A flag indicating that this record is the latest version of reference data published for this (ISIN, MIC) combination. ***NB**: in case of an (ISIN, MIC) reported late after it was terminated and therefore never published, the version of the reference data which was last received for this (ISIN, MIC) combination*
NeverPublished flag	A flag indicating that (ISIN, MIC) was never published. TRUE in the case when an instrument is only ever reported late after termination date.
Hash Code of the Consistent Record (HCCR)	The hash code of the consistent record generated with the ISIN, MIC, other RTS 23 fields , Upcoming RCA and the RCA_MIC.
Consistent Status	The Consistent Status of the record RECORD_ID. A record can be of status: • "New" in case the record is not part of the previous Full file and but part of the current Full file. • "Modified" in case the record was part of the previous Full file and but is part the current Full file and which at least of one of its RTS23 fields or RCA has been modified from the previous Full file. • "Terminated": an (ISIN, MIC) record which is part of the previous Full file and which is no part anymore of the current Full file. • "Cancelled" : an (ISIN-MIC) record, in case reporting entities have previously reported such a record by mistake. This cancelled record should be a part of FULCAN file only.
Consistent flag	A flag indicating whether the record is consistent with the RCA record of that instrument (please refer to RCA data attributes table).
Upcoming RCA	The ISO country code of the Relevant Competent Authority of that instrument, as last determined by the system for the upcoming publication.

TABLE 7 - FIELDS OF CONSISTENT REFERENCE DATA TABLE

Once the Consistent Reference Data Table is successfully updated, the ESMA System generates the full/delta/invalid/cancellation records files for both NCA and Public users. The ESMA System then triggers the distribution of the NCA's file to NCAs. Once the distribution is successfully terminated, the publication is triggered. Public files are uploaded onto the download interface in the ESMA publication interface. In addition, the ESMA System will offer a web interface to search and display reference data as per contained in the Consistent Reference Data Table. In order to ensure security of the data contained in the Consistent Reference data table, the public user will access a copy of that table, the publication table, which is updated on daily basis during the publication process.

In addition, the system shall have mechanisms in place to avoid that interfacing systems needing access reference data during the 00:00 – 08:00 period retrieve inconsistent data due to ongoing updates taking place during the post-processing phase. Proposals on the best approach will be expected from the provider in charge of the technical specifications and development of the system[5].

3.3.3 Perform Reference Data Content Validation

Goal	**The goal of this use case is for individual records within a received file to be validated by ESMA.**
Actors	TV/SI (in the jurisdiction of a delegating NCA) - submits data NCA (not delegating data collection in its jurisdiction) - submits data The ESMA System – validates data
Preconditions	ESMA has received and successfully validated the format of a received file
Trigger	ESMA has received and successfully validated the format of a received file
Postcondition	The ESMA System has extracted the subset of records which passed the data content validations.
Normal Flow	1. The ESMA System validates each record against data all content validation rules sequentially in the order as described in Table 33 - Reference Data Content and Consistency Validation Rules. 2. Validation is successful finding no errors.
Alternate Flow 1: Preliminary Content validation Errors	1a. The ESMA System validates each record against data content validation rules sequentially in the order stated in Annex 1c. One of the following checks INS-101, INS-102 and INS-103 fails. The ESMA System logs the error, stops the validation of the record and runs again the validation process on the next record. 2a. The ESMA System logs the erroneous records and the list of errors and rejects the erroneous record.
Alternate Flow 2: Blocking content validation Errors	1b. The ESMA System validates each record against data content validation rules sequentially in the order as described in Table 33 - Reference Data Content and Consistency Validation Rules. Checks INS-101, INS-102, INS-103 are passed. At least one of the following checks INS-104 to INS-125 or INS-129 to INS-130 fails. The ESMA System logs the error and continues the validation process of that record until the last content check and runs again the validation process on the next record.

[5] As an example, the system may work on a temporary copy of the CRDT during the post-processing phase, then lock and commit the changes to the CRDT only once this post-processing phase is complete.

	2c. The ESMA System logs the erroneous records and the list of errors and rejects the erroneous record,
Alternate Flow 3: Warnings	1b. The ESMA System validates each record against checks INS-126 and INS-127 as described in Table 33 - Reference Data Content and Consistency Validation Rules. Each time a check fails the ESMA System logs the error but continues the validation process of that record until the last content check. 2b. The ESMA System logs the record and associated list of warnings.
Frequency	Once each file is submitted by a submitting entity. Each entity is expected to submit at least one file per day but can also make multiple submissions to address errors on previous submission.
Business Rules	Table 33 - Reference Data Content and Consistency Validation Rules.
Assumptions	N/A

3.3.4 Update the Received Reference Data Table

Goal	**The goal of this use case is to update the Received Reference Data Table according to a submitted record which passed the content validation checks.**
Actors	The ESMA System.
Preconditions	The ESMA System has performed the content validation on the submitted record.
Trigger	The ESMA System has successfully validated the content of the submitted record.
Postcondition	The ESMA System has updated the Received Reference Data Table according to the submitted record.
Normal Flow (Referenced records – DATINS file submission)	**In case the system identifies the submitted record as "ReferenceRcd" then** 1. The ESMA System determines the HCRR of the submitted record by calculating the hash value of the whole set of all RTS23 fields, using a hash function with sufficient collision resistance to ensure that two different versions of the RTS23 fields will not lead to the same hash value for the same ISIN, MIC combination[6]. 2. The ESMA System checks whether it exists in the "Received reference data table" a record having the same ISIN, MIC, HCRR and Latest Received flag is TRUE. 3. In case no such record is found in step 2, the ESMA System:

[6] The choice of the hash function will be discussed during the system technical specifications

3.1 checks whether it exists in the Received Reference Data Table an (ISIN, MIC) record which latest Received flag is TRUE, called Previous_Record

3.2 computes a new unused RECORD_ID for the submitted record (e.g. RECORD_ID starts at 1. and is incremented each time the system creates a new record).

3.3 Inserts in the "Received reference data table" the following attributes:

- New RECORD_ID calculated in step 3.1
- HCRR calculated in step 1.
- Submitted RTS23 fields
- Submitting Entity Code is set to the Sender in the filename of the submitted file
- Received Status to "REFR"

[*which shall be the HUBSenderCode associated to the MIC of the submitted record as per* Reporting Flow view *(*Table 19 - Reporting Flow view*) according to the passed content validation.]*

- Country of jurisdiction of the "TV/SI (RTS23 field 6)" with the NCA country associated to the MIC of the submitted record in the Trading Venue Mapping view
  (based on records with ValidityEndDate is NULL).

- Latest Received flag to FALSE
- Consistent flag to FALSE
- FileSequenceId to **<Key1>-<Key2>** in the name of the submitted file.

3.4 Initiates the list of ESMA Reception Date Time for that New RECORD_ID with the ESMA Reception Date Time of the submitted record.

3.5 Initiates the list of NCA Reception Date Time for that New RECORD_ID with the NCA Reception Date Time of the submitted record if provided.

4. In case a record is found in step 2, the ESMA System:
   - adds the ESMA Reception Date Time of the submitted record to the list of ESMA reception date time related to the found record.
   - adds, if provided, the NCA reception date time to the list of NCA reception date time related to the record found.
   - updates the FileSequenceId with **<Key1>-<Key2>** in the name of the submitted file.
   - updates the Submitting Entity with the Sender in the name of the submitted file.
   - Updates the country of jurisdiction of the "TV/SI (RTS23 field 6)" with the NCA country code associated to the MIC of the submitted record in the Trading Venue Mapping view (based on records with ValidityEndDate as NULL)

5. The System updates the latest received flag of the (submitted ISIN, submitted MIC) records as follows:
   - If ESMA Reception Date Time of the submitted record is later than or equal to the latest ESMA Reception Date Time across

	all records having the same (ISIN, MIC), set "Last received flag" to FALSE for all these records, and set "Last received flag" to TRUE for the submitted record.
Alternate Flow (Cancelled records - CANINS file submission)	**In case the system identifies the submitted record as "CancelledRcd" then** 1. The ESMA system identifies the record with the same ISIN, MIC and Latest Received flag as TRUE (Previous_Record) 2. Computes a new unused RECORD_ID for the cancelled record (e.g. RECORD_ID starts at 1. and is incremented each time) 3. Inserts in the "Received reference data table" the following attributes: • New RECORD_ID calculated in step 2 • Submitting Entity Code is set to the Sender in the filename of the submitted file [*which shall be the HUBSenderCode associated to the MIC of the submitted record as per* Reporting Flow view *(*Table 19 - Reporting Flow view*) according to the passed content validation*. • Received Status to "CANC" • Country of jurisdiction of the "TV/SI (RTS23 field 6)" with the NCA country associated to the MIC of the submitted record in the Trading Venue Mapping view (based on records with ValidityEndDate is NULL). • Latest Received flag to FALSE • Consistent flag to FALSE • FileSequenceId to **<Key1>-<Key2>** in the name of the submitted file. 4. Inserts in the "Received reference data table" the following attributes, from the Previous_Record • RTS23 Field 2 - Instrument full name. • RTS23 Field 3 - Instrument classification: A complete and accurate CFI code. • RTS23 Field 4 - Commodities derivative indicator: Indication as to whether the financial instrument falls within the definition of commodities derivative under Article 2(1)(30) of Regulation (EU) No 600/2014. • RTS23 Field 13 - Notional currency 1: Currency in which the notional is denominated. • RTS23 Field 5 - Issuer or operator of the trading venue identifier: LEI of issuer or trading venue operator. • RTS23 Field 8 - Request for admission to trading by issuer: Whether the issuer of the financial instrument has requested or approved the trading or admission to trading of their financial instruments on a trading venue. 5. The ESMA System determines the HCRR of the produced record, by calculating the hash value of the whole set of all RTS23 fields, using a hash function with sufficient collision resistance to ensure that two different versions of the RTS23 fields will not lead to the same hash value for the same ISIN, MIC combination[7].

[7] The choice of the hash function will be discussed during the system technical specifications

	6. Updates in the "Received reference data table" the HCRR as calculated in previous step 7. Initiates the list of ESMA Reception Date Time for that New RECORD_ID with the ESMA Reception Date Time of the submitted record. 8. The system updates the latest received flag of the (submitted ISIN, submitted MIC) records as follows: • If ESMA Reception Date Time of the submitted record is later than or equal to the latest ESMA Reception Date Time across all records having the same (ISIN, MIC), set "Last received flag" to FALSE for all these records, and set "Last received flag" to TRUE for the submitted record.
Frequency	
Business Rules	
Assumptions	N/A

3.3.5 Update the RCA data table

Goal	**The goal of this use case is to update the RCA reference data table for an ISIN.**
Actors	The ESMA System
Preconditions	The ESMA System has finished processing the files received before the last applicable cut-off time.
Trigger	Post-processing phase
Postcondition	The ESMA System has updated the RCA Data Table for the ISIN.
Normal Flow	1. In case the "RCA data table" does not contain any row for the submitted record's ISIN and the withdrawn flag of the submitted record's "*Country of jurisdiction of the TV/SI"* is FALSE in the "NCA reference data table" and the Received Status is "REFR", the ESMA System inserts a new row in the RCA data table with the following attributes: • ISIN • RCA record, Upcoming RCA, Applicable RCA determination rule, • Modification flag are set to NULL; • "Need to compute RCA" to 1; • Overridden flag is set to FALSE; • Modification flag is set to FALSE. 2. The ESMA system updates the "Earliest RTS23 field 11" of the records' ISIN in the RCA data table as follows:

	2.1 Extracts from the "*Received Reference data table*" the ISIN's records which "*Latest received flag*" is TRUE, "Withdrawn flag" is FALSE and the Received Status is "REFR". 2.2 Takes the earliest not-null field 11 across all MIC. In case all field 11 are NULL, set to NULL. 3. The ESMA system updates the "Earliest RTS23 field 10 or RTS23 field 11" field of the submitted instrument as follows: 3.1 Extracts from the "Received Reference data table" the ISIN's records which "Latest received flag" is TRUE, "Withdrawn flag" is FALSE and the Received Status is "REFR". 3.2 Takes the earliest field 10 or field 11 [in case Field 10 is NULL] across all MIC. 4. The ESMA system updates the "Earliest ESMA reception date time of reception" and "Earliest ESMA received RECORD_ID" of the submitted instrument as follows: 4.1 Extracts from the "Received Reference data table" the ISIN's records for which "Withdrawn flag" is FALSE and the Received Status is "REFR". 4.2 Takes the ESMA reception date time of the record and the RECORD_ID with earliest ESMA reception date time. 5. The ESMA system updates the "Earliest NCA reception date time of reception" and "Earliest NCA received RECORD_ID**"** field of the submitted instrument as follows: 5.1 Extracts from the "Received Reference data table" the ISIN's records for which the "Withdrawn flag" is FALSE and the Received Status is "REFR". 5.2 Takes the NCA reception date time of the record and the RECORD_ID with earliest NCA reception date time.
Frequency	
Business Rules	
Assumptions	N/A

3.3.6 Determine RCA

3.3.6.1 Overview

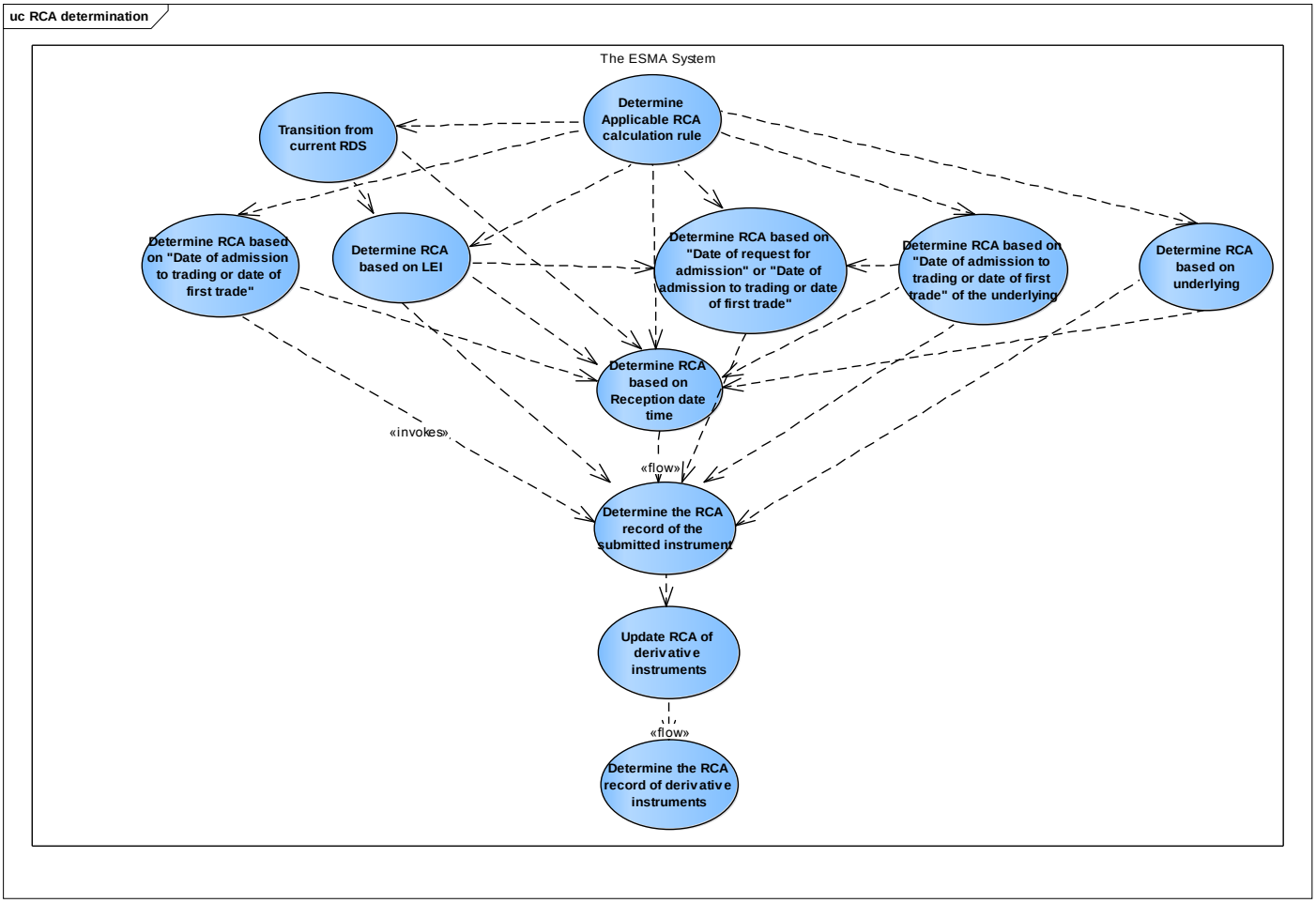


FIGURE 6 - DETERMINE RCA USE CASE DIAGRAM

3.3.6.2 Determine Applicable RCA determination rule

Goal	**The objective of the use case is to determine which RCA determination rule should be applied to determine the upcoming RCA of an ISIN.**
Actors	The ESMA System
Preconditions	The ESMA System has extracted from a submitted file a reference data record that has passed the transmission, format, and content validations. AND The submitted record has Received Status as “REFR” and a newly allocated RECORD_ID: ESMA submission date time List of that record contains a single date.

Trigger	Data content validation successfully completed.
Postconditions	The ESMA system has updated the "Applicable RCA determination rule" of the records' ISIN in the "RCA data table" as follows: • Set to 1 in case the upcoming RCA needs to be recalculated based on Date of admission to trading or date or first trade. • Set to 2 in case the upcoming RCA needs to be recalculated based on Date of request for admission (if applicable) or Date of admission to trading or date or first trade. • Set to 3 in case the upcoming RCA needs to be recalculated based on LEI. • Set to 4 in case the upcoming RCA needs to be recalculated based on the underlying. • Set to 5 in case the upcoming RCA needs to be recalculated based on the reception dates. • Set to 6 in case the upcoming RCA needs to be recalculated based on the Date of admission to trading or date or first trade of the underlying. • Set to 7 in case the upcoming RCA needs to be retrieved from RDS.
Normal Flow: the instrument already started being traded	**In case the "Earliest RTS23 field 11" of the ISIN is not NULL and is strictly prior to (Next Publication Date – 1), and the Overridden flag of the submitted instrument in the "RCA data table" is FALSE, the system determines the RCA if needed and the RCA record as follows:** 1. If the Upcoming RCA exists for that ISIN in the RCA data table *(RCA is already determined but the RCA record must be updated*), 1.1 If the Withdrawn flag of the submitted instrument's Upcoming RCA is FALSE in the "NCA reference data table" a. The system sets the "Need to compute RCA" flag for the ISIN to 0. b. the system updates the RCA record of the submitted instrument as per section 3.3.6.8 Determine the RCA record of the submitted instrument. 1.2 Otherwise (the Withdrawn flag is TRUE), a. The system continues to Alternate flow 2 2. Otherwise (*The first time the ISIN instrument is received*), the System determines the RCA as per section 3.3.6.12 Transition from current Reference Data System..
Alternate flow 1: Overridden RCA	**In case the Overridden flag of the submitted instrument in the "RCA data table" is TRUE, the system updates the RCA record as follows:** 3. The system sets the "Need to compute RCA" flag of the submitted instrument to 0. 4. If the "Country of jurisdiction of the TV/SI" associated to the record's MIC is the Upcoming RCA associated to the record's ISIN as per RCA data table, the system updates the RCA record of the submitted instrument

	as per section 3.3.6.8 Determine the RCA record of the submitted instrument.
Alternate flow 2: Instrument did not yet start being traded and RCA has not been overridden	**Otherwise, the upcoming RCA of the submitted record needs to be calculated, in which case the System determines the appropriate method for that calculation as follows:** 1. The system extracts from the submitted record the instrument classification (CFI_CODE). The system extracts from the Received Reference Data Table the CFI Code of all records with a. same ISIN b. Latest Received flag = TRUE c. Termination date time is NULL or is greater than or equal to T-1. d. "Withdrawn flag" of the submitted record's "*Country of jurisdiction of the TV/SI"* is FALSE in the "NCA reference data table. e. Received Status is "REFR" In case no records retrieved the system extracts from the Received Reference Data Table the CFI Code of all records with *{covers the case regarding new records with termination date in the past}* a. same ISIN b. Latest Received flag = TRUE c. "Withdrawn flag" of the submitted record's "*Country of jurisdiction of the TV/SI"* is FALSE in the "NCA reference data table. d. Received Status is "REFR" 2. For each distinct CFI Code returned, the system finds the matching "CFI construct" pattern in the CFI / RCA rule mapping table as follows: • where an alphabetic character is used at a given position in the "CFI construct" pattern, it must match exactly the CFI code character at the same position; • where a wildcard (*) character is used at a given position in the "CFI construct" pattern, any character at the same position in the CFI code matches. The CFI code's "Applicable RCA determination rule", is the "*RTS22 rule*" corresponding to the matching "CFI construct" pattern. 3. If all distinct CFI codes are mapped to the same "Applicable RCA determination rule", the system proceeds to the next steps. Otherwise, the system sets the "Applicable RCA determination rule" to 5.

	4. In case the “RTS22 rule” field is “RTS22 Art.16 (1) and (2) (“equity/ equity like”)”, the system determines the RCA as per section 3.3.6.4, sets Applicable RCA determination rule of the submitted instrument to 2. 5. In case the “RTS22 rule” field is “RTS22 Art.16 (3) and (4) ("debt")”, the system determines the RCA as per section 3.3.6.5, sets Applicable RCA determination rule of the submitted instrument to 3. 6. In case the RTS22 rule” field is “RTS 22 Art.16 (5).a ("equity derivatives")” or “RTS 22 Art.16 (5).b ("debt derivatives")”, the system determines the RCA as per section 0, sets Applicable RCA determination rule of the submitted instrument to 4. 7. In case the RTS22 rule” field is “RTS 22 Art.16 (5).e ("derivatives on derivative")”, the system determines the RCA as per section 3.3.6.12 “Determine the RCA based on the “Date of Admission to trading or date of first trade” of the underlying”, sets Applicable RCA determination rule of the submitted instrument to 6. Otherwise for every other value of “RTS22 rule” field set RCA calculation rule of the submitted instrument to 1.
Frequency	Every day during post-processing phase, plus on an ad-hoc basis (it should be possible for an IT system administrator to trigger alternate flow 2 and determination of the RCA for a list of ISIN regardless of whether the instrument already started trading)
Business rules	Refer to 2.5.1 Determination of the Relevant Competent Authority for a new instrument in the BRD. After Date of First Trade for the instrument, changes to the currently published RCA can only occur in case of yearly recalculations for Equity instruments, or in case a NCA requests a change of RCA ,or in case it is triggered manually by an IT system administrator.
Assumptions	The latest successfully uploaded LEI register will be used. For each valid CFI code, there is one and only one matching CFI pattern in the CFI / Applicable RCA determination rule mapping table. This rule is enforced by the check described in section 3.12.4.3 “Update internal tables related to CFI codes ” use case and mandatorily performed when the IT administrator updates the CFI / RCA determination rule mapping table.

3.3.6.3 Determine RCA based on "Date of admission to trading or date of first trade"

Goal	**The objective of the use case is to update the upcoming RCA of the submitted instrument in the “*RCA data table*” using the following venue related dates: Date of admission to trading or date of first trade.**
Actors	The ESMA System
Preconditions	*Determine RCA calculation rules* use case updated the “Applicable RCA determination rule” of the submitted instrument to 1.
Trigger	Determine Applicable RCA calculation rule – triggers

Postconditions	The upcoming RCA of the submitted instrument is updated in the "*RCA data table".*
Normal Flow	• The system extracts from the ''Received instrument reference table'' the "Date of admission to trading or date of first trade" of the records which satisfy all the following conditions: o Latest received flag is TRUE o ISIN is the ISIN of the submitted instrument. o Termination date time is NULL or is greater than or equal to T-1. o Withdrawn flag of the "*Country of jurisdiction of the TV/SI"* is FALSE in the "NCA reference data table" o Received Status is "REFR" In case no records retrieved the system extracts from the ''Received instrument reference table'' the "Date of admission to trading or date of first trade" of the records which satisfy all the following conditions *{covers the case regarding new records with termination date in the past}* o same ISIN o Latest Received flag = TRUE o "Withdrawn flag" of the submitted record's "*Country of jurisdiction of the TV/SI"* is FALSE in the "NCA reference data table. o Received Status is "REFR" • In case all are NULL, the ESMA System determines the RCA as per section 3.3.6.7, and sets Applicable RCA determination rule of the submitted record to 5. **Otherwise (at least one TV/SI has reported the field 11 and "Earliest RTS23 field 11" is not NULL)** • The system extracts from the ''Received instrument reference table'' the record the records which satisfy all the following conditions: o Latest received flag is TRUE o ISIN is the ISIN of the submitted instrument o Termination date time is NULL or is greater than or equal to T-1. o Withdrawn flag of the "*Country of jurisdiction of the TV/SI"* is FALSE in the "NCA reference data table" o "Date of admission to trading or date of first trade" is Earliest RTS23 field 11 of the submitted instrument. o Received Status is "REFR" In case no records retrieved the system extracts from the ''Received instrument reference table'' the record the records which satisfy all the following conditions: *{covers the case regarding new records with termination date in the past}* o Latest received flag is TRUE o ISIN is the ISIN of the submitted instrument

	○ Withdrawn flag of the "*Country of jurisdiction of the TV/SI"* is FALSE in the "NCA reference data table" ○ "Date of admission to trading or date of first trade" is Earliest RTS23 field 11 of the submitted instrument ○ Received Status is "REFR" • In case only one record is found, the ESMA System: ○ Sets the upcoming RCA of the submitted instrument in the "*RCA data table"* to the Country of jurisdiction of the TV/SI of the record found in step 3. ○ Sets the Modification flag of the submitted instrument in the "*RCA data table"* to TRUE. ○ Triggers the determination of the "RCA record" for the submitted instrument ("Determine the RCA record of the submitted instrument" use case). • In case more than one record are found, the ESMA system determines the RCA as per section 3.3.6.7, and sets Applicable RCA determination rule of the submitted record to 5.
Frequency	During post-processing phase plus on an ad-hoc basis (it should be possible for an IT system administrator to trigger re-determination of the RCA at any time)
Business rules	
Assumptions	

3.3.6.4 Determine RCA based on "Date of request for admission" or "Date of admission to trading or date of first trade"

Goal	**The objective of the use case is to update the upcoming RCA of the submitted instrument using the following venue related dates: "*Date of request for admission*" or "*Date of admission to trading or date of first trade*".**
Actors	The ESMA System
Preconditions	*Determine RCA calculation rules* use case updated Applicable RCA determination rule of the submitted instrument to 2.
Trigger	Determine Applicable RCA calculation rule – triggers
Postconditions	The upcoming RCA of the submitted instrument is updated in the "*RCA data table".*
Normal Flow	• The system extracts from the ''*Received instrument reference table*'' the "Date of request for Admission" and the "Date of admission to trading or date of first trade" of the records which satisfy all the following conditions: ○ Latest received flag is TRUE ○ ISIN is the ISIN of the submitted instrument. ○ Termination date time is NULL or is greater than or equal to T-1. ○ Withdrawn flag of the "*Country of jurisdiction of the TV/SI"* is FALSE in the "NCA reference data table" ○ Received Status is "REFR"

In case no records retrieved the system extracts from the ''*Received instrument reference table*'' the "Date of request for Admission" and the "Date of admission to trading or date of first trade" of the records which satisfy all the following conditions:
{covers the case regarding new records with termination date in the past}

- Latest received flag is TRUE
- ISIN is the ISIN of the submitted instrument.
- Withdrawn flag of the "*Country of jurisdiction of the TV/SI"* is FALSE in the "NCA reference data table"
- Received Status is "REFR"

- In case all are NULL, the ESMA System determines the RCA as per section 3.3.6.7, and sets Applicable RCA determination rule of the submitted record to 5.

Otherwise (at least one TV/SI has reported either the "Date of request for Admission" or "Date of admission to trading or date of first trade")

- The system extracts from the ''Received instrument reference table'' the records which satisfy all the following conditions:
  - "Latest received" flag is TRUE
  - ISIN is the ISIN of the submitted instrument.
  - Termination date time is NULL or is greater than or equal to T-1.
  - Withdrawn flag of the "*Country of jurisdiction of the TV/SI"* is FALSE in the "NCA reference data table"
  - ("Date of request for admission" is not NULL and is equal to "Earliest RTS23 Field 10 or RTS23 Field 11") OR ("Date of request for admission" is NULL and "Date of admission to trading or date of first trade" is equal to "Earliest RTS23 Field 10 or RTS23 Field 11"")
  - Received Status is "REFR"

In case no records retrieved the system extracts ''Received instrument reference table'' the records which satisfy all the following conditions:
{covers the case regarding new records with termination date in the past}

- "Latest received" flag is TRUE
- ISIN is the ISIN of the submitted instrument.
- Withdrawn flag of the "*Country of jurisdiction of the TV/SI"* is FALSE in the "NCA reference data table"
- ("Date of request for admission" is not NULL and is equal to "Earliest RTS23 Field 10 or RTS23 Field 11") OR ("Date of request for admission" is NULL and "Date of admission to trading or date of first trade" is equal to "Earliest RTS23 Field 10 or RTS23 Field 11"")
- Received Status is "REFR"

- In case only one record is found, the ESMA System:
  - Sets the upcoming RCA of the record's ISIN in the "RCA data table" to the "Country of jurisdiction of the TV/SI" of the record found in step 3.

	○ Sets the Modification flag of the submitted instrument in the "RCA data table" to TRUE ○ Triggers the determination of the "RCA record" of the submitted instrument ("Determine the RCA record of the submitted instrument" use case). • In case more than one record is found, the system determines the RCA as per section 3.3.6.7, and sets Applicable RCA determination rule of the submitted record to 5.
Frequency	During post-processing phase plus on an ad-hoc basis (it should be possible for an IT system administrator to trigger re-determination of the RCA at any time)
Business rules	
Assumptions	

3.3.6.5 Determine RCA based on LEI

Goal	**The objective of the use case is to update the upcoming RCA in the "*RCA data table*" of the submitted instrument using the Issuer related field (LEI) of the submitted record.**
Actors	The ESMA System
Preconditions	*Determine RCA calculation rules* use case updated Applicable RCA determination rule of the submitted instrument to 3.
Trigger	Determine Applicable RCA calculation rule – triggers
Postconditions	The upcoming RCA of the submitted instrument is updated in the "*RCA data table".*
Normal Flow	• The system extracts the "Issuer or Operator of the trading venue Identifier" for all records in the received reference table by TV/SI which satisfy all the following conditions: ○ ISIN is the submitted ISIN ○ Latest received flag is TRUE. ○ Termination date time is NULL or is greater than or equal to T-1. ○ Withdrawn flag of the "*Country of jurisdiction of the TV/SI"* is FALSE in the "NCA reference data table" ○ Received Status is "REFR" In case no records retrieved the system extracts the "Issuer or Operator of the trading venue Identifier" for all records in the received reference table by TV/SI which satisfy all the following conditions *{covers the case regarding new records with termination date in the past}* ○ ISIN is the submitted ISIN

	○ Latest received flag is TRUE. ○ Withdrawn flag of the "*Country of jurisdiction of the TV/SI"* is FALSE in the "NCA reference data table" ○ Received Status is "REFR" • If records do not all return the same LEI, the system determines the RCA as per section 3.3.6.7, and sets Applicable RCA determination rule of the submitted record to 5. • If records all return the same LEI, the system extracts the country stated in the Legal Address of this LEI from the "LEI reference data table" (based on records which ValidityEndDate is NULL). • If this country is an EEA country according to the "Country reference data table" (based on records which ValidityEndDate is NULL), the ESMA system: 4.1 Sets the upcoming RCA of the submitted instrument to that country in the "*RCA data table*". 4.2 Sets the Modification flag of the submitted instrument in the "*RCA data table"* to TRUE. 4..3 Triggers the determination of the "RCA record" for the submitted instrument ("Determine the RCA record of the submitted instrument" use case as per section 3.3.6.8 Determine the RCA record of the submitted instrument"). • If this country is not an EEA country according to the "Country reference data table" (based on records which ValidityEndDate is NULL), the system determines the RCA as per section 3.3.6.4 and sets Applicable RCA determination rule of the submitted instrument to 2.
Frequency	During post-processing phase plus on an ad-hoc basis (it should be possible for an IT system administrator to trigger re-determination of the RCA at any time)
Business rules	
Assumptions	

3.3.6.6 Determine RCA based on the underlying

Goal	**The objective of the use case is to update the upcoming RCA of the submitted instrument using the upcoming RCA of its single underlying instrument.**
Actors	The ESMA System
Preconditions	*Determine RCA calculation rules* use case updated Applicable RCA determination rule of the submitted instrument to 4.

Trigger	Determine Applicable RCA calculation rule – triggers
Postconditions	The upcoming RCA of the submitted instrument is updated in the "*RCA data table"*.
Normal Flow	1. The ESMA system extracts from the "*Received reference data table*" the records which satisfy all the following conditions: ○ latest received flag is TRUE ○ ISIN is the ISIN of the submitted instrument ○ Termination is NULL or is greater than or equal to T-1 ○ Withdrawn flag of the "*Country of jurisdiction of the TV/SI"* is FALSE in the "NCA reference data table" ○ Received Status is "REFR" [*Captures all the TV/SI where the submitted instrument is currently traded*] If this returns no record, the system extracts from the "Received reference data table" the records which satisfy all the following conditions: ○ latest received flag is TRUE ○ ISIN is the ISIN of the submitted instrument ○ Withdrawn flag of the "*Country of jurisdiction of the TV/SI"* is FALSE in the "NCA reference data table" ○ Received Status is "REFR" [In case of instruments reported late after they were terminated, the above will retrieve the latest reference data received for that instrument] 2. The ESMA System extracts the Underlying instrument codes (26a) for each record found in step 1. 3. In case Field 26a is not the same for all records or is NULL for some records (*TV(s) report inconsistent underlying information*), or is equal to Field 1 for some records, the ESMA System determines the RCA as per section 3.3.6.7, and sets Applicable RCA determination rule of the submitted record to 5. 4. Otherwise [*The ESMA System has checked that the submitting instrument has a single underlying and that underlying instrument is the same across all TV/SI on which the submitted instrument is currently traded*], the ESMA System: The ESMA system extracts from the "*Received reference data table*" the records which ISIN is the field 26a of the submitted instrument, their "*Country of jurisdiction of the TV/SI"* has withdrawn flag as FALSE in the "NCA reference data table" and the Received Status is "REFR". 4.1 In case no record is found (the underlying does not exist in the Reference database or the "*Country of jurisdiction of the TV/SI"* of the underlying has withdrawn flag as TRUE in the "NCA reference data table or the retrieved records are cancelled), the System determines the RCA and the RCA record of the submitted instrument as follows: 4.1.1 Determines the RCA as per paragraph 3.3.6.3, and sets Applicable RCA determination rule of the submitted record to 1.

	4.1.2 Triggers the determination of the "RCA record" for the submitted instrument ("Determine the RCA record of the submitted instrument" use case as per section 3.3.6.8). 4.2 In case at least one record is found (the underlying exists in the Reference database, the "*Country of jurisdiction of the TV/SI"* has withdrawn flag as FALSE in the "NCA reference data table and the record is not cancelled)), the System sets the RCA and determines the RCA record of the submitted instrument as follows: 4.2.1 Sets in the "RCA data table" the upcoming RCA of the submitted instrument as the upcoming RCA of the underlying instrument. 4.2.2 Sets Modification flag of the submitted instrument in the "RCA data table" to TRUE. 4.2.3 Triggers the determination of the "RCA record" for the submitted instrument ("Determine the RCA record of the submitted instrument" use case as per section 3.3.6.8).
Frequency	During post-processing phase plus on an ad-hoc basis (it should be possible for an IT system administrator to trigger re-determination of the RCA at any time)
Business rules	
Assumptions	

3.3.6.7 Determine RCA based on reception date time

Goal	**The objective of the use case is to update in the "*RCA data table"* the upcoming RCA of the submitted instrument using the reception date time.**
Actors	The ESMA System
Preconditions	*Determine RCA calculation rules* use case updated Applicable RCA determination rule of the submitted instrument to 5.
Trigger	Determine Applicable RCA calculation rule – triggers
Postconditions	The upcoming RCA of the submitted instrument is updated in the "*RCA data table".*
Normal Flow	1. The ESMA system extracts from the "Received reference data table" the records which satisfy all the following conditions: o latest received flag is TRUE o ISIN is the ISIN of the submitted instrument o Termination is NULL or is greater than or equal to T-1 o Withdrawn flag of the "Country of jurisdiction of the TV/SI" is FALSE in the "NCA reference data table"

	○ Received Status is “REFR” If this returns no record, the system extracts from the “Received reference data table” the records which satisfy all the following conditions: ○ latest received flag is TRUE ○ ISIN is the ISIN of the submitted instrument ○ Withdrawn flag of the “*Country of jurisdiction of the TV/SI”* is FALSE in the “NCA reference data table” ○ Received Status is “REFR” 2. For each record identified in step 1, the ESMA system determines the record reported **first** for the ISIN – using the earliest among the ESMA reception time and, if not null, the NCA reception time -, across all records including any historical ones, and the ESMA System: • Sets the upcoming RCA of that instrument in the “*RCA data table” to* the “Country of jurisdiction of the TV/SI” of the record as stored in the Received Reference Data Table). • Sets the Modification flag of the submitted instrument in the “*RCA data table”* to TRUE. • Triggers the determination of the “RCA record” for the submitted instrument (“Determine the RCA record of the submitted instrument” use case – see 3.3.6.8).
Frequency	During post-processing phase plus on an ad-hoc basis (it should be possible for an IT system administrator to trigger re-determination of the RCA at any time)
Business rules	
Assumptions	The system cannot determine the RCA with the Applicable RCA determination rule chosen by the system in use case or cannot determine the RCA determination rule base of a CFI ambiguity. In that case, the RCA is determined according to the relevant submission date of the submitted records.

3.3.6.8 Determine the RCA record of the submitted instrument

Goal	**The objective of the use case is to determine the “*RCA record*” for the submitted instrument (i.e. the received record which holds the RTS23 fields to be used consistently across all TV/SI).**
Actors	The ESMA System
Preconditions	The ESMA System has updated the upcoming RCA for the submitted instrument in the “*RCA data table”.*
Trigger	• Determine RCA based on "date of request for admission or date of first trade" – triggers

	• Determine RCA based on LEI – triggers • Determine RCA based on "Date of request for admission" or "Date of admission to trading or date of first trade" – triggers • Determine RCA based on underlying –triggers • Determine RCA based on Reception date time – triggers • (derivatives which underlying's RCA has changed) • 3.4.4 (manual RCA change) • 3.3.9 (yearly RCA reassessment) • 3.3.6.2 normal flow step 1.b (new record received for the ISIN) This use case should also be triggered, at each post-processing phase, for the following cases 1. Termination on MIC of the RCA record For all ISINs for which the Termination Date on the "MIC of the RCA record" is not NULL and is strictly less than T-1 (where T is the next publication date). For optimization purposes, the system may apply this rule to ISINs for which the termination date on the RCA-MIC is between PvsT-1 included and T-2 included where T is the next publication date and PvsT is the day of the last successful publication. 2. Cancellation on MIC of the RCA record For all ISINs for which the submitted MIC, from a cancelled record, is the "MIC of the RCA record"
Postconditions	The "*RCA record*" record for the submitted instrument is up to date.
Normal Flow	**1. Retrieval of records** The system returns from the "*Received reference data table*" the records, related to instrument(s), which satisfy all the following conditions and according to specified market's priority check order as follows (New conditions – Market's priority, RCA jurisdiction and Received Status of MIC's) **1.1. Within RCA jurisdiction** **Conditions** • Latest received flag is TRUE • ISIN is equal to the ISIN for which the use case is triggered • Respective MIC(s) is active, identified by (ValidityEndDate is null or is greater than or equal to T-1) • Termination date time is NULL or is greater than or equal to T-1. • "*Country of jurisdiction of the TV/SI"* is equal to the "*Upcoming RCA*" related to the ISIN in the "*RCA data table"* • Withdrawn flag of the "*Country of jurisdiction of the TV/SI"* is FALSE in the "NCA reference data table • Received Status is "REFR" **Market's priority check order** The system checks if there are records matching the conditions below for trading venues for which their "MarketType" is as follows:

- Identified by "MarketType" to be **RMKT** (Regulated Markets)
  If record(s) retrieved, the system continues to 2. Determination of RCA_RECORD, else the following market is checked
- Identified by "MarketType " to be **MLTF** (Multilateral Trading Facilities)
  If record(s) retrieved, flow continues to *2. Determination of RCA_RECORD*, else the following market is checked
- Identified by "MarketType " to be **OTFS** (Organised Trading Facilities)

If record(s) retrieved, the system continues to *2. Determination of RCA_RECORD*, else the system continues to *1.2 Outside RCA jurisdiction*

1.2. Outside RCA jurisdiction

Conditions

- Latest received flag is TRUE
- ISIN is equal to the ISIN for which the use case is triggered
- Respective MIC(s) is active, identified **by (ValidityEndDate** is null or is greater than or equal to T-1)
- Termination date time is NULL or is greater than or equal to T-1.
- Withdrawn flag of the "*Country of jurisdiction of the TV/SI"* is FALSE in the "NCA reference data table
- Received Status is "REFR"

Market's priority check order

The system checks if there are records matching the conditions below for trading venues for which their "MarketType" is as follows:

- Identified by "MarketType" to be **RMKT** (Regulated Markets)
  If record(s) retrieved, flow continues to 2. Determination of RCA_RECORD, else the following market is checked
- Identified by "MarketType " to be **MLTF** (Multilateral Trading Facilities)
  If record(s) retrieved, flow continues to 2. Determination of RCA_RECORD, else the following market is checked
- Identified by "MarketType " to be **OTFS** (Organised Trading Facilities)

If record(s) retrieved, the system continues to *2. Determination of RCA_RECORD*, else the system continues to *1.3 Within RCA jurisdiction- Systematic Internalisers (SINT)*

1.3. Within RCA jurisdiction - Systematic Internalisers (SINT)

Conditions

- Latest received flag is TRUE
- ISIN is equal to the ISIN for which the use case is triggered
- Instrument(s) traded in the SINT market, identified by "MarketType" to be SINT (Systematic Internalisers)
- Respective MIC(s) is active, identified by (ValidityEndDate is null or is greater than or equal to T-1)
- Termination date time is NULL or is greater than or equal to T-1.
- "*Country of jurisdiction of the TV/SI"* is equal to the "*Upcoming RCA*" related to the ISIN in the "*RCA data table"*
- Withdrawn flag of the "*Country of jurisdiction of the TV/SI"* is FALSE in the "NCA reference data table

- Received Status is “REFR”

If record(s) retrieved, the system continues to *2. Determination of RCA_RECORD*, else the system continues to *1.4 Outside RCA jurisdiction-Systematic Internalisers (SINT)*

1.4. Outside RCA jurisdiction - Systematic Internalisers (SINT)

Conditions

- Latest received flag is TRUE
- ISIN is equal to the ISIN for which the use case is triggered
- Instrument(s) traded in the SINT market identified by “MarketType” to be SINT (Systematic Internalisers)
- Respective MIC(s) is active, identified by (ValidityEndDate is null or is greater than or equal to T-1)
- Termination date time is NULL or is greater than or equal to T-1.
- Withdrawn flag of the “*Country of jurisdiction of the TV/SI”* is FALSE in the “NCA reference data table
- Received Status is “REFR”

If record(s) retrieved, the system continues to *2. Determination of RCA_RECORD*, else the system continues to *1.5 No records retrieved*

1.5. No records retrieved

In case no record(s) retrieved from previous steps, then the whole process, **steps 1.1 to 1.4**, is performed again, keeping the same Market’s priority check order, but without checking the following conditions

Conditions NOT to be checked for step 1.5

- Respective MIC(s) is active, identified by (ValidityEndDate is null or is greater than or equal to T-1)
- Termination date time is NULL or is greater than or equal to T-1.

2. Determination of RCA_RECORD

The system will determine the “RCA_RECORD” as the record with the earliest “Date of admission to trading or date of first trade” - “RTS23 field 11”, among those returned in step *1. Retrieval of records*

2.1. In case one single record is returned, that record becomes the “RCA_RECORD” for the submitted instrument. The “RCA_RECORD” field in the RCA data table for that ISIN is set to the RECORD_ID of that record.

2.2. In case there more than one records with the same earliest RTS23 field 11, then the record first reported, using the earliest ESMA reception time or, if null, the earliest NCA reception time, becomes the “RCA_RECORD” for the submitted instrument. The “RCA_RECORD” field in the RCA data table for that ISIN is set to the RECORD_ID of that record.

3. Determination of RCA_MIC

	The system determines the RCA_MIC, as the corresponding MIC from the RCA_RECORD, determined in step 2
Frequency	During post-processing phase plus on an ad-hoc basis (it should be possible for an IT system administrator to trigger re-determination of the RCA at any time)
Business rules	BRD 2.5.2 Determination of the RCA_RECORD and RCA_MIC
Assumptions	

3.3.6.9 Determine the RCA record for Equity/Equity-like instruments [Updated #249]

Goal	**The objective of the use case is to determine the "*RCA record*" for an Equity/Equity-like submitted instrument**
Actors	The ESMA System
Preconditions	The ESMA System has updated the upcoming RCA for the submitted instrument in the "*RCA data table".*
Trigger	Determine the RCA record of the submitted instrument
Postconditions	The "*RCA record*" record for the submitted instrument is up to date.
Normal Flow	1. The system extracts from the submitted record the RECORD_ID, the instrument classification (CFI_CODE) and market identifier (MIC). The system extracts from the Received Reference Data Table and the Trading venue mapping view (6.5) the list of (RECORD_ID, CFI Code, MIC, Market Type) [List1] of all records with a. same ISIN b. Latest Received flag = TRUE c. Termination date time is NULL or is greater than or equal to T-1. d. "Withdrawn flag" of the submitted record's "*Country of jurisdiction of the TV/SI"* is FALSE in the "NCA reference data table. e. Received Status is "REFR" f. Respective MIC(s) is active, identified by (ValidityEndDate is null or is greater than or equal to T-1) 2. If all the respective and distinct CFI constructs are mapped to the RTS22 rule of "RTS22 Art.16 (1) and (2) ("equity/ equity like")" according to the Annex 6.3 CFI/RCA rule mapping table, the system proceeds with the next steps and determines the RCA-MIC as the MIC with the highest yearly turnover. 3. The system retrieves for the submitted instrument from the Yearly Turnover View (6.8) the list of (MIC, yearly turnover) [List2] and keeps only

	a. the records with MIC that exist in [List1] as retrieved from step 1 b. the records for the previous year 4. The system prepares a new list (RECORD_ID, MIC, yearly turnover, Market type) [List3] by joining [List1] and [List2] and identifies the MIC with the highest turnover based on market priority (RMKT then MLTF) 4.1 The system identifies the MIC with the highest yearly positive (> 0 Euros) turnover for the previous year, traded on Regulated markets, identified by ("MarketType" equals RMKT). If a single MIC is identified flow continues to 5, else flow continues to next check. 4.2 The system identifies the MIC with the highest yearly positive (> 0 Euros) turnover traded on Multilateral Trading Facilities, identified by ("MarketType" equals MLTF). If a single MIC is identified flow continues to 5, else this ISIN is disregarded from the process. 5. In case one single record is returned, that record becomes the "RCA_RECORD" for the submitted instrument. The "RCA_RECORD" field in the RCA data table for that ISIN is set to the RECORD_ID of that record. 6. The system determines the RCA_MIC, as the corresponding MIC from the RCA_RECORD, determined in step 5
Frequency	During post-processing phase
Business rules	This Use Case can be enabled or disabled based on the business needs by external control file.
Assumptions	

3.3.6.10 Update RCA of derivative instruments

Goal	**The objective of the use case is to update in the "*RCA data table*" the upcoming RCA of derivative instruments which have a given instrument as single underlying.**
Actors	The ESMA System
Preconditions	The ESMA System has updated the upcoming RCA for an instrument in the "*RCA data table*". The ESMA System has determined the RCA_RECORD of the submitted instrument, as per 3.3.6.8
Trigger	*Determine the RCA record of the submitted instrument* – triggers

Postconditions	The "*RCA record*" for the submitted instrument is up to date.
Normal Flow	**NB**: T is the day of the next publication 1. The ESMA system extracts from the "Received reference data table" the latest submitted records related to the (derivative) ISIN which satisfy all the following conditions: • Latest received flag is TRUE • Underlying instrument code (under field 26a) is the ISIN of the submitted instrument • Termination date time is NULL or is greater than or equal to T-1 MIC is the RCA_MIC of the derivative. • CFI construct matches the RTS22 rule of "RTS22 Art.16 (5).a ("equity derivatives") or RTS22 Art.16 (5).b ("debt derivatives")", according to Annex 6.3 CFI/RCA rule mapping table • Received Status is "REFR" {*captures the instruments which are not terminated, and which are the derivatives of the submitted instrument*} 2. For each (derivative) ISIN found in step 1: 2.1 The ESMA System checks that the derivative instruments found in step 1 are reported by all TV/SI as having the submitted instrument as single underlying: checks in the Received Reference Data Table whether all Latest received records having the Received Status as "REFR" and related to this (derivative) ISIN have the ISIN of the submitted instrument as single underlying (under field 26a). 2.2 If true, the ESMA system checks that the derivative's Field 1 is different from the derivative's Field 26a. 2.3 If true, the ESMA system checks the Withdrawn flag of the submitted underlying instrument's Upcoming RCA in the "NCA reference data table 2.3.1 If the Withdrawn flag is FALSE, then the ESMA system updates the RCA data table as follows: • Upcoming RCA of the ISIN is set to the upcoming RCA of the submitted underlying instrument • Modification flag of the ISIN is set to TRUE 2.3.2 If the Withdrawn flag is TRUE, then the ESMA system determines the RCA record of the derivative as per section 3.3.6.11.
Frequency	During post-processing phase plus on an ad-hoc basis (it should be possible for an IT system administrator to trigger re-determination of the RCA at any time)
Business rules	
Assumptions	

3.3.6.11 Determine the RCA record of derivative instrument

Goal	**The objective of the use case is to determine the "*RCA record*" for the derivate for which the single underlying is the submitted instrument**

	(i.e. the received record which holds the RTS23 fields to be used consistently across all TV/SI for the derivative).
Actors	The ESMA System
Preconditions	The ESMA System has updated the upcoming RCA for the derivative instrument in the "*RCA data table".*
Trigger	Update RCA of derivative instrument - Triggers
Postconditions	The "*RCA record*" record for each derivative instrument is up to date.
Normal Flow	The system has logged all the Instruments (ISINs) impacted by the calculation of the RCA. For each ISIN: trigger use case 3.3.6.8 Determine the RCA record of the submitted instrument.
Frequency	During post-processing phase plus on an ad-hoc basis (it should be possible for an IT system administrator to trigger re-determination of the RCA at any time)
Business rules	BRD requirement 45.
Assumptions	

3.3.6.12 Determine the RCA based on the "Date of Admission to trading or date of first trade" of the underlying

Goal	**The objective of the use case is to update the upcoming RCA of the submitted instrument using the field 11 of the single underlying instrument in the database.**
Actors	The ESMA System
Preconditions	*Determine RCA calculation rules* use case updated Applicable RCA determination rule of the submitted instrument to 6.
Trigger	Determine Applicable RCA calculation rule – triggers
Postconditions	The upcoming RCA of the submitted instrument is updated in the "*RCA data table".*
Normal Flow	1. The ESMA system extracts from the "*Received reference data table*" the records which satisfy all the following conditions: ○ latest received flag is TRUE ○ ISIN is the ISIN of the submitted instrument

- Termination is NULL or is greater than or equal to T-1
- Withdrawn flag of the "Country of jurisdiction of the TV/SI" is FALSE in the "NCA reference data table"
- Received Status is "REFR"

[*Captures all the TV/SI where the submitted instrument is currently traded*]

If this returns no record, the system extracts from the "Received reference data table" the records which satisfy all the following conditions:

- latest received flag is TRUE
- ISIN is the ISIN of the submitted instrument
- Withdrawn flag of the "Country of jurisdiction of the TV/SI" is FALSE in the "NCA reference data table"
- Received Status is "REFR"

[In case of instruments reported late after they were terminated, the above will retrieve the latest reference data received for that instrument]

2. The ESMA System extracts the Underlying instrument codes (26a) for each record found in step 1.
3. In case Field 26a is not the same for all records or is NULL for some records (*TV(s) report inconsistent underlying information*) or is equal to Field 1 for some records, the ESMA System determines the RCA as per paragraph 3.3.6.7, and sets Applicable RCA determination rule of the submitted record to 5.
4. Otherwise [the submitted instrument has a single underlying and that underlying instrument is the same across all TV/SI on which the submitted instrument is currently traded], the ESMA System checks that this underlying instrument exists in the "*Received reference data table*" and retains the underlying's record with earliest field 11 as follows:

   4.1 The ESMA system extracts from the "Received reference data table" the records which

   - ISIN is the field 26a of the submitted instrument,
   - Latest Received flag is TRUE
   - "*Country of jurisdiction of the TV/SI"* has withdrawn flag as FALSE in the "NCA reference data table".
   - Received Status is "REFR"

   4.2 In case no record is found (the underlying does not exist in the database,or their "*Country of jurisdiction of the TV/SI"* has withdrawn flag as TRUE in the "NCA reference data table" or the record is cancelled), the ESMA System determines the RCA as per paragraph 3.3.6.3, and sets Applicable RCA determination rule of the submitted record to 1.

	4.3 In case at least one record is found (the underlying exists in the database and • "*Country of jurisdiction of the TV/SI"* has withdrawn flag as FALSE in the "NCA reference data table) • Received Status is "REFR" 4.3.1 The system identifies among the record found in 4.1, the MIC(s) which Field 11 is the earliest Field 11. 4.3.2 In case one single MIC is found, the system: 4.3.2.1 sets in the "RCA data table" the upcoming RCA of the submitted instrument as the country of jurisdiction of the MIC. 4.3.2.2 Sets Modification flag of the submitted instrument in the "RCA data table" to TRUE. 4.3.2.3 Triggers the determination of the "RCA record" for the submitted instrument ("Determine the RCA record of the submitted instrument" use case as per section 3.3.6.8). 4.3.3 Otherwise (more than one single MIC is found) the system determines the RCA as per paragraph 3.3.6.7 Determine RCA based on reception date time, and sets Applicable RCA determination rule of the submitted record to 5.
Frequency	During post-processing phase plus on an ad-hoc basis (it should be possible for an IT system administrator to trigger re-determination of the RCA at any time)
Business rules	
Assumptions	

3.3.6.13 Transition from current Reference Data System

Goal	**The objective of the use case is, every time a record related to an instrument is submitted for the first time and with Field 11 in the past, to determine the upcoming RCA of the record's ISIN.**
Actors	The ESMA System
Preconditions	The ESMA System has extracted from a submitted file a reference data record that has passed the transmission, format, and content validations. AND The submitted record having the Received Status as "REFR" has a newly allocated RECORD_ID: ESMA submission date time List of that record contains a single date.
Trigger	use case "determine RCA determination rule" / Normal flow / step 2

Postconditions	The upcoming RCA of the submitted instrument is updated in the “RCA data table”.
Normal Flow	1. In case the “RTS22 rule” field is “RTS22 Art.16 (1) and (2) ("equity/equity like")”, the System determines the RCA and the RCA record as per step 5. 2. In case the “RTS22 rule” field is “RTS22 Art.16 (3) and (4) ("debt")”, the System: 2.1 Determines the RCA as per section 3.3.6.5, sets Applicable RCA determination rule of the submitted instrument to 3. 2.2 Triggers the determination of the “RCA record” for the submitted instrument (“Determine the RCA record of the submitted instrument” use case). 3. In case “RTS22 rule” field is “RTS22 Art.16 (5).a (“equity derivatives”)” or “RTS22 Art.16 (5).b (“debt derivatives”)” : 3.1 In case field 26a is not NULL (*the submitted instrument is a derivative with a single underlying):* 3.1.1 The system checks whether it exists a record in the RRDT which ISIN is equal to field 26a and, if exists, whether the Withdrawn Flag of its Upcoming RCA is FALSE. 3.1.2 In case a record is found (*the underlying is in FIRDS and the RCA is known*), the System: 3.1.2.1 Sets the upcoming RCA of the submitted instrument in the “RCA data table” to the RCA of the underlying found in the RCA data table. 3.1.2.2 Sets the Modification flag of the submitted instrument in the “RCA data table” to TRUE. 3.1.2.3 Sets the determination rule of the submitted instrument in the “RCA data table” to 4. 3.1.2.4 Triggers the determination of the “*RCA record*” for the submitted instrument (“Determine the RCA record of the submitted instrument” use case). 3.1.3 In case no record is found (*the underlying is not in FIRDS*), the system determines the RCA and the RCA record as follows: 3.1.3.1 The system checks whether the RCA of the ISIN of the underlying (field 26 a) is available in RDS database. 3.1.3.2 In case the RCA is found, the system: 3.1.3.2.1 Sets the upcoming RCA of the submitted instrument in the “RCA data table” to the RCA found in RDS. 3.1.3.2.2 Sets the Modification flag of the submitted instrument in the “RCA data table” to TRUE. 3.1.3.2.3 Sets the determination rule of the submitted instrument the “RCA data table” to 7. 3.1.3.2.4 Triggers the determination of the “RCA record” for the submitted instrument (“Determine

	the RCA record of the submitted instrument" use case). 3.1.3.3 In case the RCA is not found, the system: 3.1.3.3.1 determines the RCA as per section 3.3.6.7, sets the "Applicable RCA determination rule" to 5. 3.1.3.3.2 triggers the determination of the "RCA record" for the submitted instrument ("Determine the RCA record of the submitted instrument" use case). 4. In any other case, the System determines the RCA and the RCA record as per step 5. 5. The System determines the RCA and the RCA record of the submitted instrument as follows: 5.1 checks whether the RCA of the submitted ISIN is available in RDS database. 5.2 In case the RCA is found, the system 5.2.1 Sets the upcoming RCA of the submitted instrument in the "RCA data table" to the RCA found in RDS. 5.2.2 Sets the Modification flag of the submitted instrument in the "RCA data table" to TRUE. 5.2.3 Sets the determination rule of the submitted instrument the "RCA data table" to 7. 5.2.4 Triggers the determination of the "RCA record" for the submitted instrument ("Determine the RCA record of the submitted instrument" use case). 5.3 In case the RCA is not found, the system 5.3.1 Determines the RCA as per section 3.3.6.7, sets the "Applicable RCA determination rule" to 5. 5.3.2 Triggers the determination of the "RCA record" for the submitted instrument ("Determine the RCA record of the submitted instrument" use case).
Frequency	During post-processing phase plus on an ad-hoc basis (it should be possible for an IT system administrator to trigger re-determination of the RCA at any time)
Business rules	See Note to MiFIR TF on RCA Topics – revised following 02 June meeting
Assumptions	

3.3.6.14 Apply RCA-MIC adjustments

Goal	**The objective of the use case is to manual change the RCA_MIC by updating the "*RCA record*"**
Actors	The system – implements approved changes
Preconditions	
Trigger	This use case is triggered during each post-processing phase after RCA / RCA-record has been updated for all instruments
Postconditions	The "*RCA_record*" record for instrument is up to date.
Normal Flow	1. The system extracts from *"RCA_MIC_ADJUSTMENTS data table",* the ISIN and adjusted RCA-MIC such that • Active_change is TRUE • ValidityStartDate is not null and prior to T (T included) • ValidityToDate is null or later to T (T included) 2. For each ISIN extracted from step 1, the system retrieves the RECORD_ID, from "*Received reference data table*" which comply with the following conditions • ISIN is the ISIN retrieved from step 1. • MIC is the RCA-MIC retrieved from step 1 • Latest Flag is TRUE • Received Status is "REFR" 2.1. In case no records retrieved then the requested change of RCA_MIC should be ignored. 2.2. For all records successfully retrieved from step 2, the system should perform the following actions: • The "RCA_RECORD" field in the "*RCA data table"* for that ISIN is set to the RECORD_ID of that record. • The Modification flag field in the "*RCA data table"* for that ISIN is set to TRUE. The system should log any errors produced from step 2, into the *"RCA_MIC adjustments error data table*", as per 6.14
Frequency	During post-processing phase
Business rules	
Assumptions	

3.3.7 Perform Consistency Validation on instruments reference data [Updated CR #289]

Goal	**The goal of this use case is for every submitted record to check whether it is consistent with the RCA record of that instrument and prepare the feedback to be sent to the submitting entity.**
Actors	The ESMA System – validates data
Preconditions	The ESMA System has extracted from a submitted file a reference data record that has passed the transmission, format, and content validations, and has updated the upcoming RCA of that instrument (and its derivatives if applicable) and has determined the RCA record of the submitted instrument.
Trigger	Determination of the "RCA record of the submitted instrument" is completed for the submitted instrument.
Postcondition	The ESMA system has checked whether the submitted record is consistent with the "RCA record" for the submitted instrument. In case of inconsistencies (including free-text) are detected for a record, the feedback file generated as per section 3.3.8 Provide File Feedback will contain a single warning with a description of inconsistent fields and has updated the consistent flag in the Received Reference Data Table.
Normal Flow	1. The ESMA System set consistent flag TRUE in the "Received Reference Data Table" if the MIC of the submitted record is the RCA_MIC. 2. In case • MIC of the submitted record is different from the RCA_MIC and • Received Status is "REFR" 3. The ESMA System extracts the list of RTS fields that need to be excluded from the consistency validation check for a particular set of ISINs. The system retrieves from the "Validation Exclusions Data Table" the records for which: • ISIN pattern matches with the submitted ISIN. • Validity End Date is greater than or equal to the Current Date time 4. The ESMA System extracts from the Received Reference Data Table, • the "Non-free text field used for consistency checks" and "Free text fields user for consistency checks" fields, except the ones retrieved in step 3, in RTS23 Field table as per section 6.9; **and** • "Non-free text field used for consistency checks" and "Free text fields user for consistency checks" fields, except the ones retrieved in step 3, in RTS 23 Field table as per section 6.9 of the record which

	RECORD_ID is the “RCA record” in the “RCA data table” related to the submitted ISIN. 5. The ESMA System compares those fields one by one. No difference is found. 6. The submitted record is accepted, and its consistent flag is set to TRUE in the “Received Reference Data Table”.
Alternate flow 1	5. At least one field is different. 6. The ESMA System: 6.1 Generates an INS-128 warning error message related to that record, listing all the inconsistent fields. The inconsistent fields will be identified in the message description using RTS field number as described in Table 21 - RTS23 Fields table. The message will be included it in the feedback file to be generated as per section 3.3.8 Provide File Feedback. 6.2 The submitted record is accepted, and its consistent flag is set to FALSE in the “Received Reference Data Table”.
Frequency	Once for each submitted record.
Business Rules	As per current Business Requirements Document, the non-free text and free text fields to compare are listed in section 43. Table 1 of BRD.
Assumptions	The consistent flag is valid only at the time of the submission and is used to inform the submitting entity of the inconsistency at the time of the submission. The flag will be recalculated during the post-processing phase.

3.3.8 Provide File Feedback

Goal	**The goal of this use case is to provide submitting entities feedback on whether their file was successfully processed by ESMA and whether any content or consistency errors were found**.
Actors	TV/SI (in the jurisdiction of a NCA delegating data collection) – receives feedback NCA (not delegating data collection in its jurisdiction) – receives feedback The ESMA System – provides feedback
Preconditions	file content has been validated (either successfully or not)

Trigger	For Reference data: transmission, format, content and consistency validations are completed. For Non-working days data: File and content validation are completed.
Postcondition	Feedback is uploaded into the ESMA's outgoing folder dedicated to The ESMA System in HUBEX or HUBDE and is available for routing to the recipient's incoming folder.
Normal Flow	1. Based on the result of transmission, format, content, consistency validation a feedback message is generated. 2. In case all records submitted in the file are valid and consistent, the ESMA System generates, based on the ISO 20222 Derived Message Definition Identifier referenced in Table 11 - Instrument reference data message table associated to Business Application Header (BAH), BAH and business message encapsulation and Feedback on Instrument Reference Data Report Message components, a "Feedback on Instrument Reference Data Report" file of with status "*Accepted*". Only a reference to the file identifier is sent back to the submitting entity. 3. Feedback file is uploaded into the ESMA's outgoing folder dedicated to the ESMA System in HUBEX or HUBDE and is available for routing to the recipient's incoming folder.
Alternate Flow 1: Transmission or Format Errors	2a. In case transmission or format error was encountered, The ESMA System generates, based on the Derived Message Identifier schemas referenced in Table 11 - Instrument reference data message table associated to Business Application Header (BAH), BAH and business message encapsulation and Feedback on Instrument Reference Data Report Message components of status "**Rejected"** listing the errors found. Only a reference to the file identifier is sent back since the system did not manage to process the records. 3a. Feedback file is uploaded into the ESMA's outgoing folder dedicated to the ESMA System in HUBEX or HUBDE and is available for routing to the incoming folder of the recipient.
Alternate Flow 2 Content or Consistency Errors	2b. In case at least one record did not pass the content checks or is found as inconsistent, The ESMA System generates, based on the Derived Message Identifier schemas referenced in Table 11 - Instrument reference data message table associated to Business Application Header (BAH), BAH and business message encapsulation and Feedback on Instrument Reference Data Report Message components of status "**Partially accepted**" listing for each erroneous record only, identified by the "*Technical RECORD_IDentification*", the status of that record and the list of error found (Code and Description). The record status can be: • **Rejected:** record did not pass one of the checks: INS-101 to INS-125, INS-129 and INS-130 ○ FDBINS should be produced as defined in Table 38 - File types.

	• record did not pass INS-130 ○ FDBCAN should be produced as defined in Table 38 - File types OR • **Warning:** record which passed all checks between INS-101 to INS-125 and INS-129 BUT which did not pass content checks INS-26 or INS-127 OR consistency checks INS-128. In case of inconsistencies, the inconsistent fields are referenced in the associated message using their field numbers in the RTS23 Fields table. 3b. Feedback file is uploaded into the ESMA's outgoing folder dedicated to the ESMA System in HUBEX or HUBDE.
Frequency	Once for each file submitted by a submitting entity.
Business Rules	See: Annex 1b: Format Validation Rules Annex 1c: Reference Data Content and Consistency Validation Rules Annex 2: File naming conventions Reference Data Interface specifications
Assumptions	A record is identified in the feedback file its *"Technical RECORD_IDentification"*. For Cancellations records, and in case the Technical Record Identification haven't submitted by the reporting entities, the submitted ISIN-MIC concatenation will be used to identify the feedback file.

3.3.9 End-of day processing / Apply RCA reassessment result [Updated CR #254]

Goal	**The goal of this use case is to make applicable the result of the Yearly reassessment process for the publication of 1st April.**
Actors	The ESMA System
Preconditions	The ESMA System has processed all incoming files submitted before the Applicable cut-off time. The *Yearly RCA reassessment input data table* (6.13) has been populated

Trigger	As soon as all files submitted before their applicable cut-off times on 31st March[8] have been processed when the ESMA System prepares the 1st April[9] publication, each year.
Postcondition	The RCA data table is updated.
Normal Flow	1. The ESMA System extracts from the "*Yearly RCA reassessment input data table*" the records for which Year is the current year. 2. The ESMA System builds a new aggregated (ISIN, reassessed RCA) list as follows: for each ISIN's record found in step1: • Adds to that list a new item (ISIN of the record, reassessed RCA of the record). • For each ISIN in the "Derivative ISIN List" of the record, adds to that list (ISIN in the Derivative ISIN List, Reassessed RCA of the record). In the following step, the ESMA System excludes from the list built in step 2 the ISINs for which the application of the reassessed RCA has been bypassed for the current year. 3. For each ISIN in the list built in step 2, the ESMA System checks whether it exists in the "RCA manual change process table" an ISIN's record which date of application is the 1st of April of the current year[10]. 3.1 In case a record is found, the ISIN is removed from the List built in step 2. 4. For each ISIN in the list built in step 2, the ESMA System checks whether it exists in the "RCA manual change process table" an ISIN's record in which Request status is *"Pending*". 4.1 In case a record is found, the system updates the record as follows: • Request status is set to "*Rejected*". • The comment for reason is set as follows: "*Cancelled by application of RCA Yearly Reassessment results on [sysdate]"*. 5. For each ISIN remaining in the list in step 3., The ESMA System updates the ISIN's record in the "*RCA data table*" according to the yearly reassessment results: • Upcoming RCA is set to the applicable RCA. • Modification flag is set to TRUE; • Overridden flag is set to TRUE. For each ISIN remaining in the list in step 3, the ESMA System determines its RCA record as per use case 3.3.6.8.

[8] Threshold termination date of received instruments for Yearly Reassessment, can be changed through yearly.reassessment.termination.date.threshold system configuration parameter

[9] Application date of RCA reassessment results, can be changed through rca.yealy.reassessment.application.date system configuration parameter.

[10] The application of the yearly reassessment concerning ISINs which are stored in that table with a date of application as 1st of April has been bypassed by both the Current RCA and the Upcoming reassessed RCA.

Frequency	Yearly
Business Rules	The change is the RCAs concerning Yearly reassessment will be published in the Instrument Reference data in April 1st each year and starts being applicable from that date. Nevertheless, the application of the Yearly reassessment may be bypassed through a manual change process and upon Concerned NCA agreements.
Assumptions	

3.3.10 End-of day processing / Update consistent reference data table

Goal	**The goal of this use case is to update the consistent reference table in order to prepare the publication of instrument reference data in a consistent way across TV/SI.**
Actors	The ESMA System
Preconditions	The ESMA System has processed all incoming files submitted before the Applicable cut-off time. In addition, and in case the Next publication date is the 1st of April, the ESMA System has applied the Reassessed RCAs for all concerned instruments.
Trigger	As soon as all files submitted before their applicable cut-off times on the current report day have been processed when the ESMA System prepares the next publication, each year. **OR** In case the ESMA System prepares the 1st April publication (each year) Apply RCA Reassessment result use case successfully completed.
Postcondition	The ESMA System has updated the consistent reference data table
Normal Flow	**NB:** in this use case, *T* is the day of the Next Publication, *PvsT is the day of the Last Successful Publication*. 1. The ESMA System sets T to Current System date. 2. The ESMA system extracts from the "Received Reference Data Table" the records which satisfy all the following conditions: • Latest received flag is TRUE • Records which have been processed and stored in Received Reference Data table since the start time of the last successful execution of post processing • Date of the Latest ESMA Reception Date Time is prior to T-1 and Time of the latest ESMA Reception Date Time is strictly prior to the Applicable submission cut-off time

[*The above captures latest received records submitted during the latest submission period and before the applicable cut-off time*]

OR

- ISIN in the "*RCA data table*" which Modification flag is TRUE.
- Latest received flag is TRUE.

[*The above captures records related to an instrument which upcoming RCA has been changed during the latest submission period*]

3. The records are stored in the "New and On time records table" in place of the existing ones. The following attributes are extracted:
   - RECORD_ID
   - ISIN
   - Received Status
   - Latest ESMA Reception date time
   - Trading-Venue dependent fields as described in Table 21 - RTS23 Fields table.
   - Free-text fields used for consistency checks in *"RTS 23 fields Table*" (section 6.9 RTS23 Fields table).
   - Non-Free-text fields used for consistency checks in *"RTS 23 fields Table*" (section 6.9 RTS23 Fields table).
4. For each ISIN extracted in the step 3 with Received Status as "REFR", the ESMA System extracts from the Received Reference Data Table the record which RECORD_ID is the RCA record in the RCA data table for that ISIN; the following attributes are stored in the "Reference Fields table" in place of the existing ones:
   - ISIN
   - Upcoming RCA in the RCA data table for the ISIN's record
   - Free-text fields used for consistency checks in *"RTS 23 fields Table*" (section 6.9 RTS23 Fields table)
   - Non-Free-Text fields used for consistency checks in "RTS 23 fields Table" (section 6.9 RTS23 Fields table).
5. **For each RECORD_ID in step 2, the ESMA System prepares a new (ISIN, MIC) record which will be stored in the Consistent Reference Data Table in steps 6 and 7 as follows**:
6. For the records with Received Status as "REFR", insert records in Consistent Reference Data Table
   6.1. For the following attributes, the values in the "*New and On time records table*" are retained: ISIN, Latest ESMA Reception date time, and Trading venue dependent fields in "RTS 23 fields Table" (section 6.9 RTS23 Fields table).
   6.2. For the following attributes, the values of ISIN's record in the "*Reference Fields table*" are retained: Upcoming RCA.

6.3. For each of the attributes “Free-Text used for consistency check” [List1] AND “Non-free-Text used for consistency check” [List2] as stated in Table 21 - RTS23 Fields table:

6.3.1. The ESMA System compares the value in the “New and on time records table” with the value of the ISIN’s record in the “*Reference Fields table*”.

6.3.2. In case those values are equal, the ESMA System retains that value for the new record.

6.3.3. In case those values are different, the ESMA System retains for the new record:

- the value in the *“Reference Fields table*” for attributes in List2,
- the value in the “*New and On time records table*” for attributes in List1,
- FALSE for the consistent flag.

6.3.4. In case those values are different, the system adds the ISIN and number ID of the attribute in the Inconsistent ISIN List and associated fields in the “TV/SI reporting table” as described in Table 41 - TV/SI Reporting table for (MIC, current system date) for that ISIN.

7. For the records with Received Status as “CANC”, insert records in Consistent Reference Data Table

7.1. For the following attributes, the values in the “New and On time records table” are retained:

- ISIN
- Latest ESMA Reception date time
- Trading-Venue dependent fields as described in Table 20 - RTS23 Fields table.
- Free-text fields used for consistency checks in “RTS 23 fields Table” (section 6.8 RTS23 Fields table).
- Non-Free-text fields used for consistency checks in “RTS 23 fields Table” (section 6.8 RTS23 Fields table).

7.2. Set consistent flag to FALSE

8. For each record resulting of step 4, the ESMA System computes its HCCR as the hash value of the whole set of { all RTS23 fields + Upcoming RCA + RCA_MIC }, using a hash function with sufficient collision resistance to ensure that two different versions of the { RTS23 fields + Upcoming RCA + RCA_MIC} will not lead to the same hash value for the same ISIN, MIC combination[11].

9. For each record resulting of step 3, The ESMA System updates the “Consistent Reference Data Table” as follows:

9.1. Checks whether it exists a record in the “Consistent Reference Data Table” with the same ISIN, MIC and HCCR.

9.2. If such record is found:

[11] The choice of the hash function will be discussed during the system technical specifications

- Latest ESMA reception date time for this (ISIN, MIC) is set to the Latest ESMA reception date time of the record; and

9.2.1. If Received Status = “REFR” then Consistent Status is set to “Unchanged” unless it is terminated.

9.3. If no such record is found, checks whether it exists a record in the “Consistent Reference Data Table” with the same (ISIN, MIC).

9.3.1. In case no such record is found [the instrument has never been reported to ESMA], inserts the new (ISIN, MIC) in the “Consistent Reference Data Table” as follows:

9.3.2. If Received Status is “REFR”

9.3.2.1. “Latest record flag” is set to TRUE

9.3.2.2. In case the termination date is not NULL, and date of the termination date is strictly prior to T-1, then set

PublishedFromDate AND PublishedToDate to NULL,

Consistent Status to “Terminated”,

ValidFromDate to T and ValidToDate to NULL

{Captures the case of a terminated instrument reported late}

9.3.2.3. Otherwise the system sets

PublishedFromDate to T, PublishedToDate to NULL,

Consistent Status to “New”

ValidFromDate to T and ValidToDate to NULL

9.3.3. Otherwise, If Received Status is “CANC”

9.3.3.1. Latest record flag” is set to TRUE

9.3.3.2. PublishedFromDate to T, PublishedToDate to NULL, Consistent Status to “Cancelled”, ValidFromDate to T and ValidToDate to NULL

9.4. In case such record(s) exist(s), it is a modification, selects the record with the latest ESMA Reception Date Time, hereinafter called PREVIOUS RECORD.

9.4.1. “Latest record flag” of the PREVIOUS RECORD is set to FALSE.

9.4.2. The system updates the field, of the PREVIOUS RECORD, ValidToDate to T-1

9.4.3. If the Received Status is “REFR”

9.4.3.1. If the PublishedToDate of PREVIOUS RECORD is NULL [the invalid records are excluded]:

9.4.3.2. The system updates the respective fields of the PREVIOUS RECORD as follows

PublishedToDate set to PvsT

9.4.3.2.1. If Termination Date is NULL or is greater than or equal to (T-1) the system inserts the new record with

PublishedFromDate set to T, PublishedToDate set to NULL,

Consistent Status to “Modified”,

ValidFromDate to T and ValidToDate to NULL

“Latest record flag” set to TRUE.

9.4.3.2.2. Otherwise, the instrument is terminated, and the system inserts the new record with

PublishedFromDate set to NULL, PublishedToDate set to NULL,

Consistent Status to “Terminated”,

ValidFromDate to T and ValidToDate to NULL

“Latest record flag” set to TRUE

9.4.3.3. Otherwise:

9.4.3.3.1. If the termination date of the new record is NULL or greater than or equal to T-1, the system inserts the new record with

PublishedFromDate set to T, PublishedToDate set to NULL, Consistent Status to “*Modified”,*

ValidFromDate to T and ValidToDate to NULL,

Latest record flag” set to TRUE.

{*captures the case of a correction on an instrument supposedly terminated but still active*}

9.4.3.3.2. Otherwise, the system inserts the new record with

PublishedFromDate set to NULL, PublishedToDate set to NULL,

ValidFromDate to T and ValidToDate to NULL

Consistent Status to “*Terminated”*,

“*Latest record flag*” set to TRUE.

{*captures the case of a correction on an instrument already terminated*}.

9.4.4. Otherwise, if Received Status is “CANC”

9.4.4.1. Latest record flag” is set to TRUE

9.4.4.2. PublishedFromDate to T, PublishedToDate to NULL, Consistent Status to “Cancelled”, ValidFromDate to T and ValidToDate to NULL

The ESMA System updates the PublishedToDate of the records of an instrument which last day when it is traded on PvsT-1 as follows:

10. In case it exists in the Consistent Reference Data Table an (ISIN, MIC) record which satisfy all the following conditions:
    - PublishedFromDate is not NULL
    - PublishedToDate is NULL

	• Termination date is not NULL • Date of the termination date is between PvsT-1 included and T-2 included then: 10.1. PublishedToDate is set to PvsT 10.2. Consistent Status is set to “Terminated”. 11. For all ISIN in the RCA reference data table, set the Modification flag to FALSE.
Frequency	Daily (including ESMA non-working days).
Business Rules	The fields reported by the RCA prevail on those submitted by every submitted entity.
Assumptions	At the cut-off time, the system will align all the records to be published with the RCA record. The system shall keep at the same level in the database the submitted records and the modified records after each cut-off time. Users have acted on the RCA change requests for the current reported day.

3.3.11 Generate information about rejections

Goal	**Whenever a file is received, register information about rejections**
Actors	The ESMA System
Preconditions	None
Trigger	A data file has been received by the system.
Postcondition	Information about rejections within the received data file has been registered.
Normal Flow	1. The system receives a file (DATINS, DATNWD, CANINS). 2. Following the performance of file-level and / or record-level data validations on the incoming file, the system a. stores the processing time, total number of records, number of records rejected, number of records accepted for each file b. stores the number of errors for each type of error for the file c. stores all records with errors / warnings at record level in a specific separate table, and for each record indicate : record details, filename, feedback filename, error/warning(s)

	d. stores in a specific table for each received (ISIN, MIC), the status of the last record received (OK/Error/Warning), the timestamp of the file containing this value, and the filename
Frequency	Every time a file is processed
Business Rules	Use the same conventions (table name, table structure, column names, …) across all systems having the same requirement (FIRDS / FITRS / DVCAP)
Assumptions	

3.4 Tools for ESMA Business Administrators

3.4.1 Submit request to set termination date

Goal	**The objective of the use case is to allow ESMA to set a termination date on an instrument-MIC combination.**
Actors	ESMA Business Administrator – submit requests The ESMA System – implements approved changes
Preconditions	The post-processing phase preparing the data to be published on the current day has been completed. The ESMA Business Administrator must be logged in successfully
Trigger	Business case identified by ESMA or official request from NCA's
Postconditions	Requests have been submitted, to be applied in next post-processing phase
Frequency	Ad-hoc
Normal Flow	An ESMA Business Administrator chooses "*Action on instruments/Termination*" on the ESMA Extranet. 1. Selection of input file 1.1. User selects the input file, by using a selection dialog box. The following checks should be performed by the system, after the selection of the file. The Input file should be in the form of a csv, with comma separated fields, with header information and rows as follows : • ISIN • MIC • TERMINATION_DATE The system should be able to successfully process input files which can have up to 10.000 lines. In case input file has more lines ESMA system should reject the file and inform the user with a relevant error message. 2. Validation

The system will validate each row of the input file and retrieve records based on the following:

2.1. The system checks that the (ISIN-MIC) exists in "Received Reference Data Table" among records which Latest Received Flag is TRUE and Received Status is "REFR".

2.2. The system should validate the TERMINATION_DATE from input file, for each ISIN- MIC combination, as follows.

- The TERMINATION_DATE should a valid date and in a sensible range (no prior than 31-12-1899[12]) or
- Null

In case no records retrieved, or TERMINATION_DATE cannot be validated, the system should log this record ,into the *"Set TERMINATION_DATE error data table*", as per 6.15, and continue processing the remaining lines from input file

3. Execution - Preparation

The system stores temporarily the validated records in the "*TEMP_TERMINATIONS data table*". The system inserts new records for all ISIN, MIC combinations that passed the validations, as follows:

3.1. In case at least one record exist in "*TEMP_TERMINATIONS data table*" for the ISIN, MIC combination, the system updates the "Active_flag" column of the existing record to FALSE.

3.2. The system inserts in the "*TEMP_TERMINATIONS data table*" a new record for that (ISIN, MIC) combination with the following attributes:

- ISIN
- MIC
- USER_ID as extracted from the logged-in user
- TERMINATION_DATE
- Active_Flag default value will be TRUE
- Filename

4. Execution – Application

The system updates the *"Received reference data table"* and the *"Set TERMINATION DATE data table"* and applies the requests regarding termination date, set by ESMA Data Manager's, at the first steps of the next post-processing phase, as follows:

4.1. For each (ISIN, MIC) combination that exists in "*TEMP_TERMINATIONS data table*", the system extracts the record having the "Active Flag" as TRUE.

4.2. The system identifies in the *"Received reference data table"* the record, called Previous_Record, with the same ISIN, MIC, the Latest Received flag is TRUE and the Received Status is "REFR.

[12] The oldest instrument traded according to RDS System database. That date must be configurable.

	4.3. Updates the Latest Received flag of that record to FALSE 4.4. The system inserts in the *"Received reference data table"* a new record for that (ISIN, MIC) combination with the following attributes: • RTS23 fields as retrieved from the Previous_Record for the ISIN, MIC • Submitting Entity Code as retrieved from the Previous_Record for the ISIN, MIC • FileSequenceId as "ESMA-TERM" • Country of jurisdiction of the "TV/SI (RTS23 field 6)" as retrieved from the Previous_Record for the ISIN, MIC • Received Status as "REFR" • Set ESMA Reception Date Time to current date • Set NCA Reception Time to empty • Set Technical RECORD_ID to empty • Latest Received flag to TRUE • Consistent flag to TRUE • TERMINATION_DATE as retrieved from the record extracted in step 4.1 • HCRR should be generated with the RTS 23 fields. 4.5. The system inserts in the *"Set TERMINATION DATE data table"* all the records that exist in the *"TEMP_TERMINATIONS data table"* (merely a copy). Afterwards, the system truncates the Temp table, in order to handle the new requests. The system applies the requests regarding termination date, set by ESMA Data Manager's, in the next post-processing.
Business rules	
Assumptions	

3.4.2 Submit request to change RCA_MIC (ESMA Data managers)

Goal	**The objective of the use case is to allow ESMA to change RCA_MIC.**
Actors	ESMA Business Administrator – submit requests The system – implements approved changes
Preconditions	The post-processing phase preparing the data to be published at 08:00 on the current day has been completed. The ESMA Business Administrator must be logged in successfully
Trigger	Business case identified by ESMA or official request from NCA's
Postconditions	Requests have been submitted, to be applied in next post-processing phase

Normal Flow	NB: T is the day of the next publication date 1. An ESMA Business Administrator chooses "*RCA management/RCA_MIC change management*" on the ESMA portal (resp. on the ESMA Intranet). 2. Selection of the input file User selects the input file, by using a selection dialog box. The following checks should be performed by the system, after the selection of the file. Input file should be in the form of a csv, with comma separated fields, with the following fields : • ISIN • NEW_RCA_MIC • ValidFromDate • ValidToDate • Reason_for_change, (predefined values[13]) The input file can have a maximum of 10.000 lines. In case input file has more lines, system should reject the file and inform the user with a relevant error message. 3. Validation The system will validate the following fields from input file, for each ISIN, NEW_RCA_MIC combination, as follows : • ValidFromDate is a valid date • ValidToDate is a valid date or ValidToDate is null • ValidFromDate should be, prior or equal, to ValidToDate, in case ValidToDate is a valid date (not null) • Reason_for_change, should exists in the predefined list of values • The ISIN, NEW_RCA_MIC combination proposed should exists in the FIRDS database (ISIN-MIC combination with Latest Received Flag as TRUE and Received Status as "REFR") In case a record cannot be validated, the system should log this record ,into the "RCA_MIC adjustments error data table", as per 6.14, and continue processing the remaining lines from input file 4. Execution The system should populate *"RCA_MIC_ADJUSTMENTS data table"* 4.1. The system, inserts new records, which successfully pass validation from step 3, with the following fields • ISIN • MIC • USER_ID (Username from extranet login) • ValidFromDate • ValidToDate

[13] The predefined list of values that can be used as the reason for change for the RCA-MIC should be configurable in the system. NB: this list will be different and should be handled independently from the list of reason for changes that can be used for manual RCA change requests.

	• Reason_for_change • Active_change, default value will be TRUE 4.2. History of submitted RCA_MIC changes In case there is a new submission for an existing ISIN in *"RCA_MIC_ADJUSTMENTS data table"*, the system should update the value of Active_change of the existing record to FALSE, and insert a new record with the submitted information, as per step 4. The system applies the requests regarding RCA-MIC, set by ESMA Data Manager's, in the next post-processing phase, as per 3.3.6.13.
Frequency	Ad-hoc
Business rules	BRD 2.5.5 RCA_MIC changes approved on a day T (from the time when the post-processing phase is complete until end of day T) will be reflected on T+1.
Assumptions	

3.5 RCA change Management

3.5.1 Overview

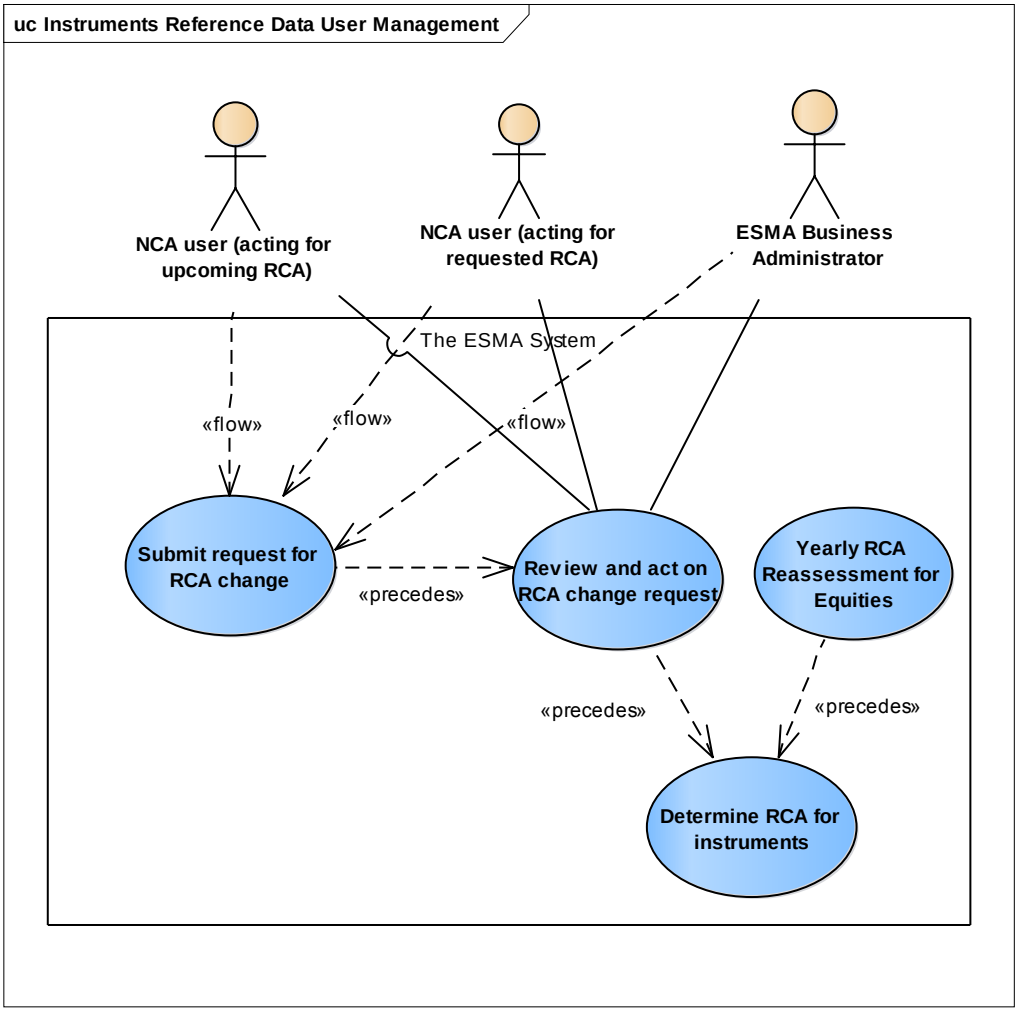


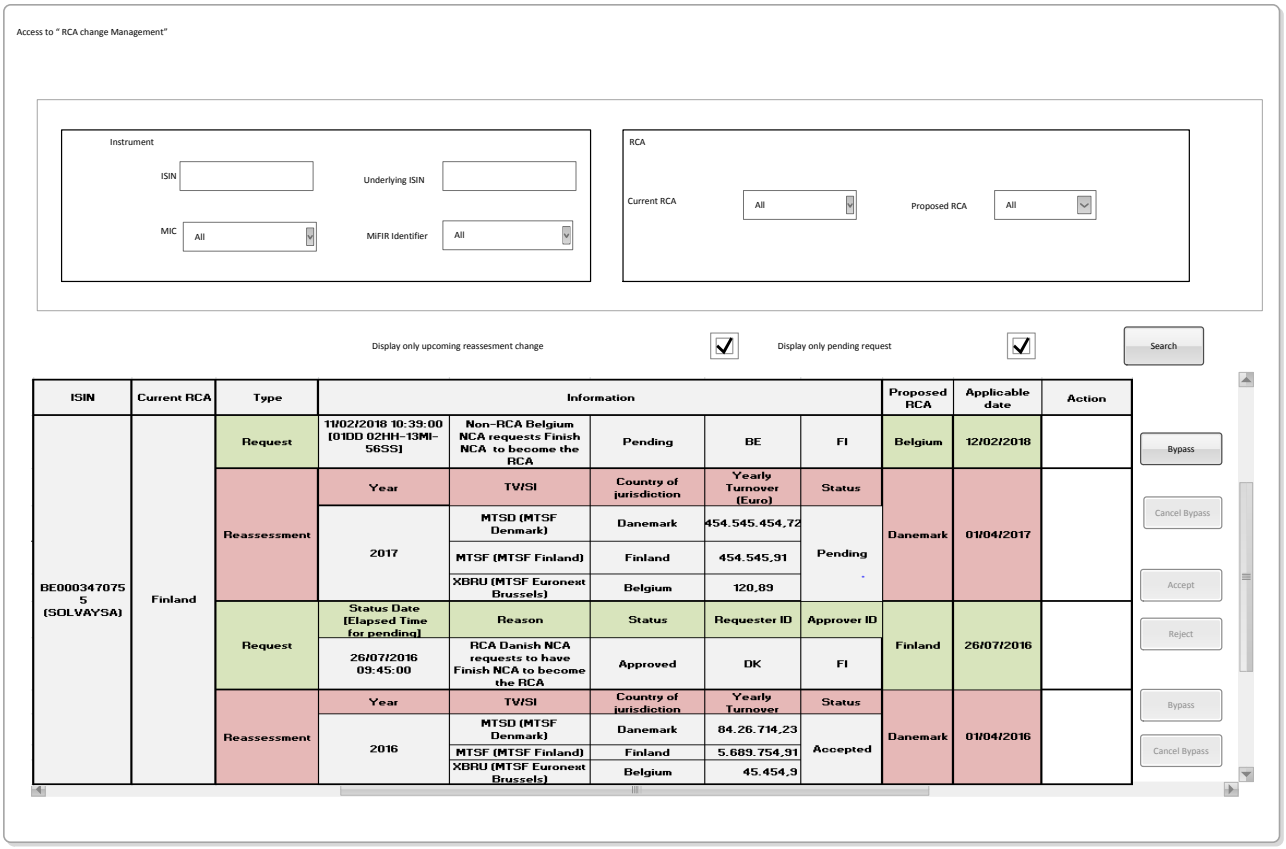
FIGURE 7 - RCA CHANGE MANAGEMENT USE CASE DIAGRAM

3.5.2 User interface for reviewing and acting on RCA change requests and RCA changes following yearly reassessment

The NCA user and the ESMA Business Administrator shall be able to filter in the search interface by selecting one by one or a combination of the following attributes (the user must be able to reset the filter criteria):

Field	Default Value	Input Type	Use
ISIN	Null	Text (* for wildcard)	Filter by ISIN
MIC	All	{'All'} + 4(x) List	Filter ISIN by MIC in the consistent reference data table.
Underlying ISIN	Null	Text	Filter ISIN for which the selected ISIN is the single underlying according to the consistent reference data table.
MiFIR identifier	All	{'All'} + List of Equity / Equity-like MiFIR Identifier codes	MiFIR identifier of the ISIN.
Current RCA	All	{'All'} + Country codes of EEA countries	Filter ISIN which upcoming RCA is the selected country in the RCA data table.
Proposed RCA	All	{'All'} + Country codes of EEA countries	Filter ISIN which requested RCA is the selected country in the RCA Manual change process data table. OR Filter ISIN which reassessed RCA is the selected country in the RCA yearly reassessment process data table.
Display only upcoming reassessment change	Unselected	{'Selected', 'Unselected'} button	Display only the upcoming changes related to the next yearly reassessment.
Display only pending request	Unselected	{'Selected', 'Unselected'} button	Display only the manual changes that have not yet been approved and the upcoming reassessment changes that have not yet been applied.
Approver RCA	All	{'All'} + Country codes of EEA countries	Filters on the Approver RCA

TABLE 8 - FILTER SECTION OF RCA CHANGE MANAGEMENT



ISIN	Current RCA	Type	Information					Proposed RCA	Applicable date	Action
BE0003470755 (SOLVAYSA)	Finland	Request	11/02/2018 10:39:00 [01DD 02HH-13MI-56SS]	Non-RCA Belgium NCA requests Finish NCA to become the RCA	Pending	BE	FI	Belgium	12/02/2018	
		Reassessment	Year	TWSI	Country of jurisdiction	Yearly Turnover (Euro)	Status	Danemark	01/04/2017	
			2017	MTSD (MTSF Denmark)	Danemark	454.545.454,72	Pending			
				MTSF (MTSF Finland)	Finland	454.545,91				
				XBRU (MTSF Euronext Brussels)	Belgium	120,89				
		Request	Status Date [Elapsed Time for pending]	Reason	Status	Requester ID	Approver ID	Finland	26/07/2016	
			26/07/2016 09:45:00	RCA Danish NCA requests to have Finish NCA to become the RCA	Approved	DK	FI			
		Reassessment	Year	TWSI	Country of jurisdiction	Yearly Turnover	Status	Danemark	01/04/2016	
			2016	MTSD (MTSF Denmark)	Danemark	84.26.714,23	Accepted			
				MTSF (MTSF Finland)	Finland	5.689.754,91				
				XBRU (MTSF Euronext Brussels)	Belgium	45.454,9				

FIGURE 8 - RCA CHANGE MANAGEMENT USER INTERFACE SCREEN

The user shall be able to adjust the number of records displayed at a time on the web page.

The username/NCA of the user that has logged in shall be displayed.

3.5.3 Yearly RCA Reassessment for Equities

Goal	**The objective of the use case is to periodically reassess the RCA for "equity / equity like" instrument.**
Actors	TV/SI (in the jurisdiction of a delegating NCA) – submits data on turnover NCA (not delegating data collection in its jurisdiction) – submits data on turnover
Preconditions	The system has received all necessary daily turnover data (excluding all transactions executed under pre-trade waivers of MiFIR Art 4(1) (a) to (c). The volume should be expressed in Euros to perform the update.
Trigger	Every week from 8th of January to 15th of March each year or in an Ad-hoc basis
Postconditions	Yearly RCA reassessment input data table (6.13) has been populated through an ad-hoc query.
Normal Flow	3. The ESMA system Identifies all ISINs in the "Provided ISINs table" having the One-off Yearly Enable Flag as TRUE 4. For each ISIN identified in step 2, the system retrieves from the Yearly Turnover View (6.8) the list of (ISIN, MIC, yearly turnover) 4.1 Excludes from the list the records with MIC under jurisdiction of the withdrawn country (Withdrawn flag is TRUE in the "NCA reference data table" for NCA country in the Trading Venue Mapping for the MIC of the identified record) 4.2 Exclude cancelled and terminated ISIN – MIC combination Keeps only the records for the previous year with Consistent Status other than "CANC" and ISIN-MIC combination that will not be terminated by the date configured in the "yearly.reassessment.termination.date.threshold" parameter of the current year (in the "Consistent reference data table" for non-cancelled ISIN-MIC combination and Latest Received Flag as TRUE the Termination Date is NULL or strictly after the date configured of the current year). 4.3 Identify MIC from active ISIN-MIC combinations based on market priority (RMKT then MLTF) 4.3.1 For each ISIN, the system identifies the MIC with the highest yearly positive (> 0 Euros) turnover for the previous year, traded on Regulated markets, identified by ("MarketType" equals RMKT). If a single MIC is identified flow continues to *3. Update "RCA Yearly reassessment process data" table,* else flow continues to next check. 4.3.2 For each ISIN, the system identifies the MIC traded on Regulated markets, identified by ("MarketType" equals RMKT) with • yearly turnover to be zero (0) or no yearly turnover data available and

- earliest ‘Date of request for admission to trading’ or ‘Date of admission to trading or date of first trade’, (RTS23 Fields 10 or 11)

If a single MIC is identified flow continues to *3. Update “RCA Yearly reassessment process data” table,* else flow continues to next check

4.3.3 For each ISIN, the system identifies the MIC traded on Regulated markets, identified by (“MarketType” equals RMKT) with

- yearly turnover to be zero (0) or no yearly turnover data available and
- earliest ‘Date of request for admission to trading’ or ‘Date of admission to trading or date of first trade’, (RTS23 Fields 10 or 11) and
- earliest “ESMA date time of reception”, or when present, “NCA date time of reception”, for the first record reported by the MIC for the ISIN

If a single MIC is identified flow continues to *3. Update “RCA Yearly reassessment process data” table,* else flow continues to next check.

4.3.4 For each ISIN, the system identifies the MIC with the highest yearly positive (> 0 Euros) turnover traded on Multilateral Trading Facilities, identified by (“MarketType” equals MLTF).
If a single MIC is identiied flow continues to *3. Update “RCA Yearly reassessment process data” table,* else flow continues to next check.

4.3.5 For each ISIN, the system identifies the MIC traded on Multilateral Trading Facilities, identified by (“MarketType” equals MLTF) with

- yearly turnover to be zero (0) or no yearly turnover data available and
- earliest ‘Date of request for admission to trading’ or ‘Date of admission to trading or date of first trade’, (RTS23 Fields 10 or 11)

If a single MIC is identiied flow continues to *3. Update “RCA Yearly reassessment process data” table,* else flow continues to next check

4.3.6 For each ISIN, the system identifies the MIC traded on Multilateral Trading Facilities, identified by (“MarketType” equals MLTF) with

- yearly turnover to be zero (0) or no yearly turnover data available and
- earliest ‘Date of request for admission to trading’ or ‘Date of admission to trading or date of first trade’, (RTS23 Fields 10 or 11) and
- earliest “ESMA date time of reception”, or when present, “NCA date time of reception”, for the first record reported by the MIC for the ISIN

If a single MIC is identified flow continues to *3. Update “RCA Yearly reassessment process data” table,* else flow continues to next check

	4.3.7 If no single MIC is identified, then this ISIN is disregarded from Yearly RCA Reassessment process. **5. Update "RCA Yearly reassessment process data" table** The system inserts a new record (or update in case it already exists a record for that (ISIN, Year) combination) using the following attributes: • Year is the current year; • ISIN; • Reassessed RCA is the NCA country, in the Trading Venue Mapping for the MIC identified in step 2; • Derivative ISINs as list of ISINs, for which all the following conditions apply ○ Having ISIN as Single Underlying ISIN (RTS23 Field 26a) in the Consistent RDT ○ Latest Received Flag as TRUE ○ Consistent Status <> "CANC" ○ Termination Date as NULL or strictly after the date configured in the "yearly.reassessment.termination.date.threshold" parameter of the current year . ○ MIC is the RCA_MIC of the derivative ○ CFI construct matches the RTS22 rule of "RTS22 Art.16 (5).a ("equity derivatives"), according to Annex 6.3 CFI/RCA rule mapping table
Frequency	Weekly (from the 8th of January to the 15th of March) or in an Ad-hoc basis
Business rules	The yearly reassessment rules are described in RTS22 Art 16(1) As it is possible to receive corrections on reference and transparency data, it is proposed to run this use case more than once during the 8/Jan – 15/Mar period. The proposed frequency is weekly.
Assumptions	The result is produced based on the latest transparency data available in the transparency system at the time when the use case is triggered.

3.5.4 Change of RCA_MIC (for NCA's)

Goal	**The objective of the use case is to allow a NCA to change the current RCA_MIC of an instrument**
Actors	NCA user – submits an action to change the RCA_MIC
Preconditions	A NCA has reasons to believe that RCA_MIC should be changed for an instrument. Authorised user has logged on the extranet.
Trigger	NCA initiates an action to change the RCA_MIC

Postconditions	Requests have been submitted, to be applied in next post-processing phase
Normal Flow	NB: T is the day of the next publication date 1. NCA user on behalf of an NCA selects "*RCA management/RCA_MIC change submission*" on a restricted access area of the ESMA Portal (resp. on the ESMA Intranet). 2. The system displays a webpage (including the username/NCA of the user) allowing the user to manually enter the following data • ISIN for which the RCA_MIC change is requested. 3. The system should retrieve the list of MICs, by filtering out the cancelled and terminated ISIN-MIC combinations, currently trading the provided ISIN and display them in a selection tabular form. Selection form should contain the following fields, as per each row : • ISIN • MIC • RCA (country code) • Market type of MIC • Reason for change, from predefined list of values • Selection button, to select the respective MIC In case no records retrieved, system should inform the user with a relevant message and return to selection form, step 2. 4. The system should present in the selection form, information retrieved as follows: • In the first line the record from the current RCA_MIC should be presented. This line should be grey, and its selection button will be in-active. (Current RCA_MIC cannot be selected as a new RCA_MIC) • Remaining records should be presented, in the following lines of selection form, as follows: i. All records for which their RCA is outside the jurisdiction of the logged in NCA should be marked grey, and their selection button will be in-active. ii. All records for which their MIC is not in the jurisdiction of the logged in NCA should be marked grey, and their selection button will be in-active. iii. All records for which their Market Type is SINT, identified by (MIP_MARKET_TYPE equals SINT) should be marked grey, and their selection button will be in-active. (SI's cannot be RCA_MIC) iv. All other records should be displayed in white lines and their selection button will be active, for the user to select the MIC which will be the RCA_MIC 5. The system should allow only one selection from the selection form

	6. The system should allow the user, to choose "Reason for change" from a predefined list of reasons. The selection of "Reason for change" is a mandatory field. 7. The system, after the selection of a RCA_MIC, should provide a second step of approval to the user, with two available options, either to submit the selected change or cancel the selection and return to selection form, step 2. 8. The system should populate *"RCA_MIC_ADJUSTMENTS data table" as follows :* Inserts a new record with the following fields • ISIN • MIC • USER_ID (Username from extranet login) • ValidFromDate with the value of T • ValidToDate, as NULL • Reason of change • Active_change, default value will be TRUE 8.1. History of submitted RCA_MIC changes If there is a new submission for an existing ISIN in *"RCA_MIC_ADJUSTMENTS data table"*, the system should change the value of Active_change of the existing record, to FALSE, and insert a new record with the submitted information, as per step 8. The system applies the requests regarding RCA-MIC in the next post-processing phase, as per 3.3.6.13.
Alternative flow	
Frequency	Ad-hoc
Business rules	BRD 2.5.4 RCA_MIC changes approved on a day T (from the time when the post-processing phase is complete until end of day T) will be reflected on T+1.
Assumptions	

3.5.5 Submit request to change RCA

Goal	**The objective of the use case is to allow a NCA to request to become the RCA for an instrument and or to request another NCA to become the RCA. An ESMA Business Administrator can request on behalf of a NCA.**
Actors	NCA user – submits a request to change RCA ESMA Business Administrator – Submits a request to change RCA
Preconditions	A NCA has reasons to believe that it should be or should not be the RCA for an instrument.

	ESMA may initiate the process on behalf of the NCA, in exceptional circumstances. Authorised user has logged on the extranet.
Trigger	NCA/ESMA initiates a request to change the RCA.
Postconditions	The system has registered the request as "Pending" and sent the relevant email notification to the current upcoming RCA and Requested RCA of the instrument.
Normal Flow	1. NCA user on behalf of an NCA (resp. ESMA Business Administrator) selects "*RCA management/RCA change submission*" on a restricted access area of the ESMA Portal (resp. on the ESMA Intranet). 2. The system displays a webpage (including the username/NCA of the user) allowing the user to manually enter the following data for one or more instrument(s): • ISIN for which the RCA change is requested. • Requested RCA for that ISIN. • Selection of a reason among a dropdown list of standard reasons for change. The list of standard reasons for change shall be configurable in the system. • Optionally, an additional comment (free text) to provide further details on the reason for the RCA change request. 3. The system validates the values entered using the following controls: ○ None of the fields defined in step 2 can be empty. ○ Each ISIN is entered only once. ○ It exists a record in the "consistent reference data table" which satisfy all the following conditions • ISIN is the submitted ISIN; • (Termination date is NULL) or (Termination date >= Current_system_date) • Received Status is "REFR" {*The entered instrument shall be still traded on at least one TV/SI at the time of the submission according to the latest publication*} • In case the user is a NCA user, the requested RCA or the Upcoming RCA must be the Requesting entity. 4. The system displays the valid entered records (including the name of the instrument related to the entered ISIN). 5. For each entered ISIN (all checks are passed), The system searches the Derivative instrument(s) still traded according to the latest publication which have the entered ISIN as single underlying as follows: the system extracts from the "*Consistent Reference Data Table*" the ISIN of the records which satisfy all of the following conditions:

- Field 26a is the entered ISIN.
- (Termination date is NULL) or (Termination date >= Current_system_date)
- “Latest record flag” is TRUE.
- Received Status is “REFR”
- CFI construct matches the RTS22 rule of “RTS22 Art.16 (5).a ("equity derivatives") or RTS22 Art.16 (5).b ("debt derivatives")”, according to Annex 6.3 CFI/RCA rule mapping table

6. For each entered ISIN, the system displays the ISIN found in the step 5. with the following information:

- ISIN
- Requested RCA (same as the associated underlying instrument),
- Upcoming RCA of ISIN’s record in the RCA data table.
- An automatically populated text: “Derivative of [ISIN] + reason for which the RCA change was requested for the underlying ISIN”, where [ISIN] is the ISIN of the instrument for which the user initially made the request (and thus the reason this derivative appeared in the list).

7. The system asks for final validation of the whole displayed list. **The user at this stage cannot modify ISIN, Requested RCA or exchange reason for the derivative instruments.**

8. Once the request is confirmed by the user:

8.1 For each displayed line, The ESMA System inserts in the “*RCA manual change process data table*” a new record:

- A new unique Request ID is generated for each RCA change request;
- Requested RCA is set to the entered Requested RCA;
- Upcoming RCA is set to the Upcoming RCA in the RCA data table related to that ISIN;
- Reason for manual change is set to the entered reason;
- Request status is set to “Pending”;
- Requester entity is set to the NCA of the current user in case of NCA user;
- ‘EU’ in case of ESMA business Administrator.
- Approver entity is set to:
- The upcoming RCA in case the requested RCA is the NCA of the current user.
- Otherwise, the requested RCA
- Record timestamp is set to the current system date
- For all RCA change requests automatically added in steps 5 and 6, the system populates the Related Request with the Request ID

	of the corresponding RCA change request on the underlying instrument made by the user in step 3. 8.2 The ESMA System sends automated e-mails notifying the list of ISINs for which a RCA change request await an approval as follows: 8.2.1 The ESMA System groups all the ISINs for which a change is requested, including derivatives, by upcoming RCA as per NCA data table. 8.2.2 For each upcoming RCA, The ESMA System generates an email addressed to the generic email address of the RCA in NCA reference data table as per section 6. and containing the list of ISIN in step 8.2.1. 8.2.3 The ESMA System groups all the ISINs for which a change is requested, including derivatives, by requested RCA as per NCA data table excluding the requester (ESMA or requested RCA). 8.2.4 For each requested RCA, The ESMA System generates an email addressed to the generic email address of the RCA in NCA reference data table as per section 6. and containing the list of ISIN in step 8.2.3. 9. The system only displays the latest change request made by the same requestor on the same ISIN. In case the same requestor makes a new request on the same ISIN, the older requests and all "related" requests are cancelled.
Alternative flow	3.1 In case at least one entry has failed the validation checks, the ESMA System displays the list of errors. The user has to re-enter manually the erroneous entries.
Frequency	Ad-hoc
Business rules	N/A
Assumptions	Screen specification as per section 3.5.2User interface for reviewing and acting on RCA change requests and RCA changes following yearly reassessment. The user must be able to go back to the previous page at any time.

3.5.6 Review and act on RCA change request

Goal	**The objective of the use case is to allow an NCA or ESMA to view change request submitted to its NCA and approve or reject any of the requests.**
Actors	NCA – reviews, approves and denies requests ESMA Business Administrator – reviews, approves and denies requests The ESMA System – implements approved changes

Preconditions	A NCA receives notification of a request for change of RCA for a number of instruments. The post-processing phase preparing the data to be published at 08:00 on the current day has been completed.
Trigger	A NCA receives notification of a request for change of RCA for a number of instruments.
Postconditions	Requests have been reviewed and the user has performed all necessary actions.
Normal Flow	1. A NCA user (resp. an ESMA Business Administrator) [current user] chooses "*RCA management/RCA change management*"" on the ESMA portal (resp. on the ESMA Intranet). 2. The ESMA System selects in the "*RCA manual change process data table*" ISIN records which 1) "*Request status*" is {"*Pending*","*Approved,"Rejected*"}, the following attributes: • ISIN • Requested RCA • Upcoming RCA • Reason for manual change • Requester entity • Approver entity • The time duration since the request was first introduced (Current System date time – record timestamp in the *RCA manual change process data table*). 3. The ESMA System displays the attributes found in step 2 as per user interface described in 3.5.2 and allows the user to sort by ISIN, Requested RCA, Upcoming RCA, and Date when the request for change was introduced in the system. 4. The user can choose to approve or reject only and any of the requests related to the ISIN which 1) "*Request status*" is *"Pending*" 2) current user's institution is a NCA and that NCA's country code is the "Approver Entity". • The user can also select any/all combinations of requests and approve / reject them. • The system provides a "select all" button. • RCA change requests are approved / denied individually. • In order to facilitate approval / rejection of RCA change requests propagated to derivatives, the user can choose the option to approve / deny all "related" requests at the same time. In more detail if the user ticks this option and approves / rejects request ID1

	○ All requests that have the ID1 in "Related Request ID" and for which the user's country code is the "Approver Entity" will be approved / rejected; ○ All requests that have the same "Related Request ID" as request ID1 and for which the user's country code is the "Approver Entity" will be approved / rejected; ○ The request which Request ID is equal to the "Related Request ID" of request ID1 and for which the user's country code is the "Approver Entity" will be approved / rejected; 5. In case the user approves the request of an ISIN or a combination of ISINs, and for each of them, the ESMA System: 5.1 Updates the records in the "*RCA manual change process data table*" as follows: 5.1.1 Request status is set to "Approved" 5.1.2 Date of application is set the current date. 5.2 Updates the ISIN's record in the "RCA data table" as follows: 5.2.1 Upcoming RCA is set to the requested RCA 5.2.2 Overridden flag is set to TRUE 5.2.3 Modification flag is set to TRUE. 5.3 The ESMA System updates the RCA record according to the *"Determine the RCA record" use* case as per section 3.3.6.8 Determine the RCA record of the submitted instrument0 for each ISIN. 5.4 The ESMA System sends automated e-mails to each affected NCA (upcoming RCA and requested RCA and addressed to the generic email address in the NCA reference data table) notifying that RCA change request is approved. The email should contain a combination of ISIN in order to reduce the number of emails. 6. In case the user rejects the request of an ISIN or a combination of ISINs, and for each of them, the ESMA System: 6.1 sets the request Status to "*Rejected*" in the "*RCA manual change process data table*". 6.2 sends automated e-mails to each affected NCA (upcoming RCA and requested RCA and addressed to the generic email address in the NCA reference data table) notifying that RCA change request is rejected. The email should contain a combination of ISIN in order to reduce the number of emails.
Frequency	Ad-hoc

Business rules	ESMA business user will only act on RCA change requests after liaising with affected parties. RCA should not be manually changed during the post-processing phase, which occurs on a day T between 00:00 and 08:00, when the system is preparing the full-file to be published at 08:00, as it would interfere with the process. RCA changes approved on a day T (from the time when the post-processing phase is complete until end of day T) will be reflected on T+1.
Assumptions	

3.5.7 Review and act on Yearly reassessment results

Goal	**The objective of the use case is to enable a NCA user or an ESMA Business Administrator to view and act on the result of the calculation of the yearly RCA reassessment before it becomes applicable the 1st of April of each year.**
Actors	NCA user ESMA business Administrator
Preconditions	Yearly RCA Reassessment for Equities use case is completed.
Trigger	Ad-hoc
Postconditions	The user has reviewed the pending changes of interest for him and was able to notify its decision with respect to change requests and yearly reassessment results.
Normal Flow	1. A NCA user (resp. an ESMA Business Administrator) [current user] chooses "*RCA change management*" on the ESMA portal (resp. on the ESMA Intranet). 2. The ESMA System selects in the "*Instrument yearly turnover view*" the records in junction with the "*RCA Yearly reassessment process data table*", the "RCA manual change process table", the "MIC reference data table", the "RCA data table" the following attributes: • ISIN (identifier): in the "*Instrument yearly turnover view"* • ISIN (Name): Financial Instrument Short name in the consistent reference data table for that ISIN. • MiFIR identifier: in the *"Instrument yearly turnover view"* • Current RCA: Upcoming RCA in the "*RCA data table"* for the ISIN. • Year: Year in the "*Instrument yearly turnover view*". • MIC (identifier): MIC in the "*Instrument yearly turnover view".* • MIC (Name): InstitutionName in the "*MIC reference data table"* for that MIC. • Country of jurisdiction: NCA country in the "*Trading Venue Mapping table*" for that MIC (based on records with ValidityEndDate is NULL).

	• Euro Yearly turnover: Euro Yearly turnover in the *"Instrument yearly turnover view*" for that (Year, ISIN, MIC). • Upcoming Reassessed RCA: Reassessed RCA in the "*RCA Yearly reassessment process data table*" for the (Year, ISIN) record. 3. The ESMA System displays the resulting records as per as per user interface described in 3.5.2, and allows the user to sort by ISIN, Current RCA, Proposed RCA, year of the reassessment. In case a record has distinct upcoming RCA and reassessed RCA, that record must be highlighted. 4. The ESMA System allows the user to filter records as per user interface described in chapter 3.5.2. 5. The ESMA System allows the NCA user, only if he/she belongs to the Reassessed RCA or the Upcoming RCA, to bypass the application of the yearly reassessment for the current year. 6. In case the user of the Reassessed RCA (resp. Upcoming RCA) chooses to bypass the application of the yearly reassessment for the current year, the ESMA System checks whether the Upcoming RCA (resp. the Reassessed RCA) has also already chosen to bypass (the bypass action is of "Pending" status). 6.1 IF TRUE, The ESMA System registers the decision of the NCA (the bypass action status is set to "Approved"): 6.1.1 updates the "*RCA manual change process*" as follows: inserts/updates ISIN's record with the following attributes: • Requested RCA is the Upcoming RCA. • Date of application is the 1st of April of the current year. 6.1.2 sends automated e-mail to the upcoming RCA notifying that your NCA will continue to be the RCA after the 1st of April. 6.2 IF FALSE, the ESMA System registers the decision of the NCA (the bypass action status is set to "Pending") and sends automated e-mail to the Upcoming RCA (resp. Reassessed RCA) notifying the user's NCA decision and requesting to confirm the bypass. 7. In case a user rejects a pending bypass, the ESMA System registers the decision of the NCA (the bypass action status is set to "Rejected") and sends automated e-mail to the user having requested the bypass informing that the NCA disagrees with the bypass decision and the Reassessed RCA will become the RCA of the instrument after the 1st of April.
Frequency	Ad-hoc
Business rules	
Assumptions	

3.6 Instruments Reference Data Distribution

3.6.1 Use Case Overview

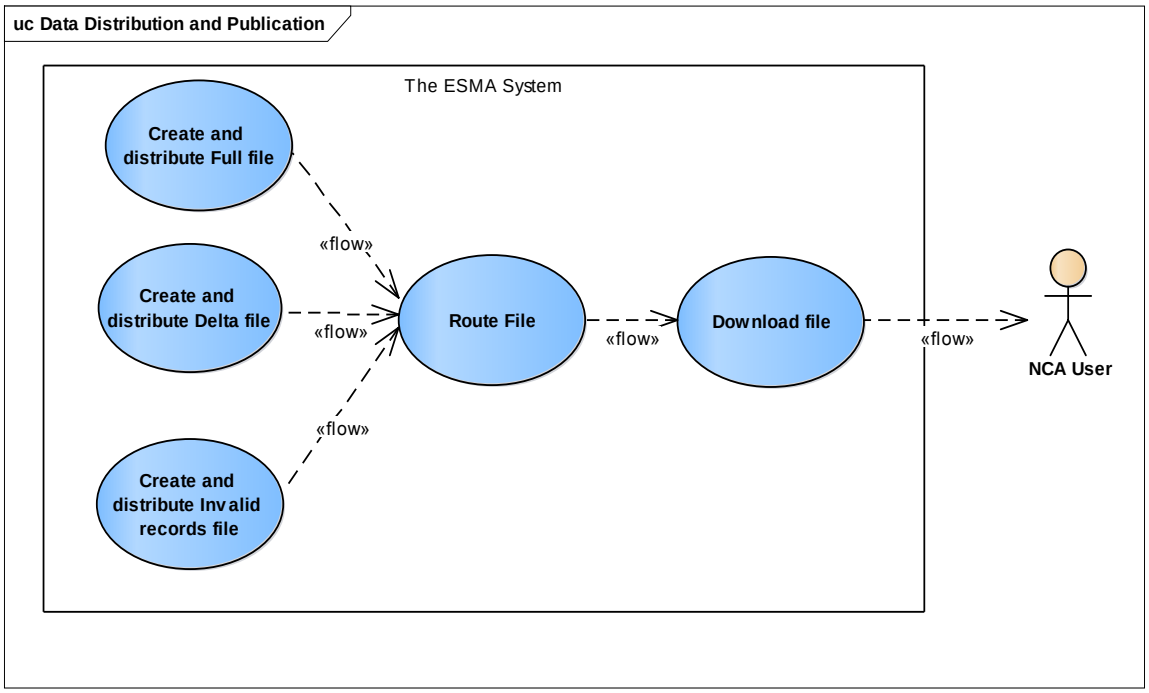


FIGURE 9 - INSTRUMENTS REFERENCE DATA DISTRIBUTION USE CASE DIAGRAM

3.6.2 Create and distribute Full File

Goal	**The goal of this use case is to generate the Full File for the NCAs and distribute the NCA full file to the NCAs**
Actors	The ESMA System – provides data via the HUBEX NCA system – accesses the HUBEX to retrieve data
Preconditions	The consistent reference data table is up to date.
Trigger	As soon as the update of the consistent reference data table is successfully completed.
Postcondition	The full file is available in the Public folder dedicated to the ESMA System in HUBEX System. The full file for the public is generated and is ready to be published.
Normal Flow	1. The ESMA System extracts from the "*Consistent Reference Data Table*" records the records which satisfy all of the following conditions: (Full file should contain all active records)

	• ValidFromDate is not NULL.; • ValidTodate is NULL; • Termination date is NULL, or Termination date is greater than or equal to T-1 • Consistent Status<>CANC 2. Extracted records are used to generate the NCA full file based on the Derived Message Identifier schemas referenced in Table 11 - Instrument reference data message table associated to Business Application Header (BAH), BAH and business message encapsulation and Instrument Reference Data Report Message components. For each record, the file contains: • ISIN • MIC • Other RTS23 fields • Upcoming RCA • ValidFromDate • Consistent flag • RCA record MIC • Latest ESMA reception Date Time 3. The name of the NCA Full file follows the convention as per section Annex 2: File naming conventions. The name of the Public file is: FULINS_<Next publication date>_<NumberoftheSplitfile>of<MaxNumberofSplitfiles>.zip. 4. The ESMA System uploads the NCA full file to the “Public folder” dedicated to the ESMA System in HUBEX System.
Frequency	Daily (including ESMA non-working days)
Business Rules	The file must be made available on the HUB for NCAs by 8am on each day Given the expected high volume of data, the file may be split in several files. The threshold shall be configurable in the system. Fields using DATE_TIME_FORMAT should be expressed in UTC in the following format YYYY-MM-DDThh:mm:ss.dddddddZ (fields 9,10,11,12)
Assumptions	HUBEX Public folder dedicated to the FIRDS ESMA System is configured with access restricted to NCAs

3.6.3 Create and distribute Cancellations Full File

Goal	**The goal of this use case is to generate the Cancellations Full File for the NCAs and distribute the NCA Cancellations full file to the NCAs**
Actors	The ESMA System – provides data via the HUBEX NCA system – accesses the HUBEX to retrieve data
Preconditions	The consistent reference data table is up to date.
Trigger	As soon as the update of the consistent reference data table is successfully completed.
Postcondition	The full file is available in the Public folder dedicated to the ESMA System in HUBEX System. The full file for the public is generated and is ready to be published.
Normal Flow	1. The ESMA System extracts from the "*Consistent Reference Data Table*" records the records which satisfy the following conditions: (Cancellations Full file should contain all cancelled records) • Consistent_Status is CANC • Latest Received Flag is TRUE 2. Extracted records are used to generate the NCA full file based on the Derived Message Identifier schemas referenced in Table 11 - Instrument reference data message table associated to Business Application Header (BAH), BAH and business message encapsulation and Instrument Reference Data Report Message components. For each record, the file contains: • ISIN • MIC 3. The name of the NCA Cancellations Full file follows the convention as per section Annex 2: File naming conventions. The name of the Public file is: FULCAN_<Next publication date>_<NumberoftheSplitfile>of<MaxNumberofSplitfiles>.zip. 4. The ESMA System uploads the NCA full file to the "Public folder" dedicated to the ESMA System in HUBEX System.
Frequency	Daily (including ESMA non-working days)
Business Rules	The file must be made available on the HUB for NCAs by 8am on each day Given the expected high volume of data, the file may be split in several files. The threshold shall be configurable in the system.

	Fields using DATE_TIME_FORMAT should be expressed in UTC in the following format YYYY-MM-DDThh:mm:ss.ddddddZ (fields 9,10,11,12)
Assumptions	HUBEX Public folder dedicated to the FIRDS ESMA System is configured with access restricted to NCAs

3.6.4 Create and distribute Delta File

Goal	**The goal of this use case is to generate the Delta File for the NCAs and distribute the NCA Delta file to the NCAs.**
Actors	The ESMA System – provides data via the HUBEX NCA system – accesses the HUBEX to retrieve data
Preconditions	Reference data records has been committed to the data base
Trigger	The generation of Full files has been successfully completed.
Postcondition	The delta records file is in the public HUBEX for further uploading by NCA and is ready to be published.
Normal Flow	NB: T is the day of the next publication date, PvsT is the last day of success publication 1. The ESMA System extracts from the Consistent Reference Data Table the records which: • ValidFromDate is between [PvsT +1 and T], • ValidToDate is NULL and • latest received flag=1 (captures new records, cancelled records and records already existing in the previous full file but modified), OR • Termination date is not NULL and Termination date is between [PvsT -1 and T-2] and • Status is “Terminated” (captures normally terminated instrument records) 2. Extracted records are used to generate NCA delta file based on the Derived Message Identifier schemas referenced in Table 11 - Instrument reference data message table associated to Business Application Header (BAH), BAH and business message encapsulation and Delta file message components. Two different types of records contained in each delta file.

	The first type, for “New”, “Modified”, “Terminated” records, contains the following fields, in the respective below Xpaths : Document/FinInstrmRptgRefDataDltaRpt/FinInstrm/NewRcrd Document/FinInstrmRptgRefDataDltaRpt/FinInstrm/ModfdRcrd Document/FinInstrmRptgRefDataDltaRpt/FinInstrm/TermntdRcrd Contents of this first record type are the same as auth.036.001.02_ESMAUG_DLTINS_1.1.0.xsd and added as-is in the updated auth.036.001.03_ESMAUG_DLTINS_1.2.0.xsd • ISIN • MIC • Other RTS23 fields • ValidFromDate • ValidToDate (if not NULL) • NeverPublished flag (if TRUE) • Upcoming RCA • RCA record MIC The second type, for Cancelled records contains the following fields, in the below XPath : Document/FinInstrmRptgRefDataDltaRpt/FinInstrm/CancRcrd Contents of the second record type, for Cancellations, are new as per the updated auth.036.001.03_ESMAUG_DLTINS_1.2.0.xsd • ISIN • MIC 3. The name of the NCA File follows the convention as per Annex 2: File naming conventions. The name of the Public file is: DLTINS_<Next publication date>_<NumberoftheSplitfile>of<MaxNumberofSplitfiles>.zip. 4. The ESMA System uploads the NCA delta file to the Public folder dedicated to the ESMA System in HUBEX System.
Frequency	Daily (including ESMA non-working days)
Business Rules	The file must be made available on the HUB for NCAs by 8am on each day Given the expected high volume of data, the file may be split in several files. The threshold shall be configurable in the system. It might unlikely happen that the Delta file is empty. In that case a delta file is generated in any case but without FinInstrm block. Fields using DATE_TIME_FORMAT should be expressed in UTC in the following format YYYY-MM-DDThh:mm:ss.dddddddZ (fields 9,10,11,12)
Assumptions	N/A

3.6.5 Create and distribute invalid records File

Goal	**The goal of this use case is to generate the new invalid records files for NCA and to distribute the file to NCA.**
Actors	The ESMA System – provides data via the HUBEX NCA system – accesses the HUBEX to retrieve data
Preconditions	Reference data records has been committed to the data base
Trigger	The generation of aggregated delta files has been successfully completed.
Postcondition	The invalid records file is in the Public folder dedicated to the ESMA System in HUBEX System and is ready to be published.
Normal Flow	NB T is for Next Publication date 1. The ESMA System extracts from the consistent reference data table the records which: • ICN_EXPORT_INVALID_FLAG IS NULL • ValidToDate is between [PvsT -1 and T] and (captures out-of-date versions of records that have been modified) OR • ICN_EXPORT_INVALID_FLAG is NULL • ValidFromDate is T • ValidToDate is Null • Status is Terminated (captures modified terminated instruments and terminated instruments reported late) OR • ICN_EXPORT_INVALID_FLAG is NULL • Termination Date is not NULL and Termination date is between the [PvsT -1 and T-2] • Status is Terminated (captures normally terminated instruments) OR • ICN_EXPORT_INVALID_FLAG = ‘0’ (captures records included in the latest open invalid file)

	2. Extracted records are used to generate the NCA Invalid records file based on the Derived Message Identifier schemas referenced in Table 11 - Instrument reference data message table associated to Business Application Header (BAH), BAH and business message encapsulation and Invalid records file Message components. For each record, the file contains: • ISIN • MIC • Other RTS23 fields • Upcoming RCA • RCA record MIC flag • Latest ESMA reception date time • ValidFromDate • ValidToDate. (if not NULL) • NeverPublished flag (if TRUE) 3. The name of the NCA File follows the convention as per Annex 2: File naming conventions. The name of the Public file is: FIRDS_INVINS_PUBLIC_<Key1>-<Key2>_<YY>.zip 4. The ESMA System uploads the NCA delta file to the Public folder dedicated to the ESMA System in HUBEX System.
Frequency	Daily (including ESMA non-working days)
Business Rules	The file must be made available on the HUB for NCAs by 8am on each day Given the expected high volume of data, the file may be split in several files. The threshold shall be configurable in the system. Fields using DATE_TIME_FORMAT should be expressed in UTC in the following format YYYY-MM-DDThh:mm:ss.dddddddZ (fields 9,10,11,12)
Assumptions	That file contains records that are not part of the full file anymore. This includes instruments that are not valid anymore, as well as out-of-date versions of records that have been modified over time.

3.7 Instruments Reference Data Publication

3.7.1 Overview

The publication interface is accessible through ESMA website and composed of:

1. a U2A search interface (“Instrument search” use case) with a list of predefined filters; and
2. a U2A/A2A interface for aggregated files downloads (“ISIN List Generation and Download” use case).

The export functionality will be accessible only through 2).

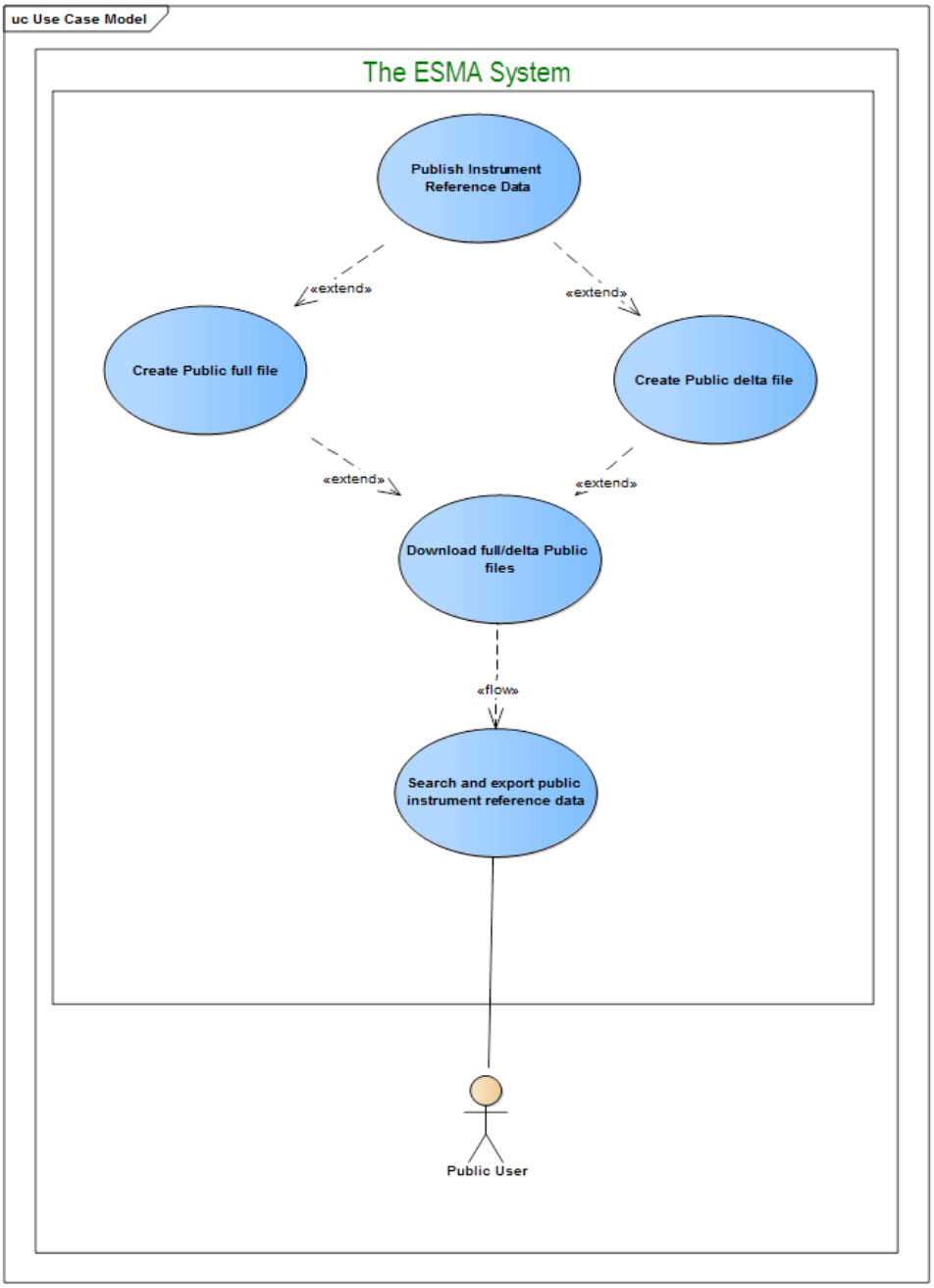


FIGURE 10 - INSTRUMENTS REFERENCE DATA PUBLICATION USE CASE DIAGRAM

3.7.2 Create Public full file

Goal	**The goal of this use case is to generate a set of Full Files for the public.**
Actors	The ESMA System – Generates full public file
Preconditions	The consistent reference data table is UpToDate.
Trigger	As soon as the update of the consistent reference data table is successfully completed.
Postcondition	The set of public full files are generated and are ready to be published.
Normal Flow	NB: T is the day of the next publication date, PvsT is the last day of success publication 1. The ESMA System extracts from the "Consistent Reference Data Table" records the records which satisfy all of the following conditions: • ValidFromDate is not NULL • ValidTodate is NULL; • Termination date is NULL, or Termination date is greater than or equal to T-1 • Consistent Status<>CANC The ESMA System groups the extracted records as per the first-letter of the CFI code. • For each group, extracted records are used to generate the public full file based on the Derived Message Identifier schemas referenced in Table 11 - Instrument reference data message table associated to Business Application Header (BAH), BAH and business message encapsulation and Instrument Reference Data Report Message components. For each record, the file contains: • ISIN • MIC • Other RTS23 fields • Upcoming RCA • RCA record MIC • ValidFromDate • For each group, each file is compressed, and the archive file name is: FULINS_<First letter of CFI code>_<T>_<NumberoftheSplitfile>of<MaxNumberofSplitfiles>.zip.
Frequency	Weekly when T is a Saturday (including ESMA non-working days)
Business Rules	The file must be made available to the public by 9am every Saturday.

	Given the expected high volume of data, the file may be split in several files. The threshold shall be configurable in the system. Fields using DATE_TIME_FORMAT should be expressed in UTC in the following format YYYY-MM-DDThh:mm:ss.ddddddZ (fields 9,10,11,12)
Assumptions	

3.7.3 Create Public Cancellations full file

Goal	**The goal of this use case is to generate a set of Cancellations Full Files for the public.**
Actors	The ESMA System – Generates full public file
Preconditions	The consistent reference data table is UpToDate.
Trigger	As soon as the update of the consistent reference data table is successfully completed.
Postcondition	The set of public full files are generated and are ready to be published.
Normal Flow	NB: T is the day of the next publication date, PvsT is the last day of success publication 1. The ESMA System extracts from the "Consistent Reference Data Table" records the records which satisfy the following conditions: • Consistent_Status is CANC • Latest Received Flag is TRUE 2. Extracted records are used to generate the public Cancellations full file based on the Derived Message Identifier schemas referenced in Table 11 - Instrument reference data message table associated to Business Application Header (BAH), BAH and business message encapsulation and Instrument Reference Data Report Message components. For each record, the file contains: • ISIN • MIC
Frequency	Weekly when T is a Saturday (including ESMA non-working days)
Business Rules	The file must be made available to the public by 9am every Saturday. Given the expected high volume of data, the file may be split in several files. The threshold shall be configurable in the system. Fields using DATE_TIME_FORMAT should be expressed in UTC in the following format YYYY-MM-DDThh:mm:ss.ddddddZ (fields 9,10,11,12)
Assumptions	

3.7.4 Create Public delta file

Goal	**The goal of this use case is to generate a set of Delta Files for the public.**
Actors	The ESMA System – generates Delta public file
Preconditions	The consistent reference data table is UpToDate.
Trigger	As soon as the update of the consistent reference data table is successfully completed.
Postcondition	The set of delta files is generated and are ready to be published.
Normal Flow	NB: T is the day of the next publication date, PvsT is the last day of success publication 1. The ESMA System extracts from the Consistent Reference Data Table the records which: • ValidFromDate is between [PvsT +1 and T], • ValidToDate is NULL and • latest received flag=1 (captures new records, cancelled records and records already existing in the previous full file but modified), OR • Termination Date is not NULL and Termination date is between [PvsT -1 and T-2] and • Status is “Terminated” (captures normally terminated instrument records) 2. The extracted records are used to generate the public delta file based on the Derived Message Identifier schemas referenced in Table 10 - Instrument reference data message table associated to Business Application Header (BAH), BAH and business message encapsulation and Delta file Message components. Two different types of records contained in each public delta file. The first type, for “New”, “Modified”, “Terminated” records, contains the following fields, in the respective below Xpaths : Document/FinInstrmRptgRefDataDltaRpt/FinInstrm/NewRcrd Document/FinInstrmRptgRefDataDltaRpt/FinInstrm/ModfdRcrd Document/FinInstrmRptgRefDataDltaRpt/FinInstrm/TermntdRcrd Contents of this first record type are the same as auth.036.001.02_ESMAUG_DLTINS_1.1.0.xsd and added as-is in the updated auth.036.001.03_ESMAUG_DLTINS_1.2.0.xsd • ISIN

	• MIC • Other RTS23 fields • ValidFromDate • ValidToDate (if not NULL) • NeverPublished flag (if TRUE) • Upcoming RCA • RCA record MIC The second type, for Cancelled records contains the following fields, in the below XPath : Document/FinInstrmRptgRefDataDltaRpt/FinInstrm/CancRcrd Contents of the second record type, for Cancellations, are new as per the updated auth.036.001.03_ESMAUG_DLTINS_1.2.0.xsd • ISIN • MIC 3. Each file is compressed, and the archive file name is: DLTINS_<T>_<NumberoftheSplitfile>of<MaxNumberofSplitfiles>.zip. 4. Once all files have been successfully generated, made available on the Content Delivery Network for download, and link added to the ESMA webpage which lists the files published, the ESMA System sets PvsT to T.
Frequency	Daily (including ESMA non-working days)
Business Rules	The file must be made available to the public by 9am every day. Given the expected high volume of data, the file may be split in several files. The threshold shall be configurable in the system. It might unlikely happen that the Delta file is empty. In that a delta file is generated in any case but without Refdata block. Fields using DATE_TIME_FORMAT should be expressed in UTC in the following format YYYY-MM-DDThh:mm:ss.dddddddZ (fields 9,10,11,12)
Assumptions	N/A

3.7.5 Publish instrument reference data

Goal	**The goal of this use case is to make available to the public user the new daily release of the public version of the Full/Delta files and update accordingly the search interface of the ESMA public web interface.**
Actors	The ESMA System – update download interface The ESMA System – update Search interface

Preconditions	Full file/ delta file expected for that day T have been generated and are available for NCAs to download in HUBEX.
Trigger	Full/delta files expected for that day T have been generated and are available for NCAs to download in HUBEX. List of indices file for the day have been generated and available for download in HUBEX for NCAs.
Postcondition	The publication table has been updated and the new release of the Full/Delta file is available to the public on the ESMA public web interface
Normal Flow	NB: T is the day of the Next publication date 1. The ESMA System makes available the public version of the full/delta file previously generated for publication day T on the *"file download interface*" of the ESMA public web interface. 2. For non-cancelled instrument records (with Consistent Status other than "CANC"), the ESMA System updates the Publication table according to the content of the Consistent reference date table with the following fields: • ISIN • MIC • Other RTS23 fields • ValidFromDate • ValidToDate • Upcoming RCA • RCA_MIC • Consistent Status 3. Otherwise, for cancelled records (with Consistent Status as "CANC"), the ESMA System updates the Publication table according to the content of the Consistent reference date table with the following fields: • ISIN • MIC • ValidFromDate • ValidToDate • Consistent Status
Frequency	Daily
Business Rules	Publication is to happen at 9am on each day (but not before full and delta files are available for download for NCAs through the HUBEX).
Assumptions	

3.7.6 Search and export public instruments reference data

The public user shall be able to filter in the search interface by selecting one by one or a combination of the following attributes (the user must be able to reset the filter criteria):

Field	Default Value	Input Type	Validation	Publication table Related field
Instrument identifier	Blank	Text (* for wildcard)	Must be valid ISIN identifier	RTS23 Field number 1
Identifier of the underlying of the instrument	Blank	Text (* for wildcard)	Must be valid ISIN identifier	RTS23 Field number 26a/b
LEI of the issuer	Blank	Text (* for wildcard)	Must be valid LEI	RTS23 Field number 5
Instrument MIC Code	Blank	Text (* for wildcard)	Must be valid MIC code	RTS23 Field number 6
Instrument CFI code	Blank	Text (* for wildcard)	Must be valid CFI code	RTS23 Field number 3
Publication date	Blank	Calendar	Must be the current date or in the past.	When this date is left empty in the interface (by default), the system queries all records with Latest Flag = TRUE. When this date is specified by the user, the system should query all records such that • ValidFromDate <= Publication date and • ValidToDate is null or ValidToDate >= Publication date In order to cope with high volume of historical data, the system only keeps in SOLR the records which ValidToDate is not older than x days (x should be configurable in the system, by default 180 days)

TABLE 9 - FILTER FIELDS FOR PUBLIC SEARCH INTERFACE

The public user shall be able to access all public attributes of a record in a user-friendly manner.
The public user shall be able to adjust the number of records displayed at a time on the web page.
The public user shall be able to export list of records resulting of the Search including in a machine-readable format.

Goal	**The goal of this use case is for a Public user to access new and historical data currently/previously published in the full/delta/invalid records files**
Actors	Public User – configures the scope of data they need to review and sees the result The ESMA System – provides data to public users
Preconditions	The user accesses the "*Financial Instruments Reference Data*" section of the ESMA portal.
Trigger	Ad-Hoc
Postcondition	The user has performed a query and seen the results.
Normal Flow	1. The public user populates filters describing the scope of data he/she wishes to see. 2. The ESMA System queries the "Publication table" according to filters and extracts the records resulting of that query (please refer to Publication table fields in table above. 3. The system displays the records, and which are presented in table format on the ESMA website. The system shall limit the number of displayed records up to a number configurable by the ESMA IT Administrator. For each record, all the attributes in the Publication table as per step 3 of section 3.7.2 shall be accessible. 4. Public user reviews data and can either make a new query exit away from the page. 5. Public user can make an export of the resulting list and all related attributes in CSV format. The maximum number of records will be limited to a value which shall be configurable by the ESMA IT Administrator.
Frequency	On an ongoing basis
Business Rules	Data displayed is always the data from the last full file available for download to NCAs. The following fields shall not be accessible to the public: • The ESMA reception date time; and • The consistency flag.
Assumptions	Search interface connects directly to the ESMA System publication database.

3.7.7 Download Full/delta public files

The public user shall be able to download in a U2A/2A manner the Full/delta public files published in the "file Download Interface" of the ESMA public web interface.

Goal	**The goal of this use case is to enable a public user to download the latest release in the ESMA public web interface the Full (the one of the public only)/Delta file and previous releases too.**
Actors	The ESMA System – publishes data
Preconditions	Full file/delta file expected for that day T have been generated and published in the "*File download*" page in the ESMA public web interface.
Trigger	Ad-Hoc
Postcondition	The file for which the Download request has been initiated by the Public user is available in the client System of the Public User.
Normal Flow	1. The public user accesses anonymously the "File download page" in the ESMA public web interface though a dedicated URL. 2. Manually, the public user can search for a file by Publication date and by File type (Full, Delta), select the file and save it onto its client System. 3. Automatically, sends to the "File download page" a request, in a predefined format, with Publication date and File type (Full, Delta) as arguments. The ESMA public web interface processes the requests. In case a single file matches the criteria, the request is accepted, and that file is downloaded onto the client System. An error message is sent back to the client system otherwise. In case more than one file match the criteria, a list of URLs pointing to each of the instances is sent back to the client system.
Frequency	On an ongoing basis
Business Rules	Full files should be retained accessible for 1 month and delta files retained when relevant to an accessible full file.
Assumptions	

3.8 Additional Reference Data Management

3.8.1 LEI and ISO Reference data Management

3.8.1.1 Use cases overview

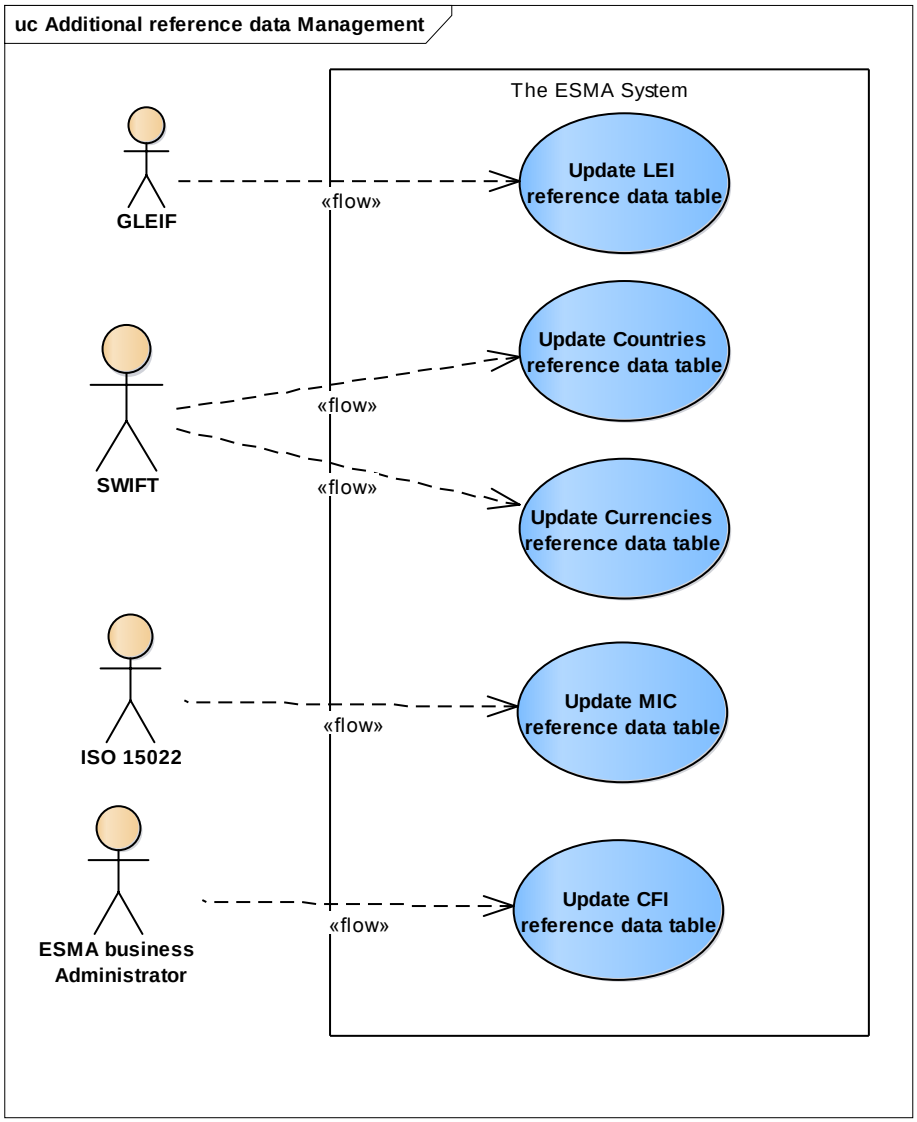


FIGURE 11 - ADDITIONAL REFERENCE DATA MANAGEMENT

3.8.1.2 Update LEI reference data table

Goal	**Update LEI reference data table 13.5 with latest valid LEI codes and country of registered office, according to GLEIF.**
Actors	The ESMA System GLEIF publication service (data provider)
Preconditions	N/A
Trigger	Triggered at mid-day 12:15pm on a daily basis
Postconditions	LEI reference data table 15.5 in the central database is updated.
Normal Flow	1. The ESMA System downloads from the data provider publication service the GLEIF concatenated file of the current day (of file content COU_FULL_PUBLISHED). 2. The ESMA system updates the LEI reference data table 13.5 as follows: 2.1 The ESMA System extracts all the LEI data records from the file. The ESMA System extracts from the LEI file header the date of the ContentDate (*GLEIF definition[14]: the date and time at which the data contained in the file is valid. Often, this is the date and time when the data was extracted from the database*). 2.2 In case more than one record exist for a given LEI, the ESMA System retains the LEI record determined as follows: 2.2.1 Checks whether it exists a single record having Registration Status “ISSUED”. 2.2.2 If yes, retains the record. 2.2.3 Otherwise, retains the record with latest NextRenewalDate. 2.3 The ESMA System checks whether it exists a record with the same LEI. 2.4 If false, The ESMA System inserts the record in the LEI reference data table with ValidityStartDate is the date of the SourcePublicationDate and with ValidityEndDate is NULL. 2.5 If true, The ESMA System compares all the fields of the records in step 2.1 and the one found in step 2.2 (Previous record). 2.5.1 In case a modification is detected, the ESMA System inserts the record in the LEI reference data table with ValidityStartDate is the SourcePublicationDate and with ValidityEndDate is NULL. In addition, the ESMA System sets the ValidityEndDate of the previous record with the calendar date before the SourcePublicationDate. 2.5.2 In case no modification is detected, the ESMA System ignores the record.

[14] http://www.leiroc.org/publications/gls/lou_20140620.pdf

Alternate Flow	1a. The ESMA System discovers that a new Global LEI register file is not available for the day, cannot be uncompressed, validated or for any reason the system cannot extract the records. 2a. The system continues operating with the last file successfully processed. 3a. The system notifies the ESMA IT administrator and makes attempts to download the full file at 13:00, 14:00, 15:00 and 16:00. After that the system does not make further attempts for the day.
Frequency	Daily
Business rules	From March 2022, the system should download the LEI consolidated file using LEI-CDF format version 3.1 (https://www.gleif.org/en/about-lei/common-data-file-format/lei-cdf-format/lei-cdf-format-version-3-1#) and store its full content. Until then, the system should continue download and store the content of the LEI consolidated file which uses the LEI-CDF format version 2.1 (https://www.gleif.org/en/about-lei/common-data-file-format/lei-cdf-format/lei-cdf-format-version-2-1#)
Assumptions	The record fields stored in the database and those distributed to NCAs, are the same as those provided by the data provider. The distribution format will be XML.

3.8.1.3 Update Countries reference data table

Goal	**Update Country reference data table with latest country full file published by the data provider.**
Actors	The ESMA System SWIFTRef website (data provider) / BIC Directory service
Preconditions	The country full file is published by the data provider.
Trigger	Every last Friday of each month.
Postconditions	Country reference data table as per section 15.1 is updated.
Normal Flow	1. The ESMA System downloads a Full monthly Bic directory ZIP file from the data provider publication service using the dedicated URL (restricted access requiring credential user and password). 2. SWIFT's Monthly's file name is , BICDIR2018_YYYYMMDD_XML.zip, where YYYY is the current year MM is the current month DD is the day of the publication of the file 3. The ESMA System checks whether that file has been already processed. **If false:**

4. The ESMA System extracts the country file which name is COUNTRY_CODE_<SourcePublicationDate>.xml. SourcePublicationDate is extracted from the name and retained.

3. The ESMA System extracts all the data records which Modification Status is not 'D'. [*Extracts from the file only the records which are countries record and which are valid according to the data provider*]

4. For each extracted record in the step 4, the ESMA System updates the Country reference data table as per section 15.1 (including ValidityStartDate and ValidityEndDate technical attributes) as follows:

   4.1 The ESMA System checks whether it already exists in the table a record (also previous record) with the same **COUNTRYCODE and ValidityEndDate is NULL.**

   4.2 If false (**case of addition**), the ESMA System inserts a new record with:

   - COUNTRYCODE
   - COUNTRYNAME
   - ValidityStartDate is set to the "SourcePublicationDate" specified in the filename.
   - ValidityEndDate is set to NULL
   - LastUpdatedDate is set to the current Date Time
   - EEA Flag is set to FALSE.
   - Official_ISO is set to TRUE

   4.3 If true, the ESMA System checks whether it exists a record with the same COUNTRYCODE and COUNTRYNAME and with ValidityEndDate is NULL.

   In case no record exists (case of modification):

   4.3.1 The ESMA System inserts the extracted record with the following attributes:

   - COUNTRYCODE
   - COUNTRYNAME
   - ValidityStartDate is set to the "SourcePublicationDate" in the filename.
   - ValidityEndDate is set to NULL
   - LastUpdatedDate is set to the current Date Time
   - EEA flag is set to the EEA flag of the previous record.
   - Official_ISO is set to the Official_ISO value of the previous record.

   4.3.2 The ESMA System updates the previous record with the following attributes:

   - ValidityEndDate is set to the previous calendar day before the "SourcePublicationDate".

5. System extracts all the data records which Modification Status is 'D' [Extracts from the file only the records which are countries record and which are not valid anymore] (case of deletion)

	5.1 The ESMA System selects all COUNTRY CODE records which ValidityEndDate is NULL and which MODIFICATION FLAG is 'D' in the uploaded file. 5.2 For each COUNTRY CODE record, The ESMA System sets the ValidityEndDate to the previous calendar day before the "SourcePublicationDate".
Alternate flow	In case of any issue, the system notifies the ESMA IT administrator.
Frequency	Monthly
Business rules	N/A
Assumptions	The • EEACountryFlag of each country code is maintained manually in ESMA by the ESMA Business Administrator as per use case " Update ESMA attributes in ISO reference data table" 0. The ESMA Business Administrator can update between two monthly publications that table as per use case " Update ESMA attributes in ISO reference data table" 0. **Provider technical specifications (XSD's for country and Currencies):** https://www2.swift.com/knowledgecentre/publications/bic_dir_2018_sch/2.0

3.8.1.4 Update Currencies reference data table

Goal	**Update Currency reference data table with latest currency full file published by the data provider.**
Actors	The ESMA System SWIFTRef website (data provider) / BIC Directory service
Preconditions	The currency full file is published by the data provider.
Trigger	Every last Friday of each month.
Postconditions	Currency reference data table as described in section 15.2 is updated.
Normal Flow	1. The ESMA System downloads a Full monthly Bic directory ZIP file from the data provider publication service using the dedicated URL (restricted access requiring credential user and password). 2. The ESMA System checks whether that file has been already processed. **If false:** 3. The ESMA System extracts the currency file which name is CURRENCY_CODE_<SourcePublicationDate>.xml. SourcePublicationDate is extracted from the name and retained. 4. The ESMA System extracts all the data records which Modification Status is not 'D'.

5. For each extracted record in the step 4, the ESMA System updates the Country reference data table as described in section 15.2 (including ValidityStartDate and ValidityEndDate technical attributes) as follows:

   5.1 The ESMA System checks whether it already exists in the table a record (previous record) with the same (**CURRENCYCODE, COUNTRYCODE if not NULL) and ValidityEndDate is NULL.**

   5.2 If false (**case of addition**), the ESMA System inserts a new record with:

   - CURRENCYCODE
   - CURRENCYNAME
   - FRACTIONALDIGIT
   - COUNTRYCODE (if NULL, set to 'XX')
   - COUNTRYNAME (if NULL, set to 'XX')
   - ValidityStartDate is set to the "SourcePublicationDate" in the filename
   - ValidityEndDate is set to NULL
   - LastUpdatedDate is set to the current Date Time
   - Pre-Euro Flag is set to FALSE

   5.3 If true, the ESMA System checks whether it exists a record with the same

   CURRENCYCODE, CURRENCYNAME, FRACTIONALDIGIT, COUNTRYCODE if not NULL, COUNTRYNAME if not NULL and with ValidityEndDate is NULL.

   In case no record exists (**case of modification**):

   5.3.1 The ESMA System inserts the extracted record with the following attributes:

   - CURRENCYCODE
   - CURRENCYNAME
   - FRACTIONALDIGIT
   - COUNTRYCODE (set to 'XX' if NULL)
   - COUNTRYNAME (set to 'XX' if NULL)
   - ValidityStartDate is set to the "SourcePublicationDate"
   - ValidityEndDate is set to NULL
   - LastUpdatedDate is set to the current Date Time
   - Pre-Euro flag is set to the Pre-Euro flag of the previous record.

   5.3.2 The ESMA System updates the previous record with the following attributes:

   - ValidityEndDate is set to the previous calendar day before the "SourcePublicationDate".

6. System extracts all the data records which Modification Status is 'D' [Extracts from the file only the records which are currencies record, and which are not valid anymore] (case of deletion)

	6.1 The ESMA System selects all (CURRENCYCODE, COUNTRYCODE if not NULL) records which ValidityEndDate is NULL and which MODIFICATION FLAG is 'D' in the uploaded file. 6.2 For each (CURRENCYCODE, COUNTRYCODE if not NULL) record, the ESMA System sets the ValidityEndDate to the previous calendar day before the "SourcePublicationDate".
Alternate flow	In case of any issue, the system notifies the ESMA IT administrator.
Frequency	Monthly
Business rules	N/A
Assumptions	The Pre-euro flag of each currency code is maintained manually in ESMA by the ESMA Business Administrator as per use case " Update ESMA attributes in ISO reference data table" 0. The ESMA Business Administrator can update that table between two monthly publications of the data provider as per use case " Update ESMA attributes in ISO reference data table" 0. **Provider technical specifications:** https://www2.swift.com/knowledgecentre/publications/bic_dir_2018_sch/2.0

3.8.1.5 Update MIC reference data table

Goal	**Update MIC reference data table with latest MIC record published by the data provider.**
Actors	The ESMA System ISO 15022 publication service
Preconditions	The MIC full file is published by the data provider.
Trigger	Every Friday[15]
Postconditions	MIC reference data table Table 44 as per section 15.3 is updated.
Normal Flow	1. The ESMA System downloads a Full monthly MIC file from the data provider publication service https://www.iso20022.org/sites/default/files/ISO10383_MIC/ISO10383_MIC_NewFormat.xml . 2. The ESMA System sets the "Modification implementation date" as the date of the fourth Monday of the current month. 3. If the "Modification implementation date" is more than 4 calendar days away from the date when the use case was triggered, the processing

[15] Please note that step 3 controls that the system only updates the MIC reference data table on the Friday preceding the Monday when the changes become effective

stops. {*The system only updates the MIC reference data table on the Friday preceding the Monday when the changes become effective*}

Otherwise:

4. The ESMA System extracts all the data records which Status is 'Active' or 'Modified'.
5. For each "extracted record" in the step 2, the ESMA System updates the MIC reference data table as described in section 15.3 Table 44 (including ValidityStartDate and ValidityEndDate technical attributes) as follows:

   5.1 The ESMA System checks whether it already exists in the table a record ("pre-existing record") with the same MICCODE and ValidityEndDate is NULL.

   5.2 If false (there is no existing valid record with same MIC, it is an addition), the ESMA System inserts the "extracted record" with the following attributes:

   - MIC
   - ISO COUNTRY CODE
   - OPERATING MIC
   - MIC TYPE
   - NAME-INSTITUTION DESCRIPTION
   - LEGAL NAME
   - LEI
   - ACRONYM
   - CITY
   - WEBSITE
   - MODIF-ISO DATE
   - CREATION-ISO DATE
   - LAST VALIDATION MONTH
   - EXPIRY DATE
   - STATUS
   - COMMENT
   - COUNTRY, as retrieved from "Countries data table", based on the ISO COUNTRY CODE
   - MARKET TYPE as NULL (this field will be updated according to UC4.5 "Interface with ESMA Registers")
   - ValidityStartDate is set to the "Modification implementation date"
   - ValidityEndDate is set to NULL
   - LastUpdatedDate is set to the current Date Time

   5.3 If true (there is an existing valid record with same MIC)

   5.3.1 The ESMA System checks whether the "pre-existing record" is identical to the "extracted record" on the following fields: MIC, ISO COUNTRY CODE, OPERATING MIC, MIC TYPE, NAME-

INSTITUTION DESCRIPTION, LEGAL NAME, LEI, ACRONYM, CITY, WEBSITE, MODIF-ISO DATE, CREATION-ISO DATE, LAST-VALIDATION MONTH, EXPIRY DATE, COMMENT.

5.3.2 IF NOT

5.3.2.1 The ESMA System inserts the ”extracted record” with the following attributes:

- MIC
- ISO COUNTRY CODE
- OPERATING MIC
- MIC TYPE
- NAME-INSTITUTION DESCRIPTION
- LEGAL NAME
- LEI
- ACRONYM
- CITY
- WEBSITE
- MODIF-ISO DATE
- CREATION-ISO DATE
- LAST VALIDATION MONTH
- EXPIRY DATE
- STATUS
- COMMENT
- COUNTRY, as retrieved from “Countries data table”, based on the ISO COUNTRY CODE
- MARKET TYPE as retrieved from the “pre-existing record” *(covers the case that the Market Type has been updated via Authorised Entities interface)*
- AUTHORITY NAME as retrieved from the “pre-existing record” *(covers the case that the Authority Name has been updated via Authorised Entities interface)*
- ValidityStartDate is set to the “Modification implementation date”
- ValidityEndDate is set to NULL
- LastUpdatedDate is set to the current Date Time

5.3.2.2 The ESMA System updates the “pre-existing” record with the following attributes:

- ValidityEndDate is set to the previous calendar day before the “Modification implementation date”.

6. The ESMA System processes the ‘Deleted’ MIC according to the data provider:

	6.1 The ESMA System selects all MIC CODE records which ValidityEndDate is NULL and which status is {deleted} in the uploaded file. 6.2 For each MIC CODE record, The ESMA System sets the ValidityEndDate to the previous day before the "Modification implementation date" and the LatestStatus to "Deleted".
Alternate flow	In case of any issue, the system notifies the ESMA IT administrator.
Frequency	Monthly
Business rules	N/A
Assumptions	The ESMA Business Administrator can update that table between two monthly publications of the data provider. **Provider technical specifications:** http://www.iso15022.org/MIC/homepageMIC.htm

3.8.1.6 Update "List of valid CFI codes table"

This is covered by use case 3.12.4.3 Update internal tables related to CFI codes

3.8.2 Non-working day data Management

3.8.2.1 Use cases overview

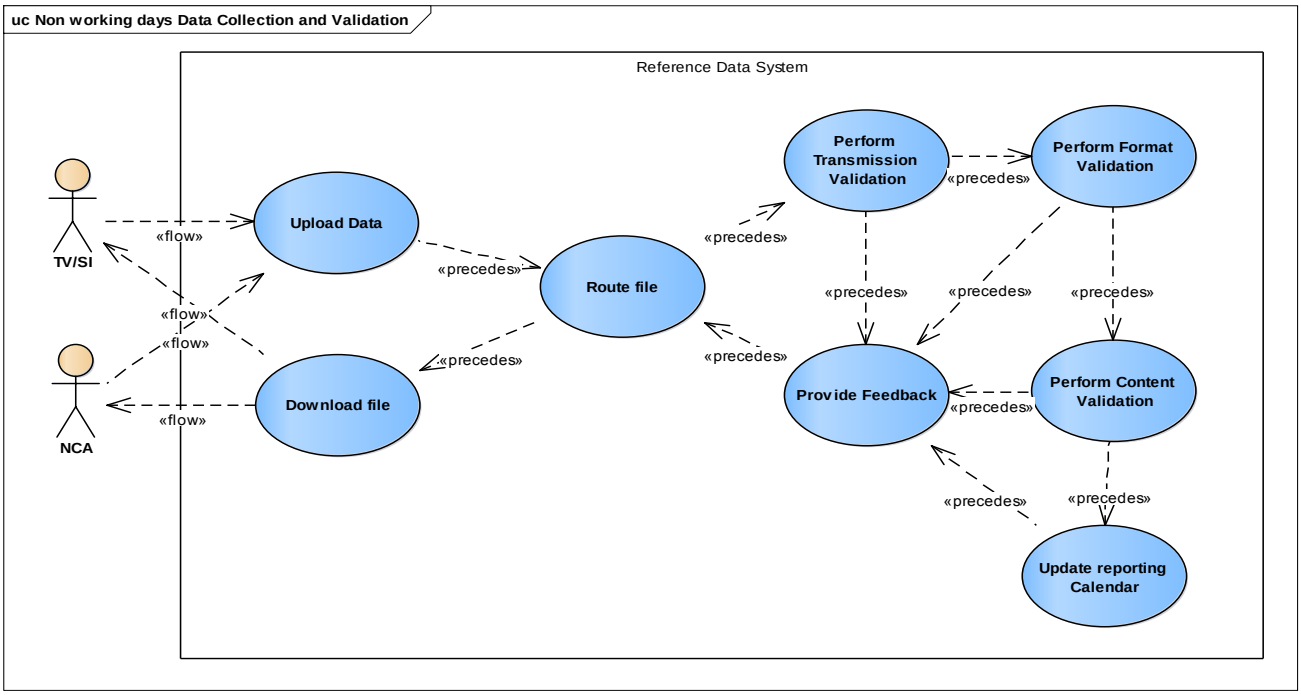


FIGURE 12 - NON-WORKING DAY DATA MANAGEMENT USE CASE DIAGRAM

3.8.2.2 Non-working day data Collection

Goal	**Process non-working data files submitted by NCA / TV / SI / APA / CTP.**
Actors	The ESMA System TV/SI/APA/CTP - in the jurisdiction of a delegating NCA NCA
Preconditions	TV/SI/APA/CTP has uploaded a file with naming convention as per Annex 2: File naming conventions onto the HUBDE which has routed it to The ESMA System. NCA has uploaded a file with naming convention as per Annex 2: File naming conventions onto the HUBEX which has routed it to The ESMA System.
Trigger	A new DATNWD file is available in the ESMA System.
Postconditions	The ESMA System has updated the reporting calendar and notified the submitting entity whether its submitted file can be used for updating the reporting calendar.
Normal Flow	1. The ESMA System performs transmission as per Annex 1a: Transmission Validation Rules and format validations as per Annex 1c: Reference Data Content and Consistency Validation Rules and use case Perform File Format Validation. The relevant XML schema for DATNWD is defined in Table 12 - Additional reference data message table. 2. The system validates each record in the message by performing the checks as per Annex 1d: Non-working Days Content Validation Rules. The validation is successful. 3. Based on that input, the reporting calendar is updated as per section 0 4. Update Reporting calendar. 5. The ESMA System generates, based on the ISO 20222 Derived Message Definition Identifier referenced in Table 12 - Additional reference data message table, a “Feedback on Non-working days Data Report” file of status “**Accepted**”. 6. The ESMA System uploads the feedback file into the ESMA’s outgoing folder dedicated to ESMA System in HUBEX or HUBDE.
Alternate flow 1: **Transmission and Format errors**	1a. The system found a transmission or format error. 4a. The ESMA System generates, based on the ISO 20222 Derived Message Definition Identifier referenced in Table 11 - Additional reference

	data message table, a “Feedback on Non-working days Data Report” file of status “**Corrupted**” for FIL-101, “**Rejected**” otherwise.
Alternate flow 2: **Content errors**	2b. The system validates file content against relevant data content validation rules as described in Annex 1d: Non-working Days Content Validation Rules. Validation is failed on at least on record. 4b. The ESMA System generates, based on the ISO 20222 Derived Message Definition Identifier referenced in Table 11 - Additional reference data message table, a “Feedback on Non-working days Data Report” file of status “**Rejected**” listing all the content errors found with status record “**Rejected**”.
Frequency	Ad-hoc updates
Business rules	For each reported year and each reported entity, all non-working dates shall be reported. All dates which are not reported are considered as open (weekends have to be reported otherwise they are assumed to be working days.) TV/SI shall report to NCA or ESMA (in case of reference data delegation) every closed day, including. In case NCA is closed and TV/SI is opened and NCA is a non-delegating NCA for reference data, NCA shall nevertheless report TV/SI data to ESMA. Report can cover more than one year. ESMA expects to receive an update at the latest in December for the upcoming year.
Assumptions	This functionality will be implemented using: HUBEX: for NCA – submits data HUBDE: for TV/SI/APA/CTP – submits data (in the jurisdiction of a delegating NCA)

3.8.2.3 Update Reporting calendar

Goal	**Updates the reporting calendar with the submitted non-working days.**
Actors	The ESMA System
Preconditions	The ESMA System has validated the content of the Non-working days file and no error is found.
Trigger	NCA / TV/SI/APA/CTP submits, for a set of TV/SI/APA/CTP/NCA, a list of valid non-working days data.

Postconditions	The reporting calendar as described in section 14.1 is updated.
Normal Flow	1. The ESMA System groups the submitted records by (EntityIdentifier, YYYY) where • YYYY is the year of the non-working day. • EntityIdentifier is deduced from the MarketIdentifier as per section 14.1 Reporting Calendar Table. 2. For each (EntityIdentifier, YYYY) group, the ESMA System updates the Reporting Calendar table for each calendar date of year YYYY as follows: Open attribute of (Entity Identifier, date) record: • Is set to FALSE in case the calendar date is reported as a Non-working day. • Is set to TRUE otherwise.
Frequency	Ad-hoc updates
Business rules	TV/SI/APA/CTP shall report to its NCA or to ESMA (in case of delegation of data collection) every opened day. In case, NCA is closed and TV/SI/APA/CTP is opened and NCA is a non-delegating Reference data NCA, NCA shall nevertheless report TV/SI data to ESMA.
Assumptions	For each year and each entity, all non-working dates shall be reported. All dates which are not reported are considered as open. If a file is received containing any dates for year 20XX this will overwrite any existing non-working days data for 20XX for the Trading Venue/NCA.

3.8.2.4. Update Reporting calendar for TV/SI on a yearly basis [Updated CR #252]

Goal	**Updates the Reporting Calendar table for the TV/SIs that have not reported non-working days.**
Actors	The ESMA System
Preconditions	The ESMA System has processed all DATNWD files submitted until 31st December of the current year.
Trigger	On 31st of December, after Global Cut-off Time, the ESMA System updates the “Reporting Calendar Days data table”.
Postconditions	The reporting calendar as described in section 14.1 is updated.
Normal Flow	1. The ESMA System extracts the list of TV/SI from *"Trading Venue Mapping View”* for which:

	• Validity End Date is Null. • "Withdrawn flag" of the "*Country of jurisdiction of the TV/SI"* is FALSE in the "NCA reference data table. 2. 3. For each <MIC> retrieved in step 1, the system checks whether a record exists in *"Reporting Calendar Days data table"*, which satisfies the following conditions: • EntityIdentifier is T<MIC> or S<MIC> and • date corresponding to the "current year+1" 2.1. In case at least one record retrieved in Step 2, no further action is performed, and the system proceeds with the next MIC. *(in case that non-working days have been reported for the next year)* 2.2. Otherwise, the ESMA System inserts a record into the *"Reporting Calendar Days data table"* for each calendar date of the "current year +1", as follows: • EntityIdentifier as T<MIC> or S<MIC>, deduced from the MarketIdentifier as per section 14.1 Reporting Calendar Table, and • date corresponding to each day of the "current year+1" • Open attribute of (Entity Identifier, date) as TRUE *(in case that non-working days have not been reported for the next year)*
Frequency	Yearly
Business rules	N/A
Assumptions	For each TV/SI that has not reported any non-working days for the upcoming year until the 31st of December of the current year, all dates for the next year will be considered as open.

3.9 Expression of interest on indices Management

3.9.1 Use case Overview

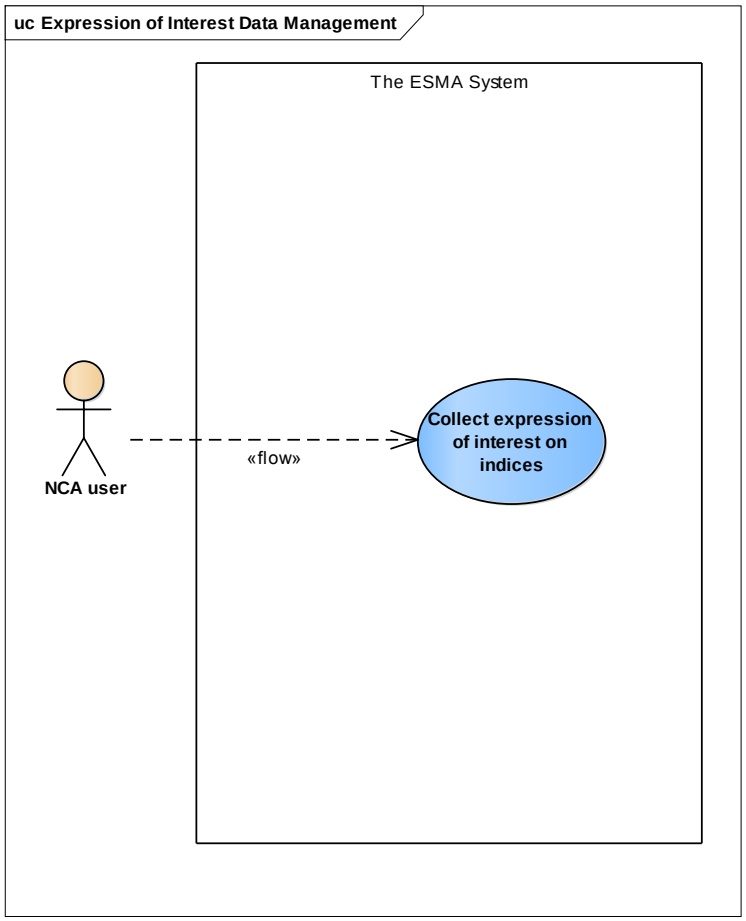


FIGURE 13 - EXPRESSION OF INTEREST ON INDICES MANAGEMENT USE CASE DIAGRAM

3.9.2 Collect expression of interest on indices

Goal	**The goal of this use case is to collect expression of interest on indices from each NCA through a dedicated web interface.**
Actors	The ESMA System NCA User
Preconditions	N/A
Trigger	NCA chooses "*Request Index data*".
Postconditions	Index data request has been registered and stored
Normal Flow	1. An authorised user on behalf of a NCA chooses "*Manage expressions of interest on indices*" on the ESMA portal. 2. The system shows the list of indices for which the NCA has currently expressed its interest as follows: Select in the *"Expression of interest on Indices reference data table*" the record which ValidityEndDate is NULL.

3. For each of them, the following attributes are displayed: the NCA user country code (its own), the identifier of the index and the date of expression of interest.
4. The system allows the user to remove an index from that list. The system asks the user for confirmation as per step 10.
5. The user can add to that list one or several new indices. For that purpose, the user is proposed a list of indices in the database excluding those already part of the list) or is proposed to enter manually an ISIN.

{*In order to be compliant to TREM Specification 109., the ESMA System proposes indices that are identified by an ISIN (manually) and indices identified by the 4-letter code {INDEX} specified in table 1 of the Annex of RTS23 {INDEX}}*

5.1 The ESMA System proposes the list of RTS23 {INDEX}.

5.2 The ESMA System proposes the list of ISIN already used as an "Underlying Index" as follows: select in the Consistent Reference Data Table distinct field 26c of records which PublicationFromDate is not NULL and PublicationToDate is NULL

6. The ESMA System allows the user to select one of these.
7. Alternatively, The ESMA System allows the user to add another ISIN. In case the user enters an ISIN manually, the ESMA system checks that:
   - the ISIN is valid according to the algorithm of ISIN validation including the calculation of the check digit[16].
   - the ISIN is not found in the "*consistent reference data table*" as a RTS23 field 1.
8. In case the user inputs are valid, the system invites the user to confirm the selected list of indices codes / names / ISIN.
9. Upon confirmation of the user, the system inserts the submitted data in the "*Expression of interest on Indices reference data table*" as follows:
   - Country code of the Member State having expressed its interest: the country code of the user.
   - ISINIndexIdentifier: the submitted one.
   - OtherIndexIdentifier: the submitted one
   - ValidityStartDate is the date the NCA user confirmed the submission.
   - ValidityEndDate is NULL
10. In case the user confirms the removal, the system updates in the record which Index identifier is selected in the "Expression of interest on Indices reference data table" as follows:
    - Country code of the Member State having expressed its interest: the country code of the user.
    - ISINIndexIdentifier: the submitted one.
    - OtherIndexIdentifier: the submitted one.
    - ValidityEndDate is the date the NCA user confirmed the deletion of expression of interest.

[16] See Formula for computing modulus 10 "Double-Add-Double" check digit as per ISO 6166 specifications.

Alternate flow	7a. In case the user input is invalid, the system displays an error message: “The entered ISIN is not valid” or “The entered ISIN must not be an instrument”. The user can Cancel the request or Ignore the error message.
Frequency	Limited number of ad-hoc requests by each NCA
Business rules	N/A
Assumptions	ESMA collects and distributes expression of interest on indices but is not involved in any way in their processing. NCAs will use this information to route transactions related to those indices as specified in the TREM Specifications.

3.10 Additional Reference data distribution

3.10.1 Use cases overview

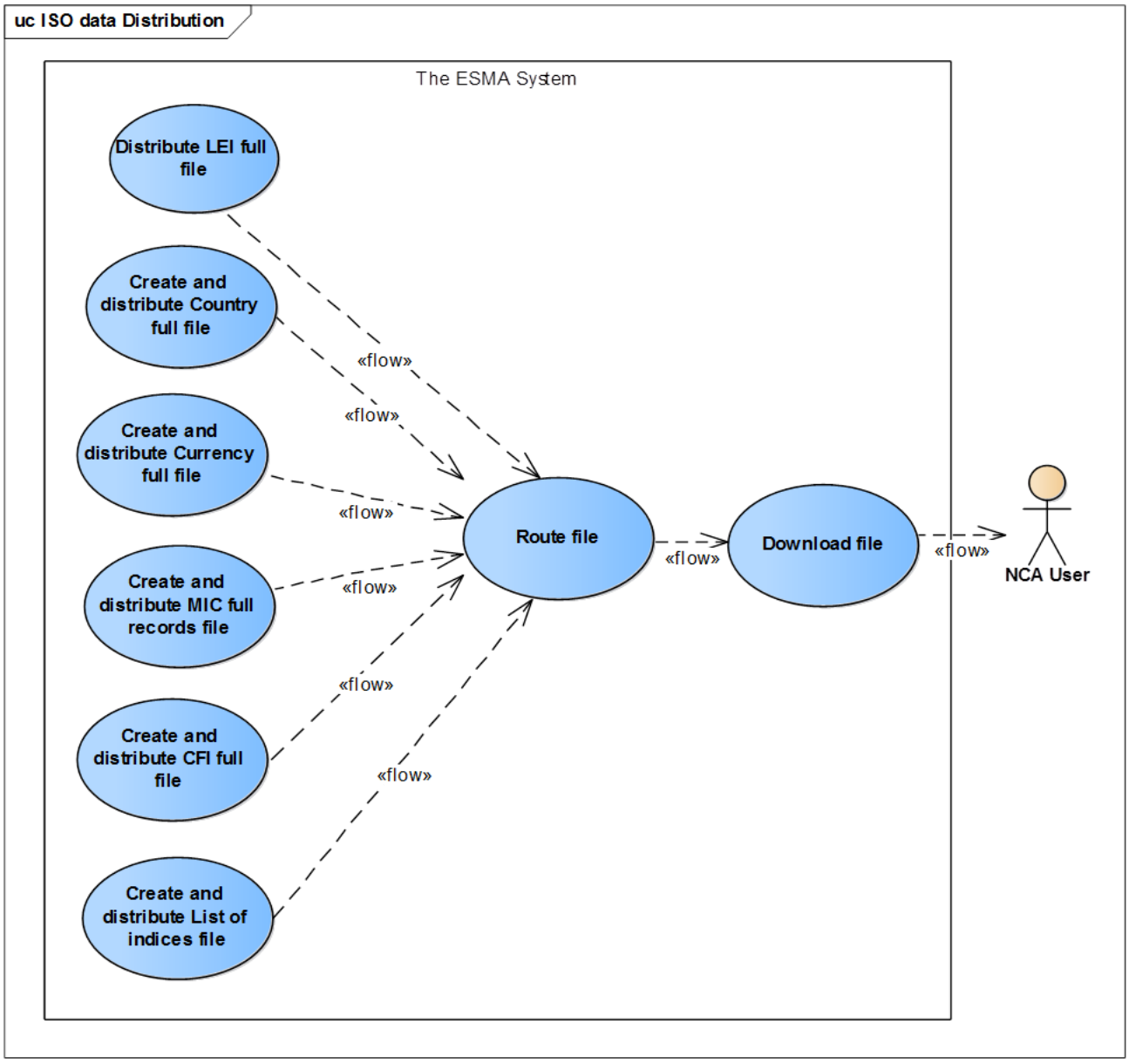


FIGURE 14 - ADDITIONAL REFERENCE DATA DISTRIBUTION USE CASE DIAGRAM

3.10.2 Distribute LEI Full file [Updated CR #250]

Goal	**The goal of this use case is to distribute to NCAs the daily LEI Full file previously uploaded through the GLEIF publication service.**
Actors	The ESMA System – provides the file via the HUBEX

	NCA system – accesses the HUBEX to retrieve the file
Preconditions	The LEI Full file produced by GLEIF for the current reporting day is available at FIRDS file system.
Trigger	At the same time as Full/delta/Invalid records file are generated.
Postcondition	The LEI Full file (v3.1) is available in the Public folder dedicated to the ESMA System in HUBEX System for further uploading by NCA.
Normal Flow	1. The ESMA System retrieves from its file system the GLEIF Full file which name refers to the current reporting date. 2. The ESMA Systems archives that file in a zip file according to naming convention as per Annex 2: File naming conventions and uploads it to the Public folder dedicated to the ESMA System in HUBEX System.
Frequency	Daily.
Business Rules	ESMA system distributes the latest LEI records files provided by GLEIF. From March 2022, the system should provide the LEI consolidated file using LEI-CDF format version 3.1 (https://www.gleif.org/en/about-lei/common-data-file-format/lei-cdf-format/lei-cdf-format-version-3-1#).
Assumptions	N/A

3.10.3 Create and distribute Country Full file

Goal	**The goal of this use case is to distribute to NCAs the country full records XML file containing the records of the monthly country Full file previously uploaded through the SWIFT publication service.**
Actors	The ESMA System – provides the file via the HUBEX NCA system – accesses the HUBEX to retrieve the file
Preconditions	The country reference data table is up to date.
Trigger	Saturday at the same time as Full/delta/Invalid records file are generated.
Postcondition	The Country Full file for NCA is in the Public folder dedicated to the ESMA System in HUBEX System.
Normal Flow	1. The ESMA System extracts from the Country reference data table 13.1, all records which comply to the following criteria a. Officially_Assigned is TRUE and sorts them by ascending order on the Country Code, then descending order on ValidityStartDate The system should extract the following fields from the records retrieved in step 1. ○ CountryName

	○ CountryCode ○ EEACountryFlag ○ ValidityStartDate ○ ValidityEndDate 2. The ESMA System generates a Country full file based on the Derived Message Identifier schemas referenced in Table 11 - Instrument reference data message table associated to Business Application Header (BAH), BAH and business message encapsulation and Country full file Message components. 3. The ESMA System archives that file in a zip file according to naming convention (Annex 2: File naming conventions) and uploads it to the Public folder dedicated to The ESMA System in HUBEX System.
Frequency	Weekly
Business Rules	ESMA system distributes to NCA the latest country records files provided by SWIFT.
Assumptions	Distributed file must be kept 10 days at disposal of the NCAs.

3.10.4 Create and distribute Currency Full file

Goal	**The goal of this use case is to distribute to NCAs the currency full records XML file containing the records of the monthly country Full file previously uploaded through the SWIFT publication service and the list of pre-euro currencies maintained in ESMA.**
Actors	The ESMA System – provides the file via the HUBEX NCA system – accesses the HUBEX to retrieve the file
Preconditions	The currency reference data table as described in Table 43 - Currency reference data table is up to date.
Trigger	Saturday at the same time as Full/delta/Invalid records file are generated.
Postcondition	The Currency Full file for NCA is in the public folder dedicated to The ESMA System in HUBEX System.
Normal Flow	1. The ESMA System extracts from the currency reference data table as described in Table 43 - Currency reference data table all the records with the following attributes: • CurrencyCode • CurrencyName • CountryCode • CountryName • PreEuroFlag • ValidityStartDate • ValidityEndDate 2. The ESMA System generates a Currency full file based on the Derived Message Identifier schemas referenced in Table 11 - Instrument reference data message table associated to Business Application Header (BAH),

	BAH and business message encapsulation and Currency full file Message components. 3. The ESMA Systems archives that file in a zip file according to naming convention (Annex 2: File naming conventions) and uploads to the Public folder dedicated to the ESMA System in HUBEX System.
Frequency	Weekly
Business Rules	ESMA system distributes to NCA the latest Currency records files provided by SWIFT and the list of pre-euro currencies.
Assumptions	Distributed file must be kept 10 days at disposal of the NCAs.

3.10.5 Create and distribute MIC Full file [Updated CR #279]

Goal	**The goal of this use case is to distribute to NCAs the MIC full records XML file containing the records of the monthly MIC Full file previously uploaded through the ISO publication service.**
Actors	The ESMA System – provides the file via the HUBEX NCA system – accesses the HUBEX to retrieve the file
Preconditions	The MIC reference data table as described in section 15.3 is up to date
Trigger	Saturday at the same time as Full/delta/Invalid records file are generated.
Postcondition	The MIC Full file (v2.0) is available in the public folder dedicated to the ESMA System in HUBEX System.
Normal flow	1. The ESMA System extracts from the MIC reference data table, as described in section 15.3, all the records with the following attributes: • MICCode • OperatingMICCode • MICType • InstitutionName • Legal Entity Name • LEI • MarketType • ISOCountryCode • ISOCountryName • AuthorityName • City • Acronym • Website • Notes

	• Status date • Last Validation Month • Expiry Date • Latest Status • ValidityStartDate • ValidityEndDate 2. The ESMA System generates a MIC full file based on the Derived Message Identifier schemas (i.e. DRAFT1auth.049.001.03_ESMAUG_DATMIC_1.2.1.xsd) referenced in Table 11 - Instrument reference data message table associated to Business Application Header (BAH), BAH and business message encapsulation and MIC full file Message components. 3. The ESMA System archives that file in a zip file according to naming convention (Annex 2: File naming conventions) and uploads in the Public folder dedicated to the ESMA System in HUBEX System.
Frequency	Weekly
Business Rules	ESMA system distributes to NCA the latest MIC records files provided by SWIFT.
Assumptions	Distributed file must be kept 10 days at disposal of the NCAs.

3.10.6 Create and distribute CFI Full file

Goal	**The goal of this use case is to distribute to NCAs an XML file containing the full list of CFI codes generated by ESMA according to the latest ISO Standard**
Actors	The ESMA System – provides the file via the HUBEX NCA system – accesses the HUBEX to retrieve the file
Preconditions	The list of valid CFI codes table as described in 15.4 has been updated.
Trigger	Saturday at the same time as Full/delta/Invalid records file are generated.
Postcondition	The CFI Full file is in the Public folder dedicated to the ESMA System in HUBEX System.
Normal Flow	1. The ESMA System extracts from the “list of valid CFI codes table” as per section Table 45 - List of valid CFI codes table all the records with the following attributes: • CFI Code • ValidityStartDate

	• ValidityEndDate 2. The ESMA System generates a CFI full file based on the Derived Message Identifier schemas referenced in Table 11 - Instrument reference data message table associated to Business Application Header (BAH), BAH and business message encapsulation and CFI full file Message components. 3. The ESMA System archives that file in a zip file according to naming convention (Annex 2: File naming conventions) and uploads in the Public folder dedicated to the ESMA System in HUBEX System.
Frequency	Weekly
Business Rules	
Assumptions	Distributed file must be kept 10 days at disposal of the NCAs.

3.10.7 Create and distribute Expression of interest on indices file

Goal	**The goal of this use case is to distribute data on expression of interest on indices.**
Actors	The ESMA System NCA System
Preconditions	N/A
Trigger	As soon as Full/delta/Invalid records file are generated.
Postconditions	Index data requests have been distributed.
Normal Flow	1. The ESMA System selects, grouped by NCACountryCode in ascending order, all records in the "Expression of interest on Indices table" with the following attributes: • NCACountryCode • ISINIndexIdentifier or OtherIndexIdentifier • ValidityStartDate • ValidityEndDate 2. The ESMA System generates an "Expression of interest on indices" full file based on the Derived Message Identifier schemas referenced in Table 11 - Instrument reference data message table associated to Business Application Header (BAH), BAH and business message encapsulation and Expression of interest on indices file Message components. 3. The ESMA System archives that file in a zip file according to naming convention (Annex 2: File naming conventions) and uploads in the Public folder dedicated to the ESMA System in HUBEX System.

Frequency	Daily
Business rules	A request is valid in case
Assumptions	ESMA collects and distributes Expression of interest on Indices but is not involved in any way in their execution. NCAs will use this functionality only to request transactions related to indices (not on other instruments). Distributed file must be kept 10 days at disposal of the NCAs.

3.10.8 Create and distribute non-working days file

Goal	**The goal of this use case is to distribute data on non-working days**
Actors	The ESMA System NCA System
Preconditions	N/A
Trigger	As soon as Full/delta/Invalid records file are generated.
Postconditions	Non-working days data has been distributed according to the Non-Working Days XML Schema
Normal Flow	2. The ESMA System selects from the Reporting Calendar table all records which are marked as non-working days, and group them by Entity Identifier 3. For each entity, the system generates the following records: a. FinInstrmRptgNonWorkgDayRpt/NonWorkgDay/Id: the entity identifier (MIC code or 2-letter country code) within the relevant element: i. MktIdCd if the Entity Identifier starts with T or S ii. NtlCmptntAuthrty if the Entity Identifier starts with NCA or is equal to ESMA (in that case the 2 letter code is EU) iii. Othr if the Entity Identifier starts with A, in that case Tp = APPA iv. Othr if the Entity Identifier starts with C, in that case Tp = CTPS b. FinInstrmRptgNonWorkgDayRpt/NonWorkgDay/NonWorkgDay: for each non-working day of that entity, in ascending order 2. The ESMA System generates an "FULNWD" full file based on the Derived Message Identifier schemas referenced in Table 11 - Instrument reference data message table associated to Business Application Header (BAH), BAH and business message encapsulation and Expression of interest on indices file Message components.

	3. The ESMA System archives that file in a zip file according to naming convention (Annex 2: File naming conventions) and uploads in the Public folder dedicated to the ESMA System in HUBEX System.
Frequency	Daily
Business rules	
Assumptions	

3.10.9 Create and distribute the previous version of LEI Full file (v2.1) [Updated CR #250]

Goal	**The goal of this use case is to distribute to NCAs the previous version (v2.1) of the daily LEI Full file, for easing the transition period.**
Actors	The ESMA System – provides the file via the HUBEX NCA system – accesses the HUBEX to retrieve the file
Preconditions	*Distribute LEI Full file* use case has produced and distributed the LEI Full file (v3.1) to NCAs.
Trigger	*Distribute LEI Full file* use case (3.10.2)
Postcondition	The LEI Full file (v2.1) is available in the Public folder dedicated to the ESMA System in HUBEX System for further uploading by NCA.
Normal Flow	1. The ESMA System retrieves from its file system the GLEIF Full file (v3.1), which name refers to the current reporting date. 2. The ESMA System transforms that file, according to the XSLT provided by GLEIF, in order to be compliant with the previous XML format (i.e. v2.1). 3. The ESMA Systems archives that file in a zip file according to naming convention as per Annex 2: File naming conventions and uploads it to the Public folder dedicated to the ESMA System in HUBEX System.
Frequency	Daily.
Business Rules	For facilitating NCAs needs and for a restricted time period, the system will provide another LEI consolidated file using LEI-CDF format version 2.1 (https://www.gleif.org/en/about-lei/common-data-file-format/lei-cdf-format/lei-cdf-format-version-2-1#), until users convert fully to the new XML format (v3.1).
Assumptions	N/A

3.10.10. Create and distribute the previous version of MIC Full file (v1.0) [Updated CR #279]

Goal	**The goal of this use case is to distribute to NCAs the previous version (v1.0) of the MIC full records XML.**
Actors	The ESMA System – provides the file via the HUBEX NCA system – accesses the HUBEX to retrieve the file
Preconditions	*Create and Distribute MIC Full file* use case has produced and distributed the MIC Full file (v2.0) to NCAs.
Trigger	*Create and Distribute MIC Full file* use case (3.10.6)
Postcondition	The MIC Full file (v1.0) is available in the public folder dedicated to the ESMA System in HUBEX System.
Normal flow	1. The ESMA System extracts from the MIC reference data table, as described in section 15.3, all the records with the following attributes: • MICCode • OperatingMICCode • MICType • InstitutionName • MarketType • ISOCountryCode • ISOCountryName • AuthorityName • City • Acronym • Website • Notes • Status date • ValidityStartDate • ValidityEndDate 2. The ESMA System generates a MIC full file based on the previous Derived Message Identifier schemas (i.e. auth.049.001.02_ESMAUG_DATMIC_1.1.0) referenced in Table 11 - Instrument reference data message table associated to Business Application Header (BAH), BAH and business message encapsulation and MIC full file Message components. 3. The ESMA System archives that file in a zip file according to naming convention (Annex 2: File naming conventions) and uploads in the Public folder dedicated to the ESMA System in HUBEX System.
Frequency	Weekly
Business Rules	For facilitating NCAs needs and for a restricted time period, the ESMA system will distribute to NCA another MIC Full file, according to the previous XML format (v1.0).
Assumptions	Distributed file must be kept 10 days at disposal of the NCAs.

3.11 Monitoring

3.11.1 Use case Overview

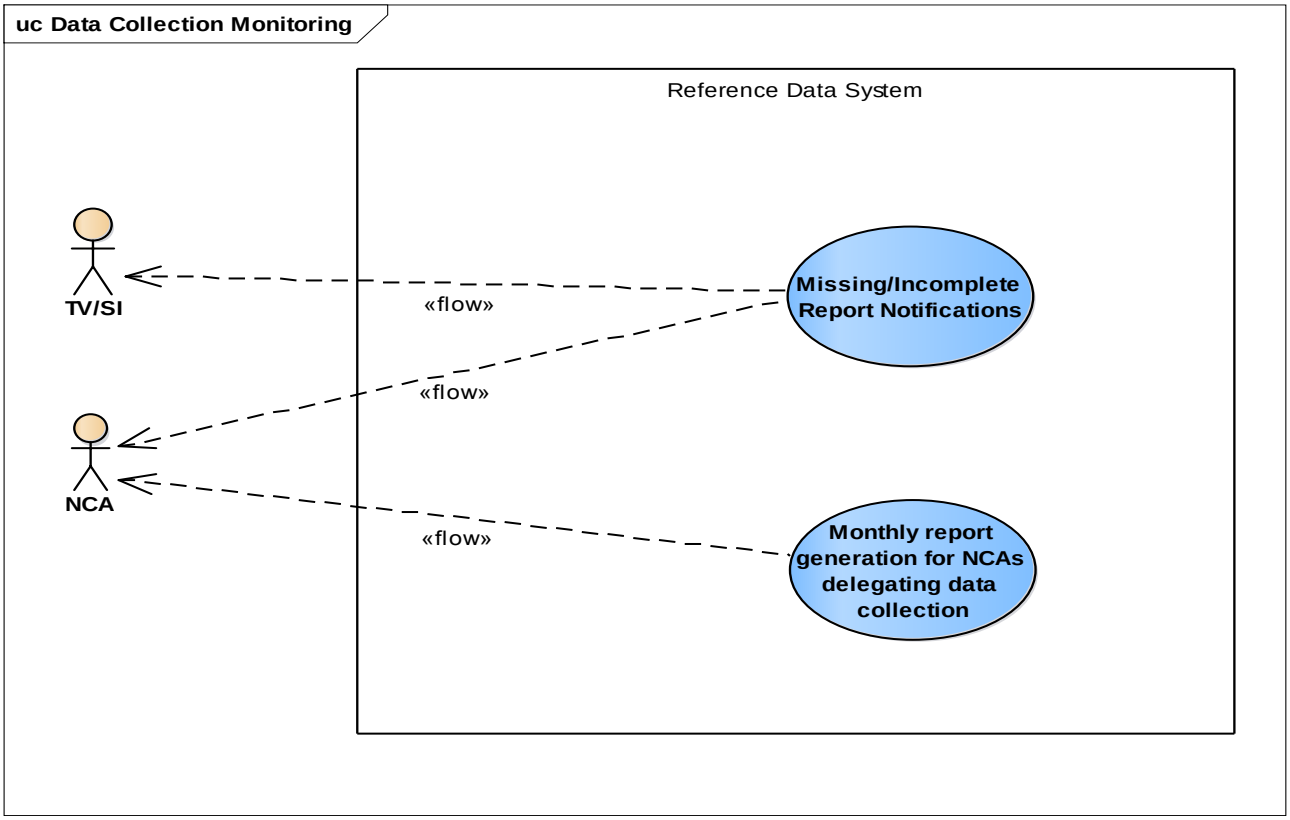


FIGURE 15 - MONITORING USE CASE DIAGRAM

3.11.2 Missing/Incomplete Report Notifications

Goal	**The objective of the use case is to send reminder notifications to submitting entities in case no file was submitted by some reporting entities or in case instruments have not been reported before the applicable submission cut-off time.**
Actors	The ESMA System TV/SI (in the jurisdiction of a delegating NCA) – Receives reports NCA (not delegating data collection in its jurisdiction) – Receives reports
Preconditions	System has completed processing of all files submitted before the applicable cut-off time.

	System has an up-to-date table collecting all workings days for each TV/SI.
Trigger	The use case is triggered daily after 0:00 CET.
Postconditions	Reminder status advice file is in the outgoing folder dedicated to the ESMA System for each concerned entity.
Normal Flow	**NB**: T is the day of the next publication, PvsT is the day of last successful publication 1. The ESMA System extracts the list of TV/SI from which data is expected: the ESMA system selects MIC in the reporting calendar which satisfy all of the following conditions: Open is TRUE at least one date between PvsT and T-1. 2. **For each MIC extracted in step 1, The ESMA System checks whether any data has been submitted by the TV/SI:** the ESMA selects in the "Received Reference Data Table" records with • same MIC and for which at least one date exists in the "ESMA Reception Date Time List" between PvsT-1 applicable cut-off time AND T-1 applicable cut-off time • where applicable cut-off time is the one related to the MIC in the "Reporting Flow view" • Received Status is "REFR" 3. **If no record is found,** the ESMA System updates the "*TV/SI reporting table"* as per step 5 and generates a reminder file as per step 6. 4. **Otherwise,** the ESMA system checks that Regulated Markets have reported all non-terminated instruments. In that case, the ESMA System generates a reminder file. 4.1 The ESMA System selects in the "Received Reference Data Table" the (ISIN, MIC) records which satisfy all of the following conditions: • MIC is the MIC in the step 1 • Termination date is NULL or, in case it is not NULL, is strictly later than PvsT-1 • Received Status is "REFR" • No date exists in the "ESMA Reception Date Time List" between PvsT-1 applicable cut-off time AND T-1 applicable cut-off time, where applicable cut-off time is the one related to the MIC in the "Reporting Flow view" • MICType is 'R' for that MIC as per Table 18 - Trading venue mapping view 4.2 In case at least one record is found, the ESMA System: 4.2.1 updates the "TV/SI reporting table" as per step 5. 4.2.2 generates a reminder file as per step 6.

	4.2.3 retains the list of ISINs of record found. 5. For each extracted MIC, the system inserts or updates in the "*TV/SI reporting table*" as described in section Table 41 - TV/SI Reporting table the following record: • MIC • Date is set to T-1 • "Unreported ISIN List" is left empty if triggered by step 3, and is set to the list of ISINs present in the records extracted in step 4.2 if triggered by step 4 • "Inconsistent ISIN list and associated fields" is left empty. 6. The ESMA System: 6.1 generates a reminder file based on the Derived Message Identifier schemas referenced in Table 11 - Instrument reference data message table associated to Business Application Header (BAH), BAH and business message encapsulation and Reminder file Message components. ➔ With the following attributes in the BAH: • From is EU • To is HUB sender code associated to the MIC as per Table 19 - Reporting Flow view. ➔ with the following attributes in the StatusReport header: • FileStatus is Reminder; • If triggered by step 3, "RMD-001" validation rule as per section 11 Reminder Message code and description. ➔ If triggered by step 4, for each ISIN retained in step 4.2, a record status block with the following attributes: a. ISIN b. "RMD-002" validation rule as per section 11 Reminder Message code and description. . 6.2 names it according to the following components as per Annex 2: File naming conventions: • Sender is FIRDS • FileType is RMDINS • Recipient is the HUBSenderCode related to the MIC in the Reporting Flow view (Table 19 - Reporting Flow view). • Key1 is MIC • Key2 (From 00000 incremented by 1 each time a reminder file is generated) • Year is the Year of the current ESMA System datetime. 6.3 archives it into a zip file using the same filename. 6.4 uploads the zip file in the "*Outgoing folder*" of the ESMA System in HUBEX/HUBDE.
Frequency	Daily

Business rules	The applicable cut-off time is: • 21:00 CET when data is collected directly from TV / SI • 21:30 CET when data is collected by NCAs delegating transparency calculations but not delegating data collection in their jurisdiction • 23:59 CET when data is collected by non-delegating NCAs In case the number of records is beyond a threshold, the file should be split in several files. The threshold shall be configurable in the system (by default 500,000).
Assumptions	

3.11.3 Monthly report generation for NCAs delegating data collection

Goal	**The goal of this use case is to generate online monthly reports to every NCAs delegating data collection monthly reports identifying recurring data collection issues concerning TV/SI under their jurisdiction over the past month.**
Actors	The ESMA System NCA (delegating data collection in its jurisdiction)
Preconditions	N/A
Trigger	The first day of each month at 12:00 CET in ESMA calendar.
Postconditions	Up to 2 relevant online reports are generated and accessible for NCA in a restricted area of the ESMA website. **Report 1** fields: "MIC, Date, "Unreported ISIN", "Number of days TV/SI not reported on time" **Report 2** fields: "Date, MIC, Inconsistent ISIN, associated list of inconsistent fields numbers"
Normal Flow	1. The ESMA system extracts from the NCA reference table, the NCA delegating data collection. 2. For each of those NCAs, The ESMA system extracts from the "Trading Venue Mapping View" the related MIC (based on records with ValidityEndDate is NULL). 3. For each extracted MIC, the system calculates the number of days the TV/SI did not report at all or on time its data over the past month relatively to the reporting calendar of instrument reference data as follows: the ESMA System counts the number of distinct Date for that MIC from the "TV/SI reporting table" such that: • Unreported ISIN List is not NULL; and

	• Date is between the first calendar date of the past month and the last calendar date of the past month; and • the Open flag is TRUE for that MIC in the "*Reporting calendar Table*" as per section 14.1. 4. In case that count is greater than a configurable[17] threshold, the MIC of the TV/SI is added into the first report. 5. For each extracted MIC and for each calendar day over the past month, the ESMA system generates (ISIN, MIC) record still inconsistent after the NCA reporting cut-off time as follows: the ESMA System extracts from the TV/SI reporting Table, as described in section 14.2, the Inconsistent ISIN List of the (MIC, date) record • Which Date is between the first calendar date of the past month and the last calendar date of the past month. 6. The list of ISINs and associated list of inconsistent fields numbers, per (MIC, date) as per step 5 are added into the second report. 7. The system sends the generated reports to the respective NCA contact email.
Frequency	Monthly
Business rules	
Assumptions	

[17] As specified in section 3.12.4 System configuration.

3.12 System Administration

3.12.1 Use case Overview

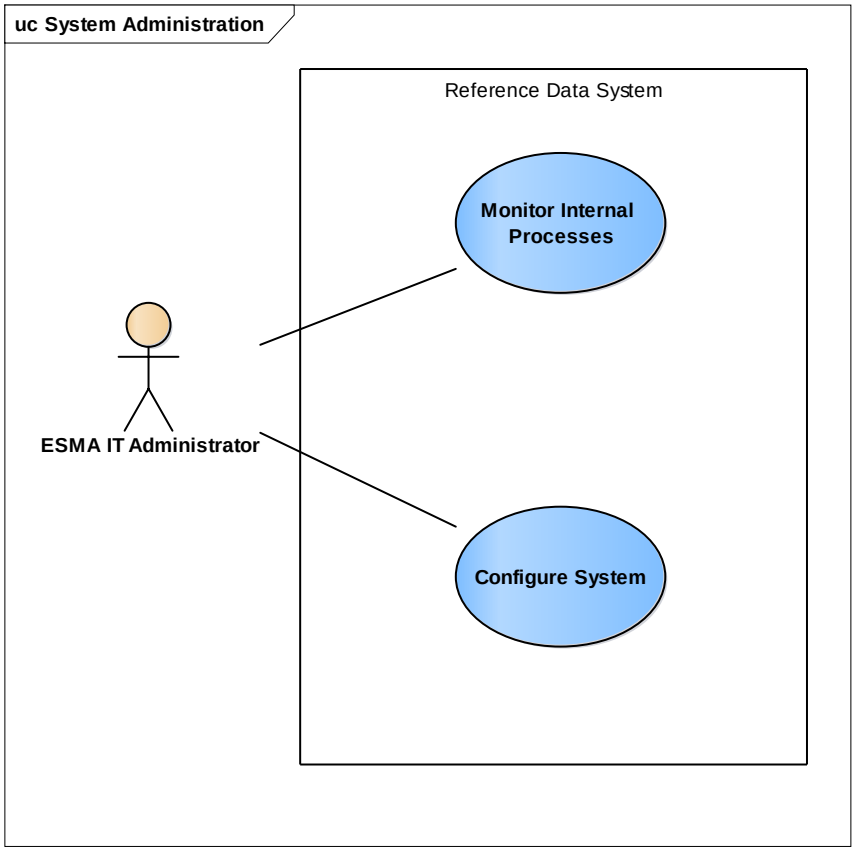


FIGURE 16 - SYSTEM ADMINISTRATION USE CASE DIAGRAM

3.12.2 User management

The management of users and access to any component of the ESMA System will be managed externally to the system.

3.12.3 System monitoring

3.12.3.1 Process monitoring

Every process involved in the execution of the use cases described above shall be trackable and manageable by the ESMA IT Administrator. Log files shall be easily accessible.

ESMA IT Administrator shall be notified of any technical issue on the execution of every process.

In addition, ESMA business Administrator shall be notified of alternate / exception / error events upon the following use cases:

Use cases	Event to capture
Create and distribute full File	The ESMA System reports unsuccessful outcome of the creation/distribution of the full file to the NCAs and / or to the public.
Create and distribute delta File	The ESMA System reports the unsuccessful outcome of the creation/distribution of the delta file to the NCAs and / or to the public.
Create and distribute invalid records File	The ESMA System reports the unsuccessful outcome of the creation/distribution of the invalid records file to the NCAs and / or to the public.
Update LEI reference data	The ESMA System discovers that a new Global LEI register file is not available for the day, cannot be uncompressed, for any reason the system cannot extract the records, or the LEI reference data table cannot be updated
Update ISO reference data	The ESMA System discovers that new country/currencies/MIC files are not available on the publication date, cannot be uncompressed, for any reason the system cannot extract the records, or the country/currencies/MIC reference data tables cannot be updated.
ESMA Registers	The ESMA System identifies that some MIC present in the Trading venue mapping view cannot be found in any ESMA Register of Trading Venues (RM / MTF / OTF) or Systematic Internaliser. The ESMA System identifies that some MIC present in the Trading venue mapping view can be found in more than one ESMA Register of Trading Venues (RM / MTF / OTF) or Systematic Internaliser.

3.12.3.2 File management monitoring

Goal	**The goal of this use case is to generate statistical information in order that the ESMA IT Administrator can have an insight in the amount of file and reference data received by the ESMA System.**
Actors	The ESMA System
Preconditions	N/A
Trigger	Each time a DATINS file is processed Each time a Full file is generated Each time a Delta file is generated Each time a Invalid records file is generated Each time the Consistent reference data is updated
Postconditions	Statistical information is up-to-date.
Normal Flow	The ESMA System calculates: • The amount of DATINS files received since the go-live • The amount of DATINS files received per day and per Submitting Entity. • The number of instruments processed per day. • The number of instruments processed per day and per Submitting Entity. • The number of New instruments per day and per TV/SI • The number of Modified instruments per day and per TV/SI • The amount of Terminated per day and per TV/SI • The amount of DATINS submitted files having triggered a File format error per day and per Error type. • The amount of DATINS submitted files having trigged a Content validation error per day and per Error Type • The time duration to process a DATINS submitted file. • The time duration to generate the Full File per day • The time duration to generate the Delta File per day • The time duration to generate the Invalid records File per day
Frequency	N/A
Business rules	N/A
Assumptions	The statistical information shall be accessible in a user friendly way.

3.12.4 System configuration

3.12.4.1 Overview

The system shall be highly configurable by the ESMA IT Administrator.

ESMA IT administrator shall be able to configure:

1. The triggering date-time of all processes involved (time scheduled processes and processes triggered by the completion of other processes).
2. The threshold number used in Use case 3.11.3.
3. The activation/deactivation of each content validation check.

ESMA IT administrator shall be able to update:

1. The list of NCAs indicating their level of delegation as per Annex 5 of BRD; and
2. The list of CFI-based validations table as per Annex 7 of BRD.
3. The list of valid CFI codes based on the ISO Standard.
4. The CFI / RCA rules mapping table as per Annex 6 of BRD.
5. The list of Pre-Euro currencies (resp. EEA Countries) in the “Currency reference data table” (resp. in the “Country reference data table”).

3.12.4.2 Update internal reference data table

Goal	**The goal of this use case is to update internal data tables listed under Assumptions section below.**
Actors	The ESMA Business Administrator or the ESMA IT Administrator The ESMA System
Preconditions	
Trigger	Ad Hoc
Postconditions	The internal data table has been updated as per user input.
Normal Flow	1. The ESMA Business / IT Administrator enters the screen dedicated to the table he/she wishes to update. 2. The ESMA System displays the content of the table. 3. The ESMA Business Administrator modifies/deletes one of the record or creates a new record. The ESMA System allows to update any column of the table, including ValidityStartDate and

	ValidityEndDate when they exist. ValidityEndDate may be empty (null). 4. The ESMA Business Administrator commits and disconnects from the Central database of the ESMA System.
Frequency	Ad Hoc
Business rules	
Assumptions	The system shall allow to apply this use case to the following tables: NCA reference data table, Trading Venue Mapping view (mainly to edit the MiFIR Trading Venue, or the Trading Venue type in case of ambiguity at the level of ESMA Register), Reporting Flow View, Reporting Calendar Table (mainly for ESMA non-working days).

3.12.4.3 Update internal tables related to CFI codes

Goal	**The goal of this use case is to update internal data tables related to CFI codes (as listed under Assumptions section below).**
Actors	The ESMA Business Administrator or the ESMA IT Administrator The ESMA System
Preconditions	
Trigger	Ad Hoc
Postconditions	The internal data table has been updated as per user input.
Normal Flow	1. The ESMA Business / IT Administrator enters the screen dedicated to the table he/she wishes to update. 2. The ESMA System displays the content of the table. 3. The ESMA System allows the ESMA Business Administrator to 3.1 Create a new record 3.2 Modify an existing record 3.3 Delete an existing record 4. The ESMA System checks that the CFI codes (resp. CFI constructs) entered are 6 alphabetic characters (resp. 6 characters, alphabetic or *). 5. The ESMA System updates the table as per step 3 of Use case 3.12.4.2 “Update internal reference data table” . 6. The system informs the data manager of potential inconsistencies by displaying the following warnings: 1. “Warning, the following CFI constructs do not match any item of the List of valid CFI codes ; they will be unused, and you may want to remove them : “

	o List of CFI constructs used in the table for which there is zero CFI codes in the "List of valid CFI codes table" 2. "Warning, the following CFI codes do not match any construct in the CFI-based validation table ; records submitted with this CFI will be rejected ; should they be accepted, rules should be defined in the CFI-based validation table for these CFI or for a CFI-construct covering these CFI" o List of CFI codes from the "List of valid CFI codes table" which have no corresponding construct in the "CFI-based validation table" 3. "Warning, the following CFI codes are accepted by the system, but no corresponding RCA determination rule is defined for them. You MUST define a RCA-determination rule for this CFI or for a CFI-construct covering these CFI" o List of CFI codes from the "List of valid CFI codes table" which are covered by a CFI-construct in the "CFI-based validation table" but are not covered by any CFI-construct in the "CFI / RCA determination rule mapping table" 4. "Warning, the following CFI codes are accepted by the system and do not have a unique RCA determination rule associated with them. You MUST make sure that one and only one RCA-determination rule is covering these CFI" o List of CFI codes from the "List of valid CFI codes table" which are covered by a CFI-construct in the "CFI-based validation table" and are covered by at least 2 CFI-construct in the "CFI / RCA determination rule mapping table"
Frequency	Ad Hoc
Business rules	
Assumption	The system shall allow to apply this use case to the following tables: List of valid CFI codes table (Table 45), CFI / RCA rule mapping table (Table 15), CFI-based validations table as per section (Table 16).

3.12.4.4 Update ESMA attributes in ISO reference data table

Goal	**The goal of this use case is to update a specific attribute in an ISO reference data table.**
Actors	The ESMA IT Administrator The ESMA System
Preconditions	ISO reference data table are updated
Trigger	Ad Hoc
Postconditions	ISO reference data table are up-to-date.

Normal Flow	1. The ESMA Business Administrator connects to the Central database of the ESMA System. 2. The ESMA System displays the content of the table. 3. The ESMA Business Administrator modifies/deletes one of the record or creates a new record. The ESMA System allows to update any column of the table, including ValidityStartDate and ValidityEndDate when they exist. ValidityEndDate may be empty (null). 4. The ESMA Business Administrator commits and disconnects from the Central database of the ESMA System.
Frequency	Ad Hoc
Business rules	
Assumption	Is applicable to: • Pre-Euro flag as described in Table 43 - Currency reference data table. • EEA flag in the Country reference data table. • Market Type in the MIC reference data table • Authority Name in the MIC reference data table.

3.12.4.5 Update ESMA attributes in Country reference data table

Goal	**The goal of this use case is to update a specific attribute in an Country reference data table.**
Actors	The ESMA IT Administrator The ESMA System
Preconditions	Country reference data table are updated
Trigger	Ad Hoc
Postconditions	Country reference data table are up to date.
Normal Flow	1. The ESMA Business Administrator connects to the Central database of the ESMA System. 2. The ESMA System displays the content of the table. 3. The ESMA Business Administrator modifies a record. The ESMA System allows to update Officially_Assigned column of the table. 4. The ESMA Business Administrator commits and disconnects from the Central database of the ESMA System.
Frequency	Ad Hoc

Business rules	
Assumption	Is applicable to: • Officially_Assigned in the Country reference data table

3.12.4.6 Update ESMA attributes in MIC reference and Trading Venue Mapping data tables according to the Authorised Entities Interface

Goal	**The goal of this use case is to review and approve the MIC information updates proposed through the Authorised Entities Interface.**
Actors	ESMA Business Administrator – reviews and approves changes The system – implements approved changes
Preconditions	MIC_UPREG_STAGING data table is updated
Trigger	Ad Hoc
Postconditions	MIC reference and Trading Venue Mapping data tables are up-to-date.
Normal Flow	An ESMA Business Administrator chooses “Authorised Entities” interface on the ESMA portal (resp. on the ESMA Intranet). 1. The ESMA System selects all MIC records of the “*MIC_UPREG_STAGING data table*”, with the following attributes: • MIC • Market Type • Authority Name • NCA Country Code • Status • Status Update Date • Creation Date • Last Retrieval Date 2. The ESMA System displays the resulting records and allows the user to sort by MIC, Creation Date, Last Retrieval Date, Status Update Date. 3. The ESMA System allows the user to filter records as per user interface described in chapter 3.12.4.7. 4. The system provides a “select all” button.

	5. The user is able to approve or reject only the latest proposed updates with Status as "Pending" for each MIC. 6. In case a change is approved: 6.1 Its Status is set to "Approved' and its Status Update Date to the Current Date Time. 6.2 The ESMA System checks whether a record exists in *"MIC reference data table"*, with Validity End Date as Null. If TRUE the record is updated as follows: • MIC_MARKET_TYPE • MIC_AUTHORITY_NAME 6.3 The ESMA System checks whether a record exists in *"Trading Venue Mapping view*", with Validity End Date as Null. If TRUE, the following columns of this record are updated: • MIP_MARKET_TYPE • MIP_NCA_COUNTRY_CODE 8. In case a change is rejected: 8.1. Its Status is set to "Rejected" and its Status Update Date to the Current Date Time.
Frequency	Ad Hoc
Business rules	N/A
Assumption	Is applicable to: • Market Type in the MIC reference data table • Authority Name in the MIC reference data table. • Market Type in Trading Venue Mapping data table • NCA Country Code in Trading Venue Mapping data table

3.12.4.7 Authorised Entities User interface for reviewing and acting on proposed MIC updates

The ESMA Business Administrator shall be able to filter in the search interface by selecting one by one or a combination of the following attributes (the user must be able to reset the filter criteria):

Field	Default Value	Input Type	Use
MIC	All	{'All'} + 4(x) List	Filter by MIC
Market Type	All	{'All'} + 4(x) List of Market types	Filter proposed changes by Market Type
Authority Name	Blank	Text	Filter proposed changes by Authority Name

NCA Country	All	{'All'} + Country codes of EEA countries	Filer proposed changes by NCA Country
Status	All	{'All'} + List of available statuses	Filer proposed changes by status
Display only latest proposed changes	Unselected	{'Selected', 'Unselected'} button	Display only the latest proposed changes (Latest Flag = TRUE)
Display only pending proposed changes	Unselected	{'Selected', 'Unselected'} button	Display only the proposed changes that have not yet been approved or rejected. (Status = Pending)

TABLE 10 - FILTER SECTION OF AUTHORISED ENTITIES INTERFACE

4 Interfaces

4.1 Interface with Transparency System

4.1.1 Provide (ISIN, MIC) active at least one day during a given time period

Goal	**The system provides the Transparency System with a list of (ISIN, MIC) combinations which were active at least one day during a given time period, together with some reference data (Field 11, Field 12, RCA).**
Actors	The Reference Data system The Transparency system
Preconditions	
Trigger	The Reference Data system receives from the Transparency system a request specifying the period of interest using two parameters: PeriodFromDate and PeriodToDate, both inclusive.
Postcondition	The Reference Data system has provided the Transparency system with the relevant list of (ISIN, MIC, Field 11, Field 12, RCA).
Normal Flow	1. The Reference Data system selects from the Consistent Reference Data Table the list of (ISIN, MIC, Field 11, Field 12, RCA, ESMA Reception Date Time) where • Field 11 is <= PeriodToDate, and • Field 12 is either NULL or >= PeriodFromDate, and • "Latest record flag" is TRUE. • Consistent Status <> than "CANC"
Frequency	Ad-hoc

Business Rules	
Assumptions	The Reference Data system builds its response based on the latest consistent reference data table at the time when the use-case is triggered.

4.1.2 Get yearly turnover data for equity instruments for a given year

Goal	**The system gets from the Transparency System the list of (ISIN, MIC, yearly turnover, MiFIR identifier) for equity instruments for a given year.**
Actors	The Reference Data system The Transparency system
Preconditions	
Trigger	Weekly, from 8 of January until 15 of March each year
Postcondition	The Reference Data system has received from the Transparency system the relevant list of (ISIN, MIC, yearly turnover, MiFIR identifier).
Normal Flow	The Reference Data system sends the request the Transparency System for a given year.
Frequency	Weekly, from 08th of January to 15th of March each year.
Business Rules	
Assumptions	The Transparency system builds its response based on the latest data available at the time when the use-case is triggered.

4.1.3 Provide the list of (MIC, Field 11, Field 12) related to a given ISIN

Goal	**The system provides the Transparency System with the list of (MIC, Field 11, Field 12) related to a given ISIN as per latest available reference data.**
Actors	The Reference Data system The Transparency system

Preconditions	
Trigger	The Transparency system
Postcondition	The Reference Data system has provided the Transparency system with the relevant list of (MIC, Field 11, Field 12).
Normal Flow	1. The Reference Data system extracts from the latest Consistent Reference Data Table the list of (MIC, Field 11, Field 12) for this ISIN where • "Latest record flag" is TRUE. • Consistent Status <> than "CANC"
Frequency	Every time a liquidity assessment has to be performed for an ISIN – several times per day.
Business Rules	
Assumptions	The Transparency system builds its response based on the latest data published at the time when the use-case is triggered.

4.1.4 Provide the list of (ISIN, MIC, Field 11, Field 12, RCA) active on a given day

Goal	**The system provides the Transparency System with the list of (ISIN, MIC, Field 11, Field 12, RCA) combinations for instruments active on a given day D.**
Actors	The Reference Data system The Transparency system
Preconditions	
Trigger	The Transparency system
Postcondition	The Reference Data system has provided the Transparency system with the relevant list of (ISIN, MIC, Field 11, Field 12, RCA) for day D.
Normal Flow	1. The Reference Data system extracts from the latest Consistent Reference Data Table the list of (ISIN, MIC, Field 11, Field 12, RCA) such that: • Field 11 is less than or equal to D; • Field 12 is NULL or is greater than or equal to D; • "Latest record flag" is TRUE. • Consistent Status is <> than "CANC"

Frequency	Several times per day.
Business Rules	
Assumptions	The Transparency system builds its response based on the latest data published at the time when the use-case is triggered.

4.1.5 Provide the MIC with earliest Field 11 for a given ISIN

Goal	**The system provides the Transparency System with the MIC with earliest Admission to trading or first trading date for a given ISIN.**
Actors	The Reference Data system The Transparency system
Preconditions	
Trigger	The Transparency system
Postcondition	In case there is one single MIC with earliest Field 11 for the ISIN, the system returns that MIC. Otherwise, the system returns the MIC for which the instrument reference data was first received by the system.
Normal Flow	1. The Reference Data system extracts from the latest Consistent Reference Data Table the list of (MIC, Field 11) for this ISIN where • "Latest record flag" is TRUE • Consistent Status <> than "CANC" 2. The Reference Data system identifies the MIC(s) with earliest non-NULL Field 11 among the records extracted in step 1. 3. If step 2 returns a single MIC, the system returns that MIC. 4. Otherwise, 4.3 The system extracts from the latest RCA Data Table the "Earliest ESMA date time of reception", "Earliest ESMA received RECORD_ID", "Earliest NCA date time of reception", "Earliest NCA received RECORD_ID" for this ISIN. 4.4 If "Earliest ESMA date time of reception" is earlier than or equal to the "Earliest NCA date time of reception", the system returns the MIC of the Received Reference Data Table record which RECORD_ID is the "Earliest ESMA received RECORD_ID". 4.5 Otherwise, the system returns the MIC of the Received Reference Data Table record which RECORD_ID is the "Earliest NCA received RECORD_ID".
Frequency	
Business Rules	See Transparency and Suspensions BRD paragraph 49.
Assumptions	

4.2 FIRDS Reference Data view

The system provides other ESMA systems (in particular the FIRDS Transparency system) with a view giving access to the latest available FIRDS Reference Data system's Consistent Reference Data Table, including all internal fields and all RTS23 fields.

4.3 FIRDS Reporting Calendar view

The system provides other ESMA systems (in particular the FIRDS Transparency system and the Double Volume Cap system) with a view giving access to the latest available FIRDS Reference Data system's Reporting Calendar Table (as per chapter 14.1).

4.4 Interface with DIFEA

Goal	
Actors	The DIFEA system – Provides data virtualization and data analysis software The Reference Data system – Makes Reference Data system's databases available for analysis by the FIRDS Data Managers The FIRDS Data Managers – Access the Reference Data system's databases through the DIFEA system tools.
Preconditions	The FIRDS Data Managers have access to the DIFEA system tools with the appropriate access rights. The Reference Data system exposes its databases to the DIFEA system for the relevant DIFEA groups / users. The DIFEA system is configured to serve the Reference Data system as a data source available for the relevant group / user (the FIRDS Data Managers)
Trigger	A FIRDS Data Manager.
Postconditions	The FIRDS Data Manager accesses any data stored in the Reference Data system's databases.
Normal Flow	1. The FIRDS Data Manager launches the DIFEA system analytics tool. 2. The FIRDS Data Manager connects to Reference Data system's database table(s) using the analytics tool. 3. The FIRDS Data Manager accesses the data through the analytics tool and is able to use this data to perform any analysis as allowed by the analytics tool.
Frequency	Ad hoc
Business rules	
Assumption	

4.5 Interface with ESMA Registers [Updated CR #284]

The system shall implement interfaces with ESMA Registers of Trading Venues (Regulated Markets, Multilateral Trading Facilities, Organised Trading Facilities), of Systematic Internalisers, and of Competent Authorities as needed to populate the "Trading Venue Mapping view" and the "MIC reference data table" with all necessary information.

The system shall notify the ESMA Business Administrator of issues detected.

Goal	**The system gets from the Authorised Entities Register the latest MIC information on Market Type, Authority Name and NCA jurisdiction**
Actors	The ESMA System
Preconditions	The Authorised Entities database is updated.
Trigger	Daily
Postconditions	MIC_UPREG_STAGING data table is updated
Normal Flow	1. The ESMA System retrieves from Authorised Entities system the latest MIC information in relation to: Market Type, Authority Name and NCA jurisdiction 2. For each extracted MIC record, the system checks whether at least one of the following conditions is TRUE: • A record exists in *"MICs data table"*, for the MIC, with Validity End Date as NULL. • A record exists in *"Trading Venue Mapping View"* for the MIC with Validity End Date as NULL 3. For the records that passed the step 2 validation, the ESMA system checks whether a record already exists for the MIC in "*MIC_UPREG_STAGING data table*". 3.1 In case no record is found, the system performs the necessary Market Type transformation and inserts a new record in *"MIC_UPREG_STAGING data table",* as follows: • Creation Date as the Current Date Time • MIC • Market_Type (the mapping is RMKT for MIR, OTFS for MIO, MLTF for MIT, SINT for MIS) • Authority Name • NCA Country Code • Status as "Pending" • Latest Flag as TRUE • Status Update Date as NULL • Last Retrieval Date as the Current Date Time • User ID as NULL 3.2 Otherwise (a record exists for the MIC): 3.2.1 The ESMA System checks whether the pre-existing record is identical to the extracted one on the following fields: • MIC • Market_Type • Authority Name • NCA Country Code And If true, the system updates the Last Retrieval Date to the Current Date Time.

	3.2.2 Otherwise (the record is modified): i. The system updates the pre-existing record by setting the Latest Flag as FALSE. ii. The system inserts a new record for the MIC in *"MIC_UPREG_STAGING data table",* as per step 3.1. 4. The system dispatches an email notification to notify the ESMA Business Administrator for new pending MIC information updates. 5. The system logs the successful process execution to retain a history of passed executions. 6. The information stored in the *"MIC_UPREG_STAGING data table"* will be available onto a dedicated page on ESMA portal, as per chapter 3.12.4.6.
Alternate flow	In case of any issue, the system notifies the ESMA IT administrator and logs the erroneous execution.
Frequency	Daily
Business rules	The ESMA Business Administrator will be able to access the relevant information from a dedicated page on ESMA portal, and to approve or not any updates indicated by the interface with Authorised Entities. In case of approval, the respective updates will be implemented in the *"MICs"* and/or *"Trading Venue Mapping"* data tables.
Assumptions	N/A

5 XML Messages

The XML Schemas are annexed to this Functional Specifications Document.

5.1 Instrument Reference Data

Message component	**HUB File type** using the message component	Direction from ESMA System point of view	ISO 20022 Derived Message Definition Identifier[18]	ISO 20022 Base Message Definition Identifier
Business Application Header (BAH)	All except DATLEI	Incoming / Outgoing	head.001.001.01_ESMAUG_1.1.0.xsd	head.001.001.01
BAH and business message encapsulation	All except DATLEI	Incoming / Outgoing	head.003.001.01.xsd	head.003.001.01
Instrument Reference Data Report	DATINS	Incoming	auth.017.001.03_ESMAUG_DATINS_1.1.0.xsd	auth.017.001.03
Cancelled Instrument reference Data Report	CANINS	Incoming	auth.102.001.01_ESMAUG_CANINS_1.2.0.xsd	auth.102.001.01
Feedback on Instrument Reference Data Report (DATINS/CANINS)	FDBINS	Outgoing	auth.031.001.01_ESMAUG_FDB_1.1.0.xsd	auth.031.001.01

[18] XML Schema used for validation appropriate aspects of incoming message and generation of outgoing message.

Feedback on cancelled Instrument Reference Data Report (CANINS)	FDBCAN	Outgoing	auth.031.001.01_ESMAUG_FDB_1.1.0.xsd	auth.031.001.01
Full file	FULINS	Outgoing	auth.017.001.02_ESMAUG_FULINS_1.1.0.xsd	auth.017.001.02
Full file for Cancellations	FULCAN	Outgoing	auth.102.001.01_ESMAUG_CANINS_1.2.0.xsd	auth.102.001.01
Delta file	DLTINS	Outgoing	auth.036.001.0**3**_ESMAUG_DLTINS_1.**2**.0.xsd	auth.036.001.03
Invalid records file	INVINS	Outgoing	DRAFT1auth.042.001.02_ESMAUG_INVINS_1.1.0.xsd	auth.042.001.02
Reminder file	RMDINS	Outgoing	auth.031.001.01_ESMAUG_RMD_1.1.0.xsd	auth.031.001.01

TABLE 11 - INSTRUMENT REFERENCE DATA MESSAGE TABLE

5.2 Additional Reference Data

Message component	HUB File type using the message component	Direction from ESMA System point of view	ISO 20022 Derived Message Definition Identifier	ISO 20022 Base Message Definition Identifier
Non-working days report	DATNWD FULNWD	Incoming Outgoing	auth.039.001.01_ESMAUG_DATNWD_1.1.0.xsd	auth.039.001.01
Feedback on Non-working days Data Report	FDBNWD	Outgoing	auth.031.001.01_ESMAUG_FDB_1.1.0.xsd	auth.031.001.01
Country full file	DATCNY	Outgoing	auth.047.001.01_EMSAUG_DATCNY_1.1.0	auth.047.001.01

Currency full file	DATCUR	Outgoing	auth.048.001.01_ESMAUG_DATCUR_1.1.0	auth.048.001.01
LEI full file	DATLEI	Outgoing	Not applicable	Not applicable
MIC full file	DATMIC	Outgoing	DRAFT1auth.049.001.02_ESMAUG_DATMIC_1.1.0	auth.049.001.02
CFI full file	DATCFI	Outgoing	auth.050.001.01_ESMAUG_DATCFI_1.1.0	auth.050.001.01
Expression of interest on indices file	DATIDX	Outgoing	auth.043.001.01_ESMAUG_DATIDX_1.1.0	auth.043.001.01

TABLE 12 - ADDITIONAL REFERENCE DATA MESSAGE TABLE

6 Data Structure

6.1 Reporting Files Table

Field Name	M/O	Data field description	Data field Values	ISO	Description	Source
FileName [PK]	M	5(a)_6(a)_5(a)_5(a)-6(n)_2(a)			Name of a submitted file excluding HUBEX/HUBDE timestamp	ESMA System
ESMA reception Date Time	M	YYYYMMDDHHMMSS			The timestamp in the name of a submitted file	ESMA System

TABLE 13 - REPORTING FILES TABLE

6.2 NCA reference data table

Field Name	M/O	Data field description	Data field Values	ISO	Description	Source
Country Code	M	2(a)	ISO 3166 - Country Code	3166	The 2-character ISO Country Code identifier.	Updated by ESMA IT administrator from registration process
AuthorityName	M	30(x)			The official name of the NCA	Updated by ESMA business administrator from registration process
Address	M	250(z)			The address of the NCA	Updated by ESMA business administrator from registration process
Generic EmailAddress	O				The email address to be used for the RCA change processes.	Updated by ESMA business administrator from registration process
Contact. Name	M	250(z)			The name of the contact	Updated by ESMA business administrator from registration process
Contact. EmailAddress	M				The email address of the contact	Updated by ESMA business administrator from registration process
Contact. PhoneNumber	M				The phone Number of the contact	Updated by ESMA business administrator from registration process
Level of delegation	M	1(a)	N/C/T		N in case Non-delegating NCA C in case NCA delegating data collection and transparency calculations T in case NCA delegating transparency calculations but not data collection in their jurisdiction	Updated by ESMA business administrator from registration process
Withdrawn flag	M	TRUEFALSE Indicator			Flag which indicates whether the NCA is withdrawn from the system	Updated by ESMA business administrator from registration process

TABLE 14 - NCA REFERENCE DATA TABLE

6.3 CFI / RCA rule mapping table

Field Name	M/O	Data field description	Data field Values	ISO	Description	Source
CFI Construct [PK]	M	6(a)	alphabetic or '*' characters	N/A	CFI Construct code	Updated by ESMA IT Administrator
RTS22 rule	M	50(x)	RTS22 Art.16 (1) and (2) ("equity / equity like") RTS22 Art.16 (3) and (4) ("debt") RTS22 Art.16 (5).a ("equity derivatives ") RTS22 Art.16 (5).b ("debt derivatives") RTS22 Art.16 (5).c ("basket derivatives") RTS22 Art.16 (5).d ("index derivatives") RTS22 Art.16 (5).e ("derivatives on derivative") RTS22 Art.16 (6) ("other")	N/A	The RTS22 as defined in the BRD	Updated by ESMA IT Administrator

TABLE 15 - CFI / RCA RULE MAPPING TABLE

6.4 CFI-based validations table

To support very granular rules, the system should be able to support up to 100,000 CFI constructs x 48 fields = 4.8 million rows

Field Name	M/O	Data field description	Data field Values	ISO	Description	Source
CFI Construct [PK]	M	6(a)	alphabetic or '*' character	N/A	CFI Construct code defined in BRD	Updated by ESMA Business Administrator

RTS23 field Number Id	M	2(n)	Number ID in the RTS 23 field table	N/A	The number ID of the RTS23 field.	Updated by ESMA Business Administrator
Cardinality	M	1(a)	M/ F Forbidden	N/A	M when RTS23 field Number Id is mandatory for the CFI Construct. F when RTS23 field Number Id is N/A for the CFI Construct.	Updated by ESMA Business Administrator

TABLE 16 - CFI-BASED VALIDATIONS TABLE

6.5 Expression of interest on Indices reference data table

Field Name	M/O	Data field description	Data field Values	ISO	Description	Source
NCACountryCode	M	2(a)	ISO 3166 - Country Code	316**6**	Country code of the NCA having expressed its interest in receiving Transaction reports for that index.	Generated by the ESMA System at the submission of the record (the country of the NCA user).
ISINIndexIdentifier	O	12(x)			ISIN code of the index	Submitted by NCA user through the dedicated interface.
OtherIndexIdentifier	O	4(x)			4 Letter as per Annex Table 1 {INDEX}	Submitted by NCA user through the dedicated interface.
ValidityStartDate	M	Date			The day on when the NCA country has expressed as being interested in the index.	Generated by the ESMA System (the Date Time the NCA user confirms the add/removal of the selected Index identifier through the dedicated
ValidityEndDate	O	Date			The day on when the NCA country has expressed not as being interested in the index anymore since the validityStartDate.	Generated by the ESMA System (the Date Time the NCA user confirms the add/removal of the selected Index identifier through the dedicated

TABLE 17 - EXPRESSION OF INTEREST ON INDICES REFERENCE DATA TABLE

6.6 Trading venue mapping view

Field Name	M/O	Data Type	Data field Values	ISO	Description	Source
MIC [PK]	M	4(a)		10383	Segment MIC where available, otherwise operating MIC (RTS23 field 6).	Generated by the ESMA System from ISO 10383
NCACountry	M	2(x)		3166	The NCA country provides the country of jurisdiction of the TV/SI.	ESMA Register System
OperatingMIC	M	4(a)		10383	As per ISO 10383, An operating MIC identifies the entity operating an exchange, trading platform, regulated or non-regulated market, or a trade reporting facility in a specific country. It is the "parent" MIC as opposed to the "market segment" MIC.	ISO 10383
SegmentMIC	O	4(a		10383	As per ISO 10383, Market Identifier Code separating an operating MIC to multiple business units.	ISO 10383
MarketType	M	4(x)	RMKT MLTF OTFS SINT APAS		This information identifies the type of the TV/SI. NCA must ensure that the MIC codes are registered in the appropriate register (Register of RM, register of MTF, register of OTF, register of SI, register of APA, register of CTP), or are flagged under the right category in case of a single register covering all those types of entities.	ESMA Register System
MiFIR-Trading Venue	M	40(x)			Trading Venue for which the market operator has received an authorization under Directive 2014/65/EU. It can be a single MIC or a concatenation of MICs	Onboarding documents
ValidityStartDate	M	Date YYYYMMDD			First date when the record is valid	Generated by the ESMA System
ValidityEndDate	M	Date YYYYMMDD			Last date when the record is valid	Generated by the ESMA System

TABLE 18 - TRADING VENUE MAPPING VIEW

6.7 Reporting Flow view

Field Name	M/O	Data Type	Data field Values	Description	Source
TV / SI MIC	M	4(a)		For TV / SI, segment MIC where available, otherwise operating MIC (RTS23 field 6). For APAs, XOFF for OTC transactions on instruments admitted to trading on a Venue, XXXX for pure-OTC	Onboarding documents
Reporting entity identification	M	50(a)		For TV / SI, the MIC code of the entity in charge of reporting the data for the "TV / SI MIC". For APA / CTP, the identifier of the APA or CTP	Onboarding documents
Submitting entity identification (HUBSenderCode)	M	5(a)		The HUB Sender Code of the entity expected to submit the data reported by the TV / SI / APA / CTP. It can be the TV / SI / APA / CTP, or the NCA in which jurisdiction the TV / SI / APA / CTP is. It is used in particular for the following purposes: - Check that the entity submitting the data for a TV / SI / APA / CTP is the responsible party for the TV / SI / APA / CTP. - Identify to whom notifications such as feedback files and reminders should be sent	Onboarding documents
Reference Data applicable cut-off time	M	Time	HH:MI:SS	The applicable cut-off time for the purpose of Reference Data reporting. 21:00 CET when data is collected directly from TV / SI 21:30 CET when data is collected by NCAs delegating transparency calculations but not delegating data collection in their jurisdiction 23:59 CET when data is collected by non-delegating NCAs	Onboarding documents.

TABLE 19 - REPORTING FLOW VIEW

6.8 Instrument yearly turnover view

Field Name	M/O	Data type	Data field Values	ISO	Description	Source
MIC	M	4(a)	4(a)	10383	Segment MIC for the TV/SI, where available, otherwise operating MIC	Updated by the interface with Transparency System
ISIN	M			6166		Updated by the interface with Transparency System
MiFIR Identifier	M	4(a)			Type of Equity / Equity-like instrument: SHRS = shares ETFS = ETFs DPRS = depositary receipts CRFT = certificates OTHR = other equity-like financial instruments	Updated by the interface with Transparency System
Yearly turnover	M	15(n)	15(n)		Yearly turnover of ISIN of the TV/SI MIC	Updated by the interface with Transparency System

TABLE 20 - INSTRUMENT YEARLY TURNOVER VIEW

6.9 RTS23 Fields table

Field category	RTS23 Field Name	Cardinality	RTS field Number	System Field Number	XML Path
Identifier	Instrument Identification code	1..1	1	1	Document/MiFIRRefDataRpt/RefData/FinInstrmGnlAttrbts/Id
Trading Venue dependent fields	Trading Venue	1..1	6	6	Document/MiFIRRefDataRpt/RefData/TradgVnRltdAttrbts/Id
	Request for admission to trading by issuer	1..1	8	8	Document/MiFIRRefDataRpt/RefData/TradgVnRltdAttrbts/IssrReq
	Date of approval of the admission to trading	0..1	9	9	Document/MiFIRRefDataRpt/RefData/TradgVnRltdAttrbts/AdmssnApprvlDtByIssr
	Date of request for admission to trading	0..1	10	10	Document/MiFIRRefDataRpt/RefData/TradgVnRltdAttrbts/ReqForAdmssnDt
	Date of admission to trading or date of first trade	1..1	11	11	Document/MiFIRRefDataRpt/RefData/TradgVnRltdAttrbts/FrstTradDt
	Termination date	0..1	12	12	Document/MiFIRRefDataRpt/RefData/TradgVnRltdAttrbts/TermntnDt
	Instrument Full Name	1..1	2	2	Document/MiFIRRefDataRpt/RefData/FinInstrmGnlAttrbts/FullNm
Free-Text fields used for consistency checks					
Non-Free-Text fields used for consistency checks	Underlying index name	0..1	28	28	Document/MiFIRRefDataRpt/RefData/DerivInstrmAttrbts/UndrlygInstrm/Sngl/Indx/Nm/RefRate/{Indx, Nm}
	Name of the index/benchmark of a floating rate bond	0..1	20	20	**Document/MiFIRRefDataRpt/RefData/DebtInstrmAttrbts/IntrstRate/Fltg/RefRate/{Indx, Nm}**

	Reference rate	0..1	40	40	Document/MiFIRRefDataRpt/RefData/DerivInstrmAttrbts/AsstClssSpcfcAttrbts/Intrst/IntrstRate/RefRate
	Instrument Classification	1..1	3	3	**Document/MiFIRRefDataRpt/RefData/FinInstrmGnlAttrbts/ClssfctnTp**
	Commodities derivative indicator	1..1	4	4	Document/MiFIRRefDataRpt/RefData/FinInstrmGnlAttrbts/CmmdtyDerivInd
	Issuer or operator of the trading venue Identifier	1..1	5	5	Document/MiFIRRefDataRpt/RefData/Issr
	Financial instrument short name	0..1	7	7	Document/MiFIRRefDataRpt/RefData/FinInstrmGnlAttrbts/ShrtNm
	Notional currency 1	1..1	13	13	Document/MiFIRRefDataRpt/RefData/FinInstrmGnlAttrbts/NtnlCcy
	Total issued nominal amount	0..1	14	14	Document/MiFIRRefDataRpt/RefData/DebtInstrmAttrbts/TtlIssdNmnlAmt
	Maturity date	0..1	15	15	Document/MiFIRRefDataRpt/RefData/DebtInstrmAttrbts/MtrtyDt
	Expiry date	0..1	24	24	Document/MiFIRRefDataRpt/RefData/DerivInstrmAttrbts/XpryDt
	Price multiplier	0..1	25	25	Document/MiFIRRefDataRpt/RefData/DerivInstrmAttrbts/PricMltplr

	ISIN instrument code in case the underlying is single and not an index	0..1	26	26a	Document/MiFIRRefDataRpt/RefData/DerivInstrmAttrbts/UndrlygInstrm/Sngl/ISIN
	ISIN instrument codes composing the basket case the underlying is a basket	0..N	26	26b	Document/MiFIRRefDataRpt/RefData/DerivInstrmAttrbts/UndrlygInstrm/Bskt/ISIN
	ISIN instrument code in case the underlying is single and an index	0..1	26	26c	Document/MiFIRRefDataRpt/RefData/DerivInstrmAttrbts/UndrlygInstrm/Sngl/Indx/ISIN
	LEI issuer code in case the underlying is single and not an index	0..1	27	27a	Document/MiFIRRefDataRpt/RefData/DerivInstrmAttrbts/UndrlygInstrm/Sngl/LEI
	LEI issuer codes composing the basket in case the underlying is a basket	0..N	27	27b	Document/MiFIRRefDataRpt/RefData/DerivInstrmAttrbts/UndrlygInstrm/Bskt/LEI
	Term of the underlying index	0..1	29	29	Document/MiFIRRefDataRpt/RefData/DerivInstrmAttrbts/UndrlygInstrm/Sngl/Indx/Nm/Term
	Option type	0..1	30	30	Document/MiFIRRefDataRpt/RefData/DerivInstrmAttrbts/OptnTp
	Strike price	0..1	31	31	Document/MiFIRRefDataRpt/RefData/DerivInstrmAttrbts/StrkPric
	Currency of nominal value	0..1	16	16	Document/MiFIRRefDataRpt/RefData/DebtInstrmAttrbts/NmnlValPerUnit/@Ccy

	Nominal value per unit/minimum traded value	0..1	17	17	Document/MiFIRRefDataRpt/RefData/DebtInstrmAttrbts/NmnlValPerUnit
	Fixed rate	0..1	18	18	Document/MiFIRRefDataRpt/RefData/DebtInstrmAttrbts/IntrstRate/Fxd
	Identifier of the index/benchmark of a floating rate bond	0..1	19	19	Document/MiFIRRefDataRpt/RefData/DebtInstrmAttrbts/IntrstRate/Fltg/RefRate/ISIN
	Term of the index/benchmark of a floating rate bond	0..1	21	21	Document/MiFIRRefDataRpt/RefData/DebtInstrmAttrbts/IntrstRate/Fltg/Term
	Basis Point Spread of the index/benchmark of a floating rate bond	0..1	22	22	Document/MiFIRRefDataRpt/RefData/DebtInstrmAttrbts/IntrstRate/Fltg/BsisPtSprd
	Seniority of the bond	0..1	23	23	Document/MiFIRRefDataRpt/RefData/DebtInstrmAttrbts/DebtSnrty
	Strike price currency	0..1	32	32	Document/MiFIRRefDataRpt/RefData/DerivInstrmAttrbts/StrkPric/MntryVal/Amt/@Ccy
	Option exercise style	0..1	33	33	Document/MiFIRRefDataRpt/RefData/DerivInstrmAttrbts/OptnExrcStyle
	Delivery type	0..1	34	34	Document/MiFIRRefDataRpt/RefData/DerivInstrmAttrbts/DlvryTp
	Base product	0..1	35	35	Document/MiFIRRefDataRpt/RefData/DerivInstrmAttrbts/AsstClssSpcfcAttrbts/Cmmdty/Pdct {Base Pdct}
	Sub product	0..1	36	36	Document/MiFIRRefDataRpt/RefData/DerivInstrmAttrbts/AsstClssSpcfcAttrbts/Cmmdty/Pdct {Sub Pdct}

	Further sub product	0..1	37	37	Document/MiFIRRefDataRpt/RefData/DerivInstrmAttrbts/AsstClssSpcfcAttrbts/Cmmdty/Pdct {AddtlSubPdct}
	Transaction type	0..1	38	38	Document/MiFIRRefDataRpt/RefData/DerivInstrmAttrbts/AsstClssSpcfcAttrbts/Cmmdty/TxTp
	Final price type	0..1	39	39	Document/MiFIRRefDataRpt/RefData/DerivInstrmAttrbts/AsstClssSpcfcAttrbts/Cmmdty/FnlPricTp
	IR Term of contract	0..1	41	41	Document/MiFIRRefDataRpt/RefData/DerivInstrmAttrbts/AsstClssSpcfcAttrbts/Intrst/IntrstRate/Term
	Notional currency 2	0..1	42	42	Document/FinInstrmRptgRefDataRpt/RefData/DerivInstrmAttrbts/AsstClssSpcfcAttrbts/Intrst/OthrNtnlCcy
	Notional currency 2	0..1	47	47	Document/MiFIRRefDataRpt/RefData/DerivInstrmAttrbts/AsstClssSpcfcAttrbts/FX/OthrNtnlCcy
	Fixed rate of leg 1	0..1	43	43	Document/MiFIRRefDataRpt/RefData/FinInstrmRefData/DerivInstrmAttrbts/AsstClssSpcfcAttrbts/Intrst/FrstLegIntrstRate/Fxd
	Fixed rate of leg 2	0..1	44	44	Document/MiFIRRefDataRpt/RefData/FinInstrmRefData/DerivInstrmAttrbts/AsstClssSpcfcAttrbts/Intrst/OthrLegIntrstRate/Fxd
	Floating rate of leg 2	0..1	45	45	Document/MiFIRRefDataRpt/RefData/FinInstrmRefData/DerivInstrmAttrbts/AsstClssSpcfcAttrbts/Intrst/OthrLegIntrstRate/Fltg/RefRate
	IR term of contract of leg 2	0..1	46	46	Document/MiFIRRefDataRpt/RefData/FinInstrmRefData/DerivInstrmAttrbts/AsstClssSpcfcAttrbts/Intrst/OthrLegIntrstRate/Fltg/Term
	FX Type	0..1	48	48	Document/MiFIRRefDataRpt/RefData/FinInstrmRefData/DerivInstrmAttrbts/AsstClssSpcfcAttrbts/FX/OthrNtnlCcy

TABLE 21 - RTS23 FIELDS TABLE

6.10 Additional Field table

Message Type	RTS23 Field Name	Xpath
DATINS	NCA reception date time	Document/MiFIRRefDataRpt/RefData/TechAttrbts /SbmssnDtTm
	Reporting Entity	Document/MiFIRRefDataRpt/RptHdr/RptgNtty/MktIdCd Or Document/MiFIRRefDataRpt/RptHdr/RptgNtty/NtlCmptntAuthrty
	ESMA Reception date time	TimeStamp generated by HUBEX/HUBDE in the filename
	Submitting Entity	Sender in the filename
	Technical RECORD_IDentification	Document/MiFIRRefDataRpt/RefData/TechRcrdId
DATNWD	Reporting Entity	Document/MiFIRNonTradgDayRpt/NonWorkgDayRpt/Id
	Nonworking Day	Document/MiFIRNonTradgDayRpt/NonWorkgDayRpt/NonWorkgDay/Dt
CANINS	Identifier	Document/MiFIRRefDataRpt/RefData/FinInstrmGnlAttrbts/Id
	Trading venue	Document/MiFIRRefDataRpt/RefData/TradgVnRltdAttrbts/Id
	Technical RECORD_IDentification	Document/MiFIRRefDataRpt/RefData/TechRcrdId

TABLE 22 - ADDITIONAL FIELD TABLE

6.11 Rejection statistics table

Attribute Name	M/O	Data Type	Description
File name	M	Char	File name
Reception date time	M	Date time	Reception date time of the file name
Error code	M	Char	Error code
Number of records	M	Number	Number of records rejected with the error code

TABLE 23 - REJECTION STATISTICS TABLE

6.12 Rejected records table

Attribute Name	M/O	Data Type	Description
File name	M	Char	File name received and containing the rejected record
Reception date time	M	Date time	Date time of reception of the filename
Feedback file name	M	Char	Filename of the feedback file generated by the system and containing the rejection error for the record
Error code	M	Char	Error code triggered by the system for the rejected record
Error message	M	Char	Error message generated by the system for the rejected record
ISIN	M	Char	ISIN of the rejected record
MIC	M	Char	MIC of the rejected record
RECORD_ID	M	Char	RECORD_ID of the rejected record
Record details	M	Char	Full content of the rejected record

TABLE 24 - REJECTED RECORDS TABLE

6.13 Yearly RCA reassessment input data table

Attribute Name	M/O	Data Type	Description
ISIN	M	Char (12)	ISIN for Yearly RCA reassessment
ONEOFF_YEARLY_ENABLED_FLAG	M	Char (1)	1 – Include this ISIN for Yearly RCA reassessment 0 – Disregard this ISIN for Yearly RCA reassessment

TABLE 25 - YEARLY RCA REASSESSMENT INPUT TABLE

6.14 RCA_MIC adjustments data table

Attribute Name	M/O	Data Type	Description
ISIN	M	Char (12)	ISIN
RCA_MIC	M	Char (4)	New RCA_MIC
USER_ID	M	Char (30)	User submitting the request
ValidityStartDate	M	Date YYYYMMDD	Start date, from which, the change of RCA_MIC is valid
ValidityEndDate	O	Date YYYYMMDD	End Date, till which, this change of RCA_MIC is valid
Reason_for_change	M	Char(255)	Predefined list of values
Active_change	M	True/False	Identification of active records for next post processing

TABLE 26 - RCA_MIC ADJUSTMENTS DATA TABLE

6.15 RCA_MIC adjustments error data table

Attribute Name	M/O	Data Type	Description
ISIN	M	Char (12)	ISIN
RCA_MIC	M	Char (4)	New RCA_MIC
Date_of_error	M	Date time	TimeStamp generated by the system
USER_ID	M	Char (30)	User submitting the request
ValidityStartDate	M	Date YYYYMMDD	Start date, from which, the change of RCA_MIC is valid
ValidityEndDate	M	Date YYYYMMDD	End Date, till which, this change of RCA_MIC is valid
Reason_for_change	M	Char(255)	
Error message	M	Char(255)	Message generated by the system and providing information regarding the error

TABLE 27 - RCA-MIC ADJUSTMENTS ERROR DATA TABLE

6.16 Set TERMINATION_DATE error data table

Attribute Name	M/O	Data Type	Description
ISIN	M	Char (12)	ISIN
MIC	M	Char (4)	New RCA_MIC
Date_of_error	M	Date time	TimeStamp generated by the system
USER_ID	M	Char (30)	User submitting the request
TERMINATION_DATE	M	Date YYYYMMDD	The new Termination Date, as provided in the submitted file
Error message	M	Char(255)	Message generated by the system and providing information regarding the error
File Name	M	Char(255)	File name of the file received and containing the Termination Date change request

TABLE 28 - SET TERMINATION DATE ERROR DATA TABLE

6.17 Set TERMINATION_DATE data table

Attribute Name	M/O	Data Type	Description
ISIN	M	Char (12)	ISIN
MIC	M	Char (4)	MIC
Creation Date	M	Date time	TimeStamp generated by the system
USER_ID	M	Char (30)	User submitting the request
TERMINATION_DATE	M	Date YYYYMMDD	The new Termination Date, as provided in the submitted file
File Name	M	Char(255)	File name of the file received and containing the Termination Date change request
Active_change	M	True/False	Identification of active records for next post processing

TABLE 29 - SET TERMINATION DATE DATA TABLE

6.18 MIC_UPREG_STAGING data table

Field Name	M/O	Data field description	Data field value	ISO	Description	Source
MICCode	M	4(a)		10383	The ISO 10383 Market Identifier Code	Data provider
MarketType	M	4(x)	RMKT MLTF OTFS SINT		For MIC operating in a EEA country, the type of Market as identified in the TV/SI Register in ESMA: RM, OTF, MTF or SI.	TV/SI Registers
AuthorityName	M	400(a)			The name or description of the institution, market, or infrastructure	Data provider
CountryCode	M	2(a)			The ISO 3166 2-character country code where the institution, market, or infrastructure operates	Data provider
Status	M	4(a)	PNDG APRV RJCT		A status indicating whether the MIC updates have been approved or rejected	ESMA manual update
StatusUpdateDate	O	DateTime YYYYMMDD HH:MI:SS			Date at which the change was approved or rejected by ESMA administrator	ESMA manual update
CreationDate	M	DateTime YYYYMMDD HH:MI:SS			Date at which the record was firstly inserted in the table	Generated by the ESMA System
LastRetrievalDate	M	DateTime YYYYMMDD HH:MI:SS			Date at which the record was last updated	Generated by the ESMA System
UserID	O	400(a)			The user that approved or rejected the proposed update	ESMA manual update
LatestFlag	M	TRUE/FALSE	TRUE /FALSE		Indicates whether the proposed update is the latest one for this MIC	Generated by the ESMA System

TABLE 30 – MIC_UPREG_STAGING data table

7 Annex 1a: Transmission Validation Rules

When a submitting entity uploads a file into HUBEX/HUBDE, preliminary transmission checks are performed based on the file naming convention [Annex 2: File naming conventions] as follows:

- Check that <Sender> matches the sender account (It is not possible for an entity to submit a file on behalf of another),
- If OK, check that the file naming convention is respected,
- If OK, check that the sender is allowed to send files to the receiver, and
- If OK, check that file size is lower than remaining disk quota size.

Then, if all those checks are passed, the ESMA system performs the following transmission checks.

Error code	Error Message	Control
Checks performed by the ESMA System (FIL-XXX)		
FIL-101	The file cannot be decompressed.	All files on the ESMA System are compressed in zip format. When treating a file, the first step is the decompression of the zip file. This error is returned by the system if the file cannot be decompressed.
FIL-102	The file contains more than 1 XML file.	Once the file is decompressed, the ESMA system checks that the decompressed container zip file contains exactly one XML file. This error is returned by the system when no XML or more than one file is found.
FIL-103	The name of the XML file is not consistent with the name of its container ZIP file.	Once the file is decompressed and that exactly only one XML file is submitted, the ESMA System checks that the sender code, the file type code, Key1 code, Key2 code, the recipient code and the Year of the XML file and of the ZIP file are equal. This error is returned by the system when at least one of those fields is not equal.

TABLE 31 - TRANSMISSION VALIDATION RULES

8 Annex 1b: Format Validation Rules

Initial data validation is done to confirm file sent by the Submitting Entity can be processed. This includes whether the file can be uncompressed, conforms to expected XSD schema and common file identifiers are valid.

Possible Errors encountered are:

Error code	Error Message	Control
Feedback messages related to file validation		
FIL-104	The ISO 20022 Message Identifier in the BAH (*.xsd) is not valid.	The ISO 20022 Message Identifier in the BAH must refer to the latest schema approved by ITMG.
FIL-105	The file structure does not correspond to the XML schema: [result of XML validation].	Validate that the file sent fits to the corresponding XML schema. For information purposes, if there is an error in the validation, the error message produced by the XML parser is displayed in place of [result of XML validation].
FIL-106	The Reporting Entity is not registered at ESMA or the Submitting Entity shall not submit this data.	Validate the file as follows: 1) Extracts from Table 19 - Reporting Flow view the Submitting entity identification associated to the Reporting entity identifier code in the Reporting header of the submitted file. 2) Checks that the Submitting entity identification extracted in step 1 is equal to the sender code of the submitted file.
FIL-107	File <Filename> has already been submitted once.	When a file is received, the system checks whether it exists in the Reporting Files Table as described in Table 13 - Reporting Files table a record which filename is composed of the same sender, filetype, recipient, Key1, Key2 Year.

TABLE 32 - FORMAT VALIDATION RULES

9 Annex 1c: Reference Data Content and Consistency Validation Rules

Control executed by the system	Error code	Error Message	Concerned Fields
The value of “Instrument Classification” shall be a valid ISO 10962 code and shall be covered by at least one of the CFI constructs in the CFI-based validation matrix.	INS-101	The CFI code is not valid against the CFI based validation matrix.	RTS field 3 against the list of valid CFI codes table and against the list of CFI Construct (Primary Key) in the CFI based validation table
Check that Mandatory fields are reported according to “CFI-based validations table”.	INS-102	The following mandatory fields are not reported: “*List of RTS23 number Id of missing field(s)”.*	RTS field 3 vs all other RTS fields
Check that Non-Applicable fields (N/A) are not reported according to “CFI-based validations table”.	INS-103	The following Non-Applicable fields are wrongly reported: “*List of RTS23 number Id of N/A field(s)”.*	All RTS fields
The following checks are performed only in case checks above are passed.			
Check that that a record (ISIN, MIC) is not reported twice in the same file.	INS-104	The following records are reported twice in the same file.	RTS field 1,6
The MIC identifier in the *TradingVenueRelatedAttributes* block shall exist in the Trading venue mapping view which satisfies the following conditions: ValidityStartDate is prior or equal to the current date and (ValidityEndDate is NULL OR is later or equal to the current date).	INS-105	The Trading Venue field contains an invalid MIC code.	RTS field 6
The Reporting entity identification associated to the MIC [field 6] in Reporting Flow view (TV / SI MIC) is equal to the Reporting Entity identifier in the header of the XML file.	INS-107	“Trading Venue” field is not registered at ESMA or is not reported by the right reporting entity.	Reporting Entity RTS field 6

The Strike Price Currency Code shall exist as an active ISO 4217 Currency Code in the currency reference data table (based on records with ValidityEndDate is NULL.	INS-108	The Strike Price Currency Code is incorrect.	RTS field 32
The Notional Currency 1 Code shall exist as an ISO 4217 Currency Code in the currency reference table (based on records which ValidityEndDate is NULL or PreEuroFlag is TRUE).	INS-109	The Notional Currency 1 Code is incorrect.	RTS field 13
The Notional Currency 2 Code shall exist as an ISO 4217 Currency Code in the currency reference table (based on records which ValidityEndDate is NULL or PreEuroFlag is TRUE).	INS-110	The Notional Currency 2 Code is incorrect.	RTS field 42, 47
The Currency of nominal value shall exist as an ISO 4217 Currency Code in the currency reference table (based on records which ValidityEndDate is NULL or PreEuroFlag is TRUE).	INS-111	The Currency of nominal value is incorrect.	RTS field 16
The value of the “Issuer Identifier” shall exist in the LEI reference table and comply with the following conditions: (ValidityEndDate is NULL OR date of termination of the respective record is between any period specified by ValidityStartDate and ValidityEnddate in LEI reference table for this LEI) AND register status in {“Issued", "Lapsed", "Pending transfer", "Pending archival}.	INS-112	The LEI provided for “Issuer Identifier” is invalid.	RTS field 5
The value of the “Direct Underlying issuer” shall exist in the LEI reference table and comply with the following conditions: (ValidityEndDate is NULL OR date of termination of the respective record is between any period specified by ValidityStartDate and ValidityEnddate in LEI reference table for this LEI) AND register status in {“Issued", "Lapsed", "Pending transfer", "Pending archival}.	INS-113	The LEI provided for “Direct Underlying Issuer” is invalid.	RTS field 27a, 27b

Check the last digit of the ISIN code of the "instrument identification code" according to the algorithm of ISIN validation.[19]	INS-114	The ISIN code of the instrument identification code is invalid.	RTS field 1
Check the last digit of the ISIN code of the "underlying instrument" should be valid according to the algorithm of ISIN validation.[20]	INS-115	The ISIN code of the underlying is invalid.	RTS field 26a, 26b, 26c
Check the last digit of the ISIN code of the Identifier of the "Index/Benchmark of a floating rate Bond" should be valid according to the algorithm of ISIN validation.[21]	INS-116	The ISIN code of the Index/Benchmark of a floating rate Bond is invalid.	RTS field 19
The "Date of admission to trading or date of First trade" should a valid date and in a sensible range (no prior than 31-12-1899[22]).	INS-117	The "Date of admission to trading or date of First trade" is not a consistent date.	RTS field 11
The Termination Date should a valid date and in a sensible range (no prior than 31-12-1899[23]).	INS-118	The Termination Date is not a consistent date.	RTS field 12
The Termination Date should be equal to or later than the "Date of admission to trading or date of First trade".	INS-119	The Termination Date is earlier than the "Date of admission to trading or date of First trade".	RTS field 11, 12
The Maturity Date should a valid date and in a sensible range (no prior than 31-12-1899[24]).	INS-120	The Maturity Date is not a consistent date.	RTS field 15
The Maturity Date should be equal to or later than "Date of admission to trading or date of First trade".	INS-121	The Maturity Date and Date of admission to trading or date of First trade are not consistent.	RTS field 11, 15

[19] See Formula for computing modulus 10 "Double-Add-Double" check digit as per ISO 6166 specifications.
[20] See Formula for computing modulus 10 "Double-Add-Double" check digit as per ISO 6166 specifications.
[21] See Formula for computing modulus 10 "Double-Add-Double" check digit as per ISO 6166 specifications.

[22] The oldest instrument traded according to RDS System database. That date must be configurable.

[23] The oldest instrument traded according to RDS System database. That date must be configurable.

[24] The oldest instrument traded according to RDS System database. That date must be configurable.

The Expiry Date should a valid date and in a sensible range (no prior than 31-12-1899[25]).	INS-122	The Expiry Date is not a consistent date.	RTS field 24
The Expiry date should be equal to or later than the “Date of admission to trading or date of First trade”.	INS-123	The Expiry Date and The Date of admission to trading or date of First trade are not consistent.	RTS field 11, 24
Field “Option Type” shall only contain value “PUTO” when the “Instrument Classification” refers to the following CFI Codes: OP**** (Put Options).	INS-124	Invalid “PUTO” Option Type	RTS field 3, 30
Field “Option Type” shall only contain value “CALL” when the “Instrument Classification” refers to the following CFI Codes: OC**** (Call Options).	INS-125	Invalid “CALL” Option Type	RTS field 3, 30
The termination date should be populated in case Maturity date/Expiry date is populated and is strictly earlier than the current reporting date.	INS-126	The Termination date is not populated for an expired/matured instrument. N.B.: that check if failed generates a warning only.	RTS field 12, {15 or 24}
The termination date should be earlier or equal in case Expiry date/Maturity date is populated.	INS-127	The Termination date and Expiry date/Maturity date are not consistent. N.B.: that check if failed generates a warning only.	RTS field 12, {15 or 24}
The field listed in Table 1 BRD 43. shall be consistent with the values provided by the Relevant competent Authority.[26]	INS-128	The following fields are not consistent with the one provided by RCA :<<Upcoming RCA>>, RCA_MIC :<<MIC>>(<<MIC’s country>>): *List of RTS23*	RTS fields used for consistency checks as stated in Table 21 - RTS23 Fields table.

[25] The oldest instrument traded according to RDS System database. That date must be configurable.

[26] Generated during the consistency checks.

		number Id of missing field(s)". N.B.: that check if failed generates a warning only.	
The currency of the Total issued nominal amount shall be the same as the currency of nominal value	INS-129	The currency of the Total issued nominal amount is not the same as the currency of nominal value	RTS Field 14. Currency RTS Field 16.
The ISIN-MIC combination, received for a cancellation record, should exists in FIRDS DB.	INS-130	The ISIN-MIC combination, received from a cancellation record, doesn't exists in FIRDS DB	RTS field 1,6

TABLE 33 - REFERENCE DATA CONTENT AND CONSISTENCY VALIDATION RULES

10 Annex 1d: Non-working Days Content Validation Rules

Control executed by the system	Error code	Error Message
If the non-working day is provided for a Market TV/SI (NonWorkgDay/Id/MktIdCd is populated): the system checks that the MIC exists in the Reporting Flow View under "TV / SI MIC", and that there exists a line in the Reporting Flow View which maps this "TV / SI MIC" with "Reporting Entity" documented in the RptHdr/RptgNtty If the non-working day is provided for an APA or CTP (NonWorkgDay/Id/Othr/Id is populated): the system checks that the identification code under Other/Id exists in the Reporting Flow View under "Reporting Entity" and is the same as the entity reported under RptHdr/RptgNtty/Id/Othr	NWD-001	The TV/SI/APA/CTP identified under NonWorkgDay/Id is not registered at ESMA or is not consistent with the reporting entity in the header.
In case the identification code of the record is a NCA[27], that code shall exist in the NCA reference data table in the Registers system and must be equal to the Reporting Entity identifier in the header of the XML file.	NWD-002	The NCA identified by the "Trading Venue identification code" field is not registered at ESMA or is not equal to the reporting entity in the header.
The Non-working Date of a record should be a valid date.	NWD-003	This date does not exist.

TABLE 34 - NON-WORKING DAYS CONTENT VALIDATION RULES[28]

11 Reminder Message code and description

Code	Code description
RMD-001	No file has been submitted to ESMA on the day <<current reporting date>> or was submitted after the cut-off time.
RMD-002	The instrument was not reported on the day <<current reporting date>> or was reported after the cut-off time.

TABLE 35 - REMINDER MESSAGE CODE AND DESCRIPTION

[27] Used in case the non-working day refers to an NCA

12 Annex 2: File naming conventions

The XML files sent by the Submitting Entity (NCA or TV/SI) to ESMA must comply with the following naming convention:

<Sender>_<FileType>_<Recipient>_<Key1>-<Key2>_<Year>.xml

The Submitting Entity archives the XML file into a ZIP file and uploads onto the HUBEX/HUBDE System. Its name must comply with the same naming convention:

<Sender>_<FileType>_<Recipient>_<Key1>-<Key2>_<Year>.zip

As soon as HUBEX/HUBDE routes the file, it suffixes it with a timestamp in YYYYMMDDHHMMSS format (24h format, UTC Time). Therefore, as soon as the file is placed in the submitting entity's Outgoing folder dedicated to the ESMA System, the naming convention for the files becomes:

<Sender>_<FileType>_<Recipient>_<Key1>-<Key2>_<Year>_*Timestamp.zip*

The ESMA System uploads the file from the incoming folder dedicated to it, unzips the ZIP file and checks that XML filename and ZIP filename are consistent [All component of the filenames are equal excluding timestamp].

The following table provides description of the components of the filename:

Component	Definition
Sender	A 5-character identifier of the sender of the data. Depending on the country of jurisdiction of the originator, the identifier can be one of the following: ***1)*** <u>In case of a Non-Delegating NCA:</u> NCAXX where XX is the ISO 3166 country code (2 alpha characters) of the Submitting Entity; ***2)*** <u>In case of a NCA delegating transparency calculations but not data collection in its jurisdiction</u>: NCAXX where XX is the ISO 3166 country code (2 alpha characters) of the Submitting Entity; ***3)*** <u>In case of a TV/SI under the jurisdiction of a NCA delegating data collection in its jurisdiction:</u> • ***TXXXX*** where XXXX is the MIC code of the submitting Entity in case it is a Regulated Market, MTF or OTF. • ***SXXXX*** where XXXX is the MIC code of the submitting entity in case it is a Systematic Internaliser.
FileType	A 6-character attribute identifying the type of information contained in the file as defined in Table 38 - File types.

Recipient	A 5-character attribute. This attribute identifies the receiver of the file which is the ESMA System and shall be set to **FIRDS.**
Key1	A 5-letter character code which is reused by the system when generating a feedback file related to this file. Key1 can be used as needed by the Submitting Entity. For example, a NCA may want to populate it with T<MIC code of a TV> or S<MIC code of a SI> referring to the TV/SI which originally submitted the file to the NCA; this way, the name of the ESMA feedback file will contain the identification of the TV/SI under its jurisdiction which is concerned by the feedback file. If not needed by the submitting entity, any 5-letter character code can be used.
Key2	A unique 6-digit number completed with zeros to fit to 6 characters (e.g. 000157). It does not depend on the file type, recipient or any other characteristic. It can start again at 000000 after 999999. This number is to be incremented each time a sender sends a new file. This number identifies uniquely a file. Should a problem occur in the sending of the file, the SequenceNumber will help identifying the file.
Year	A 2-digit attribute. It is the year when the file has been generated. This allows for easy archiving of the files.
Timestamp	A timestamp in YYYYMMDDHHMMSS format (24h format, UTC Time) generated by HUBEX/HUBDE System.

TABLE 36 - INCOMING FILE NAMING CONVENTIONS

A file generated by the ESMA System (feedback file, consolidated files, or reminder files), and which has to be routed to the appropriate recipient via HUBEX/HUBDE System as per Table 38 - File types, must comply with the following attributes:

<Sender>_<FileType>_<Recipient>_<Key1>-<Key2>_<Year>.xml

The ESMA System archives the XML file into a ZIP file and uploads onto the HUBEX/HUBDE System in the outgoing folder dedicated to the ESMA System. Its name must comply with the following naming convention:

<Sender>_<FileType>_<Recipient>_<Key1>-<Key2>_<Year>.zip

As soon as HUBEX/HUBDE routes the file to the recipient, it suffixes it with a timestamp in YYYYMMDDHHMMSS format (24h format, UTC Time). Therefore, as soon as the file is placed in the appropriate folder dedicated to the ESMA System (as per HUBEX/HUDE folder in Table 38 - File types), the naming convention for the file becomes:

<Sender>_<FileType>_<Recipient>_<Key1>-<Key2>_<Year>_Timestamp.zip

The following table provides description of the components of the file name:

Component	Definition
Sender	A 5-character attribute. The ESMA System is the sender and the attribute shall be set to **FIRDS**.
FileType	A 6-character attribute identifying the type of information contained in the file as defined Table 38 - File types.
Recipient	A 5-character attribute depending on the Category in Table 38 - File types. 1) In case the FileType is a feedback file or a reminder file: • **Sender** in the name of the original file

	2) In case the FileType is a consolidated file: • PUBLI
Key1	A 5(a) identifier depending on the category as defined in Table 38 - File types. 1) In case of a feedback file: • Key1 stated in the name of the original file. 2) In case of split full file, delta file, a nnZmm [2(n)Z2(n)] identifier where ➔ nn (running from 01 to 99) indicates the number of the split file composing the full or the invalid records file; ➔ mm (running from 01 to 99) indicates the maximum number of split files composing the full or the delta records file.[29] 3) In case of invalid records file: generated by the system and completed with zeros to fit to 5 characters (e.g. 00003). The number is incremented each time the ESMA System initiates a new split file. 4) In case of LEI Full file (v3.1) or MIC full file (v2.0): ➔ NEWFL 5) For any other type of consolidated files: ➔ FIRDS 6) In case of reminder file: T<MIC code of a TV> or S<MIC code of a SI> from which a file, or an ISIN is missing.
Key2	A 6(n) depending on the category of file: 1) In case of a feedback file: • Key2 stated in the name of the original file. 2) In case of invalid records file: 000000. 3) Otherwise, generated by the system and completed with zeros to fit to 6 characters (e.g. 000157). It does not depend on the file type, recipient or any other characteristic. It can start again at 000000 after 999999. This number is incremented each time ESMA system generates a new consolidated file (if the same file is sent again, a new SequenceNumber must be provided). It identifies uniquely a file. Should a problem occur in the sending of the file, the Key1-Key2 will help identifying the file. For split Full and Delta files, the Key2 sequence number should stay the same across all constituents of the Full or Delta file (nnZmm).
Year	A 2 digit attribute. It is the year when the file has been sent. This allows for easy archiving of the files.
Timestamp	A timestamp in YYYYMMDDHHMMSS format (24h format, UTC Time).

TABLE 37 - DISTRIBUTED FILE NAMING CONVENTIONS

[29] In case the file is not split then Key1 is '01Z01'.

The following types of files are allowed for this system:

File Type code	Data	Category	HUBEX/HUDE folder
DATINS	File that contains instrument reference data to be submitted to the ESMA System.	Incoming file	Incoming
FDBHUB	Feedback files generated by HUBEX on every file submitted to HUBEX.	Feedback file	Outgoing
CANINS	File that contains cancelled instrument data to be submitted to the ESMA System.	Incoming file	Incoming
FDBINS	Feedback files generated by the ESMA System on a DATINS and CANNIS file.	Feedback file	Outgoing
FDBCAN	Feedback files generated by the ESMA System on a CANINS file.	Feedback file	Outgoing
DATNWD	File that contains non-working days' data to be submitted to the ESMA System.	Incoming file	Incoming
FDBNWD	Feedback file generated by the ESMA System on a DATNWD file.	Feedback file	Outgoing
FULINS	Full File	Consolidated file	Public (HUBEX only)
DLTINS	Delta File	Consolidated file	Public (HUBEX only)
INVINS	Invalid records file	Consolidated file	Public (HUBEX only)
FULCAN	Cancelled records file	Consolidated file	Public (HUBEX only)
DATCUR	Full Currencies ISO data file	Consolidated file	Public (HUBEX only)
DATCNY	Full Country ISO data file	Consolidated file	Public (HUBEX only)
DATCFI	Full CFI ISO data file	Consolidated file	Public (HUBEX only)
DATLEI	GLEIF daily LEI data file	Consolidated file	Public (HUBEX only)
DATMIC	Full MIC ISO data file	Consolidated file	Public (HUBEX only)
DATIDX	Expression of interest on indices Full file	Consolidated file	Public (HUBEX only)
RMDINS	Reminder file	Reminder file	Outgoing

TABLE 38 - FILE TYPES

13 Annex 3 Business Application header

The Business Application Header (BAH) is a header that has been defined by the ISO 20022 community that can form part of an ISO 20022 business message. Specifically, the BAH is an ISO 20022 message definition (head.001.001.01) which can be combined with any other ISO 20022 message definition to form a business message.

It gathers together, in one place, data about the message, such as which organisation has sent the business message, which organisation should be receiving it, the identity of the message itself, a reference for the message and so on.

The purpose of the BAH is to provide a consistent and predictable way for this data to be conveyed with the message, regardless of implementation factors such as the choice of network.

The use of the BAH in MiFIR messages is mandatory.

The below table presents the list of mandatory elements of the BAH that should be included in all messages and how they should be populated:

Element	Description	Usage in reporting by submitting entities	Usage in sending to submitting entities by ESMA
From	Identifies the Organisation sending the message	OrganisationIdentification/Identification/OrganisationIdentification/Other/Identification: MIC code of the submitting entity in case it is a TV/SI, the 5-letter HUB sender code of the APA/CTP in the sender part of the filename in case it is an APA/CTP, or Country code of the submitting entity in case it is a NCA.	OrganisationIdentification/Identification/OrganisationIdentification/Other/Identification: 'EU'
To	Identifies the Organisation receiving the message	OrganisationIdentification/Identification/OrganisationIdentification/Other/Identification: 'EU'	**For feedback file:** OrganisationIdentification/Identification/OrganisationIdentification/Other/Identification: the same as "From" of the original file. **For reminder file:** OrganisationIdentification/Identification/OrganisationIdentification/Other/Identification: **HUBSenderCode** associated to the MIC code of the TV/SI to which missing instrument relates as per Table 19 - Reporting Flow view. **For consolidated file:** OrganisationIdentification/Name: '*Public*' for consolidated files.
Business Message Identifier	Unambiguously identifies the Business Message to the MessagingEndpoint that has created the Business Message.	Rules for populating this identifier to be specified at national level. It should be filled in with the {key1}-{key2} in the name of the ZIP file to be sent (Please refer to naming convention as per Annex 2: File naming conventions). In case the sending institution is a NCA and that NCA is a half-delegating country, this field should be filled in by the	It should be filled in with the {Key1}-{Key2} in the name of the ZIP file to be sent (Please refer to naming convention as per Annex 2: File naming conventions).

		original sender (TV/SI) and not be changed by the NCA.	
Message Definition Identifier	Identification of the type of the message (ISO 20022 message identifier).	ISO 20022 Message Definition Identifier of the submitted message as per Table 11 - Instrument reference data message table and Table 12 - Additional reference data message table.	ISO 20022 Message Definition Identifier of the generated message as per Table 11 - Instrument reference data message table and Table 12 - Additional reference data message table.
Creation Date	Date and time when this Business Message was created	Date and time in ISO 8601 format.	Date and time in ISO 8601 format.
Related	Specifies the Business Application Header of the Business Message to which this Business Message relates.	Unused	In the case of status advice message (feedback file), the copy of the BAH of the referred data message (it allows to link the status advice and the data message). In any other case, unused.

TABLE 39 - FIELDS OF BUSINESS APPLICATION HEADER

The data files received from submitting entities (incoming file as per Table 38 - File types) or generated by the system except LEI full file (reminder and consolidated file as per Table 38 - File types) encapsulate the Business Application Header (BAH), Message Header (MHD) and Business Fields (BF):

- **Business Application Header shall be encapsulated under "BizData/Hdr"**
- **Message Header shall be encapsulated under "BizData/Pyld"**
- **Business Fields shall be encapsulated under "BizData/Pyld"**

In addition, the following namespaces need to be defined when creating the XML message:

<BizData xmlns="urn:iso:std:iso:20022:tech:xsd:head.003.001.01"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:iso:std:iso:20022:tech:xsd:head.003.001.01 head.003.001.01.xsd"
<Document xmlns="urn:iso:std:iso:20022:tech:xsd:{ISO 20022 Base Message Identifier}" xmlns:xsi="
http://www.w3.org/2001/XMLSchema-instance" xsi:schemaLocation="urn:iso:std:iso:20022:tech:xsd:{ISO 20022 Base Message Identifier} {ISO 20022 Derived Message Identifier}}"> as per Table 11 - Instrument reference data message table and Table 12 - Additional reference data message table.

The example below is given for a DATINS incoming message:

<Document xmlns="urn:iso:std:iso:20022:tech:xsd:DRAFT13_DATINS_1.0.0"
xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
xsi:schemaLocation="urn:iso:std:iso:20022:tech:xsd:DRAFT13auth.017.001.01
DRAFT13auth.017.001.01_ESMAUG_DATINS_1.0.0.xsd">

14 Annex 4 Reporting calendar

14.1 Reporting Calendar Table

Field Name	Mandatory /Optional/Forbidden	Data field description	Data field Values	Description	Source
Entity Identifier	M	5(x)	NCA+<CountryCode> ESMA T<MIC> A<APA Id> C< CTP Id>	Identifies the entity to which refers the open/closed calendar days. • TV/SI: The segment MIC code of the TV/SI where available otherwise operating MIC. • NCA: The ISO country code of the NCA. • ESMA • APA: APA identifier maintained by ESMA • CTP: CTP identifier maintained by ESMA	Updated by ESMA System on NWD file submission for TV/SI, NCA, APA, CTP. Updated by the ESMA IT business Administrator for ESMA.
Date	M	Date YYYYMMDD		Calendar date	Updated by ESMA System on NWD file submission for TV/SI, NCA, APA, CTP. Updated by the ESMA IT business Administrator for ESMA.
Open	M	TRUE/FALSE	TRUE /FALSE	Indicates whether the Entity date is open (TRUE) or closed (FALSE) on that day	Updated by ESMA System on NWD file submission for TV/SI, NCA, APA, CTP. Updated by the ESMA IT business Administrator for ESMA.

TABLE 40 - REPORTING CALENDAR TABLE

14.2 TV/SI reporting table

Field Name	M/O	Data field description	Data field Values	ISO	Description	Source
MIC [PK]	M	4(a)		10383	The segment MIC code of the TV/SI where available otherwise operating MIC.	Updated by ESMA System
Date [PK]	M	Date YYYYMMDD			Calendar date when the data was reported (in case of inconsistencies) or expected (in case of missing ISIN)	Updated by ESMA System
Unreported ISIN List	O				The list of ISIN(s) which were expected but not reported on that Date by the TV/SI	Updated by ESMA System
Inconsistent ISIN List and associated fields	O				The list of ISIN(s) which are inconsistent at the post-processing phase of reporting period date. For each ISIN, the number ID of inconsistent fields in RTS23 fields table as described in section 6.9 RTS23 Fields table.	Updated by ESMA System

TABLE 41 - TV/SI REPORTING TABLE

15 Annex 5 ISO reference data tables

15.1 Country reference data table

Field Name	M/O	Data field description	Data field Values	ISO	Description	Source
CountryCode	M	2(a)		ISO 3166	The 2-character ISO Country Code identifier.	• data provider • ESMA manual update
CountryName	M	70(z)			The ISO description of the country name.	• data provider • ESMA manual update
EEACountryFlag	M	TRUEFALSE Indicator	TRUE/FALSE		Flag which indicates whether the Country is EEA.	• ESMA manual update • Default value is FALSE
ValidityStartDate	M	Date YYYYMMDD			Date at which the record becomes valid	Generated by the ESMA System
ValidityEndDate	O	Date YYYYMMDD			Date of which the records ends to be valid	Generated by the ESMA System
LastUpdatedDate	M	DateTime YYYYMMDD HH:MI:SS			Date at which the record was last updated	Generated by the ESMA System

Officially_Assigned	M	TRUEFALSE Indicator	TRUE/FALSE		Flag which indicates whether the Country's ISO code is an officially assigned ISO country code.	• ESMA manual update Default value is TRUE

TABLE 42 - COUNTRY REFERENCE DATA TABLE

15.2 Currency reference data table

Field Name	M/O	Data field description	Data field Values	ISO	Description	Source
CurrencyCode	M	3(a)		ISO 4217	This mandatory field represents the 3-character ISO currency code.	• data provider • ESMA manual update
CurrencyName	M	70(z)		ISO 4217	The ISO currency name.	• data provider • ESMA manual update
FractionalDigit	M	1(n)			Number of decimals to be use	• data provider • ESMA manual update
CountryCode	M	2(a)		ISO 3166	The 2-character ISO Country Code of the currency. In case the currency is not country dependent (CountryCode is not provided in the ISO file), default value 'XX' is used.	• data provider • ESMA manual update
CountryName	M	70(z)		ISO 3166	The ISO country name of the currency. In case the currency is not country dependent (CountryName is not provided in the ISO file), default value 'XX' is used.	• data provider • ESMA manual update
PreEuroFlag	M	TRUEFALSE Indicator	TRUE/FALSE		Flag which indicates whether the Currency is Pre-Euro	• ESMA manual update
ValidityStartDate	M	Date YYYYMMDD			Date at which the record becomes valid	• Generated by the ESMA System
ValidityEndDate	O	Date YYYYMMDD			Date of which the records ends to be valid	• Generated by the ESMA System
LastUpdatedDate	M	DateTime			Date at which the record was last updated	• Generated by the ESMA System

		YYYYMMDD HH:MI:SS				

TABLE 43 - CURRENCY REFERENCE DATA TABLE

15.3 MIC reference data table

Field Name	M/O	Data field description	Data field value	ISO	Description	Source
MICCode	M	4(a)		10383	The ISO 10383 Market Identifier Code	Data provider
Operating MICCode	M	4(a)			An operating MIC identifies the entity operating an exchange, trading platform, regulated or non-regulated market, or a trade reporting facility in a specific country. It is the "parent" MIC as opposed to the "market segment" MIC.	Data provider
MICType	M	1(a)		O/S	Identifies whether is a segment MIC or an operating MIC	Data provider
MarketType	M	4(x)	RMKT MLTF OTFS SINT		For MIC operating in a EEA country, the type of Market as identified in the TV/SI Register in ESMA: RM, OTF, MTF or SI.	TV/SI Registers
InstitutionName	M	400(a)			The name or description of the institution, market, or infrastructure	Data provider
Acronym	M	35(a)			Known acronym of the institution, market, or infrastructure	Data provider
City	M	35(a)			City where the institution, market, or infrastructure operates	Data provider
ISOCountry Code	M	2(a)			The ISO 3166 2-character country code where the institution, market, or infrastructure operates	Data provider
ISOCountryName	M	70(a)			The country name where the institution, market, or infrastructure operates	Countries reference data table

AuthorityName	O	30(x)			The name of the NCA in the NCA reference data table of the NCA country associated to the MIC in the trading venue mapping table.	TV/SI Registers NCA reference data table
LEI	O	20(a)			The 20-digit Legal Entity Identifier code	Data provider
Legal Entity Name	O	200(x)			The name of the Legal Entity associated to the MIC	Data provider
Website	O	200(x)			Website URL of the institution, market, or infrastructure	Data provider
StatusDate	M	Date YYYYMMDD			Date (Month and Year) when the MIC was last modified	Data provider
CreationDate	M	Date YYYYMMDD			First date of the MIC issuance	Data provider
Last Validation Month	O	Date YYYYMMDD			Date at which the record was last validated	Data provider
Expiry Date	O	Date YYYYMMDD			Date at which the MIC expires	Data provider
Latest Status	O	10(x)	ACTIVE MODIFIED DELETED		The latest status of the MIC record as provided by SWIFT	Data provider
Notes	O	400(x)			Any additional information worth mentioning to help users identify the exchange or understand a modification	Data provider
ValidityStartDate	M	Date YYYYMMDD			Date at which the record becomes valid	Generated by the ESMA System

ValidityEndDate	O	Date YYYYMMDD			Date at which the record ends to be valid	Generated by the ESMA System
LastUpdatedDate	M	DateTime YYYYMMDD HH:MI:SS			Date at which the record was last updated	Generated by the ESMA System

TABLE 44 - MIC REFERENCE DATA TABLE

15.4 List of valid CFI codes table

Field Name	M/O	Data field description	Data field description Values	ISO	Description	Source
CFI code	M	6(a)		10962	The CFI Code	Updated manually by the ESMA Business Administrator
ValidityStartDate	M	Date YYYYMMDD			Date at which the record becomes valid	Generated by the ESMA System
ValidityEndDate	O	Date YYYYMMDD			Date of which the records ends to be valid	Generated by the ESMA System

TABLE 45 - LIST OF VALID CFI CODES TABLE

15.5 LEI reference data table

That table contains LEI records, including historical records, composed of all LEI attributes described in http://www.leiroc.org/publications/gls/lou_20140620.pdf. Only the fields relevant for the COU files will be retained. In addition, for each LEI record, two technical attributes are to be appended (in order to manage history):

Field Name	M/O	Data field description	Data field description Values	ISO	Description	Source
ValidityStartDate	M	Date YYYYMMDD			Date at which the record becomes valid	Generated by the ESMA System
ValidityEndDate	O	Date YYYYMMDD			Date of which the records ends to be valid	Generated by the ESMA System

TABLE 46 - TECHNICAL ATTRIBUTES OF LEI REFERENCE DATA TABLE

16 Annex 6 Scenarios of Instrument reference data reporting and distribution

The system shall ensure compliance with the following scenarios.

16.1 Modified instrument reported on time

	08/07/2015	09/07/2015	10/07/2015	11/07/2015	12/07/2015
Version of the instrument active on TV	1	1	2	3	3
Version of the instrument reported by the TV to ESMA	1	1	2	3	3
Record published in the full file		1	1	2	3
Record published in the delta file		1		2	3
Record published in the invalid records file				1	2

Content of full records file								
System date time	ISIN	MIC	ESMA Reception date time	Version of the record	RTS23 - Field 11	RTS23 - Field 23 (Termination date time)	Valid From Date	Valid To Date
09/07/2015	FR0000035263	XPAR	08/07/2015 17.10.00	1	08/07/2015	NULL	09/07/2015	NULL
10/07/2015	FR0000035263	XPAR	09/07/2015 17.20.00	1	08/07/2015	NULL	09/07/2015	NULL
11/07/2015	FR0000035263	XPAR	10/07/2015 17.30.00	2	08/07/2015	NULL	11/07/2015	NULL
12/07/2015	FR0000035263	XPAR	11/07/2015 17.40.00	3	08/07/2015	NULL	12/07/2015	NULL

Content of delta records file								
System date time	ISIN	MIC	ESMA Reception date time	Version of the record	RTS23 - Field 11	RTS23 - Field 23 (Termination date time)	Valid From Date	Valid To Date
09/07/2015	FR0000035263	XPAR	08/07/2015 17.10.00	1	08/07/2015	NULL	09/07/2015	NULL
10/07/2015	No reference to FR0000035263							
11/07/2015	FR0000035263	XPAR	10/07/2015 17.30.00	2	08/07/2015	NULL	11/07/2015	NULL
12/07/2015	FR0000035263	XPAR	11/07/2015 17.40.00	3	08/07/2015	NULL	12/07/2015	NULL

Content of invalid records file								
System date time	ISIN	MIC	ESMA Reception date time	Version of the record	RTS23 - Field 11	RTS23 - Field 23 (Termination date time)	Valid From Date	Valid To Date
09/07/2015	No reference to FR0000035263							
10/07/2015	No reference to FR0000035263							
11/07/2015	FR0000035263	XPAR	10/07/2015 17.30.00	1	08/07/2015	NULL	09/07/2015	10/07/2015
12/07/2015	FR0000035263	XPAR	11/07/2015 17.40.00	2	08/07/2015	NULL	11/07/2015	12/07/2015

FIGURE 17 – MODIFICATION REPORTED ON-TIME

16.2 Modified instrument reported late

Modified instrument reported late						
	08/07/2015	09/07/2015	10/07/2015	11/07/2015	12/07/2015	13/07/2015
Version of the instrument active on TV	1	1	1	3	3	3
Version of the instrument reported by the TV to ESMA	1			1,2,3	3	
Record published in the full file	1	1	1	1	3	3
Record published in the delta file		1			3	
Record published in the invalid records file					1	

Content of full records file								
System date time	ISIN	MIC	ESMA Reception date time	Version of the record	RTS23 - Field 11	RTS23 - Field 23 (Termination date time)	Valid From Date	Valid To Date
09/07/2015	FR0000035263	XPAR	08/07/2015 17.10.00	1	03/07/2015	NULL	09/07/2015	NULL
10/07/2015	FR0000035263	XPAR	08/07/2015 17.10.00	1	03/07/2015	NULL	09/07/2015	NULL
11/07/2015	FR0000035263	XPAR	08/07/2015 17.10.00	1	03/07/2015	NULL	09/07/2015	NULL
12/07/2015	FR0000035263	XPAR	11/07/2015 17.40.00	3	03/07/2015	NULL	12/07/2015	NULL
13/07/2015	FR0000035263	XPAR	12/07/2015 17.50.00	3	03/07/2015	NULL	12/07/2015	NULL

Content of delta records file								
System date time	ISIN	MIC	ESMA Reception date time	Version of the record	RTS23 - Field 11	RTS23 - Field 23 (Termination date time)	Valid From Date	Valid To Date
09/07/2015	FR0000035263	XPAR	08/07/2015 17.10.00	1	03/07/2015	NULL	09/07/2015	NULL
10/07/2015	No reference to FR0000035263							
11/07/2015	No reference to FR0000035263							
12/07/2015	FR0000035263	XPAR	11/07/2015 17.40.00	3	03/07/2015	NULL	12/07/2015	NULL
13/07/2015	No reference to FR0000035263							

Content of invalid records file								
System date time	ISIN	MIC	ESMA Reception date time	Version of the record	RTS23 - Field 11	RTS23 - Field 23 (Termination date time)	Valid From Date	Valid To Date
09/07/2015	No reference to FR0000035263							
10/07/2015	No reference to FR0000035263							
11/07/2015	No reference to FR0000035263							
12/07/2015	FR0000035263	XPAR	08/07/2015 17.10.00	1	03/07/2015	NULL	09/07/2015	11/07/2015
13/07/2015	No reference to FR0000035263							

FIGURE 18 - MODIFICATION REPORTED LATE

16.3 Terminated instrument reported on time

Terminated instrument reported on time						
	08/07/2015	09/07/2015	10/07/2015	11/07/2015	12/07/2015	13/07/2015
Version of the instrument active on TV	1	1	1	1		
Version of the instrument reported by the TV to ESMA	1	1	1	1		
Record published in the full file		1	1	1	1	
Record published in the delta file		1				1
Record published in the invalid records file						1

Content of full records file									
System date time	ISIN	MIC	ESMA Reception date time	Version of the record	RTS23 - Field 11 (Date of request for admission/date of first trade)	RTS23 - Field 23 (Termination date time)	Status	Valid From Date	Valid To Date
08/07/2015	No reference to FR0000035263								
09/07/2015	FR0000035263	XPAR	08/07/2015 17.10.00	1	08/07/2015	11/07/2015 14.00.00	NEWS	09/07/2015	NULL
10/07/2015	FR0000035263	XPAR	09/07/2015 17.20.00	1	08/07/2015	11/07/2015 14.00.00	UNCH	09/07/2015	NULL
11/07/2015	FR0000035263	XPAR	10/07/2015 17.30.00	1	08/07/2015	11/07/2015 14.00.00	UNCH	09/07/2015	NULL
12/07/2015	FR0000035263	XPAR	11/07/2015 17.40.00	1	08/07/2015	11/07/2015 14.00.00	UNCH	09/07/2015	NULL
13/07/2015	No reference to FR0000035263								
14/07/2015	No reference to FR0000035263								

Content of delta records file									
System date time	ISIN	MIC	ESMA Reception date time	Version of the record	RTS23 - Field 11 (Date of request for admission/date of first trade)	RTS23 - Field 23 (Termination date time)	Status	Valid From Date	Valid To Date
08/07/2015	No reference to FR0000035263								
09/07/2015	FR0000035263	XPAR	08/07/2015 17.10.00	1	08/07/2015	11/07/2015 14.00.00	NEWS	09/07/2015	NULL
10/07/2015	No reference to FR0000035263								
11/07/2015	No reference to FR0000035263								
12/07/2015	No reference to FR0000035263								
13/07/2015	FR0000035263	XPAR	11/07/2015 17.40.00	1	08/07/2015	11/07/2015 14.00.00	TERM	09/07/2015	NULL
14/07/2015	No reference to FR0000035263								

Content of invalid records file									
System date time	ISIN	MIC	ESMA Reception date time	Version of the record	RTS23 - Field 11 (Date of request for admission/date of first trade)	RTS23 - Field 23 (Termination date time)	Status	Valid From Date	Valid To Date
08/07/2015	No reference to FR0000035263								
09/07/2015	No reference to FR0000035263								
10/07/2015	No reference to FR0000035263								
11/07/2015	No reference to FR0000035263								
12/07/2015	No reference to FR0000035263								
13/07/2015	FR0000035263	XPAR	11/07/2015 17.40.00	1	08/07/2015	11/07/2015 14.00.00	TERM	09/07/2015	NULL
14/07/2015	No reference to FR0000035263								

FIGURE 19 - TERMINATION REPORTED ON-TIME

16.4 Terminated instrument reported late

FR0000035263(1) is first traded the 09/07 and ceases to be traded the 11/07 on XPAR. Reported only the 13/07.

	08/07/2015	09/07/2015	10/07/2015	11/07/2015	12/07/2015	13/07/2015	14/07/2015
Version of the instrument active on TV	1	1	1	1			
Version of the instrument reported by the TV to ESMA						1	
Record published in the full file							
Record published in the delta file							1
Record published in the invalid records file							1

Received Reference data table							
System date time	ISIN	MIC	ESMA Reception date time	Version of the record	RTS23 - Field 11 (Date of request for admission/date of first trade)	RTS23 - Field 23 (Termination date time)	Last Submitted
13/07/2015 17.10.00	FR0000035263	XPAR	13/07/2015 17:10:00	1	03/07/2015	11/07/2015 14.00.00	Yes

Consistent Reference data table								
System date time	ISIN	MIC	ESMA Reception date time	Version of the record	RTS23 - Field 11 (Date of request for admission/date of first trade)	RTS23 - Field 23 (Termination date time)	Valid From Date	Valid To Date
14/07/2015 02.10.00	FR0000035263	XPAR	13/07/2015 17:10:00	1	03/07/2015	11/07/2015 14.00.00	14/07/2015	NULL
15/07/2015 02.10.00	FR0000035263	XPAR	13/07/2015 17:10:00	1	03/07/2015	11/07/2015 14.00.00	14/07/2015	NULL

Content of full records file									
System date time	ISIN	MIC	ESMA Reception date time	Version of the record	RTS23 - Field 11 (Date of request for admission/date of first trade)	RTS23 - Field 23 (Termination date time)	Status	Valid From Date	Valid To Date
14/07/2015	No reference to FR0000035263								
15/07/2015	No reference to FR0000035263								

Content of delta records file									
System date time	ISIN	MIC	ESMA Reception date time	Version of the record	RTS23 - Field 11 (Date of request for admission/date of first trade)	RTS23 - Field 23 (Termination date time)	Status	Valid From Date	Valid To Date
14/07/2015	FR0000035263	XPAR	13/07/2015 17.10.00	1	03/07/2015	11/07/2015 14.00.00	TERM	14/07/2015	NULL
15/07/2015	No reference to FR0000035263								

Content of invalid records file									
System date time	ISIN	MIC	ESMA Reception date time	Version of the record	RTS23 - Field 11 (Date of request for admission/date of first trade)	RTS23 - Field 23 (Termination date time)	Status	Valid From Date	Valid To Date
14/07/2015	FR0000035263	XPAR	13/07/2015 17.10.00	1	03/07/2015	11/07/2015 14.00.00	TERM	14/07/2015	NULL
15/07/2015	No reference to FR0000035263								

FIGURE 20 - TERMINATION REPORTED LATE

16.5 Cancelled instrument

The versions 1c and 2c correspond to the cancelled versions of 1 and 2, respectively.

	08/07/2015	09/07/2015	10/07/2015	11/07/2015	12/07/2015	13/07/2015
Latest version of the instrument on TV	1	1c	2	2c	2c	2c
Version of the instrument reported by the TV to ESMA	1	1c	2	2c		
Record published in the full file		1		2		
Record published in the cancellation full file			1c		2c	2c
Record published in the delta file		1	1c	2	2c	1
Record published in the invalid records file			1	1c	2	

Received Reference data table						
System date time	ISIN	MIC	ESMA Reception date time	Version of the record	Last Submitted	Status
08/07/2015 17.10.00	FR0000035263	XPAR	8/7/2015 17:10	1	Yes	R
09/07/2015 17.10.00	FR0000035263	XPAR	9/7/2015 17:10	1c	Yes	C
10/07/2015 17.10.00	FR0000035263	XPAR	10/7/2015 17:10	2	Yes	R
11/07/2015 17.10.00	FR0000035263	XPAR	11/7/2015 17:10	2c	Yes	C

Consistent Reference data table							
System date time	ISIN	MIC	ESMA Reception date time	Version of the record	Valid From Date	Valid To Date	Status
09/07/2015 02.10.00	FR0000035263	XPAR	8/7/2015 17:10	1	09/07/2015	NULL	NEWS
10/07/2015 02.10.00	FR0000035263	XPAR	8/7/2015 17:10	1	09/07/2015	10/07/2015	NEWS
10/07/2015 02.10.00	FR0000035263	XPAR	9/7/2015 17:10	1c	10/07/2015	NULL	CANC
11/07/2015 02.10.00	FR0000035263	XPAR	9/7/2015 17:10	1c	10/07/2015	11/07/2015	CANC
11/07/2015 02.10.00	FR0000035263	XPAR	10/7/2015 17:10	2	11/07/2015	NULL	MODF
12/07/2015 02.10.00	FR0000035263	XPAR	10/7/2015 17:10	2	11/07/2015	12/07/2015	MODF
12/07/2015 02.10.00	FR0000035263	XPAR	11/7/2015 17:10	2c	12/07/2015	NULL	CANC

Content of full canceled records file							
System date time	ISIN	MIC	ESMA Reception date time	Version of the record	Valid To Date	Valid From Date	Status
08/07/2015	No reference to FR0000035263						
09/07/2015	No reference to FR0000035263						
10/07/2015	FR0000035263	XPAR	9/7/2015 17:10	1c	10/07/2015	NULL	CANC
11/07/2015	No reference to FR0000035263						
12/07/2015	FR0000035263	XPAR	11/7/2015 17:10	2c	12/07/2015	NULL	CANC
13/07/2015	FR0000035263	XPAR	11/7/2015 17:10	2c	12/07/2015	NULL	CANC

Content of full records file							
System date time	ISIN	MIC	ESMA Reception date time	Version of the record	Status	Valid From Date	Valid To Date
08/07/2015	No reference to FR0000035263						
09/07/2015	FR0000035263	XPAR	8/7/2015 17:10	1	NEWS	09/07/2015	NULL
10/07/2015	No reference to FR0000035263						
11/07/2015	FR0000035263	XPAR	10/7/2015 17:10	2	MODF	11/07/2015	NULL
12/07/2015	No reference to FR0000035263						
13/07/2015	No reference to FR0000035263						

Content of delta records file							
System date time	ISIN	MIC	ESMA Reception date time	Version of the record	Status	Valid From Date	Valid To Date
08/07/2015	No reference to FR0000035263						
09/07/2015	FR0000035263	XPAR	08/07/2015 17.10.00	1	NEWS	09/07/2015	NULL
10/07/2015	FR0000035263	XPAR	09/07/2015 17.10.00	1c	CANC	10/07/2015	NULL
11/07/2015	FR0000035263	XPAR	10/07/2015 17.10.00	2	NEWS	11/07/2015	NULL
12/07/2015	FR0000035263	XPAR	11/07/2015 17.10.00	2c	CANC	12/07/2015	NULL
13/07/2015	No reference to FR0000035263						

Content of invalid records file							
System date time	ISIN	MIC	ESMA Reception date time	Version of the record	Status	Valid From Date	Valid To Date
08/07/2015	No reference to FR0000035263						
09/07/2015	No reference to FR0000035263						
10/07/2015	FR0000035263	XPAR	09/07/2015 17.10.00	1	NEWS	09/07/2015	10/07/2015
11/07/2015	FR0000035263	XPAR	10/07/2015 17.10.00	1c	CANC	10/07/2015	11/07/2015
12/07/2015	FR0000035263	XPAR	11/07/2015 17.10.00	2	MODF	11/07/2015	12/07/2015
13/07/2015	No reference to FR0000035263						

FIGURE 21 - CANCELLATION